NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component Aal1Ces

241-5701-060

Passport 7400, 15000, 20000

# Component Aal1Ces

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT Aal1CircuitEmulationService (Aal1Ces)

| | |
|---|---|
| Instance | Decimal (1..65535) |
| Groups | "GROUP Aal1Ces CustomerIdentifierData (CidData)"<br>"GROUP Aal1Ces Provisioned (Prov)"<br>"GROUP Aal1Ces OsiState (State)"<br>"GROUP Aal1Ces Operational (Oper)"<br>"GROUP Aal1Ces Statistics (Stats)" |
| Scope | Application |
| Description | *Aal11CircuitEmulationService/n*<br><br>An *Aal1Ces* component identifies an instance of the AAL1 Circuit Emulation Service provided by Passport.<br><br>A separate instance of this component is required for each logical channel of a port which is offering a constant bit rate service to a customer.<br><br>Instance numbers, which are used to uniquely identify *Aal1Ces* component instances, are arbitrary. |

| | |
|---|---|
| Opt. Subcomp. | "COMPONENT Aal1Ces NailedUpAdaptationPoint (Nap)"<br>"COMPONENT Aal1Ces ActiveEndPoint (Aep)"<br>"COMPONENT Aal1Ces PassiveEndPoint (Pep)"<br>"COMPONENT Aal1Ces Reroute" |
| Dyn. Subcomp. | "COMPONENT Aal1Ces LogicalConnection (LCo)"<br>"COMPONENT Aal1Ces AtmConnection (AtmCon)"<br>"COMPONENT Aal1Ces RerouteInfo (RerInfo)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Aal1Ces CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

## ATTRIBUTE Aal1Ces customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.<br><br>Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID. |

An operator CID of 0 is used to identify the Network Manager (referred to as “NetMan” in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to “basic CIDs” in DPN) may be assigned to specific customers.

Values: Decimal (0; 1..8191)

Default: 0

## GROUP Aal1Ces Provisioned (Prov)

Properties: Provisioned

Description: This group contains basic provisioning data for the AAL1 Circuit Emulation Service.

## ATTRIBUTE Aal1Ces serviceType (servType)

Access: Read and write

Criticality: Process

Description: This attribute specifies the service type for the CES.

In an ***unstructured*** service, the entire data stream at the service interface (including any framing bits which may be present) is passed across the network transparently.

The unstructured service uses the Unstructured Data Transfer (UDT) mode of AAL1.

In a structured service, an Nx64kbit/s fraction of the data stream at the service interface is passed across the network. Two modes of structured service are supported: ***basicStructured*** and ***casStructured***. In a ***casStructured*** service, the Channel Associated Signalling (CAS) bits are carried in a separate data structure from the Nx64 payload. In a ***basicStructured*** service, they are not.

The structured service uses the Structured Data Transfer (SDT) mode as defined in ITU-T Recommendation I.363.1.

The 4pDS1Aal1 and 4pE1Aal1 cards can support either a combination of ***casStructured*** and ***basicStructured*** services, or

***unstructured*** services. A combination of structured (either ***casStructured*** or ***basicStructured***) and ***unstructured*** services on the same 4pDS1Aal1 or 4pE1Aal1 card is not supported.

Values
unstructured
basicStructured
casStructured

Default
unstructured

### ATTRIBUTE Aal1Ces bufferSize (bufSize)

Access
Read and write

Criticality
Component

Description
On ***4pDS1Aal1*** and ***4pE1Aal1*** cards, this attribute specifies the size of the AAL1 receive segment reassembly buffer in bytes. On initialization the buffer is filled to a level determined by *cellDelayVariationTolerance.* Thereafter the buffer is emptied as TDM frames are transmitted, and is filled as ATM cells are received. If the buffer overflows, sufficient data is discarded to bring the level down to that set after initialization. The cause of a buffer overflow may be one or a combination of any of the following: cell-arrival-jitter, initialization with delayed ATM cells, or TDM clock difference or wander.

On ***4pDS1Aal1*** and ***4pE1Aal1*** cards, if this attribute is ***autoConfigure***, the buffer size applied is equivalent to two times *cellDelayVariationTolerance*. A provisioned numeric value of *bufferSize* must be higher than the equivalent *cellDelayVariationTolerance*, plus an allowance of one ATM Cell for the quantization of data in cells, and an allowance, if applicable, for the ATM overheads of structured CES.

On the ***4pDS3ChAal1***, ***4pOC3ChSmIr***, ***2pSTM1eCh*** and MSA cards, this attribute's value must be ***autoConfigure***, to acknowledge that *maximumBufferDelay* is provisioned instead of this attribute.

Setting this attribute too low allows traffic with normal CDV to cause unnecessary loss of data on the service interface. Setting

| | |
|---|---|
| | this attribute too high permits the buffer to introduce an unnecessarily high propagation delay. |
| Values | Decimal (94..15651)<br>autoConfigure |
| Units | bytes |
| Default | autoConfigure |

### ATTRIBUTE Aal1Ces cellLossIntegrationPeriod (lossPeriod)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the cell loss integration period. This period defines the interval of time (in milliseconds) for which a loss of cells condition must persist before a buffer underflow alarm is raised. A loss of cells condition occurs when the flow of cells to the AAL1 reassembly buffer stops, causing a buffer underflow or starvation condition.<br><br>The operational attribute *cellLossStatus* will be set to ***loss*** when the buffer underflow alarm is raised, and ***noLoss*** when it is cleared.<br><br>The minimum value of this attribute is 10 seconds for the ***4pDS3ChAal1*** card.<br><br>The value ***autoConfigure*** corresponds to a period of 10 seconds on the ***4pDS3ChAal1*** card, and 2 seconds on all other cards. |
| Values | Decimal (1000..60000)<br>autoConfigure |
| Units | msec |
| Default | autoConfigure |

### ATTRIBUTE Aal1Ces interfaceName (ifName)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |

| | |
|---|---|
| Description | This attribute identifies the instance of *Chan* to which an instance of *Aal1Ces* is linked. |
| Values | Link (Hardware, applicationFramerName) |
| Default | No default |

### ATTRIBUTE Aal1Ces partialFill (partFill)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | A significant source of delay in a structured service is the amount of time it takes to collect enough data to fill a cell. This period of time can be reduced by sending cells that are only partially filled with data (*idlePattern* octets are added to the ATM payload beyond the partial fill level).<br><br>This attribute specifies the number of payload octets to fill with data. It is applicable to structured services only, and must be set to ***47*** for unstructured services.<br><br>On a given AAL1 Function Processor, the maximum cell rate that can be sustained is dependent upon the combined bandwidths of the provisioned services, and (for structured services) the levels of *partialFill*. The smaller the *partialFill* level, the greater the cell rate and hence the fewer the services that can be sustained at that fill level.<br><br>On the ***4pDS3ChAal1***, ***4pOC3ChSmIr*** and ***2pSTM1eCh*** cards, the only allowed value for this attribute is ***47***. |
| Values | Decimal (8..47) |
| Units | octets |
| Default | 47 |

### ATTRIBUTE Aal1Ces idlePattern (idlePat)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |

| | |
|---|---|
| Description | This attribute sets the unused byte fill pattern when using *partialFill*. All bytes in the cell above the *partialFill* level will be set to this pattern. |
| Values | Hex (H.0..H.ff) |
| Default | H.7e |

### ATTRIBUTE Aal1Ces cellLossRecoveryPeriod (recPeriod)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the cell loss recovery period. This period defines the interval of time (in seconds) for which a loss of cells condition must desist before the buffer underflow alarm is cleared.<br><br>The operational attribute *cellLossStatus* will be set to ***noLoss*** when the buffer underflow alarm is cleared. |
| Values | Decimal (0..60) |
| Units | seconds |
| Default | 20 |

### ATTRIBUTE Aal1Ces dummyDataByte

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the pattern which is played out onto the service interface to maintain bit integrity when data is unavailable from the ATM network.<br><br>For an unstructured service (*serviceType* is set to ***unstructured***), *dummyDataByte* must be set to ***0xFF***.<br><br>On the ***4pDS3ChAal1*** card, the only allowed value for this attribute is ***0xFF***. |
| Values | Hex (H.0..H.ff) |
| Default | H.ff |

## ATTRIBUTE Aal1Ces maximumBufferDelay (maxBufDelay)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the maximum delay that a Cell Delay Variation buffer is permitted to add to the egress stream. The delay in the buffer is modified in response to variation in the egress cell stream. At the point that the delay would be modified in excess of the maximum, sufficient data is discarded that the delay returns to *cellDelayVariationTolerance*.<br><br>Setting this attribute too low allows traffic with normal CDV to cause unnecessary loss of data on the service interface. Setting this attribute too high permits the buffer to introduce an unnecessarily high propagation delay.<br><br>If this attribute is ***autoConfigure***, the maximum delay tolerated in the buffer is two times *cellDelayVariationTolerance.*<br><br>On MSA cards, “best-effort” applies on a channel with high *cellDelayVariationTolerance* and low ATM bandwidth. The value applied is the same as the range limit on provisioned *maximumBufferDelay* on that channel.<br><br>On MSA cards this attribute’s value is rounded up to the nearest multiple of 0.125 ms when applied to the buffer. The range is nominally 0.12 to 63.62 ms, but the upper limit may be reduced by up to 6 ms one a channel with high *cellDelayVariationTolerance* and low ATM bandwidth.<br><br>On ***4pDS1Aal1*** and ***4pE1Aal1*** cards this attribute’s value is rounded up to the nearest multiple of 1 ms when applied to the buffer. The upper limit is roughly inverse- proportional to the ATM bandwidth of the channel.<br><br>On the ***4pDS3ChAal1***, ***4pOC3ChSmIr*** and ***2pSTM1eCh*** cards, this attribute’s value is rounded up to the nearest multiple of 1 ms when applied to the buffer. The range is 2 to 32 ms in steps of 1 ms. Note that the *maximumBufferDelay* must be at least 1 ms greater than the *cellDelayVariationTolerance*. |

| | |
|---|---|
| Values | Decimal (0.01..655.00)<br>autoConfigure |
| Units | msec |
| Default | autoConfigure |

### ATTRIBUTE Aal1Ces cellDelayVariationTolerance (cdvt)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the maximum time that a cell may arrive late, compared to a nominal time established at buffer initialization, without producing errors on the service interface. The nominal time of a cell's arrival is predicted according to the time interval required to transmit a cell's worth of data on the service interface.<br><br>This attribute's value is the delay that the Cell Delay Variation Tolerance buffer adds to the egress stream immediately after the buffer initializes. The buffer absorbs variation in the arrival time of cells from the network, so that a steady stream of data appears on the service interface. If the buffer underflows, due to a late cell, fill-in data is output on the service interface while the buffer re-initializes. When the buffer has re-initialized, normal data is output on the service interface and the delay in the buffer is restored to the value of this attribute.<br><br>This attribute must have a value lower than a numeric value of *maximumBufferDelay*. The relationship between this attribute and *bufferSize* is described under that attribute.<br><br>Setting this attribute too low allows traffic with normal CDV to cause unnecessary loss of data on the service interface. Setting this attribute too high imposes an unnecessarily high propagation delay on the egress stream.<br><br>On MSA cards this attribute's provisionable range is 0.01..32ms and the value applied is rounded up to the nearest multiple of 0.125ms. On ***4pOC3ChSmIr*** and ***2pSTM1eCh*** cards, this attribute's provisionable range is 1..31ms in steps of 1ms. |

| | |
|---|---|
| | On ***4pDS1Aal1*** and ***4pE1Aal1*** cards, this attribute's provisionable range is strongly dependent on the bandwidth of the channel, and the value applied is rounded up to the nearest whole number of milliseconds, then rounded down to the equivalent number of cells. |
| Values | Decimal (0.01..655.00) |
| Units | msec |
| Default | 1.00 |

### ATTRIBUTE Aal1Ces remoteEndType (remEndType)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | If this attribute is set to ***ces***, then the remote end Inter Working Function (IWF) is a CES IWF as defined by the ATM Forum. This is the default value for all card types.<br><br>If this attribute is set to ***pvgExclusivePrs***, the remote end IWF is a CES IWF in a VSP (Voice Services function Processor) and the TDM channel is used as a PVG TDM service channel. Furthermore, the primary rate stream (that is, E1 or DS1 stream) that this CES uses cannot be shared with another CES with *remoteEndType* set to ***pvgExclusivePrs*** or ***pvgSharedPrs***. The Primary Rate Stream (PRS) may be shared with other CES components with *remoteEndType* set to ***ces***.<br><br>If this attribute is set to ***pvgSharedPrs***, the remote end IWF is a CES IWF in a VSP FP and the TDM channel is used as a PVG TDM service channel. The PRS may be shared with other CES components with *remoteEndType* set to ***pvgSharedPrs*** or ***ces***. |
| Values | ces<br>pvgSharedPrs<br>pvgExclusivePrs |
| Default | ces |

## GROUP Aal1Ces OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

## ATTRIBUTE Aal1Ces adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

## ATTRIBUTE Aal1Ces operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

## ATTRIBUTE Aal1Ces usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |

| | |
|---|---|
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### ATTRIBUTE Aal1Ces availabilityStatus (osiAvail)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.<br><br>The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.<br><br>The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.<br><br>The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.<br><br>The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***. |

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

### ATTRIBUTE Aal1Ces proceduralStatus (osiProc)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the

user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.

The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of — initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default — No default

### ATTRIBUTE Aal1Ces controlStatus (osiCntrl)

Access — Read only

| | |
|---|---|
| Description | If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.<br><br>The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.<br><br>The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.<br><br>The value ***suspended*** indicates that the service has been administratively suspended. |
| Set of | subjectToTest (subTst)<br>partOfServicesLocked (partLk)<br>reservedForTest (rsrvd)<br>suspended (suspnd) |
| Default | No default |

### ATTRIBUTE Aal1Ces alarmStatus (osiAlarm)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions |

described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE Aal1Ces standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and

thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values
hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

Default
notSet

### ATTRIBUTE Aal1Ces unknownStatus (osiUnknw)

Access
Read only

Description
This attribute indicates the OSI Unknown status of the component.

The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.

The value ***true*** indicates that the actual state of the component is not known for sure.

Values
false
true

Default
false

### GROUP Aal1Ces Operational (Oper)

Properties
Operational

| | |
|---|---|
| Description | This group contains status information about the AAL1 Circuit Emulation Service. |

### ATTRIBUTE Aal1Ces cellLossStatus (cellLoss)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is set to ***loss*** when a buffer underflow alarm is raised (see *cellLossIntegrationPeriod*), and ***noLoss*** when it is clear. |
| Values | noLoss<br>loss |
| Default | noLoss |

### ATTRIBUTE Aal1Ces aal1LayerLossStatus (aal1Loss)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is set to ***loss*** when an AAL1 layer alarm is raised, and ***noLoss*** when it is clear.<br><br>This attribute and the AAL1 layer alarm are not supported by the ***4pDS3ChAal1***, ***4pOC3ChSmIr*** and ***2pSTM1eCh*** cards. Thus, this attribute does not appear for these two cards. |
| Values | noLoss<br>loss |
| Default | noLoss |

### ATTRIBUTE Aal1Ces connectionStatus (connStatus)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether a service is non-operational because of a problem with the service interface side of the service (in which case, it is set to ***channelNotReady***) or because of a problem with the ATM side of the service (in which case, it is set to ***atmNotConfigured*** or ***atmNotReady***).<br><br>When this attribute is set to ***channelNotReady***, it is an indication that the corresponding *Chan* component (as defined by the attribute *interfaceName*) or the *Chan* component's parent port |

component (*Lp/n Ds1/m* or *Lp/n E1/m*) is locked.

When this attribute is set to ***atmNotConfigured***, it is an indication that no sub-component has been provisioned, and thus no ATM connection has been configured for the service.

When this attribute is set to ***atmNotReady***, it is an indication that the ATM connection with which the service is associated (as defined by a sub-component) has been lost or that it is currently unable to carry CES data.

This attribute is set to ***connected*** when a service is operational (that is, the OSI attribute *operationalState* is ***enabled***.)

| | |
|---|---|
| Values | connected<br>channelNotReady<br>atmNotReady<br>atmNotConfigured |
| Default | channelNotReady |

## GROUP Aal1Ces Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistical data for an AAL1 Circuit Emulation Service. |

## ATTRIBUTE Aal1Ces cellsTransmitted (txCells)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of cells transmitted to the backplane (ingress direction). This includes cells containing CBR data, trunk conditioning cells (structured services), and unframed AIS cells (unstructured services).<br><br>The counter wraps when the maximum value is exceeded. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Aal1Ces cellsReceived (rxCells)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of cells received from the backplane (egress direction). This includes CBR user data cells, cells with AAL1 header errors (correctable and non-correctable) and cells with AAL1 sequencing errors. The counter wraps when the maximum value is exceeded. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Aal1Ces lostCells (lostCells)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of cells declared as never received by the AAL1 protocol layer. The counter wraps when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Aal1Ces bufferUnderflows (uFlows)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times the AAL1 reassembly buffer underflows. In the case of a continuous buffer starvation, a single buffer underflow event will be counted. The counter wraps when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Aal1Ces bufferOverflows (oFlows)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times the AAL1 reassembly buffer overflows. Buffer overflows occur when AAL1 cells arrive at a rate above that which is expected. Occurrences of this |

condition may be reduced by increasing the value of the attribute *bufferSize* or *maximumBufferDelay*. The buffer overflow counter wraps when the maximum value is exceeded.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE Aal1Ces reassembledCells (reassCells)

Access: Read only

Description: This attribute counts the number of received cells whose payload has been played out to the service interface. The counter wraps when the maximum value is exceeded.

Values: Long Integer

Default: No default

### ATTRIBUTE Aal1Ces headerErrors (hdrErrors)

Access: Read only

Description: This attribute counts the number of cells received with AAL1 header errors. The counter wraps when the maximum value is exceeded.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE Aal1Ces pointerReframes (ptrReframes)

Access: Read only

Description: This attribute counts the number of times that the AAL1 reassembly unit found an SDT pointer where it was not expected to be, and as a result had to reacquire it. Errors of this kind can occur because of problems at the far end.

This attribute is meaningful for structured services only, and will be 0 for unstructured services.

This counter wraps when the maximum value is exceeded.

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Aal1Ces pointerParityErrors (ptrParityErrors)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times that the AAL1 reassembly unit detects a parity check failure at the point where an SDT pointer is expected. Errors of this kind can occur because of problems at the far end.<br><br>This attribute is meaningful for structured services only, and will be 0 for unstructured services.<br><br>This counter wraps when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Aal1Ces aal1SequenceErrors (seqErrors)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times that the sequence number of an incoming AAL1 Type 1 SAR-PDU gets out of synchronization, as defined by ITU-T Recommendation I.363.1.<br><br>This counter wraps when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Aal1Ces misinsertedCells (misinsertCells)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of AAL1 sequence violations which the AAL convergence sublayer interprets as misinserted cells, as defined by ITU-T I.363.1.<br><br>This counter wraps when the maximum value is exceeded. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT Aal1Ces NailedUpAdaptationPoint (Nap)

| | |
|---|---|
| Groups | "GROUP Aal1Ces Nap Provisioned (Prov)" |
| Scope | Application |
| Description | *Aal1Ces/n NailedUpAdaptationPoint*<br><br>A *NailedUpAdaptationPoint* is a nailed-up point which straddles the CBR/ATM domains and which is associated with the adaptation of CBR data to/from ATM cells.<br><br>If a *NailedUpAdaptationPoint* component is provisioned under an *Aal1Ces* component, no other components may be provisioned under the same *Aal1Ces* component. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Aal1Ces Nap Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioning data for the *NailedUpAdaptationPoint* component. |

### ATTRIBUTE Aal1Ces Nap atmConnection (ac)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the identity of the component to which the *NailedUpAdaptationPoint* is linked. This is an *AtmIf Vcc NailedUpEndPoint* or an *AtmIf Vpt Vcc NailedUpEndPoint* (the AAL1 cells are transported off the switch over an ATM UNI, |

where they are routed to the appropriate AAL1 entity at the other end by the ATM bearer service).

Values: Link (Service, applicationName)

Default: No default

## COMPONENT Aal1Ces ActiveEndPoint (Aep)

Groups:
"GROUP Aal1Ces Aep ProvisionedEndPointAddresses (ProvEndPointAddr)"
"GROUP Aal1Ces Aep Provisioned (Prov)"
"GROUP Aal1Ces Aep EndPointAddressOper (EpOper)"
"GROUP Aal1Ces Aep ActiveEndPointOper (Out)"

Scope: Application

Description: *Aal1Ces/n ActiveEndPoint*

The *ActiveEndPoint* component attempts to set up a switched virtual circuit automatically between two Passport CES components.

The *ActiveEndPoint* component will make connection setup attempts periodically whenever a connection has not been established. The component will cease connection setup attempts after a number of consecutive failed attempts, as specified by the *retryLimit* attribute.

The *ActiveEndPoint* component may also accept an incoming setup request if a connection is not already established. To be accepted, an incoming connection setup request must have originated from *remoteAddress*. Additionally, either connection attempts must have been ceased due to *retryLimit* consecutive failures, or the *localAddress* of the incoming connection setup request must be smaller than the *remoteAddress* of the request.

If an *ActiveEndPoint* component is provisioned under an *Aal1Ces* component, no other components may be provisioned under the same *Aal1Ces* component.

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### VERB Restart Aal1Ces Aep

| | |
|---|---|
| Impact | Service |
| Description | This command is used to restart the automatic connections procedure. The operational attributes *retryTimerValue* and *retryFailures* will also be reset.<br><br>This command may be used after the connection procedure has been abandoned due to reaching the maximum number of retries allowed, as specified by *retryLimit*, or before the limit has been reached.<br><br>This command may also be used when a connection has been established, in which case the connection will first be released.<br><br>This command will fail if the *channel* associated with the parent *Aal1Ces* component is disabled, or if *svcStatus* has the value ***initialising***. If *svcStatus* has the value ***failed***, this command may fail. |

### GROUP Aal1Ces Aep ProvisionedEndPointAddresses (ProvEndPointAddr)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains NSAP address provisioning data for components using switched virtual circuits. |

### ATTRIBUTE Aal1Ces Aep expectedRemoteAddress (expectedAddr)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |

| | |
|---|---|
| Description | This attribute specifies the expected remote address prefix for an incoming connection setup request.<br><br>If *expectedRemoteAddress* is not empty, only matching connections will be considered for acceptance. If *expectedRemoteAddress* is 40 characters long, the remote address must match exactly to be accepted. If *expectedRemoteAddress* is less than 40 characters long, the remote address must begin with *expectedRemoteAddress* to be accepted.<br><br>If *expectedRemoteAddress* is empty, the component will process connection requests from any remote address. |
| Values | String (0..40, ASCII) |
| Default | "" |

### ATTRIBUTE Aal1Ces Aep localAddress (localAddr)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the local NSAP address.<br><br>If the switch prefix (the *nodePrefix* attribute of the *ModuleData* component) has been provisioned, a default value for *localAddress* based on *nodePrefix* will be provided.<br><br>If *ModuleData nodePrefix* has not been provisioned and one or more alternate switch prefixes (the *alternatePorsPrefixes* attribute of the *ModuleData* component) have been provisioned, a default value for *localAddress* based on the first provisioned *alternatePorsPrefix* value will be provided.<br><br>If no switch prefixes have been provisioned, *localAddress* will default to an empty string. To obtain a valid default *localAddress* in this case, either or both of the *ModuleData nodePrefix* and *ModuleData alternatePorsPrefixes* attributes must be provisioned, and this end point component must then be deleted and re-added. |
| Values | String (40, ASCII) |

| | |
|---|---|
| Default | No default |

### GROUP Aal1Ces Aep Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioning data specific to the *ActiveEndPoint* component. |

### ATTRIBUTE Aal1Ces Aep addressToCall (addrToCall)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the remote NSAP address which this *ActiveEndPoint* will call. |
| Values | String (40, ASCII) |
| Default | No default |

### ATTRIBUTE Aal1Ces Aep routingOption (routing)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the type of routing to use for establishing the connection:<br><br>The ***4pDS3ChAal1***, ***4pOC3ChsmIr*** and ***2pSTM1eCh*** cards accept only ***atmOnly***. Multi-Service Access cards accept all four options and have a default value of ***porsOnly***. All other CES cards accept only ***porsOnly***.<br><br>***porsOnly*** means that only the Path Oriented Routing System may be used in establishing a connection.<br><br>***atmOnly*** means that only the native ATM Routing may be used in establishing a connection.<br><br>***porsFirst*** means that the switch tries to establish a connection using the Path Oriented Routing System first, and, if the connection cannot be established, it tries native ATM Routing |

instead.

***atmFirst*** means that the switch tries to establish a connection using native ATM Routing first, and, if the connection cannot be established, it tries the Path Oriented Routing System instead.

Values
porsOnly
atmOnly
porsFirst
atmFirst

Default
No default

### ATTRIBUTE Aal1Ces Aep profile (profile)

Access
Read and write

Criticality
Component

Description
This attribute specifies the PORS routing profile to use for this connection.

If *profile* is empty, PORS will provide a default profile.

Values
Link (Service, users)

Default
No default

### ATTRIBUTE Aal1Ces Aep firstRetryInterval (int)

Access
Read and write

Criticality
Component

Description
This attribute specifies the time to wait, in seconds, before attempting to establish the connection after the first failed attempt.

The time to wait between subsequent call attempts will generally differ due to a backoff scheme.

Values
Decimal (1..3600)

Units
seconds

Default
10

### ATTRIBUTE Aal1Ces Aep retryLimit (limit)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | *retryLimit* specifies the maximum number of consecutive unsuccessful connection setup attempts that may be made before further attempts are abandoned.<br><br>If this limit is reached, the *Restart* verb may be used to restart connection attempts.<br><br>If *retryLimit* is ***0***, there is no limit; attempts will continue indefinitely until a successful connection is established. |
| Values | Decimal (0..65535) |
| Default | 0 |

### ATTRIBUTE Aal1Ces Aep activeEndPointType (type)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | *activeEndPointType* specifies the type of end point: ***svc*** or ***softPvc***. The default is ***svc***.<br><br>When *activeEndPointType* is ***svc***, *calledVpiVci* is not relevant. When *activeEndPointType* is ***softPVC***, *routingOption* must be ***atmOnly***, and *profile* is not relevant. |
| Values | svc<br>softPVC |
| Default | svc |

### ATTRIBUTE Aal1Ces Aep calledVpiVci (vc)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | *calledVpiVci* specifies the identity of the PVC at the remote ATM node on which the softPVC connection terminates. |

| | |
|---|---|
| | *calledVpiVci* is relevant only when *activeEndPointType* is set to ***softPVC***.<br><br>The default value is ***0.1*** |
| Values | Integer Sequence (0..4095; 1..65535) |
| Default | No default |

### GROUP Aal1Ces Aep EndPointAddressOper (EpOper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains general operational attributes for components using switched virtual circuits. |

### ATTRIBUTE Aal1Ces Aep remoteAddress (remoteAddr)

| | |
|---|---|
| Access | Read only |
| Criticality | Component |
| Description | *remoteAddress* is the address of the remote end point.<br><br>If a connection is currently established, *remoteAddress* will contain the address of the remote end point.<br><br>If a connection is not established, *remoteAddress* will be ***Unknown***. |
| Values | String (7..40, ASCII) |
| Default | No default |

### ATTRIBUTE Aal1Ces Aep lastTearDownCause (cause)

| | |
|---|---|
| Access | Read only |
| Description | *lastTearDownCause* indicates the cause of the last connection tear down.<br><br>The values are as defined in the ATM Forum ATM User-Network Interface (UNI) Specification. |
| Values | Decimal (0..255) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Aal1Ces Aep lastTearDownDiagnostic (diag)

| | |
|---|---|
| Access | Read only |
| Description | *lastTearDownDiagnostic* provides a diagnostic to supplement the *lastTearDownCause* attribute. |
| Values | String (0..8, ASCII) |
| Default | No default |

### GROUP Aal1Ces Aep ActiveEndPointOper (Out)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains status information about the AAL1 Circuit Emulation Service *ActiveEndPoint* component. |

### ATTRIBUTE Aal1Ces Aep svcStatus (status)

| | |
|---|---|
| Access | Read only |
| Description | *svcStatus* indicates the status of the incoming and outgoing connections.<br><br>When this attribute has the value ***initialising***, it indicates that the component is initialising when first created; a connection has not been established, and no incoming setup requests will be processed.<br><br>When this attribute has the value ***connecting***, it indicates that a connection has not yet been established, but that incoming setup requests will be processed.<br><br>When this attribute has the value ***connected***, it indicates that a connection has been established.<br><br>When this attribute has the value ***retriesExhausted***, it indicates that *retryLimit* consecutive connection setup attempts have failed, and the connection procedure has been aborted.<br><br>When this attribute has the value ***idle***, it indicates that a |

connection has not been established, and that no incoming setup requests will be processed.

When this attribute has the value ***failed***, it indicates that the connections is in a state other than those described above.

Values
initialising
connecting
connected
idle
retriesExhausted
failed

Default No default

### ATTRIBUTE Aal1Ces Aep lastSetupFailureCause (failCause)

Access Read only

Description *lastSetupFailureCause* indicates the cause of the last connection setup failure.

The values are as defined in the ATM Forum ATM User-Network Interface (UNI) Specification.

Values Decimal (0..255)

Default No default

### ATTRIBUTE Aal1Ces Aep lastSetupFailureDiagnostic (failDiag)

Access Read only

Description *lastSetupFailureDiagnostic* provides a diagnostic to supplement the *lastSetupFailureCause* attribute.

Values String (0..8, ASCII)

Default No default

### ATTRIBUTE Aal1Ces Aep retryTimeRemaining (timer)

Access Read only

Description *retryTimerValue* is the current value of the retry timer for this connection; it indicates the number of seconds before the next

connection attempt will be made. *retryTimerValue* is initialized when a connection attempt fails.

When *retryTimerValue* reaches ***0***, an attempt will be made to establish the connection.

When the timer is not running, for example when the connection has been established, *retryTimerValue* will be ***0***.

| | |
|---|---|
| Values | Decimal (0..86400) |
| Units | seconds |
| Default | No default |

### ATTRIBUTE Aal1Ces Aep retryFailures (failures)

| | |
|---|---|
| Access | Read only |
| Description | *retryFailures* counts the number of consecutive failed connection attempts.<br><br>*retryFailures* is reset to ***0*** whenever a connection is successfully established, or the connection is restarted using the *Restart* verb. The counter wraps when the maximum value is exceeded. |
| Values | Decimal (0..2147483647) |
| Default | No default |

### COMPONENT Aal1Ces PassiveEndPoint (Pep)

| | |
|---|---|
| Groups | "GROUP Aal1Ces Pep ProvisionedEndPointAddresses (ProvEndPointAddr)"<br>"GROUP Aal1Ces Pep EndPointAddressOper (EpOper)"<br>"GROUP Aal1Ces Pep PassiveEndPointOper (PassiveOper)" |
| Scope | Application |
| Description | *Aal1Ces/n PassiveEndPoint*<br><br>The *PassiveEndPoint* component provides a passive end point for a switched virtual connection between two applications.<br><br>A *PassiveEndPoint* awaits incoming connection setup requests. A |

setup request will only be accepted if a connection is not already established, and the request originated from *expectedRemoteAddress*.

If a *PassiveEndPoint* component is provisioned under an *Aal1Ces* component, no other components may be provisioned under the same *Aal1Ces* component.

Common Verbs

Help
List
Display
Add
DELete

## GROUP Aal1Ces Pep ProvisionedEndPointAddresses (ProvEndPointAddr)

Properties: Provisioned

Description: This group contains NSAP address provisioning data for components using switched virtual circuits.

## ATTRIBUTE Aal1Ces Pep expectedRemoteAddress (expectedAddr)

Access: Read and write

Criticality: Component

Description: This attribute specifies the expected remote address prefix for an incoming connection setup request.

If *expectedRemoteAddress* is not empty, only matching connections will be considered for acceptance. If *expectedRemoteAddress* is 40 characters long, the remote address must match exactly to be accepted. If *expectedRemoteAddress* is less than 40 characters long, the remote address must begin with *expectedRemoteAddress* to be accepted.

If *expectedRemoteAddress* is empty, the component will process connection requests from any remote address.

Values: String (0..40, ASCII)

Default: ""

### ATTRIBUTE Aal1Ces Pep localAddress (localAddr)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the local NSAP address.<br><br>If the switch prefix (the *nodePrefix* attribute of the *ModuleData* component) has been provisioned, a default value for *localAddress* based on *nodePrefix* will be provided.<br><br>If *ModuleData nodePrefix* has not been provisioned and one or more alternate switch prefixes (the *alternatePorsPrefixes* attribute of the *ModuleData* component) have been provisioned, a default value for *localAddress* based on the first provisioned *alternatePorsPrefix* value will be provided.<br><br>If no switch prefixes have been provisioned, *localAddress* will default to an empty string. To obtain a valid default *localAddress* in this case, either or both of the *ModuleData nodePrefix* and *ModuleData alternatePorsPrefixes* attributes must be provisioned, and this end point component must then be deleted and re-added. |
| Values | String (40, ASCII) |
| Default | No default |

### GROUP Aal1Ces Pep EndPointAddressOper (EpOper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains general operational attributes for components using switched virtual circuits. |

### ATTRIBUTE Aal1Ces Pep remoteAddress (remoteAddr)

| | |
|---|---|
| Access | Read only |
| Criticality | Component |
| Description | *remoteAddress* is the address of the remote end point.<br><br>If a connection is currently established, *remoteAddress* will |

| | |
|---|---|
| | contain the address of the remote end point.<br><br>If a connection is not established, *remoteAddress* will be ***Unknown***. |
| Values | String (7..40, ASCII) |
| Default | No default |

### ATTRIBUTE Aal1Ces Pep lastTearDownCause (cause)

| | |
|---|---|
| Access | Read only |
| Description | *lastTearDownCause* indicates the cause of the last connection tear down.<br><br>The values are as defined in the ATM Forum ATM User-Network Interface (UNI) Specification. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE Aal1Ces Pep lastTearDownDiagnostic (diag)

| | |
|---|---|
| Access | Read only |
| Description | *lastTearDownDiagnostic* provides a diagnostic to supplement the *lastTearDownCause* attribute. |
| Values | String (0..8, ASCII) |
| Default | No default |

### GROUP Aal1Ces Pep PassiveEndPointOper (PassiveOper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains status information about the AAL1 Circuit Emulation Service *PassiveEndPoint* component. |

### ATTRIBUTE Aal1Ces Pep svcStatus (status)

| | |
|---|---|
| Access | Read only |
| Description | *svcStatus* indicates the status of the incoming connection. |

When this attribute has the value ***initialising***, it indicates that the component is initialising when first created; a connection has not been established, and no incoming setup requests will be processed.

When this attribute has the value ***connecting***, it indicates that a connection has not yet been established, but that incoming setup requests will be processed.

When this attribute has the value ***connected***, it indicates that a connection has been established.

When this attribute has the value ***idle***, it indicates that a connection has not been established, and that no incoming setup requests will be processed.

When this attribute has the value ***failed***, it indicates that the connections is in a state other than those described above.

Values
initialising
connecting
connected
idle
failed

Default
No default

## COMPONENT Aal1Ces LogicalConnection (LCo)

Groups
"GROUP Aal1Ces LCo PathData"
"GROUP Aal1Ces LCo Statisitics (Stats)"

Scope
Application

Description
...*Lc*
This component contains all of the operation attributes for a Path Oriented Logical Connection.

Common Verbs
Help
List
Display

### VERB RERoute Aal1Ces LCo

| | |
|---|---|
| Impact | Service |
| Description | RERoute ..Lc<br>This command is used to request a *LogicalConnection (LCo)* to attempt a reroute. A new path will be established if it is better than the current path. The current path will not be interrupted if the *RERoute* command is not completely successful. The connection must not be attempting rerouting at present. This command is only valid on components with the *PLC remoteName* specified.<br>This command is intended to be used on the calling end of a connection. For a single region call, it may be used on the called end of a connection if all the *PLC* parameters match. Note that the calling end or the called end of a connection means the *end* attribute of an *LCo* is equal to the value of ***calling*** or ***called*** respectively.<br><br>When used on an *LCo* with *pathType* attribute set to ***manual*** or ***forced,*** this command can be used to re-setup the path.<br><br>If this command is attempted on a connection that is not up but its *state* attribute is equal to ***pathDownRetrying,*** an immediate route request is sent. |

### GROUP Aal1Ces LCo PathData

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all operational attributes for the path oriented LCo. |

### ATTRIBUTE Aal1Ces LCo state

| | |
|---|---|
| Access | Read only |
| Description | This attribute reflects the current state of the connection. The ***pathDown*** state indicates a connection that has no remote end provisioned or the application has not yet signaled for a path. The ***selectingRoute*** state occurs when a request has been sent to route selector and it has not yet responded. The ***connectingState*** occurs while a path is being established. The ***pathUp*** state is the normal |

operational state of a path. The ***pathDownRetrying*** state indicates a path that attempted route selection but received no route and is now waiting to retry route selection again.

Values
pathDown
selectingRoute
connecting
pathUp
pathDownRetrying

Default
No default

### ATTRIBUTE Aal1Ces LCo overrideRemoteName (orn)

Access
Read: All
Write: All

Description
If set ***and*** the current PLC remoteName is blank this remoteName will override the blank PLC remoteName. Usually you would set this attribute and then lock/unlock the service component which will result in this new overrideRemoteName being used as if it had been provisioned into the PLC remoteName. The advantage of this attribute is that the connection's remoteName can be changed immediately without having to "activate prov" but the disadvantage is that the overrideRemoteName is not permanent and if the card or switch is reset the override will be lost.

Values
String (0..40, ASCII)

Default
""

### ATTRIBUTE Aal1Ces LCo end

Access
Read only

Description
This attribute identifies whether this is the calling or called end of the path.

Values
calling
called

Default
No default

### ATTRIBUTE Aal1Ces LCo costMetric (cost)

| | |
|---|---|
| Access | Read only |
| Description | This attribute gives the route's total cost metric. It is calculated as the sum of the cost metric of all trunks in the path at the time the connection was established. The cost metric of a trunk is defined by the *trunkCost* attribute of the Trunk component. The *costMetric* for an LCo that is originated and terminated on the same module is 0. |
| Values | Decimal (0..65535) |
| Default | No default |

### ATTRIBUTE Aal1Ces LCo delayMetric (delay)

| | |
|---|---|
| Access | Read only |
| Description | This attribute gives the total delay of the route as the one way delay for a 512 byte packet. It is calculated as the sum of the delays of all trunks in the path stored in topology at the time the connection was established. The delay for an LCo that is originated and terminated on the same module is 0. |
| Values | Decimal (0..100000) |
| Units | msec |
| Default | No default |

### ATTRIBUTE Aal1Ces LCo roundTripDelay (rtd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the time taken for a packet (cell) of 44 bytes to be transmitted inband to the remote *LCo* and return to this LCo. The value reported is rounded to the nearest millisecond.<br>For Unack PORS trunks and AAL5 MUX PORS trunks, the test packet is sent inband and receives the same treatment as regular data packets, giving a round trip delay which corresponds to regular data traffic.<br>For SPO MUX PORS trunks and MAP PORS trunks, the test packet is sent along the parent trunk's VCC, giving a round trip |

| | |
|---|---|
| | delay which corresponds to the parent trunk's round trip delay. The round trip delay does not directly reflect the round trip delay of data packets travelling on the non-parent VCC.<br>When the *LCo* is originated and terminated on the same module, a value of 1 millisecond is reported. The value of 1 millisecond is the minimum reported time even though the delay may be less than 1 millisecond. |
| Values | Decimal (0..200000) |
| Units | msec |
| Default | No default |

### ATTRIBUTE Aal1Ces LCo setupPriority (spri)

| | |
|---|---|
| Access | Read only |
| Description | This attribute gives the priority at which the current path is established. Zero is the highest priority and four is the lowest. The *holdingPriority*, a complementary attribute of this component, indicates the priority a path maintains once it is established. |
| Values | Decimal (0..4) |
| Default | No default |

### ATTRIBUTE Aal1Ces LCo holdingPriority (hpri)

| | |
|---|---|
| Access | Read only |
| Description | This attribute gives the priority at which a path holds its current path once the path is established. Zero is the highest priority and four is the lowest. The *setupPriority*, a complementary attribute, indicates the priority of a path at establishment time. |
| Values | Decimal (0..4) |
| Default | No default |

### ATTRIBUTE Aal1Ces LCo requiredTxBandwidth (tbw)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute gives the actual bandwidth (in bits per second) reserved by this path on each of the trunks of its route. This attribute represents the bandwidth for traffic outgoing to the remote end point. The originating end of the connection determines this value. |
| Values | Decimal (0..4294967295) |
| Units | bit/s |
| Default | No default |

### ATTRIBUTE Aal1Ces LCo requiredRxBandwidth (rbw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute gives the actual bandwidth (in bits per second) reserved by this path on each of trunks of its route. This attribute represents the bandwidth for traffic incoming from the remote end point. The originating end of the connection determines this value |
| Values | Decimal (0..4294967295) |
| Units | bit/s |
| Default | No default |

### ATTRIBUTE Aal1Ces LCo requiredTrafficType (rttyp)

| | |
|---|---|
| Access | Read only |
| Description | This operational attribute indicates the type of traffic transmitted over the path. There are eight possible traffic types, and the path can transmit only one of them. The originating end of the connection determines the type. These are arbitrary designations for traffic type. The ***voice***, ***data*** and ***video*** traffic types are defined, and five other arbitrary traffic types can be defined by the network administration. This attribute is used in the route selection process to restrict the route to trunks that support this traffic type. The *supportedTrafficType* trunk attribute lists all the types of traffic allowed on the trunk. For example, if *requiredTrafficType* is specified as ***trafficType1*** then only trunks that include ***trafficType1*** in *supportedTrafficType***,** will be candidates for this connection. |

| | |
|---|---|
| Values | voice<br>data<br>video<br>trafficType1 (tt1)<br>trafficType2 (tt2)<br>trafficType3 (tt3)<br>trafficType4 (tt4)<br>trafficType5 (tt5) |
| Default | No default |

### ATTRIBUTE Aal1Ces LCo permittedTrunkTypes (pttyp)

| | |
|---|---|
| Access | Read only |
| Description | This operational attribute lists up to eight types of trunk that can be used on the route. The originating end of the connection determines the types. The ***terrestrial*** and ***satellite*** trunk types have been defined, leaving six remaining arbitrary types that can be defined by the network administration. The trunk's type is indicated in the *trunkType* attribute of the Trunk component. When selecting a route, PORS only chooses trunks whose *trunkType* are in the *permittedTrunkTypes* for the path. |
| Set of | terrestrial<br>satellite<br>trunkType1 (tt1)<br>trunkType2 (tt2)<br>trunkType3 (tt3)<br>trunkType4 (tt4)<br>trunkType5 (tt5)<br>trunkType6 (tt6) |
| Default | No default |

### ATTRIBUTE Aal1Ces LCo requiredSecurity (rsec)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the required minimum level of security of the trunks on the route. Zero represents the most secure and seven represents the least secure. The trunk's security is indicated by the *trunkSecurity* attribute of the Trunk component, and has values identical in range and meaning to the *requiredSecurity* |

attribute. PORS ensures that any route selected does not contain a trunk whose *trunkSecurity* attribute is numerically greater than the *requiredSecurity.*

Values — Decimal (0..7)

Default — No default

### ATTRIBUTE Aal1Ces LCo requiredCustomerParameter (rcparm)

Access — Read only

Description — This attribute indicates the allowed customer defined parameter of the trunks on the route.The originating end of the connection determines the customer defined parameter. Its value, a number from zero to seven, is chosen by a network administration to have a meaning specific to their network, thus allowing them to customize the use of their trunks. A complementary trunk attribute, *customerParameter*, also has a value from zero to seven. The route selection process does not consider trunks whose *customerParameter* is greater than the *requiredCustomerParameter* of the path.

Values — Decimal (0..7)

Default — No default

### ATTRIBUTE Aal1Ces LCo emissionPriority (epri)

Access — Read only

Description — This attribute indicates the urgency with which packets on the path are emitted by the trunks on the route. The originating end of the connection selects the *emissionPriority. EmissionPriority* of zero indicates the highest emission priority, while two indicates the lowest emission priority. Packets with a higher *emissionPriority* (or numerically less) are serviced and sent out before the packets of lower *emissionPriority* (or numerically higher).

Values — Decimal (0..2)

Default — No default

### ATTRIBUTE Aal1Ces LCo discardPriority (dpri)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the importance of the packets on the path. The originating end of the connection sets *discardPriority.* One is used for paths carrying the most important traffic, and three is used for paths carrying the least important traffic. Packets with lower *discardPriority*(numerically) are discarded after packets with a higher *discardPriority*(numerically). |
| Values | Decimal (1..3) |
| Default | No default |

### ATTRIBUTE Aal1Ces LCo pathType (pType)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether the path for this PLC was determined automatically or by static provisioning. ***Normal*** *pathTypes* are selected automatically by Route Selector.The other *pathTypes* are both manual *pathTypes* where the operator must specify, through provisioning, a static route termed the *manualPath*. A manual *pathType* connection is nearly identical to a normal path type connection with the exception that the route is pre-provisioned. For a manual *pathType*, bandwidth reservations are respected along the path exactly as in a normal path. The last type, the ***forced*** *pathType*, is also a manual path but regardless of the bandwidth available the route is granted provided the trunks are operational and there are sufficient Logical Channels (LChs).<br><br>The ***forced*** *pathType* could result in over committing the reserved bandwidth allowed on a trunk. A better way to achieve the effects of a ***forced*** *pathType* is to use a ***manual*** *pathType* with *setupPriority* = ***0*** and *holdingPriority* = ***0***. In this manner the path will reserve correct bandwidth and it will bump other paths if required while not being bumped itself. |
| Values | normal<br>manual<br>forced |
| Default | No default |

### ATTRIBUTE Aal1Ces LCo retryCount (rcount)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the count of the number of times the path chosen during route selection could not be instantiated. This count should be three or below if the network is performing adequately. A high value indicates that the route selection is often performed using an out-of-date view of available network bandwidth and/or topology.<br>This attribute will only increase at the calling end of an un-segmented connection. The attribute should be ignored for segmented connections.This attribute is reset each time a path reconnects and stops counting when it reaches its maximum value. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE Aal1Ces LCo pathFailureCount (pfcount)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the count of the number of times the path has successfully connected. It is set to zero the first time the path is up. If a path fails anytime after connecting this count will be incremented when the path is up again. Failed route requests do not count in this statistic. See *retryCount* above. This attribute stops counting at its maximum value. |
| Values | Decimal (0..65535) |
| Default | No default |

### ATTRIBUTE Aal1Ces LCo reasonForNoRoute (rnr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the route selection's *reasonForNoRoute* and provides a brief reason for which a route was not selected. The reasons are essentially self-explanatory. Perhaps two reasons for no route require some explanation. The reason ***unknownRemoteNodeName*** is issued when the remote node name is not in the topological database. The reason |

***plcAttributesNotMet*** is issued when there is no network connectivity at a level specified by the PLC attributes. This reason is also issued when there is no physical connectivity between two end nodes.

Values

none
destinationNameTooLong
destinationNotSpecified
unknownDestinationName
incorrectDestination
incorrectDestinationEndPoint
unknownSource
unknownDestination
sameNode
routeCostTooMuch
routesDelayTooLong
attributesNotMet
anError
attributeProfileProblem
manualPathIndexProblem

Default

none

## ATTRIBUTE Aal1Ces LCo lastTearDownReason

Access

Read only

Description

This attribute reflects the last tear down reason for a connection (LCo). In many cases this displays the reason for a momentary service interruption. This attribute applies to the last path failure only. If a path is no longer up, this may give an indication to the reason that the path has failed. In many cases an alarm will also be generated with more specific information. The following is a brief description of the reasons:
***none*** - This path has no information for the teardown this is typical of a path provisioned with no *remoteName* that has not been up.
***normalShutDown*** - This path has gone down due to normal call termination.
***insufficientTxLcOrBandwidth*** - At present there is either no available bandwidth or logical channel numbers available on one or more of the trunks for this path in the transmit direction.

***insufficientRxLcOrBandwidth*** - At present there is either no available bandwidth or logical channel numbers available on one or more of the trunks for this path in the receive direction.
***trunkFailure***- A trunk on the path has failed or has gone down due to a provisioning change of a critical attribute.
***trunkCardFailure***- A trunk FP card has failed along the path.
***accessCardFailure***- The FP on which the peer access service was running has failed.
***operatorForced***- The path has terminated due to the operator locking a trunk along the path.
***lostLcnClash***- The path has terminated because the PA's at both ends of an intermediate trunk have allocated the same LC to different calls. When this happens both calls must go down and then try to come up again a fraction of a second later (effectively ensuring that they will now be assigned different LC's). It is normal to get the odd clash especially when the PA's usedLC is approaching the PA's maxLC.
***networkCongestion*** - The path has failed due to control information being lost and not recoverable.
***trunkNotFound*** - Occurs on a ***manual*** path usually. Check for trunks not up or names provisioned incorrectly.
***farEndNotFound*** - The far end is not provisioned or is not up. Check remote Name.
***wrongModuleReached*** - This may occur on a ***manual*** path. Check provisioning for correct trunk and service names. For a ***normal*** path, the network Topology may be changing check *remoteName*.
***farEndBusy*** - The far end has been reached but it is busy. Check *remoteName* and remote end provisioning.
***callLoopedBack*** - This LCo is provisioned to call itself. Re-provision since this is invalid.
***unknownReason*** - The failure was not resolved.
***farEndNotReady*** - The remote end was reached but the connection was refused due to the remote end not being enabled.
***remoteNameMismatch*** - The remote end has alarmed and rejected this setup due to remoteName provisioning.
***serviceTypeMismatch*** - The remote Service Type does not match this service type. Check provisioning.
***reconnectFromFarEnd*** - The remote end re-established this connection. Check the remote end *lastTearDownReason* to determine the real reason.

***bumped*** - Another call bumped this path from a trunk to get bandwidth (or an LC) which it required to come up. This other path had a higher *setupPriority* than this path's *holdingPriority* hence it was allowed to steal the bandwidth (or LC) from this path.
***optimized*** - This call has been rerouted due to the optimization feature. The call is still active this just indicates why the path changed.
***trunkOrFarEndDidNotSupportMode*** - This call was unable to complete because a mode required by the service was not supported by one of the trunks the route went through or by the far end service it connected to. Currently the only mode that this applies to is the map/mux mode on TRUNK PA ATM component. Map mode was required by the application (CES/FrAtm etc.) but was not available on the TRUNK PA ATM component through which the call was routed or the far end CES/FrAtm component did not specify the same mode.

Values

none
normalShutDown
insufficientTxLcOrBandwidth
insufficientRxLcOrBandwidth
trunkFailure
trunkCardFailure
operatorForced
lostLcnClash
networkCongestion
trunkNotFound
farEndNotFound
wrongModuleReached
farEndBusy
callLoopedBack
unknownReason
farEndNotReady
remoteNameMismatch
serviceTypeMismatch
reconnectFromFarEnd
bumped
accessCardFailure
optimized

| | |
|---|---|
| | overrideRemoteName<br>trunkOrFarEndDidNotSupportMode |
| Default | none |

### ATTRIBUTE Aal1Ces LCo pathFailureAction

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays whether the application is set to tolerate momentary interruption of a path while a new path is selected. If ***disconnectConnection*** is displayed, the application is informed as soon as possible about a failure by disconnection. If the attribute displays ***reRoutePath***, the path may attempt an immediate reroute, provided the failure is a recoverable failure. If rerouting fails the application is informed of the failure.<br>With this option set to ***reRoutePath*** the LCo may wait up to 30 seconds before informing the service of complete disconnection in order to allow both ends to attempt to reconnect. Note that if PLC components are different at both ends only the calling end is allowed to reconnect.<br><br>All *pathTypes* respect this attribute. Also on a *manualPath* with both ends provisioned with independent paths (at least with respect to the failure) this option will have the desired effect that the path is rerouted without complete disconnection at both ends |
| Values | reRoutePath<br>disconnectConnection |
| Default | No default |

### ATTRIBUTE Aal1Ces LCo bumpPreference (bpref)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies when bumping will occur during route selection process. Bumping may occur when necessary or always. It will be necessary for a connection to bump if there is not enough resources for the connection to be established and these resources are occupied by a connection whose *setupPriority* is lower (numerically higher) than the connection's *setupPriority*. A connection may also always bump in order to obtain the best route. |

| | |
|---|---|
| Values | bumpWhenNecessary<br>bumpToObtainBestRoute |
| Default | No default |

### ATTRIBUTE Aal1Ces LCo optimization (opt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is used to specify whether this connection should attempt to optimize its path when requested by the routing PORS component. Every path is as optimal as it can be when it is established, but as network traffic patterns and configurations change this path may no longer be as optimal as it could be. The PORS connection manager on a module requests circuits to optimize at the optimization interval. |
| Values | disabled<br>enabled |
| Default | No default |

### ATTRIBUTE Aal1Ces LCo pathUpDateTime

| | |
|---|---|
| Access | Read: Service<br>Write: Illegal |
| Description | This is the time stamp when the current path was established or reestablished. |
| Values | Time (DHMS) |
| Default | No default |

### ATTRIBUTE Aal1Ces LCo path

| | |
|---|---|
| Access | Read only |
| Description | This attribute contains the trunk component names over which the path has been instantiated and the remote end point name terminating the path. |
| List of | String (0..40, ASCII) |
| List Size | 21 |

| | |
|---|---|
| Default | No default |

### GROUP Aal1Ces LCo Statisitics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational statistics attributes for the path oriented LCo. |

### ATTRIBUTE Aal1Ces LCo pktsToNetwork

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of packets transmitted to the network over this Logical Connection. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Aal1Ces LCo bytesToNetwork

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of bytes sent to the network over this Logical Connection. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Aal1Ces LCo pktsFromNetwork

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of packets received from the remote LCo via the network. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Aal1Ces LCo bytesFromNetwork

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of bytes received from the remote LCo via the network. |

| | |
|---|---|
| Values | Long Integer |
| Default | No default |

### COMPONENT Aal1Ces AtmConnection (AtmCon)

| | |
|---|---|
| Groups | "GROUP Aal1Ces AtmCon Operational (Oper)" |
| Scope | Device |
| Description | An AtmConnection component is created for each ATM connection established by an application. It shows where the data traffic for this connection is directed. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Aal1Ces AtmCon Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains the operational attributes for the *NapAtmConnection* component. |

### ATTRIBUTE Aal1Ces AtmCon nextHop

| | |
|---|---|
| Access | Read only |
| Description | This attribute shows the component name of the *AtmIf Vcc Ep* or *AtmCon* component to which this switched connection is established. |
| Values | The name of the component |
| Default | No default |

### COMPONENT Aal1Ces Reroute

| | |
|---|---|
| Groups | "GROUP Aal1Ces Reroute LocalOperational (LOper)"<br>"GROUP Aal1Ces Reroute GlobalOperational (GOper)" |
| Scope | Application |
| Description | *Aal1Ces/n Reroute* |

This component represents the ATM rerouting capabilities of an AAL1 CES connection. The addition or deletion of this component, or changes to its provisionable attributes, does not affect an established connection.

Subcomponents "COMPONENT Aal1Ces Reroute Ov"

Common Verbs

Help
List
Display
Add
DELete

## VERB OPTIMIZE Aal1Ces Reroute

Impact Service

Description *OPTimize Aal1Ces/n Reroute*

This command triggers path optimization for the connection segment. If the interface is already processing a path optimization request, then the *Optimize* command is canceled.

Using the *Optimize* command results in service disruptions when connection segments are moved to a better path. Care should be exercised when using this command. It is recommended that the command be used during maintenance windows.

## GROUP Aal1Ces Reroute LocalOperational (LOper)

Properties Operational

Description This group contains the operational attributes for the *Aal1Ces Reroute* component.

## ATTRIBUTE Aal1Ces Reroute localLastRrCauseCode

Access Read only

Description This attribute indicates the value of the last local rerouting cause code received at this service interface.

Values Decimal (0..255)

| | |
|---|---|
| Default | No default |

### GROUP Aal1Ces Reroute GlobalOperational (GOper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for the *Aal1Ces Reroute* component. |

### ATTRIBUTE Aal1Ces Reroute globalLastRrCauseCode

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the value of the last global or EBR rerouting cause code received at this service interface. |
| Values | Decimal (0..255) |
| Default | No default |

### COMPONENT Aal1Ces Reroute Ov

| | |
|---|---|
| Groups | "GROUP Aal1Ces Reroute Ov Provisioned (Prov)"<br>"GROUP Aal1Ces Reroute Ov CesProvisioned (CProv)" |
| Scope | Application |
| Description | *Aal1Ces/n Reroute Ov*<br><br>This component represents the ability to override rerouting capability subscription options on a per connection basis for AAL1 CES connections. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Aal1Ces Reroute Ov Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the common provisionable attributes for rerouting capabilities at the ATM signaling interface. |

## ATTRIBUTE Aal1Ces Reroute Ov protocol

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the rerouting protocols which are requested by connection segments on the interface, for which this node is the first rerouting node. This attribute has no effect on connection segments for which this node is not the first rerouting node. A subset of the requested protocols is granted by the last rendezvous node, according to its software level and provisioning.<br><br>One of the following values can be specified:<br>***sameAsARtgPnniReroute***: The requested rerouting protocols are specified by the *Artg Pnni Reroute protocol* attribute.<br>***localGlobal***: Local and global rerouting protocols are requested. Local and global rerouting are granted if the DTL terminator is provisioned with the Rerouting feature.<br>***localOnly***: Local rerouting is requested. This value guarantees interoperability with other vendors' equipment running the ATM Forum "Domain Based Rerouting" protocol. Local rerouting is granted if the DTL terminator is provisioned with the Rerouting feature.<br>***globalOnly***: Global rerouting is requested. Global rerouting is granted if the DTL terminator is provisioned with the Rerouting feature.<br>***localEbr*:** Local and EBR rerouting protocols are requested. Local rerouting is granted if the DTL terminator is provisioned with the Rerouting feature. Alternatively, EBR is granted if the DTL terminator is provisioned with the EBR feature.<br>***ebrOnly***: EBR is requested. EBR is granted if the DTL terminator is provisioned with the EBR feature. |
| Values | localGlobal<br>localOnly<br>globalOnly<br>localEbr<br>ebrOnly<br>sameAsARtgPnniReroute (sameAs) |
| Default | sameAsARtgPnniReroute |

## ATTRIBUTE Aal1Ces Reroute Ov numOptAttempts

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the number of path optimizations attempted before declaring a recovered connection segment to be optimally routed. Following a connection recovery, each manual and automatic path optimization will attempt to optimize the connection segment. When a path is found with a better optimization metric than the best known value, or the number of optimization attempts is exhausted, the current optimization metric is declared to be the new optimal metric for the connection segment. Subsequent path optimizations will not attempt to optimize the connection segment unless all subscribed connection segments are eligible for path optimization.<br><br>If the value is set to ***0***, the optimization metric of a connection segment following connection recovery is declared to be the new optimal metric, and no connection recovery alarm is issued. A subsequent path optimization will not attempt to optimize the connection segment unless all subscribed connection segments are eligible for path optimization.<br><br>If the value is set to ***sameAsARtgPnniReroute***, the value of the *ARtg Pnni Reroute numOptAttempts* attribute is used. |
| Values | Decimal (0..15)<br>sameAsARtgPnniReroute (sameAs) |
| Default | sameAs |

## ATTRIBUTE Aal1Ces Reroute Ov moduleOptimizationConnections

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies which connection segments on the interface will be considered by a module optimization pass as controlled by the *ARtg Pnni Reroute* component.<br><br>One of the following values can be specified:<br>***sameAsARtgPnniReroute***: The connection segments to be considered by a module optimization pass are specified by the *Artg Pnni Reroute moduleOptimization* attribute. |

***none***: No connection segments are considered for path optimization.
***recoveredOnly***: Only connection segments which are foration. The best known optimization metric value for the connection segment is indicated by the *localOptimalMetricValue* attribute under the *RerouteInfo* component for the connection
***allSubscribed***: All connection segments subscribed to path optimization are considered.

Values
none
recoveredOnly
allSubscribed
sameAsARtgPnniReroute (sameAs)

Default
sameAsARtgPnniReroute

## ATTRIBUTE Aal1Ces Reroute Ov switchoverMechanism

Access
Read and write

Description
This attribute specifies the mechanism used for switchover of a rerouted connection segment.

One of the following values can be specified:
***sameAsARtgPnniReroute***: The switchover mechanism is specified by the *ARtg Pnni Reroute switchoverMechanism* attribute.
***standard***: The mechanism described in the ATM Forum “Domain based Rerouting” specification is used for switchover. This value ensures interoperability with other vendors’ equipment running ATM Forum “Domain based Rerouting”.
***rcl***: The Reduced Cell Loss mechanism is used for switchover. RCL is a value-added Passport extension to the standard mechanism that allows faster switchover time.

Values
standard
rcl
sameAsARtgPnniReroute (sameAs)

Default
sameAsARtgPnniReroute

## GROUP Aal1Ces Reroute Ov CesProvisioned (CProv)

Properties
Provisioned

Description — This group contains the provisionable attributes related to rerouting subscription options for AAL1 CES connections.

## ATTRIBUTE Aal1Ces Reroute Ov localConnectionRecoverySubscr (lRecSub)

Access — Read and write

Description — This attribute specifies whether the connection segment requests subscription to local connection recovery. This attribute has no effect if the connection segment does not request the local rerouting protocols.

If the connection segment requests ***localGlobal*** or ***localOnly*** protocols, this attribute controls local connection recovery subscription.

One of the following values can be specified:
***sameAsARtgPnniReroute***: The subscription rule is determined by the *Artg Pnni Reroute localConnectionRecoverySubscr* attribute. If the attribute specifies the ***svcSvp*** value, the connection segment requests subscription to local connection recovery, otherwise, the connection segment does not request subscription.
***yes:*** The connection segment subscribes to local connection recovery.
***no***: The connection does not subscribe to local connection recovery.

Values — no
yes
sameAsARtgPnniReroute (sameAs)

Default — sameAsARtgPnniReroute

## ATTRIBUTE Aal1Ces Reroute Ov localPathOptimizationSubscr (lOptSub)

Access — Read and write

Description — This attribute specifies whether the connection segment requests subscription to local connection recovery. This attribute has no effect if the connection segment does not request the local rerouting protocols.

If the connection segment requests ***localGlobal*** or ***localOnly*** protocols, this attribute controls local path optimization subscription.

One of the following values can be specified:
***sameAsARtgPnniReroute***: The subscription rule is determined by the *Artg Pnni Reroute localPathOptimizationSubscr* attribute. If the attribute specifies the ***svcSvp*** value, the connection segment requests subscription to local path optimization, otherwise, the connection does not request subscription.
***yes:*** The connection segment subscribes to local path optimization.
***no***: The connection segment does not subscribe to local path optimization.

Values
no
yes
sameAsARtgPnniReroute (sameAs)

Default
sameAsARtgPnniReroute

## ATTRIBUTE Aal1Ces Reroute Ov globalConnectionRecoverySubscr (gRecSub)

Access
Read and write

Description
This attribute specifies whether the connection segment requests subscription to global or EBR connection recovery. This attribute has no effect if the connection segment does not request the global or EBR rerouting protocol.

If the connection segment requests ***ebrOnly***, this attribute controls EBR connection recovery subscription.

One of the following values can be specified:
***sameAsARtgPnniReroute***: The subscription rule is determined by the *Artg Pnni Reroute globalConnectionRecoverySubscr* attribute. If the attribute specifies the ***svcSvp*** value, the connection segment requests subscription to global or EBR connection recovery, otherwise, the connection segment does not request subscription.
***yes:*** The connection segment requests subscription to global or EBR connection recovery.

***no***: The connection segment does not request subscription to global or EBR connection recovery.

Values
no
yes
sameAsARtgPnniReroute (sameAs)

Default
sameAsARtgPnniReroute

### ATTRIBUTE Aal1Ces Reroute Ov globalPathOptimizationSubscr (gOptSub)

Access
Read and write

Description
This attribute specifies whether the connection segment requests subscription to global or EBR path optimization. This attribute has no effect if the connection segment does not request the global or EBR rerouting protocol.

If the connection segment requests ***ebrOnly***, this attribute controls EBR connection recovery subscription.

One of the following values can be specified:
***sameAsARtgPnniReroute***: The subscription rule is determined by the *Artg Pnni Reroute globalPathOptimizationSubscr* attribute. If the attribute specifies the ***svcSvp*** value, the connection segment requests subscription to global or EBR path optimization, otherwise, the connection segment does not request subscription.
***yes:*** The connection segment requests subscription to global or EBR path optimization.
***no***: The connection segment does not request subscription to global or EBR path optimization.

Values
no
yes
sameAsARtgPnniReroute (sameAs)

Default
sameAsARtgPnniReroute

### COMPONENT Aal1Ces RerouteInfo (RerInfo)

Groups
"GROUP Aal1Ces RerInfo Operational (Oper)"
"GROUP Aal1Ces RerInfo EbrOperational (EOper)"
"GROUP Aal1Ces RerInfo LocalOperational (LOper)"

"GROUP Aal1Ces RerInfo GlobalOperational (GOper)"
"GROUP Aal1Ces RerInfo EbrStatistics (EStats)"
"GROUP Aal1Ces RerInfo LocalStatistics (LStats)"
"GROUP Aal1Ces RerInfo GlobalStatistics (GStats)"

Scope: Device

Description: *AtmIf/n Vcc/vpi.vci RerouteInfo*
*AtmIf/n Vpc/vpi RerouteInfo*
*AtmIf/n Vpt/vpi Vcc/vci RerouteInfo*
*Aal1Ces/n RerouteInfo*
*Fratm/n Dlci/n Siwf RerouteInfo*

This component represents the rerouting capabilities of a connection segment. The component is present at the DTL originator of the connection segment. It is also present at each local domain rerouting node, if the local rerouting protocol has been granted to the connection segment.

Common Verbs: Help
List
Display

## GROUP Aal1Ces RerInfo Operational (Oper)

Properties: Operational

Description: This group contains the common operational attributes that indicate rerouting activities at the connection level.

## ATTRIBUTE Aal1Ces RerInfo lastOptimizationMetric (lOptMet)

Access: Read only

Description: This attribute indicates which optimization metric was last used to select a path for the connection segment.

Values: cdv
maxCtd
aw

Default: No default

### GROUP Aal1Ces RerInfo EbrOperational (EOper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains attributes that indicate the EBR rerouting characteristics of a connection segment.<br><br>This group is only present if the connection segment has been granted the EBR rerouting protocol. |

### ATTRIBUTE Aal1Ces RerInfo ebrRecoverySubscribed (eRecSub)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether the connection segment is subscribed to EBR connection recovery.<br><br>This attribute is only present if the connection segment has been granted the EBR protocol. |
| Values | no<br>yes |
| Default | No default |

### ATTRIBUTE Aal1Ces RerInfo ebrOptimizationSubscribed (eOptSub)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether the connection segment is subscribed to EBR path optimization.<br><br>This attribute is only present if the connection segment has been granted the EBR protocol. |
| Values | no<br>yes |
| Default | No default |

### ATTRIBUTE Aal1Ces RerInfo ebrOptimizationMetricValue (eOptVal)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the EBR optimization metric value that was collected for the call during the most recent call |

establishment. It represents the segment of the connection between the rerouting and rendezvous nodes.

This attribute is only present if the connection segment has been granted the EBR protocol.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Aal1Ces RerInfo ebrOptimalMetricValue (eOptMetVal)

Access: Read only

Description: This attribute indicates the EBR optimization metric value of the connection's best path. It is initialized to the value collected during initial call establishment. It is set to the ***localOptimizationValue*** whenever a connection is optimized onto a path which has a better optimization value or when the number of optimization attempts is exhausted. It represents the segment of the connection between the rerouting and rendezvous nodes.

This attribute is only present if the connection segment has been granted the EBR protocol.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Aal1Ces RerInfo ebrOptimizationState (eOptSt)

Access: Read only

Description: This attribute indicates the current EBR optimization state of the connection segment.

One of the following values is indicated:
***optimal:*** This is the initial value when the connection segment is first established. The connection segment is in optimal state whenever the optimization metric value of the connection segment is equal to the best known value.
***recovered:*** This value represents the state when the connection segment has been recovered to a path with an optimization metric

value for the connection segment which is greater than the value specified by the optimal metric value.
***optimized:*** This value represents the state when the connection segment has moved to a path which is better than the recovered path but not as good as the optimal path.

This attribute is only present if the connection segment has been granted the EBR protocol.

Values
optimal
recovered
optimized

Default
No default

### ATTRIBUTE Aal1Ces RerInfo ebrTimeOfLastRecovery (eTime)

Access
Read only

Description
This attribute indicates the date and time of the last EBR connection recovery.

This attribute is only present if the connection segment has been granted the EBR protocol.

Values
Time (DHMS)

Default
No default

### GROUP Aal1Ces RerInfo LocalOperational (LOper)

Properties
Operational

Description
This group contains attributes that indicate the local rerouting characteristics of a connection segment.

This group is only present if the connection segment has been granted the local rerouting protocol.

### ATTRIBUTE Aal1Ces RerInfo localRecoverySubscribed (lRecSub)

Access
Read only

Description
This attribute indicates whether the connection segment is subscribed to local connection recovery.

| | |
|---|---|
| | This attribute is only present if the connection segment has been granted the local rerouting protocol. |
| Values | no<br>yes |
| Default | No default |

### ATTRIBUTE Aal1Ces RerInfo localOptimizationSubscribed (lOptSub)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether the connection segment is subscribed to local path optimization.<br><br>This attribute is only present if the connection segment has been granted the local rerouting protocol. |
| Values | no<br>yes |
| Default | No default |

### ATTRIBUTE Aal1Ces RerInfo localOptimizationMetricValue (lOptVal)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the local optimization metric value that was collected for the call during the most recent call establishment. It represents the segment of the connection between the rerouting and rendezvous nodes. A value of ***undefined*** indicates that the local optimization metric value is undetermined.<br><br>This attribute is only present if the connection segment has been granted the local rerouting protocol. |
| Values | Decimal (0..4294967294)<br>undefined |
| Default | No default |

### ATTRIBUTE Aal1Ces RerInfo localOptimalMetricValue (lOptMetVal)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the local optimization metric value of the connection's best path. It is initialized to the value collected during initial call establishment. It is set to the ***localOptimizationValue*** whenever a connection is optimized onto a path which has a better optimization value or when the number of optimization attempts is exhausted. It represents the segment of the connection between the rerouting and rendezvous nodes.A value of ***undefined*** indicates that the local optimal optimization metric value is undetermined.<br><br>This attribute is only present if the connection segment has been granted the local rerouting protocol. |
| Values | Decimal (0..4294967294)<br>undefined |
| Default | No default |

### ATTRIBUTE Aal1Ces RerInfo localOptimizationState (lOptSt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current local optimization state of the connection segment.<br><br>One of the following values is indicated:<br>***optimal:*** This is the initial value when the connection segment is first established. The connection segment is in optimal state whenever the optimization metric value of the connection segment is equal to the best known value.<br>***recovered:*** This value represents the state when the connection segment has been recovered to a path with an optimization metric value for the connection segment which is greater than the value specified by the optimal metric value.<br>***optimized:*** This value represents the state when the connection segment has moved to a path which is better than the recovered path but not as good as the optimal path. |

This attribute is only present if the connection segment has been granted the local rerouting protocol.

Values
optimal
recovered
optimized

Default
No default

### ATTRIBUTE Aal1Ces RerInfo localTimeOfLastRecovery (lTime)

Access
Read only

Description
This attribute indicates the date and time of the last local connection recovery.

This attribute is only present if the connection segment has been granted the local rerouting protocol.

Values
Time (DHMS)

Default
No default

### GROUP Aal1Ces RerInfo GlobalOperational (GOper)

Properties
Operational

Description
This group contains attributes that indicate the global rerouting characteristics of a connection.

This group is only present if the connection segment has been granted the global rerouting protocol.

### ATTRIBUTE Aal1Ces RerInfo globalRecoverySubscribed (gRecSub)

Access
Read only

Description
This attribute indicates whether the connection segment is subscribed to global connection recovery.

This attribute is only present if the connection segment has been granted the global rerouting protocol.

Values
no
yes

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Aal1Ces RerInfo globalOptimizationSubscribed (gOptSub)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether the connection segment is subscribed to global path optimization.<br><br>This attribute is only present if the connection segment has been granted the global rerouting protocol. |
| Values | no<br>yes |
| Default | No default |

### ATTRIBUTE Aal1Ces RerInfo globalOptimizationMetricValue (gOptVal)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the global optimization metric value that was collected for the call during the most recent call establishment. It represents the segment of the connection between the rerouting and rendezvous nodes. A value of ***undefined*** indicates that the global optimization metric value is undetermined.<br><br>This attribute is only present if the connection segment has been granted the global rerouting protocol. |
| Values | Decimal (0..4294967294)<br>undefined |
| Default | No default |

### ATTRIBUTE Aal1Ces RerInfo globalOptimalMetricValue (gOptMetVal)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the global optimization metric value of the connection's best path. It is initialized to the value collected during initial call establishment. It is set to the ***globalOptimizationValue*** whenever a connection is optimized |

onto a path which has a better optimization value or when the number of optimization attempts is exhausted. It represents the segment of the connection between the rerouting and rendezvous nodes.A value of ***undefined*** indicates that the global optimal optimization metric value is undetermined.

This attribute is only present if the connection segment has been granted the global rerouting protocol.

Values
Decimal (0..4294967294)
undefined

Default
No default

### ATTRIBUTE Aal1Ces RerInfo globalOptimizationState (gOptSt)

Access
Read only

Description
This attribute indicates the current global optimization state of the connection segment.

One of the following values is indicated:
***optimal:*** This is the initial value when the connection segment is first established. The connection segment is in optimal state whenever the optimization metric value of the connection segment is equal to the best known value.
***recovered:*** This value represents the state when the connection segment has been recovered to a path with an optimization metric value for the connection segment which is greater than the value specified by the optimal metric value.
***optimized:*** This value represents the state when the connection segment has moved to a path which is better than the recovered path but not as good as the optimal path.

This attribute is only present if the connection segment has been granted the global rerouting protocol.

Values
optimal
recovered
optimized

Default
No default

### ATTRIBUTE Aal1Ces RerInfo globalTimeOfLastRecovery (gTime)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the date and time of the last global connection recovery.<br><br>This attribute is only present if the connection segment has been granted the global rerouting protocol. |
| Values | Time (DHMS) |
| Default | No default |

### GROUP Aal1Ces RerInfo EbrStatistics (EStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistics related to Ebr rerouting for the connection segment. |

### ATTRIBUTE Aal1Ces RerInfo totalEbrConnectionRecoveries (eConnRec)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts successful EBR connection recovery attempts. The counter wraps to zero when the maximum value is exceeded.<br><br>This attribute is only present if the connection segment has been granted the EBR protocol. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Aal1Ces RerInfo totalEbrPathOptimizations (ePathOpt)

| | |
|---|---|
| Access | Read only |
| Description | This attributes counts successful EBR path optimization attempts. The counter wraps to zero when the maximum value is exceeded.<br><br>This attribute is only present if the connection segment has been granted the EBR protocol. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Aal1Ces RerInfo totalEbrOptimizationAttempts (eOptAtt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of EBR path optimization attempts. The counter wraps to zero when the maximum value is exceeded.<br><br>This attribute is only present if the connection segment has been granted the EBR protocol. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Aal1Ces RerInfo LocalStatistics (LStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistics related to local rerouting for the connection segment. |

### ATTRIBUTE Aal1Ces RerInfo totalLocalConnectionRecoveries (lConnRec)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts successful local connection recovery attempts. The counter wraps to zero when the maximum value is exceeded.<br><br>This attribute is only present if the connection segment has been granted the local rerouting protocol. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Aal1Ces RerInfo totalLocalPathOptimizations (lPathOpt)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attributes counts successful local path optimization attempts. The counter wraps to zero when the maximum value is exceeded.<br><br>This attribute is only present if the connection segment has been granted the local rerouting protocol. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Aal1Ces RerInfo totalLocalOptimizationAttempts (lOptAtt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of local path optimization attempts. The counter wraps to zero when the maximum value is exceeded.<br><br>This attribute is only present if the connection segment has been granted the local rerouting protocol. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Aal1Ces RerInfo GlobalStatistics (GStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistics related to global rerouting for the connection segment. |

### ATTRIBUTE Aal1Ces RerInfo totalGlobalConnectionRecoveries (gConnRec)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts successful global connection recovery attempts. The counter wraps to zero when the maximum value is exceeded.<br><br>This attribute is only present if the connection segment has been granted the global rerouting protocol. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Aal1Ces RerInfo totalGlobalPathOptimizations (gPathOpt)

| | |
|---|---|
| Access | Read only |
| Description | This attributes counts successful global path optimization attempts. The counter wraps to zero when the maximum value is exceeded.<br><br>This attribute is only present if the connection segment has been granted the global rerouting protocol. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Aal1Ces RerInfo totalGlobalOptimizationAttempts (gOptAtt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of global path optimization attempts. The counter wraps to zero when the maximum value is exceeded.<br><br>This attribute is only present if the connection segment has been granted the global rerouting protocol. |
| Values | Decimal (0..4294967295) |
| Default | No default |

Passport 7400, 15000, 20000

# Component Aal1Ces

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component AAServ

241-5701-060

Passport 7400, 15000, 20000

# Component AAServ

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT ActiveAlarmServices (AAServ)

| | |
|---|---|
| Scope | Device |
| Description | ActiveAlarmServices<br>This component manages active alarms each of which resides on a running card. The term “active alarms” refers to a list of SET alarms without the matching CLR alarms that are generated by applications. The number of active alarms that a LP can store can be engineered via the *Lp Eng AAList Ov* component. |
| Common Verbs | Help<br>List<br>Display |

## VERB Replay AAServ

| | |
|---|---|
| Impact | Passive |
| Description | *Replay AAServ*<br>This verb causes all active alarms to be reissued to the NMIS session which issued the replay command. The maximum number of replay sessions allowed is eight. Also, concurrent replays from the same NMIS session are not supported. This verb is intended for use by NMS only and not recommended to be used by operators directly. |

## VERB Clear AAServ

| | |
|---|---|
| Impact | System_admin |
| Description | *Clear -notificationId(<**id**>) -comment(<**text**>) AAServ*<br>This verb removes an alarm containing the specified *notificationId* from a list of active alarms.<br><br>If the active alarm corresponding to the specified *notificationId* is removed successfully, a CLR alarm is issued. The alarm is sent to all active NMIS sessions including SNMP.<br><br>If an alarm with the specified *notificationId* does not exist, then the command fails.<br><br>**Options**:<br>*-notificationId(<id>)*<br>specifies the notification id of an active alarm to be removed. If the argument *id* is not specified, an error response is generated.<br><br>*-comment(<text>)*<br>specifies a comment text to be added to the CLR alarm when the active alarm is successfully removed. |

Passport 7400, 15000, 20000

# Component AAServ

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component Ac

241-5701-060

Passport 7400, 15000, 20000

# Component Ac

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT AccessControl (Ac)

| | |
|---|---|
| Groups | "GROUP Ac Provisioned (Prov)" |
| Scope | Device |
| Description | *AccessControl*<br>The *AccessControl* component performs security validation to restrict access to a Passport module. *AccessControl* ensures that only authorized remote devices can log in to the Network Management Interfaces for management purposes.<br>The *AccessControl* component is a placeholder to collect all the *Userid*, *IpAccess* and *Role* components below it. |
| Opt. Subcomp. | "COMPONENT Ac Userid"<br>"COMPONENT Ac IpAccess"<br>"COMPONENT Ac Radius (Radius)"<br>"COMPONENT Ac Role" |
| Common Verbs | Help<br>List<br>Display<br>Add |

## GROUP Ac Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes which apply to the overall access of the node. |

## ATTRIBUTE Ac publicKeyAuth (keyAuth)

| | |
|---|---|
| Access | Read: System_admin<br>Write: System_admin |
| Description | This attribute indicates whether Telnet sessions require a public key exchange in order to log in to the node. FMIP sessions always require a public key exchange for login authentication. |
| Set of | telnet |
| Default | No default |

## COMPONENT Ac Userid

| | |
|---|---|
| Instance | String (1..8, ASCII) |
| Groups | "GROUP Ac Userid Provisioned (Prov)" |
| Scope | Application |
| Description | *AccessControl Userid/<string>*<br>The *Userid* component holds all provisionable attributes for a userid. Every Network Management Interface requires a user to supply a valid userid and password to log in, like most computer systems.<br>The instance value must be the userid string itself, consisting of 1-8 alphanumeric (letters and numbers) characters. Letters in the userid string are case-insensitive. |
| Common Verbs | Help<br>List<br>Display<br>Add : System_admin<br>DELete : System_admin |

## GROUP Ac Userid Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for a *Userid* component. |

### ATTRIBUTE Ac Userid password (passwd)

| | |
|---|---|
| Access | Read: Illegal<br>Write: System_admin |
| Description | This attribute holds a password for this user only if this user is to be authenticated locally by Passport. If this user is to be authenticated remotely (for example, via a RADIUS server) then the password is left blank. This is a write-only attribute to provide additional security for passwords. The password string consists of 5-8 characters, which may be any printable ASCII characters. If the password string includes any non-alphanumeric character, such as $ or *, the entire string must be enclosed in double quotes. Letters in the password string are case-sensitive. |
| Values | String (0..8, ASCII) |
| Default | No default |

### ATTRIBUTE Ac Userid customerIdentifier (cid)

| | |
|---|---|
| Access | Read: System_admin<br>Write: System_admin |
| Description | This attribute indicates the Customer Identifier (CID) assigned to the user. The CID is used in Customer Network Management (CNM). A CNM operator may only send commands to components provisioned with the same CID as the operator. A CNM operator will only receive event data, such as alarms, which is generated by components provisioned with the same CID as the operator.<br>The special CID of 0 is reserved for the network owner, known as the Netman.<br>The Passport CID attribute is compatible with DPN-100 Netman and Basic CIDs. |
| Values | Decimal (0..8191) |
| Default | 0 |

### ATTRIBUTE Ac Userid commandScope (scope)

| | |
|---|---|
| Access | Read: System_admin<br>Write: System_admin |

Description

This attribute indicates the command scope assigned to the user. The scope determines the importance of the components on which the userid will be allowed to execute commands. Scope has three levels:

1) ***network*** scope implies the userid can manage components that affect the operation of the entire network, such as trunks.
2) ***device*** scope implies the userid can manage components that affect the operation of the entire Passport module, such as processors or the file system.
3) ***application*** scope implies the userid can manage components that affect the operation of a single application.

Note that scope is hierarchical: A user provisioned with ***network*** scope can also manage components with a scope of ***device*** or ***application***.

Values

network
device
application

Default

application

### ATTRIBUTE Ac Userid commandImpact (impact)

Access

Read: System_admin
Write: System_admin

Description

This attribute indicates the command impact assigned to the user. The impact determines the importance of the commands which the userid will be allowed to execute. Impact has five levels:

1) ***debug*** impact implies the userid can issue all debugging commands. Debug is the highest impact level.
2) ***systemAdministration*** impact implies the userid can issue provisioning commands on security components. This means the userid can *Add*, *Delete*, *Display*, or *Set* the *Userid* and *IpAccess* subcomponents of *AccessControl*.
3) ***configuration*** impact implies the userid can issue provisioning commands to alter the provisioned configuration of the Passport module, such as *Start Prov*, *Add*, *Delete*, and *Set*.
4) ***service*** impact implies the userid can issue operational

commands which may affect the service of running components, such as *Lock* and *Unlock*.
5) ***passive*** impact implies the userid can only issue query commands which display unrestricted information but otherwise do not affect the operation or configuration of the Passport module, such as *List* and *Display*. Passive is the lowest impact level.

Note that impact is hierarchical: A user provisioned with ***debug*** impact can also issue all other commands at lower impact levels.

Values
debug
systemAdministration
configuration
service
passive

Default
passive

### ATTRIBUTE Ac Userid allowedAccess (nmifs)

Access
Read: System_admin
Write: System_admin

Description
This attribute indicates the set of network management interfaces through which the user will be allowed incoming access to the Passport. The *allowedAccess* attribute can be used to restrict a userid to a desired subset of the network management interfaces provided.

Set of
local
telnet
fmip
ftp

Default
(local)

### ATTRIBUTE Ac Userid loginDirectory (dir)

Access
Read: System_admin
Write: System_admin

Description
This attribute is the login directory for file system commands or FTP commands. The user will initially be placed in this directory

| | |
|---|---|
| | upon logging in via Telnet, FMIP, Local, or FTP.<br>The default value of "/" is the root of the /sfs/ shadowed file system. |
| Values | String (1..128, ASCII) |
| Default | / |

### ATTRIBUTE Ac Userid allowedOutAccess (outAccess)

| | |
|---|---|
| Access | Read: System_admin<br>Write: System_admin |
| Description | This attribute indicates whether or not the user will be allowed outgoing Telnet access from the Passport. |
| Set of | telnet |
| Default | No default |

### ATTRIBUTE Ac Userid timeoutProtocol

| | |
|---|---|
| Access | Read: System_admin<br>Write: System_admin |
| Description | This attribute specifies whether the user's sessions will override the *timeoutPeriod* attribute of the *Telnet* component.<br><br>***enabled***: The timeout protocol provisioned under the *Telnet* component will be followed.<br><br>***disabled:*** The *Userid* is exempt from the timeout protocol. |
| Values | disabled<br>enabled |
| Default | enabled |

### ATTRIBUTE Ac Userid remoteAuth

| | |
|---|---|
| Access | Read: System_admin<br>Write: System_admin |
| Description | This attribute specifies whether the user is to be authenticated locally by Passport or remotely by an off-switch device such as a RADIUS server. The *password* attribute needs to be specified |

when the value of this attribute is set to ***disabled***. The default is ***disabled***.

***disabled***: The user is authenticated locally on Passport.

***enabled:*** The user is authenticated remotely.

| | |
|---|---|
| Values | disabled<br>enabled |
| Default | disabled |

## COMPONENT Ac IpAccess

| | |
|---|---|
| Instance | IP address |
| Groups | "GROUP Ac IpAccess Provisioned (Prov)" |
| Scope | Application |
| Description | *AccessControl IpAccess/<IP address>*<br>This component represents a single “friendly” remote IP address which is permitted to call into the Telnet, FTP, or FMIP Interfaces on the Passport. All the friendly IP addresses must be provisioned as *IpAccess* components. The *IpAccess* components, taken together, form a complete list of all the IP addresses which are allowed access to the Passport’s Network Management Interfaces. This set of friendly IP addresses excludes all other addresses, restricting access only to the friendly computers.<br>The instance value is the IP address itself, or an IP subnetwork address, entered in Internet nnn.nnn.nnn.nnn notation. An IP subnetwork address, in combination with the *ipAddressMask* attribute described below, may be provisioned to include an entire IP subnetwork into the friendly list with a single *IpAccess* component.<br><br>Note that with the introduction of Telnet client capability, the *IpAccess* lists must allow for the fact that Telnet access may now |

be from another Passport (or another type of node) in the network, not just management workstations.

Common Verbs

Help
List
Display
Add : System_admin
DELete : System_admin

## GROUP Ac IpAccess Provisioned (Prov)

Properties: Provisioned

Description: This group contains the provisionable attributes for an *IpAccess* component.

## ATTRIBUTE Ac IpAccess ipAddressMask (mask)

Access: Read: System_admin
Write: System_admin

Description: This attribute indicates the bit mask indicating the significant bits which are used in the comparison of an incoming IP address against the “friendly” IP address in the instance value of the *IpAccess* component. This bit mask is ANDed to the incoming IP address, and ANDed to the instance value, before the comparison.

An IP subnetwork address, in combination with this bit mask attribute, may be provisioned to include an entire IP subnetwork into the friendly IP address list with a single *IpAccess* component.

Values: IP address

Default: 255.255.255.255

## COMPONENT Ac Radius (Radius)

Groups: "GROUP Ac Radius Operational (Oper)"
"GROUP Ac Radius Provisioned (Prov)"

Scope: Device

Description

*Ac Radius*
This component contains all the provisioned and operational information necessary to support the RADIUS protocol as specified in RFC 2865.

The *Radius* component represents the on-switch RADIUS client that communicates with a RADIUS server to authenticate usernames and passwords for Telnet, FTP, FMIP, and Local sessions. The RADIUS server sends back user settings that are used to start a session. This component also represents the state of the Passport as a Network Access Server (NAS).

The *Radius* component must have at least one *Server* subcomponent provisioned. Note that a *Server* subcomponent is created automatically when the *Radius* component is first created.

Subcomponents

"COMPONENT Ac Radius Server (Server)"

Common Verbs

Help
List
Display
Add : System_admin
DELete : System_admin

## GROUP Ac Radius Operational (Oper)

Properties

Operational

Description

This group contains the operational attributes for the *Radius* component.

## ATTRIBUTE Ac Radius badServerAddressPdus (badServerAdd)

Access

Read only

Description

This attribute counts the PDUs which are dropped because the source address in the PDU does not match the *serverIpAddress* specified by one *Ac Radius Server* component.

Access to the Passport is rejected even if the rest of the contents of the RADIUS response PDU are correct. An increase in the value of this attribute may indicate an unauthorized attempt to

gain entry into the Passport.

The counter wraps to zero when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: No default

### GROUP Ac Radius Provisioned (Prov)

Properties: Provisioned

Description: This group controls the provisioned attributes of the *Radius* component

### ATTRIBUTE Ac Radius nasIdentifier (nasId)

Access: Read: Service
Write: System_admin

Description: This attribute specifies the IP address used by the Passport to communicate with the RADIUS server. This IP address must exist as a valid instance under the *VirtualRouter ProtocolPort IpPort LogicalInterface* component and the instance of the *VirtualRouter* component must have the *managementAccess* attribute set to ***enabled***.

The IP Address specified by this attribute is known as a NAS (Network Access Server). ***In order to interoperate with a RADIUS server, the IP address specified by this attribute must be configured on the RADIUS server.*** The significance of this IP address is that it is sent as part of the RADIUS Access-Request PDU. The IP address is also used to configure the RADIUS server to allow authentication attempts from the Passport.

Values: IP address

Default: No default

### ATTRIBUTE Ac Radius numberOfRetries (numRetries)

Access: Read: Service
Write: System_admin

| | |
|---|---|
| Description | This attribute specifies the number of times that a RADIUS Access-Request PDU is resent to a RADIUS server if a time-out occurs.<br><br>If a time-out occurs while attempting to authenticate with a RADIUS server, the *timeouts* attribute under the *Server* subcomponent is incremented by one. |
| Values | Decimal (1..5) |
| Default | 3 |

### ATTRIBUTE Ac Radius requestTimeout (reqto)

| | |
|---|---|
| Access | Read: Service<br>Write: System_admin |
| Description | This attribute specifies the amount of time to wait for a RADIUS response from a RADIUS server after a RADIUS Access-Request PDU has been sent before declaring a time-out.<br><br>This value should be increased if there are a large number of time-outs that occur due to latencies in the network or if a RADIUS server is slow to respond.<br><br>This value should be decreased if the authentication wait time needs to be reduced. However, decreasing the value may cause more authentication failures because the time specified is not sufficient to receive a RADIUS response PDU from the RADIUS server. Furthermore, a smaller value may result in more time-outs and therefore more retransmissions to occur. |
| Values | Decimal (1..15) |
| Units | seconds |
| Default | 8 |

### COMPONENT Ac Radius Server (Server)

| | |
|---|---|
| Instance | Decimal (0..1) |

| | |
|---|---|
| Groups | "GROUP Ac Radius Server OsiState (State)"<br>"GROUP Ac Radius Server Operational (Oper)"<br>"GROUP Ac Radius Server Provisioned (Prov)" |
| Scope | Device |
| Description | *Ac Radius Server/n*<br>The *Server* component contains all the provisioned and operational information necessary to describe interactions with a RADIUS server.<br><br>When this component is in a locked state, authentication with the RADIUS server specified by the *serverIpAddress* attribute under the *Server* component is not possible. When this component is in an unlocked state, it becomes available to use for authentication. Note that there must be at least one *Server* component that is in an unlocked state at any time. If only one *Server* instance exists, it is not possible to lock it.<br><br>The RADIUS server selected to use for authentication is the last one from which the RADIUS client has received a response to an authentication request, provided that the *Server* component is not locked. If the RADIUS client has not received a response from any servers, the servers are tried in numeric order.<br><br>There must exist at least one instance of this component. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP Ac Radius Server OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state |

combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Ac Radius Server adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Ac Radius Server operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available |

for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Ac Radius Server usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Ac Radius Server Operational (Oper)

Properties
Operational

Description
This group contains the operational attributes for the *Server* component.

### ATTRIBUTE Ac Radius Server accessRequests (req)

Access
Read only

Description
This attribute counts the RADIUS Access-Request PDUs that are sent to this particular RADIUS server.

The counter wraps to zero when it exceeds the maximum value.

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Ac Radius Server accessAccepts (acc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the RADIUS Access-Accept PDUs that are received from the RADIUS server with the minimum number of required Vendor-Specific Attributes (VSAs).<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Ac Radius Server accessRejects (rej)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the RADIUS Access-Reject PDUs that are received from this RADIUS server.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Ac Radius Server packetsDropped (pktdrop)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the RADIUS PDUs that are dropped. A RADIUS PDU is dropped if there are no matching Access-Request PDUs for it.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Ac Radius Server accessRetransmissions (retran)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the RADIUS Access-Request PDUs that are retransmitted to a RADIUS server due to a time-out.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Ac Radius Server timeouts (to)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the time-outs that have occurred for the *Server* component. A time-out occurs when a RADIUS Access-Request PDU has been sent, but a corresponding RADIUS Access-Accept or Access-Reject PDU has not been received from the RADIUS server within the time specified by the *requestTimeout* attribute under the *Radius* component.<br><br>When a time-out occurs, the Passport retries the same server if the number of attempts on the same server is less than the number specified by the *numberOfRetries* attribute under the R*adius* component. If the number of attempts is greater than the *numberOfRetries* attribute, the next available RADIUS server is attempted.<br><br>If a retry is attempted, the *accessRetransmissions* attribute is incremented.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Ac Radius Server badAuthenticators (badauth)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the RADIUS Access-Accept or Access-Reject PDUs that are received from this RADIUS server with an incorrect response authenticator.<br><br>An increase in this attribute value may indicate that there is an attempt by a malicious attacker to gain access to the switch by “spoofing” RADIUS response PDUs. The response authenticator consists of a one-way MD-5 hash of the RADIUS PDU type, RADIUS PDU identifier, request authenticator, attributes, and the shared secret as specified in RFC 2865.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Ac Radius Server pendingRequests (pendReqs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the RADIUS Access-Request packets destined for RADIUS server that have not yet timed-out or received a response. This variable is incremented when an Access-Request is sent. It is decremented when a matching RADIUS Access-Accept or Access-Reject PDU is received, or a time-out occurs. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Ac Radius Server unknownTypes (unkwn)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the RADIUS PDUs which are received from a RADIUS port that are of an unsupported RADIUS PDU type.<br><br>The only RADIUS PDU types supported by the Passport are RADIUS Access-Accept and Access-Reject. All other RADIUS PDU types received by the Passport are considered invalid.<br><br>The counter wraps to zero when it exceeds the maximum value. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Ac Radius Server malformedAccessResponses (malResp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the malformed AccessResponses that are received by this Server.<br><br>Malformed responses include RADIUS type PDUs with incorrect fields, non-RADIUS PDUs that are sent to this port, and Access-Accept PDUs that do not have the minimum number of required Vendor-Specific Attributes (VSAs).<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Ac Radius Server roundTripTime (rtt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute measures the time interval between the most recent RADIUS Access-Request PDU sent to a RADIUS server and the corresponding RADIUS Access-Accept PDU or RADIUS Access-Reject PDU from that RADIUS server. |
| Values | Decimal (0..4294967295) |
| Units | seconds |
| Default | No default |

### GROUP Ac Radius Server Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioned attributes of the *Server* component. |

### ATTRIBUTE Ac Radius Server sharedSecret (secret)

| | |
|---|---|
| Access | Read: Illegal<br>Write: System_admin |
| Description | This attribute specifies the key used for the MD-5 hashing algorithm for encrypting a password for transmission to a RADIUS server. It is stored using a symmetrical encryption algorithm.<br><br>Since the key is large, it is recommended that it be generated randomly to further make the *sharedSecret* attribute difficult to guess by an attacker.<br><br>It is also recommended that this attribute be changed in accordance with the encryption key change policies used by the network operator. This includes algorithms used for generating the *sharedSecret* string and frequency of change policies. |
| Values | String (16..64, ASCII) |
| Default | No default |

### ATTRIBUTE Ac Radius Server serverIpAddress (servip)

| | |
|---|---|
| Access | Read: Service<br>Write: System_admin |
| Description | This attribute specifies the IP address of the RADIUS server that is used by the Passport to authenticate usernames and passwords.<br><br>IP addresses ending with 0 or 255 are not allowed. No IP address must end with 0 or 255 as these are typically used as broadcast addresses. In addition, the IP address cannot be greater than 224.0.0.0. |
| Values | IP address |
| Default | No default |

### ATTRIBUTE Ac Radius Server serverPortNumber (servport)

| | |
|---|---|
| Access | Read: Service<br>Write: System_admin |

| | |
|---|---|
| Description | This attribute specifies the UDP port the Passport uses to send and receive RADIUS PDUs. The valid port addresses to use according to the RFC are 1645 or 1812. Port 1812 is specified by the latest RFC 2865. |
| Values | 1645<br>1812 |
| Default | 1812 |

### ATTRIBUTE Ac Radius Server ipStack

| | |
|---|---|
| Access | Read: Service<br>Write: System_admin |
| Description | This attribute specifies the IP stack to use for transmitting and receiving RADIUS PDUs between the Passport and RADIUS Server. If a value of ***ipiFrIpiVc*** is selected, then an *IpiFr* or *IpiVc* component must be provisioned on this module. If a value of ***vrIp*** is selected, then Ip must be provisioned under the management Vr on this module. |
| Values | ipiFrIpiVc<br>vrIp |
| Default | ipiFrIpiVc |

### COMPONENT Ac Role

| | |
|---|---|
| Instance | String (1..128, ASCII) |
| Groups | "GROUP Ac Role Provisioned (Prov)" |
| Scope | Application |
| Description | *AccessControl Role/<string>*<br>A *Role* component represents a job function for a group of users. This component holds the provisionable attributes for a role. The instance value is the name of the role itself. The value is a string consisting of 1-128 alphanumeric (letters and numbers) characters. Letters in the *Role* component instance are case-insensitive. |

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display<br>Add : System_admin<br>DELete : System_admin |

### GROUP Ac Role Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for a *Role* component. |

### ATTRIBUTE Ac Role customerIdentifier (cid)

| | |
|---|---|
| Access | Read: System_admin<br>Write: System_admin |
| Description | This attribute indicates the Customer Identifier (CID) assigned to the *Role* component. The CID is used in Customer Network Management (CNM). A CNM operator may only send commands to components provisioned with the same CID as the operator. A CNM operator will only receive event data, such as alarms, which is generated by components provisioned with the same CID as the operator.<br>The special CID of 0 is reserved for the network owner, known as the Netman.<br>The Passport CID attribute is compatible with DPN-100 Netman and Basic CIDs. |
| Values | Decimal (0..8191) |
| Default | 0 |

### ATTRIBUTE Ac Role commandScope (scope)

| | |
|---|---|
| Access | Read: System_admin<br>Write: System_admin |
| Description | This attribute indicates the command scope assigned to the users with this role. The scope determines the components on which a |

user with this role will be allowed to operate on (that is, issue the display, set, add, and delete verbs). Scope has three levels :

1) ***network*** scope implies a user with this role can manage components that affect the operation of the entire network, such as trunks.
2) ***device*** scope implies a user with this role can manage components that affect the operation of the entire Passport module, such as processors or the file system.
3) ***application*** scope implies a user with this role can manage components that affect the operation of a single application.

Note that scope is hierarchical: A user provisioned with ***network*** scope can also manage components with a scope of ***device*** or ***application***.

Values
network
device
application

Default
application

### ATTRIBUTE Ac Role commandImpact (impact)

Access
Read: System_admin
Write: System_admin

Description
This attribute indicates the command impact assigned to users with this role. The impact determines the importance of the commands which the users with this role will be allowed to execute. The impact has five levels:

1) ***debug*** impact implies a user with this role can issue all debugging commands. Debug is the highest impact level.
2) ***systemAdministration*** impact implies a user with this role can issue provisioning commands on security components. This means the users with this role can *Add*, *Delete*, *Display*, or *Set* the *Userid*, *Role* and *IpAccess* subcomponents of *AccessControl*.
3) ***configuration*** impact implies a user with this role can issue provisioning commands to alter the provisioned configuration of the Passport module, such as *Start Prov*, *Add*, *Delete*, and *Set*.
4) ***service*** impact implies a user with this role can issue

operational commands which may affect the service of running components, such as *Lock* and *Unlock*.
5) ***passive*** impact implies a user with this role can only issue query commands which display unrestricted information but otherwise do not affect the operation or configuration of the Passport module., such as *List* and *Display*. Passive is the lowest impact level.

Note that the impact is hierarchical: A user provisioned with ***debug*** impact can also issue all other commands at lower impact levels.

Values
debug
systemAdmin
config
service
passive

Default
passive

### ATTRIBUTE Ac Role allowedAccess (nmifs)

Access
Read: System_admin
Write: System_admin

Description
This attribute indicates the set of network management interfaces through which a user with this role will be allowed incoming access to the Passport. The *allowedAccess* attribute can be used to restrict a user with this role to a desired subset of the network management interfaces provided.

Set of
local
telnet
fmip
ftp

Default
(local)

### ATTRIBUTE Ac Role allowedOutAccess (outAccess)

Access
Read: System_admin
Write: System_admin

| | |
|---|---|
| Description | This attribute indicates whether or not a user with this role will be allowed outgoing Telnet access from the Passport. |
| Set of | telnet |
| Default | No default |

### ATTRIBUTE Ac Role loginDirectory (dir)

| | |
|---|---|
| Access | Read: System_admin<br>Write: System_admin |
| Description | This attribute is the login directory for file system commands or FTP commands. A user with this role will initially be placed in this directory upon logging in via Telnet, FMIP, Local, or FTP. The default value of "/" is the root of the /sfs/ shadowed file system. |
| Values | String (1..128, ASCII) |
| Default | / |

### ATTRIBUTE Ac Role timeoutProtocol

| | |
|---|---|
| Access | Read: System_admin<br>Write: System_admin |
| Description | This attribute specifies whether a user session with this role will override the *timeoutPeriod* attribute of the *Telnet* component.<br><br>***enabled***: The timeout protocol provisioned under the *Telnet* component will be followed.<br><br>***disabled:*** Users with this role are exempt from the timeout protocol. |
| Values | disabled<br>enabled |
| Default | enabled |

### ATTRIBUTE Ac Role remoteOverride

| | |
|---|---|
| Access | Read: System_admin<br>Write: System_admin |

| | |
|---|---|
| Description | This attribute specifies whether or not remotely defined access privileges will override the privileges defined for this role.<br><br>***disabled***: The privileges assigned to this role are used.<br><br>***enabled:*** Privileges provided remotely will override any privileges defined for this role. |
| Values | disabled<br>enabled |
| Default | enabled |

Passport 7400, 15000, 20000

# Component Ac

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component Aps

241-5701-060

Passport 7400, 15000, 20000

# Component Aps

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT AutomaticProtectionSwitching (Aps)

| | |
|---|---|
| Instance | Decimal (0..15999) |
| Groups | "GROUP Aps CustomerIdentifierData (CidData)"<br>"GROUP Aps Provisioned (Prov)"<br>"GROUP Aps OsiState (State)"<br>"GROUP Aps Operational (Oper)" |
| Scope | Device |
| Description | *AutomaticProtectionSwitching/n*<br>This component manages the line protection of a SONE or /SDH interface. Automatic Protection Switching (APS) can switch traffic from an active line onto a standby line when a failure or degradation occurs on the active line.<br><br>**Note**: A *Test* Component provisioned under *Lp/n Sonet/m* is dynamically deleted when that line is added into an APS group. This is because *Aps* has a dynamic test component of its own for testing the active line.<br><br>The migration escape converts an *Aps* component to a *Laps* component in a Passport 15000. *Aps* component is not converted in a Passport 7000. |

| | |
|---|---|
| Dyn. Subcomp. | "COMPONENT Aps Test (Test)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## VERB PROTECTIONLOCKOUT (PROTLOCK) Aps

| | |
|---|---|
| Impact | Service |
| Description | *ProtectionLockout Aps/n*<br>This command instructs the *Aps* component to lock out the protection line from being used as the receive active line, using the *nearEndRequest* ***lockoutOfProtection***. If the protection line is active when the *ProtectionLockout* command is entered the working line is made active, even if there is a failure or degradation present on the working line.<br><br>If the provisioned *mode* is ***unidirectional*** and a *nearEndRequest* of ***lockoutOfProtection*** is already in effect then this command is ignored. If the provisioned *mode* is ***bidirectional*** and a *nearEndRequest* or *farEndRequest* of ***lockoutOfProtection*** is already in effect then this command is ignored.<br><br>This command can be issued regardless of whether the *Aps* is unlocked or locked. It remains in effect until cancelled with the *Clear* command. |

## VERB SWITCH Aps

| | |
|---|---|
| Impact | Service |
| Description | *Switch [-force] [-workingToProtection] [-protectionToWorking] Aps/n*<br>This command instructs the *Aps* to switch the *nearEndRxActiveLine* from the working line to the protection line (or vice versa) using the *nearEndRequest* ***manualSwitch***.<br><br>If the *-force* option is specified, the *Aps* is instructed to switch using the higher priority *nearEndRequest* ***forcedSwitch***.<br><br>If the *-workingToProtection* option is specified, the *Aps* switches the *nearEndRxActiveLine* from the working line to the protection line.<br><br>If the *-protectionToWorking* option is specified, the *Aps* switches the *nearEndRxActiveLine* from the protection line to the working line.<br><br>If a *nearEndRequest* of equal or higher priority is already in effect then this command will be ignored. The command will also be ignored if the provisioned *mode* is ***bidirectional*** and a *farEndRequest* of equal or higher priority is already in effect. For the list of request priorities refer to the description for the *Aps nearEndRequest* attribute.<br><br>If the *-force* option is specified, this command can be issued when the *Aps* is either unlocked or locked; otherwise it can only be issued when the *Aps* is unlocked. It remains in effect until cancelled with the *Clear* command, or until a *nearEndRequest* (or *farEndRequest* if the provisioned *mode* is ***bidirectional***) of higher priority goes into effect. |

## VERB CLEAR Aps

| | |
|---|---|
| Impact | Service |
| Description | *Clear Aps/n*<br>This command clears the *nearEndRequest*s ***lockoutOfProtection***, ***forcedSwitch***, and ***manualSwitch***.<br><br>This command can be issued when the *Aps* is either unlocked or locked. |

## GROUP Aps CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

## ATTRIBUTE Aps customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.<br><br>Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.<br><br>An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to "basic CIDs" in DPN) may be assigned to specific customers. |
| Values | Decimal (0; 1..8191) |
| Default | 0 |

## GROUP Aps Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioned attributes for the *Aps* component. |

## ATTRIBUTE Aps applicationFramerName (framer)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is a link to the service component which utilizes the protected *Sonet* or *Sdh* interface managed by the *Aps* component. |
| Values | Link (Service, interfaceName) |
| Default | No default |

## ATTRIBUTE Aps workingLine (working)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is a link to the *Path* component whose parent *Sonet* or *Sdh* component provides the *Aps*' working line. A value must be defined for this component.<br><br>The working line must exist under the same *Lp* as the protection line and must link to a *Path* component under the same type of port component (*Sonet* or *Sdh*) as the protection line.<br><br>Valid *workingLine* and *protectionLine* pairs must exist. For the 1pOC12SmLrAtm card, the *workingLine* must be lp/n sonet/0 path/0. For other APS compatible cards, the *workingLine* and *protectionLine* pairs must use port 0 with port 1 and port 2 with port 3. For example, if the *workingLine* is linked to a path on port 0, then the *protectionLine* must be linked to a path on port 1.<br><br>Sonet APS is available on cards of type ***2pOC3SmAtm2***, ***2pOC3MmAtm2, 4pOC3SmIrAtm, 4pOC3MmAtm, and 1pOC12SmLrAtm.*** |
| Values | Link (Service, applicationFramerName) |
| Default | No default |

## ATTRIBUTE Aps protectionLine (protection)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute is a link to the *Path* component whose parent *Sonet* or *Sdh* component provides the *Aps*' protection line. A value must be defined for this component. This attribute is critical because the APS process runs on the LP associated with the protectionLine.<br><br>The protection line must exist under the same *Lp* as the working line, and must link to a *Path* component under the same type of port component (*Sonet* or *Sdh*) as the protection line.<br><br>Valid *workingLine* and *protectionLine* pairs must exist. For the ***1pOC12SmLrAtm***, the *protectionLine* must be *Lp/n Sonet/1 Path/0*. For other APS compatible cards, the *workingLine* and *protectionLine* pairs must use port 0 with port 1 and port 2 with port 3. For example, if the *workingLine* is linked to a path on port 0, then the *protectionLine* must be linked to a path on port 1.<br><br>Sonet APS is available on cards of type ***2pOC3SmAtm2***, ***2pOC3MmAtm2, 4pOC3SmIrAtm, 4pOC3MmAtm, and 1pOC12SmLrAtm.*** |
| Values | Link (Hardware, applicationFramerName) |
| Default | No default |

## ATTRIBUTE Aps mode

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the protection mode to use. It has possible values of ***unidirectional*** and ***bidirectional***.<br><br>The ***unidirectional*** mode allows the *Aps* to decide independently of the far end which channel, either working or protection, is active for receive. For this value, the transmit and receive may be on different channels. Therefore one end may receive from the protection line while the other end receives from the active line. |

The ***bidirectional*** mode instructs the *Aps* to decide jointly with the far end which channel, either working or protection, is active for receive.For this value, the transmit and receive is to be on the same channel. Therefore both the ends receive from the same line.

Note that if either end is set to ***unidirectional***, the link operates in ***unidirectional*** mode.

Note that while an *Aps Test* is being run, the *Aps* operates in unidirectional mode, regardless of the actual provisioned mode.

Values
unidirectional
bidirectional

Default
unidirectional

## ATTRIBUTE Aps revertive

Access
Read and write

Description
This attribute specifies whether revertive switching is to be used.

When this attribute is ***no***, the Aps will not revert the receive active line from protection back to working when a working line request is cleared.

When this attribute is ***yes***, the Aps will revert the receive active line from protection back to working when a working line request is cleared, after the provisioned *waitToRestorePeriod* has expired.

Note that it is acceptable for the near end and far end to be provisioned with a mix of revertive and nonrevertive switching; one end can be revertive and the other nonrevertive

Values
no
yes

Default
no

### ATTRIBUTE Aps holdOffTime (hoTime)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies delay between the detection of a Signal Fail or Signal Degrade on the active line and the initiation of a switchover. |
| Values | Decimal (0.0..10.0) |
| Units | seconds |
| Default | 0.0 |

### ATTRIBUTE Aps waitToRestorePeriod (wtrPeriod)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time during which the protection line will remain the receive active line after the working line recovers from the fault that caused the switch. This attribute is only applicable when the provisionable attribute *revertive* is ***yes***. |
| Values | Decimal (5..12) |
| Units | minutes |
| Default | 5 |

### ATTRIBUTE Aps signalDegradeRatio (sdRatio)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the minimum bit error ratio (BER) for which a Signal Degrade failure is declared. Its value is the exponent of the BER, with possible values of ***-5*** through ***-9*** inclusive, which correspond to a BER range of 10e-5 through 10e-9.<br><br>The switch initiation time for a Signal Degrade varies depending on the observed BER (*not* the provisioned *signalDegradeRatio*), as described in the following table.<br><br>**BER - Switch Initiation Time**<br>10e-3 - 10 milliseconds |

10e-4 - 100 milliseconds
10e-5 - 1 second
10e-6 - 10 seconds
10e-7 - 100 seconds
10e-8 - 16 minutes 40 seconds
10e-9 - 2 hours 46 minutes 40 seconds

The clearing threshold for a Signal Degrade is one-tenth the *signalDegradeRatio*; for example, if the provisioned *signalDegradeRatio* is ***-5***, the corresponding clearing threshold will be 10e-6. The clearing time varies depending on the clearing threshold (*not* the observed BER), and can be determined from the above table.

Values — Signed (-9..-5)

Default — -5

### GROUP Aps OsiState (State)

Properties — Operational

Description — This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Aps adminState (osiAdmin)

Access — Read only

Description — This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is

administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Aps operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Aps usageState (osiUsage)

Access
Read only

Description

This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values

idle
active (activ)
busy

Default

idle

### ATTRIBUTE Aps availabilityStatus (osiAvail)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.

The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is

***disabled***.

The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.

The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.

The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

| | |
|---|---|
| Set of | inTest<br>failed<br>dependency (depend)<br>powerOff (pwrOff)<br>offLine<br>offDuty<br>degraded (degrad)<br>notInstalled (notIn)<br>logFull<br>migrating |
| Default | No default |

### ATTRIBUTE Aps proceduralStatus (osiProc)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.<br><br>The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.<br><br>The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***. |

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

### ATTRIBUTE Aps controlStatus (osiCntrl)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

Set of

subjectToTest (subTst)
partOfServicesLocked (partLk)
reservedForTest (rsrvd)
suspended (suspnd)

Default

No default

### ATTRIBUTE Aps alarmStatus (osiAlarm)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE Aps standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values

hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

| | |
|---|---|
| Default | notSet |

### ATTRIBUTE Aps unknownStatus (osiUnknw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Unknown status of the component.<br><br>The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.<br><br>The value ***true*** indicates that the actual state of the component is not known for sure. |
| Values | false<br>true |
| Default | false |

### GROUP Aps Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for the *Aps* component. |

### ATTRIBUTE Aps nearEndRxActiveLine (neRxLine)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates which near end line is active for receiving data from the far end. |
| Values | protection<br>working |
| Default | No default |

### ATTRIBUTE Aps nearEndRequest (neReq)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the request currently being transmitted to the far end in the SONET/SDH line overhead K1 byte of the protection line. Requests are prioritized so that high priority |

requests pre-empt or block those with a lower priority. The possible requests, in order of priority from highest to lowest, are as follows.

***lockoutOfProtection*** — the working line is prevented from switching to the protection line under any circumstances due to an *ProtectionLockout* command being in effect.

***forcedSwitch*** — the line indicated by attribute *nearEndRequestChannel* has a *Switch -force* command in effect against it. Note that a ***signalFail*** on the protection line has higher priority than a ***forcedSwitch***.

***signalFail*** — the line indicated by attribute *nearEndRequestChannel* is experiencing a signal failure (SF). Failures include LOS, LOF, received AIS-L, a signal BER exceeding $10^{-3}$, LOP, received AIS-P, LCD, or a locked *Sonet*, *Sdh*, or *Path* component. Note that a ***signalFail*** on the protection line has higher priority than a ***forcedSwitch***.

***signalDegrade*** — the line indicated by attribute *nearEndRequestChannel* is experiencing a signal degradation (SD).

***manualSwitch*** — the line indicated by attribute *nearEndRequestChannel* has a *Switch* command in effect against it.

***waitToRestore*** — the protection line is active, provisioned attribute *revertive* is ***yes***, and the working line has recovered from a Signal Fail or Signal Degrade. After the period defined by attribute *waitToRestorePeriod* the working line will automatically revert to being the receive active line and the request will change to ***noRequest***.

***reverseRequest*** — the line indicated by attribute *nearEndRequestChannel* is active due to a request from the far end. This request is only applicable when the provisioned *mode* is ***bidirectional***.

***doNotRevert*** — the protection line is active, provisioned attribute

*revertive* is ***no***, and either: (1) the working line has recovered from a ***signalFail*** or ***signalDegrade***; or (2) a ***forcedSwitch*** or ***manualSwitch*** request has been cleared. The receive active line will not automatically revert to the working line.

***noRequest*** — the working line is active and no other requests are in effect.

Values

lockoutOfProtection
forcedSwitch
signalFail
signalDegrade
manualSwitch
waitToRestore
reverseRequest
doNotRevert
noRequest

Default

No default

### ATTRIBUTE Aps nearEndRequestChannel (neReqChan)

Access

Read only

Description

This attribute indicates to which channel the *nearEndRequest* applies.

Values

protection
working

Default

No default

### ATTRIBUTE Aps farEndRequest (feReq)

Access

Read only

Description

This attribute indicates the request currently being received from the far end in the SONET/SDH line overhead K1 byte of the protection line. Requests are prioritized so that high priority requests preempt or block those with a lower priority. The possible requests, in order of priority from highest to lowest, are as follows.

***lockoutOfProtection*** — the working line is prevented from

switching to the protection line under any circumstances due to an *ProtectionLockout* command being in effect.

***forcedSwitch*** — the line indicated by attribute *nearEndRequestChannel* has a *Switch -force* command in effect against it. Note that a ***signalFail*** on the protection line has higher priority than a ***forcedSwitch***.

***signalFail*** — the line indicated by attribute *nearEndRequestChannel* is experiencing a signal failure (SF). Failures include LOS, LOF, received AIS-L, a signal BER exceeding $10^{-3}$, LOP, received AIS-P, LCD, or a locked *Sonet*, *Sdh*, or *Path* component. Note that a ***signalFail*** on the protection line has higher priority than a ***forcedSwitch***.

***signalDegrade*** — the line indicated by attribute *nearEndRequestChannel* is experiencing a signal degradation (SD).

***manualSwitch*** — the line indicated by attribute *nearEndRequestChannel* has a *Switch* command in effect against it.

***waitToRestore*** — the protection line is active, provisioned attribute *revertive* is ***yes***, and the working line has recovered from a Signal Fail or Signal Degrade. After the period defined by attribute *waitToRestorePeriod* the working line will automatically revert to being the receive active line and the request will change to ***noRequest***.

***reverseRequest*** — the line indicated by attribute *nearEndRequestChannel* is active due to a request from the far end. This request is only applicable when the provisioned *mode* is ***bidirectional***.

***doNotRevert*** — the protection line is active, provisioned attribute *revertive* is ***no***, and either: (1) the working line has recovered from a ***signalFail*** or ***signalDegrade***; or (2) a ***forcedSwitch*** or ***manualSwitch*** request has been cleared. The receive active line will not automatically revert to the working line.

***noRequest*** — the working line is active and no other requests are in effect.

Values
lockoutOfProtection
forcedSwitch
signalFail
signalDegrade
manualSwitch
waitToRestore
reverseRequest
doNotRevert
noRequest

Default
No default

### ATTRIBUTE Aps farEndRequestChannel (feReqChan)

Access
Read only

Description
This attribute indicates to which channel the *farEndRequest* applies.

Values
protection
working

Default
No default

### ATTRIBUTE Aps sdOnLines

Access
Read only

Description
This attribute indicates which lines (if any) are currently experiencing a Signal Degrade (SD).

Set of
protection
working

Default
No default

### ATTRIBUTE Aps switchovers

Access
Read only

Description
This attributes counts the number of times that a switchover of the active line has occurred since the *Aps* component became active.

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Aps timeUntilRestore

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the amount of time until the receive active line is automatically switched back from the protection line to the working line. It is only applicable for Aps components that are provisioned to be revertive, and which currently have the protection line as the receive active line and a *nearEndRequest* of ***waitToRestore***. |
| Values | Decimal (0..12) |
| Units | minutes |
| Default | No default |

### ATTRIBUTE Aps protocolFailureAlarm (pfAlarm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether the *Aps* component is experiencing an APS protocol failure alarm. Protocol failure alarms include the protection switching byte mismatch alarm (code 7011 5270) and the channel mismatch failure alarm (code 7011 5271). |
| Values | on<br>off |
| Default | No default |

### ATTRIBUTE Aps modeMismatchAlarm (mmAlarm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether the *Aps* component is experiencing an APS mode mismatch alarm (code 7011 5272). This alarm indicates either:<br><br>(1) that the far end is operating with a 1:n switching architecture (not supported by Passport), as opposed to 1+1; or |

(2) that the far end's provisioned *mode* is not the same as the nears end's provisioned *mode*.

When a mode mismatch occurs: (1) if the far end is operating with a 1:n switching architecture it will operate as 1+1; and (2) if either end has a provisioned *mode* of ***unidirectional*** then both ends will operate unidirectionally.

Values
on
off

Default
No default

## COMPONENT Aps Test (Test)

Groups
"GROUP Aps Test OsiState (State)"
"GROUP Aps Test Setup (Setup)"
"GROUP Aps Test Results (Results)"

Scope
Application

Description
The *Test* component is configured to control a hardware facility test on a physical (*V35*, *X21*, *DS1*, *E1*, *DS3*, *E3* etc.) or a logical port.

Common Verbs
Help
List
Display

## VERB START Aps Test

Impact
Service

Description
This command invokes a test on the hardware component. Note that some test types requires the parent component (the hardware component) to be locked (using the *Lock* command) before a test can be started.

## VERB STOP Aps Test

Impact
Service

Description
This command stops a test running on the hardware component.

### GROUP Aps Test OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Aps Test adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Aps Test operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component. |

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Aps Test usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Aps Test Setup (Setup)

Properties
Operational

Description
This group contains all of the operational data for a *Test* component.

## ATTRIBUTE Aps Test purpose (purpose)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute records the purpose of the test so that the test results can be associated and properly analyzed. |
| Values | String (0..40, ASCII) |
| Default | No default |

## ATTRIBUTE Aps Test type (type)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the type of test to be run. The available test types include the following:<br>***card*** test sets up an internal loop on the board and runs a bit error rate test.<br>***manual*** test assumes the line is looped back externally and a bit error rate test is performed.<br>***localLoop*** test loops back the local modem and performs a bit error rate test.<br>***remoteLoop*** test loops back the remote modem (or CSU) and performs a bit error rate test.<br>***externalLoop*** test loops back the line to the far end.<br>***payloadLoop*** test only loops back the payload data received from the incoming line.<br>***remoteLoopThisTrib*** loops this particular tributary back at the far end, using services provided by the parent.<br>***v54RemoteLoop*** initiates a V.54 Remote Loopback test.<br>***pn127RemoteLoop*** initiates a PN127 Remote Loopback test.<br>***lineBIP8Error*** tests line BIP 8 error generation and detection (B2 byte inverted).<br>***sectionBIP8Error*** tests section BIP 8 error generation and detection (B1 byte inverted).<br>***pathBIP8Error*** tests path BIP 8 error generation and detection (B3 byte inverted).<br>***pathBIP2Error*** tests path BIP 2 error generation and detection (bit 1-2 of V5 byte inverted).<br>Note that not all test types are not supported by all function processors. |

| | |
|---|---|
| Values | card<br>manual<br>localLoop<br>remoteLoop<br>externalLoop<br>payloadLoop<br>remoteLoopThisTrib<br>v54RemoteLoop<br>pn127RemoteLoop<br>lineBIP8Error<br>sectionBIP8Error<br>pathBIP8Error<br>pathBIP2Error |
| Default | card |

### ATTRIBUTE Aps Test frmSize (size)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the size of the test data frames in number of bytes.<br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |
| Values | Decimal (4..4096) |
| Units | bytes |
| Default | 1024 |

### ATTRIBUTE Aps Test frmPatternType (fpt)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the type of data pattern generation to use. The following lists the available pattern types:<br>***ccitt32kBitPattern*** is a pseudo-random sequence of 32 kbit.<br>***ccitt8MBitPattern*** is a pseudo-random sequence of 8Mbit.<br>***customizedPattern*** is the pattern defined in the ***customizedPattern*** attribute. |

| | |
|---|---|
| Values | ccitt32kBitPattern<br>ccitt8MBitPattern<br>customizedPattern |
| Default | ccitt32kBitPattern |

### ATTRIBUTE Aps Test customizedPattern (cp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute allows a customized 32 bit pattern to be defined for use in the test data frames. This attribute is used when the attribute *frmPatternType* is set to ***CustomizedPattern***. Note that a 55 hex pattern is an alternating 1 and 0 pattern. |
| Values | Hex (H.0..H.ffffffff) |
| Units | Hex |
| Default | H.55555555 |

### ATTRIBUTE Aps Test dataStartDelay (dsd)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time delay (in seconds) between when the test expects the loop to have been set up, to when the test data actually starts to be transmitted. This attribute is to accommodate some non-standard equipment that requires extra time for setting up a requested loop.<br>This attribute is ignored when the test *type* is set to ***externalLoop***. |
| Values | Decimal (0..1814400) |
| Units | seconds |
| Default | 0 |

### ATTRIBUTE Aps Test displayInterval (di)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the interval (in minutes) between which interim test results are to be displayed. Results are displayed at the operator console at which the test was started. When the test *type* is set to ***externalLoop***, this attribute is ignored. There will be |

| | |
|---|---|
| | no display of results if *displayInterval* is set to 0. This attribute can be changed anytime. |
| Values | Decimal (0..30240) |
| Units | minutes |
| Default | 5 |

### ATTRIBUTE Aps Test duration

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the duration for which the test data will be transmitted. In the case of an ***externalLoop***, this is the time that the loop is in effect. Note that *dataStartDelay* does not apply to the ***externalLoop*** test type. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 1.00 |

### GROUP Aps Test Results (Results)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all the statistics related attributes of the *Test* component. |

### ATTRIBUTE Aps Test causeOfTermination

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates either the status of the test or the cause of the test's termination:<br><br>a value of ***neverStarted*** indicates that the test has not yet been started.<br><br>a value of ***testRunning*** indicates that the test has been started.<br><br>a value of ***stoppedByOperator*** indicates that the operator issued a stop command on a test that was running. |

a value of ***testTimeExpired*** indicates that the test ran for the time specified by the test's *duration*.

a value of ***loopCodeSyncFailed*** indicates that the local end failed to synchronize to the loopCode pattern. The local end transmits the loopCode pattern to cause the remote end to apply a loopback, after which the local end should receive the loopCode pattern. The exact pattern used to request loopCode depends on the test *type*. This failure indicates a high rate of transmission errors, or that the remote end has failed to apply the loopback.

a value of ***patternSyncFailed*** indicates that the local end failed to synchronize to the *frmPatternType* test pattern, that should have been looped back at the remote end. This failure indicates a high rate of transmission errors or the absence of a loopback.

a value of ***patternSyncLost*** indicates that the local end gained and then lost synchronization to the returned *frmPatternType* test pattern. This failure indicates a sudden increase in transmission errors, frame slippage, or the removal of an existing loopback.

a value of ***unknown*** is set when a reason to terminate other than those listed here is encountered.

Note: The *causeOfTermination* attribute values of ***loopCodeSyncFailed***, ***patternSyncFailed*** and ***patternSyncLost*** are supported only on MSA cards. *Test* components located on other cards or under an *Ima* component on an MSA card will never terminate the test under the conditions described by these values.

Values

testTimeExpired
stoppedByOperator
unknown
neverStarted
testRunning
hardwareReconfigured
loopCodeSyncFailed
patternSyncFailed
patternSyncLost

| | |
|---|---|
| Default | neverStarted |

### ATTRIBUTE Aps Test bitsTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bits sent during the test period. As long as the line speed of the hardware interface is less than 70 Mbit/s, this counter is not expected to reach the maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Aps Test bytesTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes sent during the test period. This counter is not expected to reach its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Aps Test frmTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames sent during the test period. This counter is not expected to reach its maximum value.<br><br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Aps Test bitsRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bits received during the test period. The counter wraps to zero when it exceeds the maximum value. |
| Values | Long Integer |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Aps Test bytesRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes received during the test period. The counter wraps to zero when it exceeds its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Aps Test frmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received during the test period. The counter wraps to zero when it exceeds its maximum value.<br><br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Aps Test erroredFrmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute is not displayed for ATM and MSA32 cards. For ATM cards, the physical layer drops all errored frames at the controller interface. For MSA32 cards, the test does not generate any frame.<br><br>For all other card types, this attribute counts the errored frames received during the test period. The counter wraps to zero when it exceeds its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Aps Test bitErrorRate

| | |
|---|---|
| Access | Read only |
| Description | This attribute is not displayed for ATM cards because the physical layer drops all errored frames at the controller interface. For MSA32 cards, this attribute indicates the link bit error rate, regardless of the *frameSize*, which is not supported<br><br>For all other card types, this attribute is the calculated bit error rate on the link. Test data are generated and sent in frames of a preset size (*frameSize*). The *Test* component will try to estimate the number of bit errors in any errored frame which is identifiable. The statistics will be updated accordingly. A lost frame (may be due to an error on the flag sequence) will be discarded for the bit error rate calculation. The result is presented in the form of xEsyy, where x is the mantissa, syy is the exponent, for example 0E+00, 2E-09.<br>Note that the *bitErrorRate* is an estimate only. For more reliable test results, the test should be done over a long period. Multiple tests would also improve the confidence level of the test results. |
| Values | String (5, ASCII) |
| Default | No default |

### ATTRIBUTE Aps Test elapsedTime

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the time elapsed since the test started for an ***externalLoop*** test. For a data test, it indicates time since test data was first transmitted. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 0.00 |

### ATTRIBUTE Aps Test timeRemaining

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the length of time remaining before the test stops according to the *duration* attribute. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 0.00 |

Passport 7400, 15000, 20000

# Component Aps

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component ARtg

241-5701-060

Passport 7400, 15000, 20000

# Component ARtg

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT AtmRouting (ARtg)

| | |
|---|---|
| Groups | "GROUP ARtg Statistics (Stats)"<br>"GROUP ARtg Provisioned (Prov)" |
| Scope | Device |
| Description | *AtmRouting*<br>This component contains the provisionable and operational attributes related to ATM routing.<br><br>The *Dna* subcomponents can be listed to view all the provisioned and registered ATM end system addresses and prefixes stored against any of the *Uni*, *Iisp* or *Pnni* interfaces.<br><br>The *Pnni* subcomponent can be provisioned to identify that this Passport node participates in a PNNI hierarchy.<br><br>The *PhysicalPort* subcomponent can be listed to view all the physical ports available for ATM routing. |
| Subcomponents | "COMPONENT ARtg SparedServices (SpServ)" |
| Opt. Subcomp. | "COMPONENT ARtg Pnni" |
| Dyn. Subcomp. | "COMPONENT ARtg DataNetworkAddress (Dna)"<br>"COMPONENT ARtg PhysicalPort (Port)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP ARtg Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the statistical operational attributes of an *ARtg* component. |

## ATTRIBUTE ARtg routingAttempts

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the calls routed. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## ATTRIBUTE ARtg failedRoutingAttempts

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the calls that were not successfully routed.The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## GROUP ARtg Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the generic provisionable attributes of a *ARtg* component. |

## ATTRIBUTE ARtg useBestMatchAddrOnCrankback (useBma)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies when the ATM routing system should be using best match addresses for a crankback. |

By default, when performing a crankback, the ATM routing system only considers addresses that are equal to the length of the address used during the first routing attempt.

With this attribute, you may specify that the ATM routing system also considers best match addresses for a crankback when this node is the DTL originating node, the DTL terminating node, or acts as both the DTL originating and terminating node. The possible values for this attribute are:
**none**: specifies that the DTL originator and the DTL terminator are not using best match address resolution when calculating a route.
**originatingOnly**: specifies that only the DTL originator uses best match address resolution.
**terminatingOnly**: specifies that only the DTL terminator uses best match address resolution.
**originatingTerminating**: specifies that both the DTL originator and the DTL terminator use best match address resolution.

Values
none
originatingOnly (origOnly)
terminatingOnly (termOnly)
originatingTerminating (origTerm)

Default
none

### ATTRIBUTE ARtg discardCallsOnOverload (discCallsOnOverld)

Access
Read: All
Write: All

Description
This attribute specifies whether or not ATM signalling overload control is in effect on this node for each FP.

A value of ***enabled*** causes new incoming calls to be discarded on overloaded egress FPs. Overload is detected when more than 39% of signalling message buffers are in use, or more than 63 SSCOP PDUs have not been acknowledged.

Set the attribute to ***enabled*** when low call setup latency is preferred over calls being discarded.

| | |
|---|---|
| Values | disabled<br>enabled |
| Default | disabled |

## COMPONENT ARtg DataNetworkAddress (Dna)

| | |
|---|---|
| Instance | String (1..40, ASCII) |
| Scope | Application |
| Description | *ARtg DataNetworkAddress/<ATM address>*<br>This component represents an ATM NSAP address that has been provisioned or dynamically registered through ILMI. |
| Dyn. Subcomp. | "COMPONENT ARtg Dna DestInfo" |
| Common Verbs | Help<br>List<br>Display |

## COMPONENT ARtg Dna DestInfo

| | |
|---|---|
| Instance | Decimal (0..50) |
| Groups | "GROUP ARtg Dna DestInfo Operational (Oper)" |
| Scope | Application |
| Description | *ARtg Dna/<ATM address> DestInfo/<n>*<br>This component represents a destination associated with the parent *Dna*. |
| Common Verbs | Help<br>List<br>Display |

## GROUP ARtg Dna DestInfo Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for the *DestInfo* component. |

### ATTRIBUTE ARtg Dna DestInfo type

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the type of the address at the destination interface. Provisioned addresses are assigned a type of ***primary*** or ***alternate***; ATM routing will try primary routes and then the alternate routes if none of the primary routes succeed. The type ***registered*** is used for dynamic addresses registered through ILMI. The type ***default*** is used for Soft PVC addresses. The type ***ebr***<br>indicates addresses used by Edge Based Rerouting. |
| Values | primary<br>alternate<br>registered<br>default<br>reroute |
| Default | No default |

### ATTRIBUTE ARtg Dna DestInfo scope

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the highest level (meaning the lowest numeric value) in the hierarchy where the address will be advertised.<br><br>A value of -1 indicates that the scope is not applicable because this node has not been configured as a PNNI node. |
| Values | Signed (-1..104) |
| Default | No default |

### ATTRIBUTE ARtg Dna DestInfo componentName

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the component name of the interface through which the address can be reached. |

| | |
|---|---|
| Values | The name of the component |
| Default | No default |

### ATTRIBUTE ARtg Dna DestInfo reachability (reach)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates whether the address is ***internal*** or ***exterior*** to this domain. |
| Values | internal<br>exterior |
| Default | No default |

### COMPONENT ARtg Pnni

| | |
|---|---|
| Groups | "GROUP ARtg Pnni Provisioned (Prov)"<br>"GROUP ARtg Pnni PglElectionParms (PglParms)"<br>"GROUP ARtg Pnni HelloParms (HlParms)"<br>"GROUP ARtg Pnni PTSETimerParms (PtseParms)"<br>"GROUP ARtg Pnni ChangeThresholds (ThreshParms)"<br>"GROUP ARtg Pnni Operational (Oper)"<br>"GROUP ARtg Pnni Statistics (Stats)"<br>"GROUP ARtg Pnni SvccBasedRccParms (SvccRcc)" |
| Scope | Device |
| Description | *ARtg Pnni*<br>This component represents the PNNI Routing capability. Provisioning the *Pnni* component under the *ARtg* component indicates that this switch has PNNI routing capability.<br>The *Pnni* component must have at least one and no more than 10 *ConfiguredNode* subcomponents. |

| | |
|---|---|
| Subcomponents | "COMPONENT ARtg Pnni LoadBalancing (Lb)" |
| Opt. Subcomp. | "COMPONENT ARtg Pnni ConfiguredNode (CfgNode)"<br>"COMPONENT ARtg Pnni Cache"<br>"COMPONENT ARtg Pnni NodeName (Node)"<br>"COMPONENT ARtg Pnni MdtlPath (Mdtl)"<br>"COMPONENT ARtg Pnni Reroute" |
| Dyn. Subcomp. | "COMPONENT ARtg Pnni RouteFinder (Rf)"<br>"COMPONENT ARtg Pnni Topology (Top)"<br>"COMPONENT ARtg Pnni Port" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP ARtg Pnni Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the generic provisionable attributes of a *Pnni* component. |

## ATTRIBUTE ARtg Pnni nodeAddressPrefix

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the ATM address prefix of this node for all levels of the hierarchy.<br><br>If this attribute is set to the null string, then a default node address prefix is computed as follows: the value provisioned for the *ModuleData* component's *nodePrefix* attribute, followed by a unique MAC address (6 octets). |

If a value is assigned, it must be exactly 38 characters long. All characters must be hexadecimal with the following restrictions:
- the first two characters must be a number between 10 and FE, inclusive.
- if the first two characters are ’45’, the 18th character must be an ‘F’ or an ‘f’.

Values: String (0..19, Hex)

Default: No default

### ATTRIBUTE ARtg Pnni defaultScope

Access: Read: All
Write: All

Description: This attribute specifies the default PNNI scope for ATM addresses associated with this node. The PNNI scope determines the level to which the address is advertised within the PNNI routing domain. A provisioned *Addr* component may override the default scope in a *PnniInfo* subcomponent.

A value of 0 means that all addresses which do not have provisioned scopes is advertised globally within the PNNI routing domain.

The value specified must be numerically smaller than or equal to that of the lowest level at which this node is configured in the PNNI hierarchy.

Values: Decimal (0..104)

Default: 0

### ATTRIBUTE ARtg Pnni domain

Access: Read: All
Write: All

Criticality: Component

Description: This attribute specifies the routing domain name. This attribute should be set identically for all nodes in the same routing domain.

Values: String (1..32, ASCII)

| | |
|---|---|
| Default | 1 |

### ATTRIBUTE ARtg Pnni maxAlternateRoutesOnCrankback (maxAltRtsOnCrankbck)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the number of rerouting attempts before a call requiring crank-back is rejected. |
| Values | Decimal (0..20) |
| Default | 1 |

### ATTRIBUTE ARtg Pnni horizontalLinkInactivityTime

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the length of time a node continues to advertise a horizontal (logical) link for which it has not received an LGN Horizontal Link Information Group. Increasing this timer allows the link to increase tolerance of Information Group packet loses, but also increases the duration of advertising a stale link. Decreasing the timer has the reverse effect. |
| Values | Decimal (30..3600) |
| Units | seconds |
| Default | 120 |

### ATTRIBUTE ARtg Pnni pathDiversity

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies, as a percentage, how diverse the alternate paths should be relative to each other. For example, diversity degree of 60% means that the alternate paths have at least 60% of their links distinct.<br><br>Setting this attribute to 0 means that all alternate paths are accepted. |
| Values | Decimal (0..100) |

| | |
|---|---|
| Units | % |
| Default | 50 |

### ATTRIBUTE ARtg Pnni outgoingNcciIeFormat (nccile)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the Network Call Correlation Identifier (NCCI) IE format in outgoing SETUP messages for all PNNI interfaces on this node.<br><br>***backwardsCompatible*** selects both the proprietary Passport 0xF0 NCCI IE format and ATM Forum 0xEF NCCI IE format. Passport is able to differentiate the 0xF0 MDCR IE from 0xF0 NCCI IE.<br><br>***atmForum*** selects the ATM Forum0xEF NCCI IE format.<br><br>***backwardsCompatible*** should be selected if any node within the network is not running the software release containing this *outgoingNcciIeFormat* attribute.<br><br>***atmForum*** should only be selected if all nodes within the network have been upgraded to the software release containing this *outgoingNcciIeFormat* attribute. |
| Values | backwardsCompatible<br>atmForum |
| Default | No default |

### ATTRIBUTE ARtg Pnni optimizationMetric (optMetric)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute is a vector that specifies the optimization metric for each ATM service category. The optimization metric is used during Generic Connection Admission Control (GCAC) route computation.<br><br>Setting the value to ***cdv*** for a particular service category causes |

GCAC to optimize for cell delay variation on call setups requiring that service category.

Setting the value to ***maxCtd*** for a particular service category causes GCAC to optimize for maximum cell transfer delay on call setups requiring that service category.

Setting the value to ***aw*** for a particular service category causes GCAC to optimize for administrative weight on call setups requiring that service category.

Vector of
cdv
maxCtd
aw

Index
cbr
rtVbr
nrtVbr
ubr

Default
(aw, aw, aw, aw)

## ATTRIBUTE ARtg Pnni uniToPnniScopeMap

Access
Read: All
Write: All

Description
This attribute specifies the mapping of the UNI scope into a PNNI routing level. The mapping applies to the membership scope which is passed across the UNI via ILMI address registration. The PNNI routing level is then advertised along with the corresponding reachable address. The mapping also applies to the connection scope of an incoming SETUP message for Anycast call requests. The PNNI routing level then specifies the routing range for the call.

The table must be provisioned in descending order.

Vector of
Decimal (0..104)

Index
Decimal (1..15)

Default
([3] 96, [2] 80, [2] 72, [3] 64, [2] 48, [2] 32, 0)

## GROUP ARtg Pnni PglElectionParms (PglParms)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the default provisionable attributes for the peer group leader election timer parameters of a *Pnni* component. These attributes can be overridden by setting the corresponding attribute in *cfgnode* component. |

## ATTRIBUTE ARtg Pnni pglInitTime

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies how long this node delays advertising its choice of preferred peer group leader after having reached the full peer state with at least one neighbor in the peer group. Increasing this timer allows the node to be more informed before choosing a leader, thus fewer rounds of elections are required, but more time is required for each round of election. |
| Values | Decimal (0..65535) |
| Units | seconds |
| Default | 15 |

## ATTRIBUTE ARtg Pnni overrideDelay

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies how long a node waits for itself to be declared the preferred peer group leader by unanimous agreement among its peers. On timeout, if the node receives 2/3 majority, it declares itself as leader; otherwise, election enters the ***HungElection*** state. |
| Values | Decimal (1..65535) |
| Units | seconds |
| Default | 30 |

### ATTRIBUTE ARtg Pnni reElectionInterval

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies how long this node waits, after losing connectivity to the current peer group leader, before re-starting the process of electing a new peer group leader. |
| Values | Decimal (1..65535) |
| Units | seconds |
| Default | 15 |

### GROUP ARtg Pnni HelloParms (HlParms)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the default provisionable Hello protocol parameters. |

### ATTRIBUTE ARtg Pnni helloHoldDown (hhd)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the rate at which this node sends out Hello packets. It specifies the default minimum length of time between successive Hellos used by routing control channels on this node. A provisioning check is made to ensure that this value cannot be greater than *helloInterval*.<br>The value here can be overridden on a per interface or per VPT basis by changing the *Atmif Pnni Rcc* or *Atmif Vpt Pnni Rcc helloHoldDown* attribute. |
| Values | Decimal (0.1..65535.0) |
| Units | seconds |
| Default | 1.0 |

### ATTRIBUTE ARtg Pnni helloInterval (hli)

| | |
|---|---|
| Access | Read: All<br>Write: All |

| | |
|---|---|
| Description | This attribute specifies the default duration of the Hello Timer for routing control channels on this node. Every *helloInterval* seconds, this node sends out a Hello packet to the neighbor node, subject to the *helloHoldDown* timer having expired at least once since the last Hello packet was sent.<br>A provisioning check is made to ensure that this value cannot be less than *helloHoldDown*.<br>The value here can be overridden on a per interface or per VPT basis by changing the *Atmif Pnni Rcc* or *Atmif Vpt Pnni Rcc helloInterval* attribute. |
| Values | Decimal (1..65535) |
| Units | seconds |
| Default | 15 |

### ATTRIBUTE ARtg Pnni helloInactivityFactor (hif)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the number of Hello intervals allowed to pass without receiving a Hello from a neighbor, before an attempt is made to re-stage the RCC to that neighbor. The hello inactivity timer is enabled if the *helloState* of the *RCC* component is ***oneWayInside***, ***twoWayInside***, ***oneWayOutside***, ***twoWayOutside*** or ***commonOutside***.<br>The value here can be overridden on a per interface or per VPT basis by changing the *Atmif Pnni Rcc* or *Atmif Vpt Pnni Rcc helloInactivityFactor* attribute. |
| Values | Decimal (1..65535) |
| Default | 5 |

### GROUP ARtg Pnni PTSETimerParms (PtseParms)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the PTSE timer values of a *Pnni* component. Group *AtmPnniPtseTimerParms* also exist under *ARtg Pnni CfgNode/ <n>* that can override values specified here. |

### ATTRIBUTE ARtg Pnni ptseHoldDown (ptHldDn)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute is used to limit the rate at which this node sends out PTSE packets. It specifies the minimum length of time that this node must wait between sending successive PTSE packets.<br>The value of this attribute is constraint by the equation:<br>*ptseHoldDown* * 2 < *ptseRefreshInterval* * *ptseLifetimeFactor*. |
| Values | Decimal (0.1..65535.0) |
| Units | seconds |
| Default | 1.0 |

### ATTRIBUTE ARtg Pnni ptseRefreshInterval (ptRefInt)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the duration of the PTSE Timer. Every *ptseRefreshInterval* seconds, this node sends out a self-originated PTSE packet to the neighbor node, subject to the ptseHoldDown timer having expired at least once since the last PTSE packet was sent.<br>The value of this attribute is constraint by the equation:<br>*ptseHoldDown* * 2 < *ptseRefreshInterval* * *ptseLifetimeFactor*. |
| Values | Decimal (300..65535) |
| Units | seconds |
| Default | 1800 |

### ATTRIBUTE ARtg Pnni ptseLifetimeFactor (ptLifeFac)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the PTSE lifetime multiplier. The result of multiplying the *ptseRefreshInterval* by this value is used as the initial lifetime that this node places into PTSEs. |

| | |
|---|---|
| | The value of this attribute is constraint by the equation: *ptseHoldDown* * 2 < *ptseRefreshInterval* * *ptseLifetimeFactor*. |
| Values | Decimal (101..1000) |
| Units | % |
| Default | 200 |

### ATTRIBUTE ARtg Pnni requestRxmtInterval (reqRxInt)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the period between retransmissions of unacknowledged Database Summary packets, PTSE Request packets and PTSPs. |
| Values | Decimal (1..65535) |
| Units | seconds |
| Default | 5 |

### ATTRIBUTE ARtg Pnni peerDelayedAckInterval (peerDAckInt)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the minimum length of time between transmissions of delayed PTSE acknowledgment packets. |
| Values | Decimal (0.1..65535.0) |
| Units | seconds |
| Default | 1.0 |

### GROUP ARtg Pnni ChangeThresholds (ThreshParms)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the change thresholds of an *ARtg Pnni* component. |

### ATTRIBUTE ARtg Pnni avcrMt

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute multiplied by the Maximum Cell Rate specifies the minimum threshold used in the algorithms that determine significant change for average cell rate parameters. |
| Values | Decimal (1..99) |
| Units | % |
| Default | 3 |

### ATTRIBUTE ARtg Pnni avcrPm

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute multiplied by the current Available Cell Rate specifies the threshold used in the algorithms that determine significant change for AvCR parameters. If the resulting threshold is lower than the minimum threshold, the minimum threshold is used.<br><br>Increasing the value of this attribute increases the range of insignificance and reduces the amount of PTSP flooding due to changes in resource availability. |
| Values | Decimal (1..99) |
| Units | % |
| Default | 50 |

### ATTRIBUTE ARtg Pnni cdvPm

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the proportional multiplier used in the algorithms that determine significant change for CDV metrics. Increasing the value of this attribute increases the range of |

| | |
|---|---|
| | insignificance and reduces the amount of PTSP flooding due to changes in resource availability. |
| Values | Decimal (1..99) |
| Units | % |
| Default | 25 |

### ATTRIBUTE ARtg Pnni ctdPm

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the proportional multiplier used in the algorithms that determine significant change for CTD metrics. Increasing the value of the attribute increases the range of insignificance and reduces the amount of PTSP flooding due to changes in resource availability. |
| Values | Decimal (1..99) |
| Units | % |
| Default | 50 |

### GROUP ARtg Pnni Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the generic operational attributes of an *ARtg Pnni* component. |

### ATTRIBUTE ARtg Pnni topologyMemoryExhaustion (topMemExhaustion)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates whether the topology database is overloaded.<br>A node goes into a database overload state when it fails to store the complete topology database due to insufficient memory in the node. A node in this state performs resynchronization periodically by restarting all its Neighbor Peer Finite State Machines. The node stays in this state until it synchronizes with |

| | |
|---|---|
| | all of its neighbors without any overload problems. When this attribute is set an alarm is issued. |
| Values | false<br>true |
| Default | No default |

### ATTRIBUTE ARtg Pnni ptsesInDatabase

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of PTSEs stored in this node's topology database for this level. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP ARtg Pnni Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the statistical operational attributes of an *ARtg Pnni* component. |

### ATTRIBUTE ARtg Pnni successfulRoutingAttempts

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts successful PNNI routing attempts. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE ARtg Pnni failedRoutingAttempts

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts all calls routed through PNNI which failed. The counter wraps to zero when it exceeds the maximum value. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE ARtg Pnni alternateRoutingAttempts

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts successful PNNI alternate routing attempts. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP ARtg Pnni SvccBasedRccParms (SvccRcc)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the default attributes of SVCC-based Rcc. Group *AtmPnniDefaultSvccBasedRccParms* also exists under *ARtg Pnni Cfgnode* that can override the values specified here. |

### ATTRIBUTE ARtg Pnni svcclnitTime (iTime)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the default time this node delays initiating establishment of an SVCC to a neighbor after determining that such an SVCC should be established. |
| Values | Decimal (0..120) |
| Units | seconds |
| Default | 4 |

### ATTRIBUTE ARtg Pnni svccRetryTime (rTime)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the length of time this node delays before attempting to re-establish the SVCC-base RCC. This condition |

occurs when an RCC cannot be established, either during the initial setup, or is unexpectedly torn down.

Values: Decimal (20..60)

Units: seconds

Default: 30

### ATTRIBUTE ARtg Pnni svccCallingIntegrityTime (clgIntegTime)

Access: Read: All
Write: All

Description: This attribute specifies the length of time this node waits for an SVCC to become fully established before giving up and tearing it down. The condition occurs when the node initiates establishment of the SVCC as the calling party.

Values: Decimal (10..3600)

Units: seconds

Default: 35

### ATTRIBUTE ARtg Pnni svccCalledIntegrityTime (cldIntegTime)

Access: Read: All
Write: All

Description: This attribute specifies the length of time this node waits for an SVCC to become fully established before giving up and tearing it down. This condition occurs when the node has accepted the SVCC setup as the called party.

Values: Decimal (25..3615)

Units: seconds

Default: 50

### ATTRIBUTE ARtg Pnni svccEstablishIntegrityTime (estIntegTime)

Access: Read: All
Write: All

| | |
|---|---|
| Description | This attribute specifies the length of time this node waits for an SVCC SETUP message from a neighbor, from which a SVCC SETUP message is expected, once the node knows of the existence of that neighbor. An alarm is raised when the *svccEstablishIntegrityTimer* expires. |
| Values | Decimal (15..3600) |
| Units | seconds |
| Default | 60 |

## COMPONENT ARtg Pnni RouteFinder (Rf)

| | |
|---|---|
| Groups | "GROUP ARtg Pnni Rf Criteria" |
| Scope | Device |
| Description | *ARtg Pnni RouteFinder*<br>This component is used to compute a list of routes to a specified destination that satisfy certain traffic and routing requirements.<br><br>To display a list of computed routes:<br>- set the route computation criteria<br>- issue the *Run* command |
| Common Verbs | Help<br>List<br>Display |

## VERB Run ARtg Pnni Rf

Impact: Passive

Description: *Run ARtg Pnni RouteFinder*
This verb computes a list of routes according to the specified routing criteria and displays the results.

The results are in the following format:

*Route 1:*
*node id = <node ID >*
*node name@level = <EM/node name@level>*
*port id = <port ID>*
*interface name = <atmif/number>*

*node id = <node ID >*
*node name@level = <EM/node name@level>*
*port id = <port ID>*
*interface name = <atmif/number>*
*...*
*node id = <node ID>*
*node name@level = <EM/node name@level>*

*Route 2:*
*node id = <node ID >*
*node name@level = <EM/node name@level>*
*port id = <port ID>*
*interface name = <atmif/number>*

*node id = <node ID >*
*node name@level = <EM/node name@level>*
*port id = <port ID>*
*interface name = <atmif/number>*
*...*
*node id = <node ID>*
*node name@level = <EM/node name@level>*
*...*
*...*
*Route n:*
*node id = <node ID >*

*node name@level = <EM/node name@level>*
*port id = <port ID>*
*interface name = <atmif/number>*
...
*node id = <node ID>*
*node name@level = <EM/node name@level>*

For a Passport node, the *interface name*'s value can take one of the following forms:
(a) ***AtmIf/<1-4095>*** - If the interface is an Atm Interface.
(b) ***AtmIf/<1-4095> Vpt/<1-4095>*** - If the interface is a VPT interface.
(c) Values ***<0-4294967295>*** - If the link is a logical link.

If the port id is not decoded (e.g.: for non-Passport nodes), the *interface name* is left blank.

If the node name is not available, the *node name@level* is left blank.

## GROUP ARtg Pnni Rf Criteria

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the attributes specifying the routing criteria for the route computation. |

## ATTRIBUTE ARtg Pnni Rf destinationAddress (destAddr)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the destination NSAP address to be used for the computation. If this attribute specifies an invalid address then no routes will be found. |
| Values | String (1..20, Hex) |
| Default | No default |

## ATTRIBUTE ARtg Pnni Rf maxRoutes

| | |
|---|---|
| Access | Read: All<br>Write: All |

Description

This attribute specifies the maximum number of local and PNNI routes to be computed and displayed.

When the *lbMethod* attribute is set to ***maxAvCr***, ***random***, ***avCrProb***, ***optMetricProb***, or ***avCrOptMetricProb***, a single PNNI route will be displayed in the result of the *RouteFinder* because only one path is computed during the PNNI routing process. When the *lbMethod* attribute is set to ***none***, the number of PNNI routes that will be displayed is limited by the smallest of the number of best paths found or the *Artg Pnni Lb/<srvCat> maxPaths* attribute.

Values

Decimal (1..15)

Default

1

### ATTRIBUTE ARtg Pnni Rf txTrafficDescType (txTdt)

Access

Read: All
Write: All

Description

This attribute specifies the type of traffic management that is applied to the transmit direction as defined in the ATM Forum. The *txTrafficDescType* determines the number and meaning of the parameters in the *txTrafficDescParm* attribute.

Values

1
2
3
4
5
6
7
8
9

Default

1

### ATTRIBUTE ARtg Pnni Rf rxTrafficDescType (rxTdt)

Access

Read: All
Write: All

Description

This attribute specifies the type of traffic management that is applied to the receive direction of this connection as defined in the ATM Forum. The *rxTrafficDescType* determines the number and meaning of the parameters in the *rxTrafficDescParm* attribute.

When ***sameAsTx*** is selected, the *rxTrafficDescType* as well as the *rxTrafficDescParm* are taken from the transmit values.

Values

1
2
3
4
5
6
7
8
9
sameAsTx

Default

sameAsTx

## ATTRIBUTE ARtg Pnni Rf atmServiceCategory (service)

Access

Read: All
Write: All

Criticality

Component

Description

This attribute specifies the ATM service category for both directions of the connection.

If this attribute is set to ***derivedFromBBC***, the Broadband Bearer Capability (BBC) and *bestEffort* attributes are used to determine the *atmServiceCategory* of this connection.

If this attribute is set to other than ***derivedFromBBC***, the value of this attribute is used to override the provisioned BBC IE parameters. In those cases, the BBC attributes are not used.

The ***constantBitRate*** service category is intended for real time applications, that is those requiring tightly constrained delay and delay variation, as would be appropriate for voice and video

applications. The consistent availability of a fixed quantity of bandwidth is considered appropriate for CBR service. Cells which are delayed beyond the value specified by CellTransfer Delay are assumed to be of significantly reduced value to the application.

The ***rtVariableBitRate*** service category is intended for real time applications, that is those requiring tightly constrained delay and delay variation, as would be appropriate for voice and video applications. Sources are expected to transmit at a rate that varies with time. Equivalently, the source can be described as “bursty”. Cells which are delayed beyond the value specified by CTD are assumed to be of significantly reduced value to the application. VBR real time service may support statistical multiplexing of real time sources.

The ***nrtVariableBitRate*** service category is intended for non-real time applications that have bursty traffic characteristics and can be characterized in terms of a PCR, SCR, and MBS. For those cells that are transferred within the traffic contract, the application expects a low cell loss ratio. For all connections, the application expects a bound on the mean cell transfer delay. VBR non-real time service may support statistical multiplexing of connections.

The ***unspecifiedBitRate*** service is intended for non-real time applications; that is, those not requiring tightly constrained delay and delay variation. UBR sources are expected to be bursty. UBR service supports a high degree of statistical multiplexing among sources. UBR service does not specify traffic related service guarantees. No numerical commitments are made with respect to either the cell loss ratio experienced by a UBR connection, or the cell transfer delay experienced by cells on the connection.

| | |
|---|---|
| Values | unspecifiedBitRate (ubr)<br>constantBitRate (cbr)<br>rtVariableBitRate (rtvbr)<br>nrtVariableBitRate (nrtvbr)<br>derivedFromBBC (derived) |
| Default | unspecifiedBitRate |

## ATTRIBUTE ARtg Pnni Rf fwdQosClass (fwdQos)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the quality of service for the forward direction for this connection.<br><br>Class ***1*** supports a QOS that will meet Service Class A performance requirements (Circuit emulation, constant bit rate video).<br><br>Class ***2*** supports a QOS that will meet Service Class B performance requirements (Variable bit rate audio and video).<br><br>Class ***3*** supports a QOS that will meet Service Class C performance requirements (Connection-Oriented Data Transfer).<br><br>Class ***4*** supports a QOS that will meet Service Class D performance requirements (Connectionless Data Transfer).<br><br>Class ***0*** is the unspecified bit rate QOS class; no objective is specified for the performance parameters. |
| Values | 0<br>1<br>2<br>3<br>4 |
| Default | 0 |

## ATTRIBUTE ARtg Pnni Rf bwdQosClass (bwdQos)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the quality of service for the backward direction for this connection. |

Class ***1*** supports a QOS that will meet Service Class A performance requirements (Circuit emulation, constant bit rate video).

Class ***2*** supports a QOS that will meet Service Class B performance requirements (Variable bit rate audio and video).

Class ***3*** supports a QOS that will meet Service Class C performance requirements (Connection-Oriented Data Transfer).

Class ***4*** supports a QOS that will meet Service Class D performance requirements (Connectionless Data Transfer).

Class ***0*** is the unspecified bit rate QOS class; no objective is specified for the performance parameters.

The ***sameAsFwd*** selection sets the backward quality of service to be the same as the forward quality of service.

Values
0
1
2
3
4
sameAsFwd

Default
sameAsFwd

### ATTRIBUTE ARtg Pnni Rf bearerClassBbc (bcBbc)

Access
Read: All
Write: All

Criticality
Component

Description
This attribute specifies the bearer capability. It is one of the Broadband Bearer Capability (BBC) attributes. The purpose of the BBC information element is to indicate a requested broadband connection-oriented bearer service to be provided by the network.

The value ***derivedFromServiceCategory*** specifies that the actual value which is used for this connection is derived from the value

of the *atmServiceCategory*. This attribute must either be set to ***derivedFromServiceCategory***, or the *atmServiceCategory* attribute must be set to ***derivedFromBBC***, but not both.

Class ***a*** service is a connection-oriented, constant bit rate ATM transport service. Class ***a*** service has end-to-end timing requirements and may require stringent cell loss, cell delay and cell delay variation performance.When ***a*** is set, the user is requesting more than an ATM only service. The network may look at the AAL to provide interworking based upon its contents.

Class ***c*** service is a connection-oriented, variable bit rate ATM transport service. Class ***c*** service has no end-to-end timing requirements. When ***c*** is set, the user is requesting more than an ATM only service. The network interworking function may look at the AAL and provide service based on it.

Class ***x*** service is a connection-oriented ATM transport service where the AAL, *trafficType* (***vbr*** or ***cbr***) and timing requirements are user defined (that is, transparent to the network).When ***x*** is set the user is requesting an ATM only service from the network. In this case, the network shall not process any higher layer protocol.

Values
a
c
x
derivedFromServiceCategory

Default
derivedFromServiceCategory

## ATTRIBUTE ARtg Pnni Rf transferCapabilityBbc (tcBbc)

Access
Read: All
Write: All

Criticality
Component

Description
This attribute specifies the transfer capability for this connection. Uni 3.0/3.1 traffic type and end-to-end timing parameters are mapped into this parameter as follows:
<transferCapability : TrafficType, Timing>
***0*** : NoIndication, NoIndication
***1*** : NoIndication, yes

***2*** : NoIndication, no
***5*** : CBR, yes
***8*** : VBR, NoIndication
***9*** : VBR, yes
***10***: VBR, no

***NotApplicable*** specifies that the user does not want to specify the transfer capability.

The CBR traffic type refers to traffic offered on services such as a constant bit rate video service or a circuit emulation.

The VBR traffic type refers to traffic offered on services such as packetized audio and video, or data.

The NoIndication for traffic type is used if the user has not set the traffic type; this is also the case for end-to-end timing.

The yes for end-to-end timing indicates that end-to-end timing is required.

The no for end-to-end timing indicates that end-to-end timing is not required.

The value ***derivedFromServiceCategory*** specifies that the actual value used for this connection is derived from the value of the *atmServiceCategory*. This attribute must either be set to ***derivedFromServiceCategory***, or the *atmServiceCategory* attribute must be set to ***derivedFromBBC***, but not both.

Values

0
1
2
5
8
9
10
notApplicable
derivedFromServiceCategory

Default

derivedFromServiceCategory

## ATTRIBUTE ARtg Pnni Rf clippingBbc (cBbc)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the value for the clipping susceptibility parameter in the BBC IE. This attribute is only used for SPVC connections. It is one of the Broadband Bearer Capability attributes.<br><br>Clipping is an impairment in which the first fraction of a second of information to be transferred is lost. It occurs after a call is answered but before an associated connection is switched through. |
| Values | no<br>yes |
| Default | no |

## ATTRIBUTE ARtg Pnni Rf bestEffort

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the value of the best effort parameter in the ATM Traffic Descriptor IE. It is one of the Broadband Bearer Capability attributes.<br><br>The value ***indicated*** implies that the quality of service for this connection is not guaranteed.<br><br>The value ***notIndicated*** implies that the quality of service for this connection is guaranteed.<br><br>The value ***derivedFromServiceCategory*** specifies that the actual value used for this connection is derived from the value of the *atmServiceCategory.* This attribute must either be set to ***derivedFromServiceCategory***, or the *atmServiceCategory* attribute must be set to ***derivedFromBBC***, but not both. |

| | |
|---|---|
| Values | indicated<br>notIndicated<br>derivedFromServiceCategory (derived) |
| Default | derivedFromServiceCategory |

### ATTRIBUTE ARtg Pnni Rf optimizationMetric (optMetric)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the optimization metric to be used in the route computation; one of cell delay variation (***cdv***), maximum cell transfer delay (***maxCtd***), or administrative weight (***aw***). |
| Values | cdv<br>maxCtd<br>aw |
| Default | aw |

### ATTRIBUTE ARtg Pnni Rf routingLevelScope

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the highest PNNI level used for the route computation. Routes are not computed beyond this level. |
| Values | Decimal (0..104) |
| Default | 0 |

### ATTRIBUTE ARtg Pnni Rf lbMinVariance (minVar)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the minimum variance value to be used for the *RouteFinder*'s optimization metric and service category.<br><br>A larger variance allows more usable paths to be considered for load balancing.<br><br>A minimum variance of zero means that only the |

*lbSlopeVariance* attribute is used in determining the acceptable variance.

The maximum range boundaries for each of the optimization metrics are:
**- *cdv***: 2147483647 (for cbr and rtVbr only).
**- *maxCtd***: 2147483647 (for cbr and rtVbr only).
**- *aw***: 4294967295.

The acceptable variance is calculated based on the following formula:
*acceptableVariance = lbMinVariance + optM * lbSlopeVariance/* **100**
where *optM* represents the optimization metric value of the best path.

Values: Decimal (0..4294967295)

Default: 0

## ATTRIBUTE ARtg Pnni Rf lbSlopeVariance (slopeVar)

Access: Read: All
Write: All

Description: This attribute specifies the slope of the acceptable variance for the *RouteFinder*'s optimization metric and service category.

A *lbSlopeVariance* of zero means that the acceptable variance is given only by the *lbMinVariance* attribute. If both *lbMinVariance* and *lbSlopeVariance* attributes are zero, means that only the best paths of equal value to the *optimizationMetric* will be considered for load balancing.
The acceptable variance is calculated based on the following formula:
*acceptableVariance = lbMinVariance + optM * lbSlopeVariance/* 100
where *optM* represents the optimization metric value of the best path.

Values: Decimal (0..1900)

Units: %

Default 0

## ATTRIBUTE ARtg Pnni Rf lbMethod (method)

Access Read: All
Write: All

Description This attribute specifies the load balancing method for the selected service category of the call.

***maxAvCr***. PNNI routing chooses the path that has the maximum available cell rate as the routing path.

***random***. The routing path is chosen randomly from all the acceptable paths.

***avCrProb***. The routing path is chosen with a probability in proportion to its available cell rate. This method will result in the more frequent selection of a route having a higher available cell rate over that with a lower available cell rate.

***optMetricProb***. The routing path is chosen with a probability inversely proportional to the optimization metric. This method will result in the more frequent selection of a route having the lowest value of the optimization metric over that with a higher optimization metric.

***avCrOptMetricProb***. The routing path is chosen with a probability that is based on both the proportional value of the available cell rate and the inverse proportional value of the optimization metric.

***none***. The routing path is chosen such that only the best path(s) will be displayed. No load balancing is applied.

When this attribute is set to ***maxAvCr***, ***random***, ***avCrProb***, ***optMetricProb***, or ***avCrOptMetricProb***, a single PNNI route will be displayed in the result of the *RouteFinder* because only one path is selected during the PNNI routing process for these methods. When this attribute is set to ***none***, the number of PNNI routes that will be displayed is limited by the smallest of, the

*maxRoutes* attribute, the number of best paths found, or the *Artg Pnni Lb/<srvCat> maxPaths* attribute.

Values

maxAvCr
random
avCrProb
optMetricProb
avCrOptMetricProb
none

Default

random

## ATTRIBUTE ARtg Pnni Rf useRouteCaching (useRc)

Access

Read: All
Write: All

Description

This attribute specifies whether to look in the route cache before doing an on-demand route computation.

Setting *useRouteCaching* to ***no*** causes *RouteFinder* to use on-demand route computation and displays the resulting list of computed routes. Acceptable paths found in this computation are not stored in the *Cache*.

Setting *useRouteCaching* to ***yes***, and using the same values as the provisioned *LoadBalancing* variance attributes, causes *RouteFinder* to search the cache for an acceptable route before performing an on-demand route computation. The acceptable paths are displayed and the newly computed routes are stored in the cache.

Setting *useRouteCaching* to ***yes*** and applying load balancing on this iteration of the *RouteFinder*, uses the regular *LoadBalancing minVariance* and *slopeVariance* values since all routes stored in the cache are within these provisioned multi_path variance parameters.

Setting the *RouteFinder* attributes to a different value from their *LoadBalancing* counterparts is the same as setting *useRouteCaching* to ***no***.

Values
no
yes

Default
no

## ATTRIBUTE ARtg Pnni Rf rxTrafficDescParm (rxTdp)

Access
Read: All
Write: All

Description
This attribute is a vector of four traffic parameters whose meanings are defined by the *rxTrafficDescType* attribute. The values of peak cell rate (PCR), sustained cell rate (SCR) and minimum cell rate are expressed in cell/s. Maximum burst size (MBS) is expressed in cells. The value of CDVT is expressed in microseconds. The values of PCR, SCR, MBS and CDVT are used for usage parameter control (UPC).

When *rxTrafficDescType* is ***1*** or ***2***, all of the parameters must be set to zero (unused).

When *rxTrafficDescType* is ***3***, parameter 1 represents the PCR for CLP0+1 traffic. Parameter 1 must be non-zero. Parameters 2 and 3 must be set to zero (unused).

When *rxTrafficDescType* is ***4***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the PCR for CLP equal to 0 traffic with cell discard. Parameters 1 and 2 must be non-zero. Parameter 3 must be set to zero (unused). Parameter 1 must be greater than or equal to parameter 2.

When *rxTrafficDescType* is ***5***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the PCR for CLP equal to 0 traffic with cell tagging. Parameters 1 and 2 must be non-zero. Parameter 3 must be set to zero (unused). Parameter 1 must be greater than or equal to parameter 2.

When *rxTrafficDescType* is a ***6***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the SCR for CLP0+1 traffic; parameter 3 represents the MBS for CLP0+1 traffic. Parameters 1, 2 and 3 must be non-zero. Parameter 1 must be greater than or equal to Parameter 2.

When *rxTrafficDescType* is ***7***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the SCR for CLP equal to 0 traffic with cell discard; parameter 3 represents the MBS for CLP equal to 0 traffic. Parameters 1, 2 and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2.

When *rxTrafficDescType* is ***8***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the SCR for CLP equal to 0 traffic with cell tagging; parameter 3 represents the MBS for CLP equal to 0 traffic. Parameter 1, 2 and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2.

When *rxTrafficDescType* is ***9***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the CDVT; parameter 3 represents the MCR. Parameter 4 is not used and must be zero. Parameter 1 must either be zero or be greater than or equal to parameter 3. Parameter 3 may optionally be zero.

When *rxTrafficDescType* is any value from ***3*** through ***8***, parameter 4 represents the CDVT. If this value is zero, the CDVT is taken from the *ConnectionAdministrator* defaults for the particular *atmServiceCategory* of this connection.

When *rxTrafficDescriptorType* is ***3*** through ***9***, there are certain extreme combinations of *rxTrafficDescParm* which are outside the capabilities of the UPC hardware.

To calculate the limits, use the following formulae:
I1 = 1 000 000 000 / PCR
L1 = CDVT * 1000
I2 = 1 000 000 000 / SCR
L2 = CDVT + (MBS - 1) * (I2 - I1)
I1 and I2 must be less than or equal to 335 523 840. I1 + L1 must be less than or equal to 1 342 156 800. I2 + L2 must be less than or equal to 1 342 156 800. Note that I2 and L2 only apply when the *rxTrafficDescriptorType* is ***6*** through ***8***.

If the values of I1, L1, I2 or L2 are closer to the limits described above, a further restriction applies. Specifically, if either:
I1 > 41 940 480 or

I2 > 41 940 480 or
I1 + L1 > 167 769 600 or
I2 + L2 > 167 769 600
then both I1 and I2 must be greater than 20 480.

Parameter 5 of the *rxTrafficDescParm* is always unused.

If the *rxTrafficDescType* is ***sameAsTx***, the values in this attribute will be taken from the *txTrafficDescParm*.

Vector of: Decimal (0..2147483647)

Index: Decimal (1..5)

Default: ([5] 0)

## ATTRIBUTE ARtg Pnni Rf txTrafficDescParm (txTdp)

Access: Read: All
Write: All

Description: This attribute is a vector of five traffic parameters whose meanings are defined by the *txTrafficDescType* attribute. The values of peak cell rate (PCR), sustained cell rate (SCR), minimum cell rate (MCR) and requested shaping rate are expressed in cell/s. Maximum burst size (MBS) is expressed in cells. CDVT is expressed in microseconds. The values of PCR, SCR, MBS, MCR and CDVT are used for connection admission control (CAC). The value of CDVT is only used for connections where the *atmServiceCategory* is ***constantBitRate***. For all other values of *atmServiceCategory*, CDVT is ignored. The values of PCR, SCR and requested shaping rate are used to determine the actual shaping rate where traffic shaping is enabled.

When *txTrafficDescType* is ***1*** or ***2***, all of the parameters must be set to zero.

When *txTrafficDescType* is ***3***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameter 1 must be non-zero. Parameters 2 and 3 must be zero.

When *txTrafficDescType* is ***4***, parameter 1 represents the PCR for CLP0+1 traffic with cell discard; parameter 2 represents the PCR for CLP equal to 0 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameter 1 must be greater than or equal to parameter 2. Parameters 1 and 2 must be non-zero. Parameter 3 must be zero.

When *txTrafficDescType* is ***5***, parameter 1 represents the PCR for CLP0+1 traffic with cell tagging; parameter 2 represents the PCR for CLP equal to 0 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameter 1 must be greater than or equal to parameter 2. Parameters 1 and 2 must be non-zero. Parameter 3 must be zero.

When *txTrafficDescType* is ***6***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the SCR for CLP0+1 traffic; parameter 3 represents the MBS for CLP0+1 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameters 1, 2 and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2. Parameter 5 must either be zero (unused) or greater than or equal to parameter 2.

When *txTrafficDescType* is ***7***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the SCR for CLP equal to 0 with cell discard; parameter 3 represents the MBS for CLP equal to 0 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameters 1, 2 and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2. Parameter 5 must either be zero (unused) or greater than or equal to parameter 2.

When *txTrafficDescType* is ***8***, parameter 1 represents the PCR for

CLP0+1 traffic; parameter 2 represents the SCR for CLP equal to 0 traffic with cell tagging; parameter 3 represents the MBS for CLP equal to 0 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameters 1, 2 and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2. Parameter 5 must either be zero (unused) or greater than or equal to parameter 2.

When *txTrafficDescType* is ***9***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the CDVT; parameter 3 represents the MCR; parameter 5 represents the requested shaping rate; and parameter 4 is not used and must be zero. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameter 1 must either be zero or be greater than or equal to parameter 3. Parameter 3 may be optionally zero. Parameter 5 must either be zero (unused) or greater than or equal to parameter 3.

Whenever it is valid for PCR to be specified, parameter 5 may also be used to specify a requested shaping rate. A non-zero value in parameter 5 overrides the value in parameter 1 and is used as the peak cell rate in calculations of CAC and shaping rate.

For *txTrafficDescType* ***3***, ***4***, ***5*** and ***9*** the transmit traffic will be shaped at the next rate less than the PCR.

For *txTrafficDescType* ***6***, ***7*** and ***8***, the transmit traffic will be shaped at the highest available rate which is between PCR and SCR. However, if there is no available shaping rate between PCR and SCR, traffic will be shaped at the next rate above the PCR.

| | |
|---|---|
| Vector of | Decimal (0..2147483647) |
| Index | Decimal (1..5) |
| Default | ([5] 0) |

### ATTRIBUTE ARtg Pnni Rf fwdQosParameters (fqp)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute is a vector of three elements that specify the quality of service parameters for the forward direction for this connection. This attribute is used for SPVC connections.<br><br>The ***cdv*** element specifies the acceptable peak-to-peak Cell Delay Variation (CDV) of real-time connections (CBR, and rt-VBR). It is signaled through the extended QoS information element.<br><br>The ***ctd*** specifies the acceptable maximum Cell Transfer Delay (maxCtd) of real-time connections (CBR, and rt-VBR).<br>It is signaled through the end-to-end transit delay information element.<br><br>The ***clr*** specifies the acceptable Cell Loss Ratio (CLR) of CBR, rt-VBR, and nrt-VBR connections. It is signaled through the extended QoS information element. |
| Vector of | Decimal (0..2147483647) |
| Index | cdv<br>ctd<br>clr |
| Default | (cdv: 16777215, ctd: 16777215, clr: 255) |

### ATTRIBUTE ARtg Pnni Rf bwdQosParameters (bqp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is a vector of three elements that specify the quality of service parameters for the backward direction for this connection. This attribute is used for SPVC connections.<br><br>The ***cdv*** element specifies the acceptable peak-to-peak Cell Delay Variation (CDV) of real-time connections (CBR, and rt-VBR).<br><br>It is signaled through the extended QoS information element.<br><br>The ***ctd*** specifies the acceptable maximum Cell Transfer Delay (maxCtd) of real-time connections (CBR, and rt-VBR). It is signaled through the end-to-end transit delay information element. |

The ***clr*** specifies the acceptable Cell Loss Ratio (CLR) of CBR, rt-VBR, and nrt-VBR connections. It is signaled through the extended QoS information element.

| | |
|---|---|
| Vector of | Decimal (0..2147483647) |
| Index | cdv<br>ctd<br>clr |
| Default | (cdv: 16777215, ctd: 16777215, clr: 255) |

## COMPONENT ARtg Pnni ConfiguredNode (CfgNode)

| | |
|---|---|
| Instance | Decimal (0..104) |
| Groups | "GROUP ARtg Pnni CfgNode Provisioned (Prov)"<br>"GROUP ARtg Pnni CfgNode Operational (Oper)"<br>"GROUP ARtg Pnni CfgNode HelloParms (HlParms)"<br>"GROUP ARtg Pnni CfgNode PTSETimerParms (PtseParms)"<br>"GROUP ARtg Pnni CfgNode SvccBasedRccParms (SvccRcc)"<br>"GROUP ARtg Pnni CfgNode ChangeThresholds (ThreshParms)" |
| Scope | Device |
| Description | *ARtg Pnni ConfiguredNode/<level>*<br>This component specifies the participation of this node at the level in the PNNI hierarchy indicated by the *level*. |

| | |
|---|---|
| Opt. Subcomp. | "COMPONENT ARtg Pnni CfgNode SummaryAddress (SAddr)"<br>"COMPONENT ARtg Pnni CfgNode PeerGroupLeader (Pgl)" |
| Dyn. Subcomp. | "COMPONENT ARtg Pnni CfgNode Neighbor (Nbr)"<br>"COMPONENT ARtg Pnni CfgNode DefSummaryAddress (DefSAddr)"<br>"COMPONENT ARtg Pnni CfgNode UpLink"<br>"COMPONENT ARtg Pnni CfgNode RoutingControlChannel (Rcc)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP ARtg Pnni CfgNode Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes of a *ConfiguredNode* component. |

## ATTRIBUTE ARtg Pnni CfgNode nodeId

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute allows explicit specification of a node ID for this configured node. If a value is assigned in this attribute, it overrides any system computed node ID for this configured node. If this attribute is empty, then the node ID is computed by the system in *opNodeId*. |
| Values | String (0..22, Hex) |
| Default | No default |

### ATTRIBUTE ARtg Pnni CfgNode peerGroupId (pgId)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute allows explicit specification of the peer group ID of the Logical Group Node (LGN). The peer group ID is specified by 14 octets where the first octet specifies the level of the node and the remaining 13 octets form the identifier information.<br>The value in the identifier information field must be encoded with the 104-n right-most bits set to zero, where n is the level.<br>If this value is set to null, then the peer group ID is computed by the system and displayed under attribute *opPeerGroupId*. |
| Values | String (0..14, Hex) |
| Default | No default |

### ATTRIBUTE ARtg Pnni CfgNode restrictTransit

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies whether the *configurednode* should restrict tandeming of SVCs.<br><br>If this attribute is set to ***true***, then other nodes in the PNNI hierarchy avoids traversing this node during route computation. |
| Values | false<br>true |
| Default | false |

### ATTRIBUTE ARtg Pnni CfgNode horizontalLinkInactivityTime

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the length of time a node continues to advertise a horizontal (logical) link for which it has not received |

| | |
|---|---|
| | and processed an LGN Horizontal Link Information Group.<br>If the value of this attribute is ***sameAsPnni***, then the actual value is taken from *ARtg Pnni horizontalLinkInactivityTime*. |
| Values | Decimal (30..3600)<br>sameAsPnni |
| Units | seconds |
| Default | sameAsPnni |

### GROUP ARtg Pnni CfgNode Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the generic operational attributes of a *ConfiguredNode* component. |

### ATTRIBUTE ARtg Pnni CfgNode nodeAddress

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the address of the node at this level.<br><br>At the lowest level, the *nodeAddress* is determined by the value of the *nodeAddressPrefix* attribute (19 octets) for the *ARtg Pnni* component followed by the level of this *CfgNode* (1 octet).<br><br>For LGNs, the *nodeAddress* is the same as the *nodeAddress* of the node at the lowest level, with the selector field set to the level of the peer group containing the LGN. |
| Values | String (20, Hex) |
| Default | No default |

### ATTRIBUTE ARtg Pnni CfgNode opNodeId

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the node id of the node at this level. The default node id is computed as follows. |

If this is the lowest level node, then the default node id is computed as the level (one octet), followed by the integer value 160 (one octet), followed by the node address (20 octets).

If this is not the lowest level node, then the default node id is computed as the level (one octet), followed by the 14 octet peer group id of the child peer group which the LGN represents, followed by the ESI specified in the node address (6 octets), followed by the integer value 0 (one octet).

Values: String (22, Hex)

Default: No default

### ATTRIBUTE ARtg Pnni CfgNode opPeerGroupId (pgIdOp)

Access: Read: All
Write: Illegal

Criticality: Component

Description: This attribute indicates the peer group id of the node at this level. The value is determined by the provisioned *peerGroupId* attribute. If the *peerGroupId* is a null string then the peer group id is computed as follows:

The peer group id for a lowest level node is computed to be the node's level (one octet), followed by the first <level> bits of the *nodeAddress*, followed by zero or more padding 0 bits.

The peer group id for an LGN is computed to be the LGN's level (one octet), followed by the first <level> bits of the id of the peer group which this LGN represents, followed by zero or more padding 0 bits.

Values: String (14, Hex)

Default: No default

### ATTRIBUTE ARtg Pnni CfgNode numNeighbors

Access: Read: All
Write: Illegal

| | |
|---|---|
| Description | This attribute indicates the number of PNNI nodes which are neighbors of this node at this level. |
| Values | Decimal (0..65535) |
| Default | No default |

### ATTRIBUTE ARtg Pnni CfgNode pglElectionState

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the current state of the peer group leader election process. Possible values for this attribute are:<br><br>***notApplicable***: the node is inactive (***lgnState*** = inactive)<br><br>***starting***: the initial state of the state machine.<br><br>***awaiting***: the node has started the Hello Finite State Machine on at least one link, and no peer has been found yet.<br><br>***awaitingFull***: no database synchronization process has been completed yet but at least one neighboring peer has been found.<br><br>***initialDelay***: Database synchronization has been completed with at least one neighboring peer. The node must wait *pglInitTime* seconds before it can select and advertise its preferred Peer Group Leader (PGL).<br><br>***calculating***: the node is in the process of calculating what its new choice for preferred PGL.<br><br>***operNotPgl***: a non PGL node is in the process of determining which node has the highest priority to be PGL by examining PTSEs sent by other nodes.<br><br>***operPgl***: a PGL node is in the process of determining whether another node has a higher priority than itself by examining PTSEs sent by other nodes.<br><br>***awaitUnanimity***: the node has chosen itself as PGL. If the node |

has been elected unanimously, it generates a Unanimity event. It waits for unanimity or expiration of the *overrideDelay* timer before declaring itself peer group leader.

***hungElection***: the node has chosen itself as PGL with less than 2/3 of the other nodes advertising it as their preferred PGL. In this case either this node should change its choice of preferred PGL, or the other nodes are going to accept it as PGL.

***awaitReElection***: the node has lost connectivity to the current PGL. The connectivity must be reestablished before the *reElectionInterval* timer fires, otherwise the election is done again.

Values

notApplicable
starting
awaiting
awaitingFull
initialDelay
calculating
operNotPgl
operPgl
awaitUnanimity
hungElection
awaitReElection

Default

No default

## ATTRIBUTE ARtg Pnni CfgNode lgnState

Access

Read: All
Write: Illegal

Description

This attributes indicates whether the node has become operational at that level of the hierarchy. For *CfgNode* instances above the lowest level, a value of ***Active*** indicates that the node has been elected PGL at the next lower level and has instantiated an LGN at this level to represent this peer group. A value of ***Inactive*** indicates that this node has not been elected PGL at the lower level.
At the lowest level, the value is set to ***notApplicable***.

| | |
|---|---|
| Values | inactive<br>active<br>notApplicable |
| Default | No default |

### ATTRIBUTE ARtg Pnni CfgNode preferredPglNodeId

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the Node ID of the node which this node believes should be the peer group leader. This is also the value the node is currently advertising in the ‘Preferred Peer Group Leader Node Id’ field of its nodal information group within the given peer group. If this attribute is empty, it indicates the preferred PGL node id is unknown. |
| Values | String (0..22, Hex) |
| Default | No default |

### ATTRIBUTE ARtg Pnni CfgNode preferredPglLeadershipPriority

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the leadership priority of the node that this node believes should be the peer group leader at this point in time. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE ARtg Pnni CfgNode opLeadershipPriority

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the leadership priority advertised by this node. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE ARtg Pnni CfgNode preferredPglNodeName

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the value of the *nodeName* attribute for the node that this node believes should be the peer group leader. This attribute corresponds to the Node ID value that the node is currently advertising in the 'Preferred Peer Group Leader Node Id' field of its nodal information group within the given peer group. If this attribute is empty, it indicates the preferred PGL node name is unknown. |
| Values | String (0..12, ASCII) |
| Default | No default |

### GROUP ARtg Pnni CfgNode HelloParms (HlParms)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the default provisionable Hello protocol parameters. |

### ATTRIBUTE ARtg Pnni CfgNode helloHoldDown (hhd)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the rate at which this node sends out Hello packets. It specifies the default minimum length of time between successive Hellos used by routing control channels on this node at this level. This value cannot be greater than *helloInterval*. If the value of this attribute is ***sameAsPnni***, then the actual value is taken from *ARtg Pnni helloHoldDown*. |
| Values | Decimal (0.1..65535.0)<br>sameAsPnni |
| Units | seconds |
| Default | sameAsPnni |

## ATTRIBUTE ARtg Pnni CfgNode helloInterval (hli)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the default duration of the Hello Timer for routing control channels on this node. Every *helloInterval* seconds, this node sends out a Hello packet to the neighbor node, subject to the *helloHoldDown* timer having expired at least once since the last Hello packet was sent. This value cannot be less than *helloHoldDown*. If the value of this attribute is ***sameAsPnni***, then the actual value is taken from *ARtg Pnni helloInterval*. |
| Values | Decimal (1..65535)<br>sameAsPnni |
| Units | seconds |
| Default | sameAsPnni |

## ATTRIBUTE ARtg Pnni CfgNode helloInactivityFactor (hif)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the number of Hello intervals allowed to pass without receiving a Hello from a neighbor, before an attempt is made to re-stage the RCC to that neighbor. The hello inactivity timer is enabled when the *helloState* is one of ***oneWayInside***, ***twoWayInside***, ***oneWayOutside***, ***twoWayOutside*** or ***commonOutside***. If the value of this attribute is ***sameAsPnni***, then the actual value is taken from *ARtg Pnni helloInactivityFactor*. |
| Values | Decimal (1..65535)<br>sameAsPnni |
| Default | sameAsPnni |

## GROUP ARtg Pnni CfgNode PTSETimerParms (PtseParms)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the PTSE timer values of a *CfgNode* component. |

### ATTRIBUTE ARtg Pnni CfgNode ptseHoldDown (ptHldDn)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute is used to limit the rate at which this node sends out PTSE packets. It specifies the minimum length of time that this node must wait between sending successive PTSE packets.<br>The value of this attribute is constraint by the equation:<br>*ptseHoldDown* * 2 < *ptseRefreshInterval* * *ptseLifetimeFactor*.<br>If the value of this attribute is ***sameAsPnni***, then the actual value is taken from *ARtg Pnni ptseHoldDown.* |
| Values | Decimal (0.1..65535.0)<br>sameAsPnni |
| Units | seconds |
| Default | sameAsPnni |

### ATTRIBUTE ARtg Pnni CfgNode ptseRefreshInterval (ptRefInt)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the duration of the PTSE Timer. Every *ptseRefreshInterval* seconds, this node sends out a self-originated PTSE packet to the neighbor node, subject to the ptseHoldDown timer having expired at least once since the last PTSE packet was sent.<br>The value of this attribute is constraint by the equation:<br>*ptseHoldDown* * 2 < *ptseRefreshInterval* * *ptseLifetimeFactor*.<br>If the value of this attribute is ***sameAsPnni***, then the actual value is taken from *ARtg Pnni ptseRefreshInterval.* |
| Values | Decimal (300..65535)<br>sameAsPnni |
| Units | seconds |
| Default | sameAsPnni |

### ATTRIBUTE ARtg Pnni CfgNode ptseLifetimeFactor (ptLifeFac)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the PTSE lifetime multiplier. The result of multiplying the *ptseRefreshInterval* by this value is used as the initial lifetime that this node places into PTSEs.<br>The value of this attribute is constraint by the equation:<br>*ptseHoldDown* * 2 < *ptseRefreshInterval* * *ptseLifetimeFactor*.<br>If the value of this attribute is ***sameAsPnni***, then the actual value is taken from *ARtg Pnni ptseLifetimeFactor*. |
| Values | Decimal (101..1000)<br>sameAsPnni |
| Units | % |
| Default | sameAsPnni |

### ATTRIBUTE ARtg Pnni CfgNode requestRxmtInterval (reqRxInt)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the period between retransmissions of unacknowledged Database Summary packets, PTSE Request packets and PTSPs. If the value of this attribute is ***sameAsPnni***, then the actual value is taken from *ARtg Pnni requestRxmtInterval*. |
| Values | Decimal (1..65535)<br>sameAsPnni |
| Units | seconds |
| Default | sameAsPnni |

### ATTRIBUTE ARtg Pnni CfgNode peerDelayedAckInterval (peerDAckInt)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the minimum length of time between transmissions of delayed PTSE acknowledgment packets. If the |

value of this attribute is ***sameAsPnni***, then the actual value is taken from *ARtg Pnni peerDelayedAckInterval*.

Values: Decimal (0.1..65535.0)
sameAsPnni

Units: seconds

Default: sameAsPnni

### GROUP ARtg Pnni CfgNode SvccBasedRccParms (SvccRcc)

Properties: Provisioned

Description: This group contains the attributes of SVCC-based Rcc for this *cfgnode*. A similar group exists under *ARtg Pnni*.

### ATTRIBUTE ARtg Pnni CfgNode svccInitTime (iTime)

Access: Read: All
Write: All

Description: This attribute specifies the length of time this node delays initiating establishment of an SVCC to a neighbor after determining that such an SVCC should be established.
If the value of this attribute is ***sameAsPnni***, then the actual value is taken from *ARtg Pnni svccInitTime*.

Values: Decimal (0..120)
sameAsPnni

Units: seconds

Default: sameAsPnni

### ATTRIBUTE ARtg Pnni CfgNode svccRetryTime (rTime)

Access: Read: All
Write: All

Description: This attribute specifies the length of time this node delays before attempting to re-establish the SVCC-base RCC. This condition occurs when an RCC cannot be established, either during the initial setup, or is unexpectedly torn down. If the value of this attribute is ***sameAsPnni***, then the actual value is taken from *ARtg Pnni svccRetryTime*.

| | |
|---|---|
| Values | Decimal (20..60)<br>sameAsPnni |
| Units | seconds |
| Default | sameAsPnni |

### ATTRIBUTE ARtg Pnni CfgNode svccCallingIntegrityTime (clgIntegTime)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the length of time this node waits for an SVCC to become fully established before giving up and tearing it down. The condition occurs when the node initiates establishment of the SVCC as the calling party. If the value of this attribute is ***sameAsPnni***, then the actual value is taken from *ARtg Pnni svccCallingIntegrityTime*. |
| Values | Decimal (10..3600)<br>sameAsPnni |
| Units | seconds |
| Default | sameAsPnni |

### ATTRIBUTE ARtg Pnni CfgNode svccCalledIntegrityTime (cldIntegTime)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the length of time this node waits for an SVCC to become fully established before giving up and tearing it down. This condition occurs when the node has decided to accept the SVCC setup as the called party. If the value of this attribute is ***sameAsPnni***, then the actual value is taken from *ARtg Pnni svccCalledIntegrityTime*. |
| Values | Decimal (25..3615)<br>sameAsPnni |
| Units | seconds |
| Default | sameAsPnni |

### ATTRIBUTE ARtg Pnni CfgNode svccEstablishIntegrityTime (estIntegTime)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the length of time this node waits for an SVCC SETUP message from its neighbor once the node knows the existence of the neighbor. An alarm is raised when the timer expires. If the value of this attribute is ***sameAsPnni***, then the actual value is taken from *ARtg Pnni svccEstablishIntegrityTime*. |
| Values | Decimal (15..3600)<br>sameAsPnni |
| Units | seconds |
| Default | sameAsPnni |

### GROUP ARtg Pnni CfgNode ChangeThresholds (ThreshParms)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the change thresholds of a *ARtg Pnni* component. |

### ATTRIBUTE ARtg Pnni CfgNode avcrMt

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute multiplied by the Maximum Cell Rate specifies the minimum threshold used in the algorithms that determine significant change for average cell rate parameters. This value is used for logical links only. For physical links, the value in *ARtg Pnni avcrMt* is used. If the value of this attribute is ***sameAsPnni***, then the actual value is taken from *ARtg Pnni avcrMt*. |
| Values | Decimal (1..99)<br>sameAsPnni |
| Units | % |
| Default | sameAsPnni |

## ATTRIBUTE ARtg Pnni CfgNode avcrPm

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute multiplied by the current Available Cell Rate specifies the threshold used in the algorithms that determine significant change for AvCR parameters. This value is used for logical links only. For physical links, the value in *ARtg Pnni avcrPm* is used. If the resulting threshold is lower than the minimum threshold, the minimum threshold is used.<br><br>Increasing the value of the attribute increases the range of insignificance and reduces the amount of PTSP flooding due to changes in resource availability. If the value of this attribute is ***sameAsPnni***, then the actual value is taken from *ARtg Pnni avcrPm*. |
| Values | Decimal (1..99)<br>sameAsPnni |
| Units | % |
| Default | sameAsPnni |

## ATTRIBUTE ARtg Pnni CfgNode cdvPm

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the proportional multiplier used in the algorithms that determine significant change for CDV metrics. Increasing the value of the attribute increases the range of insignificance and reduces the amount of PTSP flooding due to changes in resource availability. If the value of this attribute is ***sameAsPnni***, then the actual value is taken from *ARtg Pnni cdvPm*. |
| Values | Decimal (1..99)<br>sameAsPnni |
| Units | % |
| Default | sameAsPnni |

## ATTRIBUTE ARtg Pnni CfgNode ctdPm

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the proportional multiplier used in the algorithms that determine significant change for CTD metrics. Increasing the value of the attribute increases the range of insignificance and reduces the amount of PTSP flooding due to changes in resource availability. If the value of this attribute is ***sameAsPnni***, then the actual value is taken from *ARtg Pnni ctdPm.* |
| Values | Decimal (1..99)<br>sameAsPnni |
| Units | % |
| Default | sameAsPnni |

## COMPONENT ARtg Pnni CfgNode SummaryAddress (SAddr)

| | |
|---|---|
| Instance | address [String (19, Hex)]<br>prefixLength [Decimal (1..152)]<br>reachability [internal<br>exterior] |
| Groups | "GROUP ARtg Pnni CfgNode SAddr Provisioned (Prov)"<br>"GROUP ARtg Pnni CfgNode SAddr Operational (Oper)" |
| Scope | Device |
| Description | *ARtg Pnni CfgNode/<level> SummaryAddress/<address>, <prefixLength>, <reachability>*<br>A summary address is an abbreviation of a set of addresses, represented by an address prefix that all of the summarized addresses have in common.<br>A suppressed summary address is used to suppress the advertisement of addresses which match this prefix, regardless of scope.<br><br>The *prefixLength* specifies the number of bits of the *reachability* specifies whether the address is to summarize internal or exterior addresses. |

An ***internal*** address is an address of a destination that is directly attached to the logical node. An ***exterior*** address is an address of a destination that is located outside of the PNNI routing domain but can be reached through a port attached to the logical node.

Common Verbs

Help
List
Display
Add
DELete

## GROUP ARtg Pnni CfgNode SAddr Provisioned (Prov)

Properties: Provisioned

Description: This group contains the provisionable attributes of a *SummaryAddress* component.

A summary address is an abbreviation of a set of addresses, represented by an address prefix that all of the summarized addresses have in common.
A suppressed summary address is used to suppress the advertisement of addresses which match this prefix, regardless of scope.

## ATTRIBUTE ARtg Pnni CfgNode SAddr suppress

Access: Read: All
Write: All

Description: This attribute specifies whether or not the address should be suppressed. If this attribute is set to ***true***, then all addresses matching that prefix will not be advertised above this level.

Values: false
true

Default: false

## GROUP ARtg Pnni CfgNode SAddr Operational (Oper)

Properties: Operational

| | |
|---|---|
| Description | This group contains the operational attributes of a *SummaryAddress* component. |

### ATTRIBUTE ARtg Pnni CfgNode SAddr state

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the state of the address: one of ***advertising***, ***suppressing*** or ***inactive***.<br>***inactive***: the summary address has been configured but is not suppressing or summarizing any ATM addresses.<br>***suppressing***: the summary address has suppressed at least one ATM address on the node.<br>***advertising***: the summary address is summarizing at least one ATM address on the node. |
| Values | advertising<br>suppressing<br>inactive |
| Default | No default |

### ATTRIBUTE ARtg Pnni CfgNode SAddr scope

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the scope of the summary address. The scope corresponds to the scope of the underlying summarized address with the highest advertised scope. A value of -1 means the scope is unknown. |
| Values | Signed (-1..104) |
| Default | No default |

### COMPONENT ARtg Pnni CfgNode Neighbor (Nbr)

| | |
|---|---|
| Instance | String (22, Hex) |
| Groups | "GROUP ARtg Pnni CfgNode Nbr Operational (Oper)"<br>"GROUP ARtg Pnni CfgNode Nbr Statistics (Stats)" |
| Scope | Device |

Description

*ARtg Pnni CfgNode/n Neighbor/<node id>*
This component represents a neighbor node at this level.

If this *cfgnode* is not an LGN and the *Neighbor* node is not an LGN (in other words, both the *cfgnode* and its *Neighbor* are physical nodes), the *rccList* attribute indicates the component names of all Routing Control Channels (RCC) to that neighboring node. Under this condition, there is no *RCC* subcomponent under this *Neighbor.*

If this *cfgnode* and/or the *Neighbor* node is a Logical Group Node (LGN) at this level, the *Rcc* subcomponent indicates the SVCC-based RCC to the *Neighbor.* The *rccList* attribute, in this case, points to the *Rcc* subcomponent.

Dyn. Subcomp.

"COMPONENT ARtg Pnni CfgNode Nbr HorizontalLink (HLnk)"

Common Verbs

Help
List
Display

## GROUP ARtg Pnni CfgNode Nbr Operational (Oper)

Properties

Operational

Description

This group contains the operational attributes of a *Neighbor* component.

## ATTRIBUTE ARtg Pnni CfgNode Nbr peerState

Access

Read: All
Write: Illegal

Description

This attribute indicates the state of the routing database exchange with the peer node.

***npDown***: There are no active links (that is, in the ***twoWayInside*** Hello state) to the neighboring peer.

***negotiating***: The first step in creating an adjacency between the two neighboring peers; this step determines which node is the master, and what the initial DS sequence number will be.

***exchanging***: The node describes its topology database by sending Database Summary packets to the neighboring peer.

***loading***: A full sequence of Database Summary packets has been exchanged with the neighboring peer. The required PTSEs are requested and at least one has not yet been received.

***full***: All PTSEs known to be available have been received from the neighboring peer. At this point the all ports leading to the neighbor node are flooded in PTSEs within the peer group.

Values
npDown
negotiating
exchanging
loading
full

Default
No default

### ATTRIBUTE ARtg Pnni CfgNode Nbr neighborName

Access
Read: All
Write: Illegal

Description
This attribute indicates the value of the *nodeName* attribute for the node that is a neighbor to this node at this level.

Values
String (0..12, ASCII)

Default
No default

### ATTRIBUTE ARtg Pnni CfgNode Nbr rccList

Access
Read: All
Write: Illegal

Description
If this *cfgnode* and the *Neighbor* are not LGN at this level, the value is the component names of all Routing Control Channels to the neighbor PNNI node. Otherwise (this *cfgnode* and/or the *Neighbor* is/are logical group nodes), this attribute indicates the component name of the *Rcc* subcomponent of this *Neighbor*.

List of
The name of the component

| | |
|---|---|
| Default | No default |

### GROUP ARtg Pnni CfgNode Nbr Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the statistical operational attributes of a *Neighbor* component. |

### ATTRIBUTE ARtg Pnni CfgNode Nbr ptspRx

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the PNNI Topology State Packets received from the neighbor node. The counter wraps to 0 when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE ARtg Pnni CfgNode Nbr ptspTx

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the PTSPs sent to the neighbor node.The counter wraps to 0 when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE ARtg Pnni CfgNode Nbr ptseRx

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the PTSEs received from the neighbor node. The counter wraps to 0 when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE ARtg Pnni CfgNode Nbr ptseTx

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the PTSEs sent to the neighbor node. The counter wraps to 0 when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE ARtg Pnni CfgNode Nbr ptseReqRx

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the PTSE requests received from the neighbor node. The counter wraps to 0 when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE ARtg Pnni CfgNode Nbr ptseReqTx

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the PTSE requests sent to the neighbor node. The counter wraps to 0 when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE ARtg Pnni CfgNode Nbr ptseAcksRx

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the PTSE acknowledgments received from the neighbor node. The counter wraps to 0 when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE ARtg Pnni CfgNode Nbr ptseAcksTx

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the PTSE acknowledgments sent to the neighbor node. The counter wraps to 0 when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE ARtg Pnni CfgNode Nbr dbSummariesRx

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the database summary packets (including bad summary packets) received from the *Neighbor*. The counter wraps to 0 when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE ARtg Pnni CfgNode Nbr dbSummariesTx

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the database summary packets transmitted to the neighbor. The counter wraps to 0 when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE ARtg Pnni CfgNode Nbr badPtspRx

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the invalid PTSP packets received from the neighbor node. The counter wraps to 0 when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE ARtg Pnni CfgNode Nbr badPtseRx

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the invalid PTSE packets received from the neighbor node. The counter wraps to 0 when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE ARtg Pnni CfgNode Nbr badPtseReqRx

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the invalid PTSE requests received from the neighbor node. The counter wraps to 0 when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE ARtg Pnni CfgNode Nbr badPtseAckRx

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the invalid PTSE acknowledgments received from the neighbor node. The counter wraps to 0 when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## ATTRIBUTE ARtg Pnni CfgNode Nbr badDbSummariesRx

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the bad and invalid database summary packets received from the neighbor. The counter wraps to 0 when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## COMPONENT ARtg Pnni CfgNode Nbr HorizontalLink (HLnk)

| | |
|---|---|
| Instance | Decimal (0..4294967295) |
| Groups | "GROUP ARtg Pnni CfgNode Nbr HLnk Operational (Oper)" |
| Scope | Device |
| Description | ARtg Pnni CfgNode/n Nbr/<node id> Rcc HorizontalLink/ <port Id><br><br>The *HorizontalLink* component indicates a logical connection between the *CfgNode* and its *Nbr*. Links are aggregated together to form one Horizontal Link if they have the same aggregation token.<br><br>This component indicates the operational attributes for the *HorizontalLink* component. The index is the unique port Id associated with the link. |
| Dyn. Subcomp. | "COMPONENT ARtg Pnni CfgNode Nbr HLnk InducingUpLink" |
| Common Verbs | Help<br>List<br>Display |

## GROUP ARtg Pnni CfgNode Nbr HLnk Operational (Oper)

| | |
|---|---|
| Properties | Operational |

Description — This group contains the operational attributes for a *HLnk* component.

### ATTRIBUTE ARtg Pnni CfgNode Nbr HLnk aggregationToken

Access — Read: All
Write: Illegal

Description — This attribute indicates the derived aggregation token used for this horizontal link. The aggregation tokens at both ends are use to form the *AggregationToken* for the link. The aggregation token controls how links are aggregated together. Except for the lowest level nodes, links between two logical nodes are aggregated together if they have the same aggregation token. Link aggregation is not done at the lowest level node, except in the degenerate node situation, where the lowest level node is a neighbor to an LGN.

Values — Decimal (0..4294967295)

Default — No default

### ATTRIBUTE ARtg Pnni CfgNode Nbr HLnk state

Access — Read: All
Write: Illegal

Description — This attribute indicates the state of the horizontal link Hello protocol exchange over this link. The following are the possible values for this attribute:

***down***: No uplink PTSEs have been received including an uplink to the neighboring peer LGN with the same aggregation token value as that indicated in the LGN horizontal link Hello data structure.

***attempt***: At least one uplink PTSE has been received including an uplink to the neighboring peer LGN with the same aggregation token value as that indicated in the LGN horizontal link Hello data structure.

***oneWay***: Hello packets have been recently received from the neighbor. The LGN Horizontal Link Extension IG contains an entry for this horizontal link with the remote port ID set to zero.

***twoWay***: Hello packets have been recently received from the neighbor. The LGN Horizontal Link Extension IG contains an entry for this horizontal link with the correct remote port ID. When this state is reached, the port IDs at both ends of the horizontal link are determined. The horizontal link must be in this state before the LGN will advertise it.

Values
notApplicable
down
attempt
oneWay
twoWay

Default
No default

### ATTRIBUTE ARtg Pnni CfgNode Nbr HLnk remotePortId

Access
Read: All
Write: Illegal

Description
This attribute indicates the logical group node's port id at the far end of this horizontal link. If the *state* attribute is ***down*** or ***attempt,*** the value of this attribute is 0.

Values
Decimal (0..4294967295)

Default
No default

### COMPONENT ARtg Pnni CfgNode Nbr HLnk InducingUpLink

Instance
nodeId [String (22, Hex)]
portId [Decimal (0..4294967295)]

Scope
Device

Description
*ARtg Pnni CfgNode/n Nbr/<node id> Rcc HLnk/<port id> InducingUpLink/<node Id>, <port Id>*

*ARtg Pnni CfgNode/n Nbr/<node id> ULnk/<port id> InducingUpLink/<node Id>, <port Id>*

This component represents the underlying link that induces this uplink or horizontal link. The index is the (*node Id*, *port Id*) tuple that uniquely identifies the port. The *node Id* is the Id of one of

the *cfgnodes*, and the *port Id* is the Id that represents an *Uplink* from that *cfgnode*.

Common Verbs

Help
List
Display

## COMPONENT ARtg Pnni CfgNode DefSummaryAddress (DefSAddr)

Groups

"GROUP ARtg Pnni CfgNode DefSAddr DefaultAddress (DefAddr)"
"GROUP ARtg Pnni CfgNode DefSAddr Operational (Oper)"

Scope

Device

Description

*ARtg Pnni CfgNode/<level> DefSAddr*
A default summary address is an internal summary address computed for every logical group node as follows:
If this is not the lowest configured node, then the default summary
address is identical to the peer group id that this logical group represents.
If this is the lowest configured node but not at level 104, then the default summary address is the 13-octet prefix of the node's address.
A node at level 104 has no default summary address.

Common Verbs

Help
List
Display

## GROUP ARtg Pnni CfgNode DefSAddr DefaultAddress (DefAddr)

Properties

Operational

Description

This group contains the operational attributes of a DefSummaryAddress component.

## ATTRIBUTE ARtg Pnni CfgNode DefSAddr address

Access

Read: All
Write: Illegal

| | |
|---|---|
| Description | This attribute indicates the default summary address of the node at this level. |
| Values | String (13, Hex) |
| Default | No default |

### GROUP ARtg Pnni CfgNode DefSAddr Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes of a *SummaryAddress* component. |

### ATTRIBUTE ARtg Pnni CfgNode DefSAddr state

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the state of the address: one of ***advertising***, ***suppressing*** or ***inactive***.<br>***inactive***: the summary address has been configured but is not suppressing or summarizing any ATM addresses.<br>***suppressing***: the summary address has suppressed at least one ATM address on the node.<br>***advertising***: the summary address is summarizing at least one ATM address on the node. |
| Values | advertising<br>suppressing<br>inactive |
| Default | No default |

### ATTRIBUTE ARtg Pnni CfgNode DefSAddr scope

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the scope of the summary address. The scope corresponds to the scope of the underlying summarized address with the highest advertised scope. A value of -1 means the scope is unknown. |
| Values | Signed (-1..104) |

| | |
|---|---|
| Default | No default |

### COMPONENT ARtg Pnni CfgNode UpLink

| | |
|---|---|
| Instance | Decimal (0..4294967295) |
| Groups | "GROUP ARtg Pnni CfgNode UpLink Operational (Oper)" |
| Scope | Device |
| Description | *ARtg Pnni CfgNode/<n> UpLink/<n>*<br>This component describes a logical uplink associated with the node. The index of this component is the port id of the uplink. |
| Dyn. Subcomp. | "COMPONENT ARtg Pnni CfgNode UpLink InducingUpLink" |
| Common Verbs | Help<br>List<br>Display |

### GROUP ARtg Pnni CfgNode UpLink Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes of a logical uplink. |

### ATTRIBUTE ARtg Pnni CfgNode UpLink aggregationToken

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the derived aggregation token value for this link. The aggregation token value can be traced back to the aggregation token given to the physical ATM interface in *AtmIf Pnni Rcc* or *AtmIf Vpt Pnni Rcc*. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE ARtg Pnni CfgNode UpLink upnodeId

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute indicates the node ID of the upnode at the far end of the uplink. |
| Values | String (22, Hex) |
| Default | No default |

### ATTRIBUTE ARtg Pnni CfgNode UpLink upnodeAddress

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the node address of the upnode at the far end of the uplink. |
| Values | String (20, Hex) |
| Default | No default |

### ATTRIBUTE ARtg Pnni CfgNode UpLink upnodeName

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the node name and the hierarchy level for the upnode at the far end of the uplink.<br><br>A typical value for this attribute has the following form: ***OBELIX@96.***<br><br>Here, ***OBELIX*** is the node name and ***96*** is the hierarchy level for the upnode. The **@** symbol is used to separate the node name from the hierarchy level in the display. |
| Values | String (0..16, ASCII) |
| Default | No default |

### COMPONENT ARtg Pnni CfgNode UpLink InducingUpLink

| | |
|---|---|
| Instance | nodeId [String (22, Hex)]<br>portId [Decimal (0..4294967295)] |
| Scope | Device |

Description

*ARtg Pnni CfgNode/n Nbr/<node id> Rcc HLnk/<port id> InducingUpLink/<node Id>, <port Id>*

*ARtg Pnni CfgNode/n Nbr/<node id> ULnk/<port id> InducingUpLink/<node Id>, <port Id>*

This component represents the underlying link that induces this uplink or horizontal link. The index is the (*node Id*, *port Id*) tuple that uniquely identifies the port. The *node Id* is the Id of one of the *cfgnodes*, and the *port Id* is the Id that represents an *Uplink* from that *cfgnode*.

Common Verbs

Help
List
Display

## COMPONENT ARtg Pnni CfgNode PeerGroupLeader (Pgl)

Groups

"GROUP ARtg Pnni CfgNode Pgl Provisioned (Prov)"

Scope

Device

Description

*ARtg Pnni CfgNode/<level> PeerGroupLeader*
This component represents the participation of this node as a candidate for Peer Group Leader in the Peer Group Election. If this component is not provisioned, the *cfgNode* cannot be elected as a Peer Group Leader.

Common Verbs

Help
List
Display
Add
DELete

## GROUP ARtg Pnni CfgNode Pgl Provisioned (Prov)

Properties

Provisioned

Description

This group contains the provisional attributes of a candidate for Peer Group Leader.

### ATTRIBUTE ARtg Pnni CfgNode Pgl leadershipPriority (lPrio)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the leadership priority to be advertised by this node during the election process. Currently, this attribute must be changed manually after provisioning the *PGL* component.<br>Note: If a node is the Peer Group Leader and its *leadershipPriority* is modified such that another node has a higher *leadershipPriority*, then a re-election is held immediately on activation. |
| Values | Decimal (1..205) |
| Default | 1 |

### ATTRIBUTE ARtg Pnni CfgNode Pgl initTime

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies how long this node delays advertising its choice of preferred peer group leader after having initialized operation and reached the full peer state with at least one neighbor in the peer group. If the value is ***sameAsPnni***, then this value is taken from *ARtg Pnni initTime*. |
| Values | Signed (0..65534)<br>sameAsPnni |
| Units | seconds |
| Default | sameAsPnni |

### ATTRIBUTE ARtg Pnni CfgNode Pgl overrideDelay

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies how long a node waits for itself to be declared the preferred peer group leader by unanimous agreement |

among its peers. If the value is ***sameAsPnni***, then this value is taken from *ARtg Pnni overrideDelay.*

Values: Decimal (1..65534)
sameAsPnni

Units: seconds

Default: sameAsPnni

### ATTRIBUTE ARtg Pnni CfgNode Pgl reElectionInterval

Access: Read: All
Write: All

Description: This attribute specifies how long this node waits after losing connectivity to the current peer group leader before re-starting the process of electing a new peer group leader. If the value is ***sameAsPnni***, then this value is taken from *ARtg Pnni reElectionInterval*.

Values: Decimal (1..65534)
sameAsPnni

Units: seconds

Default: sameAsPnni

### COMPONENT ARtg Pnni CfgNode RoutingControlChannel (Rcc)

Instance: String (20, Hex)

Groups: "GROUP ARtg Pnni CfgNode Rcc OsiState (State)"
"GROUP ARtg Pnni CfgNode Rcc Operational (Oper)"
"GROUP ARtg Pnni CfgNode Rcc Statistics (Stats)"

Scope: Device

Description: *ARtg Pnni CfgNode/n Nbr/<node id> RoutingControlChannel*
This component represents the operational attributes for the *RoutingControlChannel* component to a neighboring node.

If this *cfgnode* is not an LGN and the *Neighbor* node is not an LGN (in other words, both the *cfgnode* and its *Neighbor* are physical nodes), this component is not created.

If this *cfgnode* and/or the *Neighbor* node is a Logical Group Node (LGN) at this level, the *Rcc* subcomponent indicates the SVCC-based RCC to the *Neighbor*.

Dyn. Subcomp. "COMPONENT ARtg Pnni CfgNode Rcc AtmConnection (AtmCon)"

Common Verbs
Help
List
Display

## GROUP ARtg Pnni CfgNode Rcc OsiState (State)

Properties Operational

Description This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

## ATTRIBUTE ARtg Pnni CfgNode Rcc adminState (osiAdmin)

Access Read only

Description This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

| | |
|---|---|
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE ARtg Pnni CfgNode Rcc operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE ARtg Pnni CfgNode Rcc usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |

| | |
|---|---|
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP ARtg Pnni CfgNode Rcc Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for an *RoutingControlChannel* component. |

### ATTRIBUTE ARtg Pnni CfgNode Rcc negotiatedVersion

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the PNNI version negotiated with the neighbor node. |
| Values | unsupported<br>version1point0 |
| Default | No default |

### ATTRIBUTE ARtg Pnni CfgNode Rcc neighborId (neighbor)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the neighbor node id associated with the SvccRcc. |
| Values | String (22, Hex) |
| Default | No default |

### ATTRIBUTE ARtg Pnni CfgNode Rcc helloState

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the state of the Hello protocol exchange over this *Svcc Rcc* link. The following are the possible values for this attribute: |

***down***: The link is down; no PNNI routing packets will be sent or received over such a link. This is the initial state of the Hello Finite State Machine. It can also be reached when lower-level protocols have indicated that the link is not usable.

***attempt***: No Hello packets, or Hello packets with mismatched information, have been received recently from the neighbor. Attempts are made to contact the neighbor node by sending out Hello packets every *helloInterval* seconds.

***oneWayInside***: Hello packets have been recently received from the neighbor and it has been established that both nodes are members of the same peer group, but the remote node ID and remote port ID in the neighbor's Hello packets were set to zero. A Hello packet is sent to the neighbor and the Hello timer is restarted.

***twoWayInsid***e: Bidirectional communication over this link between this node and the neighbor node has been achieved.

| | |
|---|---|
| Values | notApplicable<br>down<br>attempt<br>oneWayInside<br>twoWayInside |
| Default | No default |

### ATTRIBUTE ARtg Pnni CfgNode Rcc remoteAddress

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the neighboring peer LGN's address. |
| Values | String (20, Hex) |
| Default | No default |

### ATTRIBUTE ARtg Pnni CfgNode Rcc neighborName

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute indicates the node name of the neighbor associated with the SvccRcc. |
| Values | String (0..12, ASCII) |
| Default | No default |

### ATTRIBUTE ARtg Pnni CfgNode Rcc retryCount

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the attempts to set up this Routing Control Channel since the last successful attempt. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE ARtg Pnni CfgNode Rcc lastFailureCauseCode

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute contains the cause code in the last transmitted signaling message for this Routing Control Channel that contained the CAUSE information element. The cause code is used to describe the reason for generating certain signaling messages.<br>A value of 0 means that no failure has occurred since the last successful attempt. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE ARtg Pnni CfgNode Rcc lastFailureDiagCode

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute contains the diagnostic code in the last transmitted signaling message for this Routing Control Channel. The diagnostic code is contained in the CAUSE information element and identifies an information element type or timer type. The diagnostic code is present only if a procedural error is detected by |

| | |
|---|---|
| | the signaling protocol. A diagnostic code is always accompanied by the cause code. If there is no failure, this attribute is empty. |
| Values | String (0..28, ASCII) |
| Default | No default |

### GROUP ARtg Pnni CfgNode Rcc Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the statistical attributes for an *Rcc* component. |

### ATTRIBUTE ARtg Pnni CfgNode Rcc helloPacketsRx

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Hello packets received across this SVCC-based RCC, including bad and mismatched Hello packets. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE ARtg Pnni CfgNode Rcc helloPacketsTx

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Hello packets transmitted across this SVCC-based RCC. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE ARtg Pnni CfgNode Rcc mismatchedHelloPacketsRx

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the mismatched Hello packets received over this SVCC-based RCC. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE ARtg Pnni CfgNode Rcc badHelloPacketsRx

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the bad Hello packets received over this SVCC-based RCC. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT ARtg Pnni CfgNode Rcc AtmConnection (AtmCon)

| | |
|---|---|
| Groups | "GROUP ARtg Pnni CfgNode Rcc AtmCon Operational (Oper)" |
| Scope | Device |
| Description | An AtmConnection component is created for each ATM connection established by an application. It shows where the data traffic for this connection is directed. |
| Common Verbs | Help<br>List<br>Display |

### GROUP ARtg Pnni CfgNode Rcc AtmCon Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains the operational attributes for the *NapAtmConnection* component. |

### ATTRIBUTE ARtg Pnni CfgNode Rcc AtmCon nextHop

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute shows the component name of the *AtmIf Vcc Ep* or *AtmCon* component to which this switched connection is established. |
| Values | The name of the component |
| Default | No default |

## COMPONENT ARtg Pnni Topology (Top)

| | |
|---|---|
| Instance | Decimal (0..104) |
| Groups | "GROUP ARtg Pnni Top Operational (Oper)" |
| Scope | Device |
| Description | *ARtg Pnni Topology/<level>*<br><br>The *Topology* component provides access to information in this node's PNNI topology database for the level in the PNNI hierarchy specified by the instance value. |
| Dyn. Subcomp. | "COMPONENT ARtg Pnni Top NodeId (Node)"<br>"COMPONENT ARtg Pnni Top NodeName" |
| Common Verbs | Help<br>List<br>Display |

## GROUP ARtg Pnni Top Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes of a *Topology* component. |

## ATTRIBUTE ARtg Pnni Top pglNodeId

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the node ID of the Peer Group Leader (PGL) for this level. If this attribute is empty, it indicates that the PGL node ID is unknown. |

| | |
|---|---|
| Values | String (0..22, Hex) |
| Default | No default |

### ATTRIBUTE ARtg Pnni Top activeParentNodeId

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the node identifier of the LGN representing this peer group in the next higher level. |
| Values | String (0..22, Hex) |
| Default | No default |

### ATTRIBUTE ARtg Pnni Top activeParentNodeAddress

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the node address of the LGN representing this peer group in the next higher level. |
| Values | String (19, Hex) |
| Default | No default |

### ATTRIBUTE ARtg Pnni Top peerGroupId

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the peer group identifier of the LGN representing this peer group in the next higher level. |
| Values | String (0..14, Hex) |
| Default | No default |

### COMPONENT ARtg Pnni Top NodeId (Node)

| | |
|---|---|
| Instance | String (22, Hex) |
| Groups | "GROUP ARtg Pnni Top Node Operational (Oper)" |
| Scope | Device |

Description

*ARtg Pnni Top/<level> NodeId/<node ID>*
This component represents the nodal information stored in this node's topology database at this level.

The reachable ATM end system addresses (both internal and exterior reachable addresses) advertised by the node can be listed through the *Addr* subcomponent instances.

All advertised horizontal links associated with the node can be listed through the *HLnk* subcomponent instances, which are indexed by their port ID.

All advertised uplinks associated with the node can be listed through the *ULnk* subcomponent instances, which are indexed by their port ID.

Dyn. Subcomp.

"COMPONENT ARtg Pnni Top Node Address (Addr)"
"COMPONENT ARtg Pnni Top Node HorizontalLink (HLnk)"
"COMPONENT ARtg Pnni Top Node UpLink (ULnk)"

Common Verbs

Help
List
Display

## GROUP ARtg Pnni Top Node Operational (Oper)

Properties

Operational

Description

This group contains the operational attributes of the *Artg Pnni Top*
*NodeId* and the *ARtg Pnni Top NodeName* components.

## ATTRIBUTE ARtg Pnni Top Node physicallyReachable (reachable)

Access

Read: All
Write: Illegal

Description

This attribute indicates whether there exists a PNNI path that connects the node corresponding to this component to the local node.

| | |
|---|---|
| Values | no<br>yes<br>unknown |
| Default | No default |

### ATTRIBUTE ARtg Pnni Top Node preferredPglNodeId

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the preferred Peer Group Leader (PGL) node ID advertised by the parent *NodeId* component. If this attribute is empty, it indicates the preferred PGL node ID is unknown. |
| Values | String (0..22, Hex) |
| Default | No default |

### ATTRIBUTE ARtg Pnni Top Node pglLeadershipPriority (pglLPrio)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the leadership priority advertised by the parent *NodeId* component. If this value is 0, it indicates that the node cannot be elected as a peer group leader. |
| Values | Decimal (0..205) |
| Default | 0 |

### ATTRIBUTE ARtg Pnni Top Node preferredPglNodeName

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the node name corresponding to the preferred Peer Group Leader (PGL) node ID advertised by the parent *NodeId* component. If this attribute is empty, it indicates the preferred PGL node name is unknown. |
| Values | String (0..12, ASCII) |
| Default | No default |

### ATTRIBUTE ARtg Pnni Top Node nodeId

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the corresponding node ID instance for this *NodeName* under the *ARtg Pnni Top/<level> NodeId/<node id>* component. |
| Values | String (0..22, Hex) |
| Default | No default |

### ATTRIBUTE ARtg Pnni Top Node nodeName

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the corresponding instance for this *NodeId* component under the *ARtg Pnni Top/<level> NodeName/ <node name>* component. |
| Values | String (0..12, ASCII) |
| Default | No default |

### COMPONENT ARtg Pnni Top Node Address (Addr)

| | |
|---|---|
| Instance | address [String (19, Hex)]<br>prefixLength [Decimal (1..152)]<br>reachability [internal<br>exterior] |
| Groups | "GROUP ARtg Pnni Top Node Addr Operational (Oper)" |
| Scope | Device |
| Description | ARtg Pnni Top NodeId/<node ID> Address/<address>, <prefixLength>, <reachability><br>This component represents an address advertised by the parent *NodeId* component.<br><br>The ***Address*** is a 38 hex digit string.<br><br>The *prefixLength* specifies the number of significant bits in the address. |

The *reachability* specifies whether the address is ***internal*** or ***exterior***.

An ***internal*** reachable address is the address of a destination that is
directly attached to the logical node advertising the address. An ***exterior*** reachable address is an address that can be reached through a PNNI routing domain, but which is not located in that PNNI routing domain.

Common Verbs

Help
List
Display

## GROUP ARtg Pnni Top Node Addr Operational (Oper)

Properties: Operational

Description: This attribute group contains the operational attributes for the *Address* component.

## ATTRIBUTE ARtg Pnni Top Node Addr scope

Access: Read: All
Write: Illegal

Criticality: Component

Description: This attribute indicates the scope of the ATM address, which is the highest level to which this address will be advertised in the PNNI hierarchy.

Values: Decimal (0..104)

Default: No default

## COMPONENT ARtg Pnni Top Node HorizontalLink (HLnk)

Instance: Decimal (0..4294967295)

Groups: "GROUP ARtg Pnni Top Node HLnk Operational (Oper)"

Scope: Device

| | |
|---|---|
| Description | *ARtg Pnni Top/<level> NodeId/<node ID> HorizontalLink/ <port ID>*<br>This component represents the horizontal link information stored in this node's topology database at this level.<br><br>All advertised horizontal links associated with the parent *NodeId* component can be listed through the *HorizontalLink* subcomponent instances which are indexed by their port ID. |
| Dyn. Subcomp. | "COMPONENT ARtg Pnni Top Node HLnk Metrics" |
| Common Verbs | Help<br>List<br>Display |

## GROUP ARtg Pnni Top Node HLnk Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes of a *HLnk* component. |

## ATTRIBUTE ARtg Pnni Top Node HLnk remoteNodeId

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the node ID of the node at the far end of this horizontal link. |
| Values | String (22, Hex) |
| Default | No default |

## ATTRIBUTE ARtg Pnni Top Node HLnk remotePortId

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the link's port ID on the node at the far end of this horizontal link. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE ARtg Pnni Top Node HLnk remoteNodeName

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the node name of the node at the far end of this horizontal link. This attribute corresponds to the *remoteNodeId* attribute under this component. |
| Values | String (0..12, ASCII) |
| Default | No default |

### ATTRIBUTE ARtg Pnni Top Node HLnk remoteInterfaceName

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the interface name at the far end of this horizontal link.<br><br>When the far end of the link is a Passport node, this attribute's value can take one of the following forms:<br>(a) ***AtmIf/<1-4095>*** - If the far end is an Atm Interface.<br>(b) ***AtmIf/<1-4095> Vpt/<1-4095>*** - If the far end is a VPT interface.<br>(c) Values ***0-4294967295*** - If the link is a logical link.<br><br>This attribute will remain blank if the far end is a non-Passport node. |
| Values | String (0..19, ASCII) |
| Default | No default |

### ATTRIBUTE ARtg Pnni Top Node HLnk nodeId

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the node ID of the node at the near end of this horizontal link. |
| Values | String (22, Hex) |
| Default | No default |

### ATTRIBUTE ARtg Pnni Top Node HLnk portId

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the link's port ID of the node at the near end of this horizontal link. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE ARtg Pnni Top Node HLnk nodeName

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the *nodeName* of the node at this end of the horizontal link. This attribute is empty if a node name is not provisioned under the *ModuleData* component. |
| Values | String (0..12, ASCII) |
| Default | No default |

### ATTRIBUTE ARtg Pnni Top Node HLnk interfaceName

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the interface name at this end of the horizontal link.<br><br>For a Passport node, this attribute's value can take one of the following forms:<br>(a) ***AtmIf/<1-4095>*** - If the far end is an Atm Interface.<br>(b) ***AtmIf/<1-4095> Vpt/<1-4095>*** - If the far end is a VPT interface.<br>(c) Values ***0-4294967295*** - If the link is a logical link.<br><br>This attribute will remain blank for a non-Passport node. |
| Values | String (0..19, ASCII) |
| Default | No default |

## COMPONENT ARtg Pnni Top Node HLnk Metrics

| | |
|---|---|
| Instance | ubr<br>cbr<br>rtVBR<br>nrtvbr<br>abr |
| Groups | "GROUP ARtg Pnni Top Node HLnk Metrics OutRaig" |
| Scope | Device |
| Description | *ARtg Pnni Top/<level> NodeId/<node ID> HLnk/<port ID> Metrics/<service category>*<br>This component contains the advertised metrics of a horizontal link associated with the parent *NodeId* component for a particular service category, stored in this node's topology database for this PNNI level. |
| Common Verbs | Help<br>List<br>Display |

## GROUP ARtg Pnni Top Node HLnk Metrics OutRaig

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the advertised metrics of a *Ulnk* or *Hlnk* for the outgoing direction. |

## ATTRIBUTE ARtg Pnni Top Node HLnk Metrics outAdminWeight

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the advertised administrative weight of an uplink or a horizontal link for the specified service category for the outgoing direction.<br><br>If the subject node is a Passport and the link is a physical link, this attribute corresponds to the actual administrative weight attribute for the specified service category provisioned under *Atmif Pnni* component. The attribute names in *Atmif Pnni* are *cbrWeight*, *rtVbrWeight*, *nrtVbrWeight* and *UbrWeight* |

corresponding to the service category ***cbr***, ***rtVbr***, ***nrtVbr*** and ***Ubr***.

If the subject node is a Passport and the link is a virtual path connection (VPC), this attribute corresponds to the administrative weight attribute for the specified service category provisioned under that node's *Atmif Vpt Pnni* component.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE ARtg Pnni Top Node HLnk Metrics outAvailableCellRate

Access: Read: All
Write: Illegal

Description: This attribute indicates the advertised available cell rate of an uplink or a horizontal link, in cells per second, for the specified service category for the outgoing direction.

Values: Decimal (0..4294967295)

Units: cell/s

Default: No default

### ATTRIBUTE ARtg Pnni Top Node HLnk Metrics outMaxCellRate

Access: Read: All
Write: Illegal

Description: This attribute indicates the advertised maximum cell rate of an uplink or a horizontal link for the specified service category for the outgoing direction.

Values: Decimal (0..4294967295)

Units: cell/s

Default: No default

### ATTRIBUTE ARtg Pnni Top Node HLnk Metrics outMaxCtd

Access: Read: All
Write: Illegal

Description

This attribute indicates the advertised maximum cell transfer delay (maxCtd) of an uplink or a horizontal link for the specified service category for the outgoing direction.

If the subject node is a Passport and the link is a physical link, this attribute corresponds to the *maxCtd* attribute for the specified service category provisioned under *Atmif Ca* component.

If the subject node is a Passport and the link is a virtual path connection (VPC), this attribute corresponds to the *maxCtd* attribute for the specified service category provisioned under the *Atmif Vpt Ca* component. If the *Atmif Vpt Ca* component doesn't exist, this attribute corresponds to the *maxCtd* attribute for the specified service category provisioned under the *Atmif Ca* component. If this attribute is not applicable for a particular service category, it is displayed as ***notApplicable***.

Values

Decimal (0..4294967294)
notApplicable

Units

microsec

Default

No default

### ATTRIBUTE ARtg Pnni Top Node HLnk Metrics outCdv

Access

Read: All
Write: Illegal

Description

This attribute indicates the advertised peak-to-peak cell delay variation (CDV) of an uplink or a horizontal link for the specified service category for the outgoing direction.

If the subject node is a Passport and the link is a physical link, this attribute corresponds to the *cdv* attribute for the specified service category provisioned under the *Atmif Ca* component.

If the subject node is a Passport and the link is a virtual path connection (VPC), this attribute corresponds to the *cdv* attribute for the specified service category provisioned under the *Atmif Vpt Ca* component. If the *Atmif Vpt Ca* component doesn't exist, this attribute corresponds to the *cdv* attribute for the specified service category, provisioned under the *Atmif Ca* component. If this

attribute is not applicable for a particular service category, it is displayed as ***notApplicable***.

Values
Decimal (0..4294967294)
notApplicable

Units
microsec

Default
No default

## ATTRIBUTE ARtg Pnni Top Node HLnk Metrics outClr0

Access
Read: All
Write: Illegal

Description
This attribute indicates the advertised cell loss ratio (CLR) for CLP0 of an uplink or a horizontal link for the specified service category for the outgoing direction. CLR is defined as the ratio of the number of cells that do not make it across the link or node to the total number of cells transmitted across the link or node. The value in *outClr0* is encoded as the negative logarithm of the value, i.e., the value n indicates a CLR of $10^{-n}$.

If the subject node is a Passport and the link is a physical link, this attribute corresponds to the *clr* attribute for the specified service category provisioned under the *Atmif Ca* component.

If the subject node is a Passport and the link is a virtual path connection (VPC), this attribute corresponds to the *clr* attribute for the specified service category provisioned under the *Atmif Vpt Ca* component. If the *Atmif Vpt Ca* component doesn't exist, this attribute corresponds to the *clr* attribute for the specified service category provisioned under the *Atmif Ca* component. If this attribute is not applicable for a particular service category, it is displayed as ***notApplicable***.

Values
Decimal (0..4294967294)
notApplicable

Default
No default

## ATTRIBUTE ARtg Pnni Top Node HLnk Metrics outClr01

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the advertised cell loss ratio (CLR) for CLP0+1 of an uplink or a horizontal link for the specified service category for the outgoing direction. CLR is defined as the ratio of the number of cells that do not make it across the link or node to the total number of cells transmitted across the link or node. The value in *outClr01* is encoded as the negative logarithm of the value, i.e., the value n indicates a CLR of $10^{-n}$.<br><br>If the subject node is a Passport and the link is a physical link, this attribute corresponds to the *clr* attribute for the specified service category provisioned under the *Atmif Ca* component.<br><br>If the subject node is a Passport and the link is a virtual path connection (VPC), this attribute corresponds to the *clr* attribute for the specified service category provisioned under the *Atmif Vpt Ca* component. If the *Atmif Vpt Ca* component doesn't exist, this attribute corresponds to the *clr* attribute for the specified service category provisioned under the *Atmif Ca* component. If this attribute is not applicable for a particular service category, it is displayed as ***notApplicable***. |
| Values | Decimal (0..4294967294)<br>notApplicable |
| Default | No default |

## ATTRIBUTE ARtg Pnni Top Node HLnk Metrics outCellRateMargin

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the advertised cell rate margin in cells per second of an uplink or a horizontal link for the specified service category for the outgoing direction. This attribute is not supported in passport nodes hence it is displayed as ***notApplicable***. |
| Values | Decimal (0..4294967294)<br>notApplicable |

| | |
|---|---|
| Units | cell/s |
| Default | No default |

### ATTRIBUTE ARtg Pnni Top Node HLnk Metrics outVarianceFactor

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the advertised variance factor of an uplink or a horizontal link for the specified service category for the outgoing direction. The value is display in the power of $2^{-8}$. This attribute is not supported in passport nodes hence it is displayed as ***notApplicable***. |
| Values | Decimal (0..4294967294)<br>notApplicable |
| Default | No default |

### COMPONENT ARtg Pnni Top Node UpLink (ULnk)

| | |
|---|---|
| Instance | Decimal (0..4294967295) |
| Groups | "GROUP ARtg Pnni Top Node ULnk Operational (Oper)" |
| Scope | Device |
| Description | *ARtg Pnni Top/<level> NodeId/<node ID> UpLink/<port ID>*<br>This component represents the uplink information stored in this node's topology database at this level.<br><br>All advertised uplinks associated with the parent *NodeId* component can be listed through the *UpLink* component instances which are indexed by their port ID. |
| Dyn. Subcomp. | "COMPONENT ARtg Pnni Top Node ULnk Metrics" |
| Common Verbs | Help<br>List<br>Display |

### GROUP ARtg Pnni Top Node ULnk Operational (Oper)

| | |
|---|---|
| Properties | Operational |

| | |
|---|---|
| Description | This group contains the operational attributes of a *ULnk* component. |

### ATTRIBUTE ARtg Pnni Top Node ULnk upnodeId

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the node ID of the node at the far end of this uplink. |
| Values | String (22, Hex) |
| Default | No default |

### ATTRIBUTE ARtg Pnni Top Node ULnk upnodeAddress

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the address of the node at the far end of this uplink. |
| Values | String (19, Hex) |
| Default | No default |

### ATTRIBUTE ARtg Pnni Top Node ULnk upnodePeerGroupId

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the peer group identifier of the node at the far end of this uplink. |
| Values | String (0..14, Hex) |
| Default | No default |

### ATTRIBUTE ARtg Pnni Top Node ULnk upnodeName

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the node name and the hierarchy level for the node at the far end of this uplink.<br><br>A typical value for this attribute has the following form: |

***OBELIX@96.***

Here, ***OBELIX*** is the node name and ***96*** is the hierarchy level for the upnode. The **@** symbol is used to separate the node name from the hierarchy level in the display.

Values: String (0..16, ASCII)

Default: No default

## COMPONENT ARtg Pnni Top Node ULnk Metrics

Instance:
ubr
cbr
rtvbr
nrtvbr
abr

Groups:
"GROUP ARtg Pnni Top Node ULnk Metrics OutRaig"
"GROUP ARtg Pnni Top Node ULnk Metrics InRaig"

Scope: Device

Description:
*ARtg Pnni Top/<level> NodeId/<node ID> ULnk/<port ID> Metrics/<service category>*
This component contains the advertised metrics of an uplink associated with the parent *NodeId* component for a particular service category, stored in this node's topology database at this PNNI level.

Common Verbs:
Help
List
Display

## GROUP ARtg Pnni Top Node ULnk Metrics OutRaig

Properties: Operational

Description: This group contains the advertised metrics of a *Ulnk* or *Hlnk* for the outgoing direction.

## ATTRIBUTE ARtg Pnni Top Node ULnk Metrics outAdminWeight

Access:
Read: All
Write: Illegal

| | |
|---|---|
| Description | This attribute indicates the advertised administrative weight of an uplink or a horizontal link for the specified service category for the outgoing direction.<br><br>If the subject node is a Passport and the link is a physical link, this attribute corresponds to the actual administrative weight attribute for the specified service category provisioned under *Atmif Pnni* component. The attribute names in *Atmif Pnni* are *cbrWeight*, *rtVbrWeight*, *nrtVbrWeight* and *UbrWeight* corresponding to the service category ***cbr***, ***rtVbr***, ***nrtVbr*** and ***Ubr***.<br><br>If the subject node is a Passport and the link is a virtual path connection (VPC), this attribute corresponds to the administrative weight attribute for the specified service category provisioned under that node's *Atmif Vpt Pnni* component. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE ARtg Pnni Top Node ULnk Metrics outAvailableCellRate

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the advertised available cell rate of an uplink or a horizontal link, in cells per second, for the specified service category for the outgoing direction. |
| Values | Decimal (0..4294967295) |
| Units | cell/s |
| Default | No default |

### ATTRIBUTE ARtg Pnni Top Node ULnk Metrics outMaxCellRate

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the advertised maximum cell rate of an uplink or a horizontal link for the specified service category for the outgoing direction. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Units | cell/s |
| Default | No default |

### ATTRIBUTE ARtg Pnni Top Node ULnk Metrics outMaxCtd

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the advertised maximum cell transfer delay (maxCtd) of an uplink or a horizontal link for the specified service category for the outgoing direction.<br><br>If the subject node is a Passport and the link is a physical link, this attribute corresponds to the *maxCtd* attribute for the specified service category provisioned under *Atmif Ca* component.<br><br>If the subject node is a Passport and the link is a virtual path connection (VPC), this attribute corresponds to the *maxCtd* attribute for the specified service category provisioned under the *Atmif Vpt Ca* component. If the *Atmif Vpt Ca* component doesn't exist, this attribute corresponds to the *maxCtd* attribute for the specified service category provisioned under the *Atmif Ca* component. If this attribute is not applicable for a particular service category, it is displayed as ***notApplicable***. |
| Values | Decimal (0..4294967294)<br>notApplicable |
| Units | microsec |
| Default | No default |

### ATTRIBUTE ARtg Pnni Top Node ULnk Metrics outCdv

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the advertised peak-to-peak cell delay variation (CDV) of an uplink or a horizontal link for the specified service category for the outgoing direction.<br><br>If the subject node is a Passport and the link is a physical link, |

this attribute corresponds to the *cdv* attribute for the specified service category provisioned under the *Atmif Ca* component.

If the subject node is a Passport and the link is a virtual path connection (VPC), this attribute corresponds to the *cdv* attribute for the specified service category provisioned under the *Atmif Vpt Ca* component. If the *Atmif Vpt Ca* component doesn't exist, this attribute corresponds to the *cdv* attribute for the specified service category, provisioned under the *Atmif Ca* component. If this attribute is not applicable for a particular service category, it is displayed as ***notApplicable***.

Values: Decimal (0..4294967294)
notApplicable

Units: microsec

Default: No default

## ATTRIBUTE ARtg Pnni Top Node ULnk Metrics outClr0

Access: Read: All
Write: Illegal

Description: This attribute indicates the advertised cell loss ratio (CLR) for CLP0 of an uplink or a horizontal link for the specified service category for the outgoing direction. CLR is defined as the ratio of the number of cells that do not make it across the link or node to the total number of cells transmitted across the link or node. The value in *outClr0* is encoded as the negative logarithm of the value, i.e., the value n indicates a CLR of $10^{-n}$.

If the subject node is a Passport and the link is a physical link, this attribute corresponds to the *clr* attribute for the specified service category provisioned under the *Atmif Ca* component.

If the subject node is a Passport and the link is a virtual path connection (VPC), this attribute corresponds to the *clr* attribute for the specified service category provisioned under the *Atmif Vpt Ca* component. If the *Atmif Vpt Ca* component doesn't exist, this attribute corresponds to the *clr* attribute for the specified service category provisioned under the *Atmif Ca* component. If this

attribute is not applicable for a particular service category, it is displayed as ***notApplicable***.

Values
Decimal (0..4294967294)
notApplicable

Default
No default

## ATTRIBUTE ARtg Pnni Top Node ULnk Metrics outClr01

Access
Read: All
Write: Illegal

Description
This attribute indicates the advertised cell loss ratio (CLR) for CLP0+1 of an uplink or a horizontal link for the specified service category for the outgoing direction. CLR is defined as the ratio of the number of cells that do not make it across the link or node to the total number of cells transmitted across the link or node. The value in *outClr01* is encoded as the negative logarithm of the value, i.e., the value n indicates a CLR of $10^{-n}$.

If the subject node is a Passport and the link is a physical link, this attribute corresponds to the *clr* attribute for the specified service category provisioned under the *Atmif Ca* component.

If the subject node is a Passport and the link is a virtual path connection (VPC), this attribute corresponds to the *clr* attribute for the specified service category provisioned under the *Atmif Vpt Ca* component. If the *Atmif Vpt Ca* component doesn't exist, this attribute corresponds to the *clr* attribute for the specified service category provisioned under the *Atmif Ca* component. If this attribute is not applicable for a particular service category, it is displayed as ***notApplicable***.

Values
Decimal (0..4294967294)
notApplicable

Default
No default

## ATTRIBUTE ARtg Pnni Top Node ULnk Metrics outCellRateMargin

Access
Read: All
Write: Illegal

| | |
|---|---|
| Description | This attribute indicates the advertised cell rate margin in cells per second of an uplink or a horizontal link for the specified service category for the outgoing direction. This attribute is not supported in passport nodes hence it is displayed as ***notApplicable***. |
| Values | Decimal (0..4294967294)<br>notApplicable |
| Units | cell/s |
| Default | No default |

### ATTRIBUTE ARtg Pnni Top Node ULnk Metrics outVarianceFactor

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the advertised variance factor of an uplink or a horizontal link for the specified service category for the outgoing direction. The value is display in the power of $2^{-8}$. This attribute is not supported in passport nodes hence it is displayed as ***notApplicable***. |
| Values | Decimal (0..4294967294)<br>notApplicable |
| Default | No default |

### GROUP ARtg Pnni Top Node ULnk Metrics InRaig

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the advertised metrics of a *Ulnk* or *Hlnk* for the incoming direction. |

### ATTRIBUTE ARtg Pnni Top Node ULnk Metrics inAdminWeight

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the advertised administrative weight of an uplink for the specified service category for the incoming direction.<br><br>If the subject node is a Passport and the link is a physical link, |

this attribute corresponds to the administrative weight attribute for the specified service category provisioned under the *Atmif Pnni* component.

If the subject node is a Passport and the link is a virtual path connection (VPC), this attribute corresponds to the administrative weight attribute for the specified service category provisioned under the *Atmif Vpt Pnni* component.

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE ARtg Pnni Top Node ULnk Metrics inAvailableCellRate

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the advertised available cell rate of an uplink for the specified service category for the incoming direction. |
| Values | Decimal (0..4294967295) |
| Units | cell/s |
| Default | No default |

### ATTRIBUTE ARtg Pnni Top Node ULnk Metrics inMaxCellRate

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the advertised maximum cell rate of an uplink for the specified service category for the incoming direction. |
| Values | Decimal (0..4294967295) |
| Units | cell/s |
| Default | No default |

### ATTRIBUTE ARtg Pnni Top Node ULnk Metrics inMaxCtd

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute indicates the advertised maximum cell transfer delay (*maxCtd*) of an uplink for the specified service category for the incoming direction.<br><br>If the subject node is a Passport and the link is a physical link, this attribute corresponds to the *maxCtd* attribute for the specified service category provisioned under the *Atmif Ca* component.<br><br>If the subject node is a Passport and the link is a virtual path connection (VPC), this attribute corresponds to the *maxCtd* attribute for the specified service category provisioned under the *Atmif Vpt Ca* component. If the *Atmif Vpt Ca* component doesn't exist, this attribute corresponds to the *maxCtd* attribute for the specified service category provisioned under the *Atmif Ca* component. If this attribute is not applicable for a particular service category, it is displayed as ***notApplicable***. |
| Values | Decimal (0..4294967294)<br>notApplicable |
| Units | microsec |
| Default | No default |

### ATTRIBUTE ARtg Pnni Top Node ULnk Metrics inCdv

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the advertised peak-to-peak cell delay variation (CDV) of an uplink for the specified service category for the incoming direction.<br><br>If the subject node is a Passport and the link is a physical link, this attribute corresponds to the *cdv* attribute for the specified service category provisioned under *Atmif Ca* component.<br><br>If the subject node is a Passport and the link is a virtual path connection (VPC), this attribute corresponds to the *cdv* attribute for the specified service category provisioned under the *Atmif Vpt Ca* component. If the *Atmif Vpt Ca* component doesn't exist, this attribute corresponds to the *cdv* attribute for the specified service category, provisioned under the *Atmif Ca* component. If this |

attribute is not applicable for a particular service category, it is displayed as ***notApplicable***.

Values
Decimal (0..4294967294)
notApplicable

Units
microsec

Default
No default

## ATTRIBUTE ARtg Pnni Top Node ULnk Metrics inClr0

Access
Read: All
Write: Illegal

Description
This attribute indicates the advertised cell loss ratio (CLR) for CLP0 of an uplink for the specified service category for the incoming direction. CLR is defined as the ratio of the number of cells that do not make it across the link or node to the total number of cells transmitted across the link or node. The value in *inClr0* is encoded as the negative logarithm of the value, i.e., the value n indicates a CLR of $10^{-n}$.

If the subject node is a Passport and the link is a physical link, this attribute corresponds to the *clr* attribute for the specified service category provisioned under the *Atmif Ca* component.

If the subject node is a Passport and the link is a virtual path connection (VPC), this attribute corresponds to the *clr* attribute for the specified service category provisioned under the *Atmif Vpt Ca* component. If the *Atmif Vpt Ca* component doesn't exist, this attribute corresponds to the *clr* attribute for the specified service category provisioned under the *Atmif Ca* component. If this attribute is not applicable for a particular service category, it is displayed as ***notApplicable***.

Values
Decimal (0..4294967294)
notApplicable

Default
No default

## ATTRIBUTE ARtg Pnni Top Node ULnk Metrics inClr01

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the advertised cell loss ratio (CLR) for CLP0+1 of an uplink for the specified service category for the incoming direction. CLR is defined as the ratio of the number of cells that do not make it across the link or node to the total number of cells transmitted across the link or node. The value in *inClr01* is encoded as the negative logarithm of the value, i.e., the value n indicates a CLR of $10^{-n}$.<br><br>If the subject node is a Passport and the link is a physical link, this attribute corresponds to the *clr* attribute for the specified service category provisioned under the *Atmif Ca* component.<br><br>If the subject node is a Passport and the link is a virtual path connection (VPC), this attribute corresponds to the *clr* attribute for the specified service category provisioned under the *Atmif Vpt Ca* component. If the *Atmif Vpt Ca* component doesn't exist, this attribute corresponds to the *clr* attribute for the specified service category provisioned under the *Atmif Ca* component. If this attribute is not applicable for a particular service category, it is displayed as ***notApplicable***. |
| Values | Decimal (0..4294967294)<br>notApplicable |
| Default | No default |

## COMPONENT ARtg Pnni Top NodeName

| | |
|---|---|
| Instance | String (1..12, ASCII) |
| Groups | "GROUP ARtg Pnni Top NodeName Operational (Oper)" |
| Scope | Device |
| Description | *ARtg Pnni Top/<level> NodeName/<node name>*<br>This component represents the nodal information stored in this node's topology database at this level, indexed on the names of the nodes. |

The reachable ATM end system addresses (both internal and exterior reachable addresses) advertised by the node can be listed through the *Addr* subcomponent instances.

All advertised horizontal links associated with the node can be listed through the *HLnk* subcomponent instances, which are indexed by their interface names.

All advertised uplinks associated with the node can be listed through the *ULnk* subcomponent instances, which are indexed by their interface names.

The topology information for Passport nodes running older loads and for non-Passport nodes is not available under this component. The information for these nodes is visible, as before, under the *Artg Pnni Top Node* hierarchy.

Dyn. Subcomp. "COMPONENT ARtg Pnni Top NodeName Address (Addr)"
"COMPONENT ARtg Pnni Top NodeName HorizontalLink (HLnk)"
"COMPONENT ARtg Pnni Top NodeName UpLink (ULnk)"

Common Verbs Help
List
Display

## GROUP ARtg Pnni Top NodeName Operational (Oper)

Properties Operational

Description This group contains the operational attributes of the *Artg Pnni Top*
*NodeId* and the *ARtg Pnni Top NodeName* components.

## ATTRIBUTE ARtg Pnni Top NodeName physicallyReachable (reachable)

Access Read: All
Write: Illegal

Description This attribute indicates whether there exists a PNNI path that connects the node corresponding to this component to the local node.

| | |
|---|---|
| Values | no<br>yes<br>unknown |
| Default | No default |

### ATTRIBUTE ARtg Pnni Top NodeName preferredPglNodeId

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the preferred Peer Group Leader (PGL) node ID advertised by the parent *NodeId* component. If this attribute is empty, it indicates the preferred PGL node ID is unknown. |
| Values | String (0..22, Hex) |
| Default | No default |

### ATTRIBUTE ARtg Pnni Top NodeName pglLeadershipPriority (pglLPrio)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the leadership priority advertised by the parent *NodeId* component. If this value is 0, it indicates that the node cannot be elected as a peer group leader. |
| Values | Decimal (0..205) |
| Default | 0 |

### ATTRIBUTE ARtg Pnni Top NodeName preferredPglNodeName

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the node name corresponding to the preferred Peer Group Leader (PGL) node ID advertised by the parent *NodeId* component. If this attribute is empty, it indicates the preferred PGL node name is unknown. |
| Values | String (0..12, ASCII) |
| Default | No default |

### ATTRIBUTE ARtg Pnni Top NodeName nodeId

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the corresponding node ID instance for this *NodeName* under the *ARtg Pnni Top/<level> NodeId/<node id>* component. |
| Values | String (0..22, Hex) |
| Default | No default |

### ATTRIBUTE ARtg Pnni Top NodeName nodeName

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the corresponding instance for this *NodeId* component under the *ARtg Pnni Top/<level> NodeName/ <node name>* component. |
| Values | String (0..12, ASCII) |
| Default | No default |

### COMPONENT ARtg Pnni Top NodeName Address (Addr)

| | |
|---|---|
| Instance | address [String (19, Hex)]<br>prefixLength [Decimal (1..152)]<br>reachability [internal<br>exterior] |
| Groups | "GROUP ARtg Pnni Top NodeName Addr Operational (Oper)" |
| Scope | Device |
| Description | *ARtg Pnni Top/<level> NodeName/<node name> Addr/ <address>, <prefixLength>, <reachability>*<br>This component represents an address advertised by the parent *NodeName* component.<br><br>The *Address* component is a 38 hex digit string.<br><br>The *prefixLength* attribute specifies the number of significant bits in the address. |

The *reachability* attribute specifies whether the address is ***internal*** or ***exterior***.

A value of ***internal*** refers to a reachable address of a destination that is directly attached to the logical node advertising the address. A value of ***exterior*** refers to a reachable address that can be reached
through a PNNI routing domain, but which is not located in that PNNI routing domain.

Common Verbs

Help
List
Display

## GROUP ARtg Pnni Top NodeName Addr Operational (Oper)

Properties: Operational

Description: This attribute group contains the operational attributes for the *Address* component.

## ATTRIBUTE ARtg Pnni Top NodeName Addr scope

Access: Read: All
Write: Illegal

Criticality: Component

Description: This attribute indicates the scope of the ATM address, which is the highest level to which this address will be advertised in the PNNI hierarchy.

Values: Decimal (0..104)

Default: No default

## COMPONENT ARtg Pnni Top NodeName HorizontalLink (HLnk)

Instance: String (1..10, ASCII)

Groups: "GROUP ARtg Pnni Top NodeName HLnk Operational (Oper)"

Scope: Device

| | |
|---|---|
| Description | *ARtg Pnni Top/<level> NodeName/<node name> HorizontalLink/<interface name>*<br>This component represents the horizontal link information stored in this node's topology database at this level.<br><br>All advertised horizontal links associated with the parent *NodeName* component can be listed through the *HorizontalLink* subcomponent instances, which are indexed by their interface names.<br><br>The interface names can take one of the following forms:<br>(a) ***AtmIfNumber.VptNumber*** to indicate a physical interface. Therefore, ***HLnk/100*** indicates *AtmIf/100* while ***HLnk/100.22*** indicates *AtmIf/100 Vpt/22*.<br>(b) Values ***<0-4294967295>*** to indicate a logical link. Therefore, ***HLnk/4202201295*** indicates a logical link. |
| Dyn. Subcomp. | "COMPONENT ARtg Pnni Top NodeName HLnk Metrics" |
| Common Verbs | Help<br>List<br>Display |

## GROUP ARtg Pnni Top NodeName HLnk Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes of a *HLnk* component. |

## ATTRIBUTE ARtg Pnni Top NodeName HLnk remoteNodeId

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the node ID of the node at the far end of this horizontal link. |
| Values | String (22, Hex) |
| Default | No default |

### ATTRIBUTE ARtg Pnni Top NodeName HLnk remotePortId

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the link's port ID on the node at the far end of this horizontal link. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE ARtg Pnni Top NodeName HLnk remoteNodeName

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the node name of the node at the far end of this horizontal link. This attribute corresponds to the *remoteNodeId* attribute under this component. |
| Values | String (0..12, ASCII) |
| Default | No default |

### ATTRIBUTE ARtg Pnni Top NodeName HLnk remoteInterfaceName

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the interface name at the far end of this horizontal link.<br><br>When the far end of the link is a Passport node, this attribute's value can take one of the following forms:<br>(a) ***AtmIf/<1-4095>*** - If the far end is an Atm Interface.<br>(b) ***AtmIf/<1-4095> Vpt/<1-4095>*** - If the far end is a VPT interface.<br>(c) Values ***0-4294967295*** - If the link is a logical link.<br><br>This attribute will remain blank if the far end is a non-Passport node. |
| Values | String (0..19, ASCII) |
| Default | No default |

### ATTRIBUTE ARtg Pnni Top NodeName HLnk nodeId

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the node ID of the node at the near end of this horizontal link. |
| Values | String (22, Hex) |
| Default | No default |

### ATTRIBUTE ARtg Pnni Top NodeName HLnk portId

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the link's port ID of the node at the near end of this horizontal link. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE ARtg Pnni Top NodeName HLnk nodeName

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the *nodeName* of the node at this end of the horizontal link. This attribute is empty if a node name is not provisioned under the *ModuleData* component. |
| Values | String (0..12, ASCII) |
| Default | No default |

### ATTRIBUTE ARtg Pnni Top NodeName HLnk interfaceName

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the interface name at this end of the horizontal link.<br><br>For a Passport node, this attribute’s value can take one of the following forms:<br>(a) ***AtmIf/<1-4095>*** - If the far end is an Atm Interface. |

(b) ***AtmIf/<1-4095> Vpt/<1-4095>*** - If the far end is a VPT interface.
(c) Values ***0-4294967295*** - If the link is a logical link.

This attribute will remain blank for a non-Passport node.

Values: String (0..19, ASCII)

Default: No default

## COMPONENT ARtg Pnni Top NodeName HLnk Metrics

Instance:
ubr
cbr
rtVBR
nrtvbr
abr

Groups: "GROUP ARtg Pnni Top NodeName HLnk Metrics OutRaig"

Scope: Device

Description: *ARtg Pnni Top/<level> NodeName/<node name> HLnk/ <interface name> Metrics/<service category>*
This component contains the advertised metrics of a horizontal link associated with the parent *NodeName* component for a particular service category, stored in this node's topology database for this PNNI level.

Common Verbs:
Help
List
Display

## GROUP ARtg Pnni Top NodeName HLnk Metrics OutRaig

Properties: Operational

Description: This group contains the advertised metrics of a *Ulnk* or *Hlnk* for the outgoing direction.

## ATTRIBUTE ARtg Pnni Top NodeName HLnk Metrics outAdminWeight

Access:
Read: All
Write: Illegal

| | |
|---|---|
| Description | This attribute indicates the advertised administrative weight of an uplink or a horizontal link for the specified service category for the outgoing direction.<br><br>If the subject node is a Passport and the link is a physical link, this attribute corresponds to the actual administrative weight attribute for the specified service category provisioned under *Atmif Pnni* component. The attribute names in *Atmif Pnni* are *cbrWeight*, *rtVbrWeight*, *nrtVbrWeight* and *UbrWeight* corresponding to the service category ***cbr***, ***rtVbr***, ***nrtVbr*** and ***Ubr***.<br><br>If the subject node is a Passport and the link is a virtual path connection (VPC), this attribute corresponds to the administrative weight attribute for the specified service category provisioned under that node's *Atmif Vpt Pnni* component. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE ARtg Pnni Top NodeName HLnk Metrics outAvailableCellRate

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the advertised available cell rate of an uplink or a horizontal link, in cells per second, for the specified service category for the outgoing direction. |
| Values | Decimal (0..4294967295) |
| Units | cell/s |
| Default | No default |

### ATTRIBUTE ARtg Pnni Top NodeName HLnk Metrics outMaxCellRate

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the advertised maximum cell rate of an uplink or a horizontal link for the specified service category for the outgoing direction. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Units | cell/s |
| Default | No default |

### ATTRIBUTE ARtg Pnni Top NodeName HLnk Metrics outMaxCtd

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the advertised maximum cell transfer delay (maxCtd) of an uplink or a horizontal link for the specified service category for the outgoing direction.<br><br>If the subject node is a Passport and the link is a physical link, this attribute corresponds to the *maxCtd* attribute for the specified service category provisioned under *Atmif Ca* component.<br><br>If the subject node is a Passport and the link is a virtual path connection (VPC), this attribute corresponds to the *maxCtd* attribute for the specified service category provisioned under the *Atmif Vpt Ca* component. If the *Atmif Vpt Ca* component doesn't exist, this attribute corresponds to the *maxCtd* attribute for the specified service category provisioned under the *Atmif Ca* component. If this attribute is not applicable for a particular service category, it is displayed as ***notApplicable***. |
| Values | Decimal (0..4294967294)<br>notApplicable |
| Units | microsec |
| Default | No default |

### ATTRIBUTE ARtg Pnni Top NodeName HLnk Metrics outCdv

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the advertised peak-to-peak cell delay variation (CDV) of an uplink or a horizontal link for the specified service category for the outgoing direction.<br><br>If the subject node is a Passport and the link is a physical link, |

this attribute corresponds to the *cdv* attribute for the specified service category provisioned under the *Atmif Ca* component.

If the subject node is a Passport and the link is a virtual path connection (VPC), this attribute corresponds to the *cdv* attribute for the specified service category provisioned under the *Atmif Vpt Ca* component. If the *Atmif Vpt Ca* component doesn't exist, this attribute corresponds to the *cdv* attribute for the specified service category, provisioned under the *Atmif Ca* component. If this attribute is not applicable for a particular service category, it is displayed as ***notApplicable***.

Values: Decimal (0..4294967294)
notApplicable

Units: microsec

Default: No default

## ATTRIBUTE ARtg Pnni Top NodeName HLnk Metrics outClr0

Access: Read: All
Write: Illegal

Description: This attribute indicates the advertised cell loss ratio (CLR) for CLP0 of an uplink or a horizontal link for the specified service category for the outgoing direction. CLR is defined as the ratio of the number of cells that do not make it across the link or node to the total number of cells transmitted across the link or node. The value in *outClr0* is encoded as the negative logarithm of the value, i.e., the value n indicates a CLR of $10^{-n}$.

If the subject node is a Passport and the link is a physical link, this attribute corresponds to the *clr* attribute for the specified service category provisioned under the *Atmif Ca* component.

If the subject node is a Passport and the link is a virtual path connection (VPC), this attribute corresponds to the *clr* attribute for the specified service category provisioned under the *Atmif Vpt Ca* component. If the *Atmif Vpt Ca* component doesn't exist, this attribute corresponds to the *clr* attribute for the specified service category provisioned under the *Atmif Ca* component. If this

attribute is not applicable for a particular service category, it is displayed as ***notApplicable***.

Values
Decimal (0..4294967294)
notApplicable

Default
No default

### ATTRIBUTE ARtg Pnni Top NodeName HLnk Metrics outClr01

Access
Read: All
Write: Illegal

Description
This attribute indicates the advertised cell loss ratio (CLR) for CLP0+1 of an uplink or a horizontal link for the specified service category for the outgoing direction. CLR is defined as the ratio of the number of cells that do not make it across the link or node to the total number of cells transmitted across the link or node. The value in *outClr01* is encoded as the negative logarithm of the value, i.e., the value n indicates a CLR of $10^{-n}$.

If the subject node is a Passport and the link is a physical link, this attribute corresponds to the *clr* attribute for the specified service category provisioned under the *Atmif Ca* component.

If the subject node is a Passport and the link is a virtual path connection (VPC), this attribute corresponds to the *clr* attribute for the specified service category provisioned under the *Atmif Vpt Ca* component. If the *Atmif Vpt Ca* component doesn't exist, this attribute corresponds to the *clr* attribute for the specified service category provisioned under the *Atmif Ca* component. If this attribute is not applicable for a particular service category, it is displayed as ***notApplicable***.

Values
Decimal (0..4294967294)
notApplicable

Default
No default

### ATTRIBUTE ARtg Pnni Top NodeName HLnk Metrics outCellRateMargin

Access
Read: All
Write: Illegal

| | |
|---|---|
| Description | This attribute indicates the advertised cell rate margin in cells per second of an uplink or a horizontal link for the specified service category for the outgoing direction. This attribute is not supported in passport nodes hence it is displayed as ***notApplicable***. |
| Values | Decimal (0..4294967294)<br>notApplicable |
| Units | cell/s |
| Default | No default |

### ATTRIBUTE ARtg Pnni Top NodeName HLnk Metrics outVarianceFactor

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the advertised variance factor of an uplink or a horizontal link for the specified service category for the outgoing direction. The value is display in the power of $2^{-8}$. This attribute is not supported in passport nodes hence it is displayed as ***notApplicable***. |
| Values | Decimal (0..4294967294)<br>notApplicable |
| Default | No default |

### COMPONENT ARtg Pnni Top NodeName UpLink (ULnk)

| | |
|---|---|
| Instance | String (1..10, ASCII) |
| Groups | "GROUP ARtg Pnni Top NodeName ULnk Operational (Oper)" |
| Scope | Device |
| Description | *ARtg Pnni Top/<level> NodeName/<node name> UpLink/ <interface name>*<br>This component represents the uplink information stored in this node's topology database at this level.<br><br>All advertised uplinks associated with the parent *NodeName* component can be listed through the *UpLink* component instances, which are indexed by their interface names. |

The interface names can take one of the following forms:
(a) ***AtmIfNumber.VptNumber*** to indicate a physical interface. Therefore, ***ULnk/100*** indicates *AtmIf/100* while ***ULnk/100.22*** indicates *AtmIf/100 Vpt/22*.
(b) Values ***<0-4294967295>*** to indicate a logical link. Therefore, ***ULnk/3902201295*** indicates a logical link.

Dyn. Subcomp. "COMPONENT ARtg Pnni Top NodeName ULnk Metrics"

Common Verbs
Help
List
Display

## GROUP ARtg Pnni Top NodeName ULnk Operational (Oper)

Properties Operational

Description This group contains the operational attributes of a *ULnk* component.

## ATTRIBUTE ARtg Pnni Top NodeName ULnk upnodeId

Access Read: All
Write: Illegal

Description This attribute indicates the node ID of the node at the far end of this uplink.

Values String (22, Hex)

Default No default

## ATTRIBUTE ARtg Pnni Top NodeName ULnk upnodeAddress

Access Read: All
Write: Illegal

Description This attribute indicates the address of the node at the far end of this uplink.

Values String (19, Hex)

Default No default

### ATTRIBUTE ARtg Pnni Top NodeName ULnk upnodePeerGroupId

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the peer group identifier of the node at the far end of this uplink. |
| Values | String (0..14, Hex) |
| Default | No default |

### ATTRIBUTE ARtg Pnni Top NodeName ULnk upnodeName

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the node name and the hierarchy level for the node at the far end of this uplink.<br><br>A typical value for this attribute has the following form: ***OBELIX@96.***<br><br>Here, ***OBELIX*** is the node name and ***96*** is the hierarchy level for the upnode. The **@** symbol is used to separate the node name from the hierarchy level in the display. |
| Values | String (0..16, ASCII) |
| Default | No default |

### COMPONENT ARtg Pnni Top NodeName ULnk Metrics

| | |
|---|---|
| Instance | ubr<br>cbr<br>rtvbr<br>nrtvbr<br>abr |
| Groups | "GROUP ARtg Pnni Top NodeName ULnk Metrics OutRaig"<br>"GROUP ARtg Pnni Top NodeName ULnk Metrics InRaig" |
| Scope | Device |
| Description | *ARtg Pnni Top/<level> NodeName/<node name> ULnk/ <interface name> Metrics/<service category>* |

This component contains the advertised metrics of an uplink associated with the parent *NodeName* component for a particular service category, stored in this node's topology database at this PNNI level.

Common Verbs

Help
List
Display

## GROUP ARtg Pnni Top NodeName ULnk Metrics OutRaig

Properties: Operational

Description: This group contains the advertised metrics of a *Ulnk* or *Hlnk* for the outgoing direction.

## ATTRIBUTE ARtg Pnni Top NodeName ULnk Metrics outAdminWeight

Access: Read: All
Write: Illegal

Description: This attribute indicates the advertised administrative weight of an uplink or a horizontal link for the specified service category for the outgoing direction.

If the subject node is a Passport and the link is a physical link, this attribute corresponds to the actual administrative weight attribute for the specified service category provisioned under *Atmif Pnni* component. The attribute names in *Atmif Pnni* are *cbrWeight*, *rtVbrWeight*, *nrtVbrWeight* and *UbrWeight* corresponding to the service category ***cbr***, ***rtVbr***, ***nrtVbr*** and ***Ubr***.

If the subject node is a Passport and the link is a virtual path connection (VPC), this attribute corresponds to the administrative weight attribute for the specified service category provisioned under that node's *Atmif Vpt Pnni* component.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE ARtg Pnni Top NodeName ULnk Metrics outAvailableCellRate

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the advertised available cell rate of an uplink or a horizontal link, in cells per second, for the specified service category for the outgoing direction. |
| Values | Decimal (0..4294967295) |
| Units | cell/s |
| Default | No default |

### ATTRIBUTE ARtg Pnni Top NodeName ULnk Metrics outMaxCellRate

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the advertised maximum cell rate of an uplink or a horizontal link for the specified service category for the outgoing direction. |
| Values | Decimal (0..4294967295) |
| Units | cell/s |
| Default | No default |

### ATTRIBUTE ARtg Pnni Top NodeName ULnk Metrics outMaxCtd

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the advertised maximum cell transfer delay (maxCtd) of an uplink or a horizontal link for the specified service category for the outgoing direction.<br><br>If the subject node is a Passport and the link is a physical link, this attribute corresponds to the *maxCtd* attribute for the specified service category provisioned under *Atmif Ca* component.<br><br>If the subject node is a Passport and the link is a virtual path connection (VPC), this attribute corresponds to the *maxCtd* |

attribute for the specified service category provisioned under the *Atmif Vpt Ca* component. If the *Atmif Vpt Ca* component doesn't exist, this attribute corresponds to the *maxCtd* attribute for the specified service category provisioned under the *Atmif Ca* component. If this attribute is not applicable for a particular service category, it is displayed as ***notApplicable***.

Values
Decimal (0..4294967294)
notApplicable

Units
microsec

Default
No default

## ATTRIBUTE ARtg Pnni Top NodeName ULnk Metrics outCdv

Access
Read: All
Write: Illegal

Description
This attribute indicates the advertised peak-to-peak cell delay variation (CDV) of an uplink or a horizontal link for the specified service category for the outgoing direction.

If the subject node is a Passport and the link is a physical link, this attribute corresponds to the *cdv* attribute for the specified service category provisioned under the *Atmif Ca* component.

If the subject node is a Passport and the link is a virtual path connection (VPC), this attribute corresponds to the *cdv* attribute for the specified service category provisioned under the *Atmif Vpt Ca* component. If the *Atmif Vpt Ca* component doesn't exist, this attribute corresponds to the *cdv* attribute for the specified service category, provisioned under the *Atmif Ca* component. If this attribute is not applicable for a particular service category, it is displayed as ***notApplicable***.

Values
Decimal (0..4294967294)
notApplicable

Units
microsec

Default
No default

### ATTRIBUTE ARtg Pnni Top NodeName ULnk Metrics outClr0

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the advertised cell loss ratio (CLR) for CLP0 of an uplink or a horizontal link for the specified service category for the outgoing direction. CLR is defined as the ratio of the number of cells that do not make it across the link or node to the total number of cells transmitted across the link or node. The value in *outClr0* is encoded as the negative logarithm of the value, i.e., the value n indicates a CLR of $10^{-n}$.<br><br>If the subject node is a Passport and the link is a physical link, this attribute corresponds to the *clr* attribute for the specified service category provisioned under the *Atmif Ca* component.<br><br>If the subject node is a Passport and the link is a virtual path connection (VPC), this attribute corresponds to the *clr* attribute for the specified service category provisioned under the *Atmif Vpt Ca* component. If the *Atmif Vpt Ca* component doesn't exist, this attribute corresponds to the *clr* attribute for the specified service category provisioned under the *Atmif Ca* component. If this attribute is not applicable for a particular service category, it is displayed as ***notApplicable***. |
| Values | Decimal (0..4294967294)<br>notApplicable |
| Default | No default |

### ATTRIBUTE ARtg Pnni Top NodeName ULnk Metrics outClr01

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the advertised cell loss ratio (CLR) for CLP0+1 of an uplink or a horizontal link for the specified service category for the outgoing direction. CLR is defined as the ratio of the number of cells that do not make it across the link or node to the total number of cells transmitted across the link or node. The value in *outClr01* is encoded as the negative logarithm of the value, i.e., the value n indicates a CLR of $10^{-n}$. |

If the subject node is a Passport and the link is a physical link, this attribute corresponds to the *clr* attribute for the specified service category provisioned under the *Atmif Ca* component.

If the subject node is a Passport and the link is a virtual path connection (VPC), this attribute corresponds to the *clr* attribute for the specified service category provisioned under the *Atmif Vpt Ca* component. If the *Atmif Vpt Ca* component doesn't exist, this attribute corresponds to the *clr* attribute for the specified service category provisioned under the *Atmif Ca* component. If this attribute is not applicable for a particular service category, it is displayed as ***notApplicable***.

Values: Decimal (0..4294967294)
notApplicable

Default: No default

### ATTRIBUTE ARtg Pnni Top NodeName ULnk Metrics outCellRateMargin

Access: Read: All
Write: Illegal

Description: This attribute indicates the advertised cell rate margin in cells per second of an uplink or a horizontal link for the specified service category for the outgoing direction. This attribute is not supported in passport nodes hence it is displayed as ***notApplicable***.

Values: Decimal (0..4294967294)
notApplicable

Units: cell/s

Default: No default

### ATTRIBUTE ARtg Pnni Top NodeName ULnk Metrics outVarianceFactor

Access: Read: All
Write: Illegal

Description: This attribute indicates the advertised variance factor of an uplink or a horizontal link for the specified service category for the outgoing direction. The value is display in the power of $2^{-8}$. This

attribute is not supported in passport nodes hence it is displayed as ***notApplicable***.

Values: Decimal (0..4294967294)
notApplicable

Default: No default

### GROUP ARtg Pnni Top NodeName ULnk Metrics InRaig

Properties: Operational

Description: This group contains the advertised metrics of a *Ulnk* or *Hlnk* for the incoming direction.

### ATTRIBUTE ARtg Pnni Top NodeName ULnk Metrics inAdminWeight

Access: Read: All
Write: Illegal

Description: This attribute indicates the advertised administrative weight of an uplink for the specified service category for the incoming direction.

If the subject node is a Passport and the link is a physical link, this attribute corresponds to the administrative weight attribute for the specified service category provisioned under the *Atmif Pnni* component.

If the subject node is a Passport and the link is a virtual path connection (VPC), this attribute corresponds to the administrative weight attribute for the specified service category provisioned under the *Atmif Vpt Pnni* component.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE ARtg Pnni Top NodeName ULnk Metrics inAvailableCellRate

Access: Read: All
Write: Illegal

Description: This attribute indicates the advertised available cell rate of an uplink for the specified service category for the incoming direction.

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Units | cell/s |
| Default | No default |

### ATTRIBUTE ARtg Pnni Top NodeName ULnk Metrics inMaxCellRate

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the advertised maximum cell rate of an uplink for the specified service category for the incoming direction. |
| Values | Decimal (0..4294967295) |
| Units | cell/s |
| Default | No default |

### ATTRIBUTE ARtg Pnni Top NodeName ULnk Metrics inMaxCtd

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the advertised maximum cell transfer delay (*maxCtd*) of an uplink for the specified service category for the incoming direction.<br><br>If the subject node is a Passport and the link is a physical link, this attribute corresponds to the *maxCtd* attribute for the specified service category provisioned under the *Atmif Ca* component.<br><br>If the subject node is a Passport and the link is a virtual path connection (VPC), this attribute corresponds to the *maxCtd* attribute for the specified service category provisioned under the *Atmif Vpt Ca* component. If the *Atmif Vpt Ca* component doesn't exist, this attribute corresponds to the *maxCtd* attribute for the specified service category provisioned under the *Atmif Ca* component. If this attribute is not applicable for a particular service category, it is displayed as ***notApplicable***. |
| Values | Decimal (0..4294967294)<br>notApplicable |

| | |
|---|---|
| Units | microsec |
| Default | No default |

### ATTRIBUTE ARtg Pnni Top NodeName ULnk Metrics inCdv

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the advertised peak-to-peak cell delay variation (CDV) of an uplink for the specified service category for the incoming direction.<br><br>If the subject node is a Passport and the link is a physical link, this attribute corresponds to the *cdv* attribute for the specified service category provisioned under *Atmif Ca* component.<br><br>If the subject node is a Passport and the link is a virtual path connection (VPC), this attribute corresponds to the *cdv* attribute for the specified service category provisioned under the *Atmif Vpt Ca* component. If the *Atmif Vpt Ca* component doesn't exist, this attribute corresponds to the *cdv* attribute for the specified service category, provisioned under the *Atmif Ca* component. If this attribute is not applicable for a particular service category, it is displayed as ***notApplicable***. |
| Values | Decimal (0..4294967294)<br>notApplicable |
| Units | microsec |
| Default | No default |

### ATTRIBUTE ARtg Pnni Top NodeName ULnk Metrics inClr0

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the advertised cell loss ratio (CLR) for CLP0 of an uplink for the specified service category for the incoming direction. CLR is defined as the ratio of the number of cells that do not make it across the link or node to the total number of cells transmitted across the link or node. The value in *inClr0* is encoded as the negative logarithm of the value, i.e., the |

value n indicates a CLR of $10^{-n}$.

If the subject node is a Passport and the link is a physical link, this attribute corresponds to the *clr* attribute for the specified service category provisioned under the *Atmif Ca* component.

If the subject node is a Passport and the link is a virtual path connection (VPC), this attribute corresponds to the *clr* attribute for the specified service category provisioned under the *Atmif Vpt Ca* component. If the *Atmif Vpt Ca* component doesn't exist, this attribute corresponds to the *clr* attribute for the specified service category provisioned under the *Atmif Ca* component. If this attribute is not applicable for a particular service category, it is displayed as ***notApplicable***.

Values: Decimal (0..4294967294)
notApplicable

Default: No default

## ATTRIBUTE ARtg Pnni Top NodeName ULnk Metrics inClr01

Access: Read: All
Write: Illegal

Description: This attribute indicates the advertised cell loss ratio (CLR) for CLP0+1 of an uplink for the specified service category for the incoming direction. CLR is defined as the ratio of the number of cells that do not make it across the link or node to the total number of cells transmitted across the link or node. The value in *inClr01* is encoded as the negative logarithm of the value, i.e., the value n indicates a CLR of $10^{-n}$.

If the subject node is a Passport and the link is a physical link, this attribute corresponds to the *clr* attribute for the specified service category provisioned under the *Atmif Ca* component.

If the subject node is a Passport and the link is a virtual path connection (VPC), this attribute corresponds to the *clr* attribute for the specified service category provisioned under the *Atmif Vpt Ca* component. If the *Atmif Vpt Ca* component doesn't exist, this attribute corresponds to the *clr* attribute for the specified service category provisioned under the *Atmif Ca* component. If this

attribute is not applicable for a particular service category, it is displayed as ***notApplicable***.

Values: Decimal (0..4294967294)
notApplicable

Default: No default

## COMPONENT ARtg Pnni Port

Instance: Decimal (0..4294967295)

Scope: Device

Description: *ARtg Pnni Port/<n>*
This component represents a port advertised within the PNNI routing domain.

Common Verbs:
Help
List
Display

## COMPONENT ARtg Pnni Cache

Groups: "GROUP ARtg Pnni Cache Provisioned (Prov)"
"GROUP ARtg Pnni Cache Operational (Oper)"

Scope: Device

Description: *Artg Pnni Cache*
This component represents the PNNI Routing Cache. It enhances call setup performance by providing a call setup request with a previously computed route from the *Cache*, whenever possible.

The *Cache* must be populated with previously computed routes before it is usable and it reduces the number of on-demand route computations once populated.

The *Cache* stores and maintains entries to several destinations and uses them to provide suitable routing paths for subsequent call setup requests. The *clear* verb removes all *Cache* entries.

A *Cache* route entry consists of multiple alternate routes to a

destination node. The number of alternate routes is set by the *maxPaths* value under the *Artg Pnni lb<svcCat>*component.

Common Verbs

Help
List
Display
Add
DELete

### VERB Clear ARtg Pnni Cache

Impact: Configuration

Description: *Clear Artg Pnni Cache*
This verb clears all the previously computed route entries stored in the PNNI cache.

### GROUP ARtg Pnni Cache Provisioned (Prov)

Properties: Provisioned

Description: This group contains the provisionable attributes for the *Artg Pnni Cache* component.

### ATTRIBUTE ARtg Pnni Cache agingPeriod

Access: Read: All
Write: All

Description: This attribute specifies the maximum lifetime of a *Cache* entry.

Specifying a low *agingPeriod* is useful when many SVCs are expected to be routed through the network to ensure that the *Cache* is periodically refreshed.

Specifying a high *agingPeriod* is useful when many permanent connections are expected to be routed through the network.

As the fluctuations in the available network resources become more frequent, the value of *agingPeriod* should be decreased to reflect the dynamic nature of the network.

Values: Decimal (180..7200)

| | |
|---|---|
| Units | seconds |
| Default | 1800 |

### ATTRIBUTE ARtg Pnni Cache maxNumEntries

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the maximum number of the cache entries to be stored in the routing cache.<br><br>Reducing the *maxNumEntries* below the current *Cache* size causes the *Cache* to shrink by purging the oldest entries.<br><br>A larger value of *maxNumEntries* causes more CP memory to be used.<br><br>The value of this attribute is bound by the value of *maxPaths* of *Artg Pnni lb<srvCat>* component and may not exceed 30000/ *maxPaths.* |
| Values | Decimal (100..10000) |
| Default | 5000 |

### ATTRIBUTE ARtg Pnni Cache purgeEntryAtPathInvalid

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies whether to purge the whole route cache entry when a path becomes invalid, or to remove only the invalid path.<br><br>A route cache entry consists of one or more paths and support calls of certain traffic requirements. A path becomes invalid if it can no longer support the traffic requirements of the associated route. This may happen if any link along the path fails, or its capacity is reduced.<br><br>If this attribute is set to *yes*, the whole route cache entry will be purged after a path becomes invalid. If this attribute is set to *no*, only the path will be removed. |

For most networks, it is desirable to purge the whole route cache entry when one path becomes invalid since this allows for better load balancing. However, for some network scenarios, this behavior is not desirable, because it may lead to many unnecessary route cache purges at high network utilization.

The default value of this attribute is *yes*. It should only be changed if recommended by Nortel Networks.

Values
no
yes

Default
yes

### ATTRIBUTE ARtg Pnni Cache maxPathsToIntermediateNode

Access
Read: All
Write: All

Description
This attribute specifies the maximum number of equal cost paths that are kept to an intermediate node during on-demand route computation. The default value is 1.

Setting this attribute to a value greater than 1 benefits customers who want to calculate more than 3 alternate paths to the destination and store them in the cache. This helps them achieve better load balancing across their network. However, changing the default value to more than 1 will degrade route calculation performance. It should only be changed from the default if recommended by Nortel Networks.

Values
Decimal (1..20)

Default
1

### GROUP ARtg Pnni Cache Operational (Oper)

Properties
Operational

Description
This group contains the operational attributes for the routing cache.

### ATTRIBUTE ARtg Pnni Cache currentNumEntries

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of route entries currently stored in the cache.<br><br>The *currentNumEntries* value should be used for diagnostic or engineering purposes in conjunction with the other operational indicators for *Cache* entries: *avgLifetime*, *numReplacements*, *numCrankbackInvalidations*, *numTopologyInvalidations*, and *numAgedEntries*. Together, these attributes indicate the utilization of the Route Cache. |
| Values | Decimal (0..10000) |
| Default | No default |

### ATTRIBUTE ARtg Pnni Cache peakNumEntries (pkEntries)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the highest number of entries stored in the cache since the cache was last created or cleared by using the *Clear* command.<br><br>The *peakNumEntries* value is a useful diagnostic and engineering tool in evaluating the memory impacts of the *Cache*. If the *peakNumEntries* equals the *maxNumEntries* for a significant amount of time, then the *maxNumEntries* may need to be increased. |
| Values | Decimal (0..10000) |
| Default | No default |

### ATTRIBUTE ARtg Pnni Cache hitRatio

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the percentage of PNNI routing requests fulfilled using the routing cache since the time the cache was last |

created or cleared by using the *clear* command.

If the *cacheHits* value is low, then this is an indication that the cache is not engineered properly or is not appropriate for the profile of the network traffic. A low value of *cacheHits* may indicate that the traffic profiles are constantly changing are not being reused. If this is the case, the *Cache* may need to be disabled on this node.

An equilibrium has to be reached within the network before an accurate value from *cacheHits* is obtained.

| | |
|---|---|
| Values | Decimal (0..100) |
| Units | % |
| Default | No default |

### ATTRIBUTE ARtg Pnni Cache cacheUptime (uptime)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the time since the routing Cache was last created or cleared. |
| Values | Decimal (0..4294967295) |
| Units | minutes |
| Default | No default |

### ATTRIBUTE ARtg Pnni Cache avgLifetime

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the average lifetime of the route entries in the cache.<br><br>The *avgLifetime* can be used for diagnostic or engineering purposes in setting an appropriate value for the *agingPeriod*.<br><br>An *avgLifetime* value lower than the *agingPeriod* indicates that some fraction of the *Cache* entries are removed before they are |

normally aged.

When the *avgLifetime* equals the *agingPeriod*, this indicates that the *agingPeriod* value might have to be increased. However, note that other conditions in the network can also cause this condition, such as very stable network topology.

The *avgLifetime* value should be used for diagnostic or engineering purposes in conjunction with the other operational indicators for *Cache* entries: *currentNumEntries*, *numReplacements*, *numCrankbackInvalidations*, *numTopologyInvalidations*, and *numAgedEntries*.

Values: Decimal (0..7200)

Units: seconds

Default: No default

### ATTRIBUTE ARtg Pnni Cache numReplacements (nRep)

Access: Read: All
Write: Illegal

Description: This attribute counts the entries that have been removed from the *Cache* in order to make room for newer entries. It is set to zero when the *Cache* is created or cleared using the *Clear* command.

The *numReplacements* value wraps to zero when the maximum value is exceeded or when the *totalEntriesRemoved* value is exceeded.

If the number of entries removed from the *Cache* due to replacement operations is high, the *maxPaths* value may need to be increased.

The *numReplacements* value should be used for diagnostic or engineering purposes in conjunction with the other operational indicators for *Cache* entries: *currentNumEntries*, *avgLifetime*, *numCrankbackInvalidations*, *numTopologyInvalidations*, and *numAgedEntries*, *totalEntriesRemoved*.

Values: Decimal (0..4294967295)

Default No default

### ATTRIBUTE ARtg Pnni Cache numCrankbackInvalidations (nCrank)

Access Read: All
Write: Illegal

Description This attribute counts the entries removed from the *Cache* due to crankback purging operations. It is set to zero when the *Cache* is created or cleared using the *Clear* command.

The *numCrankbackInvalidations* value wraps to zero when the maximum value is exceeded or when the *totalEntriesRemoved* value is exceeded.

If this value is high, it suggests that the route entries in the *Cache* are becoming invalid during their lifetime. This means that the *agingPeriod* might have to be decreased. Reroutes due to crankbacks are resource-intensive and add to network latency. Therefore *numCrankbackInvalidations* takes precedence over the *avgLifetime* status.

The *numCrankbackInvalidations* value should be used for diagnostic or engineering purposes in conjunction with the other operational indicators for *Cache* entries: *currentNumEntries*, *avgLifetime*, *numReplacements*, *numTopologyInvalidations*, and *numAgedEntries*, *totalEntriesRemoved*.

Values Decimal (0..4294967295)

Default No default

### ATTRIBUTE ARtg Pnni Cache numTopologyInvalidations (nTopInv)

Access Read: All
Write: Illegal

Description This attribute indicates the number of entries in the *Cache* that have replaced older entries due to significant changes in known resources within the PNNI network. It is set to zero when the *Cache* is created or cleared using the *Clear* command.

The *numTopologyInvalidations* value wraps to zero when the

maximum value is exceeded or when the *totalEntriesRemoved* wraps to zero.

If this value is high, it indicates that the dynamic nature of the network topology may be decreasing the effectiveness of the *Cache*.

The *numTopologyInvalidations* value must be used for diagnostic or engineering purposes in conjunction with the other operational indicators for *Cache* entries: *currentNumEntries*, *avgLifetime*, *numReplacements*, *numCrankbackInvalidations*, *numAgedEntries*, *totalEntriesRemoved*.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE ARtg Pnni Cache numAgedEntries (nAged)

Access: Read: All
Write: Illegal

Description: This attribute counts the entries that have aged out of the *Cache* since the *Cache* was last created or cleared using the *clear* command. It is set to zero when the *Cache* is created or cleared using the *clear* command.

The *numAgedEntries* value wraps to zero when the maximum value is exceeded or when the *totalEntriesRemoved* wraps to zero.

If this value is low, either the *agingPeriod* is either too high or the other *Cache* purging operations occur very frequently.

The *numAgedEntries* value should be used for diagnostic or engineering purposes in conjunction with the other operational indicators for *Cache* entries: *currentNumEntries*, *avgLifetime*, *numReplacements*, *numCrankbackInvalidations*, *numTopologyInvalidations*, and *totalEntriesRemoved*.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE ARtg Pnni Cache totalEntriesRemoved (totRm)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the *Cache* entries that have been removed from the *Cache*. The counter starts from zero when the *Cache* is created or cleared using the *clear* command.<br><br>The counter wraps to zero when the maximum value is exceeded.<br><br>This value should be used for diagnostic or engineering purposes in conjunction with other operational indicators for *Cache* entries: *currentNumEntries*, *avgLifetime*, *numReplacements*, *numCrankbackInvalidations*, *numTopologyInvalidations*, and *numAgedEntries*. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE ARtg Pnni Cache numHits

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the actual number of PNNI routing requests fulfilled using the routing cache since the time the cache was last created or cleared by using the *Clear* command.<br><br>An increase in the value after a call setup request is an indication that the call setup request was satisfied using the routing cache. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT ARtg Pnni LoadBalancing (Lb)

| | |
|---|---|
| Instance | cbr<br>rtVbr<br>nrtVbr<br>ubr<br>abr |

| | |
|---|---|
| Groups | "GROUP ARtg Pnni Lb Provisioned (Prov)"<br>"GROUP ARtg Pnni Lb Operational (Oper)" |
| Scope | Device |
| Description | *Artg Pnni LoadBalancing/<serviceCategory>*<br>This component represents the load balancing functionality of PNNI Routing for the service category specified by the instance value. |
| Common Verbs | Help<br>List<br>Display |

### VERB Clear ARtg Pnni Lb

| | |
|---|---|
| Impact | Configuration |
| Description | *Clear Artg Pnni LoadBalancing/<serviceCategory>*<br>This verb sets to zero all the Load Balancing operational attributes for the service category specified by the instance value. |

### GROUP ARtg Pnni Lb Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the load balancing functionality of PNNI Routing. |

### ATTRIBUTE ARtg Pnni Lb method

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the load balancing method to be used by PNNI routing for the corresponding service category.<br><br>***maxAvCr***. PNNI routing chooses the path that has the maximum available cell rate as the routing path.<br><br>***random***. The routing path is chosen randomly from all the acceptable paths.<br><br>***avCrProb***. The routing path is chosen with a probability in |

proportion to its available cell rate. This method will result in the more frequent selection of a route having a higher available cell rate over that with a lower available cell rate.

***optMetricProb***. The routing path is chosen with a probability inversely proportional to the optimization metric. This method will result in the more frequent selection of a route having the lowest value of the optimization metric over that with a higher optimization metric.

***avCrOptMetricProb***. The routing path is chosen with a probability that is based on both the proportional value of the available cell rate and the inverse proportional value of the optimization metric.

When the value of *maxPaths* attribute is greater than 3, only the *random* method is allowed for all service categories.

Values
maxAvCr
random
avCrProb
optMetricProb
avCrOptMetricProb

Default
random

## ATTRIBUTE ARtg Pnni Lb maxPaths

Access
Read: All
Write: All

Description
This attribute specifies the maximum number of paths to be used for load balancing and route caching.

Setting this attribute to ***1*** turns the load balancing off for all load balancing technique except for ***maxAvCr***. This load balancing technique requires *maxPaths* to be set to ***1***.

When the *Artg Pnni Cache* component is provisioned, this attribute also specifies the maximum number of paths to be stored in a route *Cache* entry for each destination node.

Setting this attribute to a value greater than ***3*** is not recommended except for certain specific topologies. In these cases, it allows a better load distribution when route cache is used. However, for other topologies, it will significantly slow down on-demand route computation. Also when this attribute is set to a value greater than ***3***, the *Artg Pnni lb<srvCat> method* attribute can only be set to ***random***.

When this attribute is set to a value greater than ***3***, *maxNumEntries* in the *Artg Pnni Cache* subcomponent is limited to ensure that maximum memory consumption by the route cache on the CP does not increase when *maxPaths* is greater than ***3***. *maxNumEntries* may not exceed the value of ***30000***/ *maxPaths*.

Values: Decimal (1..20)

Default: 2

## ATTRIBUTE ARtg Pnni Lb minVariance (minVar)

Access: Read: All
Write: All

Description: This attribute specifies the minimum variance value to be used for each optimization metric supported by the service category of this *LoadBalancing* instance. This attribute is a vector indexed by the optimization metric. Note that the values of this vector are explicit values as opposed to the factors required to set the *slopeVariance* attribute.

A larger variance allows more usable paths to be considered for load balancing.

A low variance of zero means that only the *slopeVariance* attribute is used in determining the acceptable variance.

The maximum range boundaries for each of the optimization metrics are:
**- *cdv***: 2147483647 (for cbr and rtVbr only).
**- *maxCtd***: 2147483647 (for cbr and rtVbr only).
**- *aw***: 4294967295.

The acceptable variance is calculated based on the following formula:
*acceptableVariance = minVariance + optM * slopeVariance/100*
where *optM* represents the optimization metric value of the best path.

Vector of: Decimal (0..4294967295)

Index: cdv
maxCtd
aw

Default: (0, 0, 0)

### ATTRIBUTE ARtg Pnni Lb slopeVariance (slopeVar)

Access: Read: All
Write: All

Description: This attribute specifies the slope of the acceptable variance, for each optimization metric supported by the service category of this *LoadBalancing* instance. This attribute is a vector indexed by optimization metric. The values of this vector are factors.

A larger variance allows more usable paths to be considered for load balancing.

A *slopeVariance* of zero means that only the acceptable variance is given by the *minVariance* attribute. If both *minVariance* and *slopeVariance* attributes are zero, means that only the best paths of equal value to the *optimizationMetric* will be considered in load balancing.

The acceptable variance is calculated based on the following formula:
*acceptableVariance = minVariance + optM * slopeVariance/100*
where *optM* represents the optimization metric value of the best path.

Vector of: Decimal (0..1900)

| | |
|---|---|
| Units | % |
| Index | cdv<br>maxCtd<br>aw |
| Default | (0, 0, 0) |

### GROUP ARtg Pnni Lb Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for the load balancing functionality of PNNI Routing. |

### ATTRIBUTE ARtg Pnni Lb avgNumComputedPaths (avgPaths)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the average number of computed paths that resulted from a Dijkstra calculation using the variance constraints provisioned in the *minVariance*, and *slopeVariance* attributes.<br><br>It is set to zero when the *Load Balancing/<serviceCategory>* component is cleared using the *Clear* command.<br><br>This attribute is a vector indexed by the optimization metric: ***cdv***, ***maxCtd***, and ***aw***.<br><br>The *avgNumComputedPaths* value is a useful diagnostic and engineering tool in determining the most useful variance values for each *optimizationMetric*. |
| Vector of | Decimal (1.0..3.0) |
| Index | cdv<br>maxCtd<br>aw |
| Default | No default |

### ATTRIBUTE ARtg Pnni Lb optMetricLoadDistribution (optMLd)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the distribution of the routed path relative to the acceptable paths sorted by the *optimizationMetric*. It indicates, in percentage, the number of times the best optimized path and subsequent sub-optimal paths are chosen as the routing path. Here *path1* is the best path, and *path2* and *path3* variables are the subsequent sub-optimal paths.<br><br>It is set to zero when the *Load Balancing/<serviceCategory>* component is cleared using the *Clear* command.<br><br>The *optMetricLoadDistribution* value is a useful diagnostic and engineering tool in determining the most useful load balancing *method* when taken in consideration with: *avgNumComputedPaths*, *avCrLoadDistribution*, *minVariance*, and *slopeVariance*. |
| Vector of | Decimal (0.0..100.0) |
| Units | % |
| Index | path1<br>path2<br>path3 |
| Default | No default |

### ATTRIBUTE ARtg Pnni Lb avCrLoadDistribution (avCrLd)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the distribution of the routed path relative to the acceptable paths sorted by best available cell rate. It indicates, in percentage, the number of times the widest path, relative to the available cell rate, and subsequent narrower paths are chosen as the routing path. Here *path1* is the best path, and *path2* and *path3* variables are the subsequent sub-optimal paths.<br><br>It is set to zero when the *Load Balancing/<serviceCategory>* |

component is cleared using the *Clear* command.

The *avCrLoadDistribution* value is a useful diagnostic and engineering tool in determining the most useful load balancing *method* when taken in consideration with: *avgNumComputedPaths*, *optMetricLoadDistribution*, *minVariance*, and *slopeVariance*.

| | |
|---|---|
| Vector of | Decimal (0.0..100.0) |
| Units | % |
| Index | path1<br>path2<br>path3 |
| Default | No default |

### COMPONENT ARtg Pnni NodeName (Node)

| | |
|---|---|
| Instance | String (1..12, ASCII) |
| Groups | "GROUP ARtg Pnni Node Provisioned (Prov)" |
| Scope | Device |
| Description | *Artg Pnni NodeName/<string>*<br><br>This component represents a node in the PNNI network. The recommendation is that the instance string should match the nodeName of the node. To get the nodeName of the node, log in to the remote node and enter this command:<br><br>*d -p Mod nodeName* |

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP ARtg Pnni Node Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the *Artg Pnni NodeName* component. |

### ATTRIBUTE ARtg Pnni Node nodeId

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the *nodeId* of the remote node. The *nodeId* can be retrieved by logging in to the remote node and executing this command:<br><br>*d ARtg Pnni Cfg/* opNodeId* |
| Values | String (22, Hex) |
| Default | No default |

### COMPONENT ARtg Pnni MdtlPath (Mdtl)

| | |
|---|---|
| Instance | String (1..32, ASCII) |
| Scope | Device |
| Description | *Artg Pnni MdtlPath/[string] Hop/n*<br><br>This component represents a *MDTL* path. It is composed of a list of hops. 1) Each hop in a path must use a physical *node ID*. 2) Each hop must be at the same PNNI level. 3) Each *MDTL* must have at least two hops. 4) Maximum number of hops is 20. 5) First hop *node ID* must be the originator's *node ID*. 6) Loopback |

is not allowed in a path. 7) Destination *port ID* should be zero, but not enforced by semantic checks. 8) One cannot delete a *nodename* if the *nodename* is used by one of the hops. 9) Maximum number of MDTL paths is 128.

Opt. Subcomp. "COMPONENT ARtg Pnni Mdtl Hop"

Common Verbs
Help
List
Display
Add
DELete

## COMPONENT ARtg Pnni Mdtl Hop

Instance Decimal (1..255)

Groups "GROUP ARtg Pnni Mdtl Hop Provisioned (Prov)"

Scope Device

Description *Artg Pnni Mdtl/n hop/n*

This component represents a node that the MDTL path has to traverse.

Common Verbs
Help
List
Display
Add
DELete

## GROUP ARtg Pnni Mdtl Hop Provisioned (Prov)

Properties Provisioned

Description (//CHECK:AntPnniSemanticChecks::checkMdtlHopProv
// Verify that the nodeName is initialize.
)This group contains the provisionable attributes for the *Artg Pnni Mdtl/n Hop/n* component.

### ATTRIBUTE ARtg Pnni Mdtl Hop nodeName (name)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the node corresponding to this hop. |
| Values | String (1..12, ASCII) |
| Default | No default |

### ATTRIBUTE ARtg Pnni Mdtl Hop portId

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the portId to be used on the exiting side of the node.<br>A value set to 0 indicates that the node will determine the proper *portId.* |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT ARtg Pnni Reroute

| | |
|---|---|
| Groups | "GROUP ARtg Pnni Reroute Provisioned (Prov)"<br>"GROUP ARtg Pnni Reroute Operational (Oper)" |
| Scope | Device |
| Description | *ARtg Pnni Reroute*<br><br>This component represents the rerouting capabilities of the module. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## VERB OPTIMIZE ARtg Pnni Reroute

| | |
|---|---|
| Impact | Service |
| Description | *Optimize [-cancel] ARtg Pnni Reroute*<br><br>This command triggers a module optimization pass for all eligible connections. Connection eligibility is determined by the *moduleOptimizationConnections* attribute under the node-level *Reroute* component or under the application-level *Reroute Ov* component.<br><br>The *-cancel* option causes the current module optimization pass to be cancelled. The pass terminates after the current application completes its optimization pass.<br><br>Using the *Optimize* command results in service disruptions when connection segments are moved to a better path. Care should be exercised when using this command. It is recommended that the command be used during maintenance windows. |

## GROUP ARtg Pnni Reroute Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the *Artg Pnni Reroute* component. |

## ATTRIBUTE ARtg Pnni Reroute protocol

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the rerouting protocols which are requested by connection segments for which this node is the first rerouting node. This attribute has no effect on connection segments for which this node is not the first rerouting node. A subset of the requested protocols is granted by the last rendezvous node, according to its software level and provisioning.<br><br>One of the following values can be specified:<br>***localGlobal***: Local and global rerouting protocols are requested. Local and global rerouting are granted if the DTL terminator is |

provisioned with the Rerouting feature.
***localOnly***: Local rerouting is requested. This value guarantees interoperability with other vendors' equipment running the ATM Forum "Domain Based Rerouting" protocol. Local rerouting is granted if the last rendezvous node is provisioned with the Rerouting feature.
***globalOnly***: Global rerouting is requested. Global rerouting is granted if the DTL terminator is provisioned with the Rerouting feature.
***localEbr*:** Local and EBR rerouting protocols are requested. Local rerouting is granted if the DTL terminator is provisioned with the Rerouting feature. Alternatively, EBR is granted if the DTL terminator is provisioned with the EBR feature.
***ebrOnly***: EBR is requested. EBR is granted if the DTL terminator is provisioned with the EBR feature.

Values
localGlobal
localOnly
globalOnly
localEbr
ebrOnly

Default
localGlobal

## ATTRIBUTE ARtg Pnni Reroute localDomain (domain)

Access
Read and write

Description
This attribute specifies the local domain for the node. This value is advertised to all PNNI neighbors to determine the type of local domain link. Use of the default value, ***unspecified***, will result in a warning being issued, since it is recommended that this value be initialized.

If the value is set to ***intraDomain***, all PNNI neighbors will identify their connecting links as intra-domain links.

Values
Decimal (2..1024)
intraDomain (intra)
unspecified (unspec)

Default
unspecified

## ATTRIBUTE ARtg Pnni Reroute numOptAttempts

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the number of path optimizations attempted before declaring a recovered connection segment to be optimally routed. Following a connection recovery, each manual and automatic path optimization attempts to optimize the connection segment. When a path is found with a better optimization metric than the best known value, or the number of optimization attempts is exhausted, the current optimization metric is declared to be the new optimal metric for the connection segment. Subsequent path optimizations do not attempt to optimize the connection segment unless all subscribed connection segments are eligible for path optimization.<br><br>If the value is set to ***0***, the optimization metric of a connection segment following connection recovery is declared to be the new optimal metric, and no connection recovery alarm is issued. A subsequent path optimization does not attempt to optimize the connection segment unless all subscribed connection segments are eligible for path optimization. |
| Values | Decimal (0..15) |
| Default | 1 |

## ATTRIBUTE ARtg Pnni Reroute moduleOptimizationConnections

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies which connection segments are considered by a module optimization pass.<br><br>One of the following values can be specified:<br>***none***: No connection segments are considered for path optimization.<br>***recoveredOnly***: Only connection segments which are foration. The best known optimization metric value for the connection segment is found under *RerouteInfo* component. If the rerouting protocol is Ebr then the *ebrOptimalMetricValue* attribute indicated the best known optimization metric value. If the local rerouting protocol is actived to this connection segment then the |

*localOptimalMetricValue* attribute indicated the best known optimization metric value for the local segment. If the global rerouting protocol is actived to this connection segment then the *globalOptimalMetricValue* attribute indicated the best known optimization metric value for the global connection segment.
***allSubscribed***: All connection segments subscribed to path optimization are considered.

Values
none
recoveredOnly
allSubscribed

Default
recoveredOnly

## ATTRIBUTE ARtg Pnni Reroute switchoverMechanism

Access
Read and write

Description
This attribute specifies the mechanism used for switchover of a rerouted connection segment.

One of the following values can be specified:
***standard***: The mechanism described in the ATM Forum "Domain based Rerouting" specification is used for switchover. This value ensures interoperability with other vendors' equipment running ATM Forum "Domain based Rerouting".
***rcl***: The Reduced Cell Loss (RCL) mechanism is used for switchover. RCL is a value-added Passport extension to the standard mechanism that allows faster switchover time.

Values
standard
rcl

Default
standard

## ATTRIBUTE ARtg Pnni Reroute localConnectionRecoverySubscr (lConRec)

Access
Read and write

Description
This attribute specifies which connection segments request subscription to local connection recovery. This attribute only affects connection segments that request the local rerouting protocols. This attribute affects connection segments for a node that is either local domain rerouting node or a DTL originator.

Connection segments of the specified type(s) which request ***localGlobal*** or ***localOnly*** protocols request subscription to local connection recovery.

Connection segments of the specified type(s) which request ***localEbr*** request subscription to the local connection recovery. Only one will be granted.

One or more of the following values can be specified:
***svcSvp***: If this value is set, all SVC and SVP connection segments request subscription to local connection recovery.
***sourceSpvcSpvp***: If this value is set, all source SPVC and SPVP connection segments request subscription to local connection recovery.
***transitSpvcSpvp***: If this value is set, all transit SPVC and SPVP connection segments request subscription to local connection recovery.

Set of: svcSvp (svc)
sourceSpvcSpvp (source)
transitSpvcSpvp (transit)

Default: (svcSvp, sourceSpvcSpvp, transitSpvcSpvp)

## ATTRIBUTE ARtg Pnni Reroute localPathOptimizationSubscr (lPathOpt)

Access: Read and write

Description: This attribute specifies which connection segments request subscription to local path optimization. This attribute only affects connection segments that request the local rerouting protocols. This attribute affects connection segments for a node that is either local domain rerouting node or a DTL originator.

Connection segments of the specified type(s) which request ***localGlobal*** or ***localOnly*** protocols request subscription to local path optimization.

Connection segments of the specified type(s) which request ***localEbr*** request subscription to the local path optimization. Only one will be granted.

One or more of the following values can be specified:
***svcSvp***: If this value is set, all SVC and SVP connection segments request subscription to local path optimization.
***sourceSpvcSpvp***: If this value is set, all source SPVC and SPVP connection segments request subscription to local path optimization.
***transitSpvcSpvp***: If this value is set, all transit SPVC and SPVP connection segments request subscription to local path optimization.

Set of: svcSvp (svc)
sourceSpvcSpvp (source)
transitSpvcSpvp (transit)

Default: (svcSvp, sourceSpvcSpvp, transitSpvcSpvp)

## ATTRIBUTE ARtg Pnni Reroute globalConnectionRecoverySubscr (gConRec)

Access: Read and write

Description: This attribute specifies which connection segments request subscription to global or Ebr connection recovery. This attribute only affects connection segments that request the global or EBR rerouting protocols. This attribute affects connection segments for a node that is a DTL originator.

Connection segments of the specified type(s) which request ***localGlobal*** or ***globalOnly*** protocols request subscription to global connection recovery.

Connection segments of the specified type(s) which request ***EbrOnly*** protocol request subscription to EBR connection recovery.

Connection segments of the specified type(s) which request ***localEbr*** request subscription to the EBR connection recovery. Only one will be granted.

One or more of the following values can be specified:
***svcSvp***: If this value is set, all SVC and SVP connection segments request subscription to global or EBR connection

recovery.
***sourceSpvcSpvp***: If this value is set, all source SPVC and SPVP connection segments request subscription to global or EBR connection recovery.
***transitSpvcSpvp***: If this value is set, all transit SPVC and SPVP connection segments request subscription to global or EBR connection recovery.

Set of: svcSvp (svc)
sourceSpvcSpvp (source)
transitSpvcSpvp (transit)

Default: (svcSvp, sourceSpvcSpvp, transitSpvcSpvp)

## ATTRIBUTE ARtg Pnni Reroute globalPathOptimizationSubscr (gPathOpt)

Access: Read and write

Description: This attribute specifies which connection segments request subscription to global or EBR path optimization. This attribute only affects connection segments that request the global or EBR rerouting protocols. This attribute affects connection segments for a node that is a DTL originator.

Connection segments of the specified type(s) which request ***localGlobal*** or ***globalOnly*** protocols request subscription to global path optimization.

Connection segments of the specified type(s) which request ***ebrOnly*** protocols request subscription to EBR path optimization.

Connection segments of the specified type(s) which request ***localEbr*** request subscription to the EBR path optimization.. Only one will be granted.

One or more of the following values can be specified:
***svcSvp***: If this value is set, all SVC and SVP connection segments request subscription to global or EBR path optimization.
***sourceSpvcSpvp***: If this value is set, all source SPVC and SPVP connection segments request subscription to global or EBR path optimization.

***transitSpvcSpvp***: If this value is set, all transit SPVC and SPVP connection segments request subscription to global or EBR path optimization.

Set of: svcSvp (svc)
sourceSpvcSpvp (source)
transitSpvcSpvp (transit)

Default: (svcSvp, sourceSpvcSpvp, transitSpvcSpvp)

### ATTRIBUTE ARtg Pnni Reroute optimizationTime (optTime)

Access: Read and write

Description: This attribute specifies the times at which a module optimization pass occurs. A maximum of 12 times can be specified. If no times are provisioned, then the module optimization pass only occurs when triggered manually using the *Optimize* verb.

List of: Time (HM)

List Size: 12

Default: No default

### GROUP ARtg Pnni Reroute Operational (Oper)

Properties: Operational

Description: This group contains the operational attributes for the *ARtg Pnni Reroute* component.

### ATTRIBUTE ARtg Pnni Reroute optimizationState (state)

Access: Read only

Description: This attribute indicates the current state of module optimization.

One of the following values is indicated:
***idle:*** There is no module optimization pass currently in progress. The next pass will occur at the next available time specified by the *optimizationTime* attribute, or when the operator issues the *Optimize* command against this component.
***active***: A module optimization pass is in progress and the module is attempting to optimize eligible connections.

| | |
|---|---|
| Values | idle<br>active |
| Default | No default |

### ATTRIBUTE ARtg Pnni Reroute optimizationProgress (progress)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the percentage of eligible interfaces that have been sent an optimization request as part of a module optimization pass. This value is reset to zero at the beginning of each module optimization pass. |
| Values | Decimal (0..100) |
| Units | % |
| Default | No default |

### ATTRIBUTE ARtg Pnni Reroute pathsOptimized

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates how many paths have been successfully optimized during the latest module optimization pass. Successfully optimized paths are paths that switched to a better route. This value is reset to zero at the beginning of each module optimization pass. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT ARtg PhysicalPort (Port)

| | |
|---|---|
| Instance | Decimal (0..4294967295) |
| Groups | "GROUP ARtg Port Operational (Oper)" |
| Scope | Device |
| Description | *ARtg PhysicalPort/<n>*<br>This component represents a port on this node within the ATM routing domain. The index is the port ID used to uniquely identify this port. |

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display |

## GROUP ARtg Port Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes of a *Port* component. |

## ATTRIBUTE ARtg Port componentName

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the component name of the port. |
| Values | The name of the component |
| Default | No default |

## COMPONENT ARtg SparedServices (SpServ)

| | |
|---|---|
| Groups | "GROUP ARtg SpServ Provisioned (Prov)"<br>"GROUP ARtg SpServ OsiState (State)" |
| Scope | Device |
| Description | *ARtg SparedServices*<br>This component represents the Hitless ATM Routing capability.<br><br>This capability reduces the length of routing outage during CP switchover and Hitless Software Migration. |
| Common Verbs | Help<br>List<br>Display |

## GROUP ARtg SpServ Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the generic provisionable attributes of the *ARtg SparedServices* component. |

## ATTRIBUTE ARtg SpServ sparing

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the administrative state of ATM Spared Services.<br><br>When this attribute is set to ***enabled***, the ATM routing system on the CP is hot-spared, resulting in a reduced ATM routing outage during CP switchover and Hitless Software Migration.<br><br>This attribute may be set to ***enabled*** only if the *shelf cpEquipmentProtection* attribute is set to ***hot*** and the *prov journaling* attribute is set to ***enabled***.<br><br>When the value of this attribute is changed from ***enabled*** to ***disabled***, the standby CP restarts. |
| Values | disabled<br>enabled |
| Default | disabled |

## GROUP ARtg SpServ OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE ARtg SpServ adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE ARtg SpServ operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the |

component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE ARtg SpServ usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
idle
active (activ)
busy

Default
idle

### ATTRIBUTE ARtg SpServ availabilityStatus (osiAvail)

Access
Read only

Description
If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.

The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.

The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.

The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.

The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The

*operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

### ATTRIBUTE ARtg SpServ proceduralStatus (osiProc)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.

The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been

initiated. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

### ATTRIBUTE ARtg SpServ controlStatus (osiCntrl)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is

***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

Set of

subjectToTest (subTst)
partOfServicesLocked (partLk)
reservedForTest (rsrvd)
suspended (suspnd)

Default

No default

### ATTRIBUTE ARtg SpServ alarmStatus (osiAlarm)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE ARtg SpServ standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

| | |
|---|---|
| Values | hotStandby (hot)<br>coldStandby (cold)<br>providingService (serv)<br>notSet (nSet) |
| Default | notSet |

### ATTRIBUTE ARtg SpServ unknownStatus (osiUnknw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Unknown status of the component.<br><br>The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.<br><br>The value ***true*** indicates that the actual state of the component is not known for sure. |
| Values | false<br>true |
| Default | false |

Passport 7400, 15000, 20000

# Component ARtg

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component AtmIf

241-5701-060

Passport 7400, 15000, 20000

# Component AtmIf

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT AtmInterface (AtmIf)

| | |
|---|---|
| Instance | Decimal (1..4095) |
| Groups | "GROUP AtmIf CustomerIdentifierData (CidData)"<br>"GROUP AtmIf Provisioned (Prov)"<br>"GROUP AtmIf Loopback (Lbk)"<br>"GROUP AtmIf OsiState (State)"<br>"GROUP AtmIf Operational (Oper)"<br>"GROUP AtmIf Statistics (Stats)" |

"COLLECTED STATS AtmInterface"

| | |
|---|---|
| Scope | Device |
| Description | *AtmInterface/n*<br>An *AtmIf* component is provisioned for each ATM interface. It manages the set of ATM connections that terminate at or traverse the interface. |

| | |
|---|---|
| Subcomponents | "COMPONENT AtmIf ConnectionAdministrator (CA)"<br>"COMPONENT AtmIf PerformanceMonitoring (Pm)" |
| Opt. Subcomp. | "COMPONENT AtmIf UserNetworkInterface (Uni)"<br>"COMPONENT AtmIf Iisp"<br>"COMPONENT AtmIf NailedUpAccounting (NAcct)"<br>"COMPONENT AtmIf VirtualPathTerminator (Vpt)"<br>"COMPONENT AtmIf EmissionPriority (Ep)"<br>"COMPONENT AtmIf LinkTxUtilization (Ltu)"<br>"COMPONENT AtmIf Aini"<br>"COMPONENT AtmIf Pnni" |
| Opt. Subcomp. | "COMPONENT AtmIf ConnectionMapping (ConnMap)"<br>"COMPONENT AtmIf VirtualPathConnection (Vpc)"<br>"COMPONENT AtmIf VirtualChannelConnection (Vcc)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP AtmIf CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

## ATTRIBUTE AtmIf customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0. |

Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.

An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to "basic CIDs" in DPN) may be assigned to specific customers.

| | |
|---|---|
| Values | Decimal (0; 1..8191) |
| Default | 0 |

### GROUP AtmIf Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisionable attributes for the *AtmIf* component. |

### ATTRIBUTE AtmIf interfaceName

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute associates the *AtmIf* component with a specific interface on a Function Processor—for example, *Lp/1 Ds3/0*. This implicitly defines the logical processor on which the *AtmIf* is activated.<br><br>For ***1pOC48SmSrPos*** cards, this attribute associates the *AtmIf* component with the *AtmServiceAccessPoint* component which implicitly defines the logical processor where the *AtmIf* is activated. |
| Values | Link (Hardware, applicationFramerName) |
| Default | No default |

## ATTRIBUTE AtmIf oamSegmentBoundary (sb)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies whether the interface is on an OAM segment boundary.<br><br>When the value is ***yes***, the interface is on an OAM segment boundary and all connections passing through the interface terminate OAM segment cells.<br><br>When the value is ***no***, the interface is not on an OAM segment boundary and the interface permits segment OAM cells to be passed transparently. |
| Values | no<br>yes |
| Default | yes |

## ATTRIBUTE AtmIf maxVpiBits (vpiBits)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the maximum number of VPI bits that may be active for this *AtmIf*. These bits start at the least significant bit position and are contiguous. In general, the maximum VPI which may be used on the interface is 2***maxVpiBits* - 1. The value of the remaining (inactive) VPI bits is ignored on cells received from the link.<br><br>For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, and ***2pJ6MAtm*** cards, the value of this attribute must be ***8***. The maximum VPI supported is 255.<br><br>For all other cards, the value of this attribute may be ***8*** or ***12***. The maximum VPI supported is 4095. An exception is for ***8pE1Atm***, and ***8pDS1Atm*** cards which do not support VPI 4095. The maximum VPI supported on these cards is 4094. |

If a *Uni*, or an *Iisp* component is present directly under the *AtmIf*, the value of this attribute must be ***8***.

Values: Decimal (8; 12)

Default: 8

### ATTRIBUTE AtmIf remoteAtmInterfaceLabel (remoteAtmIf)

Access: Read and write

Description: This attribute specifies a unique indication of the remote ATM service or interface component connected to this one. The value of this attribute can be used by network management applications to discover the network's ATM topology from its configuration information.

The syntax of the value, such as component ID, address, or other numerical identifier, must follow the conventions of the network management platform. In absence of such convention or platform, the value should be left empty.

The value is only stored by the module. It is neither validated nor used to perform any form of remote connectivity validation.

Values: String (0..60, ASCII)

Default: ""

### ATTRIBUTE AtmIf txCellMemory

Access: Read and write

Criticality: Component

Description: This attribute specifies the percentage of total transmit cell memory which is available for use by connections under this *AtmIf*. Transmit cell memory is used for storing ATM cells to be transmitted by connections under this *AtmIf*.

This attribute is not applicable, and is ignored for ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm***, ***1pOC12SmLrAtm***, ***1pOC48ChSmIrAtm***, ***4pOC12SmIrAtm***,

***4pOC12SmLrAtm***, ***16pOC3SmIrAtm***, and ***1pOC48SmSrPos*** cards.

If the value of this attribute is ***100***, connections under this *AtmIf* may use up to 100% of the total transmit cell memory. If the value of this attribute is less than ***100***, then only that percentage of the total transmit cell memory may be used by connections under this *AtmIf*. The minimum value for this attribute is ***1*** since some cell memory is always required for connections.

For ***2pOC3MmAtm2***, ***2pOC3SmAtm2***, ***2pSTM1eAtm***, ***2pSTM1eCh***, ***4pOC3MmAtm***, ***4pOC3SmIrAtm***, ***4pDS3ChAtm***, ***3pDS3Atm2***, ***3pE3Atm2***, ***12pDS3Atm***, ***12pE3Atm***, and MSA32 cards, the total transmit cell memory is indicated in the *Lp/x Eng Arc Aqm/x txCellMemoryThresholds* 0 attribute.

For ***3pDS3Atm2***, ***3pE3Atm2***, ***2pSTM1eCh***, ***12pDS3Atm***, and ***12pE3Atm*** cards, the total transmit cell memory of an *Aqm* component is shared across multiple *AtmIf* interfaces of the card. Specifying a value of ***100*** for each *AtmIf* enables complete overbooking of the total transmit cell memory by the *AtmIf*'s which share the *Aqm*. Specifying values for this attribute such that the value for each *AtmIf* is less than ***100*** but the sum for all *AtmIf*'s is more than 100% enables partial overbooking of the transmit cell memory. Specifying values for this attribute such that the sum for all *AtmIf*'s is exactly 100%, ensures that each *AtmIf* has a dedicated pool of transmit cells with no overbooking. Specifying values for this attribute such that the sum for all *AtmIf*'s is less than 100% restricts the total size of the free list. This can be used to ensure the functioning of port aggregation even with a small number of connections.

For ***2pOC3MmAtm2***, ***2pOC3SmAtm2***, ***2pSTM1eAtm***, ***4pOC3MmAtm***, and ***4pOC3SmIrAtm*** cards, the total transmit cell memory of an *Aqm* component is dedicated to a single *AtmIf* interface of the card. Specifying a value for this attribute that is less than ***100*** restricts the total size of the free list. This can be used to ensure the functioning of port aggregation even with a small number of connections.

For ***16pOC3PosAtm*** cards, the total transmit cell memory is

indicated in the *Lp/x Eng Arc txCellMemoryThresholds* 0 attribute. The total transmit cell memory of the *Arc* component is shared across all *AtmIf* interfaces of the card. Specifying a value of ***100*** for each *AtmIf* enables complete overbooking of the total transmit cell memory by the *AtmIf*'s. Specifying values for this attribute such that the value for each *AtmIf* is less than ***100*** but the sum for all *AtmIf*'s is more than 100% enables partial overbooking of the transmit cell memory. Specifying values for this attribute such that the sum for all *AtmIf*'s is exactly 100%, ensures that each *AtmIf* has a dedicated pool of transmit cells with no overbooking. Specifying values for this attribute such that the sum for all *AtmIf*'s is less than 100% restricts the total size of the free list.

| | |
|---|---|
| Values | Decimal (1..100) |
| Units | % |
| Default | 100 |

### ATTRIBUTE AtmIf faultHoldOffTime (faultHOT)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the delay before faults detected at the VP layer are propagated to the VC layer, and thus to the application using the connection.<br><br>If the value is ***0***, applications using a *VirtualPathTerminator* are immediately notified of faults detected by the VP. Using this value allows these applications to be advised of faults without requiring loopbacks on each *Vcc*. Typically, the application goes out of service when advised of a fault.<br><br>If the value is ***infinity***, applications using a *VirtualPathTerminator* are not notified of VP layer faults. Using this value allows the applications to survive transient VP layer fault conditions.<br><br>The value chosen applies only to *Vpt*s and *Vcc*s directly beneath a *Vpt*. |

| | |
|---|---|
| Values | 0<br>infinity |
| Default | infinity |

### ATTRIBUTE AtmIf ctdCalculation (ctdCalc)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether cell transfer delay calculation should be performed on loopback cells for each SPVC and SPVP connection under this interface.<br><br>Cell transfer delay is calculated as half of the measured segment round trip delay of a loopback cell.<br><br>Cell transfer delay calculation is only supported when segment switch side loopback is enabled on the source segment endpoint. Cell transfer delay calculation is only performed on supported connections when the *accountCollection* attribute of the *AtmIf Uni* or *AtmIf Iisp* component has a non-empty reason. Cell transfer delay calculation is not provided for connections under the *Vpt*. |
| Values | off<br>on |
| Default | off |

### GROUP AtmIf Loopback (Lbk)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the default loopback attribute values for all *Vcc, Vpc, and Vpt* components. Note that these attribute values can be overridden by setting different values in the *Vcd* component of a provisioned *Vcc* or the *Vpd* component of a provisioned *Vpc* or *Vpt*.<br><br>Certain loopback requests may not be possible on a given connection. In such cases, the value of the corresponding operational loopback attribute in the *AtmStatus* group of the *Vcc, Vpc,* or *Vpt* component is ***notApplicable*** and the requested loopback is not performed. |

### ATTRIBUTE AtmIf segLinkSideLoopback (segLkLbk)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the default value for link-side segment loopback insertion for all connections under this interface. Link-side segment loopback is not possible if the value of the *oamSegmentBoundary* attribute of the *AtmIf* component is ***no***. |
| Values | on<br>off |
| Default | off |

### ATTRIBUTE AtmIf segSwitchSideLoopback (segSwLbk)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the default value for switch-side segment loopback insertion for all connections under this interface. Switch-side segment loopback is not possible if the value of the *oamSegmentBoundary* attribute of the *AtmIf* component is ***no***. |
| Values | on<br>off |
| Default | off |

### ATTRIBUTE AtmIf endToEndLoopback (eeLbk)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the default value for end-to-end loopback insertion for all connections under this interface. End-to-end loopback insertion is not possible if the value of the *connectionPointType* attribute of the *Vcc* or *Vpc* component is ***connectingPoint***, or ***segmentEndPoint***. End-to-end loopback insertion is possible if the value of the *connectionPointType* attribute of the *Vcc* or *Vpc* component is ***connectionEndPoint***. End-to-end loopback insertion is always possible on a *Vpt* component. |
| Values | on<br>off |

| | |
|---|---|
| Default | off |

### GROUP AtmIf OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE AtmIf adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

## ATTRIBUTE AtmIf operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

## ATTRIBUTE AtmIf usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |

| | |
|---|---|
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### ATTRIBUTE AtmIf availabilityStatus (osiAvail)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.<br><br>The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.<br><br>The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.<br><br>The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.<br><br>The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***. |

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

### ATTRIBUTE AtmIf proceduralStatus (osiProc)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the

user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.

The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of: initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default: No default

### ATTRIBUTE AtmIf controlStatus (osiCntrl)

Access: Read only

| | |
|---|---|
| Description | If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.<br><br>The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.<br><br>The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.<br><br>The value ***suspended*** indicates that the service has been administratively suspended. |
| Set of | subjectToTest (subTst)<br>partOfServicesLocked (partLk)<br>reservedForTest (rsrvd)<br>suspended (suspnd) |
| Default | No default |

### ATTRIBUTE AtmIf alarmStatus (osiAlarm)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions |

described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE AtmIf standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and

thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values
hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

Default
notSet

### ATTRIBUTE AtmIf unknownStatus (osiUnknw)

Access
Read only

Description
This attribute indicates the OSI Unknown status of the component.

The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.

The value ***true*** indicates that the actual state of the component is not known for sure.

Values
false
true

Default
false

### GROUP AtmIf Operational (Oper)

Properties
Operational

Description This group contains operational attributes which show the status of the *AtmIf* component.

## ATTRIBUTE AtmIf txCellMemoryCongestionState (txCellCcState)

Access Read only

Description This attribute indicates the congestion state of the transmit cell memory for this *AtmIf*. The congestion state is used to determine if cells of a particular discard priority are discarded or queued for transmit.

This attribute is not applicable and is not displayed for ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm***, ***1pOC12SmLrAtm***, ***1pOC48ChSmIrAtm***, ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, ***16pOC3SmIrAtm***, and ***1pOC48SmSrPos*** cards.

The congestion state of transmit cell memory is indicated by a numeric value ranging from ***3*** to ***0***. A value of ***3*** indicates no congestion and a value of ***0*** indicates maximum congestion. When transmit cell memory is in congestion state “x”, traffic with discard priority greater than “x” is discarded. Traffic with discard priority less than “x” may be queued for transmit, depending on the congestion level of the connection transmit queue. Traffic with discard priority equal to “x” may either be queued or discarded depending on how close the value of the *txCellMemoryUsage* attribute is to the next threshold as indicated by the value of the *txCellMemoryThreshold* attribute. For example, discard priority 3 traffic is queued until the value of the *txCellMemoryUsage* attribute equals the value of the *txCellMemoryThreshold* 3 attribute. At that point, discard priority 3 traffic is discarded.

This attribute indicates which *txCellMemoryThreshold* corresponds to the current value of the *txCellMemoryUsage* attribute.

Values Decimal (0..3)

Default No default

## ATTRIBUTE AtmIf txCellMemoryUsage

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current number of cells that are stored in transmit cell memory for this *AtmIf*. Transmit cell memory is used for storing ATM cells to be transmitted by connections under this *AtmIf*.<br><br>This attribute is not applicable and is not displayed for ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm***, ***1pOC12SmLrAtm***, ***1pOC48ChSmIrAtm***, ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, ***16pOC3SmIrAtm***, and ***1pOC48SmSrPos*** cards.<br><br>For ***2pOC3MmAtm2***, ***2pOC3SmAtm2***, ***2pSTM1eAtm***, ***2pSTM1eCh***, ***4pOC3MmAtm***, ***4pOC3SmIrAtm***, ***4pDS3ChAtm***, ***3pDS3Atm2***, ***3pE3Atm2***, ***12pDS3Atm***, ***12pE3Atm***, and MSA32 cards, the value of this attribute includes all cells for nrt-VBR, and UBR connections. It also includes cells for CBR, and rt-VBR connections which are doing per-VC queuing. It does not include cells for CBR, or rt-VBR connections that are doing common queuing.<br><br>For ***16pOC3PosAtm*** cards, the value of this attribute includes all cells regardless of the connection service category or queuing discipline. |
| Values | Decimal (0..4294967295) |
| Units | cells |
| Default | No default |

## ATTRIBUTE AtmIf txCellMemoryThreshold

| | |
|---|---|
| Access | Read only |
| Description | This attribute is a vector which indicates the size and three discard thresholds for transmit cell memory for this *AtmIf*. Transmit cell memory used for storing ATM cells to be transmitted by connections under this *AtmIf*. |

This attribute is not applicable and is not displayed for ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm***, ***1pOC12SmLrAtm***, ***1pOC48ChSmIrAtm***, ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, ***16pOC3SmIrAtm***, and ***1pOC48SmSrPos*** cards.

The threshold 0 value indicates the transmit cell memory size. It is the multiplication of the total transmit cell memory by the value of the *txCellMemory* attribute of this *AtmIf*.

For ***2pOC3MmAtm2***, ***2pOC3SmAtm2***, ***2pSTM1eAtm***, ***2pSTM1eCh***, ***4pOC3MmAtm***, ***4pOC3SmIrAtm***, ***4pDS3ChAtm***, ***3pDS3Atm2***, ***3pE3Atm2***, ***12pDS3Atm***, ***12pE3Atm***, and MSA32 cards, the threshold 1 value is set at approximately 90 percent of the threshold 0 value. The threshold 2 value is set at approximately 85 percent of the threshold 0 value. The threshold 3 value is set at approximately 75 percent of the threshold 0 value.

For ***16pOC3PosAtm*** cards, the threshold 1 value is set at approximately 90 percent of the threshold 0 value. The threshold 2 value is set at approximately 80 percent of the threshold 0 value. The threshold 3 value is set at approximately 60 percent of the threshold 0 value.

The current value of the *txCellMemoryUsage* attribute together with the vector of values in the *txCellMemoryThreshold* attribute determines the value of the *txCellMemoryCongestionState* attribute. The congestion state determines whether cells of a given discard priority are discarded or queued for transmit.

When the value of the *txCellMemoryUsage* attribute is between the threshold 0 and threshold 1 values, the value of the *txCellMemoryCongestionState* attribute is ***0***. In congestion state 0, traffic with discard priority greater than 0 is discarded.

When the value of the *txCellMemoryUsage* attribute is between the threshold 1 and threshold 2 values, the value of the *txCellMemoryCongestionState* attribute is ***1***. In congestion state

1, traffic with discard priority greater than 1 is discarded.

When the value of the *txCellMemoryUsage* attribute is between the threshold 2 and threshold 3 values, the value of the *txCellMemoryCongestionState* attribute is ***2***. In congestion state 2, traffic with discard priority greater than 2 is discarded.

When the value of the *txCellMemoryUsage* attribute is below the threshold 3 value, the value of the *txCellMemoryCongestionState* attribute is ***3***. In congestion state 3, all traffic is queued for transmit.

| | |
|---|---|
| Vector of | Decimal (0..4294967295) |
| Units | cells |
| Index | Decimal (0..3) |
| Default | No default |

### ATTRIBUTE AtmIf opShapingRates

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the values of the 31 shaping rates currently in use at the interface. It is a vector of 31 elements, each representing a shaping rate value. A shaping rate value of ***0*** means the entry is empty and can be used.<br><br>This attribute is only applicable to ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards. It is not displayed for all other cards. |
| Vector of | Decimal (0..163839) |
| Units | cells |
| Index | Decimal (0..30) |
| Default | No default |

### ATTRIBUTE AtmIf shapeUsage

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the number of connections that currently use the 31 shaping rates. It is a vector of 31 elements, each representing the number of connections using a particular shaping rate. The value of the shaping rate is indicated in the *opShapingRates* attribute.<br><br>This attribute is only applicable to ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards. It is not displayed for all other cards. |
| Vector of | Decimal (0..163839) |
| Index | Decimal (0..30) |
| Default | No default |

### GROUP AtmIf Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational attributes which keep statistics about the behavior of the *AtmIf* component. |

### ATTRIBUTE AtmIf txCell

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts cells transmitted from the ATM interface. It does not include cells discarded due to congestion before transmit.<br><br>The counter is reset to zero when the component is activated, or when any critical attribute of the component is changed. The counter wraps to zero when it exceeds its maximum value of (2**64)-1. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE AtmIf txCellClp

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts cells transmitted from the ATM interface which have the CLP bit set to 1. This count is included in the *txCell* attribute.<br><br>This attribute is not supported and is not displayed on ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm***, ***4pOC12SmIrAtm***, and ***4pOC12SmLrAtm*** cards.<br><br>The counter is reset to zero when the component is activated, or when any critical attribute of the component is changed. The counter wraps to zero when it exceeds its maximum value of (2**64)-1. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE AtmIf txCellEfci

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts cells transmitted from the ATM interface which have the EFCI bit set to 1. This count is included in the *txCell* attribute.<br><br>This attribute is not supported and is not displayed on ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm***, ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, ***16pOC3SmIrAtm***, and ***1pOC48SmSrPos*** cards.<br><br>The counter is reset to zero when the component is activated, or when any critical attribute of the component is changed. The counter wraps to zero when it exceeds its maximum value of (2**64)-1. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE AtmIf txCellDiscard

| | |
|---|---|
| Access | Read only |

Description

This attribute counts cells discarded and not transmitted out the ATM interface. Since cells are discarded before they are transmitted, this count is not included in the *txCell* attribute. This count is independent of the value of the *txFrameDiscard* attribute.

This attribute is not supported and is not displayed for ***4pOC12SmIrAtm***, and ***4pOC12SmIrAtm*** cards when channelized.

Transmit cells are discarded due to transmit congestion, Partial Packet Discard (PPD), Early Packet Discard (EPD), and Weighted Random Early Detection (W-RED) mechanisms, or when the connection's interface is disabled.

For ***16pOC3SmIrAtm*** cards, this attribute is updated at the end of every five-minute cycle.

The counter is reset to zero when the component is activated, or when any critical attribute of the component is changed. The counter wraps to zero when it exceeds its maximum value of (2**64)-1.

Values

Long Integer

Default

No default

## ATTRIBUTE AtmIf txCellDiscardClp

Access

Read only

Description

This attribute counts cells discarded and not transmitted out the ATM interface which have the CLP bit set to 1. Since cells are discarded before they are transmitted, this count is not included in the *txCellClp* attribute. This count is included in the *txCellDiscard* attribute, but it is independent of the value of the *txFrameDiscardClp* attribute.

This attribute is not supported and is not displayed on ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm***, ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm***

cards.

Transmit cells are discarded due to transmit congestion, Partial Packet Discard (PPD), Early Packet Discard (EPD), and Weighted Random Early Detection (W-RED) mechanisms, or when the connection's interface is disabled.

The counter is reset to zero when the component is activated, or when any critical attribute of the component is changed. The counter wraps to zero when it exceeds its maximum value of (2**64)-1.

Values — Long Integer

Default — No default

### ATTRIBUTE AtmIf txFrameDiscard

Access — Read only

Description — This attribute counts frames discarded and not transmitted out the ATM interface. This count is independent of the value of the *txCellDiscard* attribute.

This attribute is not supported and is not displayed on ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm***, ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards.

Transmit frames are discarded due to congestion, Partial Packet Discard (PPD), Early Packet Discard (EPD), and Weighted Random Early Detection (W-RED) mechanisms, or when the connection's interface is disabled.

For ***16pOC3PosAtm*** cards, the number of AAL5 cells discarded is included in the value of the *txCellDiscard* attribute if the frame has undergone AAL5 segmentation prior to being discarded.

The counter is reset to zero when the component is activated, or when any critical attribute of the component is changed. The

counter wraps to zero when it exceeds its maximum value of (2**64)-1.

Values: Long Integer

Default: No default

### ATTRIBUTE AtmIf txFrameDiscardClp

Access: Read only

Description: This attribute counts frames which have at least one cell with the CLP bit set to 1, and have been discarded and not transmitted out the ATM interface. This count is independent of the value of the *txCellDiscard* attribute. This count is included in the *txFrameDiscard* attribute.

This attribute is not supported and is not displayed on ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm***, ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards.

Transmit frames are discarded due to congestion, Partial Packet Discard (PPD), Early Packet Discard (EPD), and Weighted Random Early Detection (W-RED) mechanisms, or when the connection's interface is disabled.

For ***16pOC3PosAtm*** cards, the number of AAL5 cells discarded is included in the value of the *txCellDiscard* attribute if the frame has undergone AAL5 segmentation prior to being discarded.

The counter is reset to zero when the component is activated, or when any critical attribute of the component is changed. The counter wraps to zero when it exceeds its maximum value of (2**64)-1.

Values: Long Integer

Default: No default

### ATTRIBUTE AtmIf rxCell

Access: Read only

Description

This attribute counts valid cells received from the ATM interface. Valid cells are any cell with a correct HEC field in the ATM header. This count includes cells which may be subsequently discarded.

For ***2pOC3MmAtm2***, ***2pOC3SmAtm2***, ***2pSTM1eAtm***, ***2pSTM1eCh***, ***4pOC3MmAtm***, ***4pOC3SmIrAtm***, ***4pDS3ChAtm***, ***3pDS3Atm2***, ***3pE3Atm2***, ***12pDS3Atm***, ***12pE3Atm***, MSA32, ***1pOC12SmLrAtm***, ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, ***16pOC3SmIrAtm***, ***1pOC48ChSmIrAtm***, and ***16pOC3PosAtm*** cards, this count includes cells that are received with a VPI.VCI value that does not translate to any connection on the *AtmIf*. These cells may also be counted in the *droppedRxCell* attribute. The value of this *rxCell* attribute should be greater than or equal to the sum of the *droppedRxCell* attribute and all of the connection *rxCell* attributes under this *AtmIf*.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, this count does not include cells that are received with a VPI.VCI value that does not translate to any connection on the *AtmIf*. These cells are counted in the *droppedRxCell* attribute.

For ***1pOC48SmSrPos*** cards, this count does not include cells that are received with a VPI.VCI value that does not translate to any connection on the *AtmIf*.

The counter is reset to zero when the component is activated, or when any critical attribute of the component is changed. The counter wraps to zero when it exceeds its maximum value of (2**64)-1.

Values

Long Integer

Default

No default

## ATTRIBUTE AtmIf rxCellClp

Access

Read only

Description

This attribute counts valid cells received from the ATM interface which have the CLP bit set to 1. Valid cells are any cell with a

correct HEC field in the ATM header. This count includes cells which may be subsequently discarded. This count is included in the *rxCell* attribute.

This attribute is not supported and is not displayed on ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm***, ***4pOC12SmIrAtm*** and ***4pOC12SmLrAtm*** cards.

For ***2pOC3MmAtm2***, ***2pOC3SmAtm2***, ***2pSTM1eAtm***, ***2pSTM1eCh***, ***4pOC3MmAtm***, ***4pOC3SmIrAtm***, ***4pDS3ChAtm***, ***3pDS3Atm2***, ***3pE3Atm2***, ***12pDS3Atm***, ***12pE3Atm***, MSA32, ***1pOC12SmLrAtm***, ***16pOC3SmIrAtm***, ***1pOC48ChSmIrAtm*** and ***16pOC3PosAtm*** cards, this count includes cells that are received with a VPI.VCI value that does not translate to any connection on the *AtmIf*. These cells may also be counted in the *droppedRxCell* attribute.

For ***1pOC48SmSrPos*** cards, this count does not include cells that are received with a VPI.VCI value that does not translate to any connection on the *AtmIf*.

The counter is reset to zero when the component is activated, or when any critical attribute of the component is changed. The counter wraps to zero when it exceeds its maximum value of (2**64)-1.

Values — Long Integer

Default — No default

### ATTRIBUTE AtmIf rxCellEfci

Access — Read only

Description — This attribute counts valid cells received from the ATM interface which have the EFCI bit set to 1. Valid cells are any cell with a correct HEC field in the ATM header. This count includes cells which may be subsequently discarded. This count is included in the *rxCell* attribute.

This attribute is not supported and is not displayed on

***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm***, ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, ***16pOC3SmIrAtm***, and ***1pOC48SmSrPos*** cards.

For ***2pOC3MmAtm2***, ***2pOC3SmAtm2***, ***2pSTM1eAtm***, ***2pSTM1eCh***, ***4pOC3MmAtm***, ***4pOC3SmIrAtm***, ***4pDS3ChAtm***, ***3pDS3Atm2***, ***3pE3Atm2***, ***12pDS3Atm***, ***12pE3Atm***, MSA32, ***1pOC12SmLrAtm***, ***1pOC48ChSmIrAtm*** and ***16pOC3PosAtm*** cards, this count includes cells that are received with a VPI.VCI value that does not translate to any connection on the *AtmIf*. These cells are also counted in the *droppedRxCell* attribute.

The counter is reset to zero when the component is activated, or when any critical attribute of the component is changed. The counter wraps to zero when it exceeds its maximum value of (2**64)-1.

Values — Long Integer

Default — No default

## ATTRIBUTE AtmIf rxCellDiscard

Access — Read only

Description — This attribute counts cells received from the ATM interface which have been discarded. This count is included in the *rxCell* attribute.

This attribute is not supported and is not displayed on ***16pOC3SmIrAtm*** cards.

This attribute is not supported and is not displayed for ***4pOC12SmIrAtm***, and ***4pOC12SmLrAtm*** cards when channelized.

This count includes cells discarded due to non-conformance with UPC, Partial Packet Discard (PPD), Early Packet Discard (EPD), and cells received while the ingress data path is down.

For ***16pOC3PosAtm*** cards, for connections that reassemble

incoming cells into frames, this count also includes cells discarded due to AAL5 frame reassembly error, processor (CPU) congestion, and insufficient frame memory.

The counter is reset to zero when the component is activated, or when any critical attribute of the component is changed. The counter wraps to zero when it exceeds its maximum value of (2**64)-1.

Values: Long Integer

Default: No default

### ATTRIBUTE AtmIf rxCellDiscardClp

Access: Read only

Description: This attribute counts valid cells received from the ATM interface which have the CLP bit set to 1, which have been discarded. This count is included in the *rxCell* and *rxCellDiscard* attributes.

This attribute is not supported and is not displayed on ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm***, ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards.

This count includes cells discarded due to non-conformance with UPC, Partial Packet Discard (PPD), Early Packet Discard (EPD), and cells received while the ingress data path is down.

For ***16pOC3PosAtm*** cards, for connections that reassemble incoming cells into frames, this count also includes cells discarded due to AAL5 frame reassembly error, processor (CPU) congestion, and insufficient frame memory.

This counter is reset to zero when the component is activated, or when any critical attribute of the component is changed. The counter wraps to zero when it exceeds its maximum value of (2**64)-1.

Values: Long Integer

Default No default

### ATTRIBUTE AtmIf rxFrameDiscard

Access Read only

Description This attribute counts frames received from the ATM interface which have been discarded. This count includes the value of the *rxFrameDiscardClp* and *aal5RxErrors* attributes. It is independent of the value of the *rxCellDiscard* attribute.

This attribute is not supported and is not displayed on ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm***, ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards.

This count includes frames discarded due to AAL5 frame reassembly error, Early Packet Discard (EPD), processor (CPU) congestion, and insufficient frame memory. The amount of available frame memory is determined by the *Lp Eng Arc Ov* component.

For ***16pOC3PosAtm*** cards, this count does not include frames discarded due to Early Packet Discard (EPD), or insufficient frame memory. It also does not include frames discarded at layer 3. These discards are counted in the layer 3 statistics.

This attribute is applicable only for connections that reassemble incoming cells into frames. Connections that reassemble cells into frames have the value of the *connectionPointType* attribute displayed as ***connectionEndPoint***. AAL1 connections are an exception to this rule; even though they have the value of the *connectionPointType* attribute displayed as ***connectionEndPoint***, they do not do adaptation at this point.

The counter is reset to zero when the component is activated, or when any critical attribute of the component is changed. The counter wraps to zero when it exceeds its maximum value of (2**64)-1.

Values Long Integer

Default No default

## ATTRIBUTE AtmIf rxFrameDiscardClp

Access Read only

Description This attribute counts frames received from the ATM interface which have been discarded and which have at least one cell with the CLP bit set to 1. This count is included in the *rxFrameDiscard* attribute. It is independent of the *rxCellDiscardClp* attribute.

This attribute is not supported and is not displayed on ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm***, ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards.

This count includes frames discarded due to AAL5 frame reassembly error, Early Packet Discard (EPD), processor (CPU) congestion, and insufficient frame memory. The amount of available frame memory is determined by the *Lp Eng Arc Ov* component.

For ***16pOC3PosAtm*** cards, this count does not include frames discarded due to Early Packet Discard (EPD), or insufficient frame memory. It also does not include frames discarded at layer 3. These discards are counted in the layer 3 statistics.

This attribute is applicable only for connections that reassemble incoming cells into frames. Connections that reassemble cells into frames have the value of the *connectionPointType* attribute displayed as ***connectionEndPoint***. AAL1 connections are an exception to this rule; even though they have the value of the *connectionPointType* attribute displayed as ***connectionEndPoint***, they do not do adaptation at this point.

The counter is reset to zero when the component is activated, or when any critical attribute of the component is changed. The counter wraps to zero when it exceeds its maximum value of (2**64)-1.

| | |
|---|---|
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE AtmIf droppedRxCells (drRxCells)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts cells received from the interface that were dropped because they contained a VPI.VCI value that did not translate to any connection on the *AtmIf*. The VPI and VCI of the last dropped cell are indicated in the *lastDroppedRxCellConnection* attribute. Idle cells and unassigned cells are ignored without being counted as dropped cells.<br><br>This attribute is not supported and is not displayed on ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, ***16pOC3SmIrAtm***, and ***1pOC48SmSrPos*** cards.<br><br>For ***2pOC3MmAtm2***, ***2pOC3SmAtm2***, ***2pSTM1eAtm***, ***2pSTM1eCh***, ***4pOC3MmAtm***, ***4pOC3SmIrAtm***, ***4pDS3ChAtm***, ***3pDS3Atm2***, ***3pE3Atm2***, ***12pDS3Atm***, ***12pE3Atm***, MSA32, ***1pOC12SmLrAtm***, ***1pOC48ChSmIrAtm***, and ***16pOC3PosAtm*** cards, this count is included in the *rxCell* attribute for the interface.<br><br>The counter is reset to zero when the component is created, or when any critical attribute of the component is changed. The counter wraps to zero when it exceeds its maximum value of (2**64)-1.<br><br>For ***1pOC48ChSmIrAtm*** cards, it is possible that this count may not reset to zero. This is a known occurrence during FP resets that cannot be fixed for this FP. Any additional readings should subtract this initial value to obtain the correct cell dropped value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE AtmIf lastDroppedRxCellConnection (lastDropped)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the VPI and VCI of the last cell that was dropped. Cells are dropped if they contain a VPI.VCI value that does not translate to any connection on the *AtmIf*. Dropped cells are counted in the *droppedRxCells* attribute.<br><br>This attribute is not supported and is not displayed on ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, ***16pOC3SmIrAtm***, and ***1pOC48SmSrPos*** cards.<br><br>For ***1pOC48ChSmIrAtm*** cards, this attribute may not reset to 0.0 during card resets or when any critical attribute of the component is changed. It may initially indicate a connection that does not exist. |
| Values | Integer Sequence (0..4095; 0..65535) |
| Default | No default |

### ATTRIBUTE AtmIf aal5RxErrors (aal5Errors)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts AAL5 frame reassembly errors that have occurred on the interface. These errors are either CRC errors, or length errors, possibly caused by discarded cells. This attribute includes the count of AAL5 aborted frames which are also counted in the *aal5RxAborts* attribute. The VPI and VCI of the last connection which exhibited AAL5 reassembly errors are indicated in the *lastAal5ErrorConnection* attribute. This count is included in the *rxFrameDiscard* attribute.<br><br>This attribute is not supported and is not displayed on ***1pOC48SmSrPos*** cards.<br><br>The counter is reset to zero when the component is created, or when any critical attribute of the component is changed. The counter wraps to zero when it exceeds its maximum value of (2**32)-1. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf lastAal5RxErrorConnection (lastAal5)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the VPI and VCI of the last connection that exhibited AAL5 reassembly errors. These errors are counted in the *aal5RxErrors* attribute.<br><br>This attribute is not supported and is not displayed on ***1pOC48SmSrPos*** cards. |
| Values | Integer Sequence (0..4095; 0..65535) |
| Default | No default |

### ATTRIBUTE AtmIf lrcFrameErrors (lrcErrs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts egress LRC frame errors on frames received across the bus. The likely cause of these errors is a hardware fault on either the sending or receiving card. The VPI and VCI of the last connection which exhibited LRC errors are indicated in the *lastLrcFrameErrorConnection* attribute.<br><br>This attribute is not supported and is not displayed on ***1pOC48SmSrPos*** cards.<br><br>The counter is reset to zero when the component is created, or when any critical attribute of the component is changed. The counter wraps to zero when it exceeds its maximum value of (2**32)-1. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf lastLrcFrameErrorConnection (lastLrc)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the VPI and VCI of the last connection that had LRC frame errors on frames received across the bus. These errors are counted in the *lrcFrameErrors* attribute.<br><br>This attribute is not supported and is not displayed on ***1pOC48SmSrPos*** cards. |
| Values | Integer Sequence (0..4095; 0..65535) |
| Default | No default |

### ATTRIBUTE AtmIf aal5RxAborts

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts AAL5 frame aborts that have occurred on the interface. An AAL5 aborted frame is one in which the AAL5 frame length is zero. The VPI and VCI of the last connection which exhibited AAL5 abort errors are indicated in the *lastAal5RxAbortConnection* attribute. This count is included in *aal5RxErrors* attribute.<br><br>This attribute is not supported and is not displayed on ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm***, and ***1pOC48SmSrPos*** cards.<br><br>The counter is reset to zero when the component is created, or when any critical attribute of the component is changed. The counter wraps to zero when it exceeds its maximum value of (2**32)-1. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf lastAal5RxAbortConnection

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the VPI and VCI of the last connection that exhibited AAL5 aborts. These aborts are counted in the *aal5RxAborts* attribute. |

This attribute is not supported and is not displayed on ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm***, and ***1pOC48SmSrPos*** cards.

Values: Integer Sequence (0..4095; 0..65535)

Default: No default

### ATTRIBUTE AtmIf txLinkUtilization (txLink)

Access: Read only

Description: This attribute indicates the current transmit traffic rate over the most recent minute expressed as a percentage of the ATM link bandwidth.

This attribute is not supported and is not displayed for ***4pOC12SmIrAtm***, and ***4pOC12SmLrAtm*** cards when channelized.

For ***1pOC48SmSrPos*** cards, the ATM link is the *Lsp*. Many *Lsp*s could share the same POS link. If the POS link is under utilized it is possible for an *Lsp* to carry more traffic than it has been assigned. This occurs as bandwidth on an *Lsp* is allocated based on determining whether the requested bandwidth exceeds the available bandwidth on an *Lsp*, not on whether the actual bandwidth exceeds the available bandwidth. When the actual bandwidth is higher than the requested bandwidth it is possible that this extra traffic will be carried over the *Lsp*. Since this is possible, the value of this attribute may exceed 100%. If the utilization exceeds 65535%, a value of ***65535*** is displayed. If the *Lsp* has a bandwidth of 0, a value of ***0*** is displayed.

Values: Decimal (0..65535)

Units: %

Default: No default

### ATTRIBUTE AtmIf rxLinkUtilization (rxLink)

Access: Read only

Description

This attribute indicates the current receive traffic rate during the most recent minute expressed as a percentage of the ATM link bandwidth. This attribute does not consider cells that are counted by the droppedRxCells attribute, nor idle cells, nor unassigned cells.

This attribute is not supported and is not displayed for ***4pOC12SmIrAtm***, and ***4pOC12SmLrAtm*** cards when channelized.

For ***1pOC48SmSrPos*** cards, the ATM link is the *LSP*. Many *LSP*s could share the same POS link. If the POS link is under utilized it is possible for an *LSP* to carry more traffic than it has been assigned. This occurs as bandwidth on an *LSP* is allocated based on determining whether the requested bandwidth exceeds the available bandwidth on an *LSP*, not on whether the actual bandwidth exceeds the available bandwidth. When the actual bandwidth is higher than the requested bandwidth it is possible that this extra traffic will be carried over the *LSP*. Since this is possible, the value of this attribute may exceed 100%. If the utilization exceeds 65535%, a value of ***65535*** is displayed. If the *Lsp* has a bandwidth of 0, a value of ***0*** is displayed.

Values

Decimal (0..65535)

Units

%

Default

No default

# COLLECTED STATS AtmInterface

Description

The statistics record generated by the AtmInterface component.

## ATTRIBUTE AtmIf remoteInstance

Description

This attribute indicates the remote ATM interface, as provisioned in the *remoteAtmInterfaceLabel*.

Values

String (0..60, ASCII)

## ATTRIBUTE AtmIf provRate

Description

This attribute indicates the provisioned bandwidth for this ATM interface.

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Units | cell/s |

### ATTRIBUTE AtmIf actualRate

| | |
|---|---|
| Description | This attribute indicates the actual bandwidth for this ATM interface. When no errors occur it has a value equal to *provRate*. When the link (or IMA group) is down for the entire collection interval it has a value of zero. When the link goes down during the collection interval it has a value representing the average bandwidth during the collection interval. |
| Values | Decimal (0..4294967295) |
| Units | cell/s |

### ATTRIBUTE AtmIf txUtilization

| | |
|---|---|
| Description | This attribute indicates the average transmit traffic rate over the most recent collection interval expressed as a percentage of the ATM link bandwidth.<br><br>On *AtmIf*s linked to MPLS POS interfaces, the ATM link is the *LSP*. Many *LSP*s could share the same POS link. If the POS link is underutilized it is possible for an *LSP* to carry more traffic than it has been assigned. This occurs as bandwidth on an *LSP* is allocated based on determining whether the requested bandwidth exceeds the available bandwidth on an *LSP*, not on whether the actual bandwidth exceeds the available bandwidth. When the actual bandwidth is higher than the requested bandwith it is possible that this extra traffic will be carried over the *LSP*. Since this is possible, the value of this attribute may exceed 100%.<br><br>If the utilization exceeds 65535% then 65535 is displayed. If the *Lsp* has a bandwidth of 0, then 0 is displayed for the utilization. |
| Values | Decimal (0..65535) |
| Units | % |

## ATTRIBUTE AtmIf rxUtilization

| | |
|---|---|
| Description | This attribute indicates the average receive traffic rate over the most recent collection interval expressed as a percentage of the ATM link bandwidth.<br><br>On *AtmIf*s linked to MPLS POS interfaces, the ATM link is the *LSP*. Many *LSP*s could share the same POS link. If the POS link is underutilized it is possible for an *LSP* to carry more traffic than it has been assigned. This occurs as bandwidth on an *LSP* is allocated based on determining whether the requested bandwidth exceeds the available bandwidth on an *LSP*, not on whether the actual bandwidth exceeds the available bandwidth. When the actual bandwidth is higher than the requested bandwith it is possible that this extra traffic will be carried over the *LSP*. Since this is possible, the value of this attribute may exceed 100%.<br><br>If the utilization exceeds 65535% then 65535 is displayed. If the *Lsp* has a bandwidth of 0, then 0 is displayed for the utilization. |
| Values | Decimal (0..65535) |
| Units | % |

## ATTRIBUTE AtmIf txMaxCellRate

| | |
|---|---|
| Description | This attribute indicates the transmitted cell rate (CLP=0+1) during the busiest minute of the collection interval. |
| Values | Decimal (0..4294967295) |
| Units | cell/s |

### ATTRIBUTE AtmIf txMaxCellRateByServiceCat

| | |
|---|---|
| Description | This attribute indicates the transmitted cell rate (CLP=0+1) during the busiest minute of the collection interval by ATM service category. |
| Vector of | Decimal (0..4294967295) |
| Index | cbr<br>rtvbr<br>nrtvbr<br>abr<br>ubr |

### ATTRIBUTE AtmIf txMinCellRate

| | |
|---|---|
| Description | This attribute indicates the transmitted cell rate (CLP=0+1) during the least busy minute of the collection interval. |
| Values | Decimal (0..4294967295) |
| Units | cell/s |

### ATTRIBUTE AtmIf txMinCellRateByServiceCat

| | |
|---|---|
| Description | This attribute indicates the transmitted cell rate (CLP=0+1) during the least busy minute of the collection interval by ATM service category. |
| Vector of | Decimal (0..4294967295) |
| Index | cbr<br>rtvbr<br>nrtvbr<br>abr<br>ubr |

### ATTRIBUTE AtmIf txAvgCellRate

| | |
|---|---|
| Description | This attribute indicates the average transmitted cell rate (CLP=0+1) during the collection interval. |
| Values | Decimal (0..4294967295) |
| Units | cell/s |

### ATTRIBUTE AtmIf txAvgCellRateByServiceCat

| | |
|---|---|
| Description | This attribute indicates the average transmitted cell rate (CLP=0+1) during the collection interval by ATM service category. |
| Vector of | Decimal (0..4294967295) |
| Index | cbr<br>rtvbr<br>nrtvbr<br>abr<br>ubr |

### ATTRIBUTE AtmIf rxMaxCellRate

| | |
|---|---|
| Description | This attribute indicates the received cell rate (CLP=0+1) during the busiest minute of the collection interval. |
| Values | Decimal (0..4294967295) |
| Units | cell/s |

### ATTRIBUTE AtmIf rxMaxCellRateByServiceCat

| | |
|---|---|
| Description | This attribute indicates the received cell rate (CLP=0+1) during the busiest minute of the collection interval by ATM service category. |
| Vector of | Decimal (0..4294967295) |
| Index | cbr<br>rtvbr<br>nrtvbr<br>abr<br>ubr |

### ATTRIBUTE AtmIf rxMinCellRate

| | |
|---|---|
| Description | This attribute indicates the received cell rate (CLP=0+1) during the least busy minute of the collection interval. |
| Values | Decimal (0..4294967295) |
| Units | cell/s |

### ATTRIBUTE AtmIf rxMinCellRateByServiceCat

| | |
|---|---|
| Description | This attribute indicates the received cell rate (CLP=0+1) during the least busy minute of the collection interval by ATM service category. |
| Vector of | Decimal (0..4294967295) |
| Index | cbr<br>rtvbr<br>nrtvbr<br>abr<br>ubr |

### ATTRIBUTE AtmIf rxAvgCellRate

| | |
|---|---|
| Description | This attribute indicates the average received cell rate (CLP=0+1) during the collection interval. |
| Values | Decimal (0..4294967295) |
| Units | cell/s |

### ATTRIBUTE AtmIf rxAvgCellRateByServiceCat

| | |
|---|---|
| Description | This attribute indicates the average received cell rate (CLP=0+1) during the collection interval by ATM service category. |
| Vector of | Decimal (0..4294967295) |
| Index | cbr<br>rtvbr<br>nrtvbr<br>abr<br>ubr |

### ATTRIBUTE AtmIf txMaxCellRateClp

| | |
|---|---|
| Description | This attribute indicates the transmitted cell rate (CLP=1) during the busiest minute of the collection interval. |
| Values | Decimal (0..4294967295) |
| Units | cell/s |

### ATTRIBUTE AtmIf txMaxCellRateClpByServiceCat

| | |
|---|---|
| Description | This attribute indicates the transmitted cell rate (CLP=1) during the busiest minute of the collection interval by ATM service category. |
| Vector of | Decimal (0..4294967295) |
| Index | cbr<br>rtvbr<br>nrtvbr<br>abr<br>ubr |

### ATTRIBUTE AtmIf txMinCellRateClp

| | |
|---|---|
| Description | This attribute indicates the transmitted cell rate (CLP=1) during the least busy minute of the collection interval. |
| Values | Decimal (0..4294967295) |
| Units | cell/s |

### ATTRIBUTE AtmIf txMinCellRateClpByServiceCat

| | |
|---|---|
| Description | This attribute indicates the transmitted cell rate (CLP=1) during the least busy minute of the collection interval by ATM service category. |
| Vector of | Decimal (0..4294967295) |
| Index | cbr<br>rtvbr<br>nrtvbr<br>abr<br>ubr |

### ATTRIBUTE AtmIf txAvgCellRateClp

| | |
|---|---|
| Description | This attribute indicates the average transmitted cell rate (CLP=1) during the collection interval. |
| Values | Decimal (0..4294967295) |
| Units | cell/s |

### ATTRIBUTE AtmIf txAvgCellRateClpByServiceCat

| | |
|---|---|
| Description | This attribute indicates the average transmitted cell rate (CLP=1) during the collection interval by ATM service category. |
| Vector of | Decimal (0..4294967295) |
| Index | cbr<br>rtvbr<br>nrtvbr<br>abr<br>ubr |

### ATTRIBUTE AtmIf rxMaxCellRateClp

| | |
|---|---|
| Description | This attribute indicates the received cell rate (CLP=1) during the busiest minute of the collection interval. |
| Values | Decimal (0..4294967295) |
| Units | cell/s |

### ATTRIBUTE AtmIf rxMaxCellRateClpByServiceCat

| | |
|---|---|
| Description | This attribute indicates the received cell rate (CLP=1) during the busiest minute of the collection interval by ATM service category. |
| Vector of | Decimal (0..4294967295) |
| Index | cbr<br>rtvbr<br>nrtvbr<br>abr<br>ubr |

### ATTRIBUTE AtmIf rxMinCellRateClp

| | |
|---|---|
| Description | This attribute indicates the received cell rate (CLP=1) during the least busy minute of the collection interval. |
| Values | Decimal (0..4294967295) |
| Units | cell/s |

### ATTRIBUTE AtmIf rxMinCellRateClpByServiceCat

| | |
|---|---|
| Description | This attribute indicates the received cell rate (CLP=1) during the least busy minute of the collection interval by ATM service category. |
| Vector of | Decimal (0..4294967295) |
| Index | cbr<br>rtvbr<br>nrtvbr<br>abr<br>ubr |

### ATTRIBUTE AtmIf rxAvgCellRateClp

| | |
|---|---|
| Description | This attribute indicates the average received cell rate (CLP=1) during the collection interval. |
| Values | Decimal (0..4294967295) |
| Units | cell/s |

### ATTRIBUTE AtmIf rxAvgCellRateClpByServiceCat

| | |
|---|---|
| Description | This attribute indicates the average received cell rate (CLP=1) during the collection interval by ATM service category. |
| Vector of | Decimal (0..4294967295) |
| Index | cbr<br>rtvbr<br>nrtvbr<br>abr<br>ubr |

### ATTRIBUTE AtmIf txCellDiscards

| | |
|---|---|
| Description | This attribute counts the cells (CLP=0+1) which are discarded before being transmitted during the collection interval. |
| Values | Long Integer |

### ATTRIBUTE AtmIf txCellDiscardsByServiceCat

| | |
|---|---|
| Description | This attribute counts the cells (CLP=0+1) which are discarded before being transmitted during the collection interval by ATM service category. |
| Vector of | Long Integer |
| Index | cbr<br>rtvbr<br>nrtvbr<br>abr<br>ubr |

### ATTRIBUTE AtmIf rxCellDiscards

| | |
|---|---|
| Description | This attribute counts the cells (CLP=0+1) which are discarded after being received during the collection interval. |
| Values | Long Integer |

### ATTRIBUTE AtmIf rxCellDiscardsByServiceCat

| | |
|---|---|
| Description | This attribute counts the cells (CLP=0+1) which are discarded after being received during the collection interval by ATM service category. |
| Vector of | Long Integer |
| Index | cbr<br>rtvbr<br>nrtvbr<br>abr<br>ubr |

### ATTRIBUTE AtmIf txFrameDiscards

| | |
|---|---|
| Description | This attribute counts the frames (CLP=0+1) which are discarded before being transmitted during the collection interval. |
| Values | Long Integer |

### ATTRIBUTE AtmIf txFrameDiscardsByServiceCat

| | |
|---|---|
| Description | This attribute counts the frames (CLP=0+1) which are discarded before being transmitted during the collection interval by ATM service category. |
| Vector of | Long Integer |
| Index | cbr<br>rtvbr<br>nrtvbr<br>abr<br>ubr |

### ATTRIBUTE AtmIf rxFrameDiscards

| | |
|---|---|
| Description | This attribute counts the frames (CLP=0+1) which are discarded after being received during the collection interval. |
| Values | Long Integer |

### ATTRIBUTE AtmIf rxFrameDiscardsByServiceCat

| | |
|---|---|
| Description | This attribute counts the frames (CLP=0+1) which are discarded after being received during the collection interval by ATM service category. |
| Vector of | Long Integer |
| Index | cbr<br>rtvbr<br>nrtvbr<br>abr<br>ubr |

### ATTRIBUTE AtmIf txCellDiscardsClp

| | |
|---|---|
| Description | This attribute counts the cells (CLP=1) which are discarded before being transmitted during the collection interval. |
| Values | Long Integer |

### ATTRIBUTE AtmIf txCellDiscardsClpByServiceCat

| | |
|---|---|
| Description | This attribute counts the cells (CLP=1) which are discarded before being transmitted during the collection interval by ATM service category. |
| Vector of | Long Integer |
| Index | cbr<br>rtvbr<br>nrtvbr<br>abr<br>ubr |

### ATTRIBUTE AtmIf rxCellDiscardsClp

| | |
|---|---|
| Description | This attribute counts the cells (CLP=1) which are discarded after being received during the collection interval. |
| Values | Long Integer |

### ATTRIBUTE AtmIf rxCellDiscardsClpByServiceCat

| | |
|---|---|
| Description | This attribute counts the cells (CLP=1) which are discarded after being received during the collection interval by ATM service category. |
| Vector of | Long Integer |
| Index | cbr<br>rtvbr<br>nrtvbr<br>abr<br>ubr |

### ATTRIBUTE AtmIf txFrameDiscardsClp

| | |
|---|---|
| Description | This attribute counts the frames (CLP=1) which are discarded before being transmitted during the collection interval. |
| Values | Long Integer |

### ATTRIBUTE AtmIf txFrameDiscardsClpByServiceCat

| | |
|---|---|
| Description | This attribute counts the frames (CLP=1) which are discarded before being transmitted during the collection interval by ATM service category. |
| Vector of | Long Integer |
| Index | cbr<br>rtvbr<br>nrtvbr<br>abr<br>ubr |

### ATTRIBUTE AtmIf rxFrameDiscardsClp

| | |
|---|---|
| Description | This attribute counts the frames (CLP=1) which are discarded after being received during the collection interval. |
| Values | Long Integer |

### ATTRIBUTE AtmIf rxFrameDiscardsClpByServiceCat

| | |
|---|---|
| Description | This attribute counts the frames (CLP=1) which are discarded after being received during the collection interval by ATM service category. |
| Vector of | Long Integer |
| Index | cbr<br>rtvbr<br>nrtvbr<br>abr<br>ubr |

### COMPONENT AtmIf ConnectionMapping (ConnMap)

| | |
|---|---|
| Groups | "GROUP AtmIf ConnMap Operational (Oper)" |
| Scope | Device |
| Description | *AtmIf/n ConnectionMapping*<br>The *ConnectionMapping* component is used to view the VCC space supported by an ATM interface on card types ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, |

***3pE1Atm***, ***3pDS1Atm***, ***2pJ6MAtm***, ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm***. Only VPI and VCI values that lie within the VCC space may be used for VCC connections.

Any VPI values not assigned to the VCC space are, by implication, consigned to the VPC space. Only VPI values that lie within the VPC space may be used to support VPC connections.

Subcomponents "COMPONENT AtmIf ConnMap Override (Ov)"

Common Verbs

Help
List
Display
Add
DELete

## GROUP AtmIf ConnMap Operational (Oper)

Properties Operational

Description This group contains operational attributes that indicate the VCC space supported by an ATM interface. The VCC space consists of an optional VPI Zero VCC Space and an optional Programmable VCC Space. Only VPI and VCI values that lie within the VCC space may be used for VCC connections.

The VPI Zero VCC Space is used for VCCs with a VPI of zero. The VCI values in this space range from ***0*** to an optionally provisioned maximum of (*numVccsForVpiZero* - 1).

The Programmable VCC Space is used for VCCs with a VPI other than zero. The VPI values in this space lie in a single contiguous range from *firstNonZeroVpiForVccs* to (*firstNonZeroVpiForVccs* + *numNonZeroVpisForVccs* - 1). The VCI values in this space range from ***0*** to an optionally provisioned maximum of (*numVccsPerNonZeroVpi* - 1).

Any VPI values not assigned to the VCC space are, by implication, assigned to the VPC space. Only VPI values that lie

within the VPC space may be used for VPC connections.

The number of connection resources in the VCC and VPC space (not all of which are available for user connections) must not exceed the maximum value supported by the card.

### ATTRIBUTE AtmIf ConnMap numVccsForVpiZero (nZVccs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of VCCs supported for the VPI Zero VCC Space. The VCI values of these VCCs range from ***0*** to *(numVccsForVpiZero* - 1).<br><br>For card types ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDs1Atm***, and ***2pJ6MAtm***, the maximum value of this attribute is ***16128.***<br><br>For card types ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm***, the maximum value of this attribute is ***16384.***<br><br>To override the system default, see the *AtmIf ConnMap Ov* attribute *numVccsForVpiZero.* |
| Values | Decimal (0..16384) |
| Default | No default |

### ATTRIBUTE AtmIf ConnMap numNonZeroVpisForVccs (nVpis)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of contiguous VPIs supported in the optional Programmable VCC Space.<br><br>If the value of the *numNonZeroVpisForVccs* attribute is ***0***, then the Programmable VCC Space does not exist. If the value of the *numNonZeroVpisForVccs* attribute is greater than ***0***, then the Programmable VCC Space exists and covers the VPI values ranging from *firstNonZeroVpiForVccs* to *(firstNonZeroVpiForVccs* + *numNonZeroVpisForVccs* - 1). |

For card types ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDs1Atm***, and ***2pJ6MAtm***, the maximum value of this attribute is ***255.***

For card types ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm***, the maximum value of this attribute is ***255*** for UNI applications and ***4095*** for NNI applications.

To override the system default, see the *AtmIf ConnMap Ov* attribute *numNonZeroVpisForVccs.*

Values — Decimal (0..4095)

Default — No default

### ATTRIBUTE AtmIf ConnMap firstNonZeroVpiForVccs (firstVpi)

Access — Read only

Description — This attribute indicates the initial VPI of the optional Programmable VCC Space.

If the value of the *numNonZeroVpisForVccs* attribute is ***0***, then the Programmable VCC Space does not exist and the value of this attribute is ignored. If the value of the *numNonZeroVpisForVccs* attribute is greater than ***0***, then the Programmable VCC Space exists and covers the VPI values ranging from *firstNonZeroVpiForVccs* to *(firstNonZeroVpiForVccs* + *numNonZeroVpisForVccs* - 1).

For card types ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDs1Atm***, and ***2pJ6MAtm***, the maximum value of this attribute is ***240***.

For card types ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm***, the maximum value of this attribute is ***255*** for UNI applications and ***4095*** for NNI applications.

To override the system default, see the *AtmIf ConnMap Ov* attribute *firstNonZeroVpiForVccs*.

Values — Decimal (1..4095)

| | |
|---|---|
| Default | No default |

### ATTRIBUTE AtmIf ConnMap numVccsPerNonZeroVpi (nVccs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of VCCs supported for each VPI in the Programmable VCC Space. The VCI values of these VCCs range from ***0*** to *(numVccsPerNonZeroVpi* - 1) for each VPI in this space.<br><br>For card types ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDs1Atm***, and ***2pJ6MAtm***, the maximum value of this attribute is ***2048***.<br><br>For card types ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm***, the maximum value of this attribute is ***16384***.<br><br>To override the system default, see the *AtmIf ConnMap Ov* attribute *numVccsPerNonZeroVpi*. |
| Values | Decimal (2; 4; 8; 16; 32; 64; 128; 256; 512; 1024; 2048; 4096; 8192; 16384) |
| Default | No default |

### COMPONENT AtmIf ConnMap Override (Ov)

| | |
|---|---|
| Groups | "GROUP AtmIf ConnMap Ov Provisioned (Prov)" |
| Scope | Device |
| Description | *AtmIf/n ConnMap Override*<br>The *Override* component is used to specify the VCC space to be supported on an ATM interface on card types ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***2pJ6MAtm***, ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm***. Only VPI and VCI values that lie within the VCC space may be used for VCC connections.<br><br>Any VPI values not assigned to the VCC space are, by implication, consigned to the VPC space. Only VPI values that lie within the VPC space may be used for VPC connections. |

This component is used to override the default values used for the parent *ConnectionMapping* component.

Common Verbs

Help
List
Display

## GROUP Atmlf ConnMap Ov Provisioned (Prov)

Properties

Provisioned

Description

This group contains provisionable attributes which specify the VCC space to be supported by this ATM interface. The VCC space consists of an optional “VPI Zero VCC Space” and an optional “Programmable VCC Space”. Only VPI and VCI values that lie within the VCC space may be used for VCC connections.

For card types ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDs1Atm***, and ***2pJ6MAtm***, the values of all attributes provisioned in this group must adhere to the following rules:

The VPI Zero VCC Space is used for VCCs with a VPI of zero. The VCI values supported in this space range from ***0*** to an optionally provisioned maximum of (*numVccsForVpiZero* - 1).The value of the *numVccsForVpiZero* attribute must either be ***0*** or a multiple of 256 up to a maximum value of ***16128***. A value of ***0*** implies that no programmable VCCs can be used. In this case, the value of the *numNonZeroVpisForVccs* attribute must also be ***0***.

The Programmable VCC Space is used for VCCs with a VPI other than zero. The VPI values in this space lie in a single contiguous range from *firstNonZeroVpiForVccs* to (*firstNonZeroVpiForVccs* + *numNonZeroVpisForVccs* - 1). The VCI values in this space range from ***0*** to an optionally provisioned maximum of (*numVccsPerNonZeroVpi* - 1). The Programmable VCC Space (should it exist) must adhere to the following rules:

The value of the *firstNonZeroVpiForVccs* attribute must either be

***1*** or a non-zero multiple of 16, up to a maximum value of ***240***.

If *(firstNonZeroVpiForVccs* = 1) THEN
(*numNonZeroVpisForVccs* + 1) * *numVccsPerNonZeroVpi*
must be a multiple of 256
OTHERWISE
*numNonZeroVpisForVccs* * *numVccsPerNonZeroVpi*
must be a multiple of 256

Any VPI values not assigned to the VCC space are, by implication, assigned to the VPC space. Only VPI values that lie within the VPC space may be used for VPC connections.

The number of connection resources in the VCC and VPC space must not exceed the capacity of the port to which the interface is linked. If the *Lp* component has an *Eng Arc Cqc Ov* component provisioned with a non-zero *connectionPoolCapacity* attribute, then the port's capacity is specified by this attribute. Otherwise the port's capacity is indicated by the value of the *Lp/n Eng Arc connectionPoolAvailable* attribute divided by the number of physical ports on the card.

The number of connection resources in the VCC and VPC space can be determined as follows:

IF (*numNonZeroVpisForVccs* = 0) THEN
number of connection resources =
*256* + *numVccsForVpiZero*
OTHERWISE IF (*firstNonZeroVpiForVccs* = 1) THEN
number of connection resources =
*256* + *numVccsForVpiZero* +
(*numNonZeroVpisForVccs* + 1) * *numVccsPerNonZeroVpi*
OTHERWISE
number of connection resources =
256 + *numVccsForVpiZero* +
(*numNonZeroVpisForVccs* * *numVccsPerNonZeroVpi*)

For card types ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm***, the values of all attributes provisioned in this group must adhere to the following rules:

The VPI Zero VCC Space is used for VCCs with a VPI of zero. The VCI values supported in this space range from ***0*** to an optionally provisioned maximum of (*numVccsForVpiZero* - 1).The value of *numVccsForVpiZero* attribute must either be ***1*** or a power of 2.

The Programmable VCC Space is used for VCCs with a VPI other than zero. The VPI values in this space lie in a single contiguous range from *firstNonZeroVpiForVccs* to (*firstNonZeroVpiForVccs* + *numNonZeroVpisForVccs* - 1). The VCI values in this space range from ***0*** to an optionally provisioned maximum of (*numVccsPerNonZeroVpi* - 1). The VPI values in this space must not exceed ***255*** for UNI applications and ***4095*** for NNI applications.

Any VPI values not assigned to the VCC space are, by implication, assigned to the VPC space. Only VPI values that lie within the VPC space may be used for VPC connections.

For the ***4pOC12SmIrAtm*** and ***4pOC12SmLrAtm*** cards, the number of connection resources in the VCC and VPC space must not exceed the capacity of the port to which the interface is linked. The port's capacity is the physical maximum of 113664 connection resources.

For the ***16pOC3SmIrAtm*** card, the total number of connection resources in the VCC and VPC space must not exceed 113664 for each of the four port groupings on the card. Each port grouping consists of ATM interfaces linked to ports 0-3, 4-7, 8-11, and 12-15.

The number of connection resources in the VCC and VPC space can be determined as follows:

For UNI applications the number of connection resources =
*numVccsForVpiZero* +
(*numNonZeroVpisForVccs* * *numVccsPerNonZeroVpi*) +
2 * (255 - *numNonZeroVpisForVccs*)

For NNI applications the number of connection resources =
*numVccsForVpiZero* +

(*numNonZeroVpisForVccs* * *numVccsPerNonZeroVpi*) +
2 * (4095 - *numNonZeroVpisForVccs*)

### ATTRIBUTE AtmIf ConnMap Ov numVccsForVpiZero (nZVccs)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the number of VCCs supported for the VPI Zero VCC Space. The VCI values of these VCCs range from ***0*** to *(numVccsForVpiZero* - 1).<br><br>For card types ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDs1Atm***, and ***2pJ6MAtm***, the maximum value of this attribute is ***16128***, and the default value is ***768***.<br><br>For card types ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm***, the maximum value of this attribute is ***16384***, and the default value is ***1024***.<br><br>The values of all attributes provisioned in this group must adhere to the guidelines laid down in the description of the *Provisioned* group. |
| Values | Decimal (0..16384) |
| Default | 768 |

### ATTRIBUTE AtmIf ConnMap Ov numNonZeroVpisForVccs (nVpis)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the number of contiguous VPIs supported in the optional Programmable VCC Space.<br><br>If the value of the *numNonZeroVpisForVccs* attribute is ***0***, then the Programmable VCC Space does not exist. If the value of the *numNonZeroVpisForVccs* attribute is greater than ***0***, then the Programmable VCC Space exists and covers the VPI values |

ranging from *firstNonZeroVpiForVccs* to *(firstNonZeroVpiForVccs* + *numNonZeroVpisForVccs* - 1).

For card types ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDs1Atm***, and ***2pJ6MAtm***, the maximum value of this attribute is ***255***.

For card types ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm***, the maximum value of this attribute is ***255*** for UNI applications and ***4095*** for NNI applications.

The values of all attributes provisioned in this group must adhere to the guidelines laid down in the description of the *Provisioned* group.

Values — Decimal (0..4095)

Default — 0

## ATTRIBUTE AtmIf ConnMap Ov firstNonZeroVpiForVccs (firstVpi)

Access — Read and write

Criticality — Process

Description — This attribute specifies the initial VPI of the optional Programmable VCC Space.

If the value of the *numNonZeroVpisForVccs* attribute is ***0,*** then the Programmable VCC Space does not exist and the value of this attribute is ignored. If the value of the *numNonZeroVpisForVccs* attribute is greater than ***0***, then the Programmable VCC Space exists and covers the VPI values ranging from *firstNonZeroVpiForVccs* to *(firstNonZeroVpiForVccs* + *numNonZeroVpisForVccs* - 1).

For card types ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDs1Atm***, and ***2pJ6MAtm***, the maximum value of this attribute is ***240***.

For card types ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm***, the maximum value of this attribute is ***255*** for UNI applications and ***4095*** for NNI applications.

The values of all attributes provisioned in this group must adhere to the guidelines laid down in the description of the *Provisioned* group.

Values: Decimal (1..4095)

Default: 1

### ATTRIBUTE AtmIf ConnMap Ov numVccsPerNonZeroVpi (nVccs)

Access: Read and write

Criticality: Process

Description: This attribute specifies the number of VCCs supported for each VPI in the Programmable VCC Space. The VCI values of these VCCs range from ***0*** to *(numVccsPerNonZeroVpi* - 1) for each VPI in this space.

For card types ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDs1Atm***, and ***2pJ6MAtm***, the maximum value of this attribute is ***2048***.

For card types ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm***, the maximum value of this attribute is ***16384***.

The values of all attributes provisioned in this group must adhere to the guidelines laid down in the description of the *Provisioned* group.

Values: Decimal (2; 4; 8; 16; 32; 64; 128; 256; 512; 1024; 2048; 4096; 8192; 16384)

Default: 64

### COMPONENT AtmIf ConnectionAdministrator (CA)

Groups: "GROUP AtmIf CA Provisioned (Prov)"
"GROUP AtmIf CA Operational (Oper)"
"GROUP AtmIf CA PmInfo (Pm)"

Scope: Device

Description — *AtmIf/n ConnectionAdministrator*
This component controls connection admission and reports statistics about the ATM connections which have been admitted on this ATM interface.

Subcomponents
"COMPONENT AtmIf CA ConstantBitRate (Cbr)"
"COMPONENT AtmIf CA RealTimeVariableBitRate (RtVbr)"
"COMPONENT AtmIf CA NonRealTimeVariableBitRate (NrtVbr)"
"COMPONENT AtmIf CA AvailableBitRate (Abr)"
"COMPONENT AtmIf CA UnspecifiedBitRate (Ubr)"

Common Verbs
Help
List
Display

## GROUP AtmIf CA Provisioned (Prov)

Properties — Provisioned

Description — This group contains provisioned attributes which specify the behavior of Connection Admission Control (CAC) for the ATM connections configured on an ATM interface. Note that the names of some of the attributes follow the conventions of UNI 4.0 for forward compatibility reasons. This does not imply conformance in general with the UNI 4.0 specification.

## ATTRIBUTE AtmIf CA maxVccs (vccs)

Access — Read and write

Criticality — Process

Description — This attribute specifies the maximum number of *Vccs* (and *Vpt Vcc*s) that can be activated on this *AtmIf*.

For ***3pE3Atm***, ***3pDS3Atm***, ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE1Atm***, ***3pDS1Atm***, and ***2pJ6MAtm*** cards, the value of this attribute must not exceed the number of *Vcc* identifiers in the *Vcc* space supported by this *AtmIf* (which is specified by the *AtmIf ConnectionMapping* component).

For cards other than ***3pE3Atm***, ***3pDS3Atm***, ***3pOC3MmAtm***,

***3pOC3SmAtm***, ***3pE1Atm***, ***3pDS1Atm***, and ***2pJ6MAtm***, the sum of (*maxVccs* + *maxVpcs* + (*maxVpts* * 3) + 1) across all spared *AtmIf*s linked to an *Lp* must not exceed the value of the *protectedConnectionPoolCapacity* attribute of the *Lp Eng Arc Ov* component. The sum of (*maxVccs* + *maxVpcs* + (*maxVpts* * 3) + 1) across all unspared *AtmIf*s linked to an *Lp* must not exceed the value of the *connectionPoolCapacity* attribute of the *Lp Eng Arc Ov* component. Note that 3 connections are used for every standard *Vpt* and 2 for each basic *Vpt*. If the *Lp Eng Arc Ov* component is not provisioned, the default values of the *connectionPoolCapacity* and *protectedConnectionPoolCapacity* attributes are used as the limit.

A value of ***autoConfigure*** means an appropriate value is selected based on the card type. For ***2pSTM1eCh***, and MSA32 cards, the value is ***100***. For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, ***16pOC3SmIrAtm***, and ***16pOC3PosAtm*** cards, the value is ***127***. For all other cards, the value is ***255***.

Values: Decimal (0..16384)
autoConfigure

Default: autoConfigure

## ATTRIBUTE AtmIf CA minMulticastBranches (minMcast)

Access: Read and write

Criticality: Process

Description: This attribute specifies the guaranteed number of switched multicast branches that can be activated on this *AtmIf*, including those activated beneath a *Vpt*.

For all spared *AtmIfs* linked to an *Lp*, the number of *minMulticastBranches* plus the number of branches consumed by all *Msrcs* plus the number of provisioned branches listed in the *nextHop* attribute of all *Mnrps* must not exceed the value of the *protectedMcstBranchesCapacity* attribute of the *Lp Eng Arc Ov* component. For all unspared *AtmIfs* linked to an *Lp*, the number of *minMulticastBranches* plus the number of branches consumed by all *Msrcs* plus the number of provisioned branches listed in the *nextHop* attribute of all *Mnrps* must not exceed the value of the

*multicastBranchesCapacity* attribute of the *Lp Eng Arc Ov* component.

If the value of this attribute is non zero, the *Lp Eng Arc Ov* component must exist and have *multicastBranchesCapacity*, or *protectedMcstBranchesCapacity* set to a value greater than or equal to this attribute.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, the value of the attribute can not exceed ***10752***.

Values — Decimal (0..16384)

Default — 0

## ATTRIBUTE AtmIf CA maxMulticastBranches (maxMcast)

Access — Read and write

Criticality — Process

Description — This attribute specifies the maximum number of provisionable multicast branches that can be activated on this *AtmIf*, including those activated beneath a *Vpt*.

If the value of this attribute is not ***autoConfigure***, it must be greater than or equal to the value of the *minMulticastBranches* attribute of this *AtmIf*.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, the value of this attribute can not exceed ***10752***.

A value of ***autoConfigure*** means an appropriate value is selected based on the card type. For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, the value is ***10752***. For all other cards, the value is ***16384***.

Values — Decimal (1..16384)
autoConfigure

| | |
|---|---|
| Default | autoConfigure |

### ATTRIBUTE AtmIf CA minAutoSelectedVciForVpiZero (minVciVpiZero)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the minimum VCI value which is automatically allocated for a switched *Vcc* with VPI value of zero. A VCI number is automatically allocated when a switched *Vcc* does not request a specific VCI number. This value also applies to switched *Vcc*s created beneath *Vpt/0*. |
| Values | Decimal (0..65535) |
| Default | 32 |

### ATTRIBUTE AtmIf CA minAutoSelectedVciForNonZeroVpi (minVciNonZeroVpi)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the minimum VCI value which is automatically allocated for a switched *Vcc* with a non-zero VPI value. A VCI number is automatically allocated when a switched *Vcc* does not request a specific VCI number. This value also applies to switched *Vcc*s created beneath a *Vpt*. |
| Values | Decimal (5..65535) |
| Default | 32 |

### ATTRIBUTE AtmIf CA maxVpcs (vpcs)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the maximum number of *Vpc*s that can be activated on this *AtmIf*.<br><br>For cards other than ***3pE3Atm***, ***3pDS3Atm***, ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE1Atm***, ***3pDS1Atm***, and ***2pJ6MAtm***, the sum of (*maxVccs* + *maxVpcs* + (*maxVpts* * 3) + 1) across all spared |

*AtmIf*s linked to an *Lp* must not exceed the value of the *protectedConnectionPoolCapacity* attribute of the *Lp Eng Arc Ov* component. The sum of (*maxVccs* + *maxVpcs* + (*maxVpts* * 3) + 1) across all unspared *AtmIf*s linked to an *Lp* must not exceed the value of the *connectionPoolCapacity* attribute of the *Lp Eng Arc Ov* component. Note that 3 connections are used for every standard *Vpt* and 2 for each basic *Vpt*. If the *Lp Eng Arc Ov* component is not provisioned, the default values of the *connectionPoolCapacity* and *protectedConnectionPoolCapacity* attributes are used as the limit.

A value of ***autoConfigure*** means an appropriate value is selected based on the card type. For ***2pSTM1eCh***, ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, ***16pOC3SmIrAtm***, ***16pOC3PosAtm***, and MSA32 cards, the value is ***16***. For all other cards, the value is ***128***.

Values — Decimal (0..4096)
autoConfigure

Default — autoConfigure

## ATTRIBUTE AtmIf CA maxVpts (vpts)

Access — Read and write

Criticality — Process

Description — This attribute specifies the maximum number of *Vpt*s that can be activated on this *AtmIf*.

For cards other than ***3pE3Atm***, ***3pDS3Atm***, ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE1Atm***, ***3pDS1Atm***, and ***2pJ6MAtm***, the sum of (*maxVccs* + *maxVpcs* + (*maxVpts* * 3) + 1) across all spared *AtmIf*s linked to an *Lp* must not exceed the value of the *protectedConnectionPoolCapacity* attribute of the *Lp Eng Arc Ov* component. The sum of (*maxVccs* + *maxVpcs* + (*maxVpts* * 3) + 1) across all unspared *AtmIf*s linked to an *Lp* must not exceed the value of the *connectionPoolCapacity* attribute of the *Lp Eng Arc Ov* component. Note that 3 connections are used for every standard *Vpt* and 2 for each basic *Vpt*. If the *Lp Eng Arc Ov* component is not provisioned, the default values of the *connectionPoolCapacity* and *protectedConnectionPoolCapacity*

attributes are used as the limit.

A value of ***autoConfigure*** means an appropriate value is selected based on the card type. For ***2pSTM1eCh***, ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, ***16pOC3SmIrAtm***, ***16pOC3PosAtm***, and MSA32 cards, the value is ***16***. For ***1pOC48SmSrPos*** cards, the value is ***0***. For all other cards, the value is ***128***.

Values: Decimal (0..4096)
autoConfigure

Default: autoConfigure

### ATTRIBUTE AtmIf CA minAutoSelectedVpi (minVpi)

Access: Read and write

Criticality: Process

Description: This attribute specifies the minimum VPI value which will be automatically allocated for a switched *Vpc*. A VPI number is automatically allocated when a switched *Vpc* does not request a specific VPI number.

Values: Decimal (1..4095)

Default: 1

### ATTRIBUTE AtmIf CA permittedAtmServiceCategories (permitCat)

Access: Read and write

Criticality: Process

Description: This attribute specifies which ATM service categories are permitted on this interface for SVPs, and SVCs. The value of this attribute does not affect control VCCs, such as signaling and ILMI channels. If the value is empty, no non-control SVPs, or SVCs will use this interface. This attribute is ignored for the admission of provisioned VCCs, VPCs, VPTs, S-PVCs, and S-PVPs.

The value of the *permittedAtmServiceCategories* attribute in a

| | |
|---|---|
| | *Vpt CA* overrides this attribute value for all the SVCs under the *Vpt*. |
| Set of | unspecifiedBitRate (ubr)<br>constantBitRate (cbr)<br>rtVariableBitRate (rtVbr)<br>nrtVariableBitRate (nrtVbr) |
| Default | (unspecifiedBitRate, constantBitRate, rtVariableBitRate, nrtVariableBitRate) |

### ATTRIBUTE AtmIf CA maxAutoSelectedVpi (maxVpi)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the maximumVPI value which will be automatically allocated for a switched *Vpc or Vcc*. A VPI number is<br>automatically allocated when a switched *Vpc* or *Vcc* does not request a specific VPI number. |
| Values | Decimal (1..4095) |
| Default | 128 |

### ATTRIBUTE AtmIf CA maxAutoSelectedVciForVpiZero (maxVciVpiZero)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the maximum VCI value which is automatically allocated for a switched *Vcc* with VPI value of zero. A VCI number is automatically allocated when a switched *Vcc* does not request a specific VCI number. This value also applies to switched *Vcc*s created beneath *Vpt/0*. |
| Values | Decimal (0..65535) |
| Default | 767 |

### ATTRIBUTE AtmIf CA maxAutoSelectedVciForNonZeroVpi (maxVciNonZeroVpi)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the maximum VCI value which is automatically allocated for a switched *Vcc* with a non-zero VPI value. A VCI number is automatically allocated when a switched *Vcc* does not request a specific VCI number. This value also applies to switched *Vcc*s created beneath a *Vpt*. |
| Values | Decimal (5..65535) |
| Default | 63 |

### ATTRIBUTE AtmIf CA bandwidthPool (bwPool)

| | |
|---|---|
| Access | Read and write |
| Description | Link capacity is partitioned into five bandwidth pools. This attribute specifies the percentage of link bandwidth that is allowed for each pool. The percentage for each pool ranges from 0% to 12,800%. This allows for both under and over subscription of the link. Under subscription occurs when the sum of the percentages assigned to the five pools is less than 100%. Over subscription occurs when the sum of the percentages for the five pools exceeds 100%. |
| Vector of | Decimal (0..12800) |
| Units | % |
| Index | Decimal (1..5) |
| Default | (100, 0, 0, 0, 0) |

### GROUP AtmIf CA Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational attributes giving statistics about the ATM connections of an ATM interface. |

### ATTRIBUTE AtmIf CA actualMaxVccs (mVccs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the maximum number of *Vcc*s that can be supported on this interface. The value includes both provisioned and dynamic connections. This value is determined from the provisioned attribute *maxVccs*. |
| Values | Decimal (0..16384) |
| Default | No default |

### ATTRIBUTE AtmIf CA permanentVpcs (pVpcs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of permanent *Vpc*s that are currently provisioned on this interface. This count includes *Vpcs* with *Src*, or *Dst* subcomponents. |
| Values | Decimal (0..4096) |
| Default | No default |

### ATTRIBUTE AtmIf CA permanentVpts (pVpts)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of permanent *Vpt*s that are currently provisioned on this interface. |
| Values | Decimal (0..4096) |
| Default | No default |

### ATTRIBUTE AtmIf CA permanentVccs (pVccs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of permanent *Vcc*s that are currently provisioned on this interface. This count includes *Vccs* with *Src*, or *Dst* subcomponents, and permanent *Vpt Vcc*s. |
| Values | Decimal (0..16384) |
| Default | No default |

### ATTRIBUTE AtmIf CA switchedVccs (sVccs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of switched *Vcc*s that are currently active on this interface. This count includes switched *Vpt Vcc*s. |
| Values | Decimal (0..16384) |
| Default | No default |

### ATTRIBUTE AtmIf CA switchedMulticastBranches (sMcastBranches)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of multicast branches used in switched *Vcc*s, including *Vpt Vcc*s, that are currently active on this interface.<br><br>The sum of this attribute for all *AtmIf* components linked to an *Lp* added to the sum of the *permanentMulticastBranches* attribute for all *AtmIf* components linked to the same *Lp* gives the value of the *multiCastBranchesUsage* attribute in the *Lp Eng Arc* component. |
| Values | Decimal (0..10752) |
| Default | No default |

### ATTRIBUTE AtmIf CA permanentMulticastBranches (pMcastBranches)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of multicast branches used in permanent *Vccs* and *Vpcs* that are currently active on this interface.<br><br>The sum of this attribute for all *AtmIf* components linked to an *Lp* added to the sum of *switchedMulticastBranches* attribute for all *AtmIf* components linked to the same *Lp* gives the value of the *multiCastBranchesUsage* attribute in the *Lp Eng Arc* component. |
| Values | Decimal (0..10752) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE AtmIf CA troubledVpcs (trVpcs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of troubled *Vpc*s on this interface. A *Vpc* is “troubled” if its operational *troubled* attribute has the value ***yes***. |
| Values | Decimal (0..4096) |
| Default | No default |

### ATTRIBUTE AtmIf CA troubledVpts (trVpts)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of troubled *Vpt*s on this interface. A *Vpt* is “troubled” if its operational *troubled* attribute has the value ***yes***. |
| Values | Decimal (0..4096) |
| Default | No default |

### ATTRIBUTE AtmIf CA troubledVccs (trVccs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of troubled *Vcc*s on this interface. A *Vcc* is “troubled” if its operational *troubled* attribute has the value ***yes***. |
| Values | Decimal (0..16384) |
| Default | No default |

### ATTRIBUTE AtmIf CA connectionPoolUsage (connUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of allocated *Vcc*s, *Vpc*s, and *Vpt*s for this *AtmIf*.<br><br>Each *Vcc*, or *Vpc* is counted as 1 connection. Each basic *Vpt* is counted as 2 connections, and each standard *Vpt* is counted as 3 |

connections.

Each connection appropriately reduces the number of connections indicated in the *Lp Eng Arc connectionPoolAvailable*, or *protectedConnectionPoolAvailable* attributes, and increases the number of connections indicated in *Arc connectionPoolUsage*, or *protectedConnectionPoolUsage* attributes.

Values: Decimal (0..16384)

Default: No default

### ATTRIBUTE AtmIf CA switchedVpcs (sVpcs)

Access: Read only

Description: This attribute indicates the number of switched *Vpc*s that are currently active on this interface.

Values: Decimal (0..4095)

Default: No default

### ATTRIBUTE AtmIf CA actualMaxVpcs (mVpcs)

Access: Read only

Description: This attribute indicates the maximum number of *Vpc*s that can be supported on this interface. The value includes both provisioned and dynamic connections. This value is determined from the provisioned attribute *maxVpcs*.

Values: Decimal (0..4096)

Default: No default

### ATTRIBUTE AtmIf CA actualMaxVpts (mVpts)

Access: Read only

Description: This attribute indicates the maximum number of *Vpt*s that can be supported on this interface. This value is determined from the provisioned attribute *maxVpts*.

Values: Decimal (0..4096)

| | |
|---|---|
| Default | No default |

### ATTRIBUTE AtmIf CA poolRequestedBandwidth (poolRequBw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total requested bandwidth from the bandwidth pool (including ATM networking signaling connections, but excluding connections managed by a *Vpt CA*). The value of this attribute is the sum of the equivalent cell rate (ECR) for connections which are admitted, and for connections which are requesting admission but have not yet been admitted. |
| Vector of | Decimal (0..2147483647) |
| Units | cell/s |
| Index | Decimal (1..5) |
| Default | No default |

### ATTRIBUTE AtmIf CA poolAdmittedBandwidth (poolAdmitBw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total admitted bandwidth from the bandwidth pool (including ATM networking signaling connections, but excluding connections managed by a *Vpt CA*). The value of this attribute is the sum of the equivalent cell rate (ECR) of the admitted connections. |
| Vector of | Decimal (0..2147483647) |
| Units | cell/s |
| Index | Decimal (1..5) |
| Default | No default |

### ATTRIBUTE AtmIf CA poolProvisionedBandwidth (poolProvBw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total bandwidth from the bandwidth pool that is specified by provisioned connections (excluding connections managed by a *Vpt CA*). The value of this attribute is |

| | |
|---|---|
| | the sum of the equivalent cell rate (ECR) of the provisioned connections. Provisioned connections include provisioned *Vcc*s, *Vpc*s, *Vpt*s, *Vpt Vcc*s, and *Vcc*s, or *Vpc*s with a *Src*, or *Dst* component. |
| Vector of | Decimal (0..2147483647) |
| Units | cell/s |
| Index | Decimal (1..5) |
| Default | No default |

### ATTRIBUTE AtmIf CA poolWaitAdmitConnections (poolWaitAdmConns)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of connections which have requested admission in the bandwidth pool but are not yet admitted (excluding ATM networking signaling connections, and connections managed by a *Vpt CA*). |
| Vector of | Decimal (0..16384) |
| Index | Decimal (1..5) |
| Default | No default |

### ATTRIBUTE AtmIf CA poolAdmittedConnections (poolAdmConns)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of connections which are currently admitted in the bandwidth pool (including ATM networking signaling connections, but excluding connections managed by a *Vpt CA*). |
| Vector of | Decimal (0..16384) |
| Index | Decimal (1..5) |
| Default | No default |

### ATTRIBUTE AtmIf CA poolAvailableBandwidth (poolAvailBw)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the total available bandwidth in the bandwidth pool. A positive value indicates that there is still bandwidth available in the pool which has not been allocated. A negative value indicates that some bandwidth-elastic provisioned connections are running in reduced mode, where their allocated bandwidth is below their originally allocated ECR. The negative amount is equal to the sum of the *bwReduction* attribute for all connections (excluding connections managed by a *Vpt CA*). |
| Vector of | Signed (-2147483648..2147483647) |
| Units | cell/s |
| Index | Decimal (1..5) |
| Default | No default |

### GROUP AtmIf CA PmInfo (Pm)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes indicating the total number of connections on the interface with active Cell Loss Ratio (CLR) and Availability Ratio (AR) measurements. |

### ATTRIBUTE AtmIf CA oamFPmConnections (oamFPmConns)

| | |
|---|---|
| Access | Read only |
| Description | On the local interface, this attribute indicates the total number of connections on the interface generating Forward Performance Monitoring (FPM) OAM cells towards a remote interface.<br><br>On the remote interface, this attribute indicates the total number of connections on the interface generating Forward Performance Monitoring (FPM) OAM cells towards a local interface. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE AtmIf CA oamBrPmConnections (oamBrConns)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | On the local interface, this attribute indicates the total number of connections receiving Backward Reporting (BR) OAM cells from a remote interface.<br><br>On the remote interface, this attribute indicates the total number of connections receiving Forward Reporting (FR) OAM cells and generating Backward Reporting (BR) OAM cells towards a local interface. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE AtmIf CA oamCcConnections (oamCcConns)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of connections receiving OAM Continuity Check (CC) cells on the interface. |
| Values | Decimal (0..255) |
| Default | No default |

### COMPONENT AtmIf CA ConstantBitRate (Cbr)

| | |
|---|---|
| Instance | Decimal (0) |
| Groups | "GROUP AtmIf CA Cbr Provisioned (Prov)"<br>"GROUP AtmIf CA Cbr Operational (Oper)" |
| Scope | Device |
| Description | *AtmIf/n CA ConstantBitRate/n*<br>This component manages the default characteristics of the constant bit rate (CBR) service category. |
| Common Verbs | Help<br>List<br>Display<br>Add |

### GROUP AtmIf CA Cbr Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |

| | |
|---|---|
| Description | This group contains provisioned attributes which control the CBR service category for this interface. |

### ATTRIBUTE AtmIf CA Cbr pool

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the bandwidth pool which is to be used to support the constant bit rate (CBR) service category (excluding connections managed by a *Vpt CA*). The percentage of link capacity reserved for the given bandwidth pool is the maximum bandwidth that can be allocated to CBR traffic. The percentage allocated to each bandwidth pool can be provisioned through the *bandwidthPool* attribute of the *CA* component. |
| Values | pool1<br>pool2<br>pool3<br>pool4<br>pool5 |
| Default | pool1 |

### ATTRIBUTE AtmIf CA Cbr cdvt

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the default cell delay variation tolerance (CDVT) for all connections of the CBR service category (excluding connections managed by a *Vpt CA*). An override to this default may be specified for a provisioned connection under the *Vcd Tm* or *Vpd Tm* component.<br><br>This attribute is used by the Connection Admission Control (CAC) algorithm to compute the equivalent cell rate (ECR) required by a given CBR connection. The larger the value of CDVT, the larger is its ECR.<br><br>If Usage Parameter Control (UPC) is enabled for a connection, CDVT is used by the UPC function to decide whether a cell is |

conforming or non-conforming based on the connection's traffic descriptor type. The larger the CDVT value, the more tolerant is the UPC of bandwidth usage beyond the traffic contract.

Values: Decimal (1..10000)

Units: microsec

Default: 250

### ATTRIBUTE AtmIf CA Cbr cdv

Access: Read and write

Description: This attribute specifies the peak-to-peak cell delay variation (CDV) which is contributed to the entire ATM Interface for CBR traffic (excluding connections managed by a *Vpt CA*).

The CDV is a measure of the delay jitter introduced mostly by traffic buffering and cell scheduling. The worst case value of this attribute can be computed as the value of the *txQueueLimit* attribute divided by the link rate of this ATM Interface.

This attribute is used by PNNI in the Resource Availability Information Group (RAIG) topology updates and route selection. It is also used by CAC at connection set-up time to determine whether this ATM Interface can meet the CDV requirement for that connection. If so, the value of this attribute is added to the cumulative CDV field of the extended QoS information element.

Values: Decimal (0..16777215)

Units: microsec

Default: 250

### ATTRIBUTE AtmIf CA Cbr maxCtd

Access: Read and write

Description: This attribute specifies the maximum cell transfer delay (MaxCTD) which is applied to the entire ATM Interface for CBR traffic (excluding connections managed by a *Vpt CA*).

MaxCTD is the sum of the fixed delay and the CDV. The

components of the fixed delay include propagation delay through the physical media, delays induced by the transmission system and fixed components of switch processing delay.

This attribute is used by PNNI in the Resource Availability Information Group (RAIG) topology updates and route selection. It is also used by CAC at connection set-up time to determine whether this ATM Interface can meet the ATM connection's MaxCTD requirement.

| | |
|---|---|
| Values | Decimal (0..16777215) |
| Units | microsec |
| Default | 1000 |

### ATTRIBUTE AtmIf CA Cbr cellLossRatio (clr)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the tolerable cell loss ratio (CLR) for CBR traffic (excluding connections managed by a *Vpt CA*). The value specified is the negative base 10 logarithm of the CLR. For example, if the target CLR = 1E-10 then the value of the *cellLossRatio* attribute is ***10***. The value of this attribute must be the same as the value of the *RtVbr cellLossRatio* attribute since CBR and rt-VBR traffic have the same discard priority.<br><br>This attribute is used by the Connection Admission Control (CAC) algorithm to compute the equivalent cell rate (ECR) required for CBR connections.<br><br>There is a trade-off between the service category CLR and the achievable link utilization. To guarantee an excellent service category, the CLR should be as small as possible (for example, 1E-10). However, a smaller CLR results in a larger equivalent cell rate for a given connection and hence a lower link utilization.<br><br>A value of ***anyClrValue*** means that no bandwidth is reserved for CBR connections, and CAC is effectively turned off. All CBR connections are admitted. |

| | |
|---|---|
| Values | Decimal (1..15)<br>anyClrValue |
| Default | 10 |

### ATTRIBUTE AtmIf CA Cbr txQueueLimit (txql)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the default maximum queue length for the emission queues used to buffer the traffic of the CBR service category. It is used as the basis for setting both the queue length and the discard thresholds on both common and per-VC queues.<br><br>For the common queue, the discard thresholds are set at approximately 35, 75, and 90 percent of the value of this attribute for traffic at discard priority 3 (DP=3), DP=2 and DP=1 respectively. For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, common queuing is not available for the CBR service category.<br><br>For a per-VC queue, the actual queue length may be reduced depending on the shaping rate of the connection (for standard *Vpt Vccs*, this is the shaping rate of the *Vpt*). The discard thresholds are set at approximately 35, 75 and 90 percent of the scaled queue limit for traffic at discard priority 3 (DP=3), DP=2 and DP=1 respectively. However, a reduction will never result in a value that is less than the value of the *minPerVcQueueLimit* attribute. The per-VC queue limit may be overridden for a provisioned connection by specifying a value in the *Vcd Tm* or *Vpd Tm txQueueLimit* attribute. For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm***, ***1pOC12SmLrAtm***, ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, per-VC queues are not available for the CBR service category.<br><br>For ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, this attribute is used to set the maximum size of the link-class queue for buffering the egress traffic of the CBR service category. This is similar to common queuing, except that each CBR connection |

maintains a per-VC utilization limit of the common queue specified for a provisioned connection by the *Vcd Tm* or *Vpd Tm txQueueLimit* attribute.

A value of ***autoConfigure*** means an appropriate value is selected based on the card type. For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm***, ***2pOC3MmAtm2***, ***2pOC3SmAtm2***, ***2pSTM1eAtm***, ***2pSTM1eCh***, ***4pOC3MmAtm***, ***4pOC3SmIrAtm***, ***4pDS3ChAtm***, ***3pDS3Atm2***, ***3pE3Atm2***, ***12pDS3Atm***, ***12pE3Atm***, MSA32, ***16pOC3SmIrAtm***, and ***16pOC3PosAtm*** cards the value is ***96***. For ***1pOC12SmLrAtm*** cards, the value is ***350***. For ***4pOC12SmIrAtm***, and ***4pOC12SmLrAtm*** cards, the value is ***384***. For ***1pOC48ChSmIrAtm*** cards, the value is ***2176.*** For ***1pOC48SmSrPos*** cards, only the default value of ***autoConfigure*** is supported and the value is ***1088***.

The operational value of the maximum length of a queue (common or per-VC) is indicated by the *Vcc Tm*, *Vpc Tm*, or *Vpt Tm txQueueThresholds* attribute.

For standard *Vpt*s, this attribute only applies when using common queuing. When using per-VC queuing, regardless of the *Vpt's* service category, standard *Vpt*s use the *AtmIf CA NrtVbr txQueueLimit* attribute value as their default.

This attribute does not apply to basic *Vpts*.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards the valid range for this attribute is from ***5*** to ***30000*** inclusive.

For ***2pOC3MmAtm2***, ***2pOC3SmAtm2***, ***2pSTM1eAtm***, ***2pSTM1eCh***, ***4pOC3MmAtm***, ***4pOC3SmIrAtm***, ***4pDS3ChAtm***, ***3pDS3Atm2***, ***3pE3Atm2***, ***12pDS3Atm***, ***12pE3Atm***, MSA32, ***1pOC12SmLrAtm***, ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, the valid range for this attribute is from ***5*** to ***63488*** inclusive.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm***

cards, the valid range for this attribute is from ***5*** to ***512000*** inclusive.

For ***16pOC3PosAtm*** cards, the valid range for this attribute is from ***32*** to ***261120*** inclusive.

Values: Decimal (5..512000)
autoConfigure

Units: cells

Default: autoConfigure

### ATTRIBUTE AtmIf CA Cbr holdingPriority (hpri)

Access: Read and write

Criticality: Process

Description: This attribute specifies the default holding priority which applies to SVP and SVC CBR connections. It takes a value from 0 (highest priority) to 4 (lowest priority). In a situation where the link bandwidth fluctuates, such as over an IMA link, holding priority is used to determine which connections are held and which are released. Holding priority 4 connections are the first to be released. Holding priority 0 connections are the last to be released.

This attribute does not apply to *Vpt Vcc*s. When bandwidth fluctuates, the entire *Vpt*, along with all *Vpt Vcc*s is released as a unit, according to the *Vpt*'s *holdingPriority*.

Values:
0
1
2
3
4

Default: 3

### ATTRIBUTE AtmIf CA Cbr svcMpHoldingPriority (svcMpHpri)

Access: Read and write

Criticality: Process

Description

This attribute specifies the default holding priority which applies to SVC CBR point-to-multipoint connections. It takes a value from 0 (highest priority) to 4 (lowest priority). In a situation where the link bandwidth fluctuates, such as over an IMA link, holding priority is used to determine which connections are held and which are released. Holding priority 4 connections are the first to be released. Holding priority 0 connections are the last to be released.

This attribute does not apply to *Vpt Vcc*s. When bandwidth fluctuates, the entire *Vpt*, along with all *Vpt Vcc*s is released as a unit, according to the *Vpt*'s *holdingPriority*.

Values

0
1
2
3
4

Default

3

## ATTRIBUTE AtmIf CA Cbr minPerVcQueueLimit (minpervcql)

Access

Read and write

Criticality

Process

Description

This attribute specifies the minimum queue limit for the per-VC queues of connections of the CBR service category.

This attribute is ignored for ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm***, and ***1pOC12SmLrAtm***, cards, because they do not support per-VC queues for the CBR service category.

The queue limit of a per-VC queue is obtained by scaling down the *txQueueLimit* attribute based on the shaping rate of that queue (shaping rate for the connection and for standard *Vpt Vcc*s, the shaping rate of the *Vpt*). This produces a constant delay for various queue lengths. The value of the *txQueueLimit* attribute provides an upper bound while the value of the *minPerVcQueueLimit* attribute provides the lower bound.

The value of this attribute must not be greater than the value of the *txQueueLimit* attribute. If this service category is used by Trunks, the value of the *minPerVcQueueLimit* attribute must be at least ***88***.

For *Vpt*s, this attribute does not apply. Regardless of the *Vpt* service category, standard *Vpt*s always use the *AtmIf CA NrtVbr minPerVcQueueLimit* value as their default. To determine the queue limit of a standard *Vpt Vcc*, the *txQueueLimit* attribute is scaled down by the *Vpt* shaping rate.

For ***2pOC3MmAtm2***, ***2pOC3SmAtm2***, ***2pSTM1eAtm***, ***2pSTM1eCh***, ***4pOC3MmAtm***, ***4pOC3SmIrAtm***, ***4pDS3ChAtm***, ***3pDS3Atm2***, ***3pE3Atm2***, ***12pDS3Atm***, ***12pE3Atm***, MSA32, ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, the valid range for this attribute is from ***5*** to ***63488*** inclusive.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, the valid range for this attribute is from ***36*** to ***512000*** inclusive.

For ***16pOC3PosAtm*** cards, the valid range for this attribute is from ***32*** to ***261120*** inclusive.

| | |
|---|---|
| Values | Decimal (5..512000) |
| Units | cells |
| Default | 88 |

### ATTRIBUTE AtmIf CA Cbr perVcQueueLimitReferenceRate (refrate)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the shaping rate to be used in computing the tolerable delay for per-VC queues of connections of the CBR service category. The delay is computed as the *txQueueLimit* divided by the value of this attribute.<br><br>This attribute is ignored for ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, |

***8pDS1Atm***, ***2pJ6MAtm***, ***1pOC12SmLrAtm***, ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, because they do not support traffic shaping for the CBR service category.

A value of ***autoConfigure*** means an appropriate value is selected based on the card type. For ***3pDS3Atm2***, ***3pE3Atm2***, ***12pDS3Atm***, ***12pE3Atm***, ***2pOC3MmAtm2***, ***2pOC3SmAtm2***, ***2pSTM1eAtm***, ***4pOC3MmAtm***, ***4pOC3SmIrAtm***, ***16pOC3SmIrAtm***, and ***16pOC3PosAtm*** cards the value is ***65511***. For ***2pSTM1eCh***, and ***4pDS3ChAtm*** cards, the value is ***3685***. For MSA32 cards, the value is ***65511*** for OC-3 channels, and ***3685*** for DS1, or E1 channels. For ***4pOC12SmIrAtm***, and ***4pOC12SmLrAtm*** cards, the value is ***262044***.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards the maximum value is ***1416905***. For ***16pOC3PosAtm*** cards, the maximum value is ***353207***. For all other cards, the maximum value is ***943396***.

For *Vpt*s, this attribute does not apply. Regardless of the *Vpt* service category, standard *Vpt*s always use the *AtmIf CA NrtVbr perVcQueueLimitReferenceRate* attribute value as their default.

| | |
|---|---|
| Values | Decimal (1..1416905)<br>autoConfigure |
| Units | cell/s |
| Default | autoConfigure |

## ATTRIBUTE AtmIf CA Cbr emissionPriority (ep)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the emission priority (EP) which is used to transmit traffic of the CBR service category. A lower numerical value for this attribute specifies a higher emission priority. 0 is the highest EP and 7 is the lowest. Cells at a higher emission priority receive higher preference for link bandwidth.<br><br>EP 0 and EP 1 are in the absolute priority range and are |

unaffected by any minimum bandwidth guarantees. EP 2 through EP 7 are in the guaranteed bandwidth range and may achieve a priority which is different from the strict hierarchical priority, if a minimum bandwidth guarantee is provisioned. A minimum bandwidth guarantee is specified in the *AtmIf*/n *Ep*/m component.

This attribute does not apply to basic *Vpts*, or standard *Vpt Vcc*s.

This attribute is not applicable and is ignored for ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards.

For ***2pOC3MmAtm2***, ***2pOC3SmAtm2***, ***2pSTM1eAtm***, ***2pSTM1eCh***, ***4pOC3MmAtm***, ***4pOC3SmIrAtm***, ***4pDS3ChAtm***, ***3pDS3Atm2***, ***3pE3Atm2***, ***12pDS3Atm***, ***12pE3Atm***, MSA32, and ***1pOC12SmLrAtm*** cards, emission priority setting must comply with all of the following constraints:
1. The emission priority numbers must be in the following order: CBR <= rt-VBR <= nrt-VBR <= ABR <= UBR
2. Two different ATM service categories may share the same EP only if they are both shaped.
3. CBR and rt-VBR may be placed either in the absolute priority range (EP 0 or 1) or in the guaranteed bandwidth range (EP 2 through 7).
4. If both CBR and rt-VBR are shaped, rt-VBR must share the same EP with CBR or ABR. If either one of CBR or rt-VBR are not shaped, then they cannot share the same EP.
5. ABR service category is always deemed to be shaped. If nrt-VBR is shaped, it must share the same EP with ABR. If nrt-VBR is not shaped it must have a higher EP than ABR.
6. If UBR is shaped, it must share the same EP with ABR. If UBR is not shaped, it must have a lower EP than ABR.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, emission priority setting must comply with all of the following constraints:
1. The emission priority numbers must be in the following order: CBR <= rt-VBR <= nrt-VBR <= UBR
2. Two different ATM service categories may share the same EP only if they are both shaped.
3. EP 0 must be used if traffic shaping is required.

4. EP 5 and EP 6 are not supported.

For ***16pOC3PosAtm*** cards, emission priority setting must comply with all of the following constraints:
1. The emission priority numbers must be in the following order: CBR <= rt-VBR <= nrt-VBR <= UBR
2. Two different ATM service categories may share the same EP only if they are both shaped.

For ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, only the default value is supported.

Values: Decimal (0..7)

Default: 0

### ATTRIBUTE AtmIf CA Cbr trafficShaping (trShaping)

Access: Read and write

Criticality: Process

Description: This attribute specifies the default traffic shaping option for connections of the CBR service category. An override to this default may be specified for a provisioned connection under the *Vcd Tm* or *Vpd Tm* component.

This attribute does not apply to basic *Vpts*, or standard *Vpt Vcc*s.

A value of ***disabled*** means traffic shaping cannot be enabled for any CBR connections.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm***, ***1pOC12SmLrAtm***, ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, the value of this attribute must be ***disabled*** since traffic shaping is not supported for CBR connections on these cards.

If the *Vcc Tm*, *Vpc Tm*, or *Vpt Tm*, *txTrafficDescType* attribute indicates type 1 or 2, this attribute is ignored and traffic shaping is not applicable for that connection.

A value of ***inverseUpc*** means traffic shaping for a connection is

enabled according to the value of the *Vcc Tm, Vpc Tm,* or *Vpt Tm txTrafficDescType* attribute.

A value of ***inverseUpc*** when the *txTrafficDescType* is 3, 4, or 5, means linear traffic shaping is enabled. Linear traffic shaping uses a single static traffic shaping rate.

A value of ***inverseUpc*** when the *txTrafficDescType* is 6, 7, or 8, means inverse-UPC (also referred to as VBR or dual leaky bucket) traffic shaping is enabled. Inverse-UPC traffic shaping can burst above the sustained cell rate to the peak cell rate for the duration defined by the maximum burst size. Inverse-UPC traffic shaping exactly conforms to the requirements of a dual leaky bucket UPC enforcer.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, the value ***inverseUpc*** is not available.

A value of ***enabled*** when the *txTrafficDescType* is 3, 4, 5, 6, 7, or 8, means linear traffic shaping is enabled.

Enabling or disabling traffic shaping may require a matching change to the *emissionPriority* attribute and the *unshapedTransmitQueueing* attribute for this service category. Refer to those attributes for the complete description of the interactions.

Values: enabled, disabled, inverseUpc

Default: disabled

## ATTRIBUTE AtmIf CA Cbr shapeRecoupPolicy (recoup)

Access: Read and write

Criticality: Process

Description: This attribute specifies the shaping recoup policy for the CBR service category. This is the policy which is used to recoup shaping opportunities which are lost when more than one connection schedules a cell for the same transmit opportunity. In

this case, one connection is scheduled and the cell from the other connection is delayed by one cell time. This attribute affects how the transmit time is calculated for the next cell on the delayed connection. This attribute is ignored if this service category is not shaped.

This attribute does not apply to basic *Vpt*s, or standard *Vpt Vcc*s.

This attribute is not applicable and is ignored for ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards.

When the connection which was delayed schedules the next cell to transmit, it may calculate the time as a difference from either the previous actual cell transmit time, or the time when the previous cell should have been transmitted.

A value of ***maximumEfficiency*** results in each connection trying to recoup or regain any delays in scheduling. The transmit time for the next cell is calculated from the time when the previous cell should originally have been sent. Cell delay variation (CDV) occurs in this case since the cells are sent with less than the shaping delay between them. However, in general the shaper recovers (recoups) lost opportunities and improves efficiency.

A value of ***minimumCdv*** results in connections not trying to recoup or regain any delays in scheduling. The transmit time for the next cell is calculated from the time when the previous cell was actually transmitted. This minimizes CDV, but results in missed cell opportunities.

| | |
|---|---|
| Values | minimumCdv<br>maximumEfficiency |
| Default | minimumCdv |

### ATTRIBUTE AtmIf CA Cbr unshapedTransmitQueueing (unshap)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |

| | |
|---|---|
| Description | This attribute specifies the default queuing option for unshaped connections of the CBR service category. This attribute controls whether common or per-VC queuing is used.<br><br>A value of ***perVc*** means that each connection has its own buffering and queue limits.<br><br>A value of ***common*** means that cells are queued in First In First Out order on a common queue for this service category. The common queue has one set of congestion control levels for all cells enqueued on it.<br><br>If traffic shaping for this service category is specified, the value of this attribute must be ***perVc***.<br><br>This attribute does not apply to basic *Vpt*s and standard *Vpt Vcc*s.<br><br>For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm***, ***1pOC12SmLrAtm***, ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, the value of this attribute must be ***common*** since these cards do not support per-VC queuing for the CBR service category.<br><br>For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards the value of this attribute must be ***perVc*** since these cards do not support common queuing for the CBR service category.<br><br>For ***16pOC3PosAtm*** cards, no more than 32,000 connections on the FP can use per-VC queuing. The remaining connections must use common queuing. The *Lp Eng Arc perVcQueueUsage* attribute indicates the number per-VC queues that are currently in use. |
| Values | perVc<br>common |
| Default | common |

## ATTRIBUTE AtmIf CA Cbr weightPolicy

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the policy which is applied when calculating the fairness weight for unshaped connections of the CBR service category. The fairness weight for a connection determines the relative amount of bandwidth which that connection obtains, compared to other connections in the same service category. Connections with equal weight get equal transmit opportunities. Connections with higher weights get more transmit opportunities compared with connections that have lower weights. An override to this default may be specified for a provisioned connection under the *Vcd Tm* or *Vpd Tm* component.<br><br>The fairness weight for a connection is directly proportional to the value of one of the traffic descriptor parameters for that connection. This attribute specifies which traffic descriptor parameter is used for connections of the CBR service category.<br><br>A value of ***scr*** means the fairness weight is proportional to the transmit sustained cell rate (SCR) of a connection. Connections with a higher SCR have a higher fairness weight. For connections with *txTrafficDescType* 3, which have no SCR, the sustained cell rate is assumed to be equal to the peak cell rate.<br><br>A value of ***pcr*** means the fairness weight is proportional to the transmit peak cell rate (PCR) of a connection. Connections with a higher PCR have a higher fairness weight. Connections with *txTrafficDescType* 1 or 2 get a minimum weight, which is 1.<br><br>A value of ***ecr*** means the fairness weight is proportional to the equivalent cell rate (ECR) of a connection as calculated by connection admission control (CAC). Connections with a higher ECR have a higher fairness weight. Connections with an ECR of 0 get a minimum weight, which is 1.<br><br>The weight of a connection is visible in the *Vcc Tm*, *Vpc Tm*, or *Vpt Tm weight* attribute. |

This attribute does not apply to basic *Vpt*s and standard *Vpt Vcc*s.

This attribute is ignored if the value of the *unshapedTransmitQueueing* attribute is ***common***.

This attribute is not applicable and is ignored for ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm***, ***1pOC12SmLrAtm***, ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards.

Values
scr
pcr
ecr

Default
ecr

## ATTRIBUTE AtmIf CA Cbr forceTagging (tag)

Access
Read and write

Criticality
Process

Description
This attribute specifies the default of whether to force tagging (CLP=1) of all cells for all CBR connections. An override to this default may be specified for a provisioned connection under the *Vcd Tm* or *Vpd Tm* component.

A value of ***enabled*** means CLP is set to 1 for all cells.

A value of ***disabled*** means CLP is unchanged for all cells.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, force tagging applies to cells in the receive direction. For all other cards, force tagging applies to cells in the transmit direction.

This attribute does not apply to any type of *Vpt*.

This attribute is not applicable and is ignored for ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm***, ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards.

| | |
|---|---|
| Values | enabled<br>disabled |
| Default | disabled |

### ATTRIBUTE AtmIf CA Cbr usageParameterControl (upc)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the default usage parameter control (UPC) option for connections of the CBR service category. This attribute is ignored if the *rxTrafficDescriptorType* indicates 1 or 2. An override to this default may be specified for a provisioned connection under the *Vcd Tm* or *Vpd Tm* component.<br><br>A value of ***enforced*** means UPC is enforced for each connection. When UPC is enforced, non-conforming cells are either tagged or discarded depending on the *rxTrafficDescriptorType*.<br><br>A value of ***monitored*** means UPC conformance checking is performed, except, instead of the non-conforming cells being tagged or discarded, they are merely counted in the UPC violations counts and passed on unchanged.<br><br>A value of ***disabled*** means UPC is disabled on the receive path for all CBR connections.<br><br>This attribute does not apply to basic *Vpt*s, or standard *Vpt Vcc*s.<br><br>For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, the value ***monitored*** is not supported. This value has the same effect as ***disabled***.<br><br>For ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, the value of this attribute must be ***disabled***. |
| Values | enforced<br>disabled<br>monitored |

| | |
|---|---|
| Default | disabled |

## GROUP AtmIf CA Cbr Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational attributes for the CBR service category. |

## ATTRIBUTE AtmIf CA Cbr epdOffset (epdO)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Early Packet Discard (EPD) offset which is currently in use for this service category. The EPD offset is used to derive the EPD thresholds for each CC level.<br><br>Any connection under this service category which requires the transmit Packet Wise Discard feature must specify a transmit queue limit which is at least 5.71 times this offset. This ensures that the derived Epd threshold will never be less than 17.5% of the transmit queue limit. If this is not done, txPacketWiseDiscard for the connection will be automatically disabled.<br><br>The value of this EPD offset is specified in the *Lp Eng Arc Aqm Ov* component.<br><br>For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm***, ***1pOC12SmLrAtm***, ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, ***16pOC3SmIrAtm***, ***1pOC48ChSmIrAtm***, ***1pOC48SmSrPos***, and ***16pOC3PosAtm*** cards, this attribute is not available and is filtered from the display. |
| Values | Decimal (0; 5..1024) |
| Units | cells |
| Default | No default |

## COMPONENT AtmIf CA RealTimeVariableBitRate (RtVbr)

| | |
|---|---|
| Instance | Decimal (0) |

| | |
|---|---|
| Groups | "GROUP AtmIf CA RtVbr Provisioned (Prov)"<br>"GROUP AtmIf CA RtVbr Operational (Oper)" |
| Scope | Device |
| Description | *AtmIf/n CA RealTimeVariableBitRate/n*<br>This component manages the default characteristics of the real-time variable bit rate (rt-VBR) service category. |
| Common Verbs | Help<br>List<br>Display<br>Add |

## GROUP AtmIf CA RtVbr Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisioned attributes which control the rt-VBR service category for this interface. |

## ATTRIBUTE AtmIf CA RtVbr pool

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the bandwidth pool which is to be used to support the real-time variable bit rate (rt-VBR) service category (excluding connections managed by a *Vpt CA*). The percentage of link capacity reserved for the given bandwidth pool is the maximum bandwidth that can be allocated to rt-VBR traffic. The percentage allocated to each bandwidth pool can be provisioned through the *bandwidthPool* attribute of the *CA* component. |
| Values | pool1<br>pool2<br>pool3<br>pool4<br>pool5 |
| Default | pool1 |

## ATTRIBUTE AtmIf CA RtVbr cdvt

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the default cell delay variation tolerance (CDVT) for all connections of the rt-VBR service category (including connections managed by a *Vpt CA*). An override to this default may be specified for a provisioned connection under the *Vcd Tm* or *Vpd Tm* component.<br><br>If Usage Parameter Control (UPC) is enabled for a connection, CDVT is used by the UPC function to decide whether a cell is conforming or non-conforming based on the connection's traffic descriptor type. The larger the CDVT value, the more tolerant is the UPC of bandwidth usage beyond the traffic contract. |
| Values | Decimal (1..1200000) |
| Units | microsec |
| Default | 250 |

## ATTRIBUTE AtmIf CA RtVbr cdv

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the peak-to-peak cell delay variation (CDV) which is contributed to the entire ATM Interface for rt-VBR traffic (excluding connections managed by a *Vpt CA*).<br><br>The CDV is a measure of the delay jitter introduced mostly by traffic buffering and cell scheduling. The worst case value of this attribute can be computed as the *txQueueLimit* attribute divided by the link rate of this ATM Interface.<br><br>This attribute is used by PNNI in the Resource Availability Information Group (RAIG) topology updates and route selection. It is also used by CAC at connection set-up time to determine whether this ATM Interface can meet the CDV requirement for that connection. If so, the value of this attribute is added to the cumulative CDV field of the extended QoS information element. |

| | |
|---|---|
| Values | Decimal (0..16777215) |
| Units | microsec |
| Default | 1268 |

### ATTRIBUTE AtmIf CA RtVbr maxCtd

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum cell transfer delay (MaxCTD) which is applied to the entire ATM Interface for rt-VBR traffic (excluding connections managed by a *Vpt CA*).<br><br>MaxCTD is the sum of the fixed delay and the CDV. The components of the fixed delay include propagation delay through the physical media, delays induced by the transmission system and fixed components of switch processing delay.<br><br>This attribute is used by PNNI in the Resource Availability Information Group (RAIG) topology updates and route selection. It is also used by CAC at connection set-up time to determine whether this ATM Interface can meet the ATM connection's MaxCTD requirement. |
| Values | Decimal (0..16777215) |
| Units | microsec |
| Default | 2000 |

### ATTRIBUTE AtmIf CA RtVbr cellLossRatio (clr)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the tolerable cell loss ratio (CLR) for rt-VBR traffic (excluding connections managed by a *Vpt CA*). The value specified is the negative base 10 logarithm of the CLR. For example, if the target CLR = 1E-10 then the value of the *cellLossRatio* attribute is ***10***. The value of this attribute must be the same as the value of the *Cbr cellLossRatio* attribute since CBR and rt-VBR traffic have the same discard priority. The value if this attribute must also be greater than or equal to the value of |

the *NrtVbr cellLossRatio* attribute since rt-VBR traffic has a higher discard priority.

This attribute is used by the Connection Admission Control (CAC) algorithm to compute the equivalent cell rate (ECR) required for rt-VBR connections.

There is a trade-off between the service category CLR and the achievable link utilization. To guarantee an excellent service category, the CLR should be as small as possible (for example, 1E-10). However, a smaller CLR results in a larger equivalent cell rate for a given connection and hence a lower link utilization.

A value of ***anyClrValue*** means that no bandwidth is reserved for rt-VBR connections, and CAC is effectively turned off. All rt-VBR connections are admitted.

Values: Decimal (1..15)
anyClrValue

Default: 10

## ATTRIBUTE AtmIf CA RtVbr txQueueLimit (txql)

Access: Read and write

Criticality: Process

Description: This attribute specifies the default maximum queue length for the emission queues used to buffer the traffic of the rt-VBR service category. It is used as the basis for setting both the queue length and the discard thresholds on both common and per-VC queues.

For the common queue, the discard thresholds are set at approximately 35, 75, and 90 percent of the value of this attribute for traffic at discard priority 3 (DP=3), DP=2, and DP=1 respectively. For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, common queuing is not available for the rt-VBR service category.

For a per-VC queue, the actual queue length may be reduced depending on the shaping rate of the connection (for standard *Vpt Vcc*s, this is the shaping rate of the *Vpt*). The discard thresholds

are set at approximately 35, 75, and 90 percent of the scaled queue limit for traffic at discard priority 3 (DP=3), DP=2, and DP=1, respectively. However, a reduction will never result in a value that is less than the value of the *minPerVcQueueLimit* attribute. The per-VC queue limit may be overridden for a provisioned connection by specifying a value in the *Vcd Tm* or *Vpd Tm txQueueLimit* attribute. For ***1pOC12SmLrAtm***, ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, per-VC queues are not available for the rt-VBR service category.

For ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, this attribute is used to set the maximum size of the link-class queue for buffering the egress traffic of the rt-VBR service category. This is similar to common queuing, except that each rt-VBR connection maintains a per-VC utilization limit of the common queue specified for a provisioned connection by the *Vcd Tm* or *Vpd Tm txQueueLimit* attribute.

A value of ***autoConfigure*** means an appropriate value is selected based on the card type. For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pDS3Atm2***, ***3pE3Atm2***, ***12pDS3Atm***, ***12pE3Atm***, ***2pOC3MmAtm2***, ***2pOC3SmAtm2***, ***2pSTM1eAtm***, ***4pOC3MmAtm***, ***4pOC3SmIrAtm***, and ***16pOC3SmIrAtm*** cards, the value is ***480***. For ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm***, ***2pSTM1eCh***, and ***4pDS3ChAtm*** cards, the value is ***288***. For MSA32 cards, the value is ***480*** for OC-3 channels, and ***288*** for DS1, or E1 channels. For ***16pOC3PosAtm*** cards, the value is ***1280***. For ***1pOC12SmLrAtm*** cards, the value is ***2048***. For ***4pOC12SmIrAtm***, and ***4pOC12SmLrAtm*** cards, the value is ***1920***. For ***1pOC48ChSmIrAtm*** cards, the value is ***12288.*** For ***1pOC48SmSrPos*** cards, only the default value of ***autoConfigure*** is supported and the value is ***6144***.

The operational value of the maximum length of a queue (common or per-VC) is indicated by the *Vcc Tm*, *Vpc Tm*, or *Vpt Tm txQueueThresholds* attribute.

For standard *Vpt*s, this attribute only applies when using common queuing. When using per-VC queuing, regardless of the *Vpt's* service category, standard *Vpt*s use the *AtmIf CA NrtVbr txQueueLimit* attribute value as their default.

This attribute does not apply to basic *Vpts*.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards the valid range for this attribute is from ***5*** to ***30000*** inclusive.

For ***2pOC3MmAtm2***, ***2pOC3SmAtm2***, ***2pSTM1eAtm***, ***2pSTM1eCh***, ***4pOC3MmAtm***, ***4pOC3SmIrAtm***, ***4pDS3ChAtm***, ***3pDS3Atm2***, ***3pE3Atm2***, ***12pDS3Atm***, ***12pE3Atm***, MSA32, ***1pOC12SmLrAtm***, ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, the valid range for this attribute is from ***5*** to ***160000*** inclusive.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, the valid range for this attribute is from ***5*** to ***512000*** inclusive.

For ***16pOC3PosAtm*** cards, the valid range for this attribute is from ***32*** to ***261120*** inclusive.

| | |
|---|---|
| Values | Decimal (5..512000)<br>autoConfigure |
| Units | cells |
| Default | autoConfigure |

## ATTRIBUTE AtmIf CA RtVbr minPerVcQueueLimit (minpervcql)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the minimum queue limit for the per-VC queues of connections of the rt-VBR service category.<br><br>This attribute is ignored for ***1pOC12SmLrAtm*** cards, because they do not support per-VC queues for the rt-VBR service category.<br><br>The queue limit of a per-VC queue is obtained by scaling down |

the *txQueueLimit* attribute based on the shaping rate of that queue (shaping rate for the connection and for standard *Vpt Vcc*s, the shaping rate of the *Vpt*). This produces a constant delay for various queue lengths. The value of the *txQueueLimit* attribute provides an upper bound while the value of the *minPerVcQueueLimit* attribute provides the lower bound.

The value of this attribute must not be greater than the value of the *txQueueLimit* attribute. If this service category is used by Trunks, the value of the *minPerVcQueueLimit* attribute must be at least ***88***.

For *Vpt*s, this attribute does not apply. Regardless of the *Vpt* service category, standard *Vpt*s always use the *AtmIf CA NrtVbr minPerVcQueueLimit* value as their default. To determine the queue limit of a standard *Vpt Vcc*, the *txQueueLimit* attribute is scaled down by the *Vpt* shaping rate.

For ***2pOC3MmAtm2***, ***2pOC3SmAtm2***, ***2pSTM1eAtm***, ***2pSTM1eCh***, ***4pOC3MmAtm***, ***4pOC3SmIrAtm***, ***4pDS3ChAtm***, ***3pDS3Atm2***, ***3pE3Atm2***, ***12pDS3Atm***, ***12pE3Atm***, MSA32, ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, the valid range for this attribute is from ***5*** to ***160000*** inclusive.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, the valid range for this attribute is from ***36*** to ***512000*** inclusive.

For ***16pOC3PosAtm*** cards, the valid range for this attribute is from ***32*** to ***261120*** inclusive.

| | |
|---|---|
| Values | Decimal (5..512000) |
| Units | cells |
| Default | 88 |

### ATTRIBUTE AtmIf CA RtVbr perVcQueueLimitReferenceRate (refrate)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |

| | |
|---|---|
| Description | This attribute specifies the shaping rate to be used in computing the tolerable delay for per-VC queues of connections of the rt-VBR service category. The delay is computed as the *txQueueLimit* divided by the value of this attribute.<br><br>This attribute is ignored for ***1pOC12SmLrAtm***, ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, because they do not support traffic shaping for the rt-VBR service category.<br><br>A value of ***autoConfigure*** means an appropriate value is selected based on the card type. For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pDS3Atm2***, ***3pE3Atm2***, ***12pDS3Atm***, ***12pE3Atm***, ***2pOC3MmAtm2***, ***2pOC3SmAtm2***, ***2pSTM1eAtm***, ***4pOC3MmAtm***, and ***4pOC3SmIrAtm*** cards, the value is ***14740***. For ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm***, ***2pSTM1eCh***, and ***4pDS3ChAtm*** cards, the value is ***3685***. For MSA32 cards, the value is ***14740*** for OC-3 channels, and ***3685*** for DS1, or E1 channels. For ***4pOC12SmIrAtm***, and ***4pOC12SmLrAtm*** cards, the value is ***262044***. For ***16pOC3SmIrAtm*** cards, the value is ***65511***. For ***16pOC3PosAtm*** cards, the value is ***39307***.<br><br>For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards the maximum value is ***1416905***. For ***16pOC3PosAtm*** cards, the maximum value is ***353207***. For all other cards, the maximum value is ***943396***.<br><br>For *Vpt*s, this attribute does not apply. Regardless of the *Vpt* service category, standard *Vpt*s always use the *AtmIf CA NrtVbr perVcQueueLimitReferenceRate* attribute value as their default. |
| Values | Decimal (1..1416905)<br>autoConfigure |
| Units | cell/s |
| Default | autoConfigure |

### ATTRIBUTE AtmIf CA RtVbr holdingPriority (hpri)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |

Description

This attribute specifies the default holding priority which applies to SVP and SVC rt-VBR connections. It takes a value from 0 (highest priority) to 4 (lowest priority). In a situation where the link bandwidth fluctuates, such as over an IMA link, holding priority is used to determine which connections are held and which are released. Holding priority 4 connections are the first to be released. Holding priority 0 connections are the last to be released.

This attribute does not apply to *Vpt Vcc*s. When bandwidth fluctuates, the entire *Vpt*, along with all *Vpt Vcc*s, is released as a unit, according to the *Vpt*'s *holdingPriority*.

Values

0
1
2
3
4

Default

3

### ATTRIBUTE AtmIf CA RtVbr svcMpHoldingPriority (svcMpHpri)

Access

Read and write

Criticality

Process

Description

This attribute specifies the holding priority which applies to SVC rt-VBR point-to-multipoint connections. It takes a value from 0 (highest priority) to 4 (lowest priority). In a situation where the link bandwidth fluctuates, such as over an IMA link, holding priority is used to determine which connections are held and which are released. Holding priority 4 connections are the first to be released. Holding priority 0 connections are the last to be released.

This attribute does not apply to *Vpt Vcc*s. When bandwidth fluctuates, the entire *Vpt*, along with all *Vpt Vcc*s, is released as a unit, according to the *Vpt*'s *holdingPriority*.

Values

0
1
2

| | |
|---|---|
| | 3<br>4 |
| Default | 3 |

### ATTRIBUTE AtmIf CA RtVbr emissionPriority (ep)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the emission priority (EP) which is used to transmit traffic of the rt-VBR service category. A lower numerical value for this attribute specifies a higher emission priority. 0 is the highest EP and 7 is the lowest. Cells at a higher emission priority receive higher preference for link bandwidth.<br><br>EP 0 and EP 1 are in the absolute priority range and are unaffected by any minimum bandwidth guarantees. EP 2 through EP 7 are in the guaranteed bandwidth range and may achieve a priority which is different from the strict hierarchical priority, if a minimum bandwidth guarantee is provisioned. A minimum bandwidth guarantee is specified in the *AtmIf*/n *Ep*/m component.<br><br>This attribute does not apply to basic *Vpt*s, or standard *Vpt Vcc*s.<br><br>This attribute is not applicable and is ignored for ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards.<br><br>For ***2pOC3MmAtm2***, ***2pOC3SmAtm2***, ***2pSTM1eAtm***, ***2pSTM1eCh***, ***4pOC3MmAtm***, ***4pOC3SmIrAtm***, ***4pDS3ChAtm***, ***3pDS3Atm2***, ***3pE3Atm2***, ***12pDS3Atm***, ***12pE3Atm***, MSA32, and ***1pOC12SmLrAtm*** cards, emission priority setting must comply with all of the following constraints:<br>1. The emission priority numbers must be in the following order: CBR <= rt-VBR <= nrt-VBR <= ABR <= UBR<br>2. Two different ATM service categories may share the same EP only if they are both shaped.<br>3. CBR and rt-VBR may be placed either in the absolute priority range (EP 0 or 1) or in the guaranteed bandwidth range (EP 2 through 7). |

4. If both CBR and rt-VBR are shaped, rt-VBR must share the same EP with CBR or ABR. If either one of CBR or rt-VBR are not shaped, then they cannot share the same EP.
5. ABR service category is always deemed to be shaped. If nrt-VBR is shaped, it must share the same EP with ABR. If nrt-VBR is not shaped it must have a higher EP than ABR.
6. If UBR is shaped, it must share the same EP with ABR. If UBR is not shaped, it must have a lower EP than ABR.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, emission priority setting must comply with all of the following constraints:
1. The emission priority numbers must be in the following order: CBR <= rt-VBR <= nrt-VBR <= UBR
2. Two different ATM service categories may share the same EP only if they are both shaped.
3. EP 0 must be used if traffic shaping is required.
4. EP 5 and EP 6 are not supported.

For ***16pOC3PosAtm*** cards, emission priority setting must comply with all of the following constraints:
1. The emission priority numbers must be in the following order: CBR <= rt-VBR <= nrt-VBR <= UBR
2. Two different ATM service categories may share the same EP only if they are both shaped.

For ***1pOC48ChSmIrAtm,*** and ***1pOC48SmSrPos*** cards, only the default value is supported. For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm, 16pOC3SmIrAtm***, and ***1pOC48SmSrPos*** cards the default value is ***2***.

| | |
|---|---|
| Values | Decimal (0..7) |
| Default | 1 |

### ATTRIBUTE AtmIf CA RtVbr trafficShaping (trShaping)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the default traffic shaping option for connections of the rt-VBR service category. An override to this |

default may be specified for a provisioned connection under the *Vcd Tm* or *Vpd Tm* component.

This attribute does not apply to basic *Vpts*, or standard *Vpt Vcc*s.

A value of ***disabled*** means traffic shaping cannot be enabled for any rt-VBR connections.

For ***1pOC12SmLrAtm***, ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, the value of this attribute must be ***disabled*** since traffic shaping is not supported for rt-VBR connections on these cards.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, the value of this attribute may be ***enabled*** only if the interface supports shaping, as defined by the *perVcQueueInterfaces* attribute of the *Lp Eng Arc Cqc Ov* component. If that component does not exist, the value of this attribute must be ***disabled***.

If the *Vcc Tm, Vpc Tm,* or *Vpt Tm, txTrafficDescType* attribute indicates type 1 or 2, this attribute is ignored and traffic shaping is not applicable for that connection.

A value of ***inverseUpc*** means traffic shaping for a connection is enabled according to the value of the *Vcc Tm, Vpc Tm,* or *Vpt Tm txTrafficDescType* attribute.

A value of ***inverseUpc*** when the *txTrafficDescType* is 3, 4, or 5, means linear traffic shaping is enabled. Linear traffic shaping uses a single static traffic shaping rate.

A value of ***inverseUpc*** when the *txTrafficDescType* is 6, 7, or 8, means inverse-UPC (also referred to as VBR or dual leaky bucket) traffic shaping is enabled. Inverse-UPC traffic shaping can burst above the sustained cell rate to the peak cell rate for the duration defined by the maximum burst size. Inverse-UPC traffic shaping exactly conforms to the requirements of a dual leaky bucket UPC enforcer.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, the value ***inverseUpc*** is not available.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, the value ***inverseUpc*** is not supported and is equivalent to the value ***enabled***.

A value of ***enabled*** when the *txTrafficDescType* is 3, 4, 5, 6, 7, or 8, means traffic shaping for a connection is enabled using linear shaping.

Enabling or disabling traffic shaping may require a matching change to the *emissionPriority* attribute, and the *unshapedTransmitQueueing* attribute for this service category. Refer to those attributes for the complete description of the interactions.

Values
enabled
disabled
inverseUpc

Default
disabled

## ATTRIBUTE AtmIf CA RtVbr shapeRecoupPolicy (recoup)

Access
Read and write

Criticality
Process

Description
This attribute specifies the shaping recoup policy for the rt-VBR service category. This is the policy which is used to recoup shaping opportunities which are lost when more than one connection schedules a cell for the same transmit opportunity. In this case, one connection is scheduled and the cell from the other connection is delayed by one cell time. This attribute affects how the transmit time is calculated for the next cell on the delayed connection. This attribute is ignored if this service category is not shaped.

This attribute does not apply to basic *Vpt*s, or standard *Vpt Vcc*s.

This attribute is not applicable and is ignored for

***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards.

When the connection which was delayed schedules the next cell to transmit, it may calculate the time as a difference from either the previous actual cell transmit time, or the time when the previous cell should have been transmitted.

A value of ***maximumEfficiency*** results in each connection trying to recoup or regain any delays in scheduling. The transmit time for the next cell is calculated from the time when the previous cell should originally have been sent. Cell delay variation (CDV) occurs in this case since the cells are sent with less than the shaping delay between them. However, in general the shaper recovers (recoups) lost opportunities and improves efficiency.

A value of ***minimumCdv*** results in connections not trying to recoup or regain any delays in scheduling. The transmit time for the next cell is calculated from the time when the previous cell was actually transmitted. This minimizes CDV, but results in missed cell opportunities.

Values: minimumCdv
maximumEfficiency

Default: minimumCdv

## ATTRIBUTE AtmIf CA RtVbr unshapedTransmitQueueing (unshap)

Access: Read and write

Criticality: Process

Description: This attribute specifies the default queuing option for unshaped connections of the rt-VBR service category. This attribute controls whether common or per-VC queuing is used.

A value of ***perVc*** means that each connection has its own buffering and queue limits.

A value of ***common*** means that cells are queued in First In First Out order on a common queue for this service category. The common queue has one set of congestion control levels for all

cells enqueued on it.

This attribute does not apply to basic *Vpt*s and standard *Vpt Vcc*s.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, if the *perVcQueueInterfaces* attribute of the *Lp Eng Arc Cqc Ov* component permits shaping for this interface, then this attribute may take any of the three values. In this case, the value ***autoConfigure*** is interpreted to mean per-VC queuing. If the *perVcQueueInterfaces* attribute of the *Lp Eng Arc Cqc Ov* component does not permit shaping for this interface, then this attribute may take the values ***common***, or ***autoConfigure***. In this case, the value ***autoConfigure*** is interpreted to mean common queuing. An override to this default may be specified for a provisioned connection under the *Vcd Tm*, or *Vpd Tm* component.

For ***1pOC12SmLrAtm***, ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, the value ***perVc*** is not supported since these cards do not support per-VC queuing. The value ***autoConfigure*** is interpreted to mean common queuing.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, the value ***common*** is not supported since these cards do not support common queuing. The value ***autoConfigure*** is interpreted to mean per-VC queuing.

For ***2pOC3MmAtm2***, ***2pOC3SmAtm2***, ***2pSTM1eAtm***, ***2pSTM1eCh***, ***4pOC3MmAtm***, ***4pOC3SmIrAtm***, ***4pDS3ChAtm***, ***3pDS3Atm2***, ***3pE3Atm2***, ***12pDS3Atm***, ***12pE3Atm***, MSA32, and ***16pOC3PosAtm*** cards, if traffic shaping for this service category is disabled, this attribute may take any of the three values. In this case, the value ***autoConfigure*** is interpreted to mean per-VC queuing. If traffic shaping for this service category is not disabled, the only permitted values are ***perVc*** and ***autoConfigure***. In this case, the value ***autoConfigure*** is interpreted to mean per-VC queuing.

For ***16pOC3PosAtm*** cards, no more than 32,000 connections on the FP can use per-VC queuing. The remaining connections must use common queuing. The *Lp Eng Arc perVcQueueUsage*

attribute indicates the number per-VC queues that are currently in use.

The value of the operational *opUnshapedTransmitQueueing* attribute of this component indicates whether the transmit queuing is ***perVc***, or ***common***.

Values
perVc
common
autoConfigure

Default
autoConfigure

## ATTRIBUTE AtmIf CA RtVbr usageParameterControl (upc)

Access
Read and write

Criticality
Process

Description
This attribute specifies the default usage parameter control (UPC) option for connections of the rt-VBR service category. This attribute is ignored if the *rxTrafficDescriptorType* indicates 1 or 2. An override to this default may be specified for a provisioned connection under the *Vcd Tm* or *Vpd Tm* component.

A value of ***enforced*** means UPC is enforced for each connection. When UPC is enforced, non-conforming cells are either tagged or discarded depending on the *rxTrafficDescriptorType*.

A value of ***monitored*** means UPC conformance checking is performed, except, instead of the non-conforming cells being tagged or discarded, they are merely counted in the UPC violations counts and passed on unchanged.

A value of ***disabled*** means UPC is disabled on the receive path for all rt-VBR connections.

This attribute does not apply to basic *Vpt*s, or standard *Vpt Vcc*s.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, the value ***monitored*** is not supported. This value has the same effect as ***disabled***.

For ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, the value of this attribute must be ***disabled***.

Values
enforced
disabled
monitored

Default
disabled

## ATTRIBUTE AtmIf CA RtVbr weightPolicy

Access
Read and write

Criticality
Process

Description
This attribute specifies the policy which is applied when calculating the fairness weight for unshaped connections of the rt-VBR service category. The fairness weight for a connection determines the relative amount of bandwidth which that connection obtains, compared to other connections in the same service category. Connections with equal weight get equal transmit opportunities. Connections with higher weights get more transmit opportunities compared with connections that have lower weights. An override to this default may be specified for a provisioned connection under the *Vcd Tm*, or *Vpd Tm* component.

The fairness weight for a connection is directly proportional to the value of one of the traffic descriptor parameters for that connection. This attribute specifies which traffic descriptor parameter is used for connections of the rt-VBR service category.

A value of ***scr*** means the fairness weight is proportional to the transmit sustained cell rate (SCR) of a connection. Connections with a higher SCR have a higher fairness weight. For connections with *txTrafficDescType* 3, which have no SCR, the sustained cell rate is assumed to be equal to the peak cell rate.

A value of ***pcr*** means the fairness weight is proportional to the transmit peak cell rate (PCR) of a connection. Connections with a higher PCR have a higher fairness weight. Connections with *txTrafficDescType* 1 or 2 get a minimum weight, which is 1.

A value of ***ecr*** means the fairness weight is proportional to the equivalent cell rate (ECR) of a connection as calculated by connection admission control (CAC). Connections with a higher ECR have a higher fairness weight. Connections with an ECR of 0 get a minimum weight, which is 1.

The weight of a connection is visible in the *Vcc Tm*, *Vpc Tm*, or *Vpt Tm weight* attribute.

This attribute does not apply to basic *Vpt*s and standard *Vpt Vcc*s.

This attribute is ignored if the value of the *unshapedTransmitQueueing* attribute is ***common***.

This attribute is not applicable and is ignored for ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm***, ***1pOC12SmLrAtm***, ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards.

Values
scr
pcr
ecr

Default
ecr

## ATTRIBUTE AtmIf CA RtVbr forceTagging (tag)

Access
Read and write

Criticality
Process

Description
This attribute specifies the default of whether to force tagging (CLP=1) of all cells for all rt-VBR connections. An override to this default may be specified for a provisioned connection under the *Vcd Tm* or *Vpd Tm* component.

A value of ***enabled*** means CLP is set to 1 for all cells.

A value of ***disabled*** means CLP is unchanged for all cells.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, force tagging applies to cells in the receive direction. For all other cards, force tagging applies to cells in the transmit

direction.

This attribute does not apply to any type of *Vpt*.

This attribute is not applicable and is ignored for ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm***, ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards.

Values
enabled
disabled

Default
disabled

## GROUP AtmIf CA RtVbr Operational (Oper)

Properties
Operational

Description
This group contains operational attributes for the rt-VBR service category.

## ATTRIBUTE AtmIf CA RtVbr opUnshapedTransmitQueueing (opUnshap)

Access
Read only

Description
This attribute indicates the type of transmit queuing for unshaped rt-VBR connections.

A value of ***perVc*** indicates that unshaped connections use per-VC queuing. A value of ***common*** indicates unshaped connections use the common queue for this service category.

For ***1pOC12SmLrAtm***, ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, the value ***common*** is always indicated since these cards do not support per-VC queuing.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, the value ***perVc*** is always indicated since these cards do not support common queuing.

Values
perVc
common

Default
No default

## ATTRIBUTE AtmIf CA RtVbr epdOffset (epdO)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Early Packet Discard (EPD) offset which is currently in use for this service category. The EPD offset is used to derive the EPD thresholds for each CC level.<br><br>Any connection under this service category which requires the transmit Packet Wise Discard feature must specify a transmit queue limit which is at least 5.71 times this offset. This ensures that the derived Epd threshold will never be less than 17.5% of the transmit queue limit. If this is not done, txPacketWiseDiscard for the connection will be automatically disabled.<br><br>The value of this EPD offset is specified in the *Lp Eng Arc Aqm Ov* component.<br><br>For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm***, ***1pOC12SmLrAtm***, ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, ***16pOC3SmIrAtm***, ***1pOC48ChSmIrAtm***, ***1pOC48SmSrPos***, and ***16pOC3PosAtm*** cards, this attribute is not available and is filtered from the display. |
| Values | Decimal (0; 5..1024) |
| Units | cells |
| Default | No default |

## COMPONENT AtmIf CA NonRealTimeVariableBitRate (NrtVbr)

| | |
|---|---|
| Instance | Decimal (0) |
| Groups | "GROUP AtmIf CA NrtVbr Provisioned (Prov)"<br>"GROUP AtmIf CA NrtVbr Operational (Oper)" |
| Scope | Device |

| | |
|---|---|
| Description | *AtmIf/n CA NonRealTimeVariableBitRate/n*<br>This component manages the default characteristics of the non-real-time variable bit rate (nrt-VBR) service category. |
| Common Verbs | Help<br>List<br>Display<br>Add |

## GROUP AtmIf CA NrtVbr Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisioned attributes which control the nrt-VBR service category for this interface. |

## ATTRIBUTE AtmIf CA NrtVbr pool

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the bandwidth pool which is to be used to support the non-real-time variable bit rate (nrt-VBR) service category (excluding connections managed by a *Vpt CA*). The percentage of link capacity reserved for the given bandwidth pool is the maximum bandwidth that can be allocated to nrt-VBR traffic. The percentage allocated to each bandwidth pool can be provisioned through the *bandwidthPool* attribute of the *CA* component. |
| Values | pool1<br>pool2<br>pool3<br>pool4<br>pool5 |
| Default | pool1 |

## ATTRIBUTE AtmIf CA NrtVbr cdvt

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |

| | |
|---|---|
| Description | This attribute specifies the default cell delay variation tolerance (CDVT) for all connections of the nrt-VBR service category (including connections managed by a *Vpt CA*). An override to this default may be specified for a provisioned connection under the *Vcd Tm* or *Vpd Tm* component.<br><br>If Usage Parameter Control (UPC) is enabled for a connection, CDVT is used by the UPC function to decide whether a cell is conforming or non-conforming based on the connection's traffic descriptor type. The larger the CDVT value, the more tolerant is the UPC of bandwidth usage beyond the traffic contract. |
| Values | Decimal (1..1200000) |
| Units | microsec |
| Default | 250 |

### ATTRIBUTE AtmIf CA NrtVbr txQueueLimit (txql)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the default maximum queue length for the emission queues used to buffer the traffic of the nrt-VBR service category. It is used as the basis for setting both the queue length and the discard thresholds on both common and per-VC queues.<br><br>For the common queue, the discard thresholds are set at approximately 35, 75, and 90 percent of the value of this attribute for traffic at discard priority 3 (DP=3), DP=2, and DP=1 respectively. For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, common queuing is not available for the nrt-VBR service category.<br><br>For a per-VC queue, the actual queue length may be reduced depending on the shaping rate of the connection (for standard *Vpt Vcc*s, this is the shaping rate of the *Vpt*). The discard thresholds are set at approximately 35, 75, and 90 percent of the scaled queue limit for traffic at discard priority 3 (DP=3), DP=2, and DP=1 respectively. However, a reduction will never result in a value that is less than the value of the *minPerVcQueueLimit* |

attribute. The per-VC queue limit may be overridden for a permanent connection by specifying a value in the *Vcd Tm* or *Vpd Tm txQueueLimit* attribute. For ***1pOC12SmLrAtm***, ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, per-VC queues are not available for the nrt-VBR service category.

For ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, this attribute is used to set the maximum size of the link-class queue for buffering the egress traffic of the nrt-VBR service category. This is similar to common queuing, except that each nrt-VBR connection maintains a per-VC utilization limit of the common queue specified for a provisioned connection by the *Vcd Tm* or *Vpd Tm txQueueLimit* attribute.

A value of ***autoConfigure*** means an appropriate value is selected based on the card type. For ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm***, ***2pSTM1eCh***, and ***4pDS3ChAtm*** cards, the value is ***1792***. For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, and ***3pDS3Atm*** cards, the value is ***2304***. For ***3pDS3Atm2***, ***3pE3Atm2***, ***12pDS3Atm***, ***12pE3Atm***, ***2pOC3MmAtm2***, ***2pOC3SmAtm2***, ***2pSTM1eAtm***, ***4pOC3MmAtm***, ***4pOC3SmIrAtm***, ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, ***16pOC3SmIrAtm***, and ***16pOC3PosAtm*** cards, the value is ***10240***. For MSA32 cards, the value is ***10240*** for OC-3 channels, and ***1792*** for DS1, or E1 channels. For ***1pOC12SmLrAtm*** cards, the value is ***7680***. For ***1pOC48ChSmIrAtm*** cards, the value is ***118784.*** For ***1pOC48SmSrPos*** cards, only the default value of ***autoConfigure*** is supported and the value is ***59392***.

The operational value of the maximum length of a queue (common or per-VC) is indicated by the *Vcc Tm*, *Vpc Tm*, or *Vpt Tm txQueueThresholds* attribute.

When using per-VC queuing, this attribute is used as the default *txQueueLimit* for all standard *Vpt*s, regardless of the *Vpt's* service category.

This attribute does not apply to basic *Vpts*.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm***

cards, this attribute must be set to the same value for *CA NrtVbr*, *Abr* and *Ubr* components and the valid range is from ***5*** to ***30000*** inclusive.

For ***2pOC3MmAtm2***, ***2pOC3SmAtm2***, ***2pSTM1eAtm***, ***2pSTM1eCh***, ***4pOC3MmAtm***, ***4pOC3SmIrAtm***, ***4pDS3ChAtm***, ***3pDS3Atm2***, ***3pE3Atm2***, ***12pDS3Atm***, ***12pE3Atm***, MSA32, ***1pOC12SmLrAtm***, ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, the valid range for this attribute is from ***5*** to ***160000*** inclusive.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, the valid range for this attribute is from ***5*** to ***512000*** inclusive.

For ***16pOC3PosAtm*** cards, the valid range for this attribute is from ***32*** to ***261120*** inclusive.

| | |
|---|---|
| Values | Decimal (5..512000)<br>autoConfigure |
| Units | cells |
| Default | autoConfigure |

## ATTRIBUTE AtmIf CA NrtVbr minPerVcQueueLimit (minpervcql)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the minimum queue limit for the per-VC queues of connections of the nrt-VBR service category.<br><br>This attribute is ignored for ***1pOC12SmLrAtm*** cards, because they do not support per-VC queues for the nrt-VBR service category.<br><br>The queue limit of a per-VC queue is obtained by scaling down the *txQueueLimit* attribute based on the shaping rate of that queue (shaping rate for the connection and for standard *Vpt Vcc*s, the shaping rate of the *Vpt*). This produces a constant delay for various queue lengths. The value of the *txQueueLimit* attribute |

provides an upper bound while the value of the *minPerVcQueueLimit* attribute provides the lower bound.

The value of this attribute must not be greater than the value of the *txQueueLimit* attribute. If this service category is used by Trunks, the value of the *minPerVcQueueLimit* attribute must be at least ***88***.

This attribute is used as the default *minPerVcQueueLimit* for all standard *Vpt*s, regardless of the *Vpt's* service category.

This attribute does not apply to basic *Vpt*s.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, this attribute must be set to the same value for *CA NrtVbr*, *Abr* and *Ubr* components.

For ***2pOC3MmAtm2***, ***2pOC3SmAtm2***, ***2pSTM1eAtm***, ***2pSTM1eCh***, ***4pOC3MmAtm***, ***4pOC3SmIrAtm***, ***4pDS3ChAtm***, ***3pDS3Atm2***, ***3pE3Atm2***, ***12pDS3Atm***, ***12pE3Atm***, MSA32, ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, the valid range for this attribute is from ***5*** to ***160000*** inclusive.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, the valid range for this attribute is from ***43*** to ***512000*** inclusive.

For ***16pOC3PosAtm*** cards, the valid range for this attribute is from ***32*** to ***261120*** inclusive.

| | |
|---|---|
| Values | Decimal (5..512000) |
| Units | cells |
| Default | 88 |

## ATTRIBUTE AtmIf CA NrtVbr perVcQueueLimitReferenceRate (refrate)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |

Description

This attribute specifies the shaping rate to be used in computing the tolerable delay for per-VC queues of connections of the nrt-VBR service category. The delay is computed as the *txQueueLimit* divided by the value of this attribute.

This attribute is ignored for ***1pOC12SmLrAtm***, ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, because they do not support traffic shaping for the nrt-VBR service category.

A value of ***autoConfigure*** means an appropriate value is selected based on the card type. For ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm***, ***2pSTM1eCh***, and ***4pDS3ChAtm*** cards, the value is ***3685***. For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, and ***3pDS3Atm*** cards, the value is ***14740***. For ***3pDS3Atm2***, ***3pE3Atm2***, ***12pDS3Atm***, ***12pE3Atm***, ***2pOC3MmAtm2***, ***2pOC3SmAtm2***, ***2pSTM1eAtm***, ***4pOC3MmAtm***, ***4pOC3SmIrAtm***, ***16pOC3SmIrAtm***, and ***16pOC3PosAtm*** cards, the value is ***65511***. For MSA32 cards, the value is ***65511*** for OC-3 channels, and ***3685*** for DS1, or E1 channels. For ***4pOC12SmIrAtm***, and ***4pOC12SmLrAtm*** cards, the value is ***262044***.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, this attribute must be set to the same value for *CA NrtVbr*, *Abr*, and *Ubr* components.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards the maximum value is ***1416905***. For ***16pOC3PosAtm*** cards, the maximum value is ***353207***. For all other cards, the maximum value is ***943396***.

This attribute is used as the default *perVcQueueLimitReferenceRate* for all standard *Vpt*s, regardless of the *Vpt's* service category.

This attribute does not apply to basic *Vpt*s.

Values

Decimal (1..1416905)
autoConfigure

| | |
|---|---|
| Units | cell/s |
| Default | autoConfigure |

### ATTRIBUTE AtmIf CA NrtVbr svcMpHoldingPriority (svcMpHpri)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the default holding priority which applies to SVC nrt-VBR point-to-multipoint connections. It takes a value from 0 (highest priority) to 4 (lowest priority). In a situation where the link bandwidth fluctuates, such as over an IMA link, holding priority is used to determine which connections are held and which are released. Holding priority 4 connections are the first to be released. Holding priority 0 connections are the last to be released.<br><br>This attribute does not apply to *Vpt Vcc*s. When bandwidth fluctuates, the entire *Vpt*, along with all *Vpt Vcc*s, is released as a unit, according to the *Vpt*'s *holdingPriority*. |
| Values | 0<br>1<br>2<br>3<br>4 |
| Default | 3 |

### ATTRIBUTE AtmIf CA NrtVbr holdingPriority (hpri)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the default holding priority which applies to SVP and SVC nrt-VBR connections. It takes a value from 0 (highest priority) to 4 (lowest priority). In a situation where the link bandwidth fluctuates, such as over an IMA link, holding priority is used to determine which connections are held and which are released. Holding priority 4 connections are the first to be released. Holding priority 0 connections are the last to be |

released.

This attribute does not apply to *Vpt Vcc*s. When bandwidth fluctuates, the entire *Vpt*, along with all *Vpt Vcc*s, is released as a unit, according to the *Vpt*'s *holdingPriority*.

Values
0
1
2
3
4

Default 3

### ATTRIBUTE AtmIf CA NrtVbr emissionPriority (ep)

Access Read and write

Criticality Process

Description This attribute specifies the emission priority (EP) which is used to transmit traffic of the nrt-VBR service category. A lower numerical value for this attribute specifies a higher emission priority. 0 is the highest EP and 7 is the lowest. Cells at a higher emission priority receive higher preference for link bandwidth.

EP 0 and EP 1 are in the absolute priority range and are unaffected by any minimum bandwidth guarantees. EP 2 through EP 7 are in the guaranteed bandwidth range and may achieve a priority which is different from the strict hierarchical priority, if a minimum bandwidth guarantee is provisioned. A minimum bandwidth guarantee is specified in the *AtmIf*/n *Ep*/m component.

This attribute does not apply to basic *Vpt*s, or standard *Vpt Vcc*s.

This attribute is not applicable and is ignored for ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards.

For ***2pOC3MmAtm2***, ***2pOC3SmAtm2***, ***2pSTM1eAtm***, ***2pSTM1eCh***, ***4pOC3MmAtm***, ***4pOC3SmIrAtm***, ***4pDS3ChAtm***, ***3pDS3Atm2***, ***3pE3Atm2***, ***12pDS3Atm***, ***12pE3Atm***, MSA32, and ***1pOC12SmLrAtm*** cards, emission priority setting must comply

with all of the following constraints:
1. The emission priority numbers must be in the following order: CBR <= rt-VBR <= nrt-VBR <= ABR <= UBR
2. Two different ATM service categories may share the same EP only if they are both shaped.
3. CBR and rt-VBR may be placed either in the absolute priority range (EP 0 or 1) or in the guaranteed bandwidth range (EP 2 through 7).
4. If both CBR and rt-VBR are shaped, rt-VBR must share the same EP with CBR or ABR. If either one of CBR or rt-VBR are not shaped, then they cannot share the same EP.
5. ABR service category is always deemed to be shaped. If nrt-VBR is shaped, it must share the same EP with ABR. If nrt-VBR is not shaped it must have a higher EP than ABR.
6. If UBR is shaped, it must share the same EP with ABR. If UBR is not shaped, it must have a lower EP than ABR.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, emission priority setting must comply with all of the following constraints:
1. The emission priority numbers must be in the following order: CBR <= rt-VBR <= nrt-VBR <= UBR
2. Two different ATM service categories may share the same EP only if they are both shaped.
3. EP 0 must be used if traffic shaping is required.
4. EP 5 and EP 6 are not supported.

For ***16pOC3PosAtm*** cards, emission priority setting must comply with all of the following constraints:
1. The emission priority numbers must be in the following order: CBR <= rt-VBR <= nrt-VBR <= UBR
2. Two different ATM service categories may share the same EP only if they are both shaped.

For ***1pOC48ChSmIrAtm,*** and ***1pOC48SmSrPos*** cards, only the default value is supported.

| | |
|---|---|
| Values | Decimal (0..7) |
| Default | 4 |

## ATTRIBUTE AtmIf CA NrtVbr trafficShaping (trShaping)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the default traffic shaping option for connections of the nrt-VBR service category. An override to this default may be specified for a provisioned connection under the *Vcd Tm* or *Vpd Tm* component.<br><br>This attribute does not apply to basic *Vpts*, or standard *Vpt Vcc*s.<br><br>A value of ***disabled*** means traffic shaping cannot be enabled for any nrt-VBR connections.<br><br>For ***1pOC12SmLrAtm***, ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, the value of this attribute must be ***disabled*** since traffic shaping is not supported for nrt-VBR connections on these cards.<br><br>For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, the value of this attribute may be ***enabled*** only if the interface supports shaping, as defined by the *perVcQueueInterfaces* attribute of the *Lp Eng Arc Cqc Ov* component. If that component does not exist, the value of this attribute must be ***disabled***.<br><br>If the *Vcc Tm, Vpc Tm,* or *Vpt Tm txTrafficDescType* attribute indicates type 1 or 2, this attribute is ignored and traffic shaping is not applicable for that connection.<br><br>A value of ***inverseUpc*** means traffic shaping for a connection is enabled according to the value of the *Vcc Tm, Vpc Tm,* or *Vpt Tm txTrafficDescType* attribute.<br><br>A value of ***inverseUpc*** when the *txTrafficDescType* is 3, 4, or 5, means linear traffic shaping is enabled. Linear traffic shaping uses a single static traffic shaping rate.<br><br>A value of ***inverseUpc*** when the *txTrafficDescType* is 6, 7, or 8, |

means inverse-UPC (also referred to as VBR or dual leaky bucket) traffic shaping is enabled. Inverse-UPC traffic shaping can burst above the sustained cell rate to the peak cell rate for the duration defined by the maximum burst size. Inverse-UPC traffic shaping exactly conforms to the requirements of a dual leaky bucket UPC enforcer.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, the value ***inverseUpc*** is not available.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, the value ***inverseUpc*** is not supported and is equivalent to the value ***enabled***.

A value of ***enabled*** when the *txTrafficDescType* is 3, 4, 5, 6, 7, or 8, means traffic shaping for a connection is enabled using linear shaping.

Enabling or disabling traffic shaping may require a matching change to the *emissionPriority* attribute, and the *unshapedTransmitQueueing* attribute for this service category. Refer to those attributes for the complete description of the interactions.

Values
enabled
disabled
inverseUpc

Default
disabled

## ATTRIBUTE AtmIf CA NrtVbr shapeRecoupPolicy (recoup)

Access
Read and write

Criticality
Process

Description
This attribute specifies the shaping recoup policy for the nrt-VBR service category. This is the policy which is used to recoup shaping opportunities which are lost when more than one connection schedules a cell for the same transmit opportunity. In this case, one connection is scheduled and the cell from the other connection is delayed by one cell time. This attribute affects how

the transmit time is calculated for the next cell on the delayed connection. This attribute is ignored if this service category is not shaped.

This attribute does not apply to basic *Vpt*s, or standard *Vpt Vcc*s.

This attribute is not applicable and is ignored for ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards.

When the connection which was delayed schedules the next cell to transmit, it may calculate the time as a difference from either the previous actual cell transmit time, or the time when the previous cell should have been transmitted.

A value of ***maximumEfficiency*** results in each connection trying to recoup or regain any delays in scheduling. The transmit time for the next cell is calculated from the time when the previous cell should originally have been sent. Cell delay variation (CDV) occurs in this case since the cells are sent with less than the shaping delay between them. However, in general the shaper recovers (recoups) lost opportunities and improves efficiency.

A value of ***minimumCdv*** results in connections not trying to recoup or regain any delays in scheduling. The transmit time for the next cell is calculated from the time when the previous cell was actually transmitted. This minimizes CDV, but results in missed cell opportunities.

Values: minimumCdv
maximumEfficiency

Default: maximumEfficiency

## ATTRIBUTE AtmIf CA NrtVbr unshapedTransmitQueueing (unshap)

Access: Read and write

Criticality: Process

Description: This attribute specifies the default queuing option for unshaped connections of the nrt-VBR service category. This attribute controls whether common or per-VC queuing is used.

A value of ***perVc*** means that each connection has its own buffering and queue limits.

A value of ***common*** means that cells are queued in First In First Out order on a common queue for this service category. The common queue has one set of congestion control levels for all cells enqueued on it.

This attribute does not apply to basic *Vpt*s, or standard *Vpt Vcc*s.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, if the *perVcQueueInterfaces* attribute of the *Lp Eng Arc Cqc Ov* component permits shaping for this interface, then this attribute may take any of the three values. In this case, the value ***autoConfigure*** is interpreted to mean per-VC queuing. If the *perVcQueueInterfaces* attribute of the *Lp Eng Arc Cqc Ov* component does not permit shaping for this interface, then this attribute may take the values ***common***, or ***autoConfigure***. In this case, the value ***autoConfigure*** is interpreted to mean common queuing. An override to this default may be specified for a provisioned connection under the *Vcd Tm*, or *Vpd Tm* component. There is one common queue which is shared by the nrt-VBR, ABR, and UBR service categories.

For ***1pOC12SmLrAtm***, ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, the value ***perVc*** is not supported since these cards do not support per-VC queuing. The value ***autoConfigure*** is interpreted to mean common queuing.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, the value ***common*** is not supported since these cards do not support common queuing. The value ***autoConfigure*** is interpreted to mean per-VC queuing.

For ***2pOC3MmAtm2***, ***2pOC3SmAtm2***, ***2pSTM1eAtm***, ***2pSTM1eCh***, ***4pOC3MmAtm***, ***4pOC3SmIrAtm***, ***4pDS3ChAtm***, ***3pDS3Atm2***, ***3pE3Atm2***, ***12pDS3Atm***, ***12pE3Atm***, MSA32, and ***16pOC3PosAtm*** cards, if traffic shaping for this service category is disabled, this attribute may take any of the three values. In this

case, the value ***autoConfigure*** is interpreted to mean per-VC queuing. If traffic shaping for this service category is not disabled, the only permitted values are ***perVc*** and ***autoConfigure***. In this case, the value ***autoConfigure*** is interpreted to mean per-VC queuing.

For ***16pOC3PosAtm*** cards, no more than 32,000 connections on the FP can use per-VC queuing. The remaining connections must use common queuing. The *Lp Eng Arc perVcQueueUsage* attribute indicates the number per-VC queues that are currently in use.

The value of the operational *opUnshapedTransmitQueueing* attribute of this component indicates whether the transmit queuing is ***perVc*** or ***common***.

Values
perVc
common
autoConfigure

Default
autoConfigure

## ATTRIBUTE AtmIf CA NrtVbr usageParameterControl (upc)

Access
Read and write

Criticality
Process

Description
This attribute specifies the default usage parameter control (UPC) option for connections of the nrt-VBR service category. This attribute is ignored if the *rxTrafficDescriptorType* indicates 1 or 2. An override to this default may be specified for a provisioned connection under the *Vcd Tm* or *Vpd Tm* component.

A value of ***enforced*** means UPC is enforced for each connection. When UPC is enforced, non-conforming cells are either tagged or discarded depending on the *rxTrafficDescriptorType*.

A value of ***monitored*** means UPC conformance checking is performed, except, instead of the non-conforming cells being tagged or discarded, they are merely counted in the UPC violations counts and passed on unchanged.

A value of ***disabled*** means UPC is disabled on the receive path for all rt-VBR connections.

This attribute does not apply to basic *Vpt*s, or standard *Vpt Vcc*s.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, the value ***monitored*** is not supported. This value has the same effect as ***disabled***.

For ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, the value of this attribute must be ***disabled***.

Values
enforced
disabled
monitored

Default
disabled

## ATTRIBUTE AtmIf CA NrtVbr weightPolicy

Access
Read and write

Criticality
Process

Description
This attribute specifies the policy which is applied when calculating the fairness weight for unshaped connections of the nrt-VBR service category. The fairness weight for a connection determines the relative amount of bandwidth which that connection obtains, compared to other connections in the same service category. Connections with equal weight get equal transmit opportunities. Connections with higher weights get more transmit opportunities compared with connections that have lower weights. An override to this default may be specified for a provisioned connection under the *Vcd Tm* or *Vpd Tm* component.

The fairness weight for a connection is directly proportional to the value of one of the traffic descriptor parameters for that connection. This attribute specifies which traffic descriptor parameter is used for connections of the nrt-VBR service category.

A value of ***scr*** means the fairness weight is proportional to the

transmit sustained cell rate (SCR) of a connection. Connections with a higher SCR have a higher fairness weight. For connections with *txTrafficDescType* 3, which have no SCR, the sustained cell rate is assumed to be equal to the peak cell rate.

A value of ***pcr*** means the fairness weight is proportional to the transmit peak cell rate (PCR) of a connection. Connections with a higher PCR have a higher fairness weight. Connections with *txTrafficDescType* 1 or 2 get a minimum weight, which is 1.

A value of ***ecr*** means the fairness weight is proportional to the equivalent cell rate (ECR) of a connection as calculated by connection admission control (CAC). Connections with a higher ECR have a higher fairness weight. Connections with an ECR of 0 get a minimum weight, which is 1.

The weight of a connection is visible in the *Vcc Tm*, *Vpc Tm*, or *Vpt Tm weight* attribute.

This attribute does not apply to basic *Vpt*s and standard *Vpt Vcc*s.

This attribute is ignored if the value of the *unshapedTransmitQueueing* attribute is ***common***.

This attribute is not applicable and is ignored for ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm***, ***1pOC12SmLrAtm***, ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards.

Values
scr
pcr
ecr

Default
ecr

## ATTRIBUTE AtmIf CA NrtVbr forceTagging (tag)

Access
Read and write

Criticality
Process

Description
This attribute specifies the default of whether to force tagging (CLP=1) of all cells for all nrt-VBR connections. An override to

this default may be specified for a provisioned connection under the *Vcd Tm* or *Vpd Tm* component.

A value of ***enabled*** means CLP is set to 1 for all cells.

A value of ***disabled*** means CLP is unchanged for all cells.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, force tagging applies to cells in the receive direction. For all other cards, force tagging applies to cells in the transmit direction.

This attribute does not apply to any type of *Vpt*.

This attribute is not applicable and is ignored for ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm***, ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards.

Values
enabled
disabled

Default
disabled

## ATTRIBUTE AtmIf CA NrtVbr cellLossRatio (clr)

Access
Read and write

Criticality
Process

Description
This attribute specifies the tolerable cell loss ratio (CLR) for nrt-VBR traffic (excluding connections managed by a *Vpt CA*). The value specified is the negative base 10 logarithm of the CLR. For example, if the target CLR = 1E-10 then the value of the *cellLossRatio* attribute is ***10***. The value if this attribute must be less than or equal to the value of the *RtVbr cellLossRatio* attribute since rt-VBR traffic has a higher discard priority.

This attribute is used by the Connection Admission Control (CAC) algorithm to compute the equivalent cell rate (ECR) required for nrt-VBR connections.

There is a trade-off between the service category CLR and the

achievable link utilization. To guarantee an excellent service category, the CLR should be as small as possible (for example, 1E-10). However, a smaller CLR results in a larger equivalent cell rate for a given connection and hence a lower link utilization.

A value of ***anyClrValue*** means that no bandwidth is reserved for nrt-VBR connections and CAC is effectively turned off. All nrt-VBR connections are admitted.

Values: Decimal (1..15)
anyClrValue

Default: 7

## GROUP AtmIf CA NrtVbr Operational (Oper)

Properties: Operational

Description: This group contains operational attributes for the nrt-VBR service category.

## ATTRIBUTE AtmIf CA NrtVbr opUnshapedTransmitQueueing (opUnshap)

Access: Read only

Description: This attribute indicates the type of transmit queuing for unshaped nrt-VBR connections.

A value of ***perVc*** indicates that unshaped connections use per-VC queuing. A value of ***common*** indicates that unshaped connections use the common queue for this service category.

For ***1pOC12SmLrAtm***, ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, the value ***common*** is always indicated since these cards do not support per-VC queuing.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, the value ***perVc*** is always indicated since these cards do not support common queuing.

Values: perVc
common

Default: No default

## ATTRIBUTE AtmIf CA NrtVbr epdOffset (epdO)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Early Packet Discard (EPD) offset which is currently in use for this service category. The EPD offset is used to derive the EPD thresholds for each CC level.<br><br>Any connection under this service category which requires the transmit Packet Wise Discard feature must specify a transmit queue limit which is at least 5.71 times this offset. This ensures that the derived Epd threshold will never be less than 17.5% of the transmit queue limit. If this is not done, txPacketWiseDiscard for the connection will be automatically disabled.<br><br>The value of this EPD offset is specified in the *Lp Eng Arc Aqm Ov* component.<br><br>For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm***, ***1pOC12SmLrAtm***, ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, ***16pOC3SmIrAtm***, ***1pOC48ChSmIrAtm***, ***1pOC48SmSrPos***, and ***16pOC3PosAtm*** cards, this attribute is not available and is filtered from the display. |
| Values | Decimal (0; 5..1024) |
| Units | cells |
| Default | No default |

## COMPONENT AtmIf CA AvailableBitRate (Abr)

| | |
|---|---|
| Instance | Decimal (0) |
| Groups | "GROUP AtmIf CA Abr Provisioned (Prov)"<br>"GROUP AtmIf CA Abr Operational (Oper)" |
| Scope | Device |
| Description | *AtmIf/n CA AvailableBitRate/n*<br>This component manages the default characteristics of the available bit rate (ABR) service category. |

There is no support for ABR connections on any ATM cards at this time.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, ***16pOC3SmIrAtm***, and ***16pOC3PosAtm*** cards only the default values of all attributes are supported.

Common Verbs

Help
List
Display
Add

## GROUP AtmIf CA Abr Provisioned (Prov)

Properties: Provisioned

Description: This group contains provisioned attributes which control the ABR service category for this interface.

## ATTRIBUTE AtmIf CA Abr pool

Access: Read and write

Criticality: Process

Description: This attribute specifies the bandwidth pool which is to be used to support the available bit rate (ABR) service category (excluding connections managed by a *Vpt CA*). The percentage of link capacity reserved for the given bandwidth pool is the maximum bandwidth that can be allocated to ABR traffic. The percentage allocated to each bandwidth pool can be provisioned through the *bandwidthPool* attribute of the *CA* component.

Values:
pool1
pool2
pool3
pool4
pool5

Default: pool1

## ATTRIBUTE AtmIf CA Abr cdvt

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the default cell delay variation tolerance (CDVT) for all connections of the ABR service category (including connections managed by a *Vpt CA*). An override to this default may be specified for a provisioned connection under the *Vcd Tm* or *Vpd Tm* component.<br><br>This attribute is used by the dynamic generic cell rate algorithm (DGCRA) policer on ATM cards which support this feature. On cards that do not support this feature, ABR UPC is enforced using PCR and CDVT. |
| Values | Decimal (1..1200000) |
| Units | microsec |
| Default | 250 |

## ATTRIBUTE AtmIf CA Abr txQueueLimit (txql)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the default maximum queue length for the emission queues used to buffer the traffic of the ABR service category. It is used as the basis for setting the discard thresholds on ABR per-VC queues.<br><br>For a per-VC queue, the actual queue length may be reduced depending on the peak cell rate. The discard thresholds are set at approximately 35, 75 and 90 percent of the scaled queue limit for traffic at discard priority 3 (DP=3), DP=2 and DP=1 respectively. However, a reduction will never result in a value that is less than the value of the *minPerVcQueueLimit* attribute. The per-VC queue limit may be overridden for a permanent connection by specifying a value in the *Vcd Tm* or *Vpd Tm txQueueLimit* attribute. |

A value of ***autoConfigure*** means an appropriate value is selected based on the card type. For ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm***, ***2pSTM1eCh***, and ***4pDS3ChAtm*** cards, the value is ***1792***. For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, and ***3pDS3Atm*** cards, the value is ***2304***. For ***3pDS3Atm2***, ***3pE3Atm2***, ***12pDS3Atm***, ***12pE3Atm***, ***2pOC3MmAtm2***, ***2pOC3SmAtm2***, ***2pSTM1eAtm***, ***4pOC3MmAtm***, ***4pOC3SmIrAtm***, ***16pOC3SmIrAtm***, ***16pOC3PosAtm***, ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***1pOC48ChSmIrAtm*** cards, the value is ***10240***. For MSA32 cards, the value is ***10240*** for OC-3 channels, and ***1792*** for DS1, or E1 channels. For ***1pOC12SmLrAtm*** cards, the value is ***6144***. For ***1pOC48SmSrPos*** cards, only the default value of ***autoConfigure*** is supported and the value is ***5120***.

The operational value of the maximum length of a queue (common or per-VC) is indicated by the *Vcc Tm*, *Vpc Tm*, or *Vpt Tm txQueueThresholds* attribute.

For *Vpt*s, this attribute does not apply. Regardless of the *Vpt's* service category, standard *Vpt*s always use the *AtmIf CA NrtVbr txQueueLimit* value as their default.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, this attribute must be set to the same value for *CA NrtVbr*, *Abr* and *Ubr* components and the valid range is from ***5*** to ***30000*** inclusive.

| | |
|---|---|
| Values | Decimal (5..63488)<br>autoConfigure |
| Units | cells |
| Default | autoConfigure |

## ATTRIBUTE AtmIf CA Abr minPerVcQueueLimit (minpervcql)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |

Description

This attribute specifies the minimum queue limit for the per-VC queues of connections of the ABR service category.

This attribute is ignored for ***1pOC12SmLrAtm*** cards, because they do not support per-VC queues for the ABR service category.

The queue limit of a per-VC queue is obtained by scaling down the *txQueueLimit* attribute based on the peak cell rate of that queue (for standard *Vpt Vcc*s, the shaping rate of the *Vpt*). This produces a constant delay for various queue lengths. The value of the *txQueueLimit* attribute provides an upper bound while the value of the *minPerVcQueueLimit* attribute provides the lower bound.

The value of this attribute must not be greater than the value of the *txQueueLimit* attribute. If this service category is used by Trunks, the value of the *minPerVcQueueLimit* attribute must be at least ***88***.

For *Vpt*s, this attribute does not apply. Regardless of the *Vpt* service category, standard *Vpt*s always use the *AtmIf CA NrtVbr minPerVcQueueLimit* value as their default.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, this attribute must be set to the same value for *CA NrtVbr*, *Abr* and *Ubr* components.

Values

Decimal (5..63488)

Units

cells

Default

88

## ATTRIBUTE AtmIf CA Abr perVcQueueLimitReferenceRate (refrate)

Access

Read and write

Criticality

Process

Description

This attribute specifies the shaping rate to be used in computing the tolerable delay for per-VC queues of connections of the ABR service category. The delay is computed as the *txQueueLimit*

divided by the value of this attribute.

This attribute is ignored for ***1pOC12SmLrAtm***, ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, because they do not support traffic shaping for the ABR service category.

A value of ***autoConfigure*** means an appropriate value is selected based on the card type. For ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm***, ***2pSTM1eCh***, and ***4pDS3ChAtm*** cards, the value is ***3685***. For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, and ***3pDS3Atm*** cards, the value is ***14740***. For ***3pDS3Atm2***, ***3pE3Atm2***, ***12pDS3Atm***, ***12pE3Atm***, ***2pOC3MmAtm2***, ***2pOC3SmAtm2***, ***2pSTM1eAtm***, ***4pOC3MmAtm***, ***4pOC3SmIrAtm***, ***16pOC3SmIrAtm***, and ***16pOC3PosAtm*** cards, the value is ***65511***. For MSA32 cards, the value is ***65511*** for OC-3 channels, and ***3685*** for DS1, or E1 channels. For ***4pOC12SmIrAtm***, and ***4pOC12SmLrAtm*** cards, the value is ***262044***.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, this attribute must be set to the same value for *CA NrtVbr*, *Abr*, and *Ubr* components.

For *Vpt*s, this attribute does not apply. Regardless of the *Vpt* service category, standard *Vpt*s always use the *AtmIf CA NrtVbr perVcQueueLimitReferenceRate* value as their default.

| | |
|---|---|
| Values | Decimal (1..943396)<br>autoConfigure |
| Units | cell/s |
| Default | autoConfigure |

## ATTRIBUTE AtmIf CA Abr emissionPriority (ep)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the emission priority (EP) which is used to transmit traffic of the ABR service category. A lower numerical |

value for this attribute specifies a higher emission priority. 0 is the highest EP and 7 is the lowest. Cells at a higher emission priority receive higher preference for link bandwidth.

EP 0 and EP 1 are in the absolute priority range and are unaffected by any minimum bandwidth guarantees. EP 2 through EP 7 are in the guaranteed bandwidth range and may achieve a priority which is different from the strict hierarchical priority, if a minimum bandwidth guarantee is provisioned. A minimum bandwidth guarantee is specified in the *AtmIf*/n *Ep*/m component.

This attribute does not apply to basic *Vpt*s, or standard *Vpt Vcc*s.

This attribute is not applicable and is ignored for ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards.

For ***2pOC3MmAtm2***, ***2pOC3SmAtm2***, ***2pSTM1eAtm***, ***2pSTM1eCh***, ***4pOC3MmAtm***, ***4pOC3SmIrAtm***, ***4pDS3ChAtm***, ***3pDS3Atm2***, ***3pE3Atm2***, ***12pDS3Atm***, ***12pE3Atm***, MSA32, and ***1pOC12SmLrAtm*** cards, emission priority setting must comply with all of the following constraints:
1. The emission priority numbers must be in the following order: CBR <= rt-VBR <= nrt-VBR <= ABR <= UBR
2. Two different ATM service categories may share the same EP only if they are both shaped.
3. CBR and rt-VBR may be placed either in the absolute priority range (EP 0 or 1) or in the guaranteed bandwidth range (EP 2 through 7).
4. If both CBR and rt-VBR are shaped, rt-VBR must share the same EP with CBR or ABR. If either one of CBR or rt-VBR are not shaped, then they cannot share the same EP.
5. ABR service category is always deemed to be shaped. If nrt-VBR is shaped, it must share the same EP with ABR. If nrt-VBR is not shaped it must have a higher EP than ABR.
6. If UBR is shaped, it must share the same EP with ABR. If UBR is not shaped, it must have a lower EP than ABR.

| | |
|---|---|
| Values | Decimal (0..7) |
| Default | 6 |

## ATTRIBUTE AtmIf CA Abr fairnessPolicy

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the fairness policy which is applied to available bandwidth when performing the ER calculation in the ABR service category. This applies to any connection point performing explicit rate calculations. Each ABR connection is assigned a weight. Connections with a higher weight get a greater proportion of the available ABR bandwidth compared with connections that have lower weights.<br><br>A value of ***mcr*** means the congestion fairness weight is based on the Minimum Cell Rate (MCR) of the connection.<br><br>A value of ***pcr*** means the congestion fairness weight is based on the Peak Cell Rate (PCR) of the connection.<br><br>A value of ***pcrMinusMcr*** means the congestion fairness weight is based on the difference between the Peak Cell Rate and the Minimum Cell Rate (PCR - MCR) of the connection.<br><br>This attribute is not applicable and is ignored for ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards. |
| Values | mcr<br>pcr<br>pcrMinusMcr |
| Default | pcrMinusMcr |

## ATTRIBUTE AtmIf CA Abr frttPortion

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the portion of the Fixed Round Trip Time (FRTT) which is added to each ABR call setup which traverses this interface. The FRTT for the entire call is the sum of the FRTT portions for each interface traversed by the call. FRTT is |

used by the ABR Source or Virtual Source to adjust the value of ICR according to the rules specified in the ATM Forum TM Version 4.0 specification.

The *frttPortion* attribute includes propagation delay through the physical media, plus delays included by the transmission system, plus fixed components of switch processing delay.

This attribute is used by ATM Networking at call set-up time for ABR connections directed over this interface.

| | |
|---|---|
| Values | Decimal (0..10000) |
| Units | msec |
| Default | 5 |

### ATTRIBUTE AtmIf CA Abr abrConnectionType (abrType)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the default type for ABR connections. It may be overridden for a permanent connection by specifying a value in the *abrConnectionType* attribute of the *Vcd Tm* or *Vpd Tm* component, or by other configuration options. For example, for ABR end point connections originating at this switch, the *Vcc Tm abrConnectionType* will show ***sourceDest*** regardless of the setting of this attribute.<br><br>If the value is ***abrSwitch***, traversing ABR connections default to type ***abrSwitchEr*** or ***abrSwitchEfci***, depending on the card type. If the interface to which traffic is directed across the backplane is configured as type ***virtualSourceDest*** and this is a ATM IP FP, then connection points under this *AtmIf* are activated as type ***virtualSourceDest***.<br><br>If the value is ***virtualSourceDest***, traversing ABR connections may be instantiated as one of the following types: ***abrSwitchEr***, ***abrSwitchEfci***, or ***virtualSourceDest***. A Virtual Source-Virtual Destination (VS/VD) boundary forms a break in the end to end flow of RM cells as defined in the ATM Forum Specification for |

Traffic Management Version 4.0. On ATM IP cards, a VS/VD boundary can be configured for a connection providing all of the following conditions are met:
1. the ABR connection is traversing (not terminating at) this interface;
2. both this interface and next hop interface to which traffic is directed across the backplane are located on ATM IP cards;
3. one or both connecting points are configured as ***virtualSourceDest***,
4. the next hop interface to which traffic is directed across the backplane is not configured as ***nonAbrInterworking***.

If this attribute is set to ***nonAbrInterworking***, this interface is defined as a point of interworking between an ABR and a non-ABR connection. In this case the next hop interface to which traffic is directed across the backplane is activated as type ***sourceDest***.

The *Vcc Tm* or *Vpc Tm abrConnectionType* operational attribute indicates what type of ABR connection was activated.

Values
abrSwitch
virtualSourceDest
nonAbrInterworking

Default
abrSwitch

## ATTRIBUTE AtmIf CA Abr usageParameterControl (upc)

Access
Read and write

Criticality
Process

Description
This attribute specifies the default usage parameter control (UPC) option for connections of the ABR service category. An override to this default may be specified for a provisioned connection under the *Vcd Tm* or *Vpd Tm* component.

A value of ***enforced*** means UPC is enforced for each connection. When UPC is enforced on an ABR connection, non-conforming cells are discarded.

For ***2pOC3MmAtm2***, ***2pOC3SmAtm2***, ***2pSTM1eAtm***,

***2pSTM1eCh***, ***4pOC3MmAtm***, ***4pOC3SmIrAtm***, ***4pDS3ChAtm***, ***3pDS3Atm2***, ***3pE3Atm2***, ***12pDS3Atm***, ***12pE3Atm***, and MSA32 cards, a value of ***enforced*** means UPC for ABR connection is enforced as a Dynamic Generic Cell Rate Algorithm (DGCRA) based on the connection traffic descriptor.

For all other cards, a value of ***enforced*** means the connection enforces a single GCRA policer at the defined PCR and CDVT for this connection.

A value of ***monitored*** means UPC conformance checking is performed, except, instead of the non-conforming cells being discarded, they are merely counted in the UPC violations counts and passed on unchanged.

A value of ***disabled*** means UPC is disabled on the receive path for all ABR connections.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, the value ***monitored*** is not supported. This value has the same effect as ***disabled***.

This attribute does not apply to basic *Vpt*s, or standard *Vpt Vcc*s.

Values
enforced
disabled
monitored

Default
disabled

## ATTRIBUTE AtmIf CA Abr initialCellRate (icr)

Access
Read and write

Criticality
Process

Description
This attribute specifies the default Initial Cell Rate (ICR) parameter for ABR connections. ICR is the rate at which a source should send initially and after an idle period. An override to this default may be specified for a provisioned connection under the *Vcd Tm Abr* or *Vpd Tm Abr* component, or signaled in the ABR Setup Parameters Information Element.

A value of ***useMcr*** means ICR is set to the same value as the Minimum Cell Rate (MCR) for the connection.

A value of ***usePcr*** means ICR is set to the same value as the Peak Cell Rate (PCR) for the connection.

When the value is an explicit number, that number is used as the ICR, provided it is between MCR and PCR. If the value is below MCR, then MCR is used as ICR. If the value is above PCR, then PCR is used as ICR.

Values: Decimal (0..16777215)
useMcr
usePcr

Units: cell/s

Default: usePcr

### ATTRIBUTE AtmIf CA Abr rateDecreaseFactor (rdf)

Access: Read and write

Criticality: Process

Description: This attribute specifies the default Rate Decrease Factor (RDF) for ABR connections. An override to this default may be specified for a provisioned connection under the *Vcd Tm Abr* or *Vpd Tm Abr* component, or signaled in the ABR Setup Parameters Information Element.

The RDF value is computed by using the provisioned value of this attribute, n, as 2 to the inverse power n. For example, if the value of this attribute is ***8***, RDF is 2E-8 = 1/256.

RDF controls the amount by which the cell transmission rate may decrease upon receipt of a backward Resource Management (B-RM) cell. For example, if a backward RM cell is received with the Congestion Indication (CI) field set to 1, the Allowed Cell Rate (ACR) value would be reduced by the amount (RDF*ACR). The ACR is not allowed to fall below the Minimum Cell Rate (MCR), in which case the ACR is set to MCR.

| | |
|---|---|
| Values | Decimal (0..15) |
| Default | 15 |

### ATTRIBUTE AtmIf CA Abr rateIncreaseFactor (rif)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the default Rate Increase Factor (RIF) for ABR connections. An override to this default may be specified for a provisioned connection under the *Vcd Tm Abr* or *Vpd Tm Abr* component, or signaled in the ABR Setup Parameters Information Element.<br><br>The RIF value is computed by using the provisioned value of this attribute, n, as 2 to the inverse power n. For example, if the value of this attribute is ***6***, RIF is 2E-6 = 1/64.<br><br>RIF controls the amount by which the cell transmission rate may increase upon receipt of a backward Resource Management (B-RM) cell. For example, if a backward RM cell is received with the Congestion Indication (CI) and the No Increase (NI) fields both set to 0, the Allowed Cell Rate (ACR) value would be increased by the amount (RIF*ACR). The ACR is not allowed to exceed the Peak Cell Rate (PCR), in which case the ACR is set to PCR. |
| Values | Decimal (0..15) |
| Default | 0 |

### ATTRIBUTE AtmIf CA Abr maxCellPerRmCell (nrm)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the default number of user cells per Resource Management cell (NRM) for ABR connections. An override to this default may be specified for a provisioned connection under the *Vcd Tm Abr* or *Vpd Tm Abr* component, or signaled as the NRM parameter in the ABR Additional |

Parameters Information Element.

NRM is the maximum number of cells an ABR source may transmit for each forward Resource Management (F-RM) cell. The count of the cells transmitted includes user cells, OAM cells, backward RM cells and the forward RM cell.

Note that a value of 2 is not recommended even though it is permitted according to the ATM Forum standard. When this attribute is set to a value of 2, it is possible that only one forward and one backward RM cell are repeatedly transmitted and all data traffic is queued up indefinitely.

This attribute is ignored under all conditions where the *Vcc Tm* or *Vpc Tm* operational attribute *abrConnectionType* indicates ***explicitRateMarking***.

| | |
|---|---|
| Values | Decimal (2; 4; 8; 16; 32; 64; 128; 256) |
| Units | cells |
| Default | 256 |

### ATTRIBUTE AtmIf CA Abr maxTimeBetweenRmCell (trm)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the default time between Resource Management cells (TRM) for ABR connections. An override to this default may be specified for a provisioned connection under the *Vcd Tm Abr* or *Vpd Tm Abr* component, or signaled in the ABR Additional Parameters Information Element.<br><br>TRM provides an upper bound on the time interval between forward Resource Management (F-RM) cells for an ABR source. Since the last F-RM cell was sent, if at least TRM time has elapsed and at least 2 other cells have been sent, the next cell to be transmitted would be a forward RM cell.<br><br>This attribute is ignored under all conditions where the *Vcc Tm* or *Vcd Tm* operational attribute *abrConnectionType* is displayed as |

***explicitRateMarking***.

The provisioned value of 781 is signaled in the ABR Additional Parameters Information Element as 0.
1563 is signaled as 1.
3125 is signaled as 2.
6250 is signaled as 3.
12500 is signaled as 4.
25000 is signaled as 5.
50000 is signaled as 6.
100000 is signaled as 7.

Values — Decimal (781; 1563; 3125; 6250; 12500; 25000; 50000; 100000)

Units — microsec

Default — 100000

## ATTRIBUTE AtmIf CA Abr cutoffDecreaseFactor (cdf)

Access — Read and write

Criticality — Process

Description — This attribute specifies the default Cutoff Decrease Factor (CDF) parameter for ABR connections. An override to this default may be specified for a provisioned connection under the *Vcd Tm Abr* or *Vpd Tm Abr* component, or signaled in the ABR Additional Parameters Information Element.

When the value of this attribute is non-zero, CDF is computed as the inverse of the value. For example, if the value is 32, the value of CDF is 1/32. When the value of this attribute is 0, CDF is also zero.

CDF controls the decrease in the Allowed Cell Rate (ACR) associated with the CRM parameter. CRM is the limit of the number of forward Resource Management (F-RM) cells which may be sent in the absence of received backward RM cells. When this limit is crossed, the ACR value would be decreased by the amount (CDF*ACR). The ACR is not allowed to fall below the MCR, in which case the ACR is set to MCR.

| | |
|---|---|
| Values | Decimal (0; 1; 2; 4; 8; 16; 32; 64) |
| Default | 16 |

### ATTRIBUTE AtmIf CA Abr acrDecreaseTimeFactor (adtf)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the default Allowed Cell Rate Decrease Time Factor (ADTF) parameter for ABR connections. An override to this default may be specified for a provisioned connection under the *Vcd Tm Abr* or *Vpd Tm Abr* component, or signaled in the ABR Additional Parameters Information Element.<br><br>ADTF is the time interval permitted between sending forward Resource Management (F-RM) cells before the Allowed Cell Rate (ACR) is decreased to the Initial Cell Rate (ICR). In other words, if the source does not transmit a forward RM cell for a period of ADTF centi-seconds (hundredths of a second), it will reduce its ACR to the value of its ICR. If ACR is already at or below ICR, further rate reductions are defined by the CRM ABR parameter. |
| Values | Decimal (0..1023) |
| Units | centiseconds |
| Default | 50 |

### ATTRIBUTE AtmIf CA Abr dgcraMaximumDelay (dgcraMaxDelay)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the default maximum delay for Dynamic General Cell Rate Algorithm (DGCRA) rate changes for ABR connections. An override to this default may be specified for a provisioned connection under the *Vcd Tm Abr* or *Vpd Tm Abr* component.<br><br>This attribute specifies an upper bound on the delay after which the rate change induced by a backward Resource Management |

(B-RM) cell departing from this interface (in the backward direction) is expected to be observed at the interface (in the forward connection).

This upper bound may be approximated as the round trip sum of the fixed and propagation delays and the maximum queuing delays between the ABR source and this interface.

The value of this attribute is used in policing an ABR connection using the DGCRA. A larger value for this attribute implies a more lenient policer. When there is a decrease in the Allowed Cell Rate (ACR), the policer waits a correspondingly longer period of time before it enforces the new cell rate.

The value of this attribute must be greater than or equal to *dgcraMinimumDelay*, since the maximum delay must be greater than or equal to the minimum delay.

| | |
|---|---|
| Values | Decimal (1..16700000) |
| Units | microsec |
| Default | 10000 |

### ATTRIBUTE AtmIf CA Abr dgcraMinimumDelay (dgcraMinDelay)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the default minimum delay for Dynamic General Cell Rate Algorithm (DGCRA) rate changes for ABR connections. An override to this default may be specified for a provisioned connection under the *Vcd Tm Abr* or *Vpd Tm Abr* component.<br><br>This attribute specifies a lower bound on the delay after which the rate change induced by a backward Resource Management (B-RM) cell departing from this interface (in the backward direction) is expected to be observed at the interface (in the forward connection).<br><br>This lower bound may be approximated as the round trip sum of |

the fixed and propagation delays between the ABR source and this interface.

The value of this attribute is used in policing an ABR connection using the DGCRA. A smaller value for this attribute implies a more lenient policer. When there is an increase in the Allowed Cell Rate (ACR), the policer waits for a correspondingly shorter period of time before it enforces the new cell rate.

The value of this attribute must be less than or equal to *dgcraMaximumDelay*, since the maximum delay must be greater than or equal to the minimum delay.

| | |
|---|---|
| Values | Decimal (1..16700000) |
| Units | microsec |
| Default | 1 |

### ATTRIBUTE AtmIf CA Abr holdingPriority (hpri)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the default holding priority which applies to SVP and SVC ABR connections. It takes a value from 0 (highest priority) to 4 (lowest priority). In a situation where the link bandwidth fluctuates, such as over an IMA link, holding priority is used to determine which connections are held and which are released. Holding priority 4 connections are the first to be released. Holding priority 0 connections are the last to be released.<br><br>This attribute does not apply to *Vpt Vcc*s. When bandwidth fluctuates, the entire *Vpt*, along with all *Vpt Vcc*s is released as a unit, according to the *Vpt*'s *holdingPriority*. |
| Values | 0<br>1<br>2<br>3<br>4 |

Default 3

## GROUP AtmIf CA Abr Operational (Oper)

Properties Operational

Description This group contains operational attributes for the ABR service category.

There is no support for ABR connections on any ATM cards at this time.

## ATTRIBUTE AtmIf CA Abr epdOffset (epdO)

Access Read only

Description This attribute indicates the Early Packet Discard (EPD) offset which is currently in use for this service category. The EPD offset is used to derive the EPD thresholds for each CC level.

Any connection under this service category which requires the transmit Packet Wise Discard feature must specify a transmit queue limit which is at least 5.71 times this offset. This ensures that the derived Epd threshold will never be less than 17.5% of the transmit queue limit. If this is not done, txPacketWiseDiscard for the connection will be automatically disabled.

The value of this EPD offset is specified in the *Lp Eng Arc Aqm Ov* component.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm***, ***1pOC12SmLrAtm***, ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, ***16pOC3SmIrAtm***, ***1pOC48ChSmIrAtm***, ***1pOC48SmSrPos***, and ***16pOC3PosAtm*** cards, this attribute is not available and is filtered from the display.

Values Decimal (0; 5..1024)

Units cells

Default No default

## COMPONENT AtmIf CA UnspecifiedBitRate (Ubr)

| | |
|---|---|
| Instance | Decimal (0) |
| Groups | "GROUP AtmIf CA Ubr Provisioned (Prov)"<br>"GROUP AtmIf CA Ubr Operational (Oper)" |
| Scope | Device |
| Description | *AtmIf/n CA UnspecifiedBitRate/n*<br>This component manages the default characteristics of the unspecified bit rate (UBR) service category. |
| Common Verbs | Help<br>List<br>Display<br>Add |

## GROUP AtmIf CA Ubr Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisioned attributes for the UBR service category. |

## ATTRIBUTE AtmIf CA Ubr maxVpcs (vpcs)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum number of UBR *Vpc*s that can be activated on this *AtmIf*. The value of this attribute must not exceed the *maxVpcs* attribute of the parent *CA* component.<br><br>A value of ***sameAsCa*** means the maximum number of *Vpcs* is defined by the *AtmIf*/n *CA maxVpcs* attribute.<br><br>Changes to this attribute do not affect existing *Vpc*s. If the value is changed to a number smaller than the current number of active UBR VPCs, no new UBR VPCs are admitted until the number of active UBR VPCs drops below the value of this attribute. The current number of active UBR VPCs is indicated by the *Ubr/0 vpcUsage* operational attribute. |

| | |
|---|---|
| Values | Decimal (0..4096)<br>sameAsCa |
| Default | sameAsCa |

### ATTRIBUTE AtmIf CA Ubr maxVccs (vccs)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum number of UBR *Vcc*s that can be activated on this *AtmIf*, including UBR *Vpt Vcc*s. The value of this attribute must not exceed the *maxVccs* attribute of the parent *CA* component.<br><br>A value of ***sameAsCa*** means the maximum number of *Vccs* is defined by the *AtmIf*/n *CA maxVccs* attribute.<br><br>Changes to this attribute do not affect existing *Vcc*s. If the value is changed to a number smaller than the current number of active UBR VCCs, no new UBR VCCs are admitted until the number of active UBR VCCs drops below the value of this attribute. The current number of active UBR VCCs is indicated by the *Ubr/0 vccUsage* operational attribute. |
| Values | Decimal (0..16384)<br>sameAsCa |
| Default | sameAsCa |

### ATTRIBUTE AtmIf CA Ubr maxVpts (vpts)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum number of UBR *Vpt*s that can be activated on this *AtmIf*. The value of this attribute must not exceed the *maxVpts* attribute of the parent *CA* component.<br><br>A value of ***sameAsCa*** means the maximum number of *Vpts* is defined by the *AtmIf*/n *CA maxVpts* attribute.<br><br>Changes to this attribute do not affect existing *Vpt*s. If the value is changed to a number smaller than the current number of active UBR VPTs, no new UBR VPTs are admitted until the number of active UBR VPTs drops below the value of this attribute. The |

current number of active UBR VPTs is indicated by the *Ubr/0 vptUsage* operational attribute.

Values
Decimal (0..4096)
sameAsCa

Default
sameAsCa

## ATTRIBUTE AtmIf CA Ubr pool

Access
Read and write

Criticality
Process

Description
This attribute specifies the bandwidth pool which is to be used to support the unspecified bit rate (UBR) service category (excluding connections managed by a *Vpt CA*). The percentage of link capacity reserved for the given bandwidth pool is the maximum bandwidth that can be allocated to UBR traffic. The percentage allocated to each bandwidth pool can be provisioned through the *bandwidthPool* attribute of the *CA* component.

The amount of bandwidth reserved for each UBR connection is specified in the *minimumCellRate* attribute.

Values
pool1
pool2
pool3
pool4
pool5

Default
pool1

## ATTRIBUTE AtmIf CA Ubr minimumCellRate (mcr)

Access
Read and write

Description
This attribute specifies the minimum cell rate (MCR) which is allocated from the UBR bandwidth pool for each UBR connection which is admitted using Connection Admission Control (CAC) (excluding connections managed by a *Vpt CA*). UBR connections normally are serviced on a best effort basis, but this attribute allows allocation of a default minimum bandwidth for each connection.

| | |
|---|---|
| Values | Decimal (0..2147483647) |
| Units | cell/s |
| Default | 0 |

### ATTRIBUTE AtmIf CA Ubr txQueueLimit (txql)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the default maximum queue length for the emission queues used to buffer the traffic of the UBR service category. It is used as the basis for setting both the queue length and the discard thresholds on both common and per-VC queues.<br><br>For the common queue, the discard thresholds are set at approximately 35, 75, and 90 percent of the value of this attribute for traffic at discard priority 3 (DP=3), DP=2, and DP=1 respectively. For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, common queuing is not available for the UBR service category.<br><br>For a per-VC queue, the actual queue length may be reduced depending on the shaping rate of the connection (for standard *Vpt Vcc*s, this is the shaping rate of the *Vpt*). The discard thresholds are set at approximately 35, 75, and 90 percent of the scaled queue limit for traffic at discard priority 3 (DP=3), DP=2, and DP=1 respectively. However, a reduction will never result in a value that is less than the value of the *minPerVcQueueLimit* attribute. The per-VC queue limit may be overridden for a provisioned connection by specifying a value in the *Vcd Tm* or *Vpd Tm txQueueLimit* attribute. For ***1pOC12SmLrAtm***, ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, per-VC queues are not available for the UBR service category.<br><br>For ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, this attribute is used to set the maximum size of the link-class queue for buffering the egress traffic of the UBR service category. This is similar to common queuing, except that each UBR connection maintains a per-VC utilization limit of the common queue specified for a provisioned connection by the *Vcd Tm* or *Vpd Tm* |

*txQueueLimit* attribute.

A value of ***autoConfigure*** means an appropriate value is selected based on the card type. For ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm***, ***2pSTM1eCh***, and ***4pDS3ChAtm*** cards, the value is ***1792***. For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, and ***3pDS3Atm*** cards, the value is ***2304***. For ***3pDS3Atm2***, ***3pE3Atm2***, ***12pDS3Atm***, ***12pE3Atm***, ***2pOC3MmAtm2***, ***2pOC3SmAtm2***, ***2pSTM1eAtm***, ***4pOC3MmAtm***, ***4pOC3SmIrAtm***, ***16pOC3SmIrAtm***, ***16pOC3PosAtm***, ***4pOC12SmIrAtm***, and ***4pOC12SmLrAtm*** cards, the value is ***10240***. For MSA32 cards, the value is ***10240*** for OC-3 channels, and ***1792*** for DS1, or E1 channels. For ***1pOC12SmLrAtm*** cards, the value is ***4096***. For ***1pOC48ChSmIrAtm*** cards, the value is ***20480.*** For ***1pOC48SmSrPos*** cards, only the default value of ***autoConfigure*** is supported and the value is set to ***10240***.

The operational value of the maximum length of a queue (common or per-VC) is indicated by the *Vcc Tm*, *Vpc Tm*, or *Vpt Tm txQueueThresholds* attribute.

For standard *Vpt*s, this attribute only applies when using common queuing. When using per-VC queuing, regardless of the *Vpt's* service category, standard *Vpt*s use the *AtmIf CA NrtVbr txQueueLimit* attribute value as their default.

This attribute does not apply to basic *Vpt*s.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, this attribute must be set to the same value for *CA NrtVbr*, *Abr* and *Ubr* components and the valid range is from ***5*** to ***30000*** inclusive.

For ***2pOC3MmAtm2***, ***2pOC3SmAtm2***, ***2pSTM1eAtm***, ***2pSTM1eCh***, ***4pOC3MmAtm***, ***4pOC3SmIrAtm***, ***4pDS3ChAtm***, ***3pDS3Atm2***, ***3pE3Atm2***, ***12pDS3Atm***, ***12pE3Atm***, MSA32, ***1pOC12SmLrAtm***, ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, the valid range for this attribute is from ***5*** to ***63488*** inclusive.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, the valid range for this attribute is from ***5*** to ***512000*** inclusive.

For ***16pOC3PosAtm*** cards, the valid range for this attribute is from ***32*** to ***261120*** inclusive.

| | |
|---|---|
| Values | Decimal (5..512000)<br>autoConfigure |
| Units | cells |
| Default | autoConfigure |

### ATTRIBUTE AtmIf CA Ubr minPerVcQueueLimit (minpervcql)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the minimum queue limit for the per-VC queues of connections of the UBR service category.<br><br>This attribute is ignored for ***1pOC12SmLrAtm*** cards, because they do not support per-VC queues for the UBR service category.<br><br>The queue limit of a per-VC queue is obtained by scaling down the *txQueueLimit* attribute based on the shaping rate of that queue (shaping rate for the connection and for standard *Vpt Vcc*s, the shaping rate of the *Vpt*). This produces a constant delay for various queue lengths. The value of the *txQueueLimit* attribute provides an upper bound while the value of the *minPerVcQueueLimit* attribute provides the lower bound.<br><br>The value of this attribute must not be greater than the value of the *txQueueLimit* attribute. If this service category is used by Trunks the value of the *minPerVcQueueLimit* attribute must be at least ***88***.<br><br>For *Vpt*s, this attribute does not apply. Regardless of *Vpt* service category, standard *Vpt*s always use the *AtmIf CA NrtVbr minPerVcQueueLimit* value as their default. To determine the queue limit of a standard *Vpt Vcc*, the *txQueueLimit* attribute is |

scaled down by the *Vpt* shaping rate.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, this attribute must be set to the same value for *CA NrtVbr*, *Abr*, and *Ubr* components.

For ***2pOC3MmAtm2***, ***2pOC3SmAtm2***, ***2pSTM1eAtm***, ***2pSTM1eCh***, ***4pOC3MmAtm***, ***4pOC3SmIrAtm***, ***4pDS3ChAtm***, ***3pDS3Atm2***, ***3pE3Atm2***, ***12pDS3Atm***, ***12pE3Atm***, MSA32, ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, the valid range for this attribute is from ***5*** to ***160000*** inclusive.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm*** and ***16pOC3SmIrAtm*** cards, the valid range for this attribute is from ***92*** to ***512000*** inclusive.

For ***16pOC3PosAtm*** cards, the valid range for this attribute is from ***32*** to ***261120*** inclusive.

Values: Decimal (5..512000)

Units: cells

Default: 88

## ATTRIBUTE AtmIf CA Ubr perVcQueueLimitReferenceRate (refrate)

Access: Read and write

Criticality: Process

Description: This attribute specifies the shaping rate to be used in computing the tolerable delay for per-VC queues of connections of the UBR service category. The delay is computed as the *txQueueLimit* divided by the value of this attribute.

This attribute is ignored for ***1pOC12SmLrAtm***, ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, because they do not support traffic shaping for the UBR service category.

A value of ***autoConfigure*** means an appropriate value is selected based on the card type. For ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***,

***8pDS1Atm***, ***2pJ6MAtm***, ***2pSTM1eCh***, and ***4pDS3ChAtm*** cards, the value is ***3685***. For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, and ***3pDS3Atm*** cards, the value is ***14740***. For ***3pDS3Atm2***, ***3pE3Atm2***, ***12pDS3Atm***, ***12pE3Atm***, ***2pOC3MmAtm2***, ***2pOC3SmAtm2***, ***2pSTM1eAtm***, ***4pOC3MmAtm***, ***4pOC3SmIrAtm***, ***16pOC3SmIrAtm***, and ***16pOC3PosAtm*** cards, the value is ***65511***. For MSA32 cards, the value is ***65511*** for OC-3 channels, and ***3685*** for DS1, or E1 channels. For ***4pOC12SmIrAtm***, and ***4pOC12SmLrAtm*** cards, the value is ***262044***.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, this attribute must be set to the same value for *CA NrtVbr*, *Abr*, and *Ubr* components.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards the maximum value is ***1416905***. For ***16pOC3PosAtm*** cards, the maximum value is ***353207***. For all other cards, the maximum value is ***943396***.

For *Vpt*s, this attribute does not apply. Regardless of the *Vpt* service category, standard *Vpt*s always use the *AtmIf CA NrtVbr perVcQueueLimitReferenceRate* value as their default.

| | |
|---|---|
| Values | Decimal (1..1416905)<br>autoConfigure |
| Units | cell/s |
| Default | autoConfigure |

## ATTRIBUTE AtmIf CA Ubr emissionPriority (ep)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the emission priority (EP) which is used to transmit traffic of the UBR service category. A lower numerical value for this attribute specifies a higher emission priority. 0 is the highest EP and 7 is the lowest. Cells at a higher emission priority receive higher preference for link bandwidth. |

EP 0 and EP 1 are in the absolute priority range and are unaffected by any minimum bandwidth guarantees. EP 2 through EP 7 are in the guaranteed bandwidth range and may achieve a priority which is different from the strict hierarchical priority, if a minimum bandwidth guarantee is provisioned. A minimum bandwidth guarantee is specified in the *AtmIf*/n *Ep*/m component.

This attribute does not apply to basic *Vpt*s, or standard *Vpt Vcc*s.

This attribute is not applicable and is ignored for ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards.

For ***2pOC3MmAtm2***, ***2pOC3SmAtm2***, ***2pSTM1eAtm***, ***2pSTM1eCh***, ***4pOC3MmAtm***, ***4pOC3SmIrAtm***, ***4pDS3ChAtm***, ***3pDS3Atm2***, ***3pE3Atm2***, ***12pDS3Atm***, ***12pE3Atm***, MSA32, and ***1pOC12SmLrAtm*** cards, emission priority setting must comply with all of the following constraints:
1. The emission priority numbers must be in the following order: CBR <= rt-VBR <= nrt-VBR <= ABR <= UBR
2. Two different ATM service categories may share the same EP only if they are both shaped.
3. CBR and rt-VBR may be placed either in the absolute priority range (EP 0 or 1) or in the guaranteed bandwidth range (EP 2 through 7).
4. If both CBR and rt-VBR are shaped, rt-VBR must share the same EP with CBR or ABR. If either one of CBR or rt-VBR are not shaped, then they cannot share the same EP.
5. ABR service category is always deemed to be shaped. If nrt-VBR is shaped, it must share the same EP with ABR. If nrt-VBR is not shaped it must have a higher EP than ABR.
6. If UBR is shaped, it must share the same EP with ABR. If UBR is not shaped, it must have a lower EP than ABR.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, emission priority setting must comply with all of the following constraints:
1. The emission priority numbers must be in the following order: CBR <= rt-VBR <= nrt-VBR <= UBR
2. Two different ATM service categories may share the same EP

only if they are both shaped.
3. EP 0 must be used if traffic shaping is required.
4. EP 5 and EP 6 are not supported.

For ***16pOC3PosAtm*** cards, emission priority setting must comply with all of the following constraints:
1. The emission priority numbers must be in the following order: CBR <= rt-VBR <= nrt-VBR <= UBR
2. Two different ATM service categories may share the same EP only if they are both shaped.

For ***1pOC48ChSmIrAtm,*** and ***1pOC48SmSrPos*** cards, only the default value is supported.

Values — Decimal (0..7)

Default — 7

### ATTRIBUTE AtmIf CA Ubr trafficShaping (trShaping)

Access — Read and write

Criticality — Process

Description — This attribute specifies the default traffic shaping option for connections of the UBR service category. An override to this default may be specified for a provisioned connection under the *Vcd Tm* or *Vpd Tm* component.

This attribute does not apply to basic *Vpts*, or standard *Vpt Vccs*.

A value of ***disabled*** means traffic shaping cannot be enabled for any UBR connections.

For ***1pOC12SmLrAtm***, ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, the value of this attribute must be ***disabled*** since traffic shaping is not supported for UBR connections on these cards.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, the value of this attribute may be ***enabled*** only if the interface supports shaping, as defined by the

*perVcQueueInterfaces* attribute of the *Lp Eng Arc Cqc Ov* component. If that component does not exist, the value of this attribute must be ***disabled***.

If the *Vcc Tm*, *Vpc Tm*, or *Vpt Tm txTrafficDescType* attribute indicates type 1 or 2, this attribute is ignored and traffic shaping is not applicable for that connection.

A value of ***inverseUpc*** means traffic shaping for a connection is enabled according to the value of the *Vcc Tm*, *Vpc Tm*, or *Vpt Tm txTrafficDescType*.

A value of ***inverseUpc*** when the *txTrafficDescType* is 3, 4, 5, or 9 (for UBR with MDCR connections), means linear traffic shaping is enabled. Linear traffic shaping uses a single static traffic shaping rate.

A value of ***inverseUpc*** when the *txTrafficDescType* is 6, 7, or 8, means inverse-UPC (also referred to as VBR or dual leaky bucket) traffic shaping is enabled. Inverse-UPC traffic shaping can burst above the sustained cell rate to the peak cell rate for the duration defined by maximum burst size. Inverse-UPC traffic shaping exactly conforms to the requirements of a dual leaky bucket UPC enforcer.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, the value ***inverseUpc*** is not available.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, the value ***inverseUpc*** is not supported and is equivalent to the value ***enabled***.

A value of ***enabled*** when the *txTrafficDescType* is 3, 4, 5, 6, 7, 8, or 9 (for UBR with MDCR connections), means traffic shaping for a connection is enabled using linear shaping.

Enabling or disabling traffic shaping may require a matching change to the *emissionPriority* attribute, and the *unshapedTransmitQueueing* attribute for this service category.

Refer to those attributes for the complete description of the interactions.

Values
enabled
disabled
inverseUpc

Default
disabled

### ATTRIBUTE AtmIf CA Ubr shapeRecoupPolicy (recoup)

Access
Read and write

Criticality
Process

Description
This attribute specifies the shaping recoup policy for the UBR service category. This is the policy which is used to recoup shaping opportunities which are lost when more than one connection schedules a cell for the same transmit opportunity. In this case, one connection is scheduled and the cell from the other connection is delayed by one cell time. This attribute affects how the transmit time is calculated for the next cell on the delayed connection. This attribute is ignored if this service category is not shaped.

This attribute does not apply to basic *Vpts*, or standard *Vpt Vccs*.

This attribute is not applicable and is ignored for ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards.

When the connection which was delayed schedules the next cell to transmit, it may calculate the time as a difference from either the previous actual cell transmit time, or the time when the previous cell should have been transmitted.

A value of ***maximumEfficiency*** results in each connection trying to recoup or regain any delays in scheduling. The transmit time for the next cell is calculated from the time when the previous cell should originally have been sent. Cell delay variation (CDV) occurs in this case since the cells are sent with less than the shaping delay between them. However, in general the shaper recovers (recoups) lost opportunities and improves efficiency.

A value of ***minimumCdv*** results in connections not trying to recoup or regain any delays in scheduling. The transmit time for the next cell is calculated from the time when the previous cell was actually transmitted. This minimizes CDV, but results in missed cell opportunities.

Values: minimumCdv
maximumEfficiency

Default: maximumEfficiency

## ATTRIBUTE AtmIf CA Ubr unshapedTransmitQueueing (unshap)

Access: Read and write

Criticality: Process

Description: This attribute specifies the default queuing option for unshaped connections of the UBR service category. This attribute controls whether common or per-VC queuing is used.

A value of ***perVc*** means that each connection has its own buffering and queue limits.

A value of ***common*** means that cells are queued in First In First Out order on a common queue for this service category. The common queue has one set of congestion control levels for all cells enqueued on it.

This attribute does not apply to basic *Vpt*s, or standard *Vpt Vcc*s.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, if the *perVcQueueInterfaces* attribute of the *Lp Eng Arc Cqc Ov* component permits shaping for this interface, then this attribute may take any of the three values. In this case, the value ***autoConfigure*** is interpreted to mean per-VC queuing. If the *perVcQueueInterfaces* attribute of the *Lp Eng Arc Cqc Ov* component does not permit shaping for this interface, then this attribute may take the values ***common***, or ***autoConfigure***. In this case, the value ***autoConfigure*** is interpreted to mean common queuing. An override to this default may be specified for a

provisioned connection under the *Vcd Tm*, or *Vpd Tm* component. There is one common queue which is shared by the nrt-VBR, ABR, and UBR service categories.

For ***1pOC12SmLrAtm***, ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, the value ***perVc*** is not supported since these cards do not support per-VC queuing. The value ***autoConfigure*** is interpreted to mean common queuing.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, the value ***common*** is not supported since these cards do not support common queuing. The value ***autoConfigure*** is interpreted to mean per-VC queuing.

For ***2pOC3MmAtm2***, ***2pOC3SmAtm2***, ***2pSTM1eAtm***, ***2pSTM1eCh***, ***4pOC3MmAtm***, ***4pOC3SmIrAtm***, ***4pDS3ChAtm***, ***3pDS3Atm2***, ***3pE3Atm2***, ***12pDS3Atm***, ***12pE3Atm***, MSA32, and ***16pOC3PosAtm*** cards, if traffic shaping for this service category is disabled, this attribute may take any of the three values. In this case, the value ***autoConfigure*** is interpreted to mean per-VC queuing. If traffic shaping for this service category is not disabled, the only permitted values are ***perVc*** and ***autoConfigure***. In this case, the value ***autoConfigure*** is interpreted to mean per-VC queuing.

For ***16pOC3PosAtm*** cards, no more than 32,000 connections on the FP can use per-VC queuing. The remaining connections must use common queuing. The *Lp Eng Arc perVcQueueUsage* attribute indicates the number per-VC queues that are currently in use.

The value of the operational *opUnshapedTransmitQueueing* attribute of this component indicates whether the transmit queuing is ***perVc*** or ***common***.

Values

perVc
common
autoConfigure

Default

autoConfigure

## ATTRIBUTE AtmIf CA Ubr usageParameterControl (upc)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the default usage parameter control (UPC) option for connections of the UBR service category. This attribute is ignored if the *rxTrafficDescriptorType* indicates 1 or 2. An override to this default may be specified for a provisioned connection under the *Vcd Tm* or *Vpd Tm* component.<br><br>A value of ***enforced*** means UPC is enforced for each connection. When UPC is enforced, non-conforming cells are either tagged or discarded depending on the *rxTrafficDescriptorType*.<br><br>A value of ***monitored*** means UPC conformance checking is performed, except, instead of the non-conforming cells being tagged or discarded, they are merely counted in the UPC violations counts and passed on unchanged.<br><br>A value of ***disabled*** means UPC is disabled on the receive path for all UBR connections.<br><br>This attribute does not apply to basic *Vpt*s, or standard *Vpt Vcc*s.<br><br>For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, the value ***monitored*** is not supported. This value has the same effect as ***disabled***.<br><br>For ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, the value of this attribute must be ***disabled***. |
| Values | enforced<br>disabled<br>monitored |
| Default | disabled |

## ATTRIBUTE AtmIf CA Ubr weightPolicy

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the policy which is applied when calculating the fairness weight for unshaped connections of the UBR service category. The fairness weight for a connection determines the relative amount of bandwidth which that connection obtains, compared to other connections in the same service category. Connections with equal weight get equal transmit opportunities. Connections with higher weights get more transmit opportunities compared with connections that have lower weights. An override to this default may be specified for a provisioned connection under the *Vcd Tm* or *Vpd Tm* component.<br><br>The fairness weight for a connection is directly proportional to the value of one of the traffic descriptor parameters for that connection. This attribute specifies which traffic descriptor parameter is used for connections of the UBR service category.<br><br>A value of ***mcr*** means the fairness weight is proportional to the default minimum cell rate (MCR) for UBR connections. If the default minimum cell rate is 0, all UBR connections get a minimum weight, which is 1.<br><br>A value of ***pcr*** means the fairness weight is proportional to the transmit peak cell rate (PCR) of a connection. Connections with a higher PCR have a higher fairness weight. Connections with *txTrafficDescType* 1 or 2 get a minimum weight, which is 1.<br><br>A value of ***ecr*** means the fairness weight is proportional to the equivalent cell rate (ECR) of a connection as calculated by connection admission control (CAC). Connections with a higher ECR have a higher fairness weight. Connections with an ECR of 0 get a minimum weight, which is 1.<br><br>The weight of a connection is visible in the *Vcc Tm*, *Vpc Tm*, or *Vpt Tm weight* attribute.<br><br>This attribute does not apply to basic *Vpt*s and standard *Vpt Vcc*s. |

This attribute is ignored if the value of the *unshapedTransmitQueueing* attribute is ***common***.

This attribute is not applicable and is ignored for ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm***, ***1pOC12SmLrAtm***, ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards.

Values
mcr
pcr
ecr

Default
ecr

## ATTRIBUTE AtmIf CA Ubr forceTagging (tag)

Access
Read and write

Criticality
Process

Description
This attribute specifies the default of whether to force tagging (CLP=1) of all cells for all UBR connections. An override to this default may be specified for a provisioned connection under the *Vcd Tm* or *Vpd Tm* component.

A value of ***enabled*** means CLP is set to 1 for all cells. This is in conformance with the ATM Forum TM4.0 UBR.2 service definition.

A value of ***disabled*** means CLP is unchanged for all cells. This is in conformance with the ATM Forum TM4.0 UBR.1 service definition.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, force tagging applies to cells in the receive direction. For all other cards, force tagging applies to cells in the transmit direction.

This attribute does not apply to any type of *Vpt*.

This attribute is not applicable and is ignored for ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***,

***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm***, ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards.

Values: enabled
disabled

Default: disabled

### ATTRIBUTE AtmIf CA Ubr cdvt

Access: Read and write

Criticality: Process

Description: This attribute specifies the default cell delay variation tolerance (CDVT) for all connections of the UBR service category (including connections managed by a *Vpt CA*). An override to this default may be specified for a provisioned connection under the *Vcd Tm* or *Vpd Tm* component.

If Usage Parameter Control (UPC) is enabled for a connection, CDVT is used by the UPC function to decide whether a cell is conforming or non-conforming based on the connection's traffic descriptor type. The larger the CDVT value, the more tolerant is the UPC of bandwidth usage beyond the traffic contract.

Values: Decimal (1..1200000)

Units: microsec

Default: 250

### ATTRIBUTE AtmIf CA Ubr holdingPriority (hpri)

Access: Read and write

Criticality: Process

Description: This attribute specifies the default holding priority which applies to SVP and SVC UBR connections. It takes a value from 0 (highest priority) to 4 (lowest priority). In a situation where the link bandwidth fluctuates, such as over an IMA link, holding priority is used to determine which connections are held and which are released. Holding priority 4 connections are the first to be released. Holding priority 0 connections are the last to be

released.

This attribute does not apply to *Vpt Vcc*s. When bandwidth fluctuates, the entire *Vpt*, along with all *Vpt Vcc*s is released as a unit, according to the *Vpt*'s *holdingPriority*.

Values
0
1
2
3
4

Default 3

## ATTRIBUTE AtmIf CA Ubr svcMpHoldingPriority (svcMpHpri)

Access Read and write

Criticality Process

Description This attribute specifies the default holding priority which applies to SVC UBR point-to-multipoint connections. It takes a value from 0 (highest priority) to 4 (lowest priority). In a situation where the link bandwidth fluctuates, such as over an IMA link, holding priority is used to determine which connections are held and which are released. Holding priority 4 connections are the first to be released. Holding priority 0 connections are the last to be released.

This attribute does not apply to *Vpt Vcc*s. When bandwidth fluctuates, the entire *Vpt*, along with all *Vpt Vcc*s is released as a unit, according to the *Vpt*'s *holdingPriority*.

Values
0
1
2
3
4

Default 3

## GROUP AtmIf CA Ubr Operational (Oper)

Properties Operational

| | |
|---|---|
| Description | This group contains operational attributes for the UBR service category. |

### ATTRIBUTE AtmIf CA Ubr opUnshapedTransmitQueueing (opUnshap)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the type of transmit queuing for unshaped UBR connections.<br><br>A value of ***perVc*** indicates that unshaped connections use per-VC queuing. A value of ***common*** indicates that unshaped connections use the common queue for this service category.<br><br>For ***1pOC12SmLrAtm***, ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, the value ***common*** is always indicated since these cards do not support per-VC queuing.<br><br>For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, the value ***perVc*** is always indicated since these cards do not support common queuing. |
| Values | perVc<br>common |
| Default | No default |

### ATTRIBUTE AtmIf CA Ubr vpcUsage

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of active UBR *Vpc*s under this interface. It includes switched and permanent connections. |
| Values | Decimal (0..4096) |
| Default | No default |

### ATTRIBUTE AtmIf CA Ubr vccUsage

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of active UBR *Vcc*s under this interface. It includes switched and permanent connections and *Vpt Vcc*s. |

| | |
|---|---|
| Values | Decimal (0..16384) |
| Default | No default |

### ATTRIBUTE AtmIf CA Ubr vptUsage

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of active UBR *Vpts* under this interface. |
| Values | Decimal (0..4096) |
| Default | No default |

### ATTRIBUTE AtmIf CA Ubr epdOffset (epdO)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Early Packet Discard (EPD) offset which is currently in use for this service category. The EPD offset is used to derive the EPD thresholds for each CC level.<br><br>Any connection under this service category which requires the transmit Packet Wise Discard feature must specify a transmit queue limit which is at least 5.71 times this offset. This ensures that the derived Epd threshold will never be less than 17.5% of the transmit queue limit. If this is not done, txPacketWiseDiscard for the connection will be automatically disabled.<br><br>The value of this EPD offset is specified in the *Lp Eng Arc Aqm Ov* component.<br><br>For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm***, ***1pOC12SmLrAtm***, ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, ***16pOC3SmIrAtm***, ***1pOC48ChSmIrAtm***, ***1pOC48SmSrPos***, and ***16pOC3PosAtm*** cards, this attribute is not available and is filtered from the display. |
| Values | Decimal (0; 5..1024) |
| Units | cells |
| Default | No default |

## COMPONENT AtmIf VirtualPathConnection (Vpc)

| | |
|---|---|
| Instance | Decimal (0..4095) |
| Groups | "GROUP AtmIf Vpc OsiState (State)"<br>"GROUP AtmIf Vpc Operational (Oper)"<br>"GROUP AtmIf Vpc ConnectionInfo (ConnInfo)"<br>"GROUP AtmIf Vpc Status"<br>"GROUP AtmIf Vpc Statistics (Stats)"<br>"GROUP AtmIf Vpc Performance (Perf)" |
| Scope | Device |
| Description | *AtmIf/n VirtualPathConnection/vpi*<br>This component represents a virtual path connection (VPC). The instance value defines the VPI value for this connection—for example, *Vpc/120* defines a path with a VPI of 120.<br><br>A *VPC* is always a relay point. and as such can only have a either a *NRP* or a *Loop* subcomponent. |
| Subcomponents | "COMPONENT AtmIf Vpc VirtualPathDescriptor (Vpd)" |
| Opt. Subcomp. | "COMPONENT AtmIf Vpc Loop (Loop)"<br>"COMPONENT AtmIf Vpc NailedUpRelayPoint (Nrp)"<br>"COMPONENT AtmIf Vpc SourcePvp (Src)"<br>"COMPONENT AtmIf Vpc MulticastNailedUpRelayPoint (Mnrp)"<br>"COMPONENT AtmIf Vpc MplsConnection (MplsCon)" |
| Dyn. Subcomp. | "COMPONENT AtmIf Vpc RelayPoint (Rp)"<br>"COMPONENT AtmIf Vpc TrafficManagement (Tm)"<br>"COMPONENT AtmIf Vpc PerformanceMonitoring (Pm)"<br>"COMPONENT AtmIf Vpc PathTraceRecord (PTRecord)"<br>"COMPONENT AtmIf Vpc RerouteInfo (RerInfo)" |
| Dyn. Subcomp. | "COMPONENT AtmIf Vpc DestinationPvp (Dst)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## VERB TRACE AtmIf Vpc

Impact: Service

Description: *TRACE AtmIf/n Vpc/vpi*
*TRACE -s -v -a -e AtmIf/n Vpc/vpi*

This command traces the path of an intra-network segment of a connection. It displays the names of interface and connection components found along this segment of a connection path. The trace output also includes the *Virtual Path Terminator (VPT)* at the end of the path, should one exist.

The options for the signaling trace are as follows:

-*s*: Selects the PNNI signaling call trace instead of the Passport proprietary OAM-based trace procedure. Option -*s* must be present if any one of options -*v*, -*a*, and -*e* are present. Otherwise, it defaults to the OAM-based trace procedure.

-*v*: Requests that vpi value should be collected along the trace. This option is only valid when the -*s* option is present.

-*a*: Requests that the call reference/end point reference values be collected along the trace. This option is only valid when the -*s* option is present.

-*e*: Used on point-to-multipoint connections to specify the end point reference value that indicates which party to trace. If no -*e* option is used for a point-to-multipoint connection, the default traces the path with the endpoint reference 0, which is the first party. This option is only valid when the -*s* option is present.

Only one connection trace is supported at a time. An error message is returned if a response from the network is not received within 30 seconds.

If the verb is issued with the -*s* option for the *Vpc/vpi* values that are not active or were not created by signaling (for example, control channels), the command is refused.

## VERB CLEAR AtmIf Vpc

| | |
|---|---|
| Impact | Service |
| Description | *CLEAR AtmIf/n Vpc/vpi*<br>The *Clear* command applies to a dynamic *AtmIf/n Vpc/vpi* created for an SVP, or for the SVP segments of an SPVP. It does not apply to a provisioned *AtmIf/n Vpc/vpi*.<br>This means that an SPVP can be cleared from its destination end or at any intermediate point, but not from the source end. |

## GROUP AtmIf Vpc OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

## ATTRIBUTE AtmIf Vpc adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |

| | |
|---|---|
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE AtmIf Vpc operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE AtmIf Vpc usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |

| | |
|---|---|
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP AtmIf Vpc Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational information for a *Vcc*, *Vpc*, or *Vpt* component. |

### ATTRIBUTE AtmIf Vpc connectionPointType (cpt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute reflects the role of the connection component at this interface.<br><br>A value of ***connectionEndPoint*** indicates that user cells, end-to-end OAM cells, and segment OAM cells are processed by the connection component.<br><br>A value of ***segmentEndPoint*** indicates that user cells and end-to-end OAM cells are relayed by the connection component, while segment OAM cells are processed by the connection component.<br><br>A value of ***connectingPoint*** indicates that user cells, end-to-end OAM cells, and segment OAM cells are relayed by the connection component.<br><br>A value of ***unknown*** indicates that the connection component is inactive. |
| Values | connectionEndPoint<br>segmentEndPoint<br>connectingPoint<br>unknown |
| Default | No default |

## GROUP AtmIf Vpc ConnectionInfo (ConnInfo)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational connection characteristics information for a *Vcc* component. |

## ATTRIBUTE AtmIf Vpc distributionType (distrbt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the way data is distributed in the connection.<br><br>A value of ***pointToPoint*** indicates this connection point is part of a point-to-point connection.<br><br>A value of ***pointToMultipoint*** indicates this connection point is part of a point-to-multipoint connection. |
| Values | pointToPoint<br>pointToMultipoint |
| Default | pointToPoint |

## ATTRIBUTE AtmIf Vpc numLeaves (nlvs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of destination leaves of the connection. If the *distributionType* is ***pointToPoint*** the value of this attribute is 0. |
| Values | Decimal (0..2147483647) |
| Default | 0 |

## ATTRIBUTE AtmIf Vpc callDirection (cdir)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the direction of the call setup request for an SVC.<br><br>A value of ***fromLink*** means that the call setup originated from the link. |

A value of ***toLink*** means that the call setup was directed to the link.

For PVC connections, the value of this attribute is ***notApplicable.***

For SPVC connections, the value of this attribute is ***notApplicable*** for *Vccs* with the *SourcePVC* and *DestinationPVC* subcomponents.

For Signaling channels, the value of this attribute is ***notApplicable***.

Values
fromLink
toLink
notApplicable

Default
notApplicable

## GROUP AtmIf Vpc Status

Properties
Operational

Description
This group contains operational status information for a *Vcc, Vpc* or *Vpt* component.

## ATTRIBUTE AtmIf Vpc operStatus (opStat)

Access
Read only

Description
This attribute indicates the present operational status of the *Vcc, Vpc* or *Vpt* component. Its value is dependent upon the current state of the *segLinkSideLoopbackState* and *endToEndLoopbackState* attributes.

The value is ***end2endUp*** when the *endToEndLoopbackState* is ***good*** and the *segLinkSideLoopbackState* is either ***good*** or ***unknown***.

The value is ***end2endDown*** when the *endToEndLoopbackState* is ***bad*** and the *segLinkSideLoopbackState* is either ***good*** or ***unknown***.

The value is ***localUpEnd2endUnknown*** when the *endToEndLoopbackState* is ***unknown*** and the *segLinkSideLoopbackState* is ***good***.

The value is ***localDown*** when *segLinkSideLoopbackState* is ***bad***.

The value is ***localUpEnd2endUnknown*** when the *endToEndLoopbackState* is ***notApplicable*** and the *segLinkSideLoopbackState* is ***good***.

The value is ***unknown*** when the *endToEndLoopbackState* is either ***unknown*** or ***notApplicable*** and the *segLinkSideLoopbackState* is ***unknown***.

Values
unknown
end2endUp
end2endDown
localUpEnd2endUnknown
localDown

Default
No default

## ATTRIBUTE AtmIf Vpc localFailureCause

Access
Read only

Description
This attribute indicates the failure cause of the *Vcc*, *Vpc* or *Vpt* component. A value of ***noFailure*** indicates that there is currently no bandwidth related failure for this connection.

A value of ***portDown*** indicates that the interface corresponding to the parent *AtmIf* is down.

A value of ***localBwLoss*** indicates that the *AtmIf* has lost some, but not all bandwidth, and as a result, this connection has been released.

A value of ***notAdmitted*** indicates that this connection has failed to be admitted by the Connection Admission Control (CAC) algorithm.

A value of ***appNotRegistered*** indicates that there is no application registered to use this connection. This may be the case, for example when there is a *Vcc Test* application, but the test has not been started. Check the status of the application to determine why it is not functional.

A value of ***disabledByApp*** indicates that the application using this connection has requested that the connection be disabled. An example is a connection used by a trunk application where the trunk has timed out on an attempt to stage. Check the application to determine why it is not fully functional.

A value of ***bwReduced*** indicates that this connection is operating in a reduced bandwidth state. It is a bandwidth elastic connection which currently has been allocated less than the requested (equivalent) bandwidth.

A value of ***vpDown*** indicates that this connection has been notified of a fault detected at the associated VP-layer. A value of ***vpDown*** is applicable for *Vpt Vcc*s only.

Values

noFailure
localBwLoss
portDown
notAdmitted
appNotRegistered
disabledByApp
bwReduced
vpDown

Default

No default

## ATTRIBUTE AtmIf Vpc troubled

Access

Read only

Description

This attribute indicates whether or not the connection is in a troubled state. Connections become troubled because of OAM failures; when one of the attributes *segLinkSideLoopbackState*, *segSwitchSideLoopbackState*, *endToEndLoopbackState*, *aisState* (when receiving AIS cells only) or *rdiState* go bad, this attribute is set to ***yes***; otherwise it is set to ***no***.

| | |
|---|---|
| Values | no<br>yes |
| Default | no |

### ATTRIBUTE AtmIf Vpc segLinkSideLoopbackState (segLkLbkState)

| | |
|---|---|
| Access | Read only |
| Description | This attribute contains the current state of the link-side segment loopback for this connection. Link-side segment loopback cells are transmitted (inserted) by a connection component in the direction of the link (port). The value of this attribute is dependent upon the current setting of the *segLinkSideLoopback* provisionable attribute, the connection point type as specified by the *connectionPointType* attribute, and the current loopback state (if applicable).<br><br>The value is ***notApplicable*** when the *connectionPointType* is a ***connectingPoint***.<br><br>The value is ***notApplicable*** when the *distributionType* is ***pointToMultipoint***.<br><br>The value is ***good*** when the *segLinkSideLoopback* is ***on***, the *connectionPointType* is a ***segmentEndPoint*** or a ***connectionEndPoint***, and the segment link side loopback is working.<br><br>The value is ***bad*** when the *segLinkSideLoopback* is ***on***, the *connectionPointType* is a ***segmentEndPoint*** or a ***connectionEndPoint***, and the link side segment loopback is not working.<br><br>The value is ***unknown*** when the *segLinkSideLoopback* is ***off***.<br><br>The value is ***unknown*** when the *segLinkSideLoopback* is ***on***, the *connectionPointType* is a ***segmentEndPoint*** and the segment switch side loopback has not yet been determined.<br><br>The state of this attribute determines, in part, the value of the *operStatus* attribute**.** |

Values
good
bad
unknown
notApplicable

Default
No default

### ATTRIBUTE AtmIf Vpc segSwitchSideLoopbackState (segSwLbkState)

Access
Read only

Description
This attribute contains the current state of the switch-side segment loopback for this connection. Switch-side segment loopback cells are transmitted (inserted) by a connection component in the direction of the bus. The value of this attribute is dependent upon the current setting of the *segSwitchSideLoopback* provisionable attribute, the connection point type as specified by the *connectionPointType* attribute, and the current loopback state (if applicable).

The value is only applicable when the *connectionPointType* is a ***segmentEndPoint***. The value is ***notApplicable*** when the *connectionPointType* is a ***connectingPoint*** or ***connectionEndPoint***. The value is ***notApplicable*** when the *distributionType* is ***pointToMultipoint***.

The value is ***good*** when the *segSwitchSideLoopback* is ***on***, the *connectionPointType* is a ***segmentEndPoint*** and the segment switch side loopback is working.

The value is ***bad*** when the *segSwitchSideLoopback* is ***on***, the *connectionPointType* is a ***segmentEndPoint*** and the switch side segment loopback is not working.

The value is ***unknown*** when the *segSwitchSideLoopback* is ***off***.

The value is ***unknown*** when the *segSwitchSideLoopback* is ***on***, the *connectionPointType* is a ***segmentEndPoint*** and the segment switch side loopback has not been determined.

Values
good
bad

unknown
notApplicable

Default — No default

### ATTRIBUTE AtmIf Vpc endToEndLoopbackState (eeLbkState)

Access — Read only

Description — This attribute contains the current state of the end-to-end loopback for this connection. Its value is dependent upon the current setting of the *endToEndLoopback* provisionable attribute and the connection point type as specified by the *connectionPointType* attribute.

The value is only applicable when the *connectionPointType* is a ***connectionEndPoint***. The value is ***notApplicable*** when the *connectionPointType* is a ***connectingPoint*** or s***egmentEndPoint***. The value is ***notApplicable*** when the *distributionType* is a ***pointToMultipoint***.

The value is ***good*** when the *endToEndLoopback* is ***on***, the *connectionPointType* is a ***connectionEndPoint*** and the end-to-end loopback is working.

The value is ***bad*** when the *endToEndLoopback* is ***on***, the *connectionPointType* is a ***connectionEndPoint*** and the end-to-end loopback is not working.

The value is ***unknown*** when the *endToEndLoopback* is ***off***.

The value is ***unknown*** when the *endToEndLoopback* is ***on***, the *connectionPointType* is a ***connectionEndPoint*** and the end-to-end loopback status has not been determined.

The state of this attribute determines, in part, the value of the *operStatus* attribute.

Values
good
bad
unknown
notApplicable

Default No default

### ATTRIBUTE AtmIf Vpc rxOamCellCongestionState (rxOamCongState)

Access Read only

Description This attribute contains the current state of the receive side OAM cell congestion for this connection. Its value reflects whether the rate of received OAM cells for this connection is below a specified threshold. The connection maintains a count of the number of OAM cells which are terminated per second. Once that count exceeds the specified threshold, extraction of all OAM cells for this connection is disabled for a period of one minute. This is a congestion management mechanism to prevent the processor from being overloaded with handling OAM cells for a particular connection. This mechanism ensures that tasks, such as trunks obtain enough processor cycles to remain in service, and are not adversely affected by excessive rate of OAM cells on a particular connection.

The value is ***good*** when the rate of received OAM cells is less than the allowed threshold.

The value is ***bad*** when the arrival rate has exceeded the allowed threshold. It remains ***bad*** for one minute, before returning to ***good*** again. During this timeout, extraction of all OAM cells is disabled for this connection. As a result, other loopback failure conditions may occur.

The value is ***unknown*** when the application has not yet begun to use this connection. An example is the *Test* component before a test has been started.

Each type of OAM cell is counted separately. The threshold for AIS cells is three cells per second. If more than three AIS cells are received within a one second interval, this attribute is set to ***bad***. The threshold for RDI cells and each loopback type is also three, but the threshold for trace cells is 250 per second.

The state of this attribute has no direct effect on the value of the *operStatus* attribute or on the number of troubled connections.

| | |
|---|---|
| Values | good<br>bad<br>unknown<br>notApplicable |
| Default | No default |

### ATTRIBUTE AtmIf Vpc aisState

| | |
|---|---|
| Access | Read only |
| Description | This attribute contains the current state of the Alarm Indication Signal for this connection.<br><br>A value of ***good*** indicates that the connection's application is active and no alarm has occurred.<br><br>A value of ***bad*** indicates that the connection's application is active and an alarm has occurred.<br><br>A value of ***unknown*** indicates that the connection's application is inactive.<br><br>A value of ***notApplicable*** occurs when the *connectionPointType* is either a ***segmentEndPoint*** or a ***connectingPoint***. |
| Values | good<br>bad<br>unknown<br>notApplicable |
| Default | No default |

### ATTRIBUTE AtmIf Vpc rdiState

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current state of the Remote Defect Indication for this connection.<br><br>A value of ***good*** indicates that the connection's application is active and no alarm has occurred. |

A value of ***bad*** indicates that the connection's application is active and an alarm has occurred.

A value of ***unknown*** indicates that the connection's application is inactive.

A value of ***notApplicable*** occurs when the *connectionPointType* is either a ***segmentEndPoint*** or a ***connectingPoint***.

Values
good
bad
unknown
notApplicable

Default
No default

## GROUP AtmIf Vpc Statistics (Stats)

Properties
Operational

Description
This group contains traffic statistics for a *Vcc*, *Vpc*, or *Vpt* component.

## ATTRIBUTE AtmIf Vpc txCell

Access
Read only

Description
This attribute counts the number of cells that have been transmitted from the interface on this connection.

The counter wraps to zero if it exceeds its maximum value of (2**64)-1.

Values
Long Integer

Default
No default

## ATTRIBUTE AtmIf Vpc txCellClp (txClp)

Access
Read only

Description
This attribute counts the number of cells that have been transmitted from the interface on this connection with the CLP=1.

The counter wraps to zero if it exceeds its maximum value of (2**64)-1.

Values: Long Integer

Default: No default

### ATTRIBUTE AtmIf Vpc txCellDiscard (txcd)

Access: Read only

Description: This attribute counts the number of cells received from the backplane on this connection that have been discarded.

Discarded cells are not counted in the *txCell* attribute.

Cells are discarded due to transmit congestion, Partial Packet Discard (PPD), Early Packet Discard (EPD), and Weighted Random Early Detection (W-RED) mechanisms, or when the connection's interface is disabled.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, this attribute is not applicable to connections that segment frames into cells (AAL5 adaptation). Such connections usually have a *connectionPointType* of ***connectionEndPoint***. AAL1 connections are an exception to this rule; although they have a *connectionPointType* of ***connectionEndPoint***, they do not do AAL5 adaptation at this point.

For *Vpt*s, this attribute provides an aggregated total of all *txCellDiscard* values for all connections associated with the *Vpt*.

The counter wraps to zero if it exceeds its maximum value of (2**64)-1.

Values: Long Integer

Default: No default

### ATTRIBUTE AtmIf Vpc txCellDiscardClp (txcdClp)

Access: Read only

Description

This attribute counts the number of cells received from the backplane on this connection with CLP=1 that have been discarded.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, this attribute is not applicable and is not displayed.

This count is included in the *txCellDiscard* attribute. Discarded cells are not counted in the *txCellClp* attribute.

Cells are discarded due to transmit congestion, Partial Packet Discard (PPD), Early Packet Discard (EPD), and Weighted Random Early Detection (W-RED) mechanisms, or when the connection's interface is disabled.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, this attribute is not applicable to connections that segment frames into cells (AAL5 adaptation). Such connections usually have a *connectionPointType* of ***connectionEndPoint***. AAL1 connections are an exception to this rule; although they have a *connectionPointType* of ***connectionEndPoint***, they do not do AAL5 adaptation at this point.

For *Vpt*s, this attribute provides an aggregated total of all *txCellDiscardClp* values for all connections associated with the *Vpt*.

The counter wraps to zero if it exceeds its maximum value of (2**64)-1.

Values

Long Integer

Default

No default

## ATTRIBUTE AtmIf Vpc txFrameDiscard (txfd)

Access

Read only

Description

This attribute counts the number of frames received from the backplane on this connection that have been discarded.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, this attribute is not applicable and is not displayed.

Frames are discarded due to congestion, Partial Packet Discard (PPD), Early Packet Discard (EPD), and Weighted Random Early Detection (W-RED) mechanisms, or when the connection interface is disabled.

This count is independent of the *txCell* or *txCellDiscard* attribute.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, this attribute is applicable only to connections that segment frames into cells (AAL5 adaptation). Such connections usually have a *connectionPointType* of ***connectionEndPoint***. AAL1 connections are an exception to this rule; although they have a *connectionPointType* of ***connectionEndPoint***, they do not do AAL5 adaptation at this point.

For *Vpt*s, this attribute provides an aggregated total of all *txFrameDiscard* values for all connections associated with the *Vpt*.

Discards due to EPD, PPD, and W-RED for a standard *Vpt Vcc* are not included in this attribute. These discards are counted in the *Vcc*'s parent *Vpt txFrameDiscard* attribute.

The counter wraps to zero if it exceeds its maximum value of (2**64)-1.

Values: Long Integer

Default: No default

## ATTRIBUTE AtmIf Vpc txFrameDiscardClp (txfdClp)

Access: Read only

Description: This attribute counts the number of discarded frames on this connection that were received from the backplane and composed of one or more CLP=1 cells.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, this attribute is not applicable and is not displayed.

Frames are discarded due to congestion, Partial Packet Discard (PPD), Early Packet Discard (EPD), and Weighted Random Early Detection (W-RED) mechanisms, or when the connection interface is disabled.

This count is included in the *txFrameDiscard* attribute.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, this attribute is applicable only to connections that segment frames into cells (AAL5 adaptation). Such connections usually have a *connectionPointType* of ***connectionEndPoint***. AAL1 connections are an exception to this rule; although they have a *connectionPointType* of ***connectionEndPoint***, they do not do AAL5 adaptation at this point.

For *Vpt*s, this attribute provides an aggregated total of all *txFrameDiscardClp* values for all connections associated with the *Vpt*.

Discards due to EPD, PPD, and W-RED for a standard *Vpt Vcc* are not included in this attribute. These discards are counted in the *Vcc*'s parent *Vpt txFrameDiscardClp* attribute.

The counter wraps to zero if it exceeds its maximum value of (2**64)-1.

Values — Long Integer

Default — No default

## ATTRIBUTE AtmIf Vpc rxCell

Access — Read only

Description — This attribute counts the number of cells that have been received from the interface on this connection.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm***

cards, this count does not include cells that have been discarded by the interface due to non-conformance with UPC.

The counter wraps to zero if it exceeds its maximum value of (2**64)-1.

Values: Long Integer

Default: No default

### ATTRIBUTE AtmIf Vpc rxCellClp (rxClp)

Access: Read only

Description: This attribute counts the number of cells that have been received from the interface on this connection with the CLP=1.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, this attribute is not applicable and is not displayed.

The counter wraps to zero if it exceeds its maximum value of (2**64)-1.

Values: Long Integer

Default: No default

### ATTRIBUTE AtmIf Vpc rxCellDiscard (rxcd)

Access: Read only

Description: This attribute counts the number of cells received from the interface on this connection that have been discarded. This count is included in the *rxCell* attribute.

This count includes cells discarded due to non-conformance with UPC, cells which are part of a frame which has been discarded due to an AAL5 frame reassembly error, cells which are discarded due to congestion, or cells which are received while the next hop connection to which the traffic is directed across the backplane is down. The next hop connection is the *Vcc* or *Vpc* identified by the *nextHop* attribute of the *Nrp* or *Rp* component.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***,

***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, this attribute is not applicable to connections that reassemble cells into frames (AAL5 adaptation). Such connections usually have a *connectionPointType* of ***connectionEndPoint***. AAL1 connections are an exception to this rule; although they have a *connectionPointType* of ***connectionEndPoint***, they do not do AAL5 adaptation at this point.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, this count does not include cells discarded due to non-conformance with UPC.

For *Vpt*s, this attribute provides an aggregated total of all *rxCellDiscard* values for all connections associated with the *Vpt*. Discards due to non-conformance with UPC at the VP layer, for a standard *Vpt Vcc*, are not included in this attribute. These discards are counted in the *Vcc*'s parent *Vpt rxCellDiscard* attribute.

The counter wraps to zero if it exceeds its maximum value of (2**64)-1.

Values — Long Integer

Default — No default

### ATTRIBUTE AtmIf Vpc rxCellDiscardClp (rxcdClp)

Access — Read only

Description — This attribute counts the number of cells received from the interface on this connection with CLP=1 that have been discarded. This count is included in the *rxCell* and *rxCellDiscard* attributes.

This count includes cells discarded due to non-conformance with UPC, cells which are part of a frame which has been discarded due to an AAL5 frame reassembly error, cells which are discarded due to congestion, or cells which are received while the next hop connection to which the traffic is directed across the backplane is down. The next hop connection is the *Vcc* or *Vpc*

identified by the *nextHop* attribute of the *Nrp* or *Rp* component.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, this attribute is not applicable and is not displayed.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, this attribute is not applicable to connections that reassemble cells into frames (AAL5 adaptation). Such connections usually have a *connectionPointType* of ***connectionEndPoint***. AAL1 connections are an exception to this rule; although they have a *connectionPointType* of ***connectionEndPoint***, they do not do AAL5 adaptation at this point.

For *Vpt*s, this attribute provides an aggregated total of all *rxCellDiscardClp* values for all connections associated with the *Vpt*. Discards due to non-conformance with UPC at the VP layer, for a standard *Vpt Vcc*, are not included in this attribute. These discards are counted in the *Vcc*'s parent *Vpt rxCellDiscardClp* attribute.

The counter wraps to zero if it exceeds its maximum value of (2**64)-1.

Values — Long Integer

Default — No default

## ATTRIBUTE AtmIf Vpc rxFrameDiscard (rxfd)

Access — Read only

Description — This attribute counts the number of frames received from the interface on this connection that have been discarded. This count is independent of the *rxCellDiscard* attribute.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, this attribute is not applicable and is not displayed.

This count includes frames discarded due to an AAL5 frame reassembly error, frames discarded due to early packet discard

(EPD), frames discarded due to processor (CPU) congestion, and frames discarded due to insufficient frame memory. The amount of available frame memory is determined by the *Lp Eng Arc Ov* component.

This attribute is applicable only to connections that reassemble incoming cells into frames. Such connections usually have a *connectionPointType* of ***connectionEndPoint***. AAL1 connections are an exception to this rule; although they have a *connectionPointType* of ***connectionEndPoint***, they do not do AAL5 adaptation at this point.

For *Vpt*s, this attribute provides an aggregated total of all *rxFrameDiscard* values for all connections associated with the *Vpt*.

The counter wraps to zero if it exceeds its maximum value of (2**64)-1.

Values — Long Integer

Default — No default

### ATTRIBUTE AtmIf Vpc rxFrameDiscardClp (rxfdClp)

Access — Read only

Description — This attribute counts the number of discarded frames on this connection that were received from the interface and composed of one or more CLP1 cells. This count is included in the *rxFrameDiscard* attribute. It is independent of the *rxCellDiscard* attribute.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, this attribute is not applicable and is not displayed.

This count includes frames discarded due to an AAL5 frame reassembly error, frames discarded due to early packet discard (EPD), frames discarded due to processor (CPU) congestion, and frames discarded due to insufficient frame memory. The amount of available frame memory is determined by the *Lp Eng Arc Ov* component.

This attribute is applicable only to connections that reassemble incoming cells into frames. Such connections usually have a *connectionPointType* of ***connectionEndPoint***. AAL1 connections are an exception to this rule; although they have a *connectionPointType* of ***connectionEndPoint***, they do not do AAL5 adaptation at this point.

For *Vpt*s, this attribute provides an aggregated total of all *rxFrameDiscardClp* values for all connections associated with the *Vpt*.

The counter wraps to zero if it exceeds its maximum value of (2**64)-1.

Values — Long Integer

Default — No default

## ATTRIBUTE AtmIf Vpc rxUpcViolationOnEnforcer1 (rxEnforcer1)

Access — Read only

Description — This attribute counts the number of UPC violations observed by the Generic Cell Rate Algorithm (GCRA) Enforcer 1. This attribute is only applicable if UPC is enforced or monitored on the connection.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm***, ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, ***16pOC3SmIrAtm***, ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, this attribute is not applicable and is not displayed.

When the value of the *rxTrafficDescType* attribute for this connection is 3, 4, 5, 6, 7, 8, or 9 (for UBR with MDCR connections) Enforcer 1 enforces conformance of traffic received from the interface to PCR CLP0+1.

When the value of the *rxTrafficDescType* attribute for this connection is 9 (for ABR connections), Enforcer 1 performs the Dynamic Generic Cell Rate Algorithm (DGCRA) used for the

Available Bit Rate (ABR) service category.

If UPC is enforced all non-conforming cells are discarded by this enforcer. These discarded cells are included in the *rxCellDiscard* attribute.

For basic *Vpt*s, this attribute provides an aggregated total of all *rxUpcViolationOnEnforcer1* values for all *Vcc*s associated with the *Vpt*. This attribute is not applicable for standard *Vpt Vcc*s.

The counter wraps to zero if it exceeds its maximum value of (2**64)-1.

Values — Long Integer

Units — cells

Default — No default

### ATTRIBUTE AtmIf Vpc rxUpcViolationOnEnforcer2 (rxEnforcer2)

Access — Read only

Description — This attribute counts the number of UPC violations observed by the Generic Cell Rate Algorithm (GCRA) Enforcer 2. This attribute is only applicable if UPC is enforced or monitored on the connection.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm***, ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, ***16pOC3SmIrAtm***, ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, this attribute is not applicable and is not displayed.

This attribute is only applicable if the value of the *rxTrafficDescType* attribute for this connection is 4, 5, 6, 7, or 8.

When the value of the *rxTrafficDescType* attribute is 4, or 5**,** Enforcer 2 enforces conformance of traffic received from the interface to PCR CLP0.

When the value of the *rxTrafficDescType* attribute is 6**,** Enforcer 2 enforces conformance of traffic received from the interface to

SCR CLP0+1.

When the value of the *rxTrafficDescType* attribute is 7, or 8, Enforcer 2 enforces conformance of traffic received from the interface to SCR CLP0.

If UPC is enforced, Enforcer 2 discards non-conforming cells for *rxTrafficDescType* values of 4, 6, and 7. It tags non-conforming cells for *rxTrafficDescType* values of 5, and 8. Discarded cells are counted in the rxCellDiscard attribute.

For basic *Vpt*s, this attribute provides an aggregated total of all *rxUpcViolationOnEnforcer2* values for all *Vcc*s associated with the *Vpt*. This attribute is not applicable for standard *Vpt Vcc*s.

The counter wraps to zero if it exceeds its maximum value of (2**64)-1.

Values: Long Integer

Units: cells

Default: No default

### ATTRIBUTE AtmIf Vpc rxAal5FrameError (rxfer)

Access: Read only

Description: This attribute counts the number of frames received from the interface on this connection that have AAL5 length errors or AAL5 CRC errors.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, this attribute is not applicable and is not displayed.

AAL5 length or CRC errors typically occur because of cell discards due to congestion, UPC, or due to corruption of data between the AAL5 segmentation and reassembly end points.

This attribute is applicable only to connections that reassemble incoming cells into frames. Such connections usually have a *connectionPointType* of ***connectionEndPoint***. AAL1

connections are an exception to this rule; although they have a *connectionPointType* of ***connectionEndPoint***, they do not do AAL5 adaptation at this point.

For *Vpt*s, this attribute provides an aggregated total of all *rxAal5FrameError* values for all connections associated with the *Vpt*.

The counter wraps to zero if it exceeds its maximum value of (2**64)-1.

Values — Long Integer

Default — No default

### ATTRIBUTE AtmIf Vpc rxAal5FrameAbort (rxfa)

Access — Read only

Description — This attribute counts the number of frames received from the interface on this connection that have the AAL5 length field set to zero.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, this attribute is not applicable and is not displayed.

An AAL5 length of zero is an indication by the far end segmentation point, to this reassembly point, that the frame is to be discarded without reassembly. This mechanism is typically used by a segmentation point if it detects an error in a frame after some of the cells belonging to that frame have already been transmitted.

This attribute is applicable only to connections that reassemble incoming cells into frames. Such connections usually have a *connectionPointType* of ***connectionEndPoint***. AAL1 connections are an exception to this rule; although they have a *connectionPointType* of ***connectionEndPoint***, they do not do AAL5 adaptation at this point.

For *Vpt*s, this attribute provides an aggregated total of all

*rxAal5FrameAbort* values for all connections associated with the *Vpt*.

The counter wraps to zero if it exceeds its maximum value of (2**64)-1.

Values: Long Integer

Default: No default

## GROUP AtmIf Vpc Performance (Perf)

Properties: Operational

Description: This group contains operational attributes which keep performance statistics about the behavior of the connection.

## ATTRIBUTE AtmIf Vpc lastMinimumCtd (lastminctd)

Access: Read only

Description: This attribute indicates the minimum calculated cell transfer delay value for this connection from the previous TODA (time of day accounting) interval if TODA is enabled; or for the previous 12 hour interval if TODA is disabled. Cell transfer delay is calculated as half of the measured segment round trip delay of a loopback cell.

The value is ***noMeasurement*** when the *ctdCalculation* attribute of the *AtmIf* component is ***off***.

The value is ***noMeasurement*** when the *accountCollection* attribute of the *AtmIf Uni* or *AtmIf Iisp* component has a non-empty reason.

The value is ***noMeasurement*** when the *segSwitchSideLoopback* attribute value is ***off*** for the connection.

The value is ***noMeasurement*** when the switch-side loopback is not working.

The value is ***noMeasurement*** when the switch-side loopback status cannot be determined.

| | |
|---|---|
| Values | Decimal (1..2147483647)<br>noMeasurement |
| Units | microsec |
| Default | No default |

### ATTRIBUTE AtmIf Vpc lastMaximumCtd (lastmaxctd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the maximum calculated cell transfer delay value for this connection from the previous TODA (time of day accounting) interval if TODA is enabled; or for the previous 12 hour interval if TODA is disabled. Cell transfer delay is calculated as half of the measured segment round trip delay of a loopback cell.<br><br>The value is ***noMeasurement*** when the *ctdCalculation* attribute of the *AtmIf* component is ***off***.<br><br>The value is ***noMeasurement*** when the *accountCollection* attribute of the *AtmIf Uni* or *AtmIf Iisp* component has a non-empty reason.<br><br>The value is ***noMeasurement*** when the *segSwitchSideLoopback* attribute value is ***off*** for the connection.<br><br>The value is ***noMeasurement*** when the switch-side loopback is not working.<br><br>The value is ***noMeasurement*** when the switch-side loopback status cannot be determined. |
| Values | Decimal (1..2147483647)<br>noMeasurement |
| Units | microsec |
| Default | No default |

### ATTRIBUTE AtmIf Vpc lastAverageCtd (lastavectd)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the average of all calculated cell transfer delay values for this connection from the previous TODA (time of day accounting) interval if TODA is enabled; or for the previous 12 hour interval if TODA is disabled. Cell transfer delay is calculated as half of the measured segment round trip delay of a loopback cell.<br><br>The value is ***noMeasurement*** when the *ctdCalculation* attribute of the *AtmIf* component is ***off***.<br><br>The value is ***noMeasurement*** when the *accountCollection* attribute of the *AtmIf Uni* or *AtmIf Iisp* component has a non-empty reason.<br><br>The value is ***noMeasurement*** when the *segSwitchSideLoopback* attribute value is ***off*** for the connection.<br><br>The value is ***noMeasurement*** when the switch-side loopback is not working.<br><br>The value is ***noMeasurement*** when the switch-side loopback status cannot be determined. |
| Values | Decimal (1..2147483647)<br>noMeasurement |
| Units | microsec |
| Default | No default |

### ATTRIBUTE AtmIf Vpc currentCtd (currctd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the most recent cell transfer delay value calculated for this connection. Cell transfer delay is calculated as half of the measured segment round trip delay of a loopback cell.<br><br>The value is ***noMeasurement*** when the *ctdCalculation* attribute of the *AtmIf* component is ***off***.<br><br>The value is ***noMeasurement*** when the *segSwitchSideLoopback* attribute value is ***off*** for the connection. |

The value is ***noMeasurement*** when the switch-side loopback is not working.

The value is ***noMeasurement*** when the switch-side loopback status cannot be determined.

| | |
|---|---|
| Values | Decimal (1..2147483647)<br>noMeasurement |
| Units | microsec |
| Default | No default |

### ATTRIBUTE AtmIf Vpc lastCtdSampleSize (lastsamplectd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of loopback cells sampled for cell transfer delay calculations during the previous TODA (time of day accounting) interval if TODA is enabled; or for the previous 12 hour interval of TODA is disabled. |
| Values | Decimal (0..16384) |
| Default | No default |

### COMPONENT AtmIf Vpc VirtualPathDescriptor (Vpd)

| | |
|---|---|
| Groups | "GROUP AtmIf Vpc Vpd Loopback (Lbk)"<br>"GROUP AtmIf Vpc Vpd Accounting (Acct)" |
| Scope | Device |
| Description | *AtmIf/n Vpc/vpi VirtualPathDescriptor*<br>The *Vpd* component contains provisioning information about its parent *Vpc* component. |
| Subcomponents | "COMPONENT AtmIf Vpc Vpd TrafficManagement (Tm)" |
| Opt. Subcomp. | "COMPONENT AtmIf Vpc Vpd PerformanceMonitoring (Pm)" |
| Common Verbs | Help<br>List<br>Display |

## GROUP AtmIf Vpc Vpd Loopback (Lbk)

Properties: Provisioned

Description: This group contains the provisionable loopback attributes for a *Vcc, Vpc,* or *Vpt* component.

Note that certain loopback requests may not be possible on a given connection. In such cases, the corresponding operational loopback attribute in the *Status* group of the *Vcc, Vpc,* or *Vpt* component indicates ***notApplicable*** and the requested loopback is not performed.

If loopbacks are provisioned to be on, and for any reason the segment or end-to-end OAM loopback cells are not relayed, the connection component becomes troubled, and user cell traffic may be discarded. If loopbacks are provisioned to be on, all of the nodes in the segment, and external networks which are in the end-to-end connection must relay the OAM loopback cells.

## ATTRIBUTE AtmIf Vpc Vpd segLinkSideLoopback (segLkLbk)

Access: Read and write

Description: This attribute specifies whether link-side segment loopback insertion should be performed on this connection.

A value of ***sameAsInterface*** means the link-side segment loopback insertion for the connection is based on the *segLinkSideLoopback* attribute of the connection's parent *AtmIf* component—if the ATM interface has link-side segment loopback insertion turned on, then link-side segment loopback insertion is also on for the connection.

A value of ***on***, or ***off*** means link-side segment loopback insertion is turned on or off respectively for the connection regardless of the provisioning of the parent *AtmIf* component.

Note that link-side segment loopback insertion is not possible if the value of the *connectionPointType* attribute of the *Vcc* or *Vpc* component is ***connectingPoint***. Link-side segment loopback insertion is also not possible if the value of the *distributionType*

attribute of the *Vcc* is ***pointToMultipoint***. In such cases, the operational *segLinkSideLoopbackState* attribute indicates ***notApplicable*** and link-side segment loopback insertion is not performed.

Link-side segment loopback insertion is always possible on a *Vpt*.

Values
on
off
sameAsInterface

Default
sameAsInterface

## ATTRIBUTE AtmIf Vpc Vpd segSwitchSideLoopback (segSwLbk)

Access
Read and write

Description
This attribute specifies whether switch-side segment loopback insertion should be performed on this connection.

A value of ***sameAsInterface*** means the switch-side segment loopback insertion for the connection is based on the *segSwitchSideLoopback* attribute of the connection's parent *AtmIf* component—if the ATM interface has switch-side segment loopback insertion turned on, then switch-side segment loopback insertion is also on for the connection.

A value of ***on***, or ***off*** means switch-side segment loopback insertion is turned on or off respectively for the connection regardless of the provisioning of the parent *AtmIf* component.

Note that switch-side segment loopback insertion is not possible if the value of the *connectionPointType* attribute of the *Vcc* or *Vpc* component is ***connectingPoint*** or ***connectionEndPoint***. Switch-side segment loopback insertion is also not possible if the value of the *distributionType* attribute of the *Vcc* is ***pointToMultipoint*** In such cases, the operational *segSwitchSideLoopbackState* attribute indicates ***notApplicable*** and switch-side segment loopback insertion is not performed.

Switch-side segment loopback is never possible on a *Vpt*.

Values
on
off
sameAsInterface

Default
sameAsInterface

## ATTRIBUTE AtmIf Vpc Vpd endToEndLoopback (eeLbk)

Access
Read and write

Description
This attribute specifies whether end-to-end loopback insertion should be performed on this connection.

A value of ***sameAsInterface*** means the end-to-end loopback insertion for the connection is based on the *endToEndLoopback* attribute of the connection's parent *AtmIf* component—if the ATM interface has end-to-end loopback insertion turned on, then end-to-end loopback insertion is also on for the connection.

A value of ***on***, or ***off*** means end-to-end loopback insertion is turned on or off respectively for the connection regardless of the provisioning of the parent *AtmIf* component.

Note that end-to-end loopback insertion is not possible if the value of the *connectionPointType* attribute of the *Vcc* or *Vpc* component is ***connectingPoint***, or ***segmentEndPoint***. End-to-end loopback insertion is also not possible if the value of the *distributionType* attribute of the *Vcc* is ***pointToMultipoint***. In such cases, the operational *endToEndLoopbackState* attribute indicates ***notApplicable*** and end-to-end loopback insertion is not performed.

End-to-end loopback insertion is always possible on a *Vpt*.

Values
on
off
sameAsInterface

Default
sameAsInterface

### ATTRIBUTE AtmIf Vpc Vpd mCastConnectionType (connType)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies if this *Vcc* or *Vpc* is part of point-to-point or point-to-multiPoint connection.<br><br>A value of ***pointToMultiPointRoot*** must be set when this *Vcc* has an *Msrc* or an *Mnrp* subcomponent, or this *Vpc* has an *Mnrp* subcomponent.<br><br>A value of ***pointToMultiPointLeaf*** must be set when this *Vcc* or *Vpc* has a *Nrp* subcomponent and its *nextHop* attribute is linked to a *Mnrp* component.<br><br>Otherwise a value of ***pointToPoint*** must be set. |
| Values | pointToPoint (ptp)<br>pointToMultipointRoot (pmpRoot)<br>pointToMultipointLeaf (pmpLeaf) |
| Default | pointToPoint |

### GROUP AtmIf Vpc Vpd Accounting (Acct)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable ATM accounting attributes for a *Vcc*, *Vpc*, or *Vpt* component. |

### ATTRIBUTE AtmIf Vpc Vpd correlationTag (tag)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies a unique identifier for each end of a PVC. It that may be used by downstream processing systems to correlate accounting records issued at different nodes in the network. The attribute can be up to 64 bytes long. If it is less than 64 bytes, it is zero filled on the right to create a 64 byte value. The resulting value is recorded in the attribute *callConnId* for this PVC's ATM accounting records. |

| | |
|---|---|
| | If the value is a null string then this PVC does not have any accounting records generated for it. |
| Values | String (0..64, ASCII) |
| Default | "" |

### COMPONENT AtmIf Vpc Vpd TrafficManagement (Tm)

| | |
|---|---|
| Groups | "GROUP AtmIf Vpc Vpd Tm Provisioned (Prov)" |
| Scope | Device |
| Description | *AtmIf/n Vcc/vpi.vci Vcd TrafficManagement,*<br>*AtmIf/n Vpc/vci Vpd TrafficManagement,*<br>*AtmIf/n Vpt/vpi Vpd TrafficManagement,*<br>*AtmIf/n Vpt/vpi Vcc/vci Vcd TrafficManagement*<br>This component contains provisioned traffic management attributes of a connection. It is added automatically when a *Vcc*, *Vpc*, or *Vpt* is added in provisioning mode. It is a mandatory subcomponent of the *Vcd* or *Vpd* component. |
| Opt. Subcomp. | "COMPONENT AtmIf Vpc Vpd Tm AvailableBitRate (Abr)" |
| Common Verbs | Help<br>List<br>Display |

### GROUP AtmIf Vpc Vpd Tm Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains traffic related provisionable attributes for the *Vcc*, *Vpc*, and *Vpt* components. Changing any of the attributes in this group causes a service interruption on the *Vcc*, *Vpc*, or *Vpt* component. |

### ATTRIBUTE AtmIf Vpc Vpd Tm txTrafficDescType (txTdt)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the type of traffic management which is applied to the transmit direction of this connection as defined in |

the ATM Forum. The *txTrafficDescType* determines the number and meaning of the parameters in the *txTrafficDescParm* attribute.

Values
1
2
3
4
5
6
7
8
9

Default 1

### ATTRIBUTE AtmIf Vpc Vpd Tm fwdQosClass (fwdQos)

Access Read and write

Criticality Component

Description This attribute specifies the quality of service for the forward direction for this connection. This attribute is only used for SPVC connections.

Class 1 supports a QOS that meets Service Class A performance requirements (circuit emulation, constant bit rate video).

Class 2 supports a QOS that meets Service Class B performance requirements (variable bit rate audio and video).

Class 3 supports a QOS that meets Service Class C performance requirements (Connection-Oriented Data Transfer).

Class 4 supports a QOS that meets Service Class D performance requirements (Connectionless Data Transfer).

Class 0 is the unspecified bit rate QOS class; no objective is specified for the performance parameters.

| | |
|---|---|
| Values | 0<br>1<br>2<br>3<br>4 |
| Default | 0 |

### ATTRIBUTE AtmIf Vpc Vpd Tm txQueueLimit (txQlim)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies an override to the default transmit queue limit for this connection.<br><br>A value of ***sameAsCa*** means that the default common or per-VC transmit queue limit, as defined by the CA service category, is used for this connection. For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, the value ***sameAsCa*** must be specified.<br><br>A value from 5 to 512,000 means that the connection transmit queue limit differs from the default common or per-VC transmit queue limit, as defined by the CA service category. A value other than ***sameAsCa*** is ignored for connections where common queuing is specified for the service category.<br><br>For ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, this attribute is used to set the per-VC utilization limit of the service category common queue.<br><br>For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, the valid range for this attribute is from 5 to 512000 inclusive.<br><br>For ***16pOC3PosAtm*** cards, the valid range for this attribute is from ***32*** to ***261120*** inclusive.<br><br>On all other cards, the valid range for this attribute is from 5 to 63488 inclusive. |

The actual transmit queue limit for a connection is visible in the *Vcc Tm*, *Vpc Tm* or *Vpt txQueueThresholds* attribute.

This attribute is not applicable for basic *Vpt*s.

Values
Decimal (5..512000)
sameAsCa

Units
cells

Default
sameAsCa

### ATTRIBUTE AtmIf Vpc Vpd Tm holdingPriority (hpri)

Access
Read and write

Criticality
Component

Description
This attribute specifies the holding priority of this connection. In a situation where the link bandwidth fluctuates, such as over an IMA link, holding priority is used to determine which connections are held and which are released. Holding priority 4 connections are the first to be released. Holding priority 0 connections are the last to be released. The default holding priority for a provisioned connection is higher then default holding priorities for dynamic (SVC) connections.

The value of this attribute may be overridden by certain applications, for example *Vcc Test*, which use this connection.

This attribute is not applicable for *Vpt Vcc*s.

Values
0
1
2
3
4

Default
2

### ATTRIBUTE AtmIf Vpc Vpd Tm rxTrafficDescType (rxTdt)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the type of traffic management which is applied to the receive direction of this connection as defined in the ATM Forum. The *rxTrafficDescType* determines the number and meaning of the parameters in the *rxTrafficDescParm* attribute.<br><br>The value ***sameAsTx*** means the *rxTrafficDescType* as well as the *rxTrafficDescParm* attribute values are taken from the values of the *txTrafficDescType* and *txTrafficDescParm* attributes. |
| Values | 1<br>2<br>3<br>4<br>5<br>6<br>7<br>8<br>9<br>sameAsTx |
| Default | sameAsTx |

### ATTRIBUTE AtmIf Vpc Vpd Tm bwdQosClass (bwdQos)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the quality of service for the backward direction for this connection. This attribute is only used for SPVC connections.<br><br>Class 1 supports a QOS that meets Service Class A performance requirements (Circuit emulation, constant bit rate video).<br><br>Class 2 supports a QOS that meets Service Class B performance |

requirements (Variable bit rate audio and video).

Class 3 supports a QOS that meets Service Class C performance requirements (Connection-Oriented Data Transfer).

Class 4 supports a QOS that meets Service Class D performance requirements (Connectionless Data Transfer).

Class 0 is the unspecified bit rate QOS class; no objective is specified for the performance parameters.

The ***sameAsFwd*** selection sets the backward quality of service to be the same as the forward quality of service.

Values
0
1
2
3
4
sameAsFwd

Default
sameAsFwd

### ATTRIBUTE AtmIf Vpc Vpd Tm atmServiceCategory (service)

Access
Read and write

Criticality
Component

Description
This attribute specifies the ATM service category for both directions of the connection.

The value ***derivedFromBBC*** may only be used if the *Src* or *Dst* component is provisioned under this connection. Otherwise a specific ATM service category must be specified.

A value of ***derivedFromBBC*** means the Broadband Bearer Capability (BBC) and *bestEffort* attributes are used to determine the *atmServiceCategory* of this connection.

A value other than ***derivedFromBBC*** means the value of this attribute is used to override the provisioned BBC Information Element parameters. In this case, the BBC attributes are not used.

The ***constantBitRate*** service category is intended for real-time applications, that is those requiring tightly constrained delay and delay variation, as would be appropriate for voice and video applications. The consistent availability of a fixed quantity of bandwidth is considered appropriate for CBR service. Cells which are delayed beyond the value specified by Cell Transfer Delay are assumed to be of significantly reduced value to the application.

The ***rtVariableBitRate*** service category is intended for real-time applications, that is those requiring tightly constrained delay and delay variation, as would be appropriate for voice and video applications. Sources are expected to transmit at a rate which varies with time. Equivalently, the source can be described as “bursty”. Cells which are delayed beyond the value specified by CTD are assumed to be of significantly reduced value to the application. Real-time VBR service may support statistical multiplexing of real-time sources.

The ***nrtVariableBitRate*** service category is intended for non-real time applications which have bursty traffic characteristics and which can be characterized in terms of a PCR, SCR, and MBS. For those cells which are transferred within the traffic contract, the application expects a low cell loss ratio. For all connections, it expects a bound on the mean cell transfer delay. Non real-time VBR service may support statistical multiplexing of connections.

The ***availableBitRate*** service is an ATM layer service category for which the limiting ATM layer transfer characteristics provided by the network may change subsequent to connection establishment. ABR service has a flow control mechanism which supports several types of feedback to control the source rate in response to changing ATM layer transfer characteristics. ABR service is not intended to support real-time applications.

The ***unspecifiedBitRate*** service is intended for non real-time applications; that is, those not requiring tightly constrained delay and delay variation. UBR sources are expected to be bursty. UBR service supports a high degree of statistical multiplexing among sources. UBR service does not specify traffic related service

guarantees. No numerical commitments are made with respect to the cell loss ratio experienced by a UBR connection, or as to the cell transfer delay experienced by cells on the connection.

Values

unspecifiedBitRate (ubr)
constantBitRate (cbr)
rtVariableBitRate (rtvbr)
nrtVariableBitRate (nrtvbr)
availableBitRate (abr)
derivedFromBBC (derived)

Default

unspecifiedBitRate

## ATTRIBUTE AtmIf Vpc Vpd Tm trafficShaping (trShaping)

Access

Read and write

Criticality

Component

Description

This attribute specifies whether this connection uses traffic shaping when transmitting traffic to the ATM interface.

This attribute is ignored if the *atmServiceCategory* is ***availableBitRate***.

For ***1pOC12SmLrAtm***, ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, traffic shaping is not available, therefore this attribute is ignored.

A value of ***sameAsCa*** means traffic shaping for the connection is based on the value of the *trafficShaping* attribute of the connection's service category component under the *CA*. If the service category has *trafficShaping* set to ***enabled*** or ***inverseUpc***, then traffic shaping is enabled for the connection. Note that enabling traffic shaping may have no effect under certain cases. These cases are listed in the description of the *trafficShaping* operational attribute, which is under the *Vcc Tm, Vpc Tm,* or *Vpt Tm* components.

A value of ***disabled*** means traffic shaping for this connection is disabled regardless of the provisioning of the connection's service category component.

| | |
|---|---|
| Values | disabled<br>sameAsCa |
| Default | sameAsCa |

### ATTRIBUTE AtmIf Vpc Vpd Tm unshapedTransmitQueueing (unshap)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the transmit queuing method for this connection if it is unshaped. The two possible methods are per-VC queuing and common queuing. This attribute does not apply if the connection is shaped.<br><br>A value of ***sameAsCa*** means the transmit queuing method for the connection is based on the *unshapedTransmitQueueing* attribute of the connection's service category component under the *CA*.<br><br>A value of ***common*** means transmit traffic on this unshaped connection is destined for the common queue.<br><br>For ***2pOC3MmAtm2***, ***2pOC3SmAtm2***, ***2pSTM1eAtm***, ***2pSTM1eCh***, ***4pOC3MmAtm***, ***4pOC3SmIrAtm***, ***4pDS3ChAtm***, ***3pDS3Atm2***, ***3pE3Atm2***, ***12pDS3Atm***, ***12pE3Atm***, MSA32, ***1pOC12SmLrAtm***, ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, ***16pOC3SmIrAtm***, ***16pOC3PosAtm***, ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, this attribute must have the value ***sameAsCa***.<br><br>This attribute is ignored in the following situations:<br>- if the connection has *trafficShaping* ***enabled*** or ***inverseUpc***, or<br>- if the *atmServiceCategory* is ***availableBitRate***, or<br>- if the *atmServiceCategory* is ***constantBitRate***, or<br>- for basic *Vpt*s and standard *Vpt Vcc*s. |
| Values | common<br>sameAsCa |
| Default | sameAsCa |

## ATTRIBUTE AtmIf Vpc Vpd Tm weight

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies an override for the weight of this unshaped connection. This attribute is ignored for shaped connections, for ABR connections, and basic *Vpt*s.<br><br>A value of ***sameAsCa*** means the weight is determined by the *weightPolicy* attribute under the *CA* service category component for all but standard *Vpt Vcc*s. For standard *Vpt Vcc*s, the weight is determined by the *Vcc*'s service category, when the value is set to ***sameAsCa***.<br><br>A value from 1 to 4095 means that value is used for the fairness weight of this connection relative to other connections. For all but standard *Vpt Vcc*s, fairness weight determines the proportion of transmit cell opportunities which are allocated to this connection, compared to other connections in the same service category. For standard *Vpt Vcc*s, fairness weight determines the proportion of transmit cell opportunities which are allocated to this connection, compared to other connections associated with the *Vpt*.<br><br>A value of ***upToQueueLimit*** means the fairness weight is limited only by the *txQueueLimit*.<br><br>This attribute is not applicable and is ignored for ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm***, ***1pOC12SmLrAtm***, ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards.<br><br>For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, ***16pOC3SmIrAtm***, and ***16pOC3PosAtm*** cards, the value ***upToQueueLimit*** is not permitted. |
| Values | Decimal (1..4095)<br>sameAsCa<br>upToQueueLimit |
| Default | sameAsCa |

## ATTRIBUTE AtmIf Vpc Vpd Tm forceTagging (tagging)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies whether force tagging of the CLP bit is enforced for cells of this connection.<br><br>For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm***, ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, and for *Vpt*s, this attribute is not applicable and is ignored.<br><br>A value of ***sameAsCa*** means the force tagging functionality is determined by the *forceTagging* attribute under the *CA* service category component.<br><br>A value of ***enabled*** means force tagging is enabled. When this option is selected, the CLP bit is set to 1 for all cells on the connection.<br><br>A value of ***disabled*** means force tagging is disabled. When this option is selected, the CLP bit is unchanged for cells on the connection.<br><br>For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, force tagging applies to cells in the receive direction. For all other cards, force tagging applies to cells in the transmit direction. In this case, cells which are tagged are counted in the *txCellClp* attribute. |
| Values | sameAsCa<br>enabled<br>disabled |
| Default | sameAsCa |

## ATTRIBUTE AtmIf Vpc Vpd Tm usageParameterControl (upc)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |

Description

This attribute specifies whether this connection enables usage parameter control (UPC) when receiving traffic from the ATM interface.

The value ***sameAsCa*** means UPC for the connection is based on the value of the *usageParameterControl* attribute of the service category component under the *AtmIf CA*. If the service category has UPC ***enforced*** or ***monitored***, then UPC is enabled on the connection.

The value ***disabled*** means UPC for this connection is disabled regardless of the provisioning of the service category.

The value ***enforced*** means UPC for this connection is enforced regardless of the provisioning of the service category. When UPC is enforced, non-conforming cells are either tagged or discarded depending on the *rxTrafficDescriptorType*.

The value ***monitored*** means UPC for this connection is monitored regardless of the provisioning of the service category. When UPC is monitored, instead of the non-conforming cells being tagged or discarded, they are merely counted in the UPC violations counts and passed on unchanged.

Note that setting UPC to ***enforced*** or ***monitored*** may have no effect under certain cases. These cases are listed in the description of the *usageParameterControl* operational attribute, which is under the *Vcc*, *Vpc*, and *Vpt* components.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, the value ***monitored*** is not supported.

For ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, the values ***enforced***, and ***monitored***, are not supported.

Values

enforced
disabled
sameAsCa
monitored

Default sameAsCa

## ATTRIBUTE AtmIf Vpc Vpd Tm bearerClassBbc (bcBbc)

Access Read and write

Criticality Component

Description This attribute specifies the bearer capability. This attribute is only used for SPVC and SPVP connections. It is one of the Broadband Bearer Capability (BBC) attributes. The purpose of the BBC information element is to indicate a requested broadband connection-oriented bearer service to be provided by the network.

The value ***derivedFromServiceCategory*** specifies that the actual value which is used for this connection is derived from the value of the *atmServiceCategory*. Either, this attribute must be set to ***derivedFromServiceCategory***, or the *atmServiceCategory* attribute must be set to ***derivedFromBBC***, but not both.

Class ***a*** service is a connection-oriented, constant bit rate ATM transport service. Class ***a*** service has end to end timing requirements and may require stringent cell loss, cell delay and cell delay variation performance.When ***a*** is set, the user is requesting more than an ATM only service. The network may look at the AAL to provide interworking based upon its contents.

Class ***c*** service is a connection-oriented, variable bit rate ATM transport service. Class ***c*** service has no end-to-end timing requirements. When ***c*** is set, the user is requesting more than an ATM only service. The network interworking function may look at the AAL and provide service based on it.

Class ***x*** service is a connection-oriented ATM transport service where the AAL, *trafficType* (***vbr*** or ***cbr***) and timing requirements are user defined (that is, transparent to the network).When ***x*** is set the user is requesting an ATM only service from the network. In this case, the network shall not process any higher layer protocol.

Class **vp** service is used to specify a transparent VP service. When the value of this attribute is vp, the user is requesting an ATM only service from the network. In this case, the network

shall not process any higher layer protocol. This service differs from class x service in that with the class vp service both the VCI field (except or VCI values 0, 3, 4, and 6 through 15) and Payload Type field are transported transparently by the network. This attribute value is only applicable to SPVP connections.

Values
a
c
x
vp
derivedFromServiceCategory

Default
derivedFromServiceCategory

## ATTRIBUTE AtmIf Vpc Vpd Tm transferCapabilityBbc (tcBbc)

Access
Read and write

Criticality
Component

Description
This attribute specifies the transfer capability for this connection. Uni 3.0/3.1 traffic type and end-to-end timing parameters are mapped into this parameter as follows:
<transferCapability: TrafficType, Timing>
0: NoIndication, NoIndication
1: NoIndication, yes
2: NoIndication, no
5: CBR, yes
8: VBR, NoIndication
9: VBR, yes
10: VBR, no

The value ***notApplicable*** specifies that the user does not want to specify the transfer capability.

The CBR traffic type refers to traffic offered on services such as a constant bit rate video service or a circuit emulation.
The VBR traffic type refers to traffic offered on services such as packetized audio and video, or data.

The value no indication for traffic type is used if the user has not set the traffic type; similarly for end-to-end timing.

The value yes for end-to-end timing indicates that end-to-end timing is required.

The value no for end-to-end timing indicates that end-to-end timing is not required.

The value ***derivedFromServiceCategory*** specifies that the actual value which is used for this connection is derived from the value of the *atmServiceCategory*. Either, this attribute must be set to ***derivedFromServiceCategory***, or the *atmServiceCategory* attribute must be set to ***derivedFromBBC***, but not both.

Values

0
1
2
5
8
9
10
notApplicable
derivedFromServiceCategory

Default

derivedFromServiceCategory

## ATTRIBUTE AtmIf Vpc Vpd Tm txWredThreshold

Access

Read and write

Criticality

Component

Description

This attribute specifies the threshold for weighted random early detection (WRED). This threshold is calculated as a percentage of the early packet discard (EPD) threshold, which is 85% of the transmit queue length. When the value is ***25%***, WRED starts as soon as the queue is 25% of the way to the EPD threshold. When the value is ***50%***, WRED starts later, after the queue is 50% of the way to the EPD threshold. When the value is ***75%***, WRED starts only when the queue is 75% of the way to the EPD threshold.

This attribute is ignored if the value of the *txWredMode* or *txPacketWiseDiscard* attributes is ***disabled.***

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm***, and ***1pOC12SmLrAtm*** cards, this attribute is not applicable and is ignored.

Values: Decimal (25; 50; 75)

Units: %

Default: 25

### ATTRIBUTE AtmIf Vpc Vpd Tm clippingBbc (cBbc)

Access: Read and write

Criticality: Component

Description: This attribute specifies the value for the clipping susceptibility parameter in the BBC Information Element. This attribute is only used for SPVC connections. It is one of the Broadband Bearer Capability attributes.

Clipping is an impairment in which the first fraction of a second of information to be transferred is lost. It occurs after a call is answered and before an associated connection is switched through.

Values: no
yes

Default: no

### ATTRIBUTE AtmIf Vpc Vpd Tm bestEffort

Access: Read and write

Criticality: Component

Description: This attribute specifies the value of the best effort parameter in the ATM Traffic Descriptor Information Element. This attribute is only used for SPVC connections. It is one of the Broadband Bearer Capability attributes.

The value ***indicated*** implies that the quality of service for this

connection is not guaranteed.

The value ***notIndicated*** implies that the quality of service for this connection is guaranteed.

The value ***derivedFromServiceCategory*** specifies that the actual value which is used for this connection is derived from the value of the *atmServiceCategory*. Either, this attribute must be set to ***derivedFromServiceCategory***, or the *atmServiceCategory* attribute must be set to ***derivedFromBBC***, but not both.

Values
indicated
notIndicated
derivedFromServiceCategory (derived)

Default
derivedFromServiceCategory

## ATTRIBUTE AtmIf Vpc Vpd Tm txPacketWiseDiscard (txpd)

Access
Read and write

Criticality
Component

Description
This attribute specifies whether packet-wise discard functions are to be enabled or disabled in the transmit data direction for this connection. Packet-wise discard functions apply to AAL5 frame traffic. This attribute is not applicable for *Vpt*s.

For ***1pOC12SmLrAtm*** cards, this attribute is not applicable and is ignored.

Packet-wise functions increase the “goodput” of the link. The transmit packet-wise functions are Early Packet Discard (EPD) and Partial Packet Discard (PPD).

EPD allows the connection to discard an entire frame once the transmit queue has reached the EPD threshold. EPD increases the “goodput” of a link, since discarding an entire frame means that some queue capacity is guarded for some other frame which is already partially transmitted. All cells of the frame are discarded from the Beginning of Message (BOM) cell up to and including the End of Message (EOM) cell.

PPD allows the connection to discard the remainder of a cell-forwarded AAL5 frame if one cell of this frame has been discarded. All cells are discarded up to but not including the EOM cell. The PPD function increases the “goodput” of the link, since cells which are only going to be discarded at the AAL5 reassembly point are not transmitted.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, the packet-wise discard functions are PPD and EPD. PPD is applicable at cell-transfer points. PPD is not applicable at frame-to-cell conversion points, and is not applicable for *Vpc*s. PPD is configured by this attribute. Packet-wise discard should only be enabled for connections carrying AAL5 segmentation traffic. Setting this attribute to ***enabled*** for any other traffic type may result in all traffic being discarded. EPD is automatically ***enabled*** at frame-to-cell conversion points, independent of the setting of this attribute.

For ***2pOC3MmAtm2***, ***2pOC3SmAtm2***, ***2pSTM1eAtm***, ***2pSTM1eCh***, ***4pOC3MmAtm***, ***4pOC3SmIrAtm***, ***4pDS3ChAtm***, ***3pDS3Atm2***, ***3pE3Atm2***, ***12pDS3Atm***, ***12pE3Atm***, MSA32, ***16pOC3PosAtm***, ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, packet-wise discard functions include EPD and PPD. PPD and EPD apply to individual VCCs and VCCs within VPCs at all connection points, including tandem VPC connections. Both PPD and EPD are controlled by this attribute. This attribute may safely be set to ***enabled*** for any connection (*Vcc* or *Vpc*) since these FPs have the ability to automatically detect AAL5-segmented traffic on a connection, and only enable packet-wise discards if AAL5-segmented traffic is detected.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, packet-wise discard functions include EPD and PPD. PPD and EPD apply to individual VCCs and VCCs within VPCs at all connection points, including tandem VPC connections. Packet-wise discard should only be enabled for connections carrying AAL5 segmentation traffic. Setting this attribute to ***enabled*** for any other traffic type may result in all traffic being discarded.

A value of ***enabled*** means packet-wise discard functions are

applied to transmit traffic at this connection point. A value of ***disabled*** means packet-wise discard functions are not applied to transmit traffic at this connection point.

At a SPVC origin on a PNNI interface, a value of ***enabled*** specifies that frame discard is requested in the backward direction. When this attribute is set to ***disabled***, backward frame discard is not requested in the SPVC call setup.

The transmit packet-wise discard functions that are active are visible in the *Vcc/Vpc Tm txPacketWiseDiscard* operational attribute.

Values: disabled
enabled

Default: disabled

### ATTRIBUTE AtmIf Vpc Vpd Tm rxPacketWiseDiscard (rxpd)

Access: Read and write

Criticality: Component

Description: This attribute specifies whether packet-wise discard functions are to be enabled or disabled in the receive data direction for this connection. Packet-wise discard functions apply to AAL5 frame traffic. This attribute is not applicable for *Vpt*s.

For ***1pOC12SmLrAtm*** cards, this attribute is not applicable and is ignored.

Packet-wise functions increase the “goodput” of the link. The receive packet-wise function is Partial Packet Discard (PPD).

PPD allows the connection to discard the remainder of a cell-forwarded AAL5 frame if one cell of this frame has been discarded, for example due to UPC. All cells are discarded up to but not including the EOM cell. The PPD function increases the “goodput” of the link, since cells which are only going to be discarded at the AAL5 reassembly point are not transmitted.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***,

***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, PPD is available at all VCC connection points where UPC may be activated. PPD is not applicable for *Vpcs*. Packet-wise discards should only be enabled for connections carrying AAL5 segmentation traffic. Setting the value to ***enabled*** for any other traffic type may result in traffic being discarded. PPD is automatically ***enabled*** at frame-to-cell conversion points, independent of the setting of this attribute.

For ***2pOC3MmAtm2***, ***2pOC3SmAtm2***, ***2pSTM1eAtm***, ***2pSTM1eCh***, ***4pOC3MmAtm***, ***4pOC3SmIrAtm***, ***4pDS3ChAtm***, ***3pDS3Atm2***, ***3pE3Atm2***, ***12pDS3Atm***, ***12pE3Atm***, MSA32, ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, this attribute may safely be set to ***enabled*** for any connection (*Vcc* or *Vpc*) since these FPs have the ability to automatically detect AAL5-segmented traffic on a connection, and only enable packet-wise discards if AAL5-segmented traffic is detected.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, packet-wise discard functions include EPD and PPD. PPD and EPD apply to individual VCCs and VCCs within VPCs at all connection points, including tandem VPC connections. Packet-wise discard should only be enabled for connections carrying AAL5 segmentation traffic. Setting this attribute to ***enabled*** for any other traffic type may result in all traffic being discarded.

A value of ***enabled*** means packet-wise discard functions are applied to receive traffic at this connection point. A value of ***disabled*** means packet-wise discard functions are not applied to receive traffic at this connection point.

At a SPVC origin on a PNNI interface, a value of ***enabled*** specifies that frame discard is requested in the forward direction. When this attribute is set to ***disabled***, forward frame discard is not requested in the SPVC call setup.

For ***16pOC3PosAtm*** cards, the value of this attribute must be ***disabled***. PPD and EPD are enabled by default at a connection endpoint which is performing AAL5 segmentation and assembly.

The receive packet-wise discard functions that are active are

visible in the *Vcc/Vpc Tm rxPacketWiseDiscard* operational attribute.

Values
disabled
enabled

Default
disabled

## ATTRIBUTE AtmIf Vpc Vpd Tm txWredMode

Access
Read and write

Criticality
Component

Description
This attribute specifies the activation of weighted random early detection (WRED) functionality. WRED is considered a packet-wise discard function and as such applies only to AAL5 frame traffic.

WRED is applied in the transmit direction for this connection. WRED function should be enabled only for connections which are transferring TCP/IP traffic. WRED acts to prevent synchronization of multiple TCP/IP sources by randomly discarding a small percentage of frames when transmit queue congestion reaches the designated level. WRED may also be used to differentiate service on VCC's by preferentially discarding one VCC before another. Discards start at 0% of cells, when the queue is part-way to the Early Packet Discard (EPD) threshold, and rise to 100% of cells discarded at the EPD threshold. WRED discards all the cells in a frame.

A value of ***enabled*** means WRED is enabled for all applications linked to the given *Vcc*.

A value of ***perFlow*** means each TCP application has individual control over whether to enable or disable WRED.

If the value of the *txPacketWiseDiscard* attribute is ***disabled***, or if the value of this attribute is ***disabled***, WRED functionality is disabled.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm***, and

***1pOC12SmLrAtm*** cards, the value of this attribute must be ***disabled***.

If WRED is active, it is visible in the *Vcc/Vpc Tm txPacketWiseDiscard* operational attribute.

This attribute is not applicable for *Vpt*s or *Vpt Vcc*s.

Values
disabled
enabled
perFlow

Default
disabled

## ATTRIBUTE AtmIf Vpc Vpd Tm abrConnectionType (abrType)

Access
Read and write

Criticality
Component

Description
This attribute specifies the type of ABR behavior which is to be enforced at this connection. This attribute is only applicable if the value of the *atmServiceCategory* attribute is ***availableBitRate***. If the value of the *atmServicecategory* attribute is not ***availableBitRate***, this attribute is ignored.

The value ***sameAsCa*** is used to request the default behavior as specified in the *CA Abr* component for this *Vcc*. Otherwise, this attribute overrides the default behavior.

The value ***virtualSourceDest*** is used to request that this connection point function as a virtual source/virtual destination.

The value ***sourceDest*** requires that this connection point function as a S/D for RM cells. S/D mode is automatically invoked at this connection point either if this is a connection end point, or if the next hop connection point is configured as ***nonAbrInterworking***.

The value ***nonAbrInterworking*** is used to request that this connection point function as an interworking between ABR and non-ABR service categories. This means that there are no RM cells on the link side of this connection, and that the next hop connection point is performing as an ABR ***sourceDest***.

The value ***abrSwitch*** is used to request ABR switch behavior for this connection point. The ABR switch behavior is first, to conform to ***virtualSourceDest*** or ***nonAbrInterworking*** setting on the next hop, and otherwise to implement ABR ER switch behavior.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, the only allowable values are ***sameAsCa***, ***nonAbrInterworking*** or ***abrSwitch***. If ***abrSwitch*** is selected, EFCI marking behavior is implemented.

For ***1pOC12SmLrAtm*** cards, the only allowable values are ***sameAsCa*** or ***abrSwitch.*** If ***abrSwitch*** is selected, EFCI marking behavior is implemented.

For ***16pOC3PosAtm*** cards, the only allowable value is ***sameAsCa***.

The actual ABR functionality which is in effect is visible in the *Vcc/Vpc/Vpt Tm abrConnectionType* operational attribute.

Values
abrSwitch
virtualSourceDest
sourceDest
nonAbrInterworking
sameAsCa

Default
sameAsCa

## ATTRIBUTE AtmIf Vpc Vpd Tm txTrafficDescParm (txTdp)

Access
Read and write

Criticality
Component

Description
This attribute is a vector of five traffic parameters whose meanings are defined by the *txTrafficDescType* attribute.

The values of peak cell rate (PCR), sustained cell rate (SCR), Minimum Cell Rate (MCR) and requested shaping rate are expressed in cell/s. Maximum burst size (MBS) is expressed in

cells. CDVT is expressed in microseconds. The values of PCR, SCR, MCR, MBS and CDVT are used for connection admission control (CAC). The value of CDVT is only used for connections where the *atmServiceCategory* is ***constantBitRate***. For all other values of *atmServiceCategory*, CDVT is ignored. The values of PCR, SCR, MCR and requested shaping rate are used to determine the actual shaping rate where traffic shaping is enabled.

When *txTrafficDescType* is 1 or 2, all of the parameters must be set to zero.

When *txTrafficDescType* is 3, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameter 1 must be non-zero. Parameters 2 and 3 must be zero.

When *txTrafficDescType* is 4, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic with cell discard; parameter 2 represents the PCR for CLP equal to 0 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameter 1 must be greater than or equal to parameter 2. Parameters 1 and 2 must be non-zero. Parameter 3 must be zero.

When *txTrafficDescType* is 5, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic with cell tagging; parameter 2 represents the PCR for CLP equal to 0 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameter 1 must be greater than or equal to parameter 2. Parameters 1 and 2 must be non-zero. Parameter 3 must be zero.

When *txTrafficDescType* is 6, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 and 1 traffic; parameter 3 represents the MBS for CLP equal to 0 and 1 traffic; parameter 4 represents the CDVT;

and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameters 1, 2 and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2. Parameter 5, must either be zero (unused) or greater than or equal to parameter 2.

When *txTrafficDescType* is 7, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 with cell discard; parameter 3 represents the MBS for CLP equal to 0 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameters 1, 2 and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2. Parameter 5, must either be zero (unused) or greater than or equal to parameter 2.

When *txTrafficDescType* is 8, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 traffic with cell tagging; parameter 3 represents the MBS for CLP equal to 0 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameters 1, 2 and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2. Parameter 5, must either be zero (unused) or greater than or equal to parameter 2.

When *txTrafficDescType* is 9, parameter 1 represents the PCR; parameter 2 represents the CDVT; parameter 3 represents the MCR; parameter 4 and parameter 5 represent are not used and must be zero. Parameter 1 must be non-zero and must be greater than or equal to parameter 3. Parameter 3 may be optionally zero.

Whenever it is valid for PCR to be specified, parameter 5 may also be used to specify a requested shaping rate. A non-zero value in parameter 5 overrides the value in parameter 1 and is used as the peak cell rate in calculations of CAC and shaping rate. When the *atmServiceCategory* is ***availableBitRate*** (ABR), the shaping rate is dynamically chosen, based on the ABR flow control

mechanism, as a value between the MCR and the PCR or the requested shaping rate if applicable.

For *txTrafficDescType* 3, 4 and 5, the transmit traffic is shaped at the next available shaping rate less than the PCR.

For *txTrafficDescType* 6, 7 and 8 if linear traffic shaping is selected, the transmit traffic is shaped at the highest available rate which is between PCR and SCR. However, if there is no available shaping rate between PCR and SCR, traffic is shaped at the next rate above the PCR.

For *txTrafficDescType* 6, 7 and 8 if inverse-UPC traffic shaping is selected, the transmit traffic is shaped at a variable rate which conforms to the PCR, SCR and MBS of the connection traffic descriptor.

| | |
|---|---|
| Vector of | Decimal (0..2147483647) |
| Index | Decimal (1..5) |
| Default | ([5] 0) |

### ATTRIBUTE AtmIf Vpc Vpd Tm rxTrafficDescParm (rxTdp)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute is a vector of five traffic parameters whose meanings are defined by the *rxTrafficDescType* attribute. If the value of the *rxTrafficDescType* attribute is ***sameAsTx***, the values provisioned in this attribute are ignored. The traffic parameters for the receive direction are taken from the *txTrafficDescParm* attribute.<br><br>The values of peak cell rate (PCR), sustained cell rate (SCR), and Minimum Cell Rate (MCR) are expressed in cell/s. Maximum burst size (MBS) is expressed in cells. The value of CDVT is expressed in microseconds. The values of PCR, SCR, MCR, MBS and CDVT are used for usage parameter control (UPC).<br><br>When *rxTrafficDescType* is 1 or 2, all of the parameters must be |

set to zero (unused).

When *rxTrafficDescType* is 3, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; and parameter 4 represents the CDVT. Parameter 1 must be non-zero. Parameters 2 and 3 must be set to zero (unused).

When *rxTrafficDescType* is 4, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the PCR for CLP equal to 0 traffic with cell discard; and parameter 4 represents the CDVT. Parameters 1 and 2 must be non-zero. Parameter 3 must be set to zero (unused). Parameter 1 must be greater than or equal to parameter 2.

When *rxTrafficDescType* is 5, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the PCR for CLP equal to 0 traffic with cell tagging; and parameter 4 represents the CDVT. Parameters 1 and 2 must be non-zero. Parameter 3 must be set to zero (unused). Parameter 1 must be greater than or equal to parameter 2.

When *rxTrafficDescType* is a 6, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 and 1 traffic; parameter 3 represents the MBS for CLP equal to 0 and 1 traffic; and parameter 4 represents the CDVT. Parameters 1, 2 and 3 must be non-zero. Parameter 1 must be greater than or equal to Parameter 2.

When *rxTrafficDescType* is 7, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 traffic with cell discard; parameter 3 represents the MBS for CLP equal to 0 traffic; and parameter 4 represents the CDVT. Parameters 1, 2 and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2.

When *rxTrafficDescType* is 8, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 traffic with cell tagging; parameter 3 represents the MBS for CLP equal to 0 traffic; and parameter 4 represents the CDVT. Parameter 1, 2 and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2.

When *rxTrafficDescType* is 9, parameter 1 represents the PCR; parameter 2 represents the CDVT; parameter 3 represents the MCR. Parameter 4 is not used and must be zero. Parameter 1 must be non-zero and must be greater than or equal to parameter 3. Parameter 3 may optionally be zero.

If the value of CDVT either in parameter 2 or in parameter 4 is zero, the CDVT is taken from the *CA* defaults for the particular *atmServiceCategory* of this connection.

Parameter 5 of the *rxTrafficDescParm* is always unused.

When *rxTrafficDescriptorType* is 3 through 8, there are certain extreme combinations of *rxTrafficDescParm* which are outside the capabilities of the UPC hardware. The *check prov* command detects such cases and generates an error message. If this happens, adjust the parameters until they fall within the supported limits.
To calculate the limits, use the following formulae:
I1 = 1,000,000,000 / PCR
L1 = CDVT * 1000
I2 = 1,000,000,000 / SCR
L2 = CDVT + (MBS - 1) * (I2 - I1)
Note that I2 and L2 only apply when the *rxTrafficDescriptorType* is 6 through 8.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, I1 and I2 must be less than or equal to 335,523,840. I1 + L1 must be less than or equal to 1,342,156,800. I2 + L2 must be less than or equal to 1,342,156,800. If the values of I1, L1, I2 or L2 are closer to the limits described above, a further restriction applies. Specifically, if either:
I1 > 41,940,480 or
I2 > 41,940,480 or
I1 + L1 > 167,769,600 or
I2 + L2 > 167,769,600
then both I1 and I2 must be greater than 20,480.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm***

cards, L2 must be less than or equal to 2,674,011,406.

For ***16pOC3PosAtm*** cards, L2 must be less than or equal to 17,179,869,180.

Vector of: Decimal (0..2147483647)

Index: Decimal (1..5)

Default: ([5] 0)

## ATTRIBUTE AtmIf Vpc Vpd Tm fwdQosParameters (fqp)

Access: Read and write

Criticality: Component

Description: This attribute is a vector of three elements that specify the quality of service parameters for the forward direction for this connection. This attribute is used for SPVC connections.

The *cdv* element specifies the acceptable peak-to-peak Cell Delay Variation (CDV) of real-time connections (CBR and rt-VBR). It is signaled through the extended QoS information element. For nrt-VBR and UBR the CDV is irrelevant, and its value is forced to the default.

The *ctd* specifies the acceptable maximum Cell Transfer Delay (maxCtd) of real-time connections (CBR and rt-VBR).
It is signaled through the end to end transit delay information element. For nrt-VBR and UBR the CTD is irrelevant, and its value is forced to the default.

The *clr* specifies the acceptable Cell Loss Ratio (CLR) of CBR, rt-VBR, and nrt-VBR connections. It is signaled through the extended QoS information element. For UBR the CLR is irrelevant, and its value is forced to the default.

Vector of: Decimal (0..16777215)

Index:
cdv
ctd
clr

| | |
|---|---|
| Default | (cdv: 16777215, ctd: 16777215, clr: 255) |

### ATTRIBUTE AtmIf Vpc Vpd Tm bwdQosParameters (bqp)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute is a vector of two elements that specify the quality of service parameters for the backward direction for this connection. This attribute is used for SPVC connections.<br><br>The *cdv* specifies the acceptable peak-to-peak Cell Delay Variation (CDV) of real-time connections (CBR and rt-VBR). It is signaled through the extended QoS information element. For nrt-VBR and UBR, the CDV is irrelevant, and its value is forced to the default.<br><br>The *clr* specifies the acceptable Cell Loss Ratio (CLR) of CBR, rt-VBR, and nrt-VBR connections. It is signaled through the extended QoS information element. For UBR the CLR is irrelevant, and its value is forced to the default. |
| Vector of | Decimal (0..16777215) |
| Index | cdv<br>clr |
| Default | (cdv: 16777215, clr: 255) |

### COMPONENT AtmIf Vpc Vpd Tm AvailableBitRate (Abr)

| | |
|---|---|
| Groups | "GROUP AtmIf Vpc Vpd Tm Abr Provisioned (Prov)" |
| Scope | Device |
| Description | *AtmIf/n Vcc/vpi.vci Vcd Tm AvailableBitRate,*<br>*AtmIf/n Vpc/vci Vpd Tm AvailableBitRate,*<br>*AtmIf/n Vpt/vpi Vpd Tm AvailableBitRate,*<br>*AtmIf/n Vpt/vpi Vcc/vci Vcd Tm AvailableBitRate*<br>This component contains provisioned ABR-related attributes of a connection. It is an optional subcomponent of the *Vcd Tm* and *Vpd Tm* component. It is used to override DGCRA-related defaults in the *CA Abr* component. It contains the specific configuration for the ABR connection at this connection point. If |

this is the source of an SPVC connection, this component also contains the ABR parameters required for the SPVC call request.

Common Verbs

Help
List
Display
Add
DELete

## GROUP AtmIf Vpc Vpd Tm Abr Provisioned (Prov)

Properties: Provisioned

Description: This group contains provisioned attributes for the ABR ATM connections configured on an ATM interface.

## ATTRIBUTE AtmIf Vpc Vpd Tm Abr initialCellRate (icr)

Access: Read and write

Criticality: Component

Description: This attribute specifies the Initial Cell Rate (ICR) parameter for this connection. ICR is the rate at which a source should send initially and after an idle period.

The value ***sameAsCa*** means the initial cell rate is determined by the *AtmIf CA Abr*/0 *icr* attribute.

The value ***useMcr*** means ICR is set to the same value as the Minimum Cell Rate (MCR) for the connection.

The value ***usePcr*** means ICR is set to the same value as the Peak Cell Rate (PCR) for the connection.

If the value is less than the MCR of the connection, then the MCR is used as the ICR. If the value is more than PCR of the connection, then PCR is used as the ICR.

This attribute is ignored under all conditions where the operational attribute *abrConnectionType* indicates ***erSwitch*** or ***efciSwitch***.

| | |
|---|---|
| Values | Decimal (0..16777215)<br>sameAsCa<br>useMcr<br>usePcr |
| Units | cell/s |
| Default | sameAsCa |

### ATTRIBUTE AtmIf Vpc Vpd Tm Abr transientBufferExposure (tbe)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the Transient Buffer Exposure (TBE) for this connection. TBE is the negotiated number of cells that the network would like to limit the source to send during start-up periods, before the first Resource Management (RM) cell returns.<br><br>TBE divided by *fixedRoundTripTime* determines an upper bound for the operational value of *initialCellRate*, the rate at which a source should send initially and after an idle period.<br><br>TBE divided by *maxCellsPerRmCell* specifies the operational value of *forwardRmCellLimit*, the limit of the number of forward Resource Management (RM) cells which may be sent in the absence of received backward RM cells.<br><br>This attribute is ignored under all conditions where the operational attribute *abrConnectionType* is set to ***erSwitch***. |
| Values | Decimal (0..16777215) |
| Units | cells |
| Default | 16777215 |

### ATTRIBUTE AtmIf Vpc Vpd Tm Abr fixedRoundTripTime (frtt)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the Fixed Round-Trip Time (FRTT) parameter for this connection. FRTT is the sum of the fixed and |

propagation delays from the source to a destination and back.

The value of *transientBufferExposure* divided by the value of FRTT (in seconds) determines an upper bound for the operational value of *initialCellRate*, the rate at which a source should send initially and after an idle period.

This attribute is ignored under all conditions where the operational attribute *abrConnectionType* indicates ***erSwitch*** or ***efciSwitch***.

Values: Decimal (0..16700000)

Units: microsec

Default: 5000000

### ATTRIBUTE AtmIf Vpc Vpd Tm Abr rateDecreaseFactor (rdf)

Access: Read and write

Criticality: Component

Description: This attribute specifies the Rate Decrease Factor (RDF) for this connection. The RDF value is computed by using the provisioned value of this attribute, n, as 2 to the inverse power n. For example, if the value of this attribute is 8, RDF is 2E-8 = 1/256.

RDF controls the amount by which the cell transmission rate may decrease upon receipt of a backward Resource Management (RM) cell. For example, if a backward RM cell is received with the Congestion Indication (CI) field set to 1, the Allowed Cell Rate (ACR) value would be reduced by the amount (RDF*ACR). The ACR is not allowed to fall below the Minimum Cell Rate (MCR), in which case the ACR is set to MCR.

This attribute is ignored under all conditions where the operational attribute *abrConnectionType* has the value ***erSwitch***.

Values: Decimal (0..15)
sameAsCa

Default: sameAsCa

### ATTRIBUTE AtmIf Vpc Vpd Tm Abr rateIncreaseFactor (rif)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the Rate Increase Factor (RIF) for this connection. The RIF value is computed by using the provisioned value of this attribute, n, as 2 to the inverse power n. For example, if the value of this attribute is 6, RIF is 2E-6 = 1/64.<br><br>RIF controls the amount by which the cell transmission rate may increase upon receipt of a backward Resource Management (RM) cell. For example, if a backward RM cell is received with the Congestion Indication (CI) and the No Increase (NI) fields both set to 0, the Allowed Cell Rate (ACR) value would be increased by the amount (RIF*ACR). The ACR is not allowed to exceed the Peak Cell Rate (PCR), in which case the ACR is set to PCR.<br><br>This attribute is ignored under all conditions where the operational attribute *abrConnectionType* has the value ***erSwitch***. |
| Values | Decimal (0..15)<br>sameAsCa |
| Default | sameAsCa |

### ATTRIBUTE AtmIf Vpc Vpd Tm Abr maxCellPerRmCell (nrm)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the maximum number of cells an ABR source may transmit for each forward Resource Management (RM) cell. The count of the cells transmitted includes data cells, OAM cells, backward RM cells, and the forward RM cell.<br><br>A value of 2 is not recommended although it is permitted according to the ATM Forum standard. When this attribute is set to a value of 2, it is possible that only one forward and one backward RM cell are repeatedly transmitted, and all data traffic is queued up indefinitely. |

This attribute is ignored under all conditions where the operational attribute *abrConnectionType* has the value ***erSwitch***.

Values: Decimal (2; 4; 8; 16; 32; 64; 128; 256)
sameAsCa

Units: cells

Default: sameAsCa

### ATTRIBUTE AtmIf Vpc Vpd Tm Abr maxTimeBetweenRmCells (trm)

Access: Read and write

Criticality: Component

Description: This attribute specifies the TRM parameter for this connection.

TRM provides an lower bound on the time interval between forward Resource Management (RM) cells for an ABR source. Since the last forward RM cell was sent, if at least TRM time has elapsed since and at least two other cells have been sent, then the next cell to be transmitted would be a forward RM cell.

This attribute is ignored under all conditions where the operational attribute *abrConnectionType* has the value ***erSwitch***.

The provisioned value of 781 is signaled as TRM = 0, in the ABR Additional Parameters Information Element.
1563 is signaled as TRM = 1.
3125 is signaled as TRM = 2.
6250 is signaled as TRM = 3.
12500 is signaled as TRM = 4
25000 is signaled as TRM = 5.
50000 is signaled as TRM = 6.
100000 is signaled as TRM = 7.

Values: Decimal (781; 1563; 3125; 6250; 12500; 25000; 50000; 100000)
sameAsCa

Units: microsec

Default: sameAsCa

### ATTRIBUTE AtmIf Vpc Vpd Tm Abr cutoffDecreaseFactor (cdf)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the Cutoff Decrease Factor (CDF) parameter for this connection. When the value of this attribute is non-zero, CDF is computed as the inverse of the value. For example, if the value is 32, the value of CDF is 1/32. When the value of this attribute is 0, CDF is also zero.<br><br>CDF controls the decrease in the Allowed Cell Rate (ACR) associated with the CRM parameter, the limit of the number of forward Resource Management (RM) cells which may be sent in the absence of received backward RM cells. When this limit is crossed, the ACR value would be decreased by the amount (CDF*ACR). The ACR is not allowed to fall below the Minimum Cell Rate (MCR), in which case the ACR is set to MCR.<br><br>The value of CRM is indicated by the *forwardRmCellLimit* attribute.<br><br>This attribute is ignored under all conditions where the operational attribute *abrConnectionType* indicates ***erSwitch*** or ***efciSwitch***. |
| Values | Decimal (0; 1; 2; 4; 8; 16; 32; 64)<br>sameAsCa |
| Default | sameAsCa |

### ATTRIBUTE AtmIf Vpc Vpd Tm Abr acrDecreaseTimeFactor (adtf)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the Allowed Cell Rate Decrease Time Factor (ADTF) parameter for this connection.<br><br>ADTF is the maximum time interval permitted between sending forward Resource Management (RM) cells before the Allowed Cell Rate (ACR) is decreased to *initialCellRate*. In other words, if |

the source does not transit a forward RM cell for the period specified by *adtf*, it reduces its ACR to the value of its *initialCellRate*.

This attribute is ignored under all conditions where the operational attribute *abrConnectionType* indicates ***erSwitch*** or ***efciSwitch***.

Values: Decimal (0..1023)
sameAsCa

Units: centiseconds

Default: sameAsCa

## ATTRIBUTE AtmIf Vpc Vpd Tm Abr dgcraMaximumDelay (dgcraMaxDelay)

Access: Read and write

Criticality: Component

Description: This attribute specifies an upper bound on the delay after which the rate change induced by a backward Resource Management (RM) cell departing from this connection point (in the backward direction) is expected to be observed at this connection point (in the forward direction).

This upper bound may be approximated as the sum of the round trip fixed and propagation delays and the maximum queuing delays between the ABR source and this interface.

The value of this attribute is used in policing an ABR connection using the Dynamic General Cell Rate Algorithm (DGCRA). A larger value for this attribute implies a more lenient policer. When there is a reduction in the Allowed Cell Rate (ACR), the policer waits for a correspondingly longer period of time before it enforces at the new cell rate.

The value of this attribute must not be less than the *dgcraMinimumDelay* attribute.

Values: Decimal (1..16700000)
sameAsCa

| | |
|---|---|
| Units | microsec |
| Default | sameAsCa |

### ATTRIBUTE AtmIf Vpc Vpd Tm Abr dgcraMinimumDelay (dgcraMinDelay)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies a lower bound on the delay after which the rate change induced by a backward Resource Management (RM) cell departing from this connection point (in the backward direction) is expected to be observed at this connection point (in the forward connection).<br><br>This lower bound may be approximated as the sum of the round trip fixed and propagation delays between the ABR source and this interface.<br><br>The value of this attribute is used in policing an ABR connection using the Dynamic General Cell Rate Algorithm (DGCRA). A smaller value for this attribute implies a more lenient policer. When there is a increase in the Allowed Cell Rate (ACR), the policer waits for a correspondingly shorter period of time before it enforces at the new cell rate. |
| Values | Decimal (1..16700000)<br>sameAsCa |
| Units | microsec |
| Default | sameAsCa |

### ATTRIBUTE AtmIf Vpc Vpd Tm Abr farEndAcrDecreaseTimeFactor (feAdtf)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the Allowed Cell Rate Decrease Time Factor (ADTF) of the far end ABR source. The value specified should be the same as the ADTF parameter at the far end of this ABR connection. |

The value of this attribute is used in policing an ABR connection using the Dynamic Generic Cell Rate Algorithm (DGCRA). A larger value for this attribute implies a more lenient policer. When the delay between two consecutive forward Resource Management (RM) cells received at this interface corresponds to a value greater than the value of this attribute, the policer begins to limit enforce the incoming traffic at the initial cell rate (ICR) of the far end, as specified by the *farEndInitialCellRate* attribute.

Values: Decimal (0..1023)

Units: centiseconds

Default: 50

### ATTRIBUTE AtmIf Vpc Vpd Tm Abr farEndInitialCellRate (feIcr)

Access: Read and write

Criticality: Component

Description: This attribute specifies the Initial Cell Rate (ICR) of the far end ABR source. The value specified should be the same as the ICR parameter at the far end of this ABR connection.

The value of this attribute is used in policing an ABR connection using the Dynamic Generic Cell Rate Algorithm (DGCRA). A larger value for this attribute implies a more lenient policer. When the delay between two consecutive forward Resource Management (RM) cells received at this interface corresponds to a value greater than the *farEndAcrDecreaseTimeFactor* attribute, the policer begins to enforce the incoming traffic at the value of this attribute.

If this attribute is specified less than the MCR of the connection, then the MCR is used as the *feIcr*. If this attribute is more than the PCR of the connection, then PCR is used as the *feIcr*.

Values: Decimal (0..16777215)

Units: cell/s

Default: 0

## COMPONENT AtmIf Vpc Vpd PerformanceMonitoring (Pm)

| | |
|---|---|
| Groups | "GROUP AtmIf Vpc Vpd Pm Provisioned (Prov)" |
| Scope | Device |
| Description | *AtmIf/n Vcc/x.y Vcd PerformanceMonitoring*<br>*AtmIf/n Vpc/x Vpd PerformanceMonitoring*<br>This component represents the Performance Monitoring (Pm) function on a provisioned connection. No Performance Monitoring is done unless this component is present. The attribute values override corresponding values in the *AtmIf Pm* component. There can be a maximum of 255 *Pm*s on one LP. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP AtmIf Vpc Vpd Pm Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisioned attributes which specify Performance Monitoring (PM) measurements, namely, Availability Ratio (AR) and Cell Loss Ratio (CLR), and control modes for the connection. The values specified in this group override those specified by the *AtmIf Pm* component. |

## ATTRIBUTE AtmIf Vpc Vpd Pm segSwitchSideMeasurement (segSwitchSide)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the set of Performance Monitoring (PM) measurements on the switch side configuration for the connection.<br><br>A value of ***sameAsInterface*** means that the measurements specified by the *segSwitchSideMeasurement* attribute of the *AtmIf Pm* component will be performed. No other values may be |

specified if ***sameAsInterface*** is selected. If the value is empty, no switch side PM measurements are done.

Set of
availabilityRatio (ar)
cellLossRatio (clr)
sameAsInterface (sameAsIf)

Default
(sameAsInterface)

### ATTRIBUTE AtmIf Vpc Vpd Pm segLinkSideMeasurement (segLinkSide)

Access
Read and write

Description
This attribute specifies the set of Performance Monitoring (PM) measurements on the link side configuration for the connection.

A value of ***sameAsInterface*** means that the measurements specified by the *segLinkSideMeasurement* attribute of the *AtmIf Pm* component will be performed. No other values may be specified if ***sameAsInterface*** is selected. If the value is empty, no link side PM measurements are done.

Set of
availabilityRatio (ar)
cellLossRatio (clr)
sameAsInterface (sameAsIf)

Default
(sameAsInterface)

### ATTRIBUTE AtmIf Vpc Vpd Pm controlMode (mode)

Access
Read and write

Criticality
Component

Description
This attribute specifies the control mode of Performance Monitoring (PM) measurements for the connection.

A value of ***autoStart*** means that PM activation procedures will start when the provisioned data is activated.

A value of ***onDemand*** means that PM activation procedures will start when the operator issues the *Start* command. The PM measurements in this mode will continue until the operator issues the *Stop* command.

A value of ***sameAsInterface*** means that the behavior will be as specified by the *controlMode* attribute of the *AtmIf Pm* component.

Values
autoStart (auto)
onDemand (onDemand)
sameAsInterface (sameAsIf)

Default
sameAsInterface

## ATTRIBUTE AtmIf Vpc Vpd Pm switchSideClrType (clrType)

Access
Read and write

Description
This attribute specifies how the Cell Loss Ratio (CLR) Performance Monitoring (PM) is measured on a switch-side configuration for the connection.

A value of ***complete*** indicates that egress discards at the segment end points are included in the CLR measurement as per ITU standards.

A value of ***partial*** indicates that egress discards do not contribute to the CLR measurement.

A value of ***sameAsInterface*** means that the behavior is as specified by the *switchSideClrType* attribute of the *AtmIf Pm* component.

Values
complete
partial
sameAsInterface (sameAsIf)

Default
sameAsInterface

## COMPONENT AtmIf Vpc Loop (Loop)

Scope
Device

Description
*AtmIf/n Vcc/vpi.vci Loop*
The *Loop* component configures an ATM connection so that cells received from the ATM interface are retransmitted back to the interface through that connection. The *Loop* component requires

exclusive use of its parent *Vcc* or *Vpc* and cannot co-exist with other ATM service components (such as *Nep*, *Nrp*, and *Test*).

Common Verbs

Help
List
Display
Add
DELete

## COMPONENT AtmIf Vpc NailedUpRelayPoint (Nrp)

Groups "GROUP AtmIf Vpc Nrp Provisioned (Prov)"

Scope Device

Description *AtmIf/n Vcc/vpi.vci Nrp*
This component is used to establish a single hop of a nailed-up ATM Bearer Service (ABS) connection. By linking together two *Nrp*s within a module, the associated connections are configured to relay ATM cells to one another. The *Nrp* component requires exclusive use of its parent *Vcc* or *Vpc* and cannot co-exist with other ATM service components (such as *Nep*, *Test*, and *Loop*).

Common Verbs

Help
List
Display
Add
DELete

## GROUP AtmIf Vpc Nrp Provisioned (Prov)

Properties Provisioned

Description This group contains the provisionable attributes for the *Nrp* component.

## ATTRIBUTE AtmIf Vpc Nrp nextHop (nextHop)

Access Read and write

Criticality Component

| | |
|---|---|
| Description | This attribute specifies the *Nrp* component with which this *Nrp* is associated. A sample value is *AtmIf/31 Vcc/0.32 Nrp.* |
| Values | Link (Service, nextHop) |
| Default | No default |

### ATTRIBUTE AtmIf Vpc Nrp oamSegmentBoundary (sb)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the OAM segment boundary desired for a *Nrp* component. It affects the connection point type value visible in the parent component's *connectionPointType* attribute.<br><br>The desired OAM segment boundary can be specified directly as ***yes***, ***no*** or ***sameAsInterface***. If ***sameAsInterface*** is specified, the OAM segment boundary is same as the *oamSegmentBoundary* attribute of the associated *AtmIf* and the switch will set the *connectionPointType*, choosing ***segmentEndPoint*** for a segment-boundary ATM interface and ***connectingPoint*** for a non-segment-boundary ATM interface. |
| Values | no<br>yes<br>sameAsInterface |
| Default | sameAsInterface |

### ATTRIBUTE AtmIf Vpc Nrp bandwidthElastic (bwElastic)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute is only of importance for connections which are carried on a link with a variable bandwidth. For example, the bandwidth may be reduced in the event that one or more physical links in the IMA group fail, such that the originally requested bandwidth cannot be maintained. This attribute shows whether the application running on this connection can continue to operate if the bandwidth is reduced. If the bandwidth is reduced, the amount by which it is reduced will be displayed in the |

*bandwidthReduction* attribute.

A value of ***yes***, indicates that this connection is elastic, and the bandwidth may be reduced but the connection will not be released. Currently, this attribute should only be set to ***yes*** for situations where this *Nrp* is functioning as a loopback on one side of an IMA link. There are no other situations where this setting is valid.

A value of ***no*** indicates that the bandwidth for this connection will not be reduced in the event of link bandwidth reduction. However, this connection may be released based on its *holdingPriority.*

Values
no
yes

Default
no

## ATTRIBUTE AtmIf Vpc Nrp overrideHoldingPriority (ohpri)

Access
Read and write

Criticality
Component

Description
This attribute specifies the holding priority of this connection. Holding priority is used when there is an IMA group where some physical links have failed. Holding priority determines the order in which connections are released. 4 is the lowest holding priority and is released first. 0 is a higher priority and is released last. The value specified in this attribute will override whatever *holdingPriority* that has been provisioned at the *Vcd* (or *Vpd*). If the value is left at the default of ***noOverride***, the *holdingPriority* provisioned at the *Vcd* (or *Vpd*) will be used.

Values
0
1
2
3
4
noOverride

Default
noOverride

## COMPONENT AtmIf Vpc SourcePvp (Src)

| | |
|---|---|
| Groups | "GROUP AtmIf Vpc Src Provisioned (Prov)"<br>"GROUP AtmIf Vpc Src Operational (Oper)"<br>"GROUP AtmIf Vpc Src OsiState (State)" |
| Scope | Device |
| Description | *AtmIf/n Vpc/vpi SourcePvp*<br>This component represents the source end of a soft PVP. |
| Opt. Subcomp. | "COMPONENT AtmIf Vpc Src ManualDtl (Mdtl)"<br>"COMPONENT AtmIf Vpc Src RerouteOverride (RerOv)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP AtmIf Vpc Src Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This attribute group contains the provisionable attributes of the *AtmIf/n Vpc/vpi SrcPvp* component. |

## ATTRIBUTE AtmIf Vpc Src callingAddress

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the calling address of the soft PVP. If it is a null string, then the calling address is the address of the current interface (that is, where the soft PVC originates). |
| Values | String (0..20, Hex) |
| Default | "" |

### ATTRIBUTE AtmIf Vpc Src calledAddress

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the called (remote) address of the soft PVP. |
| Values | String (20, Hex) |
| Default | No default |

### ATTRIBUTE AtmIf Vpc Src calledVpi

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the called VPI of the soft PVP. |
| Values | Decimal (1..4095) |
| Default | No default |

### ATTRIBUTE AtmIf Vpc Src adminControl

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the initial state of the connection.<br><br>If this attribute is set to ***permLocked***, the connection initially remains down following activation.<br>Setting this attribute to ***unlocked*** causes the connection to be established when it is activated. |
| Values | permLocked<br>unlocked |
| Default | unlocked |

### ATTRIBUTE AtmIf Vpc Src aisGeneration (ais)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute specifies whether OAM-AIS generation occurs on the connection towards this interface when the SPVP is down.<br><br>If this attribute is ***enabled***, OAM-AIS cells are generated for this SPVP when the SPVP is not up.<br><br>The only exception is that when the source SPVP attribute *adminControl* is set to ***permLocked***, OAM-AIS cells are not generated for the source SPVP.<br><br>If this attribute is set to ***disabled***, OAM-AIS cells are not generated. |
| Values | enabled<br>disabled |
| Default | disabled |

### GROUP AtmIf Vpc Src Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains the operational attributes associated with the *SrcPvp* or *SrcPvc* component. |

### ATTRIBUTE AtmIf Vpc Src retryCount

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of failed attempts to set up the soft PVP or soft PVC since the last time the connection failed. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE AtmIf Vpc Src lastFailureCauseCode

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute contains the cause code in the last transmitted signaling message that contains the CAUSE information element. The cause code is used to describe the reason for generating |

certain signaling messages.
The default value for this attribute is set to 0.

Values: Decimal (0..255)

Default: No default

### ATTRIBUTE AtmIf Vpc Src lastFailureDiagCode

Access: Read: All
Write: Illegal

Description: This attribute contains the diagnostic code in the last transmitted signaling message. The diagnostic code is contained in the CAUSE information element and identifies an information element type or timer type. The diagnostic code is present only if a procedural error is detected by the signaling protocol. A diagnostic code is always accompanied by the cause code. If there is no failure, this attribute is set to NULL.

Values: String (0..8, ASCII)

Default: No default

### GROUP AtmIf Vpc Src OsiState (State)

Properties: Operational

Description: This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE AtmIf Vpc Src adminState (osiAdmin)

Access: Read only

Description: This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component.

When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE AtmIf Vpc Src operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE AtmIf Vpc Src usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

## COMPONENT AtmIf Vpc Src ManualDtl (Mdtl)

Groups
"GROUP AtmIf Vpc Src Mdtl Provisioned (Prov)"
"GROUP AtmIf Vpc Src Mdtl Operational (Oper)"

Scope
Device

Description
*AtmIf/n Vcc/vpi.vci SrcPvc ManualDtl*
*AtmIf/n Vpc/vpi SrcPvp ManualDtl*
*AtmIf/n Vpt/vpi Vcc/vci SrcPvc ManualDtl*

This component represents the ability to specify the PNNI path on a per connection basis for provisioned SPVC and SPVP connections.

The addition or deletion of this component is critical to the parent SPVC or SPVP. Changes to the attributes contained under this component are not critical.

Common Verbs
Help
List
Display
Add
DELete

### VERB REConnect AtmIf Vpc Src Mdtl

| | |
|---|---|
| Impact | Service |
| Description | *REConnect AtmIf/n Vcc/vpi.vci Src Mdtl*<br>*REConnect -primary AtmIf/n Vcc/vpi.vci Src Mdtl*<br>*REConnect -alternate AtmIf/n Vcc/vpi.vci Src Mdtl*<br>*REConnect -automatic AtmIf/n Vcc/vp.vci Src Mdtl*<br><br>This command is used to trigger a connection to attempt to connect using the requested path. By default, the primary path is used. Using the *Reconnect* command will result in service disruptions when a connection is moved to a new path. |

### GROUP AtmIf Vpc Src Mdtl Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the Manual DTL selection paths for provisioned connections.<br><br>The normal sequence for connection retry is:<br>First try to establish the connection using the *primaryPath*. If the connection is not successful and if the *alternatePath* has been provisioned, try to connect using the *alternatePath*. If the connection is still unsuccessful, use the PNNI routing protocol to generate the path. |

### ATTRIBUTE AtmIf Vpc Src Mdtl primaryPath (priPath)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the name of the primary MDTL path. The value must match the instance value of one of the *Mdtl* components under *Artg Pnni*. |
| Values | String (1..32, ASCII) |
| Default | No default |

### ATTRIBUTE AtmIf Vpc Src Mdtl alternatePath (altPath)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute specifies the name of the alternate MDTL path. The value must match the instance value of one of the *Mdtl* components under *Artg Pnni.* An empty string disables the alternate path. |
| Values | String (0..32, ASCII) |
| Default | No default |

### ATTRIBUTE AtmIf Vpc Src Mdtl automaticFallback (auto)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether PNNI routing is to be used to establish a connection if connection attempts using the primary and alternate paths fail. If the value is ***enable***, PNNI routing will be attempted; if the value is ***disable***, it will not. |
| Values | disable<br>enable |
| Default | enable |

### GROUP AtmIf Vpc Src Mdtl Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains the operational attributes associated with the *atmSrcMdtl* component |

### ATTRIBUTE AtmIf Vpc Src Mdtl currentPath (curPath)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the current connection status of the MDTL connection.<br><br>A ***not connected*** status indicates that the connection is not established. The retry sequence did not succeed. The network operator can issue the *Reconnect* command to restart the retry sequence.<br>A ***primary*** status indicates that the connection is using the path specified by the *primaryPath* attribute.<br>An ***alternate*** status indicates that the connection is using the path |

specified by the *alternatePath* attribute.
An ***automatic*** status indicates that the connection is using the path generated by the PNNI routing protocol.
A ***waiting connection*** status indicates that the connection is in a retry phase.

Values
not connected
primary
alternate
automatic
waiting connection

Default
"not connected"

### ATTRIBUTE AtmIf Vpc Src Mdtl primaryPathFailCause (priPathFail)

Access
Read: All
Write: Illegal

Description
This attribute indicates the last failure cause code for the primary path. The value is reset to zero when trying to re-establish the connection.

Values
Decimal (0..255)

Default
No default

### ATTRIBUTE AtmIf Vpc Src Mdtl alternatePathFailCause (altPathFail)

Access
Read: All
Write: Illegal

Description
This attribute indicates the last failure cause code for the alternate path. The value is reset to zero when trying to re-establish the connection.

Values
Decimal (0..255)

Default
No default

### COMPONENT AtmIf Vpc Src RerouteOverride (RerOv)

Groups
"GROUP AtmIf Vpc Src RerOv Provisioned (Prov)"

Scope
Device

Description

*AtmIf/n Vcc/vpi.vci SrcPvc RerouteOverride*
*AtmIf/n Vpc/vpi SrcPvp RerouteOverride*
*AtmIf/n Vpt/vpi Vcc/vci SrcPvc RerouteOverride*
*FrAtm/n Dlci/x Siwf RerouteOverride*

This component represents the ability to override rerouting capability subscription options on a per connection basis for provisioned SPVC and SPVP connections.

The addition of this component and changes to the attributes contained in this component are critical to the parent SPVC or SPVP. However, the deletion of this component is not a critical change for the connection. If this component is deleted, the connection remains active with the last provisioned subscription options. Subscription is lost when the connection goes down and re-establishes.

Common Verbs

Help
List
Display
Add
DELete

## VERB OPTIMIZE AtmIf Vpc Src RerOv

Impact

Service

Description

*OPTimize AtmIf/n Vcc/<vpi.vci> Src RerOv*
*OPTimize AtmIf/n Vpc/<vpi> Src RerOv*
*OPTimize AtmIf/n Vpt/<vpi> Vcc/<vci> Src RerOv*
*OPTimize FrAtm/n Dlci/x Siwf RerOv*

This command triggers path optimization for the connection segment. If the interface is already processing a path optimization request, then the *Optimize* command is cancelled.

Using the *Optimize* command results in service disruptions when connection segments are moved to a better path. Care should be exercised when using this command. It is recommended that the command be used during maintenance windows.

## GROUP AtmIf Vpc Src RerOv Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes related to rerouting subscription options for provisioned connections. |

## ATTRIBUTE AtmIf Vpc Src RerOv protocol

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the rerouting protocols which are requested by the connection segment. A subset of the requested protocols is granted by the last rendezvous node, according to its software level and provisioning.<br><br>One of the following values can be specified:<br>***sameAsInterface***: The requested rerouting protocols are specified by the *protocol* attribute under the *Reroute Ov* component for the interface.<br>***localGlobal***: Local and global rerouting protocols are requested. Local and global rerouting are granted if the DTL terminator is provisioned with the Rerouting feature.<br>***localOnly***: Local rerouting is requested. This value guarantees interoperability with other vendors' equipment running the ATM Forum "Domain Based Rerouting" protocol. Local rerouting is granted if the DTL terminator is provisioned with the Rerouting feature.<br>***globalOnly***: Global rerouting is requested. Global rerouting is granted if the DTL terminator is provisioned with the Rerouting feature.<br>***localEbr*:** Local and EBR rerouting protocols are requested. Local rerouting is granted if the DTL terminator is provisioned with the Rerouting feature. Alternatively, EBR is granted if the DTL terminator is provisioned with the EBR feature.<br>***ebrOnly***: EBR is requested. EBR is granted if the DTL terminator is provisioned with the EBR feature. |
| Values | localGlobal<br>localOnly<br>globalOnly<br>localEbr |

ebrOnly
sameAsInterface (sameAs)

Default sameAsInterface

### ATTRIBUTE AtmIf Vpc Src RerOv localConnectionRecoverySubscr (lRecSub)

Access Read and write

Description This attribute specifies whether the connection segment requests subscription to local connection recovery. This attribute only affects connection segments that request the local rerouting protocols. This attribute affects connection segments for a node that is either local domain rerouting node or a DTL originator.

If the connection segment requests ***localGlobal*** or ***localOnly*** protocols, this attribute controls local connection recovery subscription.

If the connection segment requests ***localEbr***, this attribute controls the local connection recovery subscription. Only one will be granted.

One of the following values can be specified:
***sameAsInterface***: The subscription rule is determined by the *localConnectionRecoverySubscr* attribute under the *Reroute Ov* component for the interface. If the attribute specifies the ***sourceSpvcSpvp*** value, the connection segment requests subscription to local connection recovery, otherwise the connection segment does not request subscription.
***yes:*** The connection segment requests subscription to local connection recovery.
***no***: The connection segment does not request subscription to local connection recovery.

Values no
yes
sameAsInterface (sameAs)

Default sameAsInterface

### ATTRIBUTE AtmIf Vpc Src RerOv localPathOptimizationSubscr (lOptSub)

Access Read and write

Description

This attribute specifies whether the connection segment requests subscription to local connection recovery. This attribute only affects connection segments that request the local rerouting protocols. This attribute affects connection segments for a node that is either local domain rerouting node or a DTL originator.

If the connection segment requests ***localGlobal*** or ***localOnly*** protocols, this attribute controls local path optimization subscription.

If the connection segment requests ***localEbr***, this attribute controls the local path optimization subscription. Only one will be granted.

One of the following values can be specified:
***sameAsInterface***: The subscription rule is determined by the *localPathOptimizationSubscr* attribute under the *Reroute Ov* component for the interface. If the attribute specifies the ***sourceSpvcSpvp*** value, the connection segment requests subscription to local path optimization, otherwise the connection segment does not request subscription.
***yes:*** The connection segment requests subscription to local path optimization.
***no***: The connection segment does not request subscription to local path optimization.

Values

no
yes
sameAsInterface (sameAs)

Default

sameAsInterface

## ATTRIBUTE AtmIf Vpc Src RerOv globalConnectionRecoverySubscr (gRecSub)

Access

Read and write

Description

This attribute specifies whether the connection segment requests subscription to global or EBR connection recovery. This attribute only affects connection segments that request the global or EBR rerouting protocols. This attribute affects connection segments for a node that is a DTL originator.

If the connection segment requests ***ebrOnly***, this attribute controls

EBR connection recovery subscription.

If the connection segment requests ***localEbr***, this attribute controls the EBR connection recovery subscription. Only one will be granted.

One of the following values can be specified:
***sameAsInterface***: The subscription rule is determined by the *globalConnectionRecoverySubscr* attribute under the *Reroute Ov* component for the interface. If the attribute specifies the ***sourceSpvcSpvp*** value, the connection segment requests subscription to global or EBR connection recovery, otherwise the connection segment does not request subscription.
***yes:*** The connection segment requests subscription to global or EBR connection recovery.
***no***: The connection segment does not request subscription to global or EBR connection recovery.

Values
no
yes
sameAsInterface (sameAs)

Default
sameAsInterface

## ATTRIBUTE AtmIf Vpc Src RerOv globalPathOptimizationSubscr (gOptSub)

Access
Read and write

Description
This attribute specifies whether the connection segment requests subscription to global or EBR path optimization. This attribute only affects connection segments that request the global or EBR rerouting protocols. This attribute affects connection segments for a node that is a DTL originator.

If the connection segment requests ***ebrOnly***, this attribute controls EBR path optimization subscription.

If the connection segment requests ***localEbr***, this attribute controls the EBR path optimization subscription. Only one will be granted.

One of the following values can be specified:
***sameAsInterface***: The subscription rule is determined by the

*globalPathOptimizationSubscr* attribute under the *Reroute Ov* component for the interface. If the attribute specifies the ***sourceSpvcSpvp*** value, the connection segment requests subscription to global or EBR path optimization, otherwise the connection segment does not request subscription.
***yes:*** The connection segment requests subscription to global or EBR path optimization.
***no***: The connection segment does not request subscription to global or EBR path optimization.

Values
no
yes
sameAsInterface (sameAs)

Default
sameAsInterface

## COMPONENT AtmIf Vpc RelayPoint (Rp)

Groups
"GROUP AtmIf Vpc Rp Operational (Oper)"

Scope
Device

Description
*AtmIf/n Vpc/vpi Rp*
*AtmIf/n Vcc/vpi.vci Rp*
*AtmIf/n Vpt/vpi Vcc/vci Rp*

The *RelayPoint* component is used to establish a single hop of a Switched connection. When linked together, two *Rp*s within a module, the associated connections are configured to relay ATM cells to one another.

Common Verbs
Help
List
Display

## GROUP AtmIf Vpc Rp Operational (Oper)

Properties
Operational

Description
This attribute group contains the operational attributes for the *AtmRelayPoint* component.

### ATTRIBUTE AtmIf Vpc Rp nextHop

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the component name(s) of the *Rp* component(s) with which this *Rp* component is associated. This attribute can have more than one component name only when the Vcc *distributionType* is ***pointToMultipoint*** and the *callDirection* is ***fromLink***. |
| List of | The name of the component |
| Default | No default |

### COMPONENT AtmIf Vpc DestinationPvp (Dst)

| | |
|---|---|
| Groups | "GROUP AtmIf Vpc Dst Operational (Oper)"<br>"GROUP AtmIf Vpc Dst OsiState (State)" |
| Scope | Device |
| Description | *AtmIf/n Vpc/vpi DestinationPvp*<br>This component represents the destination end of a soft PVP. |
| Subcomponents | "COMPONENT AtmIf Vpc Dst Configuration (Config)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP AtmIf Vpc Dst Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains the operational attributes for the *AtmIf/n Vpc/vpi DstPvp* component. |

### ATTRIBUTE AtmIf Vpc Dst calledAddress

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the called address of the soft PVP. |

| | |
|---|---|
| Values | String (20, Hex) |
| Default | No default |

### ATTRIBUTE AtmIf Vpc Dst callingAddress

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the calling (remote) address of the soft PVP. If the address in not known, then the value of this address is ***Unknown***. |
| Values | String (7..40, ASCII) |
| Default | No default |

### ATTRIBUTE AtmIf Vpc Dst callingVpi

| | |
|---|---|
| Access | Read only |
| Description | This attribute represents the calling (remote) VPI of the soft PVP. If the VPI value is not known, the attribute value is set to ***Unknown***. |
| Values | String (1..7, ASCII) |
| Default | No default |

### GROUP AtmIf Vpc Dst OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE AtmIf Vpc Dst adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component. |

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values: locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default: unlocked

### ATTRIBUTE AtmIf Vpc Dst operationalState (osiOper)

Access: Read only

Description: This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values: enabled (ena)
disabled (dis)

Default: disabled

### ATTRIBUTE AtmIf Vpc Dst usageState (osiUsage)

Access: Read only

| | |
|---|---|
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

## COMPONENT AtmIf Vpc Dst Configuration (Config)

| | |
|---|---|
| Groups | "GROUP AtmIf Vpc Dst Config DstProv" |
| Scope | Device |
| Description | *Atmif/n Vpc/n Dst Override*<br>This *Override* component contains provisioned attributes for this destination SPVP.<br><br>If this component does not exist, the destination SPVC behaves as if this component had been provisioned with default values for all its attributes. |
| Common Verbs | Help<br>List<br>Display |

## GROUP AtmIf Vpc Dst Config DstProv

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisionable attributes for destination SPVC/Ps. |

## ATTRIBUTE AtmIf Vpc Dst Config aisGeneration (ais)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether OAM-AIS generation occurs on the connection towards this interface when the SPVC or SPVP is down.<br><br>If this attribute is ***enabled***, OAM-AIS cells are generated for this SPVC or SPVP when the SPVC or SPVP is not up.<br><br>If this attribute is set to ***disabled***, OAM-AIS cells are not generated. |
| Values | enabled<br>disabled |
| Default | disabled |

## COMPONENT AtmIf Vpc TrafficManagement (Tm)

| | |
|---|---|
| Groups | "GROUP AtmIf Vpc Tm Operational (Oper)" |
| Scope | Device |
| Description | *AtmIf/n Vpc/vpi TrafficManagement,*<br>*AtmIf/n Vcc/vpi.vci TrafficManagement,*<br>*AtmIf/n Vpt/vpi TrafficManagement,*<br>*AtmIf/n Vpt/vpi Vcc/vci TrafficManagement*<br>The *Tm* subcomponent contains the operational traffic management attributes of a connection. It is created dynamically for each activated *Vcc*, *Vpc*, or *Vpt* component. |
| Dyn. Subcomp. | "COMPONENT AtmIf Vpc Tm AvailableBitRate (Abr)" |
| Common Verbs | Help<br>List<br>Display |

## GROUP AtmIf Vpc Tm Operational (Oper)

| | |
|---|---|
| Properties | Operational |

Description This group contains attributes for the *Tm* component to reflect operational traffic attributes.

### ATTRIBUTE AtmIf Vpc Tm txTrafficDescType (txTdt)

Access Read only

Description T his attribute indicates the type of traffic management which is applied to the transmit direction of this connection as defined in the ATM Forum. The *txTrafficDescType* determines the number and meaning of the parameters in the *txTrafficDescParm* attribute.

Values
1
2
3
4
5
6
7
8
9

Default No default

### ATTRIBUTE AtmIf Vpc Tm txQosClass (txQos)

Access Read only

Description This attribute indicates the quality of service for the calling to called direction for this connection. This is only applicable to Soft PVC and SVC connections.

Class 1 supports a QOS that meets Service Class A performance requirements (Circuit emulation, constant bit rate video).

Class 2 supports a QOS that meets Service Class B performance requirements (Variable bit rate audio and video).

Class ***3*** supports a QOS that meets Service Class C performance requirements (Connection-Oriented Data Transfer).

Class 4 supports a QOS that meets Service Class D performance

requirements (Connectionless Data Transfer).

Class 0 is the unspecified QOS class; no objective is specified for the performance parameters.

A value of ***notApplicable*** is displayed in the case of nailed-up PVCs for which this attribute has no significance.

Values

0
1
2
3
4
notApplicable

Default

No default

### ATTRIBUTE AtmIf Vpc Tm txQueueLength (txQLen)

Access

Read only

Description

This attribute indicates the current number of cells in the transmit queue for this connection.

If this connection has *unshapedTransmitQueueing* attribute displayed as ***common***, this attribute displays the length of the common queue which is used for this ATM service category.

If this connection has *unshapedTransmitQueueing* attribute displayed as ***fifo***, this attribute indicates the number of cells for this connection which are enqueued in a first-in-first-out queuing method for this ATM service category. This will only occur for connections on ATM IP cards with *atmServiceCategory* of ***nrtVbr*** or ***ubr***.

If this connection has *unshapedTransmitQueueing* attribute displayed as ***perVc*** or as ***notApplicable***, this attribute displays the length of the per-VC queue.

For ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, this attribute displays the current number of cells in the link class queue used by this connection to buffer its traffic.

This attribute does not apply to basic *Vpt*s.

Values — Decimal (0..512000)

Units — cells

Default — No default

## ATTRIBUTE AtmIf Vpc Tm txQueueCongestionState (txQCong)

Access — Read only

Description — This attribute indicates the congestion state of the transmit queue for this connection.

If this connection has *unshapedTransmitQueueing* attribute displayed as ***common***, this attribute displays the congestion state of the common queue. If this connection has *unshapedTransmitQueueing* attribute displayed as ***perVc*** or as ***notApplicable***, this attribute displays the congestion state of the per-VC queue.

The congestion state of a queue is indicated by a numeric value ranging from 0 to 3. When a queue is in a congested state x, only traffic with discard priority (DP) 0 to x are enqueued. Traffic with DP > x is discarded.

For example, if the congestion state is 3, there is no congestion and all traffic is enqueued. Likewise, when the congestion state is 0, there is maximum congestion and only traffic with DP=0 is enqueued on that queue.

For ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, this attribute displays the current congestion state of the link class queue used by this connection to buffer its traffic.

This attribute does not apply to basic *Vpt*s.

Values — Decimal (0..3)

Default — No default

## ATTRIBUTE AtmIf Vpc Tm holdingPriority (hpri)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the actual holding priority in effect for this connection. In a situation where the link bandwidth fluctuates, such as over an IMA link, holding priority is used to determine which connections are held and which are released. Holding priority 4 connections are the first to be released. Holding priority 0 connections are the last to be released. Some applications, for example *Vcc Test*, may override the provisioned holding priority.<br><br>A value of ***notApplicable*** is displayed when this is an elastic connection. Holding priority does not apply to bandwidth elastic connections.<br><br>Holding priority has no effect if the equivalent cell rate (ECR) for a connection is zero.<br><br>This attribute does not apply to *Vpt Vcc*s. |
| Values | 0<br>1<br>2<br>3<br>4<br>notApplicable |
| Default | No default |

## ATTRIBUTE AtmIf Vpc Tm rxTrafficDescType (rxTdt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the type of traffic management which is applied to the receive direction of this connection as defined in the ATM Forum. The *rxTrafficDescType* determines the number and meaning of the parameters in the *rxTrafficDescParm* attribute. |
| Values | 1<br>2 |

3
4
5
6
7
8
9

Default No default

### ATTRIBUTE AtmIf Vpc Tm rxQosClass (rxQos)

Access Read only

Description This attribute indicates the quality of service for the called to calling direction for this connection. This is only applicable to Soft PVC and SVC connections.

Class 1 supports a QOS that meets Service Class A performance requirements (circuit emulation, constant bit rate video).

Class 2 supports a QOS that meets Service Class B performance requirements (variable bit rate audio and video).

Class 3 supports a QOS that meets Service Class C performance requirements (Connection-Oriented Data Transfer).

Class 4 supports a QOS that meets Service Class D performance requirements (Connectionless Data Transfer).

Class 0 is the unspecified QOS class; no objective is specified for the performance parameters.

A value of ***notApplicable*** is displayed in the case of nailed-up PVCs for which this attribute has no significance.

Values
0
1
2
3
4

notApplicable
sameAsFwd

Default No default

## ATTRIBUTE AtmIf Vpc Tm atmServiceCategory (service)

Access Read only

Description This attribute indicates the ATM service category used for traffic in both directions of the connection.

The ***constantBitRate*** service category is intended for real time applications, that is, those requiring tightly constrained delay and delay variation, as would be appropriate for voice and video applications. The consistent availability of a fixed quantity of bandwidth is considered appropriate for CBR service. Cells which are delayed beyond the value specified by Cell Transfer Delay are assumed to have significantly reduced value for the application.

The ***rtVariableBitRate*** service category is intended for real time applications; that is those requiring tightly constrained delay and delay variation, as would be appropriate for voice and video applications. Sources are expected to transmit at a rate which varies with time. Equivalently, the source can be described as “bursty”. Cells which are delayed beyond the value specified by Cell Transfer Delay are assumed to be of significantly reduced value to the application. Real time VBR service may support statistical multiplexing of real time sources.

The ***nrtVariableBitRate*** service category is intended for non-real time applications which have bursty traffic characteristics and which can be characterized in terms of a PCR, SCR, and MBS. For those cells which are transferred within the traffic contract, the application expects a low cell loss ratio. For all connections, it expects a bound on the mean cell transfer delay. Non-real time VBR service may support statistical multiplexing of connections.

The ***availableBitRate*** service is an ATM layer service category for which the limiting ATM layer transfer characteristics provided by the network may change subsequent to connection

establishment. ABR service has a flow control mechanism which supports several types of feedback to control the source rate in response to changing ATM layer transfer characteristics. ABR service is not intended to support real-time applications.

The ***unspecifiedBitRate*** service is intended for non-real time applications, that is those not requiring tightly constrained delay and delay variation. UBR sources are expected to be bursty. UBR service supports a high degree of statistical multiplexing among sources. UBR service does not specify traffic related service guarantees. No numerical commitments are made with respect to the cell loss ratio experienced by a UBR connection, or as to the cell transfer delay experienced by cells on the connection.

Values

unspecifiedBitRate (ubr)
constantBitRate (cbr)
rtVariableBitRate (rtVbr)
nrtVariableBitRate (nrtVbr)
availableBitRate (abr)

Default

No default

## ATTRIBUTE AtmIf Vpc Tm trafficShaping (trShaping)

Access

Read only

Description

This attribute indicates the traffic shaping state of the connection.

A value of ***notApplicable*** indicates that traffic shaping is not applicable or not supported for this connection. This is the case:
- when the *txTrafficDescType* is 1 or 2.
- for standard *Vpt Vcc*s and basic *Vpt*s.
- for ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm*** cards, when the *atmServiceCategory* is ***constantBitRate***.

In these cases, the value of ***notApplicable*** is indicated regardless of whether traffic shaping is enabled or disabled in the provisioning data.

A value of ***disabled*** indicates that traffic shaping is applicable and supported for the type of connection but has been turned off in

the provisioning data.

A value of ***linear*** or ***inverseUpc*** indicates that traffic shaping is applicable and supported for the type of connection and has been turned on in the provisioning data. This is the only case that indicates that traffic shaping is performed on the connection. In this case, the actual shaping rate is reflected in the *txTrafficDescParm* attribute, parameter number 4. A value of ***linear*** indicates that traffic is being shaped at the constant rate indicated in *txTrafficDescParm* 4. A value of ***inverseUpc*** indicates that the shaper strictly conforms to the requirements of a dual leaky bucket UPC enforcer. This value is indicated if traffic shaping is enabled, and the *txTrafficDescType* for this connection is 6, 7 or 8.

For ***1pOC12SmLrAtm***, ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, traffic shaping is not available, therefore this attribute is always ***disabled***.

Traffic shaping for connections with *atmServiceCategory* as ***availableBitRate*** (*txTrafficDescType* 9) depends upon the *abrConnectionType* attribute. If *abrConnectionType* is ***sourceDest*** or ***virtualSourceDest***, the value of this attribute is ***linear***. If *abrConnectionType* is ***erSwitch*** or ***efciSwitch***, this attribute is ***notApplicable***.

Values
disabled
linear
inverseUpc
notApplicable

Default
No default

## ATTRIBUTE AtmIf Vpc Tm bearerClassBbc (bcBbc)

Access
Read only

Description
This attribute indicates the bearer capability for this connection.

Class ***a*** service is a connection-oriented, constant bit rate ATM transport service. Class ***a*** service has end to end timing requirements and may require stringent cell loss, cell delay and

cell delay variation performance.When ***a*** is displayed, the user is requesting more than an ATM only service. The network may look at the AAL to provide interworking based upon its contents.

Class ***c*** service is a connection-oriented, variable bit rate ATM transport service. Class ***c*** service has no end-to-end timing requirements.When ***c*** is displayed, the user is requesting more than an ATM only service. The network interworking function may look at the AAL and provide service based on it.

Class ***x*** service is a connection-oriented ATM transport service where the AAL, *trafficType* (***cbr*** or ***vbr***), and timing requirements are user defined (that is, transparent to the network). When the value of this attribute is ***x***, the user is requesting an ATM only service from the network. In this case, the network shall not process any higher layer protocol.

Class vp service is used to indicate a transparent VP service when the user is requesting an ATM only service from the network. In this case, the network does not process any higher layer protocol. This service differs from class x service in that with the class vp service both the VCI field (except for VCI values 0, 3, 4, and 6 through 15) and Payload Type field are transported transparently by the network. This attribute value is only applicable to SPVP and SVP connections.

A value of ***notApplicable*** is displayed in the case of nailed-up PVCs for which this attribute has no significance.

Values

a
c
x
vp
notApplicable

Default

No default

## ATTRIBUTE AtmIf Vpc Tm transferCapabilityBbc (tcBbc)

Access

Read only

Description

This attribute indicates the transfer capability for this connection. Uni 3.0/3.1 traffic type and end-to-end timing parameters are mapped into this parameter as follows:
<transferCapability: TrafficType, Timing>
0: NoIndication, NoIndication
1: NoIndication, yes
2: NoIndication, no
5: CBR, yes
8: VBR, NoIndication
9: VBR, yes
10: VBR, no

A value of ***notApplicable*** is displayed in the case of nailed-up PVCs for which this attribute has no significance, or in the case that the transfer capability in the call request was set to NoIndication.

The CBR traffic type refers to traffic offered on services such as a constant bit rate video service or a circuit emulation.

The VBR traffic type refers to traffic offered on services such as packetized audio and video, or data.

The value NoIndication for traffic type is used if the user has not set the traffic type; similarly for end-to-end timing.

The value yes for end-to-end timing indicates that end-to-end timing is required for the connection.

The value no for end-to-end timing indicates that end-to-end timing is not required for the connection.

Values

0
1
2
5
8
9
10
notApplicable

Default — No default

### ATTRIBUTE AtmIf Vpc Tm clippingBbc (cBbc)

Access — Read only

Description — This attribute indicates the value of the clipping susceptibility parameter in the broadband bearer capability (BBC) Information Element.

Clipping is an impairment in which the first fraction of a second of information to be transferred is lost. It occurs after a call is answered and before an associated connection is switched through.

A value of ***notApplicable*** is displayed in the case of nailed-up PVCs for which this attribute has no significance.

Values — no
yes
notApplicable

Default — No default

### ATTRIBUTE AtmIf Vpc Tm unshapedTransmitQueueing (unshap)

Access — Read only

Description — This attribute indicates the unshaped transmit queuing state of the connection.

A value of ***common*** indicates that transmit traffic is being enqueued onto the common transmit queue for this service category.
The *txQueueLength* attribute indicates the current length of the common transmit queue.

A value of ***fifo*** indicates that transmit traffic is being queued in a first-in-first-out basis for this service category. This is similar to ***common*** queuing, but the *txQueueLength* attribute indicates the number of cells in this connection queue. A value of ***fifo*** will only be indicated for connections on ***2pOC3MmAtm2***, ***2pOC3SmAtm2***, ***2pSTM1eAtm***, ***2pSTM1eCh***, ***4pOC3MmAtm***,

***4pOC3SmIrAtm***, ***4pDS3ChAtm***, ***3pDS3Atm2***, ***3pE3Atm2***, ***12pDS3Atm***, ***12pE3Atm***, and MSA32 cards with *atmServiceCategory* of ***nrtVbr*** or ***ubr***.

A value of ***perVc*** indicates that transmit traffic is being enqueued onto a per-VC queue for this connection.

A value of ***notApplicable*** indicates that transmit traffic is being shaped for this connection, or that unshaped transmit queuing is not applicable for this type of connection. Transmit traffic for a shaped connection is enqueued onto a per-VC queue, but this attribute is only applicable for unshaped connections. Unshaped transmit queuing is not applicable for basic *Vpt*s.

Values
perVc
common
notApplicable
fifo

Default
No default

## ATTRIBUTE AtmIf Vpc Tm bestEffort

Access
Read only

Description
This attribute indicates value of best effort parameter in the ATM Traffic Descriptor Information Element.

The value ***indicated*** implies that the quality of service for this connection is not guaranteed.

The value ***notIndicated*** implies that the quality of service for this connection is guaranteed.

A value of ***notApplicable*** is displayed in the case of nailed-up PVCs for which this attribute has no significance.

Values
indicated
notIndicated
notApplicable

Default
No default

### ATTRIBUTE AtmIf Vpc Tm forceTagging (tagging)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the state of force tagging option for this connection. Force tagging refers to setting the CLP bit for all cells on a connection.<br><br>A value of ***enabled*** indicates that the CLP bit is being set to 1 for all cells in the transmit direction on this connection.<br><br>A value of ***disabled*** indicates that the CLP bit is unchanged for cells in the transmit direction on this connection. The value ***disabled*** is always displayed for *Vpt*s since forced tagging is applied on a per *Vpt Vcc* basis. |
| Values | disabled<br>enabled |
| Default | No default |

### ATTRIBUTE AtmIf Vpc Tm weight

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the relative weight of this unshaped connection. Connections with a larger weight get a larger proportion of the link bandwidth or in the case of standard *Vpt Vcc*s, the *Vpt* bandwidth.<br><br>For all but standard *Vpt Vcc*s, the default connection weight is determined by the weight policy for a service category and the traffic descriptor for a connection. For standard *Vpt Vcc*s, the default connection weight is determined by the *Vcc*'s service category.<br><br>A value from 1 to 4095 indicates an actual weight. The value ***upToQueueLimit*** indicates that the weight of a connection is up to the transmit queue limit for this connection and is used for connections which have the value of the *unshapedTransmitQueueing* attribute displayed as ***fifo***.<br><br>This attribute has a displayed value of ***notApplicable*** in the |

following cases:
- This connection has the value of the *trafficShaping* attribute displayed as either ***linear*** or ***inverseUpc***.
- This connection has the value of the *trafficShaping* attribute displayed as ***disabled***, but the connection's service category has the *trafficShaping* attribute provisioned as either ***enabled*** or ***inverseUpc***.
- This connection has the value of the *unshapedTransmitQueueing* attribute displayed as ***common***.
- This is a basic *Vpt* connection.
- For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm*** cards, since per-connection weight is not supported.

Values
Decimal (1..4095)
upToQueueLimit
notApplicable

Default
No default

## ATTRIBUTE AtmIf Vpc Tm usageParameterControl (upc)

Access
Read only

Description
This attribute indicates the UPC state of the connection.

A value of ***notApplicable*** indicates that UPC is not applicable or not supported for the connection. This is the case:
- when the connection's *rxTrafficDescType* is 1 or 2.
- for standard *Vpt Vcc*s and basic *Vpt*s.

A value of ***notApplicable*** is set regardless of whether UPC is disabled or enabled in provisioning data.

A value of ***disabled*** indicates that UPC is applicable and supported for the type of connection but has been turned off in the provisioning data.

A value of ***enforced*** indicates that UPC is actively checking conformance for the connection and is discarding or tagging cells which do not conform to the connection traffic contract. The traffic descriptor parameters used for UPC conformance are

reflected in the *rxTrafficDescParms* of the connection. On some ATM cards, the counts of UPC violations are visible in the *Vcc*, *Vpc* or *Vpt rxUpcViolationsOnEnforcer1* or *rxUpcViolationsOnEnforcer2* attributes.

A value of ***monitored*** indicates that UPC is actively checking conformance for the connection and counting the violations, but is not discarding or tagging cells which do not conform to the connection traffic contract. The traffic descriptor parameters used for UPC conformance are reflected in the *rxTrafficDescParms* of the connection. The counts of UPC violations are visible in the *Vcc*, *Vpc* or *Vpt. rxUpcViolationsOnEnforcer1* or *rxUpcViolationsOnEnforcer2* attributes.

If the *atmServiceCategory* for this connection is ***availableBitRate***, a value of ***enforced*** indicates that Dynamic Generic Cell Rate Algorithm (DGCRA) is active for the connection. The traffic descriptor parameters used for DGCRA enforcement are reflected in the *rxTrafficDescParm* of the connection.

Values
enforced
disabled
monitored
notApplicable

Default
No default

## ATTRIBUTE AtmIf Vpc Tm txPacketWiseDiscard (txpd)

Access
Read only

Description
This attribute indicates the current set of packet-wise discard functions in effect in the transmit data direction at this connection point.

A value of ***ppd*** indicates that the Partial Packet Discard (PPD) function is in effect. PPD may be applied at an intermediate connecting point for a connection which is transporting frame traffic (AAL5 at the endpoint). PPD is controlled by provisioning for PVCs and SPVCs, and by call setup parameters in the AAL and Traffic Descriptor Information Elements.

A value of ***epd*** indicates that the Early Packet Discard (EPD) function is in effect at this connection point.

A value of ***wred*** indicates that Weighted Random Early Detection is in effect at this connection point. W-RED can be enabled by provisioning for PVCs and SPVCs.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, PPD and EPD are enabled by default at a connection endpoint which is performing AAL5 segmentation and assembly. Packet-wise functions are not applicable to virtual path connections (VPCs) on these cards.

On all other ATM cards, all packet-wise discard functions also apply to virtual path connections (VPCs).

This attribute is not applicable for *Vpt*s.

Set of
ppd
epd
wred

Default
No default

## ATTRIBUTE AtmIf Vpc Tm rxPacketWiseDiscard (rxpd)

Access
Read only

Description
This attribute indicates the current set of packet-wise discard functions in effect in the receive data direction at this connection point.

A value of ***ppd*** indicates that the Partial Packet Discard (PPD) function is in effect. PPD may be applied at an intermediate connecting point for a connection which is transporting frame traffic (AAL5 at the endpoint). PPD is controlled by provisioning for PVCs and SPVCs, and by call setup parameters in the AAL and Traffic Descriptor Information Elements.

A value of ***epd*** indicates that the Early Packet Discard (EPD)

function is in effect at this connection point. PPD and EPD are enabled by default at a connection endpoint which is performing AAL5 segmentation and assembly.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, packet-wise functions are not applicable to virtual path connections (VPCs).

For ***16pOC3PosAtm*** cards, PPD and EPD are enabled by default at a connection endpoint which is performing AAL5 segmentation and assembly.

On all other ATM cards, all packet-wise discard functions also apply to virtual path connections (VPCs).

This attribute is not applicable for *Vpt*s.

Set of — ppd
epd

Default — No default

## ATTRIBUTE AtmIf Vpc Tm bandwidthElastic (bwElastic)

Access — Read only

Description — This attribute is only of importance for connections which are carried on a link with a variable bandwidth. For example, the bandwidth may be reduced in the event that one or more physical links in the IMA group fail, such that the originally requested bandwidth cannot be maintained. This attribute shows whether the application (for example, *Trunk*) running on this connection can continue to operate if the bandwidth is reduced. If the bandwidth is reduced, the amount by which it is reduced is displayed in the *bandwidthReduction* attribute.

A value of ***yes***, indicates that this connection is elastic, and the bandwidth may be reduced but the connection is not released.

A value of ***no*** indicates that the bandwidth for this connection is not reduced in the event of link bandwidth reduction. However,

this connection may be released based on its *holdingPriority*.

Bandwidth elasticity has no effect for connections which have an equivalent cell rate (ECR) of zero.

This attribute is not applicable for *Vpt*s and *Vpt Vcc*s.

Values
no
yes

Default
No default

## ATTRIBUTE AtmIf Vpc Tm bandwidthReduction (bwReduction)

Access
Read only

Description
This attribute shows the amount by which the bandwidth has been reduced for this connection. This value is non-zero only for connections which have *bandwidthElastic* displayed as ***yes***, and which are also operating in a reduced bandwidth mode. This is typically the case for selected connections running over an IMA link. This attribute takes a value from 0 (no reduction) up to the ECR. For all connections which are running at their full allocated bandwidth, *bwReduction* has the value 0. Connections which have been reduced in allocated bandwidth have a positive number for this attribute. The *bwReduction* may be subtracted from the ECR (which is displayed as *txTrafficDescParm* 5) to determine the actual bandwidth allocated to this connection.

Values
Decimal (0..2147483647)

Units
cell/s

Default
No default

## ATTRIBUTE AtmIf Vpc Tm abrConnectionType (abrType)

Access
Read only

Description
This attribute indicates the type of ABR behavior which is in effect at this connection. This attribute is only applicable if the *atmServiceCategory* attribute is ***availableBitRate***. If the *atmServiceCategory* attribute is not ***availableBitRate***, this attribute value is set to ***notApplicable***.

For ATM cards which do not support ABR connections, the possible values for this attribute are ***notApplicable***, ***efciSwitch***, or ***nonAbrInterworking***. In EFCI marking mode, the Explicit Forward Congestion Indication (EFCI) field in the data cell headers is used to indicate transmit queue congestion.

For ATM cards which do support ABR connections, if the *connectionPointType* is ***connectionEndPoint***, the value of this attribute is ***sourceDest***. In this mode, the ABR Source and Destination behavior is in effect at this connection. This attribute is also ***sourceDest*** in the case where the next hop connection is specified as ***nonAbrInterworking***. The next hop connection is the *Vcc* or *Vpc* identified by the *nextHop* attribute of the *Nrp* or *Rp* component.

If the *connectionPointType* is not ***connectionEndPoint***, the value of this attribute depends upon the *abrConnectionType* provisioning and the card type to which the traffic is forwarded on the backplane. The default *abrConnectionType* is provisioned at the *CA Abr abrConnectionType* attribute, and may be overridden for a provisioned connection in the *Vcd Tm abrConnectionType* or *Vpd Tm abrConnectionType* attribute. If the *CA Abr abrConnectionType* attribute is ***virtualSourceDest*** at either one of the two connection points, and if both the connection points are defined on ATM cards which support ABR connections, virtual source and destination behavior is applied to the connection. In this instance, the attribute displays the value ***virtualSourceDest***.

This attribute has the value ***erSwitch*** if ABR explicit rate functionality is in effect at this connection. In this mode, the switch may modify the Explicit Rate (ER) field of backward Resource Management (RM) cells to indicate the status of congestion at this connection point.

This attribute has the value ***nonAbrInterworking*** in the case where this connection point is functioning as an SPVC origin for an ABR connection where the link side of this connection is configured as a non-ABR ATM service category. This means that there are no RM cells on the link side of this connection, and that

the next hop connection point is performing as an ABR ***sourceDest***.

Values

erSwitch
efciSwitch
virtualSourceDest
sourceDest
nonAbrInterworking
notApplicable

Default

No default

## ATTRIBUTE AtmIf Vpc Tm txTrafficDescParm (txTdp)

Access

Read only

Description

This attribute is a vector of five transmit traffic parameters whose mapping is defined by the *txTrafficDescType* attribute.

The values of peak cell rate (PCR), sustained cell rate (SCR), Minimum Cell Rate (MCR), actual cell rate (ACR), explicit rate (ER), equivalent cell rate (ECR), and actual shaping rate are expressed in cell/s. Maximum burst size (MBS) is expressed in cells. CDVT is expressed in microseconds.

When *txTrafficDescType* is 1 or 2, parameters 1 through 5 are unused.

In this description, PCR is the greater of either the PCR or the requested shaping rate (parameter 1 or parameter 5) specified in the *txTrafficDescParm* attribute under the *Vcd Tm* or *Vpd Tm* component.

When *txTrafficDescType* is 3, parameter 1 represents the PCR for CLP equal to 0 or 1 traffic; parameters 2 and 3 are unused.

When *txTrafficDescType* is 4, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the PCR for CLP equal to 0 traffic with cell discard.

When *txTrafficDescType* is 5, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the PCR for

CLP equal to 0 traffic with cell tagging.

When *txTrafficDescType* is 6, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 and 1 traffic; parameter 3 represents the MBS for CLP equal to 0 and 1 traffic.

When *txTrafficDescType* is 7, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 traffic with cell discard; parameter 3 represents the MBS for CLP equal to 0 traffic.

When *txTrafficDescType* is 8, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 traffic with cell tagging; parameter 3 represents the MBS for CLP equal to 0 traffic.

When *txTrafficDescType* is 3, 4, 5, 6, 7, or 8, parameter 4 reflects the actual shaping rate in cell/s for this connection. For CQC-based ATM cards, the set of available shaping rates is based on the number of interfaces doing shaping (attribute *perVcQueueInterfaces*), and the *shapingScalingFactor* attribute of the *Arc Cqc Override* component. A rate of zero (0) indicates that shaping is not performed, or that the interface is down.

When *txTrafficDescType* is 9**,** parameter 1 represents the PCR; parameter 2 represents the Cell Delay Variation Toleration (CDVT); parameter 3 represents the Minimum Cell Rate (MCR); the meaning of parameter 4 depends upon the value of the *abrConnectionType* attribute. if *abrConnectionType* is ***sourceDest*** or ***virtualSourceDest***, parameter 4 represents the Allowed Cell Rate (ACR); If *abrConnectionType* is ***erSwitch***, parameter 4 represents the Explicit Rate (ER); and if *abrConnectionType* is ***efciSwitch***, parameter 4 reflects the actual shaping rate in cell/s for this connection.

When *txTrafficDescType* is 3, 4, 5, 6, 7, 8, or 9, parameter 5 reflects the equivalent cell rate in cell/s for this connection as determined by the Connection Admission Control (CAC)

algorithm. The equivalent cell rate is useful in determining the admission characteristics of this connection.

| | |
|---|---|
| Vector of | Decimal (0..2147483647) |
| Index | Decimal (1..5) |
| Default | No default |

### ATTRIBUTE AtmIf Vpc Tm txQueueThresholds (txQThresh)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the queue limit and the discard thresholds for the transmit queue of this connection.<br><br>If this connection has *unshapedTransmitQueueing* attribute displayed as ***common***, this attribute displays the thresholds of the common queue. If this connection has *unshapedTransmitQueueing* attribute displayed as ***perVc*** or as ***notApplicable***, this attribute displays the thresholds of the per-VC queue.<br><br>The first element indicates the queue limit. The provisioned value of the transmit queue limit is derived from the *txQueueLimit* attribute under the service category subcomponents of the *CA* component for the service category of this connection.<br><br>The second element is the threshold that marks the transition from congestion state 1 to congestion state 0. This is the threshold at which traffic with discard priority (DP) = 1 is discarded. This threshold is set at approximately 90 percent of the first parameter, the operational queue limit.<br><br>The third element is the threshold that marks the transition from congestion state 2 to congestion state 1. This is the threshold at which traffic with DP = 2 is discarded. This threshold is set at approximately 75 percent of the first parameter, the operational queue limit.<br><br>The fourth element is the threshold that marks the transition from congestion state 3 to congestion state 2. This is the threshold at which traffic with DP = 3 is discarded. This threshold is set at |

approximately 35 percent of the first parameter, the operational queue limit.

For ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, this attribute displays the thresholds of the link class queue used by this connection to buffer it traffic.

This attribute does not apply to basic *Vpt*s.

| | |
|---|---|
| Vector of | Decimal (0..512000) |
| Units | cells |
| Index | Decimal (0..3) |
| Default | No default |

### ATTRIBUTE AtmIf Vpc Tm rxTrafficDescParm (rxTdp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is a vector of four traffic parameters whose meanings are defined by the *rxTrafficDescType* attribute. The values of peak cell rate (PCR), sustained cell rate (SCR), minimum cell rate (MCR) are expressed in cell/s. Maximum burst size (MBS) is expressed in cells. Cell delay variation tolerance (CDVT) is expressed in microseconds.<br><br>When *rxTrafficDescType* is 1 or 2, none of the parameters are used.<br><br>When *rxTrafficDescType* is 3, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 4 represents the CDVT.<br><br>When *rxTrafficDescType* is 4, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the PCR for CLP equal to 0 traffic with cell discard; parameter 4 represents the CDVT.<br><br>When *rxTrafficDescType* is 5, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the PCR for CLP equal to 0 traffic with cell tagging; parameter 4 represents the CDVT. |

When *rxTrafficDescType* is 6, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 and 1 traffic; parameter 3 represents the MBS for CLP equal to 0 and 1 traffic; parameter 4 represents the CDVT.

When *rxTrafficDescType* is 7, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 traffic with cell discard; parameter 3 represents the MBS for CLP equal to 0 traffic; parameter 4 represents the CDVT.

When *rxTrafficDescType* is 8, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 traffic with cell tagging; parameter 3 represents the MBS for CLP equal to 0 traffic; parameter 4 represents the CDVT.

When *rxTrafficDescType* is 9, parameter 1 represents the PCR; parameter 2 represents CDVT; parameter 3 represents the MCR; parameter 4 is not used.

If *upc* is ***disabled*** for this connection, the values of PCR, SCR, MBS and CDVT are the provisioned parameters.

If *upc* is ***enabled***, the values of PCR, SCR, MBS, and CDVT are exactly the values used by the usage parameter control hardware in policing the arriving traffic. These may vary slightly from the provisioned values due to granularity of the hardware. In the case where the PCR is equal to the SCR, the effective MBS is zero.

| | |
|---|---|
| Vector of | Decimal (0..2147483647) |
| Index | Decimal (1..4) |
| Default | No default |

### ATTRIBUTE AtmIf Vpc Tm txQosParameters (tqp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is a vector of three elements that indicate the quality of service parameters for the forward direction for this |

connection. This attribute is used for SPVC and SVC connections on a PNNI interface.

The ***cdv*** element indicates the acceptable peak-to-peak Cell Delay Variation (CDV) of real-time connections (CBR and rt-VBR).

The ***ctd*** element indicates the acceptable maximum Cell Transfer Delay (maxCtd) of real-time connections (CBR and rt-VBR).

The ***clr*** element indicates the acceptable Cell Loss Ratio (CLR) of CBR, rt-VBR, and nrt-VBR connections.

| | |
|---|---|
| Vector of | Decimal (0..2147483647) |
| Index | cdv<br>ctd<br>clr |
| Default | No default |

### ATTRIBUTE AtmIf Vpc Tm rxQosParameters (rqp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is a vector of three elements that indicate the quality of service parameters for the backward direction for this connection. This attribute is used for SPVC and SVC connections on a PNNI interface.<br><br>The ***cdv*** element indicates the acceptable peak-to-peak Cell Delay Variation (CDV) of real-time connections (CBR and rt-VBR).<br><br>The ***ctd*** element indicates the acceptable maximum Cell Transfer Delay (maxCtd) of real-time connections (CBR and rt-VBR).<br><br>The ***clr*** element indicates the acceptable Cell Loss Ratio (CLR) of CBR, rt-VBR, and nrt-VBR connections. |

| | |
|---|---|
| Vector of | Decimal (0..2147483647) |
| Index | cdv<br>ctd<br>clr |
| Default | No default |

## COMPONENT AtmIf Vpc Tm AvailableBitRate (Abr)

| | |
|---|---|
| Groups | "GROUP AtmIf Vpc Tm Abr Operational (Oper)" |
| Scope | Device |
| Description | *AtmIf/n Vpc/vpi Tm AvailableBitRate,*<br>*AtmIf/n Vcc/vpi.vci Tm AvailableBitRate,*<br>*AtmIf/n Vpt/vpi Tm AvailableBitRate,*<br>*AtmIf/n Vpt/vpi Vcc/vci Tm AvailableBitRate*<br>This component contains ABR-related operational attributes of a connection. It is dynamically created for connections where the value of the *atmServiceCategory* attribute is ***availableBitRate***, and where the value of the *abrConnectionType* attribute is ***sourceDest***, or ***virtualSourceDest***. |
| Common Verbs | Help<br>List<br>Display |

## GROUP AtmIf Vpc Tm Abr Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational attributes for connections using ABR service category. |

## ATTRIBUTE AtmIf Vpc Tm Abr initialCellRate (icr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Initial Cell Rate (ICR) parameter for this connection. ICR is the rate at which a source should send initially and after an idle period. |

For nailed-up connections, this attribute is determined by the provisioned value of the *initialCellRate* attribute. For signaled connections, it is indicated in the ABR Setup Parameters Information Element.

The ICR for a connection is a value between the MCR and the PCR. Furthermore, ICR has an upper bound determined by the *transientBufferExposure* divided by *fixedRoundTripTime*.

Values: Decimal (0..16777215)

Units: cell/s

Default: No default

### ATTRIBUTE AtmIf Vpc Tm Abr transientBufferExposure (tbe)

Access: Read only

Description: This attribute indicates the Transient Buffer Exposure (TBE) for this connection. TBE is the negotiated number of cells that the network would like to limit the resource to send during start-up periods, before the first Resource Management (RM) cell returns.

For nailed-up connections, this attribute is determined by the provisioned value of the *transientBufferExposure* attribute. For signaled connections, it is indicated in the ABR Setup Parameters Information Element.

Values: Decimal (0..16777215)

Units: cells

Default: No default

### ATTRIBUTE AtmIf Vpc Tm Abr fixedRoundTripTime (frtt)

Access: Read only

Description: This attribute indicates the Fixed Round-Trip Time (FRTT) parameter for this connection. FRTT is the sum of the fixed and propagation delays from the source to a destination and back.

For nailed-up connections, this attribute is determined by the

provisioned value of the *fixedRoundTripTime* attribute. For signaled connections, it is indicated in the ABR Setup Parameters Information Element.

Values: Decimal (0..16700000)

Units: microsec

Default: No default

### ATTRIBUTE AtmIf Vpc Tm Abr rateDecreaseFactor (rdf)

Access: Read only

Description: This attribute indicates the Rate Decrease Factor (RDF) for this connection. The RDF value is computed by using the operational value of this attribute, n, as 2 to the inverse power n. For example, if the value of this attribute is 8, RDF is 2E-8 = 1/256.

RDF controls the amount by which the cell transmission rate may decrease upon receipt of a backward Resource Management (RM) cell. For example, if a backward RM cell is received with the Congestion Indication (CI) field set to 1, the Allowed Cell Rate (ACR) value would be reduced by the amount (RDF*ACR). The ACR is not allowed to fall below the Minimum Cell Rate (MCR), in which case the ACR is set to MCR.

For nailed-up connections, this attribute is determined by the provisioned value of the *rateDecreaseFactor* attribute. For signaled connections, it is indicated in the ABR Setup Parameters Information Element.

Values: Decimal (0..15)

Default: No default

### ATTRIBUTE AtmIf Vpc Tm Abr rateIncreaseFactor (rif)

Access: Read only

Description: This attribute indicates the Rate Increase Factor (RIF) for this connection. The RIF value is computed by using the operational value of this attribute, n, as 2 to the inverse power n. For example, if the value of this attribute is 6, RIF is 2E-6 = 1/64.

RIF controls the amount by which the cell transmission rate may increase upon receipt of a backward Resource Management (RM) cell. For example, if a backward RM cell is received with the Congestion Indication (CI) and the No Increase (NI) fields both set to 0, the Allowed Cell Rate (ACR) value would be increased by the amount (RIF*ACR). The ACR is not allowed to exceed the Peak Cell Rate (PCR), in which case the ACR is set to PCR.

For nailed-up connections, this attribute is determined by the provisioned value of the *rateIncreaseFactor* attribute. For signaled connections, it is indicated in the ABR Setup Parameters Information Element.

Values: Decimal (0..15)

Default: No default

### ATTRIBUTE AtmIf Vpc Tm Abr maxCellPerRmCell (nrm)

Access: Read only

Description: This attribute indicates the maximum number of cells an ABR source may transmit for each forward Resource Management (RM) cell. The count of the cells transmitted includes data cells, OAM cells, backward RM cells, and the forward RM cell.

For nailed-up connections, this attribute is determined by the provisioned value of the *maxCellsPerRmCell* attribute. For signaled connections, it is indicated in the ABR Additional Parameters Information Element.

Values: Decimal (2; 4; 8; 16; 32; 64; 128; 256)

Units: cells

Default: No default

### ATTRIBUTE AtmIf Vpc Tm Abr maxTimeBetweenRmCell (trm)

Access: Read only

Description: This attribute indicates the TRM parameter for this connection.

TRM provides an upper bound on the time interval between forward Resource Management (RM) cells for an ABR source.

Since the last forward RM cell was sent, if at least TRM time has elapsed since and at least 2 other cells have been sent, the next cell to be transmitted would be a forward RM cell.

For nailed-up connections, this attribute is determined by the provisioned value of the *maxTimeBetweenRmCell* attribute. For signaled connections, it is indicated in the ABR Additional Parameters Information Element.

Values: Decimal (781; 1563; 3125; 6250; 12500; 25000; 50000; 100000)

Units: microsec

Default: No default

## ATTRIBUTE AtmIf Vpc Tm Abr cutoffDecreaseFactor (cdf)

Access: Read only

Description: This attribute indicates the Cutoff Decrease Factor (CDF) parameter for this connection. When the value of this attribute is non-zero, CDF is computed as the inverse of the value. For example, if the value is 32, the value of CDF is 1/32. When the value of this attribute is 0, CDF is also zero.

CDF controls the decrease in the Allowed Cell Rate (ACR) associated with the *forwardRmCellLimit* attribute, the limit of the number of forward Resource Management (RM) cells which may be sent in the absence of received backward RM cells. When this limit is crossed, the ACR value would be decreased by the amount (CDF*ACR). The ACR is not allowed to fall below the Minimum Cell Rate (MCR), in which case the ACR is set to MCR.

For nailed-up connections, this attribute is determined by the provisioned value of the *cutoffDecreaseFactor* attribute. For signaled connections, it is indicated in the ABR Additional Parameters Information Element.

Values: Decimal (0; 1; 2; 4; 8; 16; 32; 64)

Default: No default

### ATTRIBUTE AtmIf Vpc Tm Abr acrDecreaseTimeFactor (adtf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Allowed Cell Rate Decrease Time Factor (ADTF) parameter for this connection.<br><br>ADTF is the time interval permitted between sending forward Resource Management (RM) cells before the Allowed Cell Rate (ACR) is decreased to *initialCellRate*. In other words, if the source does not transit a forward RM cell for the period specified by *adtf*, it reduces its ACR to the value of its *initialCellRate*.<br><br>For nailed-up connections, this attribute is determined by the provisioned value of the *acrDecreaseTimeFactor* attribute. For signaled connections, it is indicated in the ABR Additional Parameters Information Element. |
| Values | Decimal (0..1023) |
| Units | centiseconds |
| Default | No default |

### ATTRIBUTE AtmIf Vpc Tm Abr forwardRmCellLimit (crm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the CRM parameter for this connection.<br><br>CRM is the limit of the number of forward Resource Management (RM) cells which may be sent in the absence of received backward RM cells. When this limit is crossed, the Allowed Cell Rate (ACR) value would be decreased by the amount (CDF*ACR), where CDF is determined by the *cutoffDecreaseFactor*. The ACR is not allowed to fall below the Minimum Cell Rate (MCR), in which case the ACR is set to MCR.<br><br>The value of CRM is obtained as *transientBufferExposure* divided by *maxCellsPerRmCell*. |
| Values | Decimal (1; 3; 7; 15; 31; 63; 127; 255; 511; 1023; 2047; 4095) |

| | |
|---|---|
| Units | cells |
| Default | No default |

### ATTRIBUTE AtmIf Vpc Tm Abr txRateChangeInfo (txrci)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the rate change information put into the last forward Resource Management (RM) cell turned around as a backward-RM cell. For connections configured as an ABR Source or Destination, the turned around backward-RM cell is sent over the interface. For connections configured as an ABR Virtual Source or Virtual Destination, the turned around backward-RM cell is sent over the backplane. |
| Values | congestionIndicated<br>noIncreaseIndicated<br>explicitRateIndicated |
| Default | No default |

### ATTRIBUTE AtmIf Vpc Tm Abr acrRateChangeInfo (arci)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the type of change in the Allowed Cell Rate (ACR) as a result of the information in the last backward Resource Management (B-RM) cell received from the interface.<br><br>This attribute value is only applicable when the *Vcc Tm* or *Vpc Tm abrConnectionType* attribute is ***sourceDest*** or ***VirtualSourceDest***. In all other cases, this attribute value is ***notApplicable***.<br><br>A value of ***noChange*** indicates that the rate did not change as a result of the last backward RM cell received.<br><br>A value of ***decreasedByRdf*** or ***increasedByRif*** indicates that the ACR was increased or decreased by the corresponding factor. This change is as a result of the CI or NI bit setting in the last backward RM cell, or an ADTF timeout. |

A value of ***setToExplicitRate*** indicates that the ACR was set to the ER value in the last backward RM cell.

Values
noChange
decreasedByRdf
increasedByRif
setToExplicitRate
notApplicable

Default
No default

### ATTRIBUTE AtmIf Vpc Tm Abr txFwdRmCells

Access
Read only

Description
This attribute counts the number of forward Resource Management (RM) cells sent over the interface since the last backward RM-cell was received from the interface. If the value of this attribute is greater than or equal to the value of *forwardRmCellLimit*, the Allowed Cell Rate (ACR) value would be decreased by the amount (CDF*ACR), where CDF is determined by the *cutoffDecreaseFactor.*

This counter is reset to zero each time a backward-RM cell is received.

This counter does not wrap to zero if it reaches its maximum value of 4095 in order to indicate that no backward RM cell has been received.

Values
Decimal (0..4095)

Units
cells

Default
No default

### ATTRIBUTE AtmIf Vpc Tm Abr rxEfci

Access
Read only

Description
This attribute indicates the value of the Explicit Forward Congestion Indication (EFCI) bit of the last data cell received from the interface.

When a forward Resource Management (RM) cell is turned

around as a backward-RM cell, the Congestion Indication (CI) field of the backward-RM cell is set to 1, if the value of this attribute is ***indicated***.

This attribute is set to ***notIndicated*** each time a backward-RM cell is transmitted.

Values
notIndicated
indicated

Default
No default

## COMPONENT AtmIf Vpc MulticastNailedUpRelayPoint (Mnrp)

Groups
"GROUP AtmIf Vpc Mnrp Provisioned (Prov)"

Scope
Device

Description
*AtmIf/n Vcc/vpi.vci Mnrp*
This component is used to establish a root of a multicast nailed-up ATM Bearer Service (ABS) connection. By linking a *Mnrp* to a *Nrp*, the associated connections are configured to relay ATM cells from *Mnrp* to *Nrp*. The *Mnrp* component requires exclusive use of its parent *Vcc* or *Vpc* and cannot co-exist with other ATM service components (such as *Nep*, *Test*, *Nrp* and *Loop*). This component is supported only on 4pOC3SmIrAtm and 4pOC3MmAtm cards.This component is not supported under *Vpt Vcc* and *Vpt Vpc*.

Common Verbs
Help
List
Display
Add
DELete

## GROUP AtmIf Vpc Mnrp Provisioned (Prov)

Properties
Provisioned

Description
This group contains the provisionable attributes for the *Mnrp* component.

### ATTRIBUTE AtmIf Vpc Mnrp oamSegmentBoundary (sb)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the OAM segment boundary desired for a *Mnrp* component. It affects the connection point type value visible in the parent component's *connectionPointType* attribute. The desired OAM segment boundary can be specified directly as ***yes***, ***no*** or ***sameAsInterface***. If ***sameAsInterface*** is specified, the OAM segment boundary is same as the *oamSegmentBoundary* attribute of the associated *AtmIf* and the switch will set the *connectionPointType*, choosing ***segmentEndPoint*** for a segment-boundary ATM interface and ***connectingPoint*** for a non-segment-boundary ATM interface. |
| Values | no<br>yes<br>sameAsInterface |
| Default | sameAsInterface |

### ATTRIBUTE AtmIf Vpc Mnrp bandwidthElastic (bwElastic)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute is only of importance for connections which are carried on a link with a variable bandwidth. For example, the bandwidth may be reduced in the event that one or more physical links in the IMA group fail, such that the originally requested bandwidth cannot be maintained. This attribute shows whether the application running on this connection can continue to operate if the bandwidth is reduced. If the bandwidth is reduced, the amount by which it is reduced will be displayed in the *bandwidthReduction* attribute.<br>A value of ***yes***, indicates that this connection is elastic, and the bandwidth may be reduced but the connection will not be released. Currently, this attribute should only be set to ***yes*** for situations where this *Mnrp* is functioning as a loopback on one side of an IMA link. There are no other situations where this setting is valid. |

A value of ***no*** indicates that the bandwidth for this connection will not be reduced in the event of link bandwidth reduction. However, this connection may be released based on its *holdingPriority.*

Values
no
yes

Default
no

### ATTRIBUTE AtmIf Vpc Mnrp overrideHoldingPriority (ohpri)

Access
Read and write

Criticality
Component

Description
This attribute specifies the holding priority of this connection. Holding priority is used when there is an IMA group where some physical links have failed. Holding priority determines the order in which connections are released. 4 is the lowest holding priority and is released first. 0 is a higher priority and is released last. The value specified in this attribute will override whatever *holdingPriority* that has been provisioned at the *Vcd* (or *Vpd*). If the value is left at the default of ***noOverride***, the *holdingPriority* provisioned at the *Vcd* (or *Vpd*) will be used.

Values
0
1
2
3
4
noOverride

Default
noOverride

### ATTRIBUTE AtmIf Vpc Mnrp nextHop (nextHop)

Access
Read and write

Description
This attribute specifies the list of *Nrp* components with which this *Mnrp* is associated. A sample value is *AtmIf/31 Vcc/0.32 Nrp.* This attribute must be provisioned with at least one Nrp component under a compatible connection type.

List of
Link (Service, nextHop)

| | |
|---|---|
| Default | No default |

## COMPONENT AtmIf Vpc PerformanceMonitoring (Pm)

| | |
|---|---|
| Instance | linkSide<br>switchSide |
| Groups | "GROUP AtmIf Vpc Pm PmStatus (Status)"<br>"GROUP AtmIf Vpc Pm FwdClrMeasurements (FwdClr)"<br>"GROUP AtmIf Vpc Pm BwdClrMeasurements (BwdClr)"<br>"GROUP AtmIf Vpc Pm ArMeasurements (Ar)" |
| Scope | Device |
| Description | *AtmIf/n Vcc/x.y PerformanceMonitoring*<br>*AtmIf/n Vpc/x PerformanceMonitoring*<br>This component contains operational attributes for Performance Monitoring (PM) measurements on the connection. It also allows starting and stopping PM measurements when the *controlMode* attribute in the *AtmIf Pm* or *AtmIf Vcc Vcd Pm* or *AtmIf Vpc Vpd Pm* component is set to ***onDemand***. |
| Common Verbs | Help<br>List<br>Display |

## VERB START AtmIf Vpc Pm

| | |
|---|---|
| Impact | Service |
| Description | *Start AtmIf/n Vcc/x.y PerformanceMonitoring*<br>*Start AtmIf/n Vpc/x PerformanceMonitoring*<br>This verb starts Performance Monitoring (PM) activation procedures on the connection for PM measurements indicated in the *segSwitchSide* and *segLinkSide* attributes. This verb produces an error message when the connection is idle, PM has already been started or the *controlMode* attribute for the PM measurements has a value of ***autoStart***. The measurements will continue until the *Stop* verb is issued. |

## VERB STOP AtmIf Vpc Pm

| | |
|---|---|
| Impact | Service |
| Description | *Stop AtmIf/n Vcc/x.y PerformanceMonitoring*<br>*Stop AtmIf/n Vpc/x PerformanceMonitoring*<br>This verb starts Performance Monitoring (PM) deactivation procedures on the connection for PM measurements indicated in the *segSwitchSide* and *segLinkSide* attributes. This verb produces an error message when PM is not running or the *controlMode* attribute for the PM measurements has a value of ***autoStart***. |

## GROUP AtmIf Vpc Pm PmStatus (Status)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains attributes indicating the status of each Performance Monitoring (PM) measurement. |

## ATTRIBUTE AtmIf Vpc Pm clrMeasurementStatus (clr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the Cell Loss Ratio (CLR) measurement status of the connection.<br><br>The value ***inactive*** indicates the test is inactive.<br>The value ***activating*** indicates the test is activating.<br>The value ***active*** indicates the test is in progress<br>The value ***activationFailed*** indicates the test failed to be activated. Refer to the *failureCause* attribute for failure cause. |
| Values | inactive<br>activating<br>active<br>activationFailed |
| Default | inactive |

## ATTRIBUTE AtmIf Vpc Pm arMeasurementStatus (arStatus)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Availability Ratio (AR) measurement status of the connection. |

The value ***inactive*** indicates the test is inactive.
The value ***activating*** indicates the test is activating.
The value ***active*** indicates the test is in progress
The value ***activationFailed*** indicates the test failed to be activated. Refer to the *failureCause* attribute for the failure cause.

Values
inactive
activating
active
activationFailed

Default
inactive

### ATTRIBUTE AtmIf Vpc Pm failureCause (cause)

Access
Read only

Description
This attribute indicates the failure cause of Performance Monitoring (PM) measurements. The following are possible causes:

The value ***noError*** indicates no error.

The value ***unknownCause*** indicates unknown failure cause.

The value ***softwareResourcesUnavailable*** indicates software resources reserved for a maximum of 255 active PMs on the local FP card have been used up.

The value ***hardwareResourcesUnavailable*** indicates hardware resources reserved for a maximum of 512 active PMs CLR card have been used up on the Link Side local card.

The value ***remoteEndNoResponse*** indicates no response from remote end during activation.

The value ***activationCollision*** indicates activation collision was detected. Usually this is caused by both ends of the connection being provisioned to request PM. Only one end should be so provisioned.

The value ***remoteEndRejectedActivation*** indicates the remote end has rejected an activation request. Usually this is due to the remote end reaching a resource limit.

The value ***pcrUnsupported*** indicates the Tx or Rx PCR is out of range. The PCR value must be between 0 and 409601.

The value ***nextHopConnectionUnsupported*** indicates the next hop card type or connection type do not allow access to the necessary hardware to support PM measurements.

The value ***upcNotDisabled*** indicates UPC is not disabled on the local next hop card for this connection. PM measurements are not supported when UPC is either enforced or monitored.

Values

noError
unknownCause
softwareResourcesUnavailable
hardwareResourcesUnavailable
remoteEndNoResponse
activationCollision
remoteEndRejectedActivation
pcrUnsupported
nextHopConnectionUnsupported
upcNotDisabled

Default

noError

## ATTRIBUTE AtmIf Vpc Pm clrEnhancementStatus (enhanced)

Access

Read only

Description

This attribute indicates an enhanced mode of operation for Cell Loss Ratio (CLR) measurements by including cell discards from the remote segment end point which are not covered by the performance measurement (PM) cell.

The value ***inactive*** indicates that CLR enhanced mode of operation has not been activated.

The value ***active*** indicates that discards at the remote segment end point are being included in CLR measurements.

The value ***remoteEndNotProvidingStatistics*** indicates that the remote end is not replying to proprietary requests for additional discard counts. This occurs when the remote end does not have the passport software to recognize these requests.

Values: inactive
active
remoteEndNotProvidingStatistics

Default: inactive

### GROUP AtmIf Vpc Pm FwdClrMeasurements (FwdClr)

Properties: Operational

Description: This group contains Cell Loss Ratio (CLR) measurements for the forward direction of the connection. The local end is always the provisioned end which sends the activation request, and the remote end is the end which receives the activation request.

### ATTRIBUTE AtmIf Vpc Pm fwdTotalClrInterval

Access: Read only

Description: This attribute indicates the total time duration over which Cell Loss Ratio (CLR) has been calculated in the forward direction.

Values: Decimal (0..4294967295)

Units: seconds

Default: No default

### ATTRIBUTE AtmIf Vpc Pm fwdTotalUserCellsRx0

Access: Read only

Description: This attribute indicates the number of cells with CLP=0 received at the remote end over the total Cell Loss Ratio (CLR) measurement interval in the forward direction.

Values: Long Integer

Units: cells

| | |
|---|---|
| Default | No default |

### ATTRIBUTE AtmIf Vpc Pm fwdTotalUserCellsTx0

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of cells with CLP=0 transmitted from the local end over the total Cell Loss Ratio (CLR) measurement interval in the forward direction. |
| Values | Long Integer |
| Units | cells |
| Default | No default |

### ATTRIBUTE AtmIf Vpc Pm fwdTotalUserCellsRx01

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of cells with CLP=0+1 received at the remote end over the total Cell Loss Ratio (CLR) measurement interval in the forward direction. |
| Values | Long Integer |
| Units | cells |
| Default | No default |

### ATTRIBUTE AtmIf Vpc Pm fwdTotalUserCellsTx01

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of cells with CLP=0+1 transmitted from the local end over the total CLR measurement interval in the forward direction. |
| Values | Long Integer |
| Units | cells |
| Default | No default |

### ATTRIBUTE AtmIf Vpc Pm fwdPmCellDiscardCount

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the total number of Performance Monitoring (PM) cells discarded in the forward direction. |
| Values | Decimal (0..4294967295) |
| Units | cells |
| Default | No default |

### ATTRIBUTE AtmIf Vpc Pm fwdClr0

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the CLR for CLP=0 traffic calculated for the total measurement interval in the forward direction. |
| Values | Decimal (0.000000000..1.000000000) |
| Default | No default |

### ATTRIBUTE AtmIf Vpc Pm fwdClr01

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the CLR for CLP=0+1 traffic calculated for the total measurement interval in the forward direction. |
| Values | Decimal (0.000000000..1.000000000) |
| Default | No default |

### GROUP AtmIf Vpc Pm BwdClrMeasurements (BwdClr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains Cell Loss Ratio (CLR) measurements for the backward direction of the connection. The local end is always the provisioned end which sends the activation request, and the remote end is the end which receives the activation request. |

### ATTRIBUTE AtmIf Vpc Pm bwdTotalClrInterval

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total time duration over which Cell Loss Ratio (CLR) measurement has been calculated in the backward direction. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Units | seconds |
| Default | No default |

### ATTRIBUTE AtmIf Vpc Pm bwdTotalUserCellsRx0

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of cells with CLP=0 received at the local end over the total Cell Loss Ratio (CLR) measurement interval in the backward direction. |
| Values | Long Integer |
| Units | cells |
| Default | No default |

### ATTRIBUTE AtmIf Vpc Pm bwdTotalUserCellsTx0

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of cells with CLP=0 transmitted from the remote end over the total Cell Loss Ratio (CLR) measurement interval in the backward direction. |
| Values | Long Integer |
| Units | cells |
| Default | No default |

### ATTRIBUTE AtmIf Vpc Pm bwdTotalUserCellsRx01

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of cells with CLP=0 received at the local end over the total Cell Loss Ratio (CLR) measurement interval in the backward direction. |
| Values | Long Integer |
| Units | cells |
| Default | No default |

### ATTRIBUTE AtmIf Vpc Pm bwdTotalUserCellsTx01

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of cells with CLP=0+1 transmitted from the remote end over the total Cell Loss Ratio (CLR) measurement interval in the backward direction. |
| Values | Long Integer |
| Units | cells |
| Default | No default |

### ATTRIBUTE AtmIf Vpc Pm bwdPmCellDiscardCount

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of Performance Monitoring (PM) cells discarded in the backward direction. |
| Values | Decimal (0..4294967295) |
| Units | cells |
| Default | No default |

### ATTRIBUTE AtmIf Vpc Pm bwdClr0

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the CLR for CLP=0 traffic calculated for the total measurement interval in the backward direction. |
| Values | Decimal (0.000000000..1.000000000) |
| Default | No default |

### ATTRIBUTE AtmIf Vpc Pm bwdClr01

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the CLR for CLP=0+1 traffic calculated for the total measurement interval in the backward direction. |
| Values | Decimal (0.000000000..1.000000000) |
| Default | No default |

## GROUP AtmIf Vpc Pm ArMeasurements (Ar)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains Availability Ratio (AR) measurements of the connection. |

## ATTRIBUTE AtmIf Vpc Pm currentAvailabilityStatus

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current status of the bidirectional connection for purposes of Availability Ratio (AR) computation.<br><br>The value ***notApplicable*** means AR measurement was not requested on this connection.<br><br>The value ***available*** means AR is running and considers the connection available (that is, the *arAvailableTime* attribute is being incremented).<br><br>The value ***unavailable*** means AR measurement was requested but the connection is currently unavailable. |
| Values | notApplicable<br>available<br>unavailable |
| Default | No default |

## ATTRIBUTE AtmIf Vpc Pm arTotalTime

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total time used for calculating Availability Ratio (AR) of the bi-directional connection. |
| Values | Decimal (0..4294967295) |
| Units | seconds |
| Default | No default |

## ATTRIBUTE AtmIf Vpc Pm arAvailableTime

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the total time the connection was available. |
| Values | Decimal (0..4294967295) |
| Units | seconds |
| Default | No default |

### ATTRIBUTE AtmIf Vpc Pm arAvailabilityRatio

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the ratio of network availability representing the ratio of available time to the total time of the connection. |
| Values | Decimal (0.0000000..1.0000000) |
| Default | No default |

### COMPONENT AtmIf Vpc PathTraceRecord (PTRecord)

| | |
|---|---|
| Groups | "GROUP AtmIf Vpc PTRecord Operational (Oper)" |
| Scope | Device |
| Description | *AtmIf/n Vcc/x.y PTRecord*<br>*AtmIf/n Vpc/n PTRecord*<br>*AtmIf/n Vpt/n Vcc/x.y PTRecord*<br><br>This component represents the path trace records for this connection. If the connection is deleted, this component is also deleted. |
| Dyn. Subcomp. | "COMPONENT AtmIf Vpc PTRecord Hop" |
| Common Verbs | Help<br>List<br>Display |

### GROUP AtmIf Vpc PTRecord Operational (Oper)

| | |
|---|---|
| Properties | Operational |

Description This group contains the operational attributes for the path trace record component.

### ATTRIBUTE AtmIf Vpc PTRecord status

Access
Read: All
Write: Illegal

Description This attribute indicates the status of the trace. The string is one of the following:

***Completed normally****:* The trace completed normally.

***Incomplete****:* Partial trace returned.

***Exceeded information element length limitations****:* The number of traced nodes exceeded the maximum number of hops.

***Exceeded message length limitations****:* The message length exceeded the maximum allowed size.

Values
Completed normally
Incomplete
Exceeded information element length limitations
Exceeded message length limitations

Default No default

### ATTRIBUTE AtmIf Vpc PTRecord timeStamp

Access
Read: All
Write: Illegal

Description This attribute records the date and time of when the trace is completed.

Values Time (DHMS)

Default No default

### ATTRIBUTE AtmIf Vpc PTRecord srcPortId

Access
Read: All
Write: Illegal

| | |
|---|---|
| Description | This attribute indicates the trace's source port identifier used for this connection. This attribute only appears in the trace result for the trace source hop. |
| Values | Decimal (1..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpc PTRecord srcPortName

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the name of the source port used for this connection. This attribute only appears in the trace result for the trace source hop. |
| Values | String (40, ASCII) |
| Default | No default |

### ATTRIBUTE AtmIf Vpc PTRecord causeCode

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute contains the cause code in the transmitted signaling message that contains the CAUSE information element. The cause code is used to describe the reason for generating certain signaling messages. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE AtmIf Vpc PTRecord diagCode

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |

| | |
|---|---|
| Description | This attribute contains the diagnostic code in the transmitted signaling message. The diagnostic code is contained in the CAUSE information element and identifies an information element type or timer type. The diagnostic code is present only if a procedural error is detected by the signaling protocol. A diagnostic code is always accompanied by the cause code. If there is no failure, this attribute is set to NULL. |
| Values | String (0..8, ASCII) |
| Default | No default |

## COMPONENT AtmIf Vpc PTRecord Hop

| | |
|---|---|
| Instance | Decimal (0..200) |
| Groups | "GROUP AtmIf Vpc PTRecord Hop Operational (Oper)" |
| Scope | Device |
| Description | *AtmIf/n Aini Ptf PTRecord Hop/n*<br>*AtmIf/n Iisp Ptf PTRecord Hop/n*<br>*AtmIf/n Uni Ptf PTRecord Hop/n*<br>*AtmIf/n Pnni Ptf PTRecord Hop/n*<br>*AtmIf/n Vpt/n Aini Ptf PTRecord Hop/n*<br>*AtmIf/n Vpt/n Iisp Ptf PTRecord Hop/n*<br>*AtmIf/n Vpt/n Uni Ptf PTRecord Hop/n*<br>*AtmIf/n Vpt/n Pnni Ptf PTRecord Hop/n*<br>*AtmIf/n Vcc/x.y PTRecord Hop/n*<br>*AtmIf/n Vpc/n PTRecord Hop/n*<br>*AtmIf/n Vpt/n Vcc/x.y PTRecord Hop/n*<br><br>This component stores the result of a hop from a trace. An instance of this component is dynamically created for each hop in a trace record.<br><br>Depending on the hops, different attributes are present. |

| | |
|---|---|
| Dyn. Subcomp. | "COMPONENT AtmIf Vpc PTRecord Hop VendorSpecificInfo (Vsi)" |
| Common Verbs | Help<br>List<br>Display |

## GROUP AtmIf Vpc PTRecord Hop Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for the component *AtmPathTraceFilterRecordHop*. |

## ATTRIBUTE AtmIf Vpc PTRecord Hop ingressVpiVci (vpiVci)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the VPI.VCI values used for this hop on the ingress side. This is the ingress side with respect to the trace or setup messages. This attribute is displayed for ATM interfaces only.<br><br>The VPI.VCI values are included in the trace when the *traceInfo* attribute sets the ***connId*** value. |
| Values | Integer Sequence (0..4095; 0..65535) |
| Default | No default |

## ATTRIBUTE AtmIf Vpc PTRecord Hop ingressDlci (dlci)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the DLCI value used for this hop on the ingress side. This is the ingress side with respect to the trace or |

setup message. This attribute is displayed for FrAtm interfaces only.

The DLCI is included in the trace when the *traceInfo* attribute sets the ***connId*** value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE AtmIf Vpc PTRecord Hop ingressCallReference (callref)

Access: Read: All
Write: Illegal

Criticality: Component

Description: This attribute indicates the call reference value used for this hop on the ingress side. This is the ingress side with respect to the trace or setup message.

The call reference is included in the trace when the *traceInfo* attribute sets the ***callRef*** value

Values: Hex (H.0..H.ffffff)

Default: No default

### ATTRIBUTE AtmIf Vpc PTRecord Hop ingressEndPointReference (epref)

Access: Read: All
Write: Illegal

Criticality: Component

Description: This attribute indicates the end point reference value used for this hop on the ingress side. This is the ingress side with respect to the trace or setup messages.

The end point reference is included in the trace when the *traceInfo* attribute sets the ***callRef*** value and the connection is point-to-multipoint.

Values: Hex (H.0..H.ffff)

Default: No default

### ATTRIBUTE AtmIf Vpc PTRecord Hop nodeId

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the lowest level node ID traversed for this hop. |
| Values | String (22, Hex) |
| Default | No default |

### ATTRIBUTE AtmIf Vpc PTRecord Hop nodeName

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the *nodeName* under the *ModuleData* component for this hop. Only Passport nodes provide this information by including it in the Vendor Specific group. |
| Values | String (12, ASCII) |
| Default | No default |

### ATTRIBUTE AtmIf Vpc PTRecord Hop portId

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the port identifier value for this hop on the egress side. This is the egress side with respect to the trace or setup messages. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpc PTRecord Hop portName

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the port name for this hop on the egress side. This is the egress side with respect to the trace or setup messages. Only Passport nodes provide this information by including it in the Vendor Specific group. |
| Values | String (55, ASCII) |
| Default | No default |

### ATTRIBUTE AtmIf Vpc PTRecord Hop pnniTraceContRefusalIndPresent (refusal)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates whether the “PNNI Trace Continuation Refusal” indicator is present. The “PNNI Trace Continuation Refusal” indicator indicates that this hop has refused to participate in the trace. |
| Values | absent<br>present |
| Default | absent |

### ATTRIBUTE AtmIf Vpc PTRecord Hop crankbackDestNodeIndPresent (dest)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates whether the “PNNI Crankback Received at the Trace Destination Node” indicator is present. The “PNNI Crankback Received at Trace Destination Node” indicator indicates that this hop is acting as a trace destination node, receiving a crankback for this call from a non-PNNI interface. |

| | |
|---|---|
| Values | absent<br>present |
| Default | absent |

### ATTRIBUTE AtmIf Vpc PTRecord Hop pnniCrankbackGapIndPresent (gap)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates whether the “PNNI Crankback Gap” indicator is present. The “PNNI Crankback Gap” indicator indicates that the call experienced a crankback, where no Trace Transit List IE was returned by the node initiating the crankback. |
| Values | absent<br>present |
| Default | absent |

### ATTRIBUTE AtmIf Vpc PTRecord Hop crankBackCause (cause)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the crankback cause. Please refer to Private-Network-to-Network-Interface Specification Version 1.0 for more information.<br><br>This attribute is present when the *traceInfo* attribute sets the ***crankBack*** value and the connection has initiated the crankback procedure. |
| Values | Decimal (0..1000) |
| Default | No default |

### ATTRIBUTE AtmIf Vpc PTRecord Hop blockedTransitType (type)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |

| | |
|---|---|
| Description | This attribute indicates the blocked transit type.<br><br>This attribute is present when the *traceInfo* attribute sets the ***crankBack*** value and the connection has initiated the crankback procedure. |
| Values | Succeeding end blocked<br>Blocked node<br>Blocked link |
| Default | No default |

### ATTRIBUTE AtmIf Vpc PTRecord Hop blockedNodeId (bNodeId)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the blocked node ID during the call setup request. The blocked node ID identifies the logical node where the connection or party has been blocked.<br><br>This attribute is present when the *blockedTransitType* attribute is ***Blocked node.*** |
| Values | String (22, Hex) |
| Default | No default |

### ATTRIBUTE AtmIf Vpc PTRecord Hop blockedLinkPrecedingNodeId (pNodeId)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the blocked link's preceding node ID during the call setup request. The blocked link's preceding node ID identifies the logical node preceding a link, where the connection or party has been blocked.<br><br>This attribute is present when the *blockedTransitType* attribute is ***Blocked link***. |

| | |
|---|---|
| Values | String (22, Hex) |
| Default | No default |

### ATTRIBUTE AtmIf Vpc PTRecord Hop blockedLinkPortId (bPortId)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the blocked link's port identifier used for this connection during the call setup request. The blocked link's port identifier identifies a logical port of the blocked link's preceding node identifier.<br><br>This attribute is present when the *blockedTransitType* attribute is ***Blocked link.*** |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpc PTRecord Hop blockedLinkSucceedingNodeId (sNodeId)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the blocked link's succeeding node ID during the call setup request. The blocked link's succeeding node ID identifies the logical node succeeding a link where the connection or party has been blocked.<br><br>This attribute is present when the *blockedTransitType* attribute is ***Blocked link.*** |
| Values | String (22, Hex) |
| Default | No default |

### ATTRIBUTE AtmIf Vpc PTRecord Hop dstVpiVci

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the VPI.VCI values on the destination side. This attribute only appears in the trace result for the trace destination node. This attribute is only displayed for ATM interfaces.<br><br>The VPI.VCI is included in the trace when the *traceInfo* attribute sets the ***connId*** value. |
| Values | Integer Sequence (0..4095; 0..65535) |
| Default | No default |

### ATTRIBUTE AtmIf Vpc PTRecord Hop dstDlci

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the DLCI value on the destination side. This attribute only appears in the trace result for the trace destination node. This attribute is only displayed for FrAtm interfaces.<br><br>The DLCI is included in the trace when the *traceInfo* attribute sets the ***connId*** value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpc PTRecord Hop dstCallReference (dcr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |

| | |
|---|---|
| Description | This attribute indicates the call reference value on the destination side. This attribute only appears in the trace result for the trace destination node.<br><br>The call reference value is included in the trace when the *traceInfo* attribute sets the ***callRef*** value. |
| Values | Hex (H.0..H.ffffff) |
| Default | No default |

### ATTRIBUTE AtmIf Vpc PTRecord Hop dstEndPointReference (depr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the end point call reference value on the destination side. This attribute only appears in the trace result for the trace destination node.<br><br>The call reference value is included in the trace when the *traceInfo* attribute sets the ***callRef*** value and the connection is point-to-multipoint. |
| Values | Hex (H.0..H.ffff) |
| Default | No default |

### ATTRIBUTE AtmIf Vpc PTRecord Hop specifiedPath

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates whether this hop is the originator of this manually configured path. Only Passport nodes provide this information by including it in the Vendor Specific group. |
| Values | no<br>yes |
| Default | no |

## COMPONENT AtmIf Vpc PTRecord Hop VendorSpecificInfo (Vsi)

| | |
|---|---|
| Instance | Decimal (0..10) |
| Groups | "GROUP AtmIf Vpc PTRecord Hop Vsi Operational (Oper)" |
| Scope | Device |
| Description | *AtmIf/n Aini Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Iisp Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Uni Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vpt/n Aini Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vpt/n Iisp Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vpt/n Uni Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vpt/n Pnni Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vcc/x.y PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vpc/n PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vpt/n Vcc/x.y PTRecord Hop/n VendorSpecificInfo/m*<br><br>This component stores the vendor specific information of a non-Passport node for a hop. An instance of this component is dynamically created for the vendor specific information group of a hop in a trace. Several instances of this component are created if the trace has several groups of vendor specific information.<br><br>All the trace information for a Passport node is stored in the *PTRecord Hop/** component. |
| Common Verbs | Help<br>List<br>Display |

## GROUP AtmIf Vpc PTRecord Hop Vsi Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for the component *AtmPathTraceFilterRecordHopVen*. |

## ATTRIBUTE AtmIf Vpc PTRecord Hop Vsi length

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute indicates the length of the vendor specific information group. |
| Values | Decimal (0..11) |
| Default | No default |

### ATTRIBUTE AtmIf Vpc PTRecord Hop Vsi organizationUniqueId (oui)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the Organization Unique Identifier (OUI) of a non-Passport node. |
| Values | String (3, Dashed Hex) |
| Default | No default |

### ATTRIBUTE AtmIf Vpc PTRecord Hop Vsi data

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the contents of the vendor specific information group. |
| Values | String (1..8, Hex) |
| Default | No default |

## COMPONENT AtmIf Vpc RerouteInfo (RerInfo)

| | |
|---|---|
| Groups | "GROUP AtmIf Vpc RerInfo Operational (Oper)"<br>"GROUP AtmIf Vpc RerInfo EbrOperational (EOper)"<br>"GROUP AtmIf Vpc RerInfo LocalOperational (LOper)"<br>"GROUP AtmIf Vpc RerInfo GlobalOperational (GOper)"<br>"GROUP AtmIf Vpc RerInfo EbrStatistics (EStats)"<br>"GROUP AtmIf Vpc RerInfo LocalStatistics (LStats)"<br>"GROUP AtmIf Vpc RerInfo GlobalStatistics (GStats)" |
| Scope | Device |
| Description | *AtmIf/n Vcc/vpi.vci RerouteInfo*<br>*AtmIf/n Vpc/vpi RerouteInfo*<br>*AtmIf/n Vpt/vpi Vcc/vci RerouteInfo*<br>*Aal1Ces/n RerouteInfo* |

*Fratm/n Dlci/n Siwf RerouteInfo*

This component represents the rerouting capabilities of a connection segment. The component is present at the DTL originator of the connection segment. It is also present at each local domain rerouting node, if the local rerouting protocol has been granted to the connection segment.

Common Verbs

Help
List
Display

## GROUP AtmIf Vpc RerInfo Operational (Oper)

Properties: Operational

Description: This group contains the common operational attributes that indicate rerouting activities at the connection level.

## ATTRIBUTE AtmIf Vpc RerInfo lastOptimizationMetric (lOptMet)

Access: Read only

Description: This attribute indicates which optimization metric was last used to select a path for the connection segment.

Values:
cdv
maxCtd
aw

Default: No default

## GROUP AtmIf Vpc RerInfo EbrOperational (EOper)

Properties: Operational

Description: This group contains attributes that indicate the EBR rerouting characteristics of a connection segment.

This group is only present if the connection segment has been granted the EBR rerouting protocol.

### ATTRIBUTE AtmIf Vpc RerInfo ebrRecoverySubscribed (eRecSub)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether the connection segment is subscribed to EBR connection recovery.<br><br>This attribute is only present if the connection segment has been granted the EBR protocol. |
| Values | no<br>yes |
| Default | No default |

### ATTRIBUTE AtmIf Vpc RerInfo ebrOptimizationSubscribed (eOptSub)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether the connection segment is subscribed to EBR path optimization.<br><br>This attribute is only present if the connection segment has been granted the EBR protocol. |
| Values | no<br>yes |
| Default | No default |

### ATTRIBUTE AtmIf Vpc RerInfo ebrOptimizationMetricValue (eOptVal)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the EBR optimization metric value that was collected for the call during the most recent call establishment. It represents the segment of the connection between the rerouting and rendezvous nodes.<br><br>This attribute is only present if the connection segment has been granted the EBR protocol. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## ATTRIBUTE AtmIf Vpc RerInfo ebrOptimalMetricValue (eOptMetVal)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the EBR optimization metric value of the connection's best path. It is initialized to the value collected during initial call establishment. It is set to the ***localOptimizationValue*** whenever a connection is optimized onto a path which has a better optimization value or when the number of optimization attempts is exhausted. It represents the segment of the connection between the rerouting and rendezvous nodes.<br><br>This attribute is only present if the connection segment has been granted the EBR protocol. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## ATTRIBUTE AtmIf Vpc RerInfo ebrOptimizationState (eOptSt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current EBR optimization state of the connection segment.<br><br>One of the following values is indicated:<br>***optimal:*** This is the initial value when the connection segment is first established. The connection segment is in optimal state whenever the optimization metric value of the connection segment is equal to the best known value.<br>***recovered:*** This value represents the state when the connection segment has been recovered to a path with an optimization metric value for the connection segment which is greater than the value specified by the optimal metric value.<br>***optimized:*** This value represents the state when the connection segment has moved to a path which is better than the recovered path but not as good as the optimal path.<br><br>This attribute is only present if the connection segment has been granted the EBR protocol. |

| | |
|---|---|
| Values | optimal<br>recovered<br>optimized |
| Default | No default |

### ATTRIBUTE AtmIf Vpc RerInfo ebrTimeOfLastRecovery (eTime)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the date and time of the last EBR connection recovery.<br><br>This attribute is only present if the connection segment has been granted the EBR protocol. |
| Values | Time (DHMS) |
| Default | No default |

### GROUP AtmIf Vpc RerInfo LocalOperational (LOper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains attributes that indicate the local rerouting characteristics of a connection segment.<br><br>This group is only present if the connection segment has been granted the local rerouting protocol. |

### ATTRIBUTE AtmIf Vpc RerInfo localRecoverySubscribed (lRecSub)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether the connection segment is subscribed to local connection recovery.<br><br>This attribute is only present if the connection segment has been granted the local rerouting protocol. |
| Values | no<br>yes |
| Default | No default |

### ATTRIBUTE AtmIf Vpc RerInfo localOptimizationSubscribed (lOptSub)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether the connection segment is subscribed to local path optimization.<br><br>This attribute is only present if the connection segment has been granted the local rerouting protocol. |
| Values | no<br>yes |
| Default | No default |

### ATTRIBUTE AtmIf Vpc RerInfo localOptimizationMetricValue (lOptVal)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the local optimization metric value that was collected for the call during the most recent call establishment. It represents the segment of the connection between the rerouting and rendezvous nodes. A value of ***undefined*** indicates that the local optimization metric value is undetermined.<br><br>This attribute is only present if the connection segment has been granted the local rerouting protocol. |
| Values | Decimal (0..4294967294)<br>undefined |
| Default | No default |

### ATTRIBUTE AtmIf Vpc RerInfo localOptimalMetricValue (lOptMetVal)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the local optimization metric value of the connection's best path. It is initialized to the value collected during initial call establishment. It is set to the ***localOptimizationValue*** whenever a connection is optimized onto a path which has a better optimization value or when the number of optimization attempts is exhausted. It represents the segment of the connection between the rerouting and rendezvous |

nodes.A value of ***undefined*** indicates that the local optimal optimization metric value is undetermined.

This attribute is only present if the connection segment has been granted the local rerouting protocol.

Values: Decimal (0..4294967294)
undefined

Default: No default

### ATTRIBUTE AtmIf Vpc RerInfo localOptimizationState (lOptSt)

Access: Read only

Description: This attribute indicates the current local optimization state of the connection segment.

One of the following values is indicated:
***optimal:*** This is the initial value when the connection segment is first established. The connection segment is in optimal state whenever the optimization metric value of the connection segment is equal to the best known value.
***recovered:*** This value represents the state when the connection segment has been recovered to a path with an optimization metric value for the connection segment which is greater than the value specified by the optimal metric value.
***optimized:*** This value represents the state when the connection segment has moved to a path which is better than the recovered path but not as good as the optimal path.

This attribute is only present if the connection segment has been granted the local rerouting protocol.

Values: optimal
recovered
optimized

Default: No default

### ATTRIBUTE AtmIf Vpc RerInfo localTimeOfLastRecovery (lTime)

Access: Read only

| | |
|---|---|
| Description | This attribute indicates the date and time of the last local connection recovery.<br><br>This attribute is only present if the connection segment has been granted the local rerouting protocol. |
| Values | Time (DHMS) |
| Default | No default |

### GROUP AtmIf Vpc RerInfo GlobalOperational (GOper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains attributes that indicate the global rerouting characteristics of a connection.<br><br>This group is only present if the connection segment has been granted the global rerouting protocol. |

### ATTRIBUTE AtmIf Vpc RerInfo globalRecoverySubscribed (gRecSub)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether the connection segment is subscribed to global connection recovery.<br><br>This attribute is only present if the connection segment has been granted the global rerouting protocol. |
| Values | no<br>yes |
| Default | No default |

### ATTRIBUTE AtmIf Vpc RerInfo globalOptimizationSubscribed (gOptSub)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether the connection segment is subscribed to global path optimization.<br><br>This attribute is only present if the connection segment has been granted the global rerouting protocol. |

| | |
|---|---|
| Values | no<br>yes |
| Default | No default |

### ATTRIBUTE AtmIf Vpc RerInfo globalOptimizationMetricValue (gOptVal)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the global optimization metric value that was collected for the call during the most recent call establishment. It represents the segment of the connection between the rerouting and rendezvous nodes. A value of ***undefined*** indicates that the global optimization metric value is undetermined.<br><br>This attribute is only present if the connection segment has been granted the global rerouting protocol. |
| Values | Decimal (0..4294967294)<br>undefined |
| Default | No default |

### ATTRIBUTE AtmIf Vpc RerInfo globalOptimalMetricValue (gOptMetVal)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the global optimization metric value of the connection's best path. It is initialized to the value collected during initial call establishment. It is set to the ***globalOptimizationValue*** whenever a connection is optimized onto a path which has a better optimization value or when the number of optimization attempts is exhausted. It represents the segment of the connection between the rerouting and rendezvous nodes.A value of ***undefined*** indicates that the global optimal optimization metric value is undetermined.<br><br>This attribute is only present if the connection segment has been granted the global rerouting protocol. |

| | |
|---|---|
| Values | Decimal (0..4294967294)<br>undefined |
| Default | No default |

### ATTRIBUTE AtmIf Vpc RerInfo globalOptimizationState (gOptSt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current global optimization state of the connection segment.<br><br>One of the following values is indicated:<br>***optimal:*** This is the initial value when the connection segment is first established. The connection segment is in optimal state whenever the optimization metric value of the connection segment is equal to the best known value.<br>***recovered:*** This value represents the state when the connection segment has been recovered to a path with an optimization metric value for the connection segment which is greater than the value specified by the optimal metric value.<br>***optimized:*** This value represents the state when the connection segment has moved to a path which is better than the recovered path but not as good as the optimal path.<br><br>This attribute is only present if the connection segment has been granted the global rerouting protocol. |
| Values | optimal<br>recovered<br>optimized |
| Default | No default |

### ATTRIBUTE AtmIf Vpc RerInfo globalTimeOfLastRecovery (gTime)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the date and time of the last global connection recovery.<br><br>This attribute is only present if the connection segment has been granted the global rerouting protocol. |

| | |
|---|---|
| Values | Time (DHMS) |
| Default | No default |

### GROUP AtmIf Vpc RerInfo EbrStatistics (EStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistics related to Ebr rerouting for the connection segment. |

### ATTRIBUTE AtmIf Vpc RerInfo totalEbrConnectionRecoveries (eConnRec)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts successful EBR connection recovery attempts. The counter wraps to zero when the maximum value is exceeded.<br><br>This attribute is only present if the connection segment has been granted the EBR protocol. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpc RerInfo totalEbrPathOptimizations (ePathOpt)

| | |
|---|---|
| Access | Read only |
| Description | This attributes counts successful EBR path optimization attempts. The counter wraps to zero when the maximum value is exceeded.<br><br>This attribute is only present if the connection segment has been granted the EBR protocol. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpc RerInfo totalEbrOptimizationAttempts (eOptAtt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of EBR path optimization attempts. The counter wraps to zero when the maximum value is |

| | |
|---|---|
| | exceeded.<br><br>This attribute is only present if the connection segment has been granted the EBR protocol. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP AtmIf Vpc RerInfo LocalStatistics (LStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistics related to local rerouting for the connection segment. |

### ATTRIBUTE AtmIf Vpc RerInfo totalLocalConnectionRecoveries (lConnRec)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts successful local connection recovery attempts. The counter wraps to zero when the maximum value is exceeded.<br><br>This attribute is only present if the connection segment has been granted the local rerouting protocol. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpc RerInfo totalLocalPathOptimizations (lPathOpt)

| | |
|---|---|
| Access | Read only |
| Description | This attributes counts successful local path optimization attempts. The counter wraps to zero when the maximum value is exceeded.<br><br>This attribute is only present if the connection segment has been granted the local rerouting protocol. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpc RerInfo totalLocalOptimizationAttempts (lOptAtt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of local path optimization attempts. The counter wraps to zero when the maximum value is exceeded.<br><br>This attribute is only present if the connection segment has been granted the local rerouting protocol. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP AtmIf Vpc RerInfo GlobalStatistics (GStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistics related to global rerouting for the connection segment. |

### ATTRIBUTE AtmIf Vpc RerInfo totalGlobalConnectionRecoveries (gConnRec)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts successful global connection recovery attempts. The counter wraps to zero when the maximum value is exceeded.<br><br>This attribute is only present if the connection segment has been granted the global rerouting protocol. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpc RerInfo totalGlobalPathOptimizations (gPathOpt)

| | |
|---|---|
| Access | Read only |
| Description | This attributes counts successful global path optimization attempts. The counter wraps to zero when the maximum value is exceeded. |

This attribute is only present if the connection segment has been granted the global rerouting protocol.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE AtmIf Vpc RerInfo totalGlobalOptimizationAttempts (gOptAtt)

Access: Read only

Description: This attribute counts the total number of global path optimization attempts. The counter wraps to zero when the maximum value is exceeded.

This attribute is only present if the connection segment has been granted the global rerouting protocol.

Values: Decimal (0..4294967295)

Default: No default

### COMPONENT AtmIf Vpc MplsConnection (MplsCon)

Groups: "GROUP AtmIf Vpc MplsCon MplsConFec (Mcf)"
"GROUP AtmIf Vpc MplsCon MplsConServLabel (Mcsl)"
"GROUP AtmIf Vpc MplsCon Operational (Oper)"

Scope: Device

Description: *AtmIf/n Vpc/vpi MplsCon*
This component is used to establish an emulated ATM Vpc cell relay service over an MPLS network. By linking together an *MplsCon* component with an *Lsp Fec Ipv4Epa* component using the *transportFec* attribute, the associated connections are configured to relay ATM cells to one another. The *MplsCon* component requires exclusive use of its parent *Vpc* and cannot co-exist with other ATM service components (such as *Nrp*, *Src*, *Mnrp* and *Loop*). The attributes *transportFec*, *incomingServiceLabel*, and *outgoingServiceLabel* must be provisioned. Also, the *incomingServiceLabel* attribute value must be unique for this node.
If an *MplsCon* component is added under the *Vpc* component,

then the *Vr Dsd* component must have an *AtmServiceMap* subcomponent.

Common Verbs

Help
List
Display
Add
DELete

## GROUP AtmIf Vpc MplsCon MplsConFec (Mcf)

Properties: Provisioned

Description: This group contains the provisionable attributes for the *MplsCon* component.

## ATTRIBUTE AtmIf Vpc MplsCon transportFec (tFec)

Access: Read and write

Criticality: Component

Description: This attribute specifies the underlying transport LSP that carries the service traffic with which this *MplsCon* component is associated. A sample value is ***Vr/0 Mpls LspG Fec Ipv4Epa/ 47.138.152.83,32***. This attribute must be provisioned.

Values: The name of the component

Default: No default

## ATTRIBUTE AtmIf Vpc MplsCon remoteProviderEdge (rPE)

Access: Read and write

Description: This attribute specifies the remote Provider Edge node information of the transport LSP. The operator can store either the name or the Primary IP Address of the remote PE node. This label is not a mandatory field that is required to set up this connection.

Values: String (0..82, ASCII)

Default: ""

## GROUP AtmIf Vpc MplsCon MplsConServLabel (Mcsl)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the service labels used by an ATM Vpc connection to transmit and receive data for the *MplsCon* component. |

## ATTRIBUTE AtmIf Vpc MplsCon incomingServiceLabel (isl)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the incoming service label carried by the transport LSP with which this *MplsCon* component is associated. The incoming service label on this node must match the outgoing service label on the remote Provider Edge node. |
| Values | Decimal (262144..264191)<br>undefined |
| Default | undefined |

## ATTRIBUTE AtmIf Vpc MplsCon outgoingServiceLabel (osl)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the outgoing service label carried by the transport LSP with which this *MplsCon* component is associated. The outgoing service label must match the incoming service label on the remote Provider Edge node. |
| Values | Decimal (0..1048575)<br>undefined |
| Default | undefined |

## GROUP AtmIf Vpc MplsCon Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group provides the operational attributes of the *MplsCon* component. |

### ATTRIBUTE AtmIf Vpc MplsCon operationalStatus (status)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the health of the Transport LSP connection. A brief description of the *operationalStatus* attribute values is listed in the following:<br><br>***noError***: The transport LSP is Up.<br><br>***tLspDown***: The transport LSP cannot be established. |
| Values | noError<br>tLspDown |
| Default | tLspDown |

### ATTRIBUTE AtmIf Vpc MplsCon clp0ToPhb (clp0)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the PerHopBehavior applied to this connection when Clp = 0. |
| Values | Decimal (0..63)<br>notApplicable |
| Default | notApplicable |

### ATTRIBUTE AtmIf Vpc MplsCon clp1ToPhb (clp1)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the PerHopBehavior applied to this connection when Clp = 1. |
| Values | Decimal (0..63)<br>notApplicable |
| Default | notApplicable |

### COMPONENT AtmIf VirtualChannelConnection (Vcc)

| | |
|---|---|
| Instance | String (3..10, ASCII) |

| | |
|---|---|
| Groups | "GROUP AtmIf Vcc OsiState (State)"<br>"GROUP AtmIf Vcc Operational (Oper)"<br>"GROUP AtmIf Vcc ConnectionInfo (ConnInfo)"<br>"GROUP AtmIf Vcc Status"<br>"GROUP AtmIf Vcc Statistics (Stats)"<br>"GROUP AtmIf Vcc Performance (Perf)" |
| Scope | Device |
| Description | *AtmIf/n VirtualChannelConnection/vpi.vci*<br>This component represents a virtual channel connection (VCC).<br><br>For *Vccs* directly beneath the *AtmIf*, the instance value defines the VPI and VCI values for this connection—for example, *Vcc/16.32* would define a connection with a VPI of 16 and a VCI of 32.<br><br>The VPI can be in the range of 0 to 4095 and the VCI can be in the range of 0 to 65535. Note that a *Vcc* instance of 0.0 is invalid as defined in the ATM Forum. |

| | |
|---|---|
| Subcomponents | "COMPONENT AtmIf Vcc VirtualChannelDescriptor (Vcd)" |
| Opt. Subcomp. | "COMPONENT AtmIf Vcc Loop (Loop)"<br>"COMPONENT AtmIf Vcc NailedUpRelayPoint (Nrp)"<br>"COMPONENT AtmIf Vcc NailedUpEndPoint (Nep)"<br>"COMPONENT AtmIf Vcc Test (Test)"<br>"COMPONENT AtmIf Vcc SourcePvc (Src)"<br>"COMPONENT AtmIf Vcc MulticastNailedUpRelayPoint (Mnrp)"<br>"COMPONENT AtmIf Vcc MulticastSourcePvc (Msrc)" |
| Dyn. Subcomp. | "COMPONENT AtmIf Vcc TrafficManagement (Tm)"<br>"COMPONENT AtmIf Vcc EndPoint (Ep)"<br>"COMPONENT AtmIf Vcc RelayPoint (Rp)"<br>"COMPONENT AtmIf Vcc PerformanceMonitoring (Pm)"<br>"COMPONENT AtmIf Vcc PathTraceRecord (PTRecord)"<br>"COMPONENT AtmIf Vcc RerouteInfo (RerInfo)" |
| Dyn. Subcomp. | "COMPONENT AtmIf Vcc DestinationPvc (Dst)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## VERB TRACE AtmIf Vcc

Impact: Service

Description:

*TRACE AtmIf/n Vcc/vpi.vci*
*TRACE -s -v -a -e AtmIf/n Vcc/vpi.vci*

This command traces the path of an intra-network segment of a connection. It displays the names of interface and connection components along this segment of a connection.

The Trace response for a *Vcc* does not show any hops of a VCC which are conveyed on a path connection (VPC). In this case the Trace command only shows the VCC hop points. Note however, that if the connection traverses a *Vcc* which resides beneath a *Vpt*, the *Vpt/vpi Vcc/vci* hierarchy is displayed in the trace results.

The options for the signaling trace are as follows:

-*s*: Selects the PNNI signaling call trace instead of the Passport proprietary OAM-based trace. Option -*s* must be present if any one of options -*v*, -*a*, and -*e* are present, otherwise it defaults to the OAM-based trace.

-*v*: Request that the VPI.VCI values be collected along the trace. This option is only valid when the -*s* option is present.

-*a*: Request that the call reference/end point reference values be collected along the trace. This option is only valid when the -*s* option is present.

-*e*: Used on point-to-multipoint connections to specify the end

point reference value indicating which party to trace. If no *-e* option is used for a point-to-multipoint connection, the default traces the path with the endpoint reference 0, which is the first party. This option is only valid when the *-s* option is present.

Only one connection trace is supported at a time. An error message is returned if a response from the network is not received within 30 seconds.

If the verb is issued with the *-s* option for the *vcc/vpi.vci* values that are not active or were not created by signaling (for example, control channels), the command is refused.

### VERB CLEAR AtmIf Vcc

| | |
|---|---|
| Impact | Service |
| Description | *CLEAR AtmIf/n Vcc/vpi.vci*<br>This command is used to clear a switched connection. |

### GROUP AtmIf Vcc OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE AtmIf Vcc adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is |

administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE AtmIf Vcc operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE AtmIf Vcc usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

## GROUP AtmIf Vcc Operational (Oper)

Properties
Operational

Description
This group contains operational information for a *Vcc, Vpc,* or *Vpt* component.

## ATTRIBUTE AtmIf Vcc connectionPointType (cpt)

Access
Read only

Description
This attribute reflects the role of the connection component at this interface.

A value of ***connectionEndPoint*** indicates that user cells, end-to-end OAM cells, and segment OAM cells are processed by the connection component.

A value of ***segmentEndPoint*** indicates that user cells and end-to-end OAM cells are relayed by the connection component, while segment OAM cells are processed by the connection component.

A value of ***connectingPoint*** indicates that user cells, end-to-end OAM cells, and segment OAM cells are relayed by the connection component.

A value of ***unknown*** indicates that the connection component is inactive.

Values
connectionEndPoint
segmentEndPoint

| | |
|---|---|
| | connectingPoint<br>unknown |
| Default | No default |

### GROUP AtmIf Vcc ConnectionInfo (ConnInfo)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational connection characteristics information for a *Vcc* component. |

### ATTRIBUTE AtmIf Vcc distributionType (distrbt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the way data is distributed in the connection.<br><br>A value of ***pointToPoint*** indicates this connection point is part of a point-to-point connection.<br><br>A value of ***pointToMultipoint*** indicates this connection point is part of a point-to-multipoint connection. |
| Values | pointToPoint<br>pointToMultipoint |
| Default | pointToPoint |

### ATTRIBUTE AtmIf Vcc numLeaves (nlvs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of destination leaves of the connection. If the *distributionType* is ***pointToPoint*** the value of this attribute is 0. |
| Values | Decimal (0..2147483647) |
| Default | 0 |

### ATTRIBUTE AtmIf Vcc callDirection (cdir)

| | |
|---|---|
| Access | Read only |

Description

This attribute indicates the direction of the call setup request for an SVC.

A value of ***fromLink*** means that the call setup originated from the link.

A value of ***toLink*** means that the call setup was directed to the link.

For PVC connections, the value of this attribute is ***notApplicable.***

For SPVC connections, the value of this attribute is ***notApplicable*** for *Vccs* with the *SourcePVC* and *DestinationPVC* subcomponents.

For Signaling channels, the value of this attribute is ***notApplicable***.

Values

fromLink
toLink
notApplicable

Default

notApplicable

## GROUP AtmIf Vcc Status

Properties

Operational

Description

This group contains operational status information for a *Vcc, Vpc* or *Vpt* component.

## ATTRIBUTE AtmIf Vcc operStatus (opStat)

Access

Read only

Description

This attribute indicates the present operational status of the *Vcc, Vpc* or *Vpt* component. Its value is dependent upon the current state of the *segLinkSideLoopbackState* and *endToEndLoopbackState* attributes.

The value is ***end2endUp*** when the *endToEndLoopbackState* is ***good*** and the *segLinkSideLoopbackState* is either ***good*** or ***unknown***.

The value is ***end2endDown*** when the *endToEndLoopbackState* is ***bad*** and the *segLinkSideLoopbackState* is either ***good*** or ***unknown***.

The value is ***localUpEnd2endUnknown*** when the *endToEndLoopbackState* is ***unknown*** and the *segLinkSideLoopbackState* is ***good***.

The value is ***localDown*** when *segLinkSideLoopbackState* is ***bad***.

The value is ***localUpEnd2endUnknown*** when the *endToEndLoopbackState* is ***notApplicable*** and the *segLinkSideLoopbackState* is ***good***.

The value is ***unknown*** when the *endToEndLoopbackState* is either ***unknown*** or ***notApplicable*** and the *segLinkSideLoopbackState* is ***unknown***.

Values
unknown
end2endUp
end2endDown
localUpEnd2endUnknown
localDown

Default
No default

## ATTRIBUTE AtmIf Vcc localFailureCause

Access
Read only

Description
This attribute indicates the failure cause of the *Vcc*, *Vpc* or *Vpt* component. A value of ***noFailure*** indicates that there is currently no bandwidth related failure for this connection.

A value of ***portDown*** indicates that the interface corresponding to the parent *AtmIf* is down.

A value of ***localBwLoss*** indicates that the *AtmIf* has lost some, but not all bandwidth, and as a result, this connection has been released.

A value of ***notAdmitted*** indicates that this connection has failed to be admitted by the Connection Admission Control (CAC) algorithm.

A value of ***appNotRegistered*** indicates that there is no application registered to use this connection. This may be the case, for example when there is a *Vcc Test* application, but the test has not been started. Check the status of the application to determine why it is not functional.

A value of ***disabledByApp*** indicates that the application using this connection has requested that the connection be disabled. An example is a connection used by a trunk application where the trunk has timed out on an attempt to stage. Check the application to determine why it is not fully functional.

A value of ***bwReduced*** indicates that this connection is operating in a reduced bandwidth state. It is a bandwidth elastic connection which currently has been allocated less than the requested (equivalent) bandwidth.

A value of ***vpDown*** indicates that this connection has been notified of a fault detected at the associated VP-layer. A value of ***vpDown*** is applicable for *Vpt Vcc*s only.

Values

noFailure
localBwLoss
portDown
notAdmitted
appNotRegistered
disabledByApp
bwReduced
vpDown

Default

No default

## ATTRIBUTE AtmIf Vcc troubled

Access

Read only

Description

This attribute indicates whether or not the connection is in a troubled state. Connections become troubled because of OAM failures; when one of the attributes *segLinkSideLoopbackState*, *segSwitchSideLoopbackState*, *endToEndLoopbackState*, *aisState* (when receiving AIS cells only) or *rdiState* go bad, this attribute is set to ***yes***; otherwise it is set to ***no***.

Values

no
yes

Default

no

## ATTRIBUTE AtmIf Vcc segLinkSideLoopbackState (segLkLbkState)

Access

Read only

Description

This attribute contains the current state of the link-side segment loopback for this connection. Link-side segment loopback cells are transmitted (inserted) by a connection component in the direction of the link (port). The value of this attribute is dependent upon the current setting of the *segLinkSideLoopback* provisionable attribute, the connection point type as specified by the *connectionPointType* attribute, and the current loopback state (if applicable).

The value is ***notApplicable*** when the *connectionPointType* is a ***connectingPoint***.

The value is ***notApplicable*** when the *distributionType* is ***pointToMultipoint***.

The value is ***good*** when the *segLinkSideLoopback* is ***on***, the *connectionPointType* is a ***segmentEndPoint*** or a ***connectionEndPoint***, and the segment link side loopback is working.

The value is ***bad*** when the *segLinkSideLoopback* is ***on***, the *connectionPointType* is a ***segmentEndPoint*** or a ***connectionEndPoint***, and the link side segment loopback is not working.

The value is ***unknown*** when the *segLinkSideLoopback* is ***off***.

The value is ***unknown*** when the *segLinkSideLoopback* is ***on***, the *connectionPointType* is a ***segmentEndPoint*** and the segment switch side loopback has not yet been determined.

The state of this attribute determines, in part, the value of the *operStatus* attribute**.**

Values

good
bad
unknown
notApplicable

Default

No default

## ATTRIBUTE AtmIf Vcc segSwitchSideLoopbackState (segSwLbkState)

Access

Read only

Description

This attribute contains the current state of the switch-side segment loopback for this connection. Switch-side segment loopback cells are transmitted (inserted) by a connection component in the direction of the bus. The value of this attribute is dependent upon the current setting of the *segSwitchSideLoopback* provisionable attribute, the connection point type as specified by the *connectionPointType* attribute, and the current loopback state (if applicable).

The value is only applicable when the *connectionPointType* is a ***segmentEndPoint***. The value is ***notApplicable*** when the *connectionPointType* is a ***connectingPoint*** or ***connectionEndPoint***. The value is ***notApplicable*** when the *distributionType* is ***pointToMultipoint***.

The value is ***good*** when the *segSwitchSideLoopback* is ***on***, the *connectionPointType* is a ***segmentEndPoint*** and the segment switch side loopback is working.

The value is ***bad*** when the *segSwitchSideLoopback* is ***on***, the *connectionPointType* is a ***segmentEndPoint*** and the switch side segment loopback is not working.

The value is ***unknown*** when the *segSwitchSideLoopback* is ***off***.

The value is ***unknown*** when the *segSwitchSideLoopback* is ***on***, the *connectionPointType* is a ***segmentEndPoint*** and the segment switch side loopback has not been determined.

Values

good
bad
unknown
notApplicable

Default

No default

### ATTRIBUTE AtmIf Vcc endToEndLoopbackState (eeLbkState)

Access

Read only

Description

This attribute contains the current state of the end-to-end loopback for this connection. Its value is dependent upon the current setting of the *endToEndLoopback* provisionable attribute and the connection point type as specified by the *connectionPointType* attribute.

The value is only applicable when the *connectionPointType* is a ***connectionEndPoint***. The value is ***notApplicable*** when the *connectionPointType* is a ***connectingPoint*** or s***egmentEndPoint***. The value is ***notApplicable*** when the *distributionType* is a ***pointToMultipoint***.

The value is ***good*** when the *endToEndLoopback* is ***on***, the *connectionPointType* is a ***connectionEndPoint*** and the end-to-end loopback is working.

The value is ***bad*** when the *endToEndLoopback* is ***on***, the *connectionPointType* is a ***connectionEndPoint*** and the end-to-end loopback is not working.

The value is ***unknown*** when the *endToEndLoopback* is ***off***.

The value is ***unknown*** when the *endToEndLoopback* is ***on***, the *connectionPointType* is a ***connectionEndPoint*** and the end-to-end loopback status has not been determined.

The state of this attribute determines, in part, the value of the *operStatus* attribute.

Values

good
bad
unknown
notApplicable

Default

No default

### ATTRIBUTE AtmIf Vcc rxOamCellCongestionState (rxOamCongState)

Access

Read only

Description

This attribute contains the current state of the receive side OAM cell congestion for this connection. Its value reflects whether the rate of received OAM cells for this connection is below a specified threshold. The connection maintains a count of the number of OAM cells which are terminated per second. Once that count exceeds the specified threshold, extraction of all OAM cells for this connection is disabled for a period of one minute. This is a congestion management mechanism to prevent the processor from being overloaded with handling OAM cells for a particular connection. This mechanism ensures that tasks, such as trunks obtain enough processor cycles to remain in service, and are not adversely affected by excessive rate of OAM cells on a particular connection.

The value is ***good*** when the rate of received OAM cells is less than the allowed threshold.

The value is ***bad*** when the arrival rate has exceeded the allowed threshold. It remains ***bad*** for one minute, before returning to ***good*** again. During this timeout, extraction of all OAM cells is disabled for this connection. As a result, other loopback failure conditions may occur.

The value is ***unknown*** when the application has not yet begun to use this connection. An example is the *Test* component before a test has been started.

Each type of OAM cell is counted separately. The threshold for AIS cells is three cells per second. If more than three AIS cells are received within a one second interval, this attribute is set to ***bad***. The threshold for RDI cells and each loopback type is also three, but the threshold for trace cells is 250 per second.

The state of this attribute has no direct effect on the value of the *operStatus* attribute or on the number of troubled connections.

Values
good
bad
unknown
notApplicable

Default
No default

## ATTRIBUTE AtmIf Vcc aisState

Access
Read only

Description
This attribute contains the current state of the Alarm Indication Signal for this connection.

A value of ***good*** indicates that the connection's application is active and no alarm has occurred.

A value of ***bad*** indicates that the connection's application is active and an alarm has occurred.

A value of ***unknown*** indicates that the connection's application is inactive.

A value of ***notApplicable*** occurs when the *connectionPointType* is either a ***segmentEndPoint*** or a ***connectingPoint***.

Values
good
bad
unknown
notApplicable

Default
No default

### ATTRIBUTE AtmIf Vcc rdiState

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current state of the Remote Defect Indication for this connection.<br><br>A value of ***good*** indicates that the connection's application is active and no alarm has occurred.<br><br>A value of ***bad*** indicates that the connection's application is active and an alarm has occurred.<br><br>A value of ***unknown*** indicates that the connection's application is inactive.<br><br>A value of ***notApplicable*** occurs when the *connectionPointType* is either a ***segmentEndPoint*** or a ***connectingPoint***. |
| Values | good<br>bad<br>unknown<br>notApplicable |
| Default | No default |

### GROUP AtmIf Vcc Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains traffic statistics for a *Vcc*, *Vpc*, or *Vpt* component. |

### ATTRIBUTE AtmIf Vcc txCell

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of cells that have been transmitted from the interface on this connection.<br><br>The counter wraps to zero if it exceeds its maximum value of (2**64)-1. |

| | |
|---|---|
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE AtmIf Vcc txCellClp (txClp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of cells that have been transmitted from the interface on this connection with the CLP=1.<br><br>The counter wraps to zero if it exceeds its maximum value of (2**64)-1. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE AtmIf Vcc txCellDiscard (txcd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of cells received from the backplane on this connection that have been discarded.<br><br>Discarded cells are not counted in the *txCell* attribute.<br><br>Cells are discarded due to transmit congestion, Partial Packet Discard (PPD), Early Packet Discard (EPD), and Weighted Random Early Detection (W-RED) mechanisms, or when the connection's interface is disabled.<br><br>For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, this attribute is not applicable to connections that segment frames into cells (AAL5 adaptation). Such connections usually have a *connectionPointType* of ***connectionEndPoint***. AAL1 connections are an exception to this rule; although they have a *connectionPointType* of ***connectionEndPoint***, they do not do AAL5 adaptation at this point.<br><br>For *Vpt*s, this attribute provides an aggregated total of all *txCellDiscard* values for all connections associated with the *Vpt*. |

The counter wraps to zero if it exceeds its maximum value of (2**64)-1.

Values: Long Integer

Default: No default

### ATTRIBUTE AtmIf Vcc txCellDiscardClp (txcdClp)

Access: Read only

Description: This attribute counts the number of cells received from the backplane on this connection with CLP=1 that have been discarded.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, this attribute is not applicable and is not displayed.

This count is included in the *txCellDiscard* attribute. Discarded cells are not counted in the *txCellClp* attribute.

Cells are discarded due to transmit congestion, Partial Packet Discard (PPD), Early Packet Discard (EPD), and Weighted Random Early Detection (W-RED) mechanisms, or when the connection's interface is disabled.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, this attribute is not applicable to connections that segment frames into cells (AAL5 adaptation). Such connections usually have a *connectionPointType* of ***connectionEndPoint***. AAL1 connections are an exception to this rule; although they have a *connectionPointType* of ***connectionEndPoint***, they do not do AAL5 adaptation at this point.

For *Vpt*s, this attribute provides an aggregated total of all *txCellDiscardClp* values for all connections associated with the *Vpt*.

The counter wraps to zero if it exceeds its maximum value of (2**64)-1.

Values: Long Integer

Default No default

## ATTRIBUTE AtmIf Vcc txFrameDiscard (txfd)

Access Read only

Description This attribute counts the number of frames received from the backplane on this connection that have been discarded.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, this attribute is not applicable and is not displayed.

Frames are discarded due to congestion, Partial Packet Discard (PPD), Early Packet Discard (EPD), and Weighted Random Early Detection (W-RED) mechanisms, or when the connection interface is disabled.

This count is independent of the *txCell* or *txCellDiscard* attribute.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, this attribute is applicable only to connections that segment frames into cells (AAL5 adaptation). Such connections usually have a *connectionPointType* of ***connectionEndPoint***. AAL1 connections are an exception to this rule; although they have a *connectionPointType* of ***connectionEndPoint***, they do not do AAL5 adaptation at this point.

For *Vpt*s, this attribute provides an aggregated total of all *txFrameDiscard* values for all connections associated with the *Vpt*.

Discards due to EPD, PPD, and W-RED for a standard *Vpt Vcc* are not included in this attribute. These discards are counted in the *Vcc*'s parent *Vpt txFrameDiscard* attribute.

The counter wraps to zero if it exceeds its maximum value of (2**64)-1.

Values Long Integer

Default No default

## ATTRIBUTE AtmIf Vcc txFrameDiscardClp (txfdClp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of discarded frames on this connection that were received from the backplane and composed of one or more CLP=1 cells.<br><br>For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, this attribute is not applicable and is not displayed.<br><br>Frames are discarded due to congestion, Partial Packet Discard (PPD), Early Packet Discard (EPD), and Weighted Random Early Detection (W-RED) mechanisms, or when the connection interface is disabled.<br><br>This count is included in the *txFrameDiscard* attribute.<br><br>For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, this attribute is applicable only to connections that segment frames into cells (AAL5 adaptation). Such connections usually have a *connectionPointType* of ***connectionEndPoint***. AAL1 connections are an exception to this rule; although they have a *connectionPointType* of ***connectionEndPoint***, they do not do AAL5 adaptation at this point.<br><br>For *Vpt*s, this attribute provides an aggregated total of all *txFrameDiscardClp* values for all connections associated with the *Vpt*.<br><br>Discards due to EPD, PPD, and W-RED for a standard *Vpt Vcc* are not included in this attribute. These discards are counted in the *Vcc*'s parent *Vpt txFrameDiscardClp* attribute.<br><br>The counter wraps to zero if it exceeds its maximum value of (2**64)-1. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE AtmIf Vcc rxCell

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of cells that have been received from the interface on this connection.<br><br>For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, this count does not include cells that have been discarded by the interface due to non-conformance with UPC.<br><br>The counter wraps to zero if it exceeds its maximum value of (2**64)-1. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE AtmIf Vcc rxCellClp (rxClp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of cells that have been received from the interface on this connection with the CLP=1.<br><br>For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, this attribute is not applicable and is not displayed.<br><br>The counter wraps to zero if it exceeds its maximum value of (2**64)-1. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE AtmIf Vcc rxCellDiscard (rxcd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of cells received from the interface on this connection that have been discarded. This count is included in the *rxCell* attribute.<br><br>This count includes cells discarded due to non-conformance with UPC, cells which are part of a frame which has been discarded |

due to an AAL5 frame reassembly error, cells which are discarded due to congestion, or cells which are received while the next hop connection to which the traffic is directed across the backplane is down. The next hop connection is the *Vcc* or *Vpc* identified by the *nextHop* attribute of the *Nrp* or *Rp* component.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, this attribute is not applicable to connections that reassemble cells into frames (AAL5 adaptation). Such connections usually have a *connectionPointType* of ***connectionEndPoint***. AAL1 connections are an exception to this rule; although they have a *connectionPointType* of ***connectionEndPoint***, they do not do AAL5 adaptation at this point.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, this count does not include cells discarded due to non-conformance with UPC.

For *Vpt*s, this attribute provides an aggregated total of all *rxCellDiscard* values for all connections associated with the *Vpt*. Discards due to non-conformance with UPC at the VP layer, for a standard *Vpt Vcc,* are not included in this attribute. These discards are counted in the *Vcc*'s parent *Vpt rxCellDiscard* attribute.

The counter wraps to zero if it exceeds its maximum value of (2**64)-1.

Values — Long Integer

Default — No default

### ATTRIBUTE AtmIf Vcc rxCellDiscardClp (rxcdClp)

Access — Read only

Description — This attribute counts the number of cells received from the interface on this connection with CLP=1 that have been discarded. This count is included in the *rxCell* and *rxCellDiscard* attributes.

This count includes cells discarded due to non-conformance with UPC, cells which are part of a frame which has been discarded due to an AAL5 frame reassembly error, cells which are discarded due to congestion, or cells which are received while the next hop connection to which the traffic is directed across the backplane is down. The next hop connection is the *Vcc* or *Vpc* identified by the *nextHop* attribute of the *Nrp* or *Rp* component.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, this attribute is not applicable and is not displayed.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, this attribute is not applicable to connections that reassemble cells into frames (AAL5 adaptation). Such connections usually have a *connectionPointType* of ***connectionEndPoint***. AAL1 connections are an exception to this rule; although they have a *connectionPointType* of ***connectionEndPoint***, they do not do AAL5 adaptation at this point.

For *Vpt*s, this attribute provides an aggregated total of all *rxCellDiscardClp* values for all connections associated with the *Vpt*. Discards due to non-conformance with UPC at the VP layer, for a standard *Vpt Vcc*, are not included in this attribute. These discards are counted in the *Vcc*'s parent *Vpt rxCellDiscardClp* attribute.

The counter wraps to zero if it exceeds its maximum value of (2**64)-1.

Values: Long Integer

Default: No default

## ATTRIBUTE AtmIf Vcc rxFrameDiscard (rxfd)

Access: Read only

Description: This attribute counts the number of frames received from the interface on this connection that have been discarded. This count

is independent of the *rxCellDiscard* attribute.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, this attribute is not applicable and is not displayed.

This count includes frames discarded due to an AAL5 frame reassembly error, frames discarded due to early packet discard (EPD), frames discarded due to processor (CPU) congestion, and frames discarded due to insufficient frame memory. The amount of available frame memory is determined by the *Lp Eng Arc Ov* component.

This attribute is applicable only to connections that reassemble incoming cells into frames. Such connections usually have a *connectionPointType* of ***connectionEndPoint***. AAL1 connections are an exception to this rule; although they have a *connectionPointType* of ***connectionEndPoint***, they do not do AAL5 adaptation at this point.

For *Vpt*s, this attribute provides an aggregated total of all *rxFrameDiscard* values for all connections associated with the *Vpt*.

The counter wraps to zero if it exceeds its maximum value of (2**64)-1.

Values — Long Integer

Default — No default

## ATTRIBUTE AtmIf Vcc rxFrameDiscardClp (rxfdClp)

Access — Read only

Description — This attribute counts the number of discarded frames on this connection that were received from the interface and composed of one or more CLP1 cells. This count is included in the *rxFrameDiscard* attribute. It is independent of the *rxCellDiscard* attribute.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, this attribute is not applicable and is not displayed.

This count includes frames discarded due to an AAL5 frame reassembly error, frames discarded due to early packet discard (EPD), frames discarded due to processor (CPU) congestion, and frames discarded due to insufficient frame memory. The amount of available frame memory is determined by the *Lp Eng Arc Ov* component.

This attribute is applicable only to connections that reassemble incoming cells into frames. Such connections usually have a *connectionPointType* of ***connectionEndPoint***. AAL1 connections are an exception to this rule; although they have a *connectionPointType* of ***connectionEndPoint***, they do not do AAL5 adaptation at this point.

For *Vpt*s, this attribute provides an aggregated total of all *rxFrameDiscardClp* values for all connections associated with the *Vpt*.

The counter wraps to zero if it exceeds its maximum value of (2**64)-1.

Values — Long Integer

Default — No default

## ATTRIBUTE AtmIf Vcc rxUpcViolationOnEnforcer1 (rxEnforcer1)

Access — Read only

Description — This attribute counts the number of UPC violations observed by the Generic Cell Rate Algorithm (GCRA) Enforcer 1. This attribute is only applicable if UPC is enforced or monitored on the connection.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm***, ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, ***16pOC3SmIrAtm***, ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, this attribute is not applicable and is not displayed.

When the value of the *rxTrafficDescType* attribute for this

connection is 3, 4, 5, 6, 7, 8, or 9 (for UBR with MDCR connections) Enforcer 1 enforces conformance of traffic received from the interface to PCR CLP0+1.

When the value of the *rxTrafficDescType* attribute for this connection is 9 (for ABR connections), Enforcer 1 performs the Dynamic Generic Cell Rate Algorithm (DGCRA) used for the Available Bit Rate (ABR) service category.

If UPC is enforced all non-conforming cells are discarded by this enforcer. These discarded cells are included in the *rxCellDiscard* attribute.

For basic *Vpt*s, this attribute provides an aggregated total of all *rxUpcViolationOnEnforcer1* values for all *Vcc*s associated with the *Vpt*. This attribute is not applicable for standard *Vpt Vcc*s.

The counter wraps to zero if it exceeds its maximum value of (2**64)-1.

Values — Long Integer

Units — cells

Default — No default

### ATTRIBUTE AtmIf Vcc rxUpcViolationOnEnforcer2 (rxEnforcer2)

Access — Read only

Description — This attribute counts the number of UPC violations observed by the Generic Cell Rate Algorithm (GCRA) Enforcer 2. This attribute is only applicable if UPC is enforced or monitored on the connection.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm***, ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, ***16pOC3SmIrAtm***, ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, this attribute is not applicable and is not displayed.

This attribute is only applicable if the value of the *rxTrafficDescType* attribute for this connection is 4, 5, 6, 7, or 8.

When the value of the *rxTrafficDescType* attribute is 4, or 5**,** Enforcer 2 enforces conformance of traffic received from the interface to PCR CLP0.

When the value of the *rxTrafficDescType* attribute is 6**,** Enforcer 2 enforces conformance of traffic received from the interface to SCR CLP0+1.

When the value of the *rxTrafficDescType* attribute is 7, or 8, Enforcer 2 enforces conformance of traffic received from the interface to SCR CLP0.

If UPC is enforced, Enforcer 2 discards non-conforming cells for *rxTrafficDescType* values of 4, 6, and 7. It tags non-conforming cells for *rxTrafficDescType* values of 5, and 8. Discarded cells are counted in the rxCellDiscard attribute.

For basic *Vpt*s, this attribute provides an aggregated total of all *rxUpcViolationOnEnforcer2* values for all *Vcc*s associated with the *Vpt*. This attribute is not applicable for standard *Vpt Vcc*s.

The counter wraps to zero if it exceeds its maximum value of (2**64)-1.

Values — Long Integer

Units — cells

Default — No default

### ATTRIBUTE AtmIf Vcc rxAal5FrameError (rxfer)

Access — Read only

Description — This attribute counts the number of frames received from the interface on this connection that have AAL5 length errors or AAL5 CRC errors.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, this attribute is not applicable and is not displayed.

AAL5 length or CRC errors typically occur because of cell discards due to congestion, UPC, or due to corruption of data between the AAL5 segmentation and reassembly end points.

This attribute is applicable only to connections that reassemble incoming cells into frames. Such connections usually have a *connectionPointType* of ***connectionEndPoint***. AAL1 connections are an exception to this rule; although they have a *connectionPointType* of ***connectionEndPoint***, they do not do AAL5 adaptation at this point.

For *Vpt*s, this attribute provides an aggregated total of all *rxAal5FrameError* values for all connections associated with the *Vpt*.

The counter wraps to zero if it exceeds its maximum value of (2**64)-1.

Values — Long Integer

Default — No default

### ATTRIBUTE AtmIf Vcc rxAal5FrameAbort (rxfa)

Access — Read only

Description — This attribute counts the number of frames received from the interface on this connection that have the AAL5 length field set to zero.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, this attribute is not applicable and is not displayed.

An AAL5 length of zero is an indication by the far end segmentation point, to this reassembly point, that the frame is to be discarded without reassembly. This mechanism is typically used by a segmentation point if it detects an error in a frame after some of the cells belonging to that frame have already been transmitted.

This attribute is applicable only to connections that reassemble

incoming cells into frames. Such connections usually have a *connectionPointType* of ***connectionEndPoint***. AAL1 connections are an exception to this rule; although they have a *connectionPointType* of ***connectionEndPoint***, they do not do AAL5 adaptation at this point.

For *Vpt*s, this attribute provides an aggregated total of all *rxAal5FrameAbort* values for all connections associated with the *Vpt*.

The counter wraps to zero if it exceeds its maximum value of (2**64)-1.

Values: Long Integer

Default: No default

## GROUP AtmIf Vcc Performance (Perf)

Properties: Operational

Description: This group contains operational attributes which keep performance statistics about the behavior of the connection.

## ATTRIBUTE AtmIf Vcc lastMinimumCtd (lastminctd)

Access: Read only

Description: This attribute indicates the minimum calculated cell transfer delay value for this connection from the previous TODA (time of day accounting) interval if TODA is enabled; or for the previous 12 hour interval if TODA is disabled. Cell transfer delay is calculated as half of the measured segment round trip delay of a loopback cell.

The value is ***noMeasurement*** when the *ctdCalculation* attribute of the *AtmIf* component is ***off***.

The value is ***noMeasurement*** when the *accountCollection* attribute of the *AtmIf Uni* or *AtmIf Iisp* component has a non-empty reason.

The value is ***noMeasurement*** when the *segSwitchSideLoopback*

attribute value is ***off*** for the connection.

The value is ***noMeasurement*** when the switch-side loopback is not working.

The value is ***noMeasurement*** when the switch-side loopback status cannot be determined.

| | |
|---|---|
| Values | Decimal (1..2147483647)<br>noMeasurement |
| Units | microsec |
| Default | No default |

### ATTRIBUTE AtmIf Vcc lastMaximumCtd (lastmaxctd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the maximum calculated cell transfer delay value for this connection from the previous TODA (time of day accounting) interval if TODA is enabled; or for the previous 12 hour interval if TODA is disabled. Cell transfer delay is calculated as half of the measured segment round trip delay of a loopback cell.<br><br>The value is ***noMeasurement*** when the *ctdCalculation* attribute of the *AtmIf* component is ***off***.<br><br>The value is ***noMeasurement*** when the *accountCollection* attribute of the *AtmIf Uni* or *AtmIf Iisp* component has a non-empty reason.<br><br>The value is ***noMeasurement*** when the *segSwitchSideLoopback* attribute value is ***off*** for the connection.<br><br>The value is ***noMeasurement*** when the switch-side loopback is not working.<br><br>The value is ***noMeasurement*** when the switch-side loopback status cannot be determined. |

| | |
|---|---|
| Values | Decimal (1..2147483647)<br>noMeasurement |
| Units | microsec |
| Default | No default |

### ATTRIBUTE AtmIf Vcc lastAverageCtd (lastavectd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the average of all calculated cell transfer delay values for this connection from the previous TODA (time of day accounting) interval if TODA is enabled; or for the previous 12 hour interval if TODA is disabled. Cell transfer delay is calculated as half of the measured segment round trip delay of a loopback cell.<br><br>The value is ***noMeasurement*** when the *ctdCalculation* attribute of the *AtmIf* component is ***off***.<br><br>The value is ***noMeasurement*** when the *accountCollection* attribute of the *AtmIf Uni* or *AtmIf Iisp* component has a non-empty reason.<br><br>The value is ***noMeasurement*** when the *segSwitchSideLoopback* attribute value is ***off*** for the connection.<br><br>The value is ***noMeasurement*** when the switch-side loopback is not working.<br><br>The value is ***noMeasurement*** when the switch-side loopback status cannot be determined. |
| Values | Decimal (1..2147483647)<br>noMeasurement |
| Units | microsec |
| Default | No default |

### ATTRIBUTE AtmIf Vcc currentCtd (currctd)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the most recent cell transfer delay value calculated for this connection. Cell transfer delay is calculated as half of the measured segment round trip delay of a loopback cell.<br><br>The value is ***noMeasurement*** when the *ctdCalculation* attribute of the *AtmIf* component is ***off***.<br><br>The value is ***noMeasurement*** when the *segSwitchSideLoopback* attribute value is ***off*** for the connection.<br><br>The value is ***noMeasurement*** when the switch-side loopback is not working.<br><br>The value is ***noMeasurement*** when the switch-side loopback status cannot be determined. |
| Values | Decimal (1..2147483647)<br>noMeasurement |
| Units | microsec |
| Default | No default |

### ATTRIBUTE AtmIf Vcc lastCtdSampleSize (lastsamplectd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of loopback cells sampled for cell transfer delay calculations during the previous TODA (time of day accounting) interval if TODA is enabled; or for the previous 12 hour interval of TODA is disabled. |
| Values | Decimal (0..16384) |
| Default | No default |

### COMPONENT AtmIf Vcc VirtualChannelDescriptor (Vcd)

| | |
|---|---|
| Groups | "GROUP AtmIf Vcc Vcd Loopback (Lbk)"<br>"GROUP AtmIf Vcc Vcd Accounting (Acct)" |
| Scope | Device |
| Description | *AtmIf/n Vcc/vpi.vci VirtualChannelDescriptor,*<br>*AtmIf/n Vpt/vpi Vcc/vci VirtualChannelDescriptor* |

The *Vcd* component contains provisioning information about its parent *Vcc* component.

Subcomponents "COMPONENT AtmIf Vcc Vcd TrafficManagement (Tm)"

Opt. Subcomp. "COMPONENT AtmIf Vcc Vcd PerformanceMonitoring (Pm)"

Common Verbs
Help
List
Display

## GROUP AtmIf Vcc Vcd Loopback (Lbk)

Properties Provisioned

Description This group contains the provisionable loopback attributes for a *Vcc*, *Vpc*, or *Vpt* component.

Note that certain loopback requests may not be possible on a given connection. In such cases, the corresponding operational loopback attribute in the *Status* group of the *Vcc*, *Vpc*, or *Vpt* component indicates ***notApplicable*** and the requested loopback is not performed.

If loopbacks are provisioned to be on, and for any reason the segment or end-to-end OAM loopback cells are not relayed, the connection component becomes troubled, and user cell traffic may be discarded. If loopbacks are provisioned to be on, all of the nodes in the segment, and external networks which are in the end-to-end connection must relay the OAM loopback cells.

## ATTRIBUTE AtmIf Vcc Vcd segLinkSideLoopback (segLkLbk)

Access Read and write

Description This attribute specifies whether link-side segment loopback insertion should be performed on this connection.

A value of ***sameAsInterface*** means the link-side segment loopback insertion for the connection is based on the *segLinkSideLoopback* attribute of the connection's parent *AtmIf* component—if the ATM interface has link-side segment loopback insertion turned on, then link-side segment loopback

insertion is also on for the connection.

A value of ***on***, or ***off*** means link-side segment loopback insertion is turned on or off respectively for the connection regardless of the provisioning of the parent *AtmIf* component.

Note that link-side segment loopback insertion is not possible if the value of the *connectionPointType* attribute of the *Vcc* or *Vpc* component is ***connectingPoint***. Link-side segment loopback insertion is also not possible if the value of the *distributionType* attribute of the *Vcc* is ***pointToMultipoint***. In such cases, the operational *segLinkSideLoopbackState* attribute indicates ***notApplicable*** and link-side segment loopback insertion is not performed.

Link-side segment loopback insertion is always possible on a *Vpt*.

Values
on
off
sameAsInterface

Default
sameAsInterface

### ATTRIBUTE AtmIf Vcc Vcd segSwitchSideLoopback (segSwLbk)

Access
Read and write

Description
This attribute specifies whether switch-side segment loopback insertion should be performed on this connection.

A value of ***sameAsInterface*** means the switch-side segment loopback insertion for the connection is based on the *segSwitchSideLoopback* attribute of the connection's parent *AtmIf* component—if the ATM interface has switch-side segment loopback insertion turned on, then switch-side segment loopback insertion is also on for the connection.

A value of ***on***, or ***off*** means switch-side segment loopback insertion is turned on or off respectively for the connection regardless of the provisioning of the parent *AtmIf* component.

Note that switch-side segment loopback insertion is not possible

if the value of the *connectionPointType* attribute of the *Vcc* or *Vpc* component is ***connectingPoint*** or ***connectionEndPoint***. Switch-side segment loopback insertion is also not possible if the value of the *distributionType* attribute of the *Vcc* is ***pointToMultipoint*** In such cases, the operational *segSwitchSideLoopbackState* attribute indicates ***notApplicable*** and switch-side segment loopback insertion is not performed.

Switch-side segment loopback is never possible on a *Vpt*.

Values
on
off
sameAsInterface

Default
sameAsInterface

## ATTRIBUTE AtmIf Vcc Vcd endToEndLoopback (eeLbk)

Access
Read and write

Description
This attribute specifies whether end-to-end loopback insertion should be performed on this connection.

A value of ***sameAsInterface*** means the end-to-end loopback insertion for the connection is based on the *endToEndLoopback* attribute of the connection's parent *AtmIf* component—if the ATM interface has end-to-end loopback insertion turned on, then end-to-end loopback insertion is also on for the connection.

A value of ***on***, or ***off*** means end-to-end loopback insertion is turned on or off respectively for the connection regardless of the provisioning of the parent *AtmIf* component.

Note that end-to-end loopback insertion is not possible if the value of the *connectionPointType* attribute of the *Vcc* or *Vpc* component is ***connectingPoint***, or ***segmentEndPoint***. End-to-end loopback insertion is also not possible if the value of the *distributionType* attribute of the *Vcc* is ***pointToMultipoint***. In such cases, the operational *endToEndLoopbackState* attribute indicates ***notApplicable*** and end-to-end loopback insertion is not performed.

End-to-end loopback insertion is always possible on a *Vpt*.

Values
on
off
sameAsInterface

Default
sameAsInterface

### ATTRIBUTE AtmIf Vcc Vcd mCastConnectionType (connType)

Access
Read and write

Criticality
Component

Description
This attribute specifies if this *Vcc* or *Vpc* is part of point-to-point or point-to-multiPoint connection.

A value of ***pointToMultiPointRoot*** must be set when this *Vcc* has an *Msrc* or an *Mnrp* subcomponent, or this *Vpc* has an *Mnrp* subcomponent.

A value of ***pointToMultiPointLeaf*** must be set when this *Vcc* or *Vpc* has a *Nrp* subcomponent and its *nextHop* attribute is linked to a *Mnrp* component.

Otherwise a value of ***pointToPoint*** must be set.

Values
pointToPoint (ptp)
pointToMultipointRoot (pmpRoot)
pointToMultipointLeaf (pmpLeaf)

Default
pointToPoint

### GROUP AtmIf Vcc Vcd Accounting (Acct)

Properties
Provisioned

Description
This group contains the provisionable ATM accounting attributes for a *Vcc*, *Vpc*, or *Vpt* component.

### ATTRIBUTE AtmIf Vcc Vcd correlationTag (tag)

Access
Read and write

| | |
|---|---|
| Description | This attribute specifies a unique identifier for each end of a PVC. It that may be used by downstream processing systems to correlate accounting records issued at different nodes in the network. The attribute can be up to 64 bytes long. If it is less than 64 bytes, it is zero filled on the right to create a 64 byte value. The resulting value is recorded in the attribute *callConnId* for this PVC's ATM accounting records.<br><br>If the value is a null string then this PVC does not have any accounting records generated for it. |
| Values | String (0..64, ASCII) |
| Default | "" |

## COMPONENT AtmIf Vcc Vcd TrafficManagement (Tm)

| | |
|---|---|
| Groups | "GROUP AtmIf Vcc Vcd Tm Provisioned (Prov)" |
| Scope | Device |
| Description | *AtmIf/n Vcc/vpi.vci Vcd TrafficManagement,*<br>*AtmIf/n Vpc/vci Vpd TrafficManagement,*<br>*AtmIf/n Vpt/vpi Vpd TrafficManagement,*<br>*AtmIf/n Vpt/vpi Vcc/vci Vcd TrafficManagement*<br>This component contains provisioned traffic management attributes of a connection. It is added automatically when a *Vcc*, *Vpc*, or *Vpt* is added in provisioning mode. It is a mandatory subcomponent of the *Vcd* or *Vpd* component. |
| Opt. Subcomp. | "COMPONENT AtmIf Vcc Vcd Tm AvailableBitRate (Abr)" |
| Common Verbs | Help<br>List<br>Display |

## GROUP AtmIf Vcc Vcd Tm Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains traffic related provisionable attributes for the *Vcc*, *Vpc*, and *Vpt* components. Changing any of the attributes in |

this group causes a service interruption on the *Vcc*, *Vpc*, or *Vpt* component.

### ATTRIBUTE AtmIf Vcc Vcd Tm txTrafficDescType (txTdt)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the type of traffic management which is applied to the transmit direction of this connection as defined in the ATM Forum. The *txTrafficDescType* determines the number and meaning of the parameters in the *txTrafficDescParm* attribute. |
| Values | 1<br>2<br>3<br>4<br>5<br>6<br>7<br>8<br>9 |
| Default | 1 |

### ATTRIBUTE AtmIf Vcc Vcd Tm fwdQosClass (fwdQos)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the quality of service for the forward direction for this connection. This attribute is only used for SPVC connections.<br><br>Class 1 supports a QOS that meets Service Class A performance requirements (circuit emulation, constant bit rate video).<br><br>Class 2 supports a QOS that meets Service Class B performance requirements (variable bit rate audio and video). |

Class 3 supports a QOS that meets Service Class C performance requirements (Connection-Oriented Data Transfer).

Class 4 supports a QOS that meets Service Class D performance requirements (Connectionless Data Transfer).

Class 0 is the unspecified bit rate QOS class; no objective is specified for the performance parameters.

Values
0
1
2
3
4

Default
0

### ATTRIBUTE AtmIf Vcc Vcd Tm txQueueLimit (txQlim)

Access
Read and write

Criticality
Component

Description
This attribute specifies an override to the default transmit queue limit for this connection.

A value of ***sameAsCa*** means that the default common or per-VC transmit queue limit, as defined by the CA service category, is used for this connection. For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, the value ***sameAsCa*** must be specified.

A value from 5 to 512,000 means that the connection transmit queue limit differs from the default common or per-VC transmit queue limit, as defined by the CA service category. A value other than ***sameAsCa*** is ignored for connections where common queuing is specified for the service category.

For ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, this attribute is used to set the per-VC utilization limit of the service category common queue.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, the valid range for this attribute is from 5 to 512000 inclusive.

For ***16pOC3PosAtm*** cards, the valid range for this attribute is from ***32*** to ***261120*** inclusive.

On all other cards, the valid range for this attribute is from 5 to 63488 inclusive.

The actual transmit queue limit for a connection is visible in the *Vcc Tm*, *Vpc Tm* or *Vpt txQueueThresholds* attribute.

This attribute is not applicable for basic *Vpt*s.

Values: Decimal (5..512000)
sameAsCa

Units: cells

Default: sameAsCa

## ATTRIBUTE AtmIf Vcc Vcd Tm holdingPriority (hpri)

Access: Read and write

Criticality: Component

Description: This attribute specifies the holding priority of this connection. In a situation where the link bandwidth fluctuates, such as over an IMA link, holding priority is used to determine which connections are held and which are released. Holding priority 4 connections are the first to be released. Holding priority 0 connections are the last to be released. The default holding priority for a provisioned connection is higher then default holding priorities for dynamic (SVC) connections.

The value of this attribute may be overridden by certain applications, for example *Vcc Test*, which use this connection.

This attribute is not applicable for *Vpt Vcc*s.

Values: 0
1

| | |
|---|---|
| | 2<br>3<br>4 |
| Default | 2 |

### ATTRIBUTE AtmIf Vcc Vcd Tm rxTrafficDescType (rxTdt)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the type of traffic management which is applied to the receive direction of this connection as defined in the ATM Forum. The *rxTrafficDescType* determines the number and meaning of the parameters in the *rxTrafficDescParm* attribute.<br><br>The value ***sameAsTx*** means the *rxTrafficDescType* as well as the *rxTrafficDescParm* attribute values are taken from the values of the *txTrafficDescType* and *txTrafficDescParm* attributes. |
| Values | 1<br>2<br>3<br>4<br>5<br>6<br>7<br>8<br>9<br>sameAsTx |
| Default | sameAsTx |

### ATTRIBUTE AtmIf Vcc Vcd Tm bwdQosClass (bwdQos)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the quality of service for the backward direction for this connection. This attribute is only used for SPVC connections. |

Class 1 supports a QOS that meets Service Class A performance requirements (Circuit emulation, constant bit rate video).

Class 2 supports a QOS that meets Service Class B performance requirements (Variable bit rate audio and video).

Class 3 supports a QOS that meets Service Class C performance requirements (Connection-Oriented Data Transfer).

Class 4 supports a QOS that meets Service Class D performance requirements (Connectionless Data Transfer).

Class 0 is the unspecified bit rate QOS class; no objective is specified for the performance parameters.

The ***sameAsFwd*** selection sets the backward quality of service to be the same as the forward quality of service.

Values
0
1
2
3
4
sameAsFwd

Default
sameAsFwd

## ATTRIBUTE AtmIf Vcc Vcd Tm atmServiceCategory (service)

Access
Read and write

Criticality
Component

Description
This attribute specifies the ATM service category for both directions of the connection.

The value ***derivedFromBBC*** may only be used if the *Src* or *Dst* component is provisioned under this connection. Otherwise a specific ATM service category must be specified.

A value of ***derivedFromBBC*** means the Broadband Bearer Capability (BBC) and *bestEffort* attributes are used to determine

the *atmServiceCategory* of this connection.

A value other than ***derivedFromBBC*** means the value of this attribute is used to override the provisioned BBC Information Element parameters. In this case, the BBC attributes are not used.

The ***constantBitRate*** service category is intended for real-time applications, that is those requiring tightly constrained delay and delay variation, as would be appropriate for voice and video applications. The consistent availability of a fixed quantity of bandwidth is considered appropriate for CBR service. Cells which are delayed beyond the value specified by Cell Transfer Delay are assumed to be of significantly reduced value to the application.

The ***rtVariableBitRate*** service category is intended for real-time applications, that is those requiring tightly constrained delay and delay variation, as would be appropriate for voice and video applications. Sources are expected to transmit at a rate which varies with time. Equivalently, the source can be described as “bursty”. Cells which are delayed beyond the value specified by CTD are assumed to be of significantly reduced value to the application. Real-time VBR service may support statistical multiplexing of real-time sources.

The ***nrtVariableBitRate*** service category is intended for non-real time applications which have bursty traffic characteristics and which can be characterized in terms of a PCR, SCR, and MBS. For those cells which are transferred within the traffic contract, the application expects a low cell loss ratio. For all connections, it expects a bound on the mean cell transfer delay. Non real-time VBR service may support statistical multiplexing of connections.

The ***availableBitRate*** service is an ATM layer service category for which the limiting ATM layer transfer characteristics provided by the network may change subsequent to connection establishment. ABR service has a flow control mechanism which supports several types of feedback to control the source rate in response to changing ATM layer transfer characteristics. ABR service is not intended to support real-time applications.

The ***unspecifiedBitRate*** service is intended for non real-time applications; that is, those not requiring tightly constrained delay and delay variation. UBR sources are expected to be bursty. UBR service supports a high degree of statistical multiplexing among sources. UBR service does not specify traffic related service guarantees. No numerical commitments are made with respect to the cell loss ratio experienced by a UBR connection, or as to the cell transfer delay experienced by cells on the connection.

Values

unspecifiedBitRate (ubr)
constantBitRate (cbr)
rtVariableBitRate (rtvbr)
nrtVariableBitRate (nrtvbr)
availableBitRate (abr)
derivedFromBBC (derived)

Default

unspecifiedBitRate

## ATTRIBUTE AtmIf Vcc Vcd Tm trafficShaping (trShaping)

Access

Read and write

Criticality

Component

Description

This attribute specifies whether this connection uses traffic shaping when transmitting traffic to the ATM interface.

This attribute is ignored if the *atmServiceCategory* is ***availableBitRate***.

For ***1pOC12SmLrAtm***, ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, traffic shaping is not available, therefore this attribute is ignored.

A value of ***sameAsCa*** means traffic shaping for the connection is based on the value of the *trafficShaping* attribute of the connection's service category component under the *CA*. If the service category has *trafficShaping* set to ***enabled*** or ***inverseUpc***, then traffic shaping is enabled for the connection. Note that enabling traffic shaping may have no effect under certain cases. These cases are listed in the description of the *trafficShaping* operational attribute, which is under the *Vcc Tm*, *Vpc Tm*, or *Vpt Tm* components.

A value of ***disabled*** means traffic shaping for this connection is disabled regardless of the provisioning of the connection's service category component.

Values
disabled
sameAsCa

Default
sameAsCa

### ATTRIBUTE AtmIf Vcc Vcd Tm unshapedTransmitQueueing (unshap)

Access
Read and write

Criticality
Component

Description
This attribute specifies the transmit queuing method for this connection if it is unshaped. The two possible methods are per-VC queuing and common queuing. This attribute does not apply if the connection is shaped.

A value of ***sameAsCa*** means the transmit queuing method for the connection is based on the *unshapedTransmitQueueing* attribute of the connection's service category component under the *CA*.

A value of ***common*** means transmit traffic on this unshaped connection is destined for the common queue.

For ***2pOC3MmAtm2***, ***2pOC3SmAtm2***, ***2pSTM1eAtm***, ***2pSTM1eCh***, ***4pOC3MmAtm***, ***4pOC3SmIrAtm***, ***4pDS3ChAtm***, ***3pDS3Atm2***, ***3pE3Atm2***, ***12pDS3Atm***, ***12pE3Atm***, MSA32, ***1pOC12SmLrAtm***, ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, ***16pOC3SmIrAtm***, ***16pOC3PosAtm***, ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, this attribute must have the value ***sameAsCa***.

This attribute is ignored in the following situations:
- if the connection has *trafficShaping* ***enabled*** or ***inverseUpc***, or
- if the *atmServiceCategory* is ***availableBitRate***, or
- if the *atmServiceCategory* is ***constantBitRate***, or
- for basic *Vpt*s and standard *Vpt Vcc*s.

| | |
|---|---|
| Values | common<br>sameAsCa |
| Default | sameAsCa |

### ATTRIBUTE AtmIf Vcc Vcd Tm weight

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies an override for the weight of this unshaped connection. This attribute is ignored for shaped connections, for ABR connections, and basic *Vpt*s.<br><br>A value of ***sameAsCa*** means the weight is determined by the *weightPolicy* attribute under the *CA* service category component for all but standard *Vpt Vcc*s. For standard *Vpt Vcc*s, the weight is determined by the *Vcc*'s service category, when the value is set to ***sameAsCa***.<br><br>A value from 1 to 4095 means that value is used for the fairness weight of this connection relative to other connections. For all but standard *Vpt Vcc*s, fairness weight determines the proportion of transmit cell opportunities which are allocated to this connection, compared to other connections in the same service category. For standard *Vpt Vcc*s, fairness weight determines the proportion of transmit cell opportunities which are allocated to this connection, compared to other connections associated with the *Vpt*.<br><br>A value of ***upToQueueLimit*** means the fairness weight is limited only by the *txQueueLimit*.<br><br>This attribute is not applicable and is ignored for ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm***, ***1pOC12SmLrAtm***, ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards.<br><br>For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, ***16pOC3SmIrAtm***, and ***16pOC3PosAtm*** cards, the value ***upToQueueLimit*** is not permitted. |

| | |
|---|---|
| Values | Decimal (1..4095)<br>sameAsCa<br>upToQueueLimit |
| Default | sameAsCa |

### ATTRIBUTE AtmIf Vcc Vcd Tm forceTagging (tagging)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies whether force tagging of the CLP bit is enforced for cells of this connection.<br><br>For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm***, ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, and for *Vpt*s, this attribute is not applicable and is ignored.<br><br>A value of ***sameAsCa*** means the force tagging functionality is determined by the *forceTagging* attribute under the *CA* service category component.<br><br>A value of ***enabled*** means force tagging is enabled. When this option is selected, the CLP bit is set to 1 for all cells on the connection.<br><br>A value of ***disabled*** means force tagging is disabled. When this option is selected, the CLP bit is unchanged for cells on the connection.<br><br>For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, force tagging applies to cells in the receive direction. For all other cards, force tagging applies to cells in the transmit direction. In this case, cells which are tagged are counted in the *txCellClp* attribute. |
| Values | sameAsCa<br>enabled<br>disabled |
| Default | sameAsCa |

## ATTRIBUTE AtmIf Vcc Vcd Tm usageParameterControl (upc)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies whether this connection enables usage parameter control (UPC) when receiving traffic from the ATM interface.<br><br>The value ***sameAsCa*** means UPC for the connection is based on the value of the *usageParameterControl* attribute of the service category component under the *AtmIf CA*. If the service category has UPC ***enforced*** or ***monitored***, then UPC is enabled on the connection.<br><br>The value ***disabled*** means UPC for this connection is disabled regardless of the provisioning of the service category.<br><br>The value ***enforced*** means UPC for this connection is enforced regardless of the provisioning of the service category. When UPC is enforced, non-conforming cells are either tagged or discarded depending on the *rxTrafficDescriptorType*.<br><br>The value ***monitored*** means UPC for this connection is monitored regardless of the provisioning of the service category. When UPC is monitored, instead of the non-conforming cells being tagged or discarded, they are merely counted in the UPC violations counts and passed on unchanged.<br><br>Note that setting UPC to ***enforced*** or ***monitored*** may have no effect under certain cases. These cases are listed in the description of the *usageParameterControl* operational attribute, which is under the *Vcc*, *Vpc*, and *Vpt* components.<br><br>For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, the value ***monitored*** is not supported.<br><br>For ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, the values ***enforced***, and ***monitored***, are not supported. |

| | |
|---|---|
| Values | enforced<br>disabled<br>sameAsCa<br>monitored |
| Default | sameAsCa |

### ATTRIBUTE AtmIf Vcc Vcd Tm bearerClassBbc (bcBbc)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the bearer capability. This attribute is only used for SPVC and SPVP connections. It is one of the Broadband Bearer Capability (BBC) attributes. The purpose of the BBC information element is to indicate a requested broadband connection-oriented bearer service to be provided by the network.<br><br>The value ***derivedFromServiceCategory*** specifies that the actual value which is used for this connection is derived from the value of the *atmServiceCategory*. Either, this attribute must be set to ***derivedFromServiceCategory***, or the *atmServiceCategory* attribute must be set to ***derivedFromBBC***, but not both.<br><br>Class ***a*** service is a connection-oriented, constant bit rate ATM transport service. Class ***a*** service has end to end timing requirements and may require stringent cell loss, cell delay and cell delay variation performance.When ***a*** is set, the user is requesting more than an ATM only service. The network may look at the AAL to provide interworking based upon its contents.<br><br>Class ***c*** service is a connection-oriented, variable bit rate ATM transport service. Class ***c*** service has no end-to-end timing requirements. When ***c*** is set, the user is requesting more than an ATM only service. The network interworking function may look at the AAL and provide service based on it.<br><br>Class ***x*** service is a connection-oriented ATM transport service where the AAL, *trafficType* (***vbr*** or ***cbr***) and timing requirements are user defined (that is, transparent to the network).When ***x*** is set the user is requesting an ATM only service from the network. In this case, the network shall not process any higher layer protocol. |

Class **vp** service is used to specify a transparent VP service. When the value of this attribute is vp, the user is requesting an ATM only service from the network. In this case, the network shall not process any higher layer protocol. This service differs from class x service in that with the class vp service both the VCI field (except or VCI values 0, 3, 4, and 6 through 15) and Payload Type field are transported transparently by the network. This attribute value is only applicable to SPVP connections.

Values

a
c
x
vp
derivedFromServiceCategory

Default

derivedFromServiceCategory

### ATTRIBUTE AtmIf Vcc Vcd Tm transferCapabilityBbc (tcBbc)

Access

Read and write

Criticality

Component

Description

This attribute specifies the transfer capability for this connection. Uni 3.0/3.1 traffic type and end-to-end timing parameters are mapped into this parameter as follows:
<transferCapability: TrafficType, Timing>
0: NoIndication, NoIndication
1: NoIndication, yes
2: NoIndication, no
5: CBR, yes
8: VBR, NoIndication
9: VBR, yes
10: VBR, no

The value ***notApplicable*** specifies that the user does not want to specify the transfer capability.

The CBR traffic type refers to traffic offered on services such as a constant bit rate video service or a circuit emulation.
The VBR traffic type refers to traffic offered on services such as packetized audio and video, or data.

The value no indication for traffic type is used if the user has not set the traffic type; similarly for end-to-end timing.

The value yes for end-to-end timing indicates that end-to-end timing is required.

The value no for end-to-end timing indicates that end-to-end timing is not required.

The value ***derivedFromServiceCategory*** specifies that the actual value which is used for this connection is derived from the value of the *atmServiceCategory*. Either, this attribute must be set to ***derivedFromServiceCategory***, or the *atmServiceCategory* attribute must be set to ***derivedFromBBC***, but not both.

Values

0
1
2
5
8
9
10
notApplicable
derivedFromServiceCategory

Default

derivedFromServiceCategory

## ATTRIBUTE AtmIf Vcc Vcd Tm txWredThreshold

Access

Read and write

Criticality

Component

Description

This attribute specifies the threshold for weighted random early detection (WRED). This threshold is calculated as a percentage of the early packet discard (EPD) threshold, which is 85% of the transmit queue length. When the value is ***25%***, WRED starts as soon as the queue is 25% of the way to the EPD threshold. When the value is ***50%***, WRED starts later, after the queue is 50% of the way to the EPD threshold. When the value is ***75%***, WRED starts only when the queue is 75% of the way to the EPD

threshold.

This attribute is ignored if the value of the *txWredMode* or *txPacketWiseDiscard* attributes is ***disabled.***

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm***, and ***1pOC12SmLrAtm*** cards, this attribute is not applicable and is ignored.

Values: Decimal (25; 50; 75)

Units: %

Default: 25

## ATTRIBUTE AtmIf Vcc Vcd Tm clippingBbc (cBbc)

Access: Read and write

Criticality: Component

Description: This attribute specifies the value for the clipping susceptibility parameter in the BBC Information Element. This attribute is only used for SPVC connections. It is one of the Broadband Bearer Capability attributes.

Clipping is an impairment in which the first fraction of a second of information to be transferred is lost. It occurs after a call is answered and before an associated connection is switched through.

Values: no
yes

Default: no

## ATTRIBUTE AtmIf Vcc Vcd Tm bestEffort

Access: Read and write

Criticality: Component

Description: This attribute specifies the value of the best effort parameter in the ATM Traffic Descriptor Information Element. This attribute is

only used for SPVC connections. It is one of the Broadband Bearer Capability attributes.

The value ***indicated*** implies that the quality of service for this connection is not guaranteed.

The value ***notIndicated*** implies that the quality of service for this connection is guaranteed.

The value ***derivedFromServiceCategory*** specifies that the actual value which is used for this connection is derived from the value of the *atmServiceCategory*. Either, this attribute must be set to ***derivedFromServiceCategory***, or the *atmServiceCategory* attribute must be set to ***derivedFromBBC***, but not both.

Values
indicated
notIndicated
derivedFromServiceCategory (derived)

Default
derivedFromServiceCategory

## ATTRIBUTE AtmIf Vcc Vcd Tm txPacketWiseDiscard (txpd)

Access
Read and write

Criticality
Component

Description
This attribute specifies whether packet-wise discard functions are to be enabled or disabled in the transmit data direction for this connection. Packet-wise discard functions apply to AAL5 frame traffic. This attribute is not applicable for *Vpt*s.

For ***1pOC12SmLrAtm*** cards, this attribute is not applicable and is ignored.

Packet-wise functions increase the “goodput” of the link. The transmit packet-wise functions are Early Packet Discard (EPD) and Partial Packet Discard (PPD).

EPD allows the connection to discard an entire frame once the transmit queue has reached the EPD threshold. EPD increases the “goodput” of a link, since discarding an entire frame means that some queue capacity is guarded for some other frame which is

already partially transmitted. All cells of the frame are discarded from the Beginning of Message (BOM) cell up to and including the End of Message (EOM) cell.

PPD allows the connection to discard the remainder of a cell-forwarded AAL5 frame if one cell of this frame has been discarded. All cells are discarded up to but not including the EOM cell. The PPD function increases the “goodput” of the link, since cells which are only going to be discarded at the AAL5 reassembly point are not transmitted.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, the packet-wise discard functions are PPD and EPD. PPD is applicable at cell-transfer points. PPD is not applicable at frame-to-cell conversion points, and is not applicable for *Vpc*s. PPD is configured by this attribute. Packet-wise discard should only be enabled for connections carrying AAL5 segmentation traffic. Setting this attribute to ***enabled*** for any other traffic type may result in all traffic being discarded. EPD is automatically ***enabled*** at frame-to-cell conversion points, independent of the setting of this attribute.

For ***2pOC3MmAtm2***, ***2pOC3SmAtm2***, ***2pSTM1eAtm***, ***2pSTM1eCh***, ***4pOC3MmAtm***, ***4pOC3SmIrAtm***, ***4pDS3ChAtm***, ***3pDS3Atm2***, ***3pE3Atm2***, ***12pDS3Atm***, ***12pE3Atm***, MSA32, ***16pOC3PosAtm***, ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, packet-wise discard functions include EPD and PPD. PPD and EPD apply to individual VCCs and VCCs within VPCs at all connection points, including tandem VPC connections. Both PPD and EPD are controlled by this attribute. This attribute may safely be set to ***enabled*** for any connection (*Vcc* or *Vpc*) since these FPs have the ability to automatically detect AAL5-segmented traffic on a connection, and only enable packet-wise discards if AAL5-segmented traffic is detected.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, packet-wise discard functions include EPD and PPD. PPD and EPD apply to individual VCCs and VCCs within VPCs at all connection points, including tandem VPC connections. Packet-wise discard should only be enabled for connections carrying

AAL5 segmentation traffic. Setting this attribute to ***enabled*** for any other traffic type may result in all traffic being discarded.

A value of ***enabled*** means packet-wise discard functions are applied to transmit traffic at this connection point. A value of ***disabled*** means packet-wise discard functions are not applied to transmit traffic at this connection point.

At a SPVC origin on a PNNI interface, a value of ***enabled*** specifies that frame discard is requested in the backward direction. When this attribute is set to ***disabled***, backward frame discard is not requested in the SPVC call setup.

The transmit packet-wise discard functions that are active are visible in the *Vcc/Vpc Tm txPacketWiseDiscard* operational attribute.

Values
disabled
enabled

Default
disabled

## ATTRIBUTE AtmIf Vcc Vcd Tm rxPacketWiseDiscard (rxpd)

Access
Read and write

Criticality
Component

Description
This attribute specifies whether packet-wise discard functions are to be enabled or disabled in the receive data direction for this connection. Packet-wise discard functions apply to AAL5 frame traffic. This attribute is not applicable for *Vpt*s.

For ***1pOC12SmLrAtm*** cards, this attribute is not applicable and is ignored.

Packet-wise functions increase the “goodput” of the link. The receive packet-wise function is Partial Packet Discard (PPD).

PPD allows the connection to discard the remainder of a cell-forwarded AAL5 frame if one cell of this frame has been discarded, for example due to UPC. All cells are discarded up to but not including the EOM cell. The PPD function increases the

"goodput" of the link, since cells which are only going to be discarded at the AAL5 reassembly point are not transmitted.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, PPD is available at all VCC connection points where UPC may be activated. PPD is not applicable for *Vpcs*. Packet-wise discards should only be enabled for connections carrying AAL5 segmentation traffic. Setting the value to ***enabled*** for any other traffic type may result in traffic being discarded. PPD is automatically ***enabled*** at frame-to-cell conversion points, independent of the setting of this attribute.

For ***2pOC3MmAtm2***, ***2pOC3SmAtm2***, ***2pSTM1eAtm***, ***2pSTM1eCh***, ***4pOC3MmAtm***, ***4pOC3SmIrAtm***, ***4pDS3ChAtm***, ***3pDS3Atm2***, ***3pE3Atm2***, ***12pDS3Atm***, ***12pE3Atm***, MSA32, ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, this attribute may safely be set to ***enabled*** for any connection (*Vcc* or *Vpc*) since these FPs have the ability to automatically detect AAL5-segmented traffic on a connection, and only enable packet-wise discards if AAL5-segmented traffic is detected.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, packet-wise discard functions include EPD and PPD. PPD and EPD apply to individual VCCs and VCCs within VPCs at all connection points, including tandem VPC connections. Packet-wise discard should only be enabled for connections carrying AAL5 segmentation traffic. Setting this attribute to ***enabled*** for any other traffic type may result in all traffic being discarded.

A value of ***enabled*** means packet-wise discard functions are applied to receive traffic at this connection point. A value of ***disabled*** means packet-wise discard functions are not applied to receive traffic at this connection point.

At a SPVC origin on a PNNI interface, a value of ***enabled*** specifies that frame discard is requested in the forward direction. When this attribute is set to ***disabled***, forward frame discard is not requested in the SPVC call setup.

For ***16pOC3PosAtm*** cards, the value of this attribute must be

***disabled***. PPD and EPD are enabled by default at a connection endpoint which is performing AAL5 segmentation and assembly.

The receive packet-wise discard functions that are active are visible in the *Vcc/Vpc Tm rxPacketWiseDiscard* operational attribute.

Values: disabled
enabled

Default: disabled

## ATTRIBUTE AtmIf Vcc Vcd Tm txWredMode

Access: Read and write

Criticality: Component

Description: This attribute specifies the activation of weighted random early detection (WRED) functionality. WRED is considered a packet-wise discard function and as such applies only to AAL5 frame traffic.

WRED is applied in the transmit direction for this connection. WRED function should be enabled only for connections which are transferring TCP/IP traffic. WRED acts to prevent synchronization of multiple TCP/IP sources by randomly discarding a small percentage of frames when transmit queue congestion reaches the designated level. WRED may also be used to differentiate service on VCC's by preferentially discarding one VCC before another. Discards start at 0% of cells, when the queue is part-way to the Early Packet Discard (EPD) threshold, and rise to 100% of cells discarded at the EPD threshold. WRED discards all the cells in a frame.

A value of ***enabled*** means WRED is enabled for all applications linked to the given *Vcc*.

A value of ***perFlow*** means each TCP application has individual control over whether to enable or disable WRED.

If the value of the *txPacketWiseDiscard* attribute is ***disabled***, or if the value of this attribute is ***disabled***, WRED functionality is

disabled.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm***, and ***1pOC12SmLrAtm*** cards, the value of this attribute must be ***disabled***.

If WRED is active, it is visible in the *Vcc/Vpc Tm txPacketWiseDiscard* operational attribute.

This attribute is not applicable for *Vpt*s or *Vpt Vcc*s.

Values
disabled
enabled
perFlow

Default
disabled

## ATTRIBUTE AtmIf Vcc Vcd Tm abrConnectionType (abrType)

Access
Read and write

Criticality
Component

Description
This attribute specifies the type of ABR behavior which is to be enforced at this connection. This attribute is only applicable if the value of the *atmServiceCategory* attribute is ***availableBitRate***. If the value of the *atmServicecategory* attribute is not ***availableBitRate***, this attribute is ignored.

The value ***sameAsCa*** is used to request the default behavior as specified in the *CA Abr* component for this *Vcc*. Otherwise, this attribute overrides the default behavior.

The value ***virtualSourceDest*** is used to request that this connection point function as a virtual source/virtual destination.

The value ***sourceDest*** requires that this connection point function as a S/D for RM cells. S/D mode is automatically invoked at this connection point either if this is a connection end point, or if the next hop connection point is configured as ***nonAbrInterworking***.

The value ***nonAbrInterworking*** is used to request that this

connection point function as an interworking between ABR and non-ABR service categories. This means that there are no RM cells on the link side of this connection, and that the next hop connection point is performing as an ABR ***sourceDest***.

The value ***abrSwitch*** is used to request ABR switch behavior for this connection point. The ABR switch behavior is first, to conform to ***virtualSourceDest*** or ***nonAbrInterworking*** setting on the next hop, and otherwise to implement ABR ER switch behavior.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, the only allowable values are ***sameAsCa***, ***nonAbrInterworking*** or ***abrSwitch***. If ***abrSwitch*** is selected, EFCI marking behavior is implemented.

For ***1pOC12SmLrAtm*** cards, the only allowable values are ***sameAsCa*** or ***abrSwitch.*** If ***abrSwitch*** is selected, EFCI marking behavior is implemented.

For ***16pOC3PosAtm*** cards, the only allowable value is ***sameAsCa***.

The actual ABR functionality which is in effect is visible in the *Vcc/Vpc/Vpt Tm abrConnectionType* operational attribute.

| | |
|---|---|
| Values | abrSwitch<br>virtualSourceDest<br>sourceDest<br>nonAbrInterworking<br>sameAsCa |
| Default | sameAsCa |

## ATTRIBUTE AtmIf Vcc Vcd Tm txTrafficDescParm (txTdp)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute is a vector of five traffic parameters whose meanings are defined by the *txTrafficDescType* attribute. |

The values of peak cell rate (PCR), sustained cell rate (SCR), Minimum Cell Rate (MCR) and requested shaping rate are expressed in cell/s. Maximum burst size (MBS) is expressed in cells. CDVT is expressed in microseconds. The values of PCR, SCR, MCR, MBS and CDVT are used for connection admission control (CAC). The value of CDVT is only used for connections where the *atmServiceCategory* is ***constantBitRate***. For all other values of *atmServiceCategory*, CDVT is ignored. The values of PCR, SCR, MCR and requested shaping rate are used to determine the actual shaping rate where traffic shaping is enabled.

When *txTrafficDescType* is 1 or 2, all of the parameters must be set to zero.

When *txTrafficDescType* is 3, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameter 1 must be non-zero. Parameters 2 and 3 must be zero.

When *txTrafficDescType* is 4, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic with cell discard; parameter 2 represents the PCR for CLP equal to 0 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameter 1 must be greater than or equal to parameter 2. Parameters 1 and 2 must be non-zero. Parameter 3 must be zero.

When *txTrafficDescType* is 5, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic with cell tagging; parameter 2 represents the PCR for CLP equal to 0 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameter 1 must be greater than or equal to parameter 2. Parameters 1 and 2 must be non-zero. Parameter 3 must be zero.

When *txTrafficDescType* is 6, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 and 1 traffic; parameter 3 represents the MBS for CLP equal to 0 and 1 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameters 1, 2 and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2. Parameter 5, must either be zero (unused) or greater than or equal to parameter 2.

When *txTrafficDescType* is 7, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 with cell discard; parameter 3 represents the MBS for CLP equal to 0 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameters 1, 2 and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2. Parameter 5, must either be zero (unused) or greater than or equal to parameter 2.

When *txTrafficDescType* is 8, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 traffic with cell tagging; parameter 3 represents the MBS for CLP equal to 0 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameters 1, 2 and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2. Parameter 5, must either be zero (unused) or greater than or equal to parameter 2.

When *txTrafficDescType* is 9, parameter 1 represents the PCR; parameter 2 represents the CDVT; parameter 3 represents the MCR; parameter 4 and parameter 5 represent are not used and must be zero. Parameter 1 must be non-zero and must be greater than or equal to parameter 3. Parameter 3 may be optionally zero.

Whenever it is valid for PCR to be specified, parameter 5 may also be used to specify a requested shaping rate. A non-zero value

in parameter 5 overrides the value in parameter 1 and is used as the peak cell rate in calculations of CAC and shaping rate. When the *atmServiceCategory* is ***availableBitRate*** (ABR), the shaping rate is dynamically chosen, based on the ABR flow control mechanism, as a value between the MCR and the PCR or the requested shaping rate if applicable.

For *txTrafficDescType* 3, 4 and 5, the transmit traffic is shaped at the next available shaping rate less than the PCR.

For *txTrafficDescType* 6, 7 and 8 if linear traffic shaping is selected, the transmit traffic is shaped at the highest available rate which is between PCR and SCR. However, if there is no available shaping rate between PCR and SCR, traffic is shaped at the next rate above the PCR.

For *txTrafficDescType* 6, 7 and 8 if inverse-UPC traffic shaping is selected, the transmit traffic is shaped at a variable rate which conforms to the PCR, SCR and MBS of the connection traffic descriptor.

| | |
|---|---|
| Vector of | Decimal (0..2147483647) |
| Index | Decimal (1..5) |
| Default | ([5] 0) |

### ATTRIBUTE AtmIf Vcc Vcd Tm rxTrafficDescParm (rxTdp)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute is a vector of five traffic parameters whose meanings are defined by the *rxTrafficDescType* attribute. If the value of the *rxTrafficDescType* attribute is ***sameAsTx***, the values provisioned in this attribute are ignored. The traffic parameters for the receive direction are taken from the *txTrafficDescParm* attribute.<br><br>The values of peak cell rate (PCR), sustained cell rate (SCR), and Minimum Cell Rate (MCR) are expressed in cell/s. Maximum burst size (MBS) is expressed in cells. The value of CDVT is |

expressed in microseconds. The values of PCR, SCR, MCR, MBS and CDVT are used for usage parameter control (UPC).

When *rxTrafficDescType* is 1 or 2, all of the parameters must be set to zero (unused).

When *rxTrafficDescType* is 3, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; and parameter 4 represents the CDVT. Parameter 1 must be non-zero. Parameters 2 and 3 must be set to zero (unused).

When *rxTrafficDescType* is 4, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the PCR for CLP equal to 0 traffic with cell discard; and parameter 4 represents the CDVT. Parameters 1 and 2 must be non-zero. Parameter 3 must be set to zero (unused). Parameter 1 must be greater than or equal to parameter 2.

When *rxTrafficDescType* is 5, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the PCR for CLP equal to 0 traffic with cell tagging; and parameter 4 represents the CDVT. Parameters 1 and 2 must be non-zero. Parameter 3 must be set to zero (unused). Parameter 1 must be greater than or equal to parameter 2.

When *rxTrafficDescType* is a 6, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 and 1 traffic; parameter 3 represents the MBS for CLP equal to 0 and 1 traffic; and parameter 4 represents the CDVT. Parameters 1, 2 and 3 must be non-zero. Parameter 1 must be greater than or equal to Parameter 2.

When *rxTrafficDescType* is 7, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 traffic with cell discard; parameter 3 represents the MBS for CLP equal to 0 traffic; and parameter 4 represents the CDVT. Parameters 1, 2 and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2.

When *rxTrafficDescType* is 8, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for

CLP equal to 0 traffic with cell tagging; parameter 3 represents the MBS for CLP equal to 0 traffic; and parameter 4 represents the CDVT. Parameter 1, 2 and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2.

When *rxTrafficDescType* is 9, parameter 1 represents the PCR; parameter 2 represents the CDVT; parameter 3 represents the MCR. Parameter 4 is not used and must be zero. Parameter 1 must be non-zero and must be greater than or equal to parameter 3. Parameter 3 may optionally be zero.

If the value of CDVT either in parameter 2 or in parameter 4 is zero, the CDVT is taken from the *CA* defaults for the particular *atmServiceCategory* of this connection.

Parameter 5 of the *rxTrafficDescParm* is always unused.

When *rxTrafficDescriptorType* is 3 through 8, there are certain extreme combinations of *rxTrafficDescParm* which are outside the capabilities of the UPC hardware. The *check prov* command detects such cases and generates an error message. If this happens, adjust the parameters until they fall within the supported limits.
To calculate the limits, use the following formulae:
I1 = 1,000,000,000 / PCR
L1 = CDVT * 1000
I2 = 1,000,000,000 / SCR
L2 = CDVT + (MBS - 1) * (I2 - I1)
Note that I2 and L2 only apply when the *rxTrafficDescriptorType* is 6 through 8.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, I1 and I2 must be less than or equal to 335,523,840. I1 + L1 must be less than or equal to 1,342,156,800. I2 + L2 must be less than or equal to 1,342,156,800. If the values of I1, L1, I2 or L2 are closer to the limits described above, a further restriction applies. Specifically, if either:
I1 > 41,940,480 or
I2 > 41,940,480 or
I1 + L1 > 167,769,600 or

I2 + L2 > 167,769,600
then both I1 and I2 must be greater than 20,480.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, L2 must be less than or equal to 2,674,011,406.

For ***16pOC3PosAtm*** cards, L2 must be less than or equal to 17,179,869,180.

| | |
|---|---|
| Vector of | Decimal (0..2147483647) |
| Index | Decimal (1..5) |
| Default | ([5] 0) |

## ATTRIBUTE AtmIf Vcc Vcd Tm fwdQosParameters (fqp)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute is a vector of three elements that specify the quality of service parameters for the forward direction for this connection. This attribute is used for SPVC connections.<br><br>The *cdv* element specifies the acceptable peak-to-peak Cell Delay Variation (CDV) of real-time connections (CBR and rt-VBR). It is signaled through the extended QoS information element. For nrt-VBR and UBR the CDV is irrelevant, and its value is forced to the default.<br><br>The *ctd* specifies the acceptable maximum Cell Transfer Delay (maxCtd) of real-time connections (CBR and rt-VBR).<br>It is signaled through the end to end transit delay information element. For nrt-VBR and UBR the CTD is irrelevant, and its value is forced to the default.<br><br>The *clr* specifies the acceptable Cell Loss Ratio (CLR) of CBR, rt-VBR, and nrt-VBR connections. It is signaled through the |

| | |
|---|---|
| | extended QoS information element. For UBR the CLR is irrelevant, and its value is forced to the default. |
| Vector of | Decimal (0..16777215) |
| Index | cdv<br>ctd<br>clr |
| Default | (cdv: 16777215, ctd: 16777215, clr: 255) |

### ATTRIBUTE AtmIf Vcc Vcd Tm bwdQosParameters (bqp)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute is a vector of two elements that specify the quality of service parameters for the backward direction for this connection. This attribute is used for SPVC connections.<br><br>The *cdv* specifies the acceptable peak-to-peak Cell Delay Variation (CDV) of real-time connections (CBR and rt-VBR). It is signaled through the extended QoS information element. For nrt-VBR and UBR, the CDV is irrelevant, and its value is forced to the default.<br><br>The *clr* specifies the acceptable Cell Loss Ratio (CLR) of CBR, rt-VBR, and nrt-VBR connections. It is signaled through the extended QoS information element. For UBR the CLR is irrelevant, and its value is forced to the default. |
| Vector of | Decimal (0..16777215) |
| Index | cdv<br>clr |
| Default | (cdv: 16777215, clr: 255) |

### COMPONENT AtmIf Vcc Vcd Tm AvailableBitRate (Abr)

| | |
|---|---|
| Groups | "GROUP AtmIf Vcc Vcd Tm Abr Provisioned (Prov)" |
| Scope | Device |

Description

*AtmIf/n Vcc/vpi.vci Vcd Tm AvailableBitRate,*
*AtmIf/n Vpc/vci Vpd Tm AvailableBitRate,*
*AtmIf/n Vpt/vpi Vpd Tm AvailableBitRate,*
*AtmIf/n Vpt/vpi Vcc/vci Vcd Tm AvailableBitRate*
This component contains provisioned ABR-related attributes of a connection. It is an optional subcomponent of the *Vcd Tm* and *Vpd Tm* component. It is used to override DGCRA-related defaults in the *CA Abr* component. It contains the specific configuration for the ABR connection at this connection point. If this is the source of an SPVC connection, this component also contains the ABR parameters required for the SPVC call request.

Common Verbs

Help
List
Display
Add
DELete

## GROUP AtmIf Vcc Vcd Tm Abr Provisioned (Prov)

Properties

Provisioned

Description

This group contains provisioned attributes for the ABR ATM connections configured on an ATM interface.

## ATTRIBUTE AtmIf Vcc Vcd Tm Abr initialCellRate (icr)

Access

Read and write

Criticality

Component

Description

This attribute specifies the Initial Cell Rate (ICR) parameter for this connection. ICR is the rate at which a source should send initially and after an idle period.

The value ***sameAsCa*** means the initial cell rate is determined by the *AtmIf CA Abr*/0 *icr* attribute.

The value ***useMcr*** means ICR is set to the same value as the Minimum Cell Rate (MCR) for the connection.

The value ***usePcr*** means ICR is set to the same value as the Peak Cell Rate (PCR) for the connection.

If the value is less than the MCR of the connection, then the MCR is used as the ICR. If the value is more than PCR of the connection, then PCR is used as the ICR.

This attribute is ignored under all conditions where the operational attribute *abrConnectionType* indicates ***erSwitch*** or ***efciSwitch***.

Values: Decimal (0..16777215)
sameAsCa
useMcr
usePcr

Units: cell/s

Default: sameAsCa

### ATTRIBUTE AtmIf Vcc Vcd Tm Abr transientBufferExposure (tbe)

Access: Read and write

Criticality: Component

Description: This attribute specifies the Transient Buffer Exposure (TBE) for this connection. TBE is the negotiated number of cells that the network would like to limit the source to send during start-up periods, before the first Resource Management (RM) cell returns.

TBE divided by *fixedRoundTripTime* determines an upper bound for the operational value of *initialCellRate*, the rate at which a source should send initially and after an idle period.

TBE divided by *maxCellsPerRmCell* specifies the operational value of *forwardRmCellLimit*, the limit of the number of forward Resource Management (RM) cells which may be sent in the absence of received backward RM cells.

This attribute is ignored under all conditions where the operational attribute *abrConnectionType* is set to ***erSwitch***.

Values: Decimal (0..16777215)

Units: cells

| | |
|---|---|
| Default | 16777215 |

### ATTRIBUTE AtmIf Vcc Vcd Tm Abr fixedRoundTripTime (frtt)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the Fixed Round-Trip Time (FRTT) parameter for this connection. FRTT is the sum of the fixed and propagation delays from the source to a destination and back.<br><br>The value of *transientBufferExposure* divided by the value of FRTT (in seconds) determines an upper bound for the operational value of *initialCellRate*, the rate at which a source should send initially and after an idle period.<br><br>This attribute is ignored under all conditions where the operational attribute *abrConnectionType* indicates ***erSwitch*** or ***efciSwitch***. |
| Values | Decimal (0..16700000) |
| Units | microsec |
| Default | 5000000 |

### ATTRIBUTE AtmIf Vcc Vcd Tm Abr rateDecreaseFactor (rdf)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the Rate Decrease Factor (RDF) for this connection. The RDF value is computed by using the provisioned value of this attribute, n, as 2 to the inverse power n. For example, if the value of this attribute is 8, RDF is 2E-8 = 1/256.<br><br>RDF controls the amount by which the cell transmission rate may decrease upon receipt of a backward Resource Management (RM) cell. For example, if a backward RM cell is received with the Congestion Indication (CI) field set to 1, the Allowed Cell Rate (ACR) value would be reduced by the amount (RDF*ACR). The ACR is not allowed to fall below the Minimum Cell Rate (MCR), in which case the ACR is set to MCR. |

This attribute is ignored under all conditions where the operational attribute *abrConnectionType* has the value ***erSwitch***.

Values: Decimal (0..15)
sameAsCa

Default: sameAsCa

### ATTRIBUTE AtmIf Vcc Vcd Tm Abr rateIncreaseFactor (rif)

Access: Read and write

Criticality: Component

Description: This attribute specifies the Rate Increase Factor (RIF) for this connection. The RIF value is computed by using the provisioned value of this attribute, n, as 2 to the inverse power n. For example, if the value of this attribute is 6, RIF is 2E-6 = 1/64.

RIF controls the amount by which the cell transmission rate may increase upon receipt of a backward Resource Management (RM) cell. For example, if a backward RM cell is received with the Congestion Indication (CI) and the No Increase (NI) fields both set to 0, the Allowed Cell Rate (ACR) value would be increased by the amount (RIF*ACR). The ACR is not allowed to exceed the Peak Cell Rate (PCR), in which case the ACR is set to PCR.

This attribute is ignored under all conditions where the operational attribute *abrConnectionType* has the value ***erSwitch***.

Values: Decimal (0..15)
sameAsCa

Default: sameAsCa

### ATTRIBUTE AtmIf Vcc Vcd Tm Abr maxCellPerRmCell (nrm)

Access: Read and write

Criticality: Component

Description: This attribute specifies the maximum number of cells an ABR source may transmit for each forward Resource Management (RM) cell. The count of the cells transmitted includes data cells,

OAM cells, backward RM cells, and the forward RM cell.

A value of 2 is not recommended although it is permitted according to the ATM Forum standard. When this attribute is set to a value of 2, it is possible that only one forward and one backward RM cell are repeatedly transmitted, and all data traffic is queued up indefinitely.

This attribute is ignored under all conditions where the operational attribute *abrConnectionType* has the value ***erSwitch***.

Values: Decimal (2; 4; 8; 16; 32; 64; 128; 256)
sameAsCa

Units: cells

Default: sameAsCa

### ATTRIBUTE AtmIf Vcc Vcd Tm Abr maxTimeBetweenRmCells (trm)

Access: Read and write

Criticality: Component

Description: This attribute specifies the TRM parameter for this connection.

TRM provides an lower bound on the time interval between forward Resource Management (RM) cells for an ABR source. Since the last forward RM cell was sent, if at least TRM time has elapsed since and at least two other cells have been sent, then the next cell to be transmitted would be a forward RM cell.

This attribute is ignored under all conditions where the operational attribute *abrConnectionType* has the value ***erSwitch***.

The provisioned value of 781 is signaled as TRM = 0, in the ABR Additional Parameters Information Element.
1563 is signaled as TRM = 1.
3125 is signaled as TRM = 2.
6250 is signaled as TRM = 3.
12500 is signaled as TRM = 4
25000 is signaled as TRM = 5.
50000 is signaled as TRM = 6.

100000 is signaled as TRM = 7.

| | |
|---|---|
| Values | Decimal (781; 1563; 3125; 6250; 12500; 25000; 50000; 100000)<br>sameAsCa |
| Units | microsec |
| Default | sameAsCa |

### ATTRIBUTE AtmIf Vcc Vcd Tm Abr cutoffDecreaseFactor (cdf)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the Cutoff Decrease Factor (CDF) parameter for this connection. When the value of this attribute is non-zero, CDF is computed as the inverse of the value. For example, if the value is 32, the value of CDF is 1/32. When the value of this attribute is 0, CDF is also zero.<br><br>CDF controls the decrease in the Allowed Cell Rate (ACR) associated with the CRM parameter, the limit of the number of forward Resource Management (RM) cells which may be sent in the absence of received backward RM cells. When this limit is crossed, the ACR value would be decreased by the amount (CDF*ACR). The ACR is not allowed to fall below the Minimum Cell Rate (MCR), in which case the ACR is set to MCR.<br><br>The value of CRM is indicated by the *forwardRmCellLimit* attribute.<br><br>This attribute is ignored under all conditions where the operational attribute *abrConnectionType* indicates ***erSwitch*** or ***efciSwitch***. |
| Values | Decimal (0; 1; 2; 4; 8; 16; 32; 64)<br>sameAsCa |
| Default | sameAsCa |

### ATTRIBUTE AtmIf Vcc Vcd Tm Abr acrDecreaseTimeFactor (adtf)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the Allowed Cell Rate Decrease Time Factor (ADTF) parameter for this connection.<br><br>ADTF is the maximum time interval permitted between sending forward Resource Management (RM) cells before the Allowed Cell Rate (ACR) is decreased to *initialCellRate*. In other words, if the source does not transit a forward RM cell for the period specified by *adtf*, it reduces its ACR to the value of its *initialCellRate*.<br><br>This attribute is ignored under all conditions where the operational attribute *abrConnectionType* indicates ***erSwitch*** or ***efciSwitch***. |
| Values | Decimal (0..1023)<br>sameAsCa |
| Units | centiseconds |
| Default | sameAsCa |

### ATTRIBUTE AtmIf Vcc Vcd Tm Abr dgcraMaximumDelay (dgcraMaxDelay)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies an upper bound on the delay after which the rate change induced by a backward Resource Management (RM) cell departing from this connection point (in the backward direction) is expected to be observed at this connection point (in the forward direction).<br><br>This upper bound may be approximated as the sum of the round trip fixed and propagation delays and the maximum queuing delays between the ABR source and this interface.<br><br>The value of this attribute is used in policing an ABR connection using the Dynamic General Cell Rate Algorithm (DGCRA). A |

larger value for this attribute implies a more lenient policer. When there is a reduction in the Allowed Cell Rate (ACR), the policer waits for a correspondingly longer period of time before it enforces at the new cell rate.

The value of this attribute must not be less than the *dgcraMinimumDelay* attribute.

Values: Decimal (1..16700000)
sameAsCa

Units: microsec

Default: sameAsCa

### ATTRIBUTE AtmIf Vcc Vcd Tm Abr dgcraMinimumDelay (dgcraMinDelay)

Access: Read and write

Criticality: Component

Description: This attribute specifies a lower bound on the delay after which the rate change induced by a backward Resource Management (RM) cell departing from this connection point (in the backward direction) is expected to be observed at this connection point (in the forward connection).

This lower bound may be approximated as the sum of the round trip fixed and propagation delays between the ABR source and this interface.

The value of this attribute is used in policing an ABR connection using the Dynamic General Cell Rate Algorithm (DGCRA). A smaller value for this attribute implies a more lenient policer. When there is a increase in the Allowed Cell Rate (ACR), the policer waits for a correspondingly shorter period of time before it enforces at the new cell rate.

Values: Decimal (1..16700000)
sameAsCa

Units: microsec

Default: sameAsCa

### ATTRIBUTE AtmIf Vcc Vcd Tm Abr farEndAcrDecreaseTimeFactor (feAdtf)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the Allowed Cell Rate Decrease Time Factor (ADTF) of the far end ABR source. The value specified should be the same as the ADTF parameter at the far end of this ABR connection.<br><br>The value of this attribute is used in policing an ABR connection using the Dynamic Generic Cell Rate Algorithm (DGCRA). A larger value for this attribute implies a more lenient policer. When the delay between two consecutive forward Resource Management (RM) cells received at this interface corresponds to a value greater than the value of this attribute, the policer begins to limit enforce the incoming traffic at the initial cell rate (ICR) of the far end, as specified by the *farEndInitialCellRate* attribute. |
| Values | Decimal (0..1023) |
| Units | centiseconds |
| Default | 50 |

### ATTRIBUTE AtmIf Vcc Vcd Tm Abr farEndInitialCellRate (feIcr)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the Initial Cell Rate (ICR) of the far end ABR source. The value specified should be the same as the ICR parameter at the far end of this ABR connection.<br><br>The value of this attribute is used in policing an ABR connection using the Dynamic Generic Cell Rate Algorithm (DGCRA). A larger value for this attribute implies a more lenient policer. When the delay between two consecutive forward Resource Management (RM) cells received at this interface corresponds to a value greater than the *farEndAcrDecreaseTimeFactor* attribute, the policer begins to enforce the incoming traffic at the value of this attribute. |

If this attribute is specified less than the MCR of the connection, then the MCR is used as the *feIcr*. If this attribute is more than the PCR of the connection, then PCR is used as the *feIcr*.

Values: Decimal (0..16777215)

Units: cell/s

Default: 0

## COMPONENT AtmIf Vcc Vcd PerformanceMonitoring (Pm)

Groups: "GROUP AtmIf Vcc Vcd Pm Provisioned (Prov)"

Scope: Device

Description: *AtmIf/n Vcc/x.y Vcd PerformanceMonitoring*
*AtmIf/n Vpc/x Vpd PerformanceMonitoring*
This component represents the Performance Monitoring (Pm) function on a provisioned connection. No Performance Monitoring is done unless this component is present. The attribute values override corresponding values in the *AtmIf Pm* component. There can be a maximum of 255 *Pm*s on one LP.

Common Verbs:
- Help
- List
- Display
- Add
- DELete

## GROUP AtmIf Vcc Vcd Pm Provisioned (Prov)

Properties: Provisioned

Description: This group contains provisioned attributes which specify Performance Monitoring (PM) measurements, namely, Availability Ratio (AR) and Cell Loss Ratio (CLR), and control modes for the connection. The values specified in this group override those specified by the *AtmIf Pm* component.

## ATTRIBUTE AtmIf Vcc Vcd Pm segSwitchSideMeasurement (segSwitchSide)

Access: Read and write

Description — This attribute specifies the set of Performance Monitoring (PM) measurements on the switch side configuration for the connection.

A value of ***sameAsInterface*** means that the measurements specified by the *segSwitchSideMeasurement* attribute of the *AtmIf Pm* component will be performed. No other values may be specified if ***sameAsInterface*** is selected. If the value is empty, no switch side PM measurements are done.

Set of — availabilityRatio (ar)
cellLossRatio (clr)
sameAsInterface (sameAsIf)

Default — (sameAsInterface)

### ATTRIBUTE AtmIf Vcc Vcd Pm segLinkSideMeasurement (segLinkSide)

Access — Read and write

Description — This attribute specifies the set of Performance Monitoring (PM) measurements on the link side configuration for the connection.

A value of ***sameAsInterface*** means that the measurements specified by the *segLinkSideMeasurement* attribute of the *AtmIf Pm* component will be performed. No other values may be specified if ***sameAsInterface*** is selected. If the value is empty, no link side PM measurements are done.

Set of — availabilityRatio (ar)
cellLossRatio (clr)
sameAsInterface (sameAsIf)

Default — (sameAsInterface)

### ATTRIBUTE AtmIf Vcc Vcd Pm controlMode (mode)

Access — Read and write

Criticality — Component

Description — This attribute specifies the control mode of Performance Monitoring (PM) measurements for the connection.

A value of ***autoStart*** means that PM activation procedures will

start when the provisioned data is activated.

A value of ***onDemand*** means that PM activation procedures will start when the operator issues the *Start* command. The PM measurements in this mode will continue until the operator issues the *Stop* command.

A value of ***sameAsInterface*** means that the behavior will be as specified by the *controlMode* attribute of the *AtmIf Pm* component.

Values
autoStart (auto)
onDemand (onDemand)
sameAsInterface (sameAsIf)

Default
sameAsInterface

### ATTRIBUTE AtmIf Vcc Vcd Pm switchSideClrType (clrType)

Access
Read and write

Description
This attribute specifies how the Cell Loss Ratio (CLR) Performance Monitoring (PM) is measured on a switch-side configuration for the connection.

A value of ***complete*** indicates that egress discards at the segment end points are included in the CLR measurement as per ITU standards.

A value of ***partial*** indicates that egress discards do not contribute to the CLR measurement.

A value of ***sameAsInterface*** means that the behavior is as specified by the *switchSideClrType* attribute of the *AtmIf Pm* component.

Values
complete
partial
sameAsInterface (sameAsIf)

Default
sameAsInterface

## COMPONENT AtmIf Vcc Loop (Loop)

Scope: Device

Description: *AtmIf/n Vcc/vpi.vci Loop*
The *Loop* component configures an ATM connection so that cells received from the ATM interface are retransmitted back to the interface through that connection. The *Loop* component requires exclusive use of its parent *Vcc* or *Vpc* and cannot co-exist with other ATM service components (such as *Nep*, *Nrp*, and *Test*).

Common Verbs:
- Help
- List
- Display
- Add
- DELete

## COMPONENT AtmIf Vcc NailedUpRelayPoint (Nrp)

Groups: "GROUP AtmIf Vcc Nrp Provisioned (Prov)"

Scope: Device

Description: *AtmIf/n Vcc/vpi.vci Nrp*
This component is used to establish a single hop of a nailed-up ATM Bearer Service (ABS) connection. By linking together two *Nrp*s within a module, the associated connections are configured to relay ATM cells to one another. The *Nrp* component requires exclusive use of its parent *Vcc* or *Vpc* and cannot co-exist with other ATM service components (such as *Nep*, *Test*, and *Loop*).

Common Verbs:
- Help
- List
- Display
- Add
- DELete

## GROUP AtmIf Vcc Nrp Provisioned (Prov)

Properties: Provisioned

| | |
|---|---|
| Description | This group contains the provisionable attributes for the *Nrp* component. |

### ATTRIBUTE AtmIf Vcc Nrp nextHop (nextHop)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the *Nrp* component with which this *Nrp* is associated. A sample value is *AtmIf/31 Vcc/0.32 Nrp.* |
| Values | Link (Service, nextHop) |
| Default | No default |

### ATTRIBUTE AtmIf Vcc Nrp oamSegmentBoundary (sb)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the OAM segment boundary desired for a *Nrp* component. It affects the connection point type value visible in the parent component's *connectionPointType* attribute.<br><br>The desired OAM segment boundary can be specified directly as ***yes***, ***no*** or ***sameAsInterface***. If ***sameAsInterface*** is specified, the OAM segment boundary is same as the *oamSegmentBoundary* attribute of the associated *AtmIf* and the switch will set the *connectionPointType*, choosing ***segmentEndPoint*** for a segment-boundary ATM interface and ***connectingPoint*** for a non-segment-boundary ATM interface. |
| Values | no<br>yes<br>sameAsInterface |
| Default | sameAsInterface |

### ATTRIBUTE AtmIf Vcc Nrp bandwidthElastic (bwElastic)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |

Description

This attribute is only of importance for connections which are carried on a link with a variable bandwidth. For example, the bandwidth may be reduced in the event that one or more physical links in the IMA group fail, such that the originally requested bandwidth cannot be maintained. This attribute shows whether the application running on this connection can continue to operate if the bandwidth is reduced. If the bandwidth is reduced, the amount by which it is reduced will be displayed in the *bandwidthReduction* attribute.

A value of ***yes***, indicates that this connection is elastic, and the bandwidth may be reduced but the connection will not be released. Currently, this attribute should only be set to ***yes*** for situations where this *Nrp* is functioning as a loopback on one side of an IMA link. There are no other situations where this setting is valid.

A value of ***no*** indicates that the bandwidth for this connection will not be reduced in the event of link bandwidth reduction. However, this connection may be released based on its *holdingPriority.*

Values

no
yes

Default

no

## ATTRIBUTE AtmIf Vcc Nrp overrideHoldingPriority (ohpri)

Access

Read and write

Criticality

Component

Description

This attribute specifies the holding priority of this connection. Holding priority is used when there is an IMA group where some physical links have failed. Holding priority determines the order in which connections are released. 4 is the lowest holding priority and is released first. 0 is a higher priority and is released last. The value specified in this attribute will override whatever *holdingPriority* that has been provisioned at the *Vcd* (or *Vpd*). If the value is left at the default of ***noOverride***, the *holdingPriority* provisioned at the *Vcd* (or *Vpd*) will be used.

| | |
|---|---|
| Values | 0<br>1<br>2<br>3<br>4<br>noOverride |
| Default | noOverride |

### COMPONENT AtmIf Vcc NailedUpEndPoint (Nep)

| | |
|---|---|
| Groups | "GROUP AtmIf Vcc Nep Provisioned (Prov)" |
| Scope | Device |
| Description | *AtmIf/n Vcc/vpi.vci Nep*<br>The *NailedUpEndPoint* component is used to link a VCC to an application that sends and receives frames using the connection. The *Nep* component requires exclusive use of its parent *Vcc* and cannot co-exist with other ATM service components (such as *Nrp*, *Test*, and *Loop*). |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP AtmIf Vcc Nep Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisionable attributes for the *Nep* component. |

### ATTRIBUTE AtmIf Vcc Nep applicationName (appName)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the application that sends and receives frames using the VCC. This attribute is set, for example, by provisioning the *Trunk AtmAccess AtmConnection* attribute. If it is properly configured, this attribute will show a value such as “Trk/22 AtmAccess”. |

| | |
|---|---|
| Values | Link (Service, atmConnection) |
| Default | No default |

## COMPONENT AtmIf Vcc Test (Test)

| | |
|---|---|
| Groups | "GROUP AtmIf Vcc Test OsiState (State)"<br>"GROUP AtmIf Vcc Test Setup (Setup)"<br>"GROUP AtmIf Vcc Test Results (Results)" |
| Scope | Device |
| Description | *AtmIf/n Vcc/vpi.vci Test*<br>The *Test* component allows test traffic to be sent over an ATM connection. It is used to verify the integrity of hardware carrying ATM traffic, and provides test capabilities similar to those provided by non-ATM port and line tests. The *Test* component requires exclusive use of its parent *Vcc* and cannot co-exist with other ATM service components (such as *Nep*, *Nrp*, and *Loop*).<br><br>An ATM connection test circulates traffic through a VCC having a *Test* component at one end and the other end configured to loop back ATM cells. The *Test* component generates test frames, transforms them into ATM cells using AAL5 segmentation, and transmits them through the VCC; the returned cells are received by the *Test* component, reassembled back into frames, and the frames are consumed.<br><br>The test frames generated by the test are grouped into two independent streams.<br>1) The loading frame stream circulates a set of “loading frames” through the connection as rapidly as possible. The intent of this stream is to verify the operation of the connection under a controlled load.<br>2) The verification stream transmits a series of “verification frames” through the connection; as each frame is returned, the *Test* component verifies its contents and the next verification frame in the series is transmitted. The intent of this stream is to verify that frames are not being corrupted.<br>The test can be configured to send frames from either or both |

streams. The size and content of the test frames can also be controlled.

Common Verbs

Help
List
Display
Add
DELete

### VERB START AtmIf Vcc Test

Impact: Service

Description: *START AtmIf/n Vcc/vpi.vci Test*
This verb invokes an ATM connection test. It has no effect when the test is already running.

### VERB STOP AtmIf Vcc Test

Impact: Service

Description: *STOP AtmIf/n Vcc/vpi.vci Test*
This verb stops an ATM connection test. It has no effect when the test is not running.

### GROUP AtmIf Vcc Test OsiState (State)

Properties: Operational

Description: This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE AtmIf Vcc Test adminState (osiAdmin)

Access: Read only

Description: This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively

prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE AtmIf Vcc Test operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE AtmIf Vcc Test usageState (osiUsage)

Access
Read only

| | |
|---|---|
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP AtmIf Vcc Test Setup (Setup)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains attributes that govern the operation of an ATM connection test. These attributes cannot be changed while the test is running. |

### ATTRIBUTE AtmIf Vcc Test frmTypes (types)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the types of the test frames to be transmitted during the ATM connection test. It must contain at least one of the following:<br>***loading***: A set of “loading frames” is circulated over the link as rapidly as possible. This frame type should be selected when the test is intended to verify the operation of the connection under a specified load. These frames are not checked for bit errors.<br>***verification***: A single “verification frame” is transmitted over the link; when the frame is returned, its contents are verified and the next verification frame in the series is transmitted. This frame type should be selected when the test is intended to verify that frames are not being corrupted as they pass over the connection. |
| Set of | loading<br>verification |

| | |
|---|---|
| Default | (loading, verification) |

### ATTRIBUTE AtmIf Vcc Test frmSize (size)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the size of the test frames used in an ATM connection test. |
| Values | Decimal (4..4096) |
| Units | bytes |
| Default | 1024 |

### ATTRIBUTE AtmIf Vcc Test frmPatternType (fpt)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the bit sequence used to fill the frames used in the ATM connection test. It must contain one of the following values:<br>***ccitt32kBitPattern***: a pseudo-random sequence of 32 Kbit is used<br>***ccitt8MBitPattern***: a pseudo-random sequence of 8Mbit is used<br>***customizedPattern***: the pattern defined in the *customizedPattern* attribute is used |
| Values | ccitt32kBitPattern<br>ccitt8MBitPattern<br>customizedPattern |
| Default | ccitt32kBitPattern |

### ATTRIBUTE AtmIf Vcc Test customizedPattern (cp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies a 32 bit sequence to be used to fill frames when the *framePatternType* attribute is set to ***customizedPattern***. The default value gives a pattern of alternating 0 and 1 bits. |
| Values | Hex (H.0..H.ffffffff) |
| Units | Hex |
| Default | H.55555555 |

### ATTRIBUTE AtmIf Vcc Test duration

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum number of minutes that the ATM connection test is allowed to run. The maximum allowed value permits the test to be run for up to 21 days. |
| Values | Decimal (1..30240) |
| Units | minutes |
| Default | 1 |

### ATTRIBUTE AtmIf Vcc Test bandwidthElastic (bwElastic)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether the connection (*VCC*) should be configured with elastic bandwidth or not. Elastic bandwidth is of importance in conjunction with IMA links, where some links fail and the resulting bandwidth is less than the requested bandwidth for all connections. In that case, some connections may be reduced in bandwidth based on the setting of the *bwElastic* attribute.<br><br>If this attribute is set to ***yes***, the Test application signals to the connection that the bandwidth for this connection is elastic, and may be reduced in the case of IMA link failures. If the bandwidth is reduced, the rate of test cells which can be handled by the connection will also be reduced.<br><br>If this attribute is set to ***no***, the Test application signals to the connection that the bandwidth for this connection must be maintained at the requested level. If the connection cannot maintain the full bandwidth, the connection may be released (cleared) based on the holding priority of the connection. |
| Values | no<br>yes |
| Default | no |

### ATTRIBUTE AtmIf Vcc Test overrideHoldingPriority (ohpri)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the override holding priority which should be signaled to the *VCC* connection at the start of the test. Holding priority is of importance in conjunction with IMA links, where some links fail and the resulting bandwidth is less than the requested bandwidth for all connections. In that case, some connections may be released based on the connection's holding priority.<br><br>***Zero*** (0) is the highest holding priority, and ***four*** (4) is the lowest priority. A setting of ***zero*** to ***four*** overrides whatever holding priority that has been configured at the connection (*VCC*). A setting of ***noOverride*** means that the connection should use its internally configured holding priority. |
| Values | 0<br>1<br>2<br>3<br>4<br>noOverride |
| Default | noOverride |

### GROUP AtmIf Vcc Test Results (Results)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains attributes that show the result of an ATM connection test; if no test is running, the attribute group contains the results of the most recently completed test. The attributes of the *Results* group are reset to their initial values whenever a test is started or any attribute of the *Setup* group is set. |

### ATTRIBUTE AtmIf Vcc Test elapsedTime

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of minutes that the test has been running. |

| | |
|---|---|
| Values | Decimal (0..30240) |
| Units | minutes |
| Default | 0 |

### ATTRIBUTE AtmIf Vcc Test timeRemaining

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of minutes that the test will continue to run before stopping automatically. |
| Values | Decimal (0..30240) |
| Units | minutes |
| Default | 0 |

### ATTRIBUTE AtmIf Vcc Test causeOfTermination

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the reason the test ended. It contains one of the following values.<br>***testTimeExpired***: the test ran for the specified duration<br>***stoppedByOperator***: a *STOP* command was issued<br>***neverStarted***: the test has not been started<br>***testRunning***: the test is currently running |
| Values | testTimeExpired<br>stoppedByOperator<br>neverStarted<br>testRunning |
| Default | neverStarted |

### ATTRIBUTE AtmIf Vcc Test bytesTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of bytes sent during the test. The counter wraps to zero if it exceeds its maximum value of (2**64)-1. |
| Values | Long Integer |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE AtmIf Vcc Test bytesRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of bytes received during the test. The counter wraps to zero if it exceeds its maximum value of (2**64)-1. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE AtmIf Vcc Test loadingFrmTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of loading frames sent during the test. The counter wraps to zero if it exceeds its maximum value of (2**64)-1. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE AtmIf Vcc Test loadingFrmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of loading frames received during the test. The counter wraps to zero if it exceeds its maximum value of (2**64)-1. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE AtmIf Vcc Test loadingFrmLost

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of loading frames that were lost during the test. The counter wraps to zero if it exceeds its maximum value of (2**64)-1. |
| Values | Long Integer |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE AtmIf Vcc Test verificationFrmTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of verification frames sent during the test. The counter wraps to zero if it exceeds its maximum value of (2**64)-1. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE AtmIf Vcc Test verificationFrmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of verification frames received during the test (including errored verification frames). The counter wraps to zero if it exceeds its maximum value of (2**64)-1.<br><br>Note that the number of verification frames lost during the test can be computed by the expression *verificationFrmTx - verificationFrmRx*. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE AtmIf Vcc Test verificationFrmBad

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of errored verification frames received during the test. A verification frame is considered to be errored if it contains a recognizable verification frame header, but does not match the transmitted frame bit for bit. (Thus, a verification frame that returns after the succeeding verification frame has been transmitted is considered to be errored.) The counter wraps to zero if it exceeds its maximum value of (2**64)-1.<br><br>Note that the number of correct verification frames received |

| | |
|---|---|
| | during the test can be computed by the expression *verificationFrmRx - verificationFrmBad*. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE AtmIf Vcc Test unrecognizableFrmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of frames received during the test which do not contain a valid loading frame header or verification frame header. The counter wraps to zero if it exceeds its maximum value of (2**64)-1. |
| Values | Long Integer |
| Default | No default |

### COMPONENT AtmIf Vcc TrafficManagement (Tm)

| | |
|---|---|
| Groups | "GROUP AtmIf Vcc Tm Operational (Oper)" |
| Scope | Device |
| Description | *AtmIf/n Vpc/vpi TrafficManagement,*<br>*AtmIf/n Vcc/vpi.vci TrafficManagement,*<br>*AtmIf/n Vpt/vpi TrafficManagement,*<br>*AtmIf/n Vpt/vpi Vcc/vci TrafficManagement*<br>The *Tm* subcomponent contains the operational traffic management attributes of a connection. It is created dynamically for each activated *Vcc*, *Vpc*, or *Vpt* component. |
| Dyn. Subcomp. | "COMPONENT AtmIf Vcc Tm AvailableBitRate (Abr)" |
| Common Verbs | Help<br>List<br>Display |

### GROUP AtmIf Vcc Tm Operational (Oper)

| | |
|---|---|
| Properties | Operational |

Description — This group contains attributes for the *Tm* component to reflect operational traffic attributes.

### ATTRIBUTE AtmIf Vcc Tm txTrafficDescType (txTdt)

Access — Read only

Description — T his attribute indicates the type of traffic management which is applied to the transmit direction of this connection as defined in the ATM Forum. The *txTrafficDescType* determines the number and meaning of the parameters in the *txTrafficDescParm* attribute.

Values
1
2
3
4
5
6
7
8
9

Default — No default

### ATTRIBUTE AtmIf Vcc Tm txQosClass (txQos)

Access — Read only

Description — This attribute indicates the quality of service for the calling to called direction for this connection. This is only applicable to Soft PVC and SVC connections.

Class 1 supports a QOS that meets Service Class A performance requirements (Circuit emulation, constant bit rate video).

Class 2 supports a QOS that meets Service Class B performance requirements (Variable bit rate audio and video).

Class ***3*** supports a QOS that meets Service Class C performance requirements (Connection-Oriented Data Transfer).

Class 4 supports a QOS that meets Service Class D performance

requirements (Connectionless Data Transfer).

Class 0 is the unspecified QOS class; no objective is specified for the performance parameters.

A value of ***notApplicable*** is displayed in the case of nailed-up PVCs for which this attribute has no significance.

Values
0
1
2
3
4
notApplicable

Default
No default

### ATTRIBUTE AtmIf Vcc Tm txQueueLength (txQLen)

Access
Read only

Description
This attribute indicates the current number of cells in the transmit queue for this connection.

If this connection has *unshapedTransmitQueueing* attribute displayed as ***common***, this attribute displays the length of the common queue which is used for this ATM service category.

If this connection has *unshapedTransmitQueueing* attribute displayed as ***fifo***, this attribute indicates the number of cells for this connection which are enqueued in a first-in-first-out queuing method for this ATM service category. This will only occur for connections on ATM IP cards with *atmServiceCategory* of ***nrtVbr*** or ***ubr***.

If this connection has *unshapedTransmitQueueing* attribute displayed as ***perVc*** or as ***notApplicable***, this attribute displays the length of the per-VC queue.

For ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, this attribute displays the current number of cells in the link class queue used by this connection to buffer its traffic.

This attribute does not apply to basic *Vpt*s.

Values — Decimal (0..512000)

Units — cells

Default — No default

### ATTRIBUTE AtmIf Vcc Tm txQueueCongestionState (txQCong)

Access — Read only

Description — This attribute indicates the congestion state of the transmit queue for this connection.

If this connection has *unshapedTransmitQueueing* attribute displayed as ***common***, this attribute displays the congestion state of the common queue. If this connection has *unshapedTransmitQueueing* attribute displayed as ***perVc*** or as ***notApplicable***, this attribute displays the congestion state of the per-VC queue.

The congestion state of a queue is indicated by a numeric value ranging from 0 to 3. When a queue is in a congested state x, only traffic with discard priority (DP) 0 to x are enqueued. Traffic with DP > x is discarded.

For example, if the congestion state is 3, there is no congestion and all traffic is enqueued. Likewise, when the congestion state is 0, there is maximum congestion and only traffic with DP=0 is enqueued on that queue.

For ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, this attribute displays the current congestion state of the link class queue used by this connection to buffer its traffic.

This attribute does not apply to basic *Vpt*s.

Values — Decimal (0..3)

Default — No default

## ATTRIBUTE AtmIf Vcc Tm holdingPriority (hpri)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the actual holding priority in effect for this connection. In a situation where the link bandwidth fluctuates, such as over an IMA link, holding priority is used to determine which connections are held and which are released. Holding priority 4 connections are the first to be released. Holding priority 0 connections are the last to be released. Some applications, for example *Vcc Test*, may override the provisioned holding priority.<br><br>A value of ***notApplicable*** is displayed when this is an elastic connection. Holding priority does not apply to bandwidth elastic connections.<br><br>Holding priority has no effect if the equivalent cell rate (ECR) for a connection is zero.<br><br>This attribute does not apply to *Vpt Vcc*s. |
| Values | 0<br>1<br>2<br>3<br>4<br>notApplicable |
| Default | No default |

## ATTRIBUTE AtmIf Vcc Tm rxTrafficDescType (rxTdt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the type of traffic management which is applied to the receive direction of this connection as defined in the ATM Forum. The *rxTrafficDescType* determines the number and meaning of the parameters in the *rxTrafficDescParm* attribute. |
| Values | 1<br>2 |

3
4
5
6
7
8
9

Default No default

### ATTRIBUTE AtmIf Vcc Tm rxQosClass (rxQos)

Access Read only

Description This attribute indicates the quality of service for the called to calling direction for this connection. This is only applicable to Soft PVC and SVC connections.

Class 1 supports a QOS that meets Service Class A performance requirements (circuit emulation, constant bit rate video).

Class 2 supports a QOS that meets Service Class B performance requirements (variable bit rate audio and video).

Class 3 supports a QOS that meets Service Class C performance requirements (Connection-Oriented Data Transfer).

Class 4 supports a QOS that meets Service Class D performance requirements (Connectionless Data Transfer).

Class 0 is the unspecified QOS class; no objective is specified for the performance parameters.

A value of ***notApplicable*** is displayed in the case of nailed-up PVCs for which this attribute has no significance.

Values
0
1
2
3
4

notApplicable
sameAsFwd

Default No default

### ATTRIBUTE AtmIf Vcc Tm atmServiceCategory (service)

Access Read only

Description This attribute indicates the ATM service category used for traffic in both directions of the connection.

The ***constantBitRate*** service category is intended for real time applications, that is, those requiring tightly constrained delay and delay variation, as would be appropriate for voice and video applications. The consistent availability of a fixed quantity of bandwidth is considered appropriate for CBR service. Cells which are delayed beyond the value specified by Cell Transfer Delay are assumed to have significantly reduced value for the application.

The ***rtVariableBitRate*** service category is intended for real time applications; that is those requiring tightly constrained delay and delay variation, as would be appropriate for voice and video applications. Sources are expected to transmit at a rate which varies with time. Equivalently, the source can be described as “bursty”. Cells which are delayed beyond the value specified by Cell Transfer Delay are assumed to be of significantly reduced value to the application. Real time VBR service may support statistical multiplexing of real time sources.

The ***nrtVariableBitRate*** service category is intended for non-real time applications which have bursty traffic characteristics and which can be characterized in terms of a PCR, SCR, and MBS. For those cells which are transferred within the traffic contract, the application expects a low cell loss ratio. For all connections, it expects a bound on the mean cell transfer delay. Non-real time VBR service may support statistical multiplexing of connections.

The ***availableBitRate*** service is an ATM layer service category for which the limiting ATM layer transfer characteristics provided by the network may change subsequent to connection

establishment. ABR service has a flow control mechanism which supports several types of feedback to control the source rate in response to changing ATM layer transfer characteristics. ABR service is not intended to support real-time applications.

The ***unspecifiedBitRate*** service is intended for non-real time applications, that is those not requiring tightly constrained delay and delay variation. UBR sources are expected to be bursty. UBR service supports a high degree of statistical multiplexing among sources. UBR service does not specify traffic related service guarantees. No numerical commitments are made with respect to the cell loss ratio experienced by a UBR connection, or as to the cell transfer delay experienced by cells on the connection.

Values

unspecifiedBitRate (ubr)
constantBitRate (cbr)
rtVariableBitRate (rtVbr)
nrtVariableBitRate (nrtVbr)
availableBitRate (abr)

Default

No default

## ATTRIBUTE AtmIf Vcc Tm trafficShaping (trShaping)

Access

Read only

Description

This attribute indicates the traffic shaping state of the connection.

A value of ***notApplicable*** indicates that traffic shaping is not applicable or not supported for this connection. This is the case:
- when the *txTrafficDescType* is 1 or 2.
- for standard *Vpt Vcc*s and basic *Vpt*s.
- for ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm*** cards, when the *atmServiceCategory* is ***constantBitRate***.

In these cases, the value of ***notApplicable*** is indicated regardless of whether traffic shaping is enabled or disabled in the provisioning data.

A value of ***disabled*** indicates that traffic shaping is applicable and supported for the type of connection but has been turned off in

the provisioning data.

A value of ***linear*** or ***inverseUpc*** indicates that traffic shaping is applicable and supported for the type of connection and has been turned on in the provisioning data. This is the only case that indicates that traffic shaping is performed on the connection. In this case, the actual shaping rate is reflected in the *txTrafficDescParm* attribute, parameter number 4. A value of ***linear*** indicates that traffic is being shaped at the constant rate indicated in *txTrafficDescParm* 4. A value of ***inverseUpc*** indicates that the shaper strictly conforms to the requirements of a dual leaky bucket UPC enforcer. This value is indicated if traffic shaping is enabled, and the *txTrafficDescType* for this connection is 6, 7 or 8.

For ***1pOC12SmLrAtm***, ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, traffic shaping is not available, therefore this attribute is always ***disabled***.

Traffic shaping for connections with *atmServiceCategory* as ***availableBitRate*** (*txTrafficDescType* 9) depends upon the *abrConnectionType* attribute. If *abrConnectionType* is ***sourceDest*** or ***virtualSourceDest***, the value of this attribute is ***linear***. If *abrConnectionType* is ***erSwitch*** or ***efciSwitch***, this attribute is ***notApplicable***.

Values
disabled
linear
inverseUpc
notApplicable

Default
No default

## ATTRIBUTE AtmIf Vcc Tm bearerClassBbc (bcBbc)

Access
Read only

Description
This attribute indicates the bearer capability for this connection.

Class ***a*** service is a connection-oriented, constant bit rate ATM transport service. Class ***a*** service has end to end timing requirements and may require stringent cell loss, cell delay and

cell delay variation performance.When ***a*** is displayed, the user is requesting more than an ATM only service. The network may look at the AAL to provide interworking based upon its contents.

Class ***c*** service is a connection-oriented, variable bit rate ATM transport service. Class ***c*** service has no end-to-end timing requirements.When ***c*** is displayed, the user is requesting more than an ATM only service. The network interworking function may look at the AAL and provide service based on it.

Class ***x*** service is a connection-oriented ATM transport service where the AAL, *trafficType* (***cbr*** or ***vbr***), and timing requirements are user defined (that is, transparent to the network). When the value of this attribute is ***x***, the user is requesting an ATM only service from the network. In this case, the network shall not process any higher layer protocol.

Class vp service is used to indicate a transparent VP service when the user is requesting an ATM only service from the network. In this case, the network does not process any higher layer protocol. This service differs from class x service in that with the class vp service both the VCI field (except for VCI values 0, 3, 4, and 6 through 15) and Payload Type field are transported transparently by the network. This attribute value is only applicable to SPVP and SVP connections.

A value of ***notApplicable*** is displayed in the case of nailed-up PVCs for which this attribute has no significance.

Values

a
c
x
vp
notApplicable

Default

No default

## ATTRIBUTE AtmIf Vcc Tm transferCapabilityBbc (tcBbc)

Access

Read only

Description

This attribute indicates the transfer capability for this connection. Uni 3.0/3.1 traffic type and end-to-end timing parameters are mapped into this parameter as follows:
<transferCapability: TrafficType, Timing>
0: NoIndication, NoIndication
1: NoIndication, yes
2: NoIndication, no
5: CBR, yes
8: VBR, NoIndication
9: VBR, yes
10: VBR, no

A value of ***notApplicable*** is displayed in the case of nailed-up PVCs for which this attribute has no significance, or in the case that the transfer capability in the call request was set to NoIndication.

The CBR traffic type refers to traffic offered on services such as a constant bit rate video service or a circuit emulation.

The VBR traffic type refers to traffic offered on services such as packetized audio and video, or data.

The value NoIndication for traffic type is used if the user has not set the traffic type; similarly for end-to-end timing.

The value yes for end-to-end timing indicates that end-to-end timing is required for the connection.

The value no for end-to-end timing indicates that end-to-end timing is not required for the connection.

Values

0
1
2
5
8
9
10
notApplicable

Default — No default

### ATTRIBUTE AtmIf Vcc Tm clippingBbc (cBbc)

Access — Read only

Description — This attribute indicates the value of the clipping susceptibility parameter in the broadband bearer capability (BBC) Information Element.

Clipping is an impairment in which the first fraction of a second of information to be transferred is lost. It occurs after a call is answered and before an associated connection is switched through.

A value of ***notApplicable*** is displayed in the case of nailed-up PVCs for which this attribute has no significance.

Values — no
yes
notApplicable

Default — No default

### ATTRIBUTE AtmIf Vcc Tm unshapedTransmitQueueing (unshap)

Access — Read only

Description — This attribute indicates the unshaped transmit queuing state of the connection.

A value of ***common*** indicates that transmit traffic is being enqueued onto the common transmit queue for this service category.
The *txQueueLength* attribute indicates the current length of the common transmit queue.

A value of ***fifo*** indicates that transmit traffic is being queued in a first-in-first-out basis for this service category. This is similar to ***common*** queuing, but the *txQueueLength* attribute indicates the number of cells in this connection queue. A value of ***fifo*** will only be indicated for connections on ***2pOC3MmAtm2***, ***2pOC3SmAtm2***, ***2pSTM1eAtm***, ***2pSTM1eCh***, ***4pOC3MmAtm***,

***4pOC3SmIrAtm***, ***4pDS3ChAtm***, ***3pDS3Atm2***, ***3pE3Atm2***, ***12pDS3Atm***, ***12pE3Atm***, and MSA32 cards with *atmServiceCategory* of ***nrtVbr*** or ***ubr***.

A value of ***perVc*** indicates that transmit traffic is being enqueued onto a per-VC queue for this connection.

A value of ***notApplicable*** indicates that transmit traffic is being shaped for this connection, or that unshaped transmit queuing is not applicable for this type of connection. Transmit traffic for a shaped connection is enqueued onto a per-VC queue, but this attribute is only applicable for unshaped connections. Unshaped transmit queuing is not applicable for basic *Vpt*s.

Values
perVc
common
notApplicable
fifo

Default
No default

## ATTRIBUTE AtmIf Vcc Tm bestEffort

Access
Read only

Description
This attribute indicates value of best effort parameter in the ATM Traffic Descriptor Information Element.

The value ***indicated*** implies that the quality of service for this connection is not guaranteed.

The value ***notIndicated*** implies that the quality of service for this connection is guaranteed.

A value of ***notApplicable*** is displayed in the case of nailed-up PVCs for which this attribute has no significance.

Values
indicated
notIndicated
notApplicable

Default
No default

## ATTRIBUTE AtmIf Vcc Tm forceTagging (tagging)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the state of force tagging option for this connection. Force tagging refers to setting the CLP bit for all cells on a connection.<br><br>A value of ***enabled*** indicates that the CLP bit is being set to 1 for all cells in the transmit direction on this connection.<br><br>A value of ***disabled*** indicates that the CLP bit is unchanged for cells in the transmit direction on this connection. The value ***disabled*** is always displayed for *Vpt*s since forced tagging is applied on a per *Vpt Vcc* basis. |
| Values | disabled<br>enabled |
| Default | No default |

## ATTRIBUTE AtmIf Vcc Tm weight

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the relative weight of this unshaped connection. Connections with a larger weight get a larger proportion of the link bandwidth or in the case of standard *Vpt Vcc*s, the *Vpt* bandwidth.<br><br>For all but standard *Vpt Vcc*s, the default connection weight is determined by the weight policy for a service category and the traffic descriptor for a connection. For standard *Vpt Vcc*s, the default connection weight is determined by the *Vcc*'s service category.<br><br>A value from 1 to 4095 indicates an actual weight. The value ***upToQueueLimit*** indicates that the weight of a connection is up to the transmit queue limit for this connection and is used for connections which have the value of the *unshapedTransmitQueueing* attribute displayed as ***fifo***.<br><br>This attribute has a displayed value of ***notApplicable*** in the |

following cases:
- This connection has the value of the *trafficShaping* attribute displayed as either ***linear*** or ***inverseUpc***.
- This connection has the value of the *trafficShaping* attribute displayed as ***disabled***, but the connection's service category has the *trafficShaping* attribute provisioned as either ***enabled*** or ***inverseUpc***.
- This connection has the value of the *unshapedTransmitQueueing* attribute displayed as ***common***.
- This is a basic *Vpt* connection.
- For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm*** cards, since per-connection weight is not supported.

Values
Decimal (1..4095)
upToQueueLimit
notApplicable

Default
No default

## ATTRIBUTE AtmIf Vcc Tm usageParameterControl (upc)

Access
Read only

Description
This attribute indicates the UPC state of the connection.

A value of ***notApplicable*** indicates that UPC is not applicable or not supported for the connection. This is the case:
- when the connection's *rxTrafficDescType* is 1 or 2.
- for standard *Vpt Vcc*s and basic *Vpt*s.

A value of ***notApplicable*** is set regardless of whether UPC is disabled or enabled in provisioning data.

A value of ***disabled*** indicates that UPC is applicable and supported for the type of connection but has been turned off in the provisioning data.

A value of ***enforced*** indicates that UPC is actively checking conformance for the connection and is discarding or tagging cells which do not conform to the connection traffic contract. The traffic descriptor parameters used for UPC conformance are

reflected in the *rxTrafficDescParms* of the connection. On some ATM cards, the counts of UPC violations are visible in the *Vcc*, *Vpc* or *Vpt rxUpcViolationsOnEnforcer1* or *rxUpcViolationsOnEnforcer2* attributes.

A value of ***monitored*** indicates that UPC is actively checking conformance for the connection and counting the violations, but is not discarding or tagging cells which do not conform to the connection traffic contract. The traffic descriptor parameters used for UPC conformance are reflected in the *rxTrafficDescParms* of the connection. The counts of UPC violations are visible in the *Vcc*, *Vpc* or *Vpt. rxUpcViolationsOnEnforcer1* or *rxUpcViolationsOnEnforcer2* attributes.

If the *atmServiceCategory* for this connection is ***availableBitRate***, a value of ***enforced*** indicates that Dynamic Generic Cell Rate Algorithm (DGCRA) is active for the connection. The traffic descriptor parameters used for DGCRA enforcement are reflected in the *rxTrafficDescParm* of the connection.

Values

enforced
disabled
monitored
notApplicable

Default

No default

## ATTRIBUTE AtmIf Vcc Tm txPacketWiseDiscard (txpd)

Access

Read only

Description

This attribute indicates the current set of packet-wise discard functions in effect in the transmit data direction at this connection point.

A value of ***ppd*** indicates that the Partial Packet Discard (PPD) function is in effect. PPD may be applied at an intermediate connecting point for a connection which is transporting frame traffic (AAL5 at the endpoint). PPD is controlled by provisioning for PVCs and SPVCs, and by call setup parameters in the AAL and Traffic Descriptor Information Elements.

A value of ***epd*** indicates that the Early Packet Discard (EPD) function is in effect at this connection point.

A value of ***wred*** indicates that Weighted Random Early Detection is in effect at this connection point. W-RED can be enabled by provisioning for PVCs and SPVCs.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, PPD and EPD are enabled by default at a connection endpoint which is performing AAL5 segmentation and assembly. Packet-wise functions are not applicable to virtual path connections (VPCs) on these cards.

On all other ATM cards, all packet-wise discard functions also apply to virtual path connections (VPCs).

This attribute is not applicable for *Vpt*s.

Set of
ppd
epd
wred

Default
No default

## ATTRIBUTE AtmIf Vcc Tm rxPacketWiseDiscard (rxpd)

Access
Read only

Description
This attribute indicates the current set of packet-wise discard functions in effect in the receive data direction at this connection point.

A value of ***ppd*** indicates that the Partial Packet Discard (PPD) function is in effect. PPD may be applied at an intermediate connecting point for a connection which is transporting frame traffic (AAL5 at the endpoint). PPD is controlled by provisioning for PVCs and SPVCs, and by call setup parameters in the AAL and Traffic Descriptor Information Elements.

A value of ***epd*** indicates that the Early Packet Discard (EPD)

function is in effect at this connection point. PPD and EPD are enabled by default at a connection endpoint which is performing AAL5 segmentation and assembly.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, packet-wise functions are not applicable to virtual path connections (VPCs).

For ***16pOC3PosAtm*** cards, PPD and EPD are enabled by default at a connection endpoint which is performing AAL5 segmentation and assembly.

On all other ATM cards, all packet-wise discard functions also apply to virtual path connections (VPCs).

This attribute is not applicable for *Vpt*s.

Set of — ppd
epd

Default — No default

### ATTRIBUTE AtmIf Vcc Tm bandwidthElastic (bwElastic)

Access — Read only

Description — This attribute is only of importance for connections which are carried on a link with a variable bandwidth. For example, the bandwidth may be reduced in the event that one or more physical links in the IMA group fail, such that the originally requested bandwidth cannot be maintained. This attribute shows whether the application (for example, *Trunk*) running on this connection can continue to operate if the bandwidth is reduced. If the bandwidth is reduced, the amount by which it is reduced is displayed in the *bandwidthReduction* attribute.

A value of ***yes***, indicates that this connection is elastic, and the bandwidth may be reduced but the connection is not released.

A value of ***no*** indicates that the bandwidth for this connection is not reduced in the event of link bandwidth reduction. However,

this connection may be released based on its *holdingPriority*.

Bandwidth elasticity has no effect for connections which have an equivalent cell rate (ECR) of zero.

This attribute is not applicable for *Vpt*s and *Vpt Vcc*s.

Values
no
yes

Default
No default

## ATTRIBUTE AtmIf Vcc Tm bandwidthReduction (bwReduction)

Access
Read only

Description
This attribute shows the amount by which the bandwidth has been reduced for this connection. This value is non-zero only for connections which have *bandwidthElastic* displayed as ***yes***, and which are also operating in a reduced bandwidth mode. This is typically the case for selected connections running over an IMA link. This attribute takes a value from 0 (no reduction) up to the ECR. For all connections which are running at their full allocated bandwidth, *bwReduction* has the value 0. Connections which have been reduced in allocated bandwidth have a positive number for this attribute. The *bwReduction* may be subtracted from the ECR (which is displayed as *txTrafficDescParm* 5) to determine the actual bandwidth allocated to this connection.

Values
Decimal (0..2147483647)

Units
cell/s

Default
No default

## ATTRIBUTE AtmIf Vcc Tm abrConnectionType (abrType)

Access
Read only

Description
This attribute indicates the type of ABR behavior which is in effect at this connection. This attribute is only applicable if the *atmServiceCategory* attribute is ***availableBitRate***. If the *atmServiceCategory* attribute is not ***availableBitRate***, this attribute value is set to ***notApplicable***.

For ATM cards which do not support ABR connections, the possible values for this attribute are ***notApplicable***, ***efciSwitch***, or ***nonAbrInterworking***. In EFCI marking mode, the Explicit Forward Congestion Indication (EFCI) field in the data cell headers is used to indicate transmit queue congestion.

For ATM cards which do support ABR connections, if the *connectionPointType* is ***connectionEndPoint***, the value of this attribute is ***sourceDest***. In this mode, the ABR Source and Destination behavior is in effect at this connection. This attribute is also ***sourceDest*** in the case where the next hop connection is specified as ***nonAbrInterworking***. The next hop connection is the *Vcc* or *Vpc* identified by the *nextHop* attribute of the *Nrp* or *Rp* component.

If the *connectionPointType* is not ***connectionEndPoint***, the value of this attribute depends upon the *abrConnectionType* provisioning and the card type to which the traffic is forwarded on the backplane. The default *abrConnectionType* is provisioned at the *CA Abr abrConnectionType* attribute, and may be overridden for a provisioned connection in the *Vcd Tm abrConnectionType* or *Vpd Tm abrConnectionType* attribute. If the *CA Abr abrConnectionType* attribute is ***virtualSourceDest*** at either one of the two connection points, and if both the connection points are defined on ATM cards which support ABR connections, virtual source and destination behavior is applied to the connection. In this instance, the attribute displays the value ***virtualSourceDest***.

This attribute has the value ***erSwitch*** if ABR explicit rate functionality is in effect at this connection. In this mode, the switch may modify the Explicit Rate (ER) field of backward Resource Management (RM) cells to indicate the status of congestion at this connection point.

This attribute has the value ***nonAbrInterworking*** in the case where this connection point is functioning as an SPVC origin for an ABR connection where the link side of this connection is configured as a non-ABR ATM service category. This means that there are no RM cells on the link side of this connection, and that

the next hop connection point is performing as an ABR ***sourceDest***.

Values

erSwitch
efciSwitch
virtualSourceDest
sourceDest
nonAbrInterworking
notApplicable

Default

No default

## ATTRIBUTE AtmIf Vcc Tm txTrafficDescParm (txTdp)

Access

Read only

Description

This attribute is a vector of five transmit traffic parameters whose mapping is defined by the *txTrafficDescType* attribute.

The values of peak cell rate (PCR), sustained cell rate (SCR), Minimum Cell Rate (MCR), actual cell rate (ACR), explicit rate (ER), equivalent cell rate (ECR), and actual shaping rate are expressed in cell/s. Maximum burst size (MBS) is expressed in cells. CDVT is expressed in microseconds.

When *txTrafficDescType* is 1 or 2, parameters 1 through 5 are unused.

In this description, PCR is the greater of either the PCR or the requested shaping rate (parameter 1 or parameter 5) specified in the *txTrafficDescParm* attribute under the *Vcd Tm* or *Vpd Tm* component.

When *txTrafficDescType* is 3, parameter 1 represents the PCR for CLP equal to 0 or 1 traffic; parameters 2 and 3 are unused.

When *txTrafficDescType* is 4, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the PCR for CLP equal to 0 traffic with cell discard.

When *txTrafficDescType* is 5, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the PCR for

CLP equal to 0 traffic with cell tagging.

When *txTrafficDescType* is 6, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 and 1 traffic; parameter 3 represents the MBS for CLP equal to 0 and 1 traffic.

When *txTrafficDescType* is 7, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 traffic with cell discard; parameter 3 represents the MBS for CLP equal to 0 traffic.

When *txTrafficDescType* is 8, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 traffic with cell tagging; parameter 3 represents the MBS for CLP equal to 0 traffic.

When *txTrafficDescType* is 3, 4, 5, 6, 7, or 8, parameter 4 reflects the actual shaping rate in cell/s for this connection. For CQC-based ATM cards, the set of available shaping rates is based on the number of interfaces doing shaping (attribute *perVcQueueInterfaces*), and the *shapingScalingFactor* attribute of the *Arc Cqc Override* component. A rate of zero (0) indicates that shaping is not performed, or that the interface is down.

When *txTrafficDescType* is 9**,** parameter 1 represents the PCR; parameter 2 represents the Cell Delay Variation Toleration (CDVT); parameter 3 represents the Minimum Cell Rate (MCR); the meaning of parameter 4 depends upon the value of the *abrConnectionType* attribute. if *abrConnectionType* is ***sourceDest*** or ***virtualSourceDest***, parameter 4 represents the Allowed Cell Rate (ACR); If *abrConnectionType* is ***erSwitch***, parameter 4 represents the Explicit Rate (ER); and if *abrConnectionType* is ***efciSwitch***, parameter 4 reflects the actual shaping rate in cell/s for this connection.

When *txTrafficDescType* is 3, 4, 5, 6, 7, 8, or 9, parameter 5 reflects the equivalent cell rate in cell/s for this connection as determined by the Connection Admission Control (CAC)

algorithm. The equivalent cell rate is useful in determining the admission characteristics of this connection.

| | |
|---|---|
| Vector of | Decimal (0..2147483647) |
| Index | Decimal (1..5) |
| Default | No default |

### ATTRIBUTE AtmIf Vcc Tm txQueueThresholds (txQThresh)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the queue limit and the discard thresholds for the transmit queue of this connection.<br><br>If this connection has *unshapedTransmitQueueing* attribute displayed as ***common***, this attribute displays the thresholds of the common queue. If this connection has *unshapedTransmitQueueing* attribute displayed as ***perVc*** or as ***notApplicable***, this attribute displays the thresholds of the per-VC queue.<br><br>The first element indicates the queue limit. The provisioned value of the transmit queue limit is derived from the *txQueueLimit* attribute under the service category subcomponents of the *CA* component for the service category of this connection.<br><br>The second element is the threshold that marks the transition from congestion state 1 to congestion state 0. This is the threshold at which traffic with discard priority (DP) = 1 is discarded. This threshold is set at approximately 90 percent of the first parameter, the operational queue limit.<br><br>The third element is the threshold that marks the transition from congestion state 2 to congestion state 1. This is the threshold at which traffic with DP = 2 is discarded. This threshold is set at approximately 75 percent of the first parameter, the operational queue limit.<br><br>The fourth element is the threshold that marks the transition from congestion state 3 to congestion state 2. This is the threshold at which traffic with DP = 3 is discarded. This threshold is set at |

approximately 35 percent of the first parameter, the operational queue limit.

For ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, this attribute displays the thresholds of the link class queue used by this connection to buffer it traffic.

This attribute does not apply to basic *Vpt*s.

| | |
|---|---|
| Vector of | Decimal (0..512000) |
| Units | cells |
| Index | Decimal (0..3) |
| Default | No default |

### ATTRIBUTE AtmIf Vcc Tm rxTrafficDescParm (rxTdp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is a vector of four traffic parameters whose meanings are defined by the *rxTrafficDescType* attribute. The values of peak cell rate (PCR), sustained cell rate (SCR), minimum cell rate (MCR) are expressed in cell/s. Maximum burst size (MBS) is expressed in cells. Cell delay variation tolerance (CDVT) is expressed in microseconds.<br><br>When *rxTrafficDescType* is 1 or 2, none of the parameters are used.<br><br>When *rxTrafficDescType* is 3, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 4 represents the CDVT.<br><br>When *rxTrafficDescType* is 4, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the PCR for CLP equal to 0 traffic with cell discard; parameter 4 represents the CDVT.<br><br>When *rxTrafficDescType* is 5, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the PCR for CLP equal to 0 traffic with cell tagging; parameter 4 represents the CDVT. |

When *rxTrafficDescType* is 6, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 and 1 traffic; parameter 3 represents the MBS for CLP equal to 0 and 1 traffic; parameter 4 represents the CDVT.

When *rxTrafficDescType* is 7, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 traffic with cell discard; parameter 3 represents the MBS for CLP equal to 0 traffic; parameter 4 represents the CDVT.

When *rxTrafficDescType* is 8, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 traffic with cell tagging; parameter 3 represents the MBS for CLP equal to 0 traffic; parameter 4 represents the CDVT.

When *rxTrafficDescType* is 9, parameter 1 represents the PCR; parameter 2 represents CDVT; parameter 3 represents the MCR; parameter 4 is not used.

If *upc* is ***disabled*** for this connection, the values of PCR, SCR, MBS and CDVT are the provisioned parameters.

If *upc* is ***enabled***, the values of PCR, SCR, MBS, and CDVT are exactly the values used by the usage parameter control hardware in policing the arriving traffic. These may vary slightly from the provisioned values due to granularity of the hardware. In the case where the PCR is equal to the SCR, the effective MBS is zero.

| | |
|---|---|
| Vector of | Decimal (0..2147483647) |
| Index | Decimal (1..4) |
| Default | No default |

### ATTRIBUTE AtmIf Vcc Tm txQosParameters (tqp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is a vector of three elements that indicate the quality of service parameters for the forward direction for this |

connection. This attribute is used for SPVC and SVC connections on a PNNI interface.

The ***cdv*** element indicates the acceptable peak-to-peak Cell Delay Variation (CDV) of real-time connections (CBR and rt-VBR).

The ***ctd*** element indicates the acceptable maximum Cell Transfer Delay (maxCtd) of real-time connections (CBR and rt-VBR).

The ***clr*** element indicates the acceptable Cell Loss Ratio (CLR) of CBR, rt-VBR, and nrt-VBR connections.

| | |
|---|---|
| Vector of | Decimal (0..2147483647) |
| Index | cdv<br>ctd<br>clr |
| Default | No default |

### ATTRIBUTE AtmIf Vcc Tm rxQosParameters (rqp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is a vector of three elements that indicate the quality of service parameters for the backward direction for this connection. This attribute is used for SPVC and SVC connections on a PNNI interface.<br><br>The ***cdv*** element indicates the acceptable peak-to-peak Cell Delay Variation (CDV) of real-time connections (CBR and rt-VBR).<br><br>The ***ctd*** element indicates the acceptable maximum Cell Transfer Delay (maxCtd) of real-time connections (CBR and rt-VBR).<br><br>The ***clr*** element indicates the acceptable Cell Loss Ratio (CLR) |

of CBR, rt-VBR, and nrt-VBR connections.

| | |
|---|---|
| Vector of | Decimal (0..2147483647) |
| Index | cdv<br>ctd<br>clr |
| Default | No default |

## COMPONENT AtmIf Vcc Tm AvailableBitRate (Abr)

| | |
|---|---|
| Groups | "GROUP AtmIf Vcc Tm Abr Operational (Oper)" |
| Scope | Device |
| Description | *AtmIf/n Vpc/vpi Tm AvailableBitRate,*<br>*AtmIf/n Vcc/vpi.vci Tm AvailableBitRate,*<br>*AtmIf/n Vpt/vpi Tm AvailableBitRate,*<br>*AtmIf/n Vpt/vpi Vcc/vci Tm AvailableBitRate*<br>This component contains ABR-related operational attributes of a connection. It is dynamically created for connections where the value of the *atmServiceCategory* attribute is ***availableBitRate***, and where the value of the *abrConnectionType* attribute is ***sourceDest***, or ***virtualSourceDest***. |
| Common Verbs | Help<br>List<br>Display |

## GROUP AtmIf Vcc Tm Abr Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational attributes for connections using ABR service category. |

## ATTRIBUTE AtmIf Vcc Tm Abr initialCellRate (icr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Initial Cell Rate (ICR) parameter for this connection. ICR is the rate at which a source should send initially and after an idle period. |

For nailed-up connections, this attribute is determined by the provisioned value of the *initialCellRate* attribute. For signaled connections, it is indicated in the ABR Setup Parameters Information Element.

The ICR for a connection is a value between the MCR and the PCR. Furthermore, ICR has an upper bound determined by the *transientBufferExposure* divided by *fixedRoundTripTime*.

Values: Decimal (0..16777215)

Units: cell/s

Default: No default

### ATTRIBUTE AtmIf Vcc Tm Abr transientBufferExposure (tbe)

Access: Read only

Description: This attribute indicates the Transient Buffer Exposure (TBE) for this connection. TBE is the negotiated number of cells that the network would like to limit the resource to send during start-up periods, before the first Resource Management (RM) cell returns.

For nailed-up connections, this attribute is determined by the provisioned value of the *transientBufferExposure* attribute. For signaled connections, it is indicated in the ABR Setup Parameters Information Element.

Values: Decimal (0..16777215)

Units: cells

Default: No default

### ATTRIBUTE AtmIf Vcc Tm Abr fixedRoundTripTime (frtt)

Access: Read only

Description: This attribute indicates the Fixed Round-Trip Time (FRTT) parameter for this connection. FRTT is the sum of the fixed and propagation delays from the source to a destination and back.

For nailed-up connections, this attribute is determined by the

provisioned value of the *fixedRoundTripTime* attribute. For signaled connections, it is indicated in the ABR Setup Parameters Information Element.

Values: Decimal (0..16700000)

Units: microsec

Default: No default

### ATTRIBUTE AtmIf Vcc Tm Abr rateDecreaseFactor (rdf)

Access: Read only

Description: This attribute indicates the Rate Decrease Factor (RDF) for this connection. The RDF value is computed by using the operational value of this attribute, n, as 2 to the inverse power n. For example, if the value of this attribute is 8, RDF is 2E-8 = 1/256.

RDF controls the amount by which the cell transmission rate may decrease upon receipt of a backward Resource Management (RM) cell. For example, if a backward RM cell is received with the Congestion Indication (CI) field set to 1, the Allowed Cell Rate (ACR) value would be reduced by the amount (RDF*ACR). The ACR is not allowed to fall below the Minimum Cell Rate (MCR), in which case the ACR is set to MCR.

For nailed-up connections, this attribute is determined by the provisioned value of the *rateDecreaseFactor* attribute. For signaled connections, it is indicated in the ABR Setup Parameters Information Element.

Values: Decimal (0..15)

Default: No default

### ATTRIBUTE AtmIf Vcc Tm Abr rateIncreaseFactor (rif)

Access: Read only

Description: This attribute indicates the Rate Increase Factor (RIF) for this connection. The RIF value is computed by using the operational value of this attribute, n, as 2 to the inverse power n. For example, if the value of this attribute is 6, RIF is 2E-6 = 1/64.

RIF controls the amount by which the cell transmission rate may increase upon receipt of a backward Resource Management (RM) cell. For example, if a backward RM cell is received with the Congestion Indication (CI) and the No Increase (NI) fields both set to 0, the Allowed Cell Rate (ACR) value would be increased by the amount (RIF*ACR). The ACR is not allowed to exceed the Peak Cell Rate (PCR), in which case the ACR is set to PCR.

For nailed-up connections, this attribute is determined by the provisioned value of the *rateIncreaseFactor* attribute. For signaled connections, it is indicated in the ABR Setup Parameters Information Element.

Values: Decimal (0..15)

Default: No default

### ATTRIBUTE AtmIf Vcc Tm Abr maxCellPerRmCell (nrm)

Access: Read only

Description: This attribute indicates the maximum number of cells an ABR source may transmit for each forward Resource Management (RM) cell. The count of the cells transmitted includes data cells, OAM cells, backward RM cells, and the forward RM cell.

For nailed-up connections, this attribute is determined by the provisioned value of the *maxCellsPerRmCell* attribute. For signaled connections, it is indicated in the ABR Additional Parameters Information Element.

Values: Decimal (2; 4; 8; 16; 32; 64; 128; 256)

Units: cells

Default: No default

### ATTRIBUTE AtmIf Vcc Tm Abr maxTimeBetweenRmCell (trm)

Access: Read only

Description: This attribute indicates the TRM parameter for this connection.

TRM provides an upper bound on the time interval between forward Resource Management (RM) cells for an ABR source.

Since the last forward RM cell was sent, if at least TRM time has elapsed since and at least 2 other cells have been sent, the next cell to be transmitted would be a forward RM cell.

For nailed-up connections, this attribute is determined by the provisioned value of the *maxTimeBetweenRmCell* attribute. For signaled connections, it is indicated in the ABR Additional Parameters Information Element.

Values: Decimal (781; 1563; 3125; 6250; 12500; 25000; 50000; 100000)

Units: microsec

Default: No default

## ATTRIBUTE AtmIf Vcc Tm Abr cutoffDecreaseFactor (cdf)

Access: Read only

Description: This attribute indicates the Cutoff Decrease Factor (CDF) parameter for this connection. When the value of this attribute is non-zero, CDF is computed as the inverse of the value. For example, if the value is 32, the value of CDF is 1/32. When the value of this attribute is 0, CDF is also zero.

CDF controls the decrease in the Allowed Cell Rate (ACR) associated with the *forwardRmCellLimit* attribute, the limit of the number of forward Resource Management (RM) cells which may be sent in the absence of received backward RM cells. When this limit is crossed, the ACR value would be decreased by the amount (CDF*ACR). The ACR is not allowed to fall below the Minimum Cell Rate (MCR), in which case the ACR is set to MCR.

For nailed-up connections, this attribute is determined by the provisioned value of the *cutoffDecreaseFactor* attribute. For signaled connections, it is indicated in the ABR Additional Parameters Information Element.

Values: Decimal (0; 1; 2; 4; 8; 16; 32; 64)

Default: No default

### ATTRIBUTE AtmIf Vcc Tm Abr acrDecreaseTimeFactor (adtf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Allowed Cell Rate Decrease Time Factor (ADTF) parameter for this connection.<br><br>ADTF is the time interval permitted between sending forward Resource Management (RM) cells before the Allowed Cell Rate (ACR) is decreased to *initialCellRate*. In other words, if the source does not transit a forward RM cell for the period specified by *adtf*, it reduces its ACR to the value of its *initialCellRate*.<br><br>For nailed-up connections, this attribute is determined by the provisioned value of the *acrDecreaseTimeFactor* attribute. For signaled connections, it is indicated in the ABR Additional Parameters Information Element. |
| Values | Decimal (0..1023) |
| Units | centiseconds |
| Default | No default |

### ATTRIBUTE AtmIf Vcc Tm Abr forwardRmCellLimit (crm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the CRM parameter for this connection.<br><br>CRM is the limit of the number of forward Resource Management (RM) cells which may be sent in the absence of received backward RM cells. When this limit is crossed, the Allowed Cell Rate (ACR) value would be decreased by the amount (CDF*ACR), where CDF is determined by the *cutoffDecreaseFactor*. The ACR is not allowed to fall below the Minimum Cell Rate (MCR), in which case the ACR is set to MCR.<br><br>The value of CRM is obtained as *transientBufferExposure* divided by *maxCellsPerRmCell*. |
| Values | Decimal (1; 3; 7; 15; 31; 63; 127; 255; 511; 1023; 2047; 4095) |

| | |
|---|---|
| Units | cells |
| Default | No default |

### ATTRIBUTE AtmIf Vcc Tm Abr txRateChangeInfo (txrci)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the rate change information put into the last forward Resource Management (RM) cell turned around as a backward-RM cell. For connections configured as an ABR Source or Destination, the turned around backward-RM cell is sent over the interface. For connections configured as an ABR Virtual Source or Virtual Destination, the turned around backward-RM cell is sent over the backplane. |
| Values | congestionIndicated<br>noIncreaseIndicated<br>explicitRateIndicated |
| Default | No default |

### ATTRIBUTE AtmIf Vcc Tm Abr acrRateChangeInfo (arci)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the type of change in the Allowed Cell Rate (ACR) as a result of the information in the last backward Resource Management (B-RM) cell received from the interface.<br><br>This attribute value is only applicable when the *Vcc Tm* or *Vpc Tm abrConnectionType* attribute is ***sourceDest*** or ***VirtualSourceDest***. In all other cases, this attribute value is ***notApplicable***.<br><br>A value of ***noChange*** indicates that the rate did not change as a result of the last backward RM cell received.<br><br>A value of ***decreasedByRdf*** or ***increasedByRif*** indicates that the ACR was increased or decreased by the corresponding factor. This change is as a result of the CI or NI bit setting in the last backward RM cell, or an ADTF timeout. |

A value of ***setToExplicitRate*** indicates that the ACR was set to the ER value in the last backward RM cell.

Values
noChange
decreasedByRdf
increasedByRif
setToExplicitRate
notApplicable

Default
No default

### ATTRIBUTE AtmIf Vcc Tm Abr txFwdRmCells

Access
Read only

Description
This attribute counts the number of forward Resource Management (RM) cells sent over the interface since the last backward RM-cell was received from the interface. If the value of this attribute is greater than or equal to the value of *forwardRmCellLimit*, the Allowed Cell Rate (ACR) value would be decreased by the amount (CDF*ACR), where CDF is determined by the *cutoffDecreaseFactor.*

This counter is reset to zero each time a backward-RM cell is received.

This counter does not wrap to zero if it reaches its maximum value of 4095 in order to indicate that no backward RM cell has been received.

Values
Decimal (0..4095)

Units
cells

Default
No default

### ATTRIBUTE AtmIf Vcc Tm Abr rxEfci

Access
Read only

Description
This attribute indicates the value of the Explicit Forward Congestion Indication (EFCI) bit of the last data cell received from the interface.

When a forward Resource Management (RM) cell is turned

around as a backward-RM cell, the Congestion Indication (CI) field of the backward-RM cell is set to 1, if the value of this attribute is ***indicated***.

This attribute is set to ***notIndicated*** each time a backward-RM cell is transmitted.

Values: notIndicated
indicated

Default: No default

## COMPONENT AtmIf Vcc SourcePvc (Src)

Groups: "GROUP AtmIf Vcc Src Provisioned (Prov)"
"GROUP AtmIf Vcc Src Operational (Oper)"
"GROUP AtmIf Vcc Src OsiState (State)"

Scope: Device

Description: *AtmIf/n Vcc/vpi.vci SrcPvc*
*AtmIf/n Vpt/vpi Vcc/vci SrcPvc*

This component represents the source end of a soft PVC.

Opt. Subcomp.: "COMPONENT AtmIf Vcc Src ManualDtl (Mdtl)"
"COMPONENT AtmIf Vcc Src RerouteOverride (RerOv)"

Common Verbs:
Help
List
Display
Add
DELete
LOCK
Unlock

## GROUP AtmIf Vcc Src Provisioned (Prov)

Properties: Provisioned

Description: This attribute group contains the provisionable attributes of the *SourcePvc* component.

### ATTRIBUTE AtmIf Vcc Src callingAddress

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute represents the calling address of the soft PVC. If it is<br>a null string, then the calling address is the address of the current interface (that is, where the soft PVC originates). |
| Values | String (0..20, Hex) |
| Default | "" |

### ATTRIBUTE AtmIf Vcc Src calledAddress

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute represents the called (remote) address of the soft PVC. |
| Values | String (20, Hex) |
| Default | No default |

### ATTRIBUTE AtmIf Vcc Src calledVpiVci

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute represents the remote VPI and VCI of the soft PVC. |
| Values | Integer Sequence (0..4095; 1..65535) |
| Default | No default |

## ATTRIBUTE AtmIf Vcc Src adminControl

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the initial state of the connection.<br><br>If this attribute is set to ***permLocked***, the connection initially remains down following activation.<br>Setting this attribute to ***unlocked*** causes the connection to be established when it is activated. |
| Values | permLocked<br>unlocked |
| Default | unlocked |

## ATTRIBUTE AtmIf Vcc Src aisGeneration (ais)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether OAM-AIS generation occurs on the connection towards this interface when the SPVC is down.<br><br>If this attribute is ***enabled***, OAM-AIS cells are generated for this SPVC when the SPVC is not up.<br><br>The only exception is that when the source SPVC attribute *adminControl* is set to ***permLocked***, OAM-AIS cells are not generated for the source SPVC.<br><br>If this attribute is set to ***disabled***, OAM-AIS cells are not generated. |
| Values | enabled<br>disabled |
| Default | disabled |

## GROUP AtmIf Vcc Src Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains the operational attributes associated with the *SrcPvp* or *SrcPvc* component. |

### ATTRIBUTE AtmIf Vcc Src retryCount

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of failed attempts to set up the soft PVP or soft PVC since the last time the connection failed. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE AtmIf Vcc Src lastFailureCauseCode

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute contains the cause code in the last transmitted signaling message that contains the CAUSE information element. The cause code is used to describe the reason for generating certain signaling messages.<br>The default value for this attribute is set to 0. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE AtmIf Vcc Src lastFailureDiagCode

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute contains the diagnostic code in the last transmitted signaling message. The diagnostic code is contained in the CAUSE information element and identifies an information element type or timer type. The diagnostic code is present only if a procedural error is detected by the signaling protocol. A diagnostic code is always accompanied by the cause code. If there is no failure, this attribute is set to NULL. |
| Values | String (0..8, ASCII) |
| Default | No default |

## GROUP AtmIf Vcc Src OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

## ATTRIBUTE AtmIf Vcc Src adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

## ATTRIBUTE AtmIf Vcc Src operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component. |

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE AtmIf Vcc Src usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### COMPONENT AtmIf Vcc Src ManualDtl (Mdtl)

Groups
"GROUP AtmIf Vcc Src Mdtl Provisioned (Prov)"
"GROUP AtmIf Vcc Src Mdtl Operational (Oper)"

Scope
Device

Description

*AtmIf/n Vcc/vpi.vci SrcPvc ManualDtl*
*AtmIf/n Vpc/vpi SrcPvp ManualDtl*
*AtmIf/n Vpt/vpi Vcc/vci SrcPvc ManualDtl*

This component represents the ability to specify the PNNI path on a per connection basis for provisioned SPVC and SPVP connections.

The addition or deletion of this component is critical to the parent SPVC or SPVP. Changes to the attributes contained under this component are not critical.

Common Verbs

Help
List
Display
Add
DELete

### VERB REConnect AtmIf Vcc Src Mdtl

Impact

Service

Description

*REConnect AtmIf/n Vcc/vpi.vci Src Mdtl*
*REConnect -primary AtmIf/n Vcc/vpi.vci Src Mdtl*
*REConnect -alternate AtmIf/n Vcc/vpi.vci Src Mdtl*
*REConnect -automatic AtmIf/n Vcc/vp.vci Src Mdtl*

This command is used to trigger a connection to attempt to connect using the requested path. By default, the primary path is used. Using the *Reconnect* command will result in service disruptions when a connection is moved to a new path.

### GROUP AtmIf Vcc Src Mdtl Provisioned (Prov)

Properties

Provisioned

Description

This group contains the provisionable attributes for the Manual DTL selection paths for provisioned connections.

The normal sequence for connection retry is:
First try to establish the connection using the *primaryPath*. If the connection is not successful and if the *alternatePath* has been

provisioned, try to connect using the *alternatePath*. If the connection is still unsuccessful, use the PNNI routing protocol to generate the path.

### ATTRIBUTE AtmIf Vcc Src Mdtl primaryPath (priPath)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the name of the primary MDTL path. The value must match the instance value of one of the *Mdtl* components under *Artg Pnni*. |
| Values | String (1..32, ASCII) |
| Default | No default |

### ATTRIBUTE AtmIf Vcc Src Mdtl alternatePath (altPath)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the name of the alternate MDTL path. The value must match the instance value of one of the *Mdtl* components under *Artg Pnni*. An empty string disables the alternate path. |
| Values | String (0..32, ASCII) |
| Default | No default |

### ATTRIBUTE AtmIf Vcc Src Mdtl automaticFallback (auto)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether PNNI routing is to be used to establish a connection if connection attempts using the primary and alternate paths fail. If the value is ***enable***, PNNI routing will be attempted; if the value is ***disable***, it will not. |
| Values | disable<br>enable |
| Default | enable |

### GROUP AtmIf Vcc Src Mdtl Operational (Oper)

| | |
|---|---|
| Properties | Operational |

Description This attribute group contains the operational attributes associated with the *atmSrcMdtl* component

### ATTRIBUTE AtmIf Vcc Src Mdtl currentPath (curPath)

Access
Read: All
Write: Illegal

Description This attribute indicates the current connection status of the MDTL connection.

A ***not connected*** status indicates that the connection is not established. The retry sequence did not succeed. The network operator can issue the *Reconnect* command to restart the retry sequence.
A ***primary*** status indicates that the connection is using the path specified by the *primaryPath* attribute.
An ***alternate*** status indicates that the connection is using the path specified by the *alternatePath* attribute.
An ***automatic*** status indicates that the connection is using the path generated by the PNNI routing protocol.
A ***waiting connection*** status indicates that the connection is in a retry phase.

Values
not connected
primary
alternate
automatic
waiting connection

Default "not connected"

### ATTRIBUTE AtmIf Vcc Src Mdtl primaryPathFailCause (priPathFail)

Access
Read: All
Write: Illegal

Description This attribute indicates the last failure cause code for the primary path. The value is reset to zero when trying to re-establish the connection.

Values Decimal (0..255)

Default No default

## ATTRIBUTE AtmIf Vcc Src Mdtl alternatePathFailCause (altPathFail)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the last failure cause code for the alternate path. The value is reset to zero when trying to re-establish the connection. |
| Values | Decimal (0..255) |
| Default | No default |

## COMPONENT AtmIf Vcc Src RerouteOverride (RerOv)

| | |
|---|---|
| Groups | "GROUP AtmIf Vcc Src RerOv Provisioned (Prov)" |
| Scope | Device |
| Description | *AtmIf/n Vcc/vpi.vci SrcPvc RerouteOverride*<br>*AtmIf/n Vpc/vpi SrcPvp RerouteOverride*<br>*AtmIf/n Vpt/vpi Vcc/vci SrcPvc RerouteOverride*<br>*FrAtm/n Dlci/x Siwf RerouteOverride*<br><br>This component represents the ability to override rerouting capability subscription options on a per connection basis for provisioned SPVC and SPVP connections.<br><br>The addition of this component and changes to the attributes contained in this component are critical to the parent SPVC or SPVP. However, the deletion of this component is not a critical change for the connection. If this component is deleted, the connection remains active with the last provisioned subscription options. Subscription is lost when the connection goes down and re-establishes. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## VERB OPTIMIZE AtmIf Vcc Src RerOv

| | |
|---|---|
| Impact | Service |
| Description | *OPTimize AtmIf/n Vcc/<vpi.vci> Src RerOv*<br>*OPTimize AtmIf/n Vpc/<vpi> Src RerOv*<br>*OPTimize AtmIf/n Vpt/<vpi> Vcc/<vci> Src RerOv*<br>*OPTimize FrAtm/n Dlci/x Siwf RerOv*<br><br>This command triggers path optimization for the connection segment. If the interface is already processing a path optimization request, then the *Optimize* command is cancelled.<br><br>Using the *Optimize* command results in service disruptions when connection segments are moved to a better path. Care should be exercised when using this command. It is recommended that the command be used during maintenance windows. |

## GROUP AtmIf Vcc Src RerOv Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes related to rerouting subscription options for provisioned connections. |

## ATTRIBUTE AtmIf Vcc Src RerOv protocol

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the rerouting protocols which are requested by the connection segment. A subset of the requested protocols is granted by the last rendezvous node, according to its software level and provisioning.<br><br>One of the following values can be specified:<br>***sameAsInterface***: The requested rerouting protocols are specified by the *protocol* attribute under the *Reroute Ov* component for the interface.<br>***localGlobal***: Local and global rerouting protocols are requested. Local and global rerouting are granted if the DTL terminator is provisioned with the Rerouting feature.<br>***localOnly***: Local rerouting is requested. This value guarantees interoperability with other vendors' equipment running the ATM Forum "Domain Based Rerouting" protocol. Local rerouting is |

granted if the DTL terminator is provisioned with the Rerouting feature.
***globalOnly***: Global rerouting is requested. Global rerouting is granted if the DTL terminator is provisioned with the Rerouting feature.
***localEbr*:** Local and EBR rerouting protocols are requested. Local rerouting is granted if the DTL terminator is provisioned with the Rerouting feature. Alternatively, EBR is granted if the DTL terminator is provisioned with the EBR feature.
***ebrOnly***: EBR is requested. EBR is granted if the DTL terminator is provisioned with the EBR feature.

Values
localGlobal
localOnly
globalOnly
localEbr
ebrOnly
sameAsInterface (sameAs)

Default
sameAsInterface

## ATTRIBUTE AtmIf Vcc Src RerOv localConnectionRecoverySubscr (lRecSub)

Access
Read and write

Description
This attribute specifies whether the connection segment requests subscription to local connection recovery. This attribute only affects connection segments that request the local rerouting protocols. This attribute affects connection segments for a node that is either local domain rerouting node or a DTL originator.

If the connection segment requests ***localGlobal*** or ***localOnly*** protocols, this attribute controls local connection recovery subscription.

If the connection segment requests ***localEbr***, this attribute controls the local connection recovery subscription. Only one will be granted.

One of the following values can be specified:
***sameAsInterface***: The subscription rule is determined by the *localConnectionRecoverySubscr* attribute under the *Reroute Ov* component for the interface. If the attribute specifies the

***sourceSpvcSpvp*** value, the connection segment requests subscription to local connection recovery, otherwise the connection segment does not request subscription.
***yes:*** The connection segment requests subscription to local connection recovery.
***no***: The connection segment does not request subscription to local connection recovery.

Values
no
yes
sameAsInterface (sameAs)

Default
sameAsInterface

## ATTRIBUTE AtmIf Vcc Src RerOv localPathOptimizationSubscr (lOptSub)

Access
Read and write

Description
This attribute specifies whether the connection segment requests subscription to local connection recovery. This attribute only affects connection segments that request the local rerouting protocols. This attribute affects connection segments for a node that is either local domain rerouting node or a DTL originator.

If the connection segment requests ***localGlobal*** or ***localOnly*** protocols, this attribute controls local path optimization subscription.

If the connection segment requests ***localEbr***, this attribute controls the local path optimization subscription. Only one will be granted.

One of the following values can be specified:
***sameAsInterface***: The subscription rule is determined by the *localPathOptimizationSubscr* attribute under the *Reroute Ov* component for the interface. If the attribute specifies the ***sourceSpvcSpvp*** value, the connection segment requests subscription to local path optimization, otherwise the connection segment does not request subscription.
***yes:*** The connection segment requests subscription to local path optimization.
***no***: The connection segment does not request subscription to local path optimization.

Values
no
yes
sameAsInterface (sameAs)

Default
sameAsInterface

### ATTRIBUTE AtmIf Vcc Src RerOv globalConnectionRecoverySubscr (gRecSub)

Access
Read and write

Description
This attribute specifies whether the connection segment requests subscription to global or EBR connection recovery. This attribute only affects connection segments that request the global or EBR rerouting protocols. This attribute affects connection segments for a node that is a DTL originator.

If the connection segment requests ***ebrOnly***, this attribute controls EBR connection recovery subscription.

If the connection segment requests ***localEbr***, this attribute controls the EBR connection recovery subscription. Only one will be granted.

One of the following values can be specified:
***sameAsInterface***: The subscription rule is determined by the *globalConnectionRecoverySubscr* attribute under the *Reroute Ov* component for the interface. If the attribute specifies the ***sourceSpvcSpvp*** value, the connection segment requests subscription to global or EBR connection recovery, otherwise the connection segment does not request subscription.
***yes:*** The connection segment requests subscription to global or EBR connection recovery.
***no***: The connection segment does not request subscription to global or EBR connection recovery.

Values
no
yes
sameAsInterface (sameAs)

Default
sameAsInterface

### ATTRIBUTE AtmIf Vcc Src RerOv globalPathOptimizationSubscr (gOptSub)

Access
Read and write

| | |
|---|---|
| Description | This attribute specifies whether the connection segment requests subscription to global or EBR path optimization. This attribute only affects connection segments that request the global or EBR rerouting protocols. This attribute affects connection segments for a node that is a DTL originator.<br><br>If the connection segment requests ***ebrOnly***, this attribute controls EBR path optimization subscription.<br><br>If the connection segment requests ***localEbr***, this attribute controls the EBR path optimization subscription. Only one will be granted.<br><br>One of the following values can be specified:<br>***sameAsInterface***: The subscription rule is determined by the *globalPathOptimizationSubscr* attribute under the *Reroute Ov* component for the interface. If the attribute specifies the ***sourceSpvcSpvp*** value, the connection segment requests subscription to global or EBR path optimization, otherwise the connection segment does not request subscription.<br>***yes:*** The connection segment requests subscription to global or EBR path optimization.<br>***no***: The connection segment does not request subscription to global or EBR path optimization. |
| Values | no<br>yes<br>sameAsInterface (sameAs) |
| Default | sameAsInterface |

## COMPONENT AtmIf Vcc EndPoint (Ep)

| | |
|---|---|
| Groups | "GROUP AtmIf Vcc Ep Operational (Oper)" |
| Scope | Device |
| Description | *AtmIf/n Vcc/vpi.vci Ep*<br>*AtmIf/n Vpt/vpi Vcc/vci Ep*<br><br>The *EndPoint* component of the application associated with the |

VCC is used to link a switched VCC to an application that sends and receives frames using the connection.

Common Verbs

Help
List
Display

## GROUP AtmIf Vcc Ep Operational (Oper)

Properties: Operational

Description: This attribute group contains the operational attributes for the AtmEndPoint component.

## ATTRIBUTE AtmIf Vcc Ep applicationName

Access: Read only

Description: This attribute indicates the component name associated with the application associated with the switched VCC.

Values: The name of the component

Default: No default

## COMPONENT AtmIf Vcc RelayPoint (Rp)

Groups: "GROUP AtmIf Vcc Rp Operational (Oper)"

Scope: Device

Description:

*AtmIf/n Vpc/vpi Rp*
*AtmIf/n Vcc/vpi.vci Rp*
*AtmIf/n Vpt/vpi Vcc/vci Rp*

The *RelayPoint* component is used to establish a single hop of a Switched connection. When linked together, two *Rp*s within a module, the associated connections are configured to relay ATM cells to one another.

Common Verbs

Help
List
Display

### GROUP AtmIf Vcc Rp Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains the operational attributes for the *AtmRelayPoint* component. |

### ATTRIBUTE AtmIf Vcc Rp nextHop

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the component name(s) of the *Rp* component(s) with which this *Rp* component is associated. This attribute can have more than one component name only when the Vcc *distributionType* is ***pointToMultipoint*** and the *callDirection* is ***fromLink***. |
| List of | The name of the component |
| Default | No default |

### COMPONENT AtmIf Vcc DestinationPvc (Dst)

| | |
|---|---|
| Groups | "GROUP AtmIf Vcc Dst Operational (Oper)"<br>"GROUP AtmIf Vcc Dst OsiState (State)" |
| Scope | Device |
| Description | *AtmIf/n Vcc/vpi.vci DstPvc*<br>*AtmIf/n Vpt/vpi Vcc/vci DstPvc*<br><br>This component represents the destination end of a soft PVC.<br><br>This component can be dynamically created or provisioned.<br><br>When this component is dynamically created, it implicitly indicates that a connection has been established. This dynamically created component does not exist when there is no connection.<br><br>When this component is provisioned, it does not imply that a connection has been established. The existence of a provisioned *destinationPVC* component allows the possibility of generating OAM-AIS cells when the SPVC is down. The attribute |

*aisGeneration* under component *Configuration* is used to specify AIS generation at the destination end of a soft PVC.

Subcomponents "COMPONENT AtmIf Vcc Dst Configuration (Config)"

Common Verbs
Help
List
Display
Add
DELete

## GROUP AtmIf Vcc Dst Operational (Oper)

Properties Operational

Description This attribute group contains the operational attributes for the *DestinationPvc* component.

## ATTRIBUTE AtmIf Vcc Dst calledAddress

Access Read: All
Write: Illegal

Description This attribute represents the called address of the soft PVC.

Values String (20, Hex)

Default No default

## ATTRIBUTE AtmIf Vcc Dst callingAddress

Access Read: All
Write: Illegal

Description This attribute represents the remote address of the soft PVC. If the address in not known, then the value of this address is ***Unknown***.

Values String (7..40, ASCII)

Default No default

### ATTRIBUTE AtmIf Vcc Dst callingVpiVci

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute represents the remote VPI and VCI of the soft PVC. If the VPI and VCI values are not known, this attribute is set to ***Unknown***. |
| Values | String (7..9, ASCII) |
| Default | No default |

### GROUP AtmIf Vcc Dst OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE AtmIf Vcc Dst adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is |

administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE AtmIf Vcc Dst operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE AtmIf Vcc Dst usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

| | |
|---|---|
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

## COMPONENT AtmIf Vcc Dst Configuration (Config)

| | |
|---|---|
| Groups | "GROUP AtmIf Vcc Dst Config DstProv" |
| Scope | Device |
| Description | *Atmif/n Vcc/x.y Dst Override*<br>This *Override* component contains provisioned attributes for this destination SPVC.<br><br>If this component does not exist, the destination SPVC behaves as if this component had been provisioned with default values for all its attributes. |
| Common Verbs | Help<br>List<br>Display |

## GROUP AtmIf Vcc Dst Config DstProv

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisionable attributes for destination SPVC/Ps. |

## ATTRIBUTE AtmIf Vcc Dst Config aisGeneration (ais)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether OAM-AIS generation occurs on the connection towards this interface when the SPVC or SPVP is down.<br><br>If this attribute is ***enabled***, OAM-AIS cells are generated for this SPVC or SPVP when the SPVC or SPVP is not up.<br><br>If this attribute is set to ***disabled***, OAM-AIS cells are not |

generated.

Values
enabled
disabled

Default
disabled

## COMPONENT AtmIf Vcc MulticastNailedUpRelayPoint (Mnrp)

Groups
"GROUP AtmIf Vcc Mnrp Provisioned (Prov)"

Scope
Device

Description
*AtmIf/n Vcc/vpi.vci Mnrp*
This component is used to establish a root of a multicast nailed-up ATM Bearer Service (ABS) connection. By linking a *Mnrp* to a *Nrp*, the associated connections are configured to relay ATM cells from *Mnrp* to *Nrp*. The *Mnrp* component requires exclusive use of its parent *Vcc* or *Vpc* and cannot co-exist with other ATM service components (such as *Nep*, *Test*, *Nrp* and *Loop*). This component is supported only on 4pOC3SmIrAtm and 4pOC3MmAtm cards.This component is not supported under *Vpt Vcc* and *Vpt Vpc*.

Common Verbs
Help
List
Display
Add
DELete

## GROUP AtmIf Vcc Mnrp Provisioned (Prov)

Properties
Provisioned

Description
This group contains the provisionable attributes for the *Mnrp* component.

## ATTRIBUTE AtmIf Vcc Mnrp oamSegmentBoundary (sb)

Access
Read and write

Criticality
Component

| | |
|---|---|
| Description | This attribute specifies the OAM segment boundary desired for a *Mnrp* component. It affects the connection point type value visible in the parent component's *connectionPointType* attribute. The desired OAM segment boundary can be specified directly as ***yes***, ***no*** or ***sameAsInterface***. If ***sameAsInterface*** is specified, the OAM segment boundary is same as the *oamSegmentBoundary* attribute of the associated *AtmIf* and the switch will set the *connectionPointType*, choosing ***segmentEndPoint*** for a segment-boundary ATM interface and ***connectingPoint*** for a non-segment-boundary ATM interface. |
| Values | no<br>yes<br>sameAsInterface |
| Default | sameAsInterface |

### ATTRIBUTE AtmIf Vcc Mnrp bandwidthElastic (bwElastic)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute is only of importance for connections which are carried on a link with a variable bandwidth. For example, the bandwidth may be reduced in the event that one or more physical links in the IMA group fail, such that the originally requested bandwidth cannot be maintained. This attribute shows whether the application running on this connection can continue to operate if the bandwidth is reduced. If the bandwidth is reduced, the amount by which it is reduced will be displayed in the *bandwidthReduction* attribute.<br>A value of ***yes***, indicates that this connection is elastic, and the bandwidth may be reduced but the connection will not be released. Currently, this attribute should only be set to ***yes*** for situations where this *Mnrp* is functioning as a loopback on one side of an IMA link. There are no other situations where this setting is valid.<br>A value of ***no*** indicates that the bandwidth for this connection will not be reduced in the event of link bandwidth reduction. However, this connection may be released based on its *holdingPriority.* |

| | |
|---|---|
| Values | no<br>yes |
| Default | no |

### ATTRIBUTE AtmIf Vcc Mnrp overrideHoldingPriority (ohpri)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the holding priority of this connection. Holding priority is used when there is an IMA group where some physical links have failed. Holding priority determines the order in which connections are released. 4 is the lowest holding priority and is released first. 0 is a higher priority and is released last. The value specified in this attribute will override whatever *holdingPriority* that has been provisioned at the *Vcd* (or *Vpd*). If the value is left at the default of ***noOverride***, the *holdingPriority* provisioned at the *Vcd* (or *Vpd*) will be used. |
| Values | 0<br>1<br>2<br>3<br>4<br>noOverride |
| Default | noOverride |

### ATTRIBUTE AtmIf Vcc Mnrp nextHop (nextHop)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the list of *Nrp* components with which this *Mnrp* is associated. A sample value is *AtmIf/31 Vcc/0.32 Nrp*. This attribute must be provisioned with at least one Nrp component under a compatible connection type. |
| List of | Link (Service, nextHop) |
| Default | No default |

## COMPONENT AtmIf Vcc PerformanceMonitoring (Pm)

| | |
|---|---|
| Instance | linkSide<br>switchSide |
| Groups | "GROUP AtmIf Vcc Pm PmStatus (Status)"<br>"GROUP AtmIf Vcc Pm FwdClrMeasurements (FwdClr)"<br>"GROUP AtmIf Vcc Pm BwdClrMeasurements (BwdClr)"<br>"GROUP AtmIf Vcc Pm ArMeasurements (Ar)" |
| Scope | Device |
| Description | *AtmIf/n Vcc/x.y PerformanceMonitoring*<br>*AtmIf/n Vpc/x PerformanceMonitoring*<br>This component contains operational attributes for Performance Monitoring (PM) measurements on the connection. It also allows starting and stopping PM measurements when the *controlMode* attribute in the *AtmIf Pm* or *AtmIf Vcc Vcd Pm* or *AtmIf Vpc Vpd Pm* component is set to ***onDemand***. |
| Common Verbs | Help<br>List<br>Display |

## VERB START AtmIf Vcc Pm

| | |
|---|---|
| Impact | Service |
| Description | *Start AtmIf/n Vcc/x.y PerformanceMonitoring*<br>*Start AtmIf/n Vpc/x PerformanceMonitoring*<br>This verb starts Performance Monitoring (PM) activation procedures on the connection for PM measurements indicated in the *segSwitchSide* and *segLinkSide* attributes. This verb produces an error message when the connection is idle, PM has already been started or the *controlMode* attribute for the PM measurements has a value of ***autoStart***. The measurements will continue until the *Stop* verb is issued. |

### VERB STOP AtmIf Vcc Pm

| | |
|---|---|
| Impact | Service |
| Description | *Stop AtmIf/n Vcc/x.y PerformanceMonitoring*<br>*Stop AtmIf/n Vpc/x PerformanceMonitoring*<br>This verb starts Performance Monitoring (PM) deactivation procedures on the connection for PM measurements indicated in the *segSwitchSide* and *segLinkSide* attributes. This verb produces an error message when PM is not running or the *controlMode* attribute for the PM measurements has a value of ***autoStart***. |

### GROUP AtmIf Vcc Pm PmStatus (Status)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains attributes indicating the status of each Performance Monitoring (PM) measurement. |

### ATTRIBUTE AtmIf Vcc Pm clrMeasurementStatus (clr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the Cell Loss Ratio (CLR) measurement status of the connection.<br><br>The value ***inactive*** indicates the test is inactive.<br>The value ***activating*** indicates the test is activating.<br>The value ***active*** indicates the test is in progress<br>The value ***activationFailed*** indicates the test failed to be activated. Refer to the *failureCause* attribute for failure cause. |
| Values | inactive<br>activating<br>active<br>activationFailed |
| Default | inactive |

### ATTRIBUTE AtmIf Vcc Pm arMeasurementStatus (arStatus)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Availability Ratio (AR) measurement status of the connection. |

The value ***inactive*** indicates the test is inactive.
The value ***activating*** indicates the test is activating.
The value ***active*** indicates the test is in progress
The value ***activationFailed*** indicates the test failed to be activated. Refer to the *failureCause* attribute for the failure cause.

Values
inactive
activating
active
activationFailed

Default
inactive

### ATTRIBUTE AtmIf Vcc Pm failureCause (cause)

Access
Read only

Description
This attribute indicates the failure cause of Performance Monitoring (PM) measurements. The following are possible causes:

The value ***noError*** indicates no error.

The value ***unknownCause*** indicates unknown failure cause.

The value ***softwareResourcesUnavailable*** indicates software resources reserved for a maximum of 255 active PMs on the local FP card have been used up.

The value ***hardwareResourcesUnavailable*** indicates hardware resources reserved for a maximum of 512 active PMs CLR card have been used up on the Link Side local card.

The value ***remoteEndNoResponse*** indicates no response from remote end during activation.

The value ***activationCollision*** indicates activation collision was detected. Usually this is caused by both ends of the connection being provisioned to request PM. Only one end should be so provisioned.

The value ***remoteEndRejectedActivation*** indicates the remote end has rejected an activation request. Usually this is due to the remote end reaching a resource limit.

The value ***pcrUnsupported*** indicates the Tx or Rx PCR is out of range. The PCR value must be between 0 and 409601.

The value ***nextHopConnectionUnsupported*** indicates the next hop card type or connection type do not allow access to the necessary hardware to support PM measurements.

The value ***upcNotDisabled*** indicates UPC is not disabled on the local next hop card for this connection. PM measurements are not supported when UPC is either enforced or monitored.

Values

noError
unknownCause
softwareResourcesUnavailable
hardwareResourcesUnavailable
remoteEndNoResponse
activationCollision
remoteEndRejectedActivation
pcrUnsupported
nextHopConnectionUnsupported
upcNotDisabled

Default

noError

## ATTRIBUTE AtmIf Vcc Pm clrEnhancementStatus (enhanced)

Access

Read only

Description

This attribute indicates an enhanced mode of operation for Cell Loss Ratio (CLR) measurements by including cell discards from the remote segment end point which are not covered by the performance measurement (PM) cell.

The value ***inactive*** indicates that CLR enhanced mode of operation has not been activated.

The value ***active*** indicates that discards at the remote segment end point are being included in CLR measurements.

The value ***remoteEndNotProvidingStatistics*** indicates that the remote end is not replying to proprietary requests for additional discard counts. This occurs when the remote end does not have the passport software to recognize these requests.

Values: inactive
active
remoteEndNotProvidingStatistics

Default: inactive

## GROUP AtmIf Vcc Pm FwdClrMeasurements (FwdClr)

Properties: Operational

Description: This group contains Cell Loss Ratio (CLR) measurements for the forward direction of the connection. The local end is always the provisioned end which sends the activation request, and the remote end is the end which receives the activation request.

## ATTRIBUTE AtmIf Vcc Pm fwdTotalClrInterval

Access: Read only

Description: This attribute indicates the total time duration over which Cell Loss Ratio (CLR) has been calculated in the forward direction.

Values: Decimal (0..4294967295)

Units: seconds

Default: No default

## ATTRIBUTE AtmIf Vcc Pm fwdTotalUserCellsRx0

Access: Read only

Description: This attribute indicates the number of cells with CLP=0 received at the remote end over the total Cell Loss Ratio (CLR) measurement interval in the forward direction.

Values: Long Integer

Units: cells

| | |
|---|---|
| Default | No default |

### ATTRIBUTE AtmIf Vcc Pm fwdTotalUserCellsTx0

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of cells with CLP=0 transmitted from the local end over the total Cell Loss Ratio (CLR) measurement interval in the forward direction. |
| Values | Long Integer |
| Units | cells |
| Default | No default |

### ATTRIBUTE AtmIf Vcc Pm fwdTotalUserCellsRx01

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of cells with CLP=0+1 received at the remote end over the total Cell Loss Ratio (CLR) measurement interval in the forward direction. |
| Values | Long Integer |
| Units | cells |
| Default | No default |

### ATTRIBUTE AtmIf Vcc Pm fwdTotalUserCellsTx01

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of cells with CLP=0+1 transmitted from the local end over the total CLR measurement interval in the forward direction. |
| Values | Long Integer |
| Units | cells |
| Default | No default |

### ATTRIBUTE AtmIf Vcc Pm fwdPmCellDiscardCount

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the total number of Performance Monitoring (PM) cells discarded in the forward direction. |
| Values | Decimal (0..4294967295) |
| Units | cells |
| Default | No default |

### ATTRIBUTE AtmIf Vcc Pm fwdClr0

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the CLR for CLP=0 traffic calculated for the total measurement interval in the forward direction. |
| Values | Decimal (0.000000000..1.000000000) |
| Default | No default |

### ATTRIBUTE AtmIf Vcc Pm fwdClr01

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the CLR for CLP=0+1 traffic calculated for the total measurement interval in the forward direction. |
| Values | Decimal (0.000000000..1.000000000) |
| Default | No default |

### GROUP AtmIf Vcc Pm BwdClrMeasurements (BwdClr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains Cell Loss Ratio (CLR) measurements for the backward direction of the connection. The local end is always the provisioned end which sends the activation request, and the remote end is the end which receives the activation request. |

### ATTRIBUTE AtmIf Vcc Pm bwdTotalClrInterval

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total time duration over which Cell Loss Ratio (CLR) measurement has been calculated in the backward direction. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Units | seconds |
| Default | No default |

### ATTRIBUTE AtmIf Vcc Pm bwdTotalUserCellsRx0

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of cells with CLP=0 received at the local end over the total Cell Loss Ratio (CLR) measurement interval in the backward direction. |
| Values | Long Integer |
| Units | cells |
| Default | No default |

### ATTRIBUTE AtmIf Vcc Pm bwdTotalUserCellsTx0

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of cells with CLP=0 transmitted from the remote end over the total Cell Loss Ratio (CLR) measurement interval in the backward direction. |
| Values | Long Integer |
| Units | cells |
| Default | No default |

### ATTRIBUTE AtmIf Vcc Pm bwdTotalUserCellsRx01

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of cells with CLP=0 received at the local end over the total Cell Loss Ratio (CLR) measurement interval in the backward direction. |
| Values | Long Integer |
| Units | cells |
| Default | No default |

### ATTRIBUTE AtmIf Vcc Pm bwdTotalUserCellsTx01

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of cells with CLP=0+1 transmitted from the remote end over the total Cell Loss Ratio (CLR) measurement interval in the backward direction. |
| Values | Long Integer |
| Units | cells |
| Default | No default |

### ATTRIBUTE AtmIf Vcc Pm bwdPmCellDiscardCount

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of Performance Monitoring (PM) cells discarded in the backward direction. |
| Values | Decimal (0..4294967295) |
| Units | cells |
| Default | No default |

### ATTRIBUTE AtmIf Vcc Pm bwdClr0

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the CLR for CLP=0 traffic calculated for the total measurement interval in the backward direction. |
| Values | Decimal (0.000000000..1.000000000) |
| Default | No default |

### ATTRIBUTE AtmIf Vcc Pm bwdClr01

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the CLR for CLP=0+1 traffic calculated for the total measurement interval in the backward direction. |
| Values | Decimal (0.000000000..1.000000000) |
| Default | No default |

## GROUP AtmIf Vcc Pm ArMeasurements (Ar)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains Availability Ratio (AR) measurements of the connection. |

## ATTRIBUTE AtmIf Vcc Pm currentAvailabilityStatus

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current status of the bidirectional connection for purposes of Availability Ratio (AR) computation.<br><br>The value ***notApplicable*** means AR measurement was not requested on this connection.<br><br>The value ***available*** means AR is running and considers the connection available (that is, the *arAvailableTime* attribute is being incremented).<br><br>The value ***unavailable*** means AR measurement was requested but the connection is currently unavailable. |
| Values | notApplicable<br>available<br>unavailable |
| Default | No default |

## ATTRIBUTE AtmIf Vcc Pm arTotalTime

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total time used for calculating Availability Ratio (AR) of the bi-directional connection. |
| Values | Decimal (0..4294967295) |
| Units | seconds |
| Default | No default |

## ATTRIBUTE AtmIf Vcc Pm arAvailableTime

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the total time the connection was available. |
| Values | Decimal (0..4294967295) |
| Units | seconds |
| Default | No default |

### ATTRIBUTE AtmIf Vcc Pm arAvailabilityRatio

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the ratio of network availability representing the ratio of available time to the total time of the connection. |
| Values | Decimal (0.0000000..1.0000000) |
| Default | No default |

### COMPONENT AtmIf Vcc PathTraceRecord (PTRecord)

| | |
|---|---|
| Groups | "GROUP AtmIf Vcc PTRecord Operational (Oper)" |
| Scope | Device |
| Description | *AtmIf/n Vcc/x.y PTRecord*<br>*AtmIf/n Vpc/n PTRecord*<br>*AtmIf/n Vpt/n Vcc/x.y PTRecord*<br><br>This component represents the path trace records for this connection. If the connection is deleted, this component is also deleted. |
| Dyn. Subcomp. | "COMPONENT AtmIf Vcc PTRecord Hop" |
| Common Verbs | Help<br>List<br>Display |

### GROUP AtmIf Vcc PTRecord Operational (Oper)

| | |
|---|---|
| Properties | Operational |

Description — This group contains the operational attributes for the path trace record component.

### ATTRIBUTE AtmIf Vcc PTRecord status

Access — Read: All
Write: Illegal

Description — This attribute indicates the status of the trace. The string is one of the following:

***Completed normally****:* The trace completed normally.

***Incomplete****:* Partial trace returned.

***Exceeded information element length limitations****:* The number of traced nodes exceeded the maximum number of hops.

***Exceeded message length limitations****:* The message length exceeded the maximum allowed size.

Values — Completed normally
Incomplete
Exceeded information element length limitations
Exceeded message length limitations

Default — No default

### ATTRIBUTE AtmIf Vcc PTRecord timeStamp

Access — Read: All
Write: Illegal

Description — This attribute records the date and time of when the trace is completed.

Values — Time (DHMS)

Default — No default

### ATTRIBUTE AtmIf Vcc PTRecord srcPortId

Access — Read: All
Write: Illegal

| | |
|---|---|
| Description | This attribute indicates the trace's source port identifier used for this connection. This attribute only appears in the trace result for the trace source hop. |
| Values | Decimal (1..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vcc PTRecord srcPortName

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the name of the source port used for this connection. This attribute only appears in the trace result for the trace source hop. |
| Values | String (40, ASCII) |
| Default | No default |

### ATTRIBUTE AtmIf Vcc PTRecord causeCode

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute contains the cause code in the transmitted signaling message that contains the CAUSE information element. The cause code is used to describe the reason for generating certain signaling messages. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE AtmIf Vcc PTRecord diagCode

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |

| | |
|---|---|
| Description | This attribute contains the diagnostic code in the transmitted signaling message. The diagnostic code is contained in the CAUSE information element and identifies an information element type or timer type. The diagnostic code is present only if a procedural error is detected by the signaling protocol. A diagnostic code is always accompanied by the cause code. If there is no failure, this attribute is set to NULL. |
| Values | String (0..8, ASCII) |
| Default | No default |

## COMPONENT AtmIf Vcc PTRecord Hop

| | |
|---|---|
| Instance | Decimal (0..200) |
| Groups | "GROUP AtmIf Vcc PTRecord Hop Operational (Oper)" |
| Scope | Device |
| Description | *AtmIf/n Aini Ptf PTRecord Hop/n*<br>*AtmIf/n Iisp Ptf PTRecord Hop/n*<br>*AtmIf/n Uni Ptf PTRecord Hop/n*<br>*AtmIf/n Pnni Ptf PTRecord Hop/n*<br>*AtmIf/n Vpt/n Aini Ptf PTRecord Hop/n*<br>*AtmIf/n Vpt/n Iisp Ptf PTRecord Hop/n*<br>*AtmIf/n Vpt/n Uni Ptf PTRecord Hop/n*<br>*AtmIf/n Vpt/n Pnni Ptf PTRecord Hop/n*<br>*AtmIf/n Vcc/x.y PTRecord Hop/n*<br>*AtmIf/n Vpc/n PTRecord Hop/n*<br>*AtmIf/n Vpt/n Vcc/x.y PTRecord Hop/n*<br><br>This component stores the result of a hop from a trace. An instance of this component is dynamically created for each hop in a trace record. |

Depending on the hops, different attributes are present.

Dyn. Subcomp. "COMPONENT AtmIf Vcc PTRecord Hop VendorSpecificInfo (Vsi)"

Common Verbs
Help
List
Display

## GROUP AtmIf Vcc PTRecord Hop Operational (Oper)

Properties Operational

Description This group contains the operational attributes for the component *AtmPathTraceFilterRecordHop*.

## ATTRIBUTE AtmIf Vcc PTRecord Hop ingressVpiVci (vpiVci)

Access Read: All
Write: Illegal

Criticality Component

Description This attribute indicates the VPI.VCI values used for this hop on the ingress side. This is the ingress side with respect to the trace or setup messages. This attribute is displayed for ATM interfaces only.

The VPI.VCI values are included in the trace when the *traceInfo* attribute sets the ***connId*** value.

Values Integer Sequence (0..4095; 0..65535)

Default No default

## ATTRIBUTE AtmIf Vcc PTRecord Hop ingressDlci (dlci)

Access Read: All
Write: Illegal

Criticality Component

Description This attribute indicates the DLCI value used for this hop on the ingress side. This is the ingress side with respect to the trace or

setup message. This attribute is displayed for FrAtm interfaces only.

The DLCI is included in the trace when the *traceInfo* attribute sets the ***connId*** value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE AtmIf Vcc PTRecord Hop ingressCallReference (callref)

Access: Read: All
Write: Illegal

Criticality: Component

Description: This attribute indicates the call reference value used for this hop on the ingress side. This is the ingress side with respect to the trace or setup message.

The call reference is included in the trace when the *traceInfo* attribute sets the ***callRef*** value

Values: Hex (H.0..H.ffffff)

Default: No default

### ATTRIBUTE AtmIf Vcc PTRecord Hop ingressEndPointReference (epref)

Access: Read: All
Write: Illegal

Criticality: Component

Description: This attribute indicates the end point reference value used for this hop on the ingress side. This is the ingress side with respect to the trace or setup messages.

The end point reference is included in the trace when the *traceInfo* attribute sets the ***callRef*** value and the connection is point-to-multipoint.

Values: Hex (H.0..H.ffff)

Default: No default

### ATTRIBUTE AtmIf Vcc PTRecord Hop nodeId

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the lowest level node ID traversed for this hop. |
| Values | String (22, Hex) |
| Default | No default |

### ATTRIBUTE AtmIf Vcc PTRecord Hop nodeName

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the *nodeName* under the *ModuleData* component for this hop. Only Passport nodes provide this information by including it in the Vendor Specific group. |
| Values | String (12, ASCII) |
| Default | No default |

### ATTRIBUTE AtmIf Vcc PTRecord Hop portId

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the port identifier value for this hop on the egress side. This is the egress side with respect to the trace or setup messages. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vcc PTRecord Hop portName

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the port name for this hop on the egress side. This is the egress side with respect to the trace or setup messages. Only Passport nodes provide this information by including it in the Vendor Specific group. |
| Values | String (55, ASCII) |
| Default | No default |

### ATTRIBUTE AtmIf Vcc PTRecord Hop pnniTraceContRefusalIndPresent (refusal)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates whether the “PNNI Trace Continuation Refusal” indicator is present. The “PNNI Trace Continuation Refusal” indicator indicates that this hop has refused to participate in the trace. |
| Values | absent<br>present |
| Default | absent |

### ATTRIBUTE AtmIf Vcc PTRecord Hop crankbackDestNodeIndPresent (dest)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates whether the “PNNI Crankback Received at the Trace Destination Node” indicator is present. The “PNNI Crankback Received at Trace Destination Node” indicator indicates that this hop is acting as a trace destination node, receiving a crankback for this call from a non-PNNI interface. |

| | |
|---|---|
| Values | absent<br>present |
| Default | absent |

### ATTRIBUTE AtmIf Vcc PTRecord Hop pnniCrankbackGapIndPresent (gap)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates whether the “PNNI Crankback Gap” indicator is present. The “PNNI Crankback Gap” indicator indicates that the call experienced a crankback, where no Trace Transit List IE was returned by the node initiating the crankback. |
| Values | absent<br>present |
| Default | absent |

### ATTRIBUTE AtmIf Vcc PTRecord Hop crankBackCause (cause)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the crankback cause. Please refer to Private-Network-to-Network-Interface Specification Version 1.0 for more information.<br><br>This attribute is present when the *traceInfo* attribute sets the ***crankBack*** value and the connection has initiated the crankback procedure. |
| Values | Decimal (0..1000) |
| Default | No default |

### ATTRIBUTE AtmIf Vcc PTRecord Hop blockedTransitType (type)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |

| | |
|---|---|
| Description | This attribute indicates the blocked transit type.<br><br>This attribute is present when the *traceInfo* attribute sets the ***crankBack*** value and the connection has initiated the crankback procedure. |
| Values | Succeeding end blocked<br>Blocked node<br>Blocked link |
| Default | No default |

### ATTRIBUTE AtmIf Vcc PTRecord Hop blockedNodeId (bNodeId)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the blocked node ID during the call setup request. The blocked node ID identifies the logical node where the connection or party has been blocked.<br><br>This attribute is present when the *blockedTransitType* attribute is ***Blocked node.*** |
| Values | String (22, Hex) |
| Default | No default |

### ATTRIBUTE AtmIf Vcc PTRecord Hop blockedLinkPrecedingNodeId (pNodeId)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the blocked link's preceding node ID during the call setup request. The blocked link's preceding node ID identifies the logical node preceding a link, where the connection or party has been blocked.<br><br>This attribute is present when the *blockedTransitType* attribute is ***Blocked link***. |

| | |
|---|---|
| Values | String (22, Hex) |
| Default | No default |

### ATTRIBUTE AtmIf Vcc PTRecord Hop blockedLinkPortId (bPortId)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the blocked link's port identifier used for this connection during the call setup request. The blocked link's port identifier identifies a logical port of the blocked link's preceding node identifier.<br><br>This attribute is present when the *blockedTransitType* attribute is ***Blocked link.*** |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vcc PTRecord Hop blockedLinkSucceedingNodeId (sNodeId)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the blocked link's succeeding node ID during the call setup request. The blocked link's succeeding node ID identifies the logical node succeeding a link where the connection or party has been blocked.<br><br>This attribute is present when the *blockedTransitType* attribute is ***Blocked link.*** |
| Values | String (22, Hex) |
| Default | No default |

### ATTRIBUTE AtmIf Vcc PTRecord Hop dstVpiVci

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the VPI.VCI values on the destination side. This attribute only appears in the trace result for the trace destination node. This attribute is only displayed for ATM interfaces.<br><br>The VPI.VCI is included in the trace when the *traceInfo* attribute sets the ***connId*** value. |
| Values | Integer Sequence (0..4095; 0..65535) |
| Default | No default |

### ATTRIBUTE AtmIf Vcc PTRecord Hop dstDlci

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the DLCI value on the destination side. This attribute only appears in the trace result for the trace destination node. This attribute is only displayed for FrAtm interfaces.<br><br>The DLCI is included in the trace when the *traceInfo* attribute sets the ***connId*** value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vcc PTRecord Hop dstCallReference (dcr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |

| | |
|---|---|
| Description | This attribute indicates the call reference value on the destination side. This attribute only appears in the trace result for the trace destination node.<br><br>The call reference value is included in the trace when the *traceInfo* attribute sets the ***callRef*** value. |
| Values | Hex (H.0..H.ffffff) |
| Default | No default |

### ATTRIBUTE AtmIf Vcc PTRecord Hop dstEndPointReference (depr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the end point call reference value on the destination side. This attribute only appears in the trace result for the trace destination node.<br><br>The call reference value is included in the trace when the *traceInfo* attribute sets the ***callRef*** value and the connection is point-to-multipoint. |
| Values | Hex (H.0..H.ffff) |
| Default | No default |

### ATTRIBUTE AtmIf Vcc PTRecord Hop specifiedPath

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates whether this hop is the originator of this manually configured path. Only Passport nodes provide this information by including it in the Vendor Specific group. |
| Values | no<br>yes |
| Default | no |

## COMPONENT AtmIf Vcc PTRecord Hop VendorSpecificInfo (Vsi)

| | |
|---|---|
| Instance | Decimal (0..10) |
| Groups | "GROUP AtmIf Vcc PTRecord Hop Vsi Operational (Oper)" |
| Scope | Device |
| Description | *AtmIf/n Aini Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Iisp Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Uni Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vpt/n Aini Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vpt/n Iisp Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vpt/n Uni Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vpt/n Pnni Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vcc/x.y PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vpc/n PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vpt/n Vcc/x.y PTRecord Hop/n VendorSpecificInfo/m*<br><br>This component stores the vendor specific information of a non-Passport node for a hop. An instance of this component is dynamically created for the vendor specific information group of a hop in a trace. Several instances of this component are created if the trace has several groups of vendor specific information.<br><br>All the trace information for a Passport node is stored in the *PTRecord Hop/** component. |
| Common Verbs | Help<br>List<br>Display |

## GROUP AtmIf Vcc PTRecord Hop Vsi Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for the component *AtmPathTraceFilterRecordHopVen*. |

## ATTRIBUTE AtmIf Vcc PTRecord Hop Vsi length

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute indicates the length of the vendor specific information group. |
| Values | Decimal (0..11) |
| Default | No default |

### ATTRIBUTE AtmIf Vcc PTRecord Hop Vsi organizationUniqueId (oui)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the Organization Unique Identifier (OUI) of a non-Passport node. |
| Values | String (3, Dashed Hex) |
| Default | No default |

### ATTRIBUTE AtmIf Vcc PTRecord Hop Vsi data

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the contents of the vendor specific information group. |
| Values | String (1..8, Hex) |
| Default | No default |

### COMPONENT AtmIf Vcc RerouteInfo (RerInfo)

| | |
|---|---|
| Groups | "GROUP AtmIf Vcc RerInfo Operational (Oper)"<br>"GROUP AtmIf Vcc RerInfo EbrOperational (EOper)"<br>"GROUP AtmIf Vcc RerInfo LocalOperational (LOper)"<br>"GROUP AtmIf Vcc RerInfo GlobalOperational (GOper)"<br>"GROUP AtmIf Vcc RerInfo EbrStatistics (EStats)"<br>"GROUP AtmIf Vcc RerInfo LocalStatistics (LStats)"<br>"GROUP AtmIf Vcc RerInfo GlobalStatistics (GStats)" |
| Scope | Device |
| Description | *AtmIf/n Vcc/vpi.vci RerouteInfo*<br>*AtmIf/n Vpc/vpi RerouteInfo*<br>*AtmIf/n Vpt/vpi Vcc/vci RerouteInfo*<br>*Aal1Ces/n RerouteInfo* |

*Fratm/n Dlci/n Siwf RerouteInfo*

This component represents the rerouting capabilities of a connection segment. The component is present at the DTL originator of the connection segment. It is also present at each local domain rerouting node, if the local rerouting protocol has been granted to the connection segment.

Common Verbs

Help
List
Display

## GROUP AtmIf Vcc RerInfo Operational (Oper)

Properties: Operational

Description: This group contains the common operational attributes that indicate rerouting activities at the connection level.

## ATTRIBUTE AtmIf Vcc RerInfo lastOptimizationMetric (lOptMet)

Access: Read only

Description: This attribute indicates which optimization metric was last used to select a path for the connection segment.

Values:
cdv
maxCtd
aw

Default: No default

## GROUP AtmIf Vcc RerInfo EbrOperational (EOper)

Properties: Operational

Description: This group contains attributes that indicate the EBR rerouting characteristics of a connection segment.

This group is only present if the connection segment has been granted the EBR rerouting protocol.

### ATTRIBUTE AtmIf Vcc RerInfo ebrRecoverySubscribed (eRecSub)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether the connection segment is subscribed to EBR connection recovery.<br><br>This attribute is only present if the connection segment has been granted the EBR protocol. |
| Values | no<br>yes |
| Default | No default |

### ATTRIBUTE AtmIf Vcc RerInfo ebrOptimizationSubscribed (eOptSub)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether the connection segment is subscribed to EBR path optimization.<br><br>This attribute is only present if the connection segment has been granted the EBR protocol. |
| Values | no<br>yes |
| Default | No default |

### ATTRIBUTE AtmIf Vcc RerInfo ebrOptimizationMetricValue (eOptVal)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the EBR optimization metric value that was collected for the call during the most recent call establishment. It represents the segment of the connection between the rerouting and rendezvous nodes.<br><br>This attribute is only present if the connection segment has been granted the EBR protocol. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vcc RerInfo ebrOptimalMetricValue (eOptMetVal)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the EBR optimization metric value of the connection's best path. It is initialized to the value collected during initial call establishment. It is set to the ***localOptimizationValue*** whenever a connection is optimized onto a path which has a better optimization value or when the number of optimization attempts is exhausted. It represents the segment of the connection between the rerouting and rendezvous nodes.<br><br>This attribute is only present if the connection segment has been granted the EBR protocol. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vcc RerInfo ebrOptimizationState (eOptSt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current EBR optimization state of the connection segment.<br><br>One of the following values is indicated:<br>***optimal:*** This is the initial value when the connection segment is first established. The connection segment is in optimal state whenever the optimization metric value of the connection segment is equal to the best known value.<br>***recovered:*** This value represents the state when the connection segment has been recovered to a path with an optimization metric value for the connection segment which is greater than the value specified by the optimal metric value.<br>***optimized:*** This value represents the state when the connection segment has moved to a path which is better than the recovered path but not as good as the optimal path.<br><br>This attribute is only present if the connection segment has been granted the EBR protocol. |

| | |
|---|---|
| Values | optimal<br>recovered<br>optimized |
| Default | No default |

### ATTRIBUTE AtmIf Vcc RerInfo ebrTimeOfLastRecovery (eTime)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the date and time of the last EBR connection recovery.<br><br>This attribute is only present if the connection segment has been granted the EBR protocol. |
| Values | Time (DHMS) |
| Default | No default |

### GROUP AtmIf Vcc RerInfo LocalOperational (LOper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains attributes that indicate the local rerouting characteristics of a connection segment.<br><br>This group is only present if the connection segment has been granted the local rerouting protocol. |

### ATTRIBUTE AtmIf Vcc RerInfo localRecoverySubscribed (lRecSub)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether the connection segment is subscribed to local connection recovery.<br><br>This attribute is only present if the connection segment has been granted the local rerouting protocol. |
| Values | no<br>yes |
| Default | No default |

### ATTRIBUTE AtmIf Vcc RerInfo localOptimizationSubscribed (lOptSub)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether the connection segment is subscribed to local path optimization.<br><br>This attribute is only present if the connection segment has been granted the local rerouting protocol. |
| Values | no<br>yes |
| Default | No default |

### ATTRIBUTE AtmIf Vcc RerInfo localOptimizationMetricValue (lOptVal)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the local optimization metric value that was collected for the call during the most recent call establishment. It represents the segment of the connection between the rerouting and rendezvous nodes. A value of ***undefined*** indicates that the local optimization metric value is undetermined.<br><br>This attribute is only present if the connection segment has been granted the local rerouting protocol. |
| Values | Decimal (0..4294967294)<br>undefined |
| Default | No default |

### ATTRIBUTE AtmIf Vcc RerInfo localOptimalMetricValue (lOptMetVal)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the local optimization metric value of the connection's best path. It is initialized to the value collected during initial call establishment. It is set to the ***localOptimizationValue*** whenever a connection is optimized onto a path which has a better optimization value or when the number of optimization attempts is exhausted. It represents the segment of the connection between the rerouting and rendezvous |

nodes.A value of ***undefined*** indicates that the local optimal optimization metric value is undetermined.

This attribute is only present if the connection segment has been granted the local rerouting protocol.

Values: Decimal (0..4294967294)
undefined

Default: No default

### ATTRIBUTE AtmIf Vcc RerInfo localOptimizationState (lOptSt)

Access: Read only

Description: This attribute indicates the current local optimization state of the connection segment.

One of the following values is indicated:
***optimal:*** This is the initial value when the connection segment is first established. The connection segment is in optimal state whenever the optimization metric value of the connection segment is equal to the best known value.
***recovered:*** This value represents the state when the connection segment has been recovered to a path with an optimization metric value for the connection segment which is greater than the value specified by the optimal metric value.
***optimized:*** This value represents the state when the connection segment has moved to a path which is better than the recovered path but not as good as the optimal path.

This attribute is only present if the connection segment has been granted the local rerouting protocol.

Values: optimal
recovered
optimized

Default: No default

### ATTRIBUTE AtmIf Vcc RerInfo localTimeOfLastRecovery (lTime)

Access: Read only

| | |
|---|---|
| Description | This attribute indicates the date and time of the last local connection recovery.<br><br>This attribute is only present if the connection segment has been granted the local rerouting protocol. |
| Values | Time (DHMS) |
| Default | No default |

### GROUP AtmIf Vcc RerInfo GlobalOperational (GOper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains attributes that indicate the global rerouting characteristics of a connection.<br><br>This group is only present if the connection segment has been granted the global rerouting protocol. |

### ATTRIBUTE AtmIf Vcc RerInfo globalRecoverySubscribed (gRecSub)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether the connection segment is subscribed to global connection recovery.<br><br>This attribute is only present if the connection segment has been granted the global rerouting protocol. |
| Values | no<br>yes |
| Default | No default |

### ATTRIBUTE AtmIf Vcc RerInfo globalOptimizationSubscribed (gOptSub)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether the connection segment is subscribed to global path optimization.<br><br>This attribute is only present if the connection segment has been granted the global rerouting protocol. |

| | |
|---|---|
| Values | no<br>yes |
| Default | No default |

### ATTRIBUTE AtmIf Vcc RerInfo globalOptimizationMetricValue (gOptVal)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the global optimization metric value that was collected for the call during the most recent call establishment. It represents the segment of the connection between the rerouting and rendezvous nodes. A value of ***undefined*** indicates that the global optimization metric value is undetermined.<br><br>This attribute is only present if the connection segment has been granted the global rerouting protocol. |
| Values | Decimal (0..4294967294)<br>undefined |
| Default | No default |

### ATTRIBUTE AtmIf Vcc RerInfo globalOptimalMetricValue (gOptMetVal)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the global optimization metric value of the connection's best path. It is initialized to the value collected during initial call establishment. It is set to the ***globalOptimizationValue*** whenever a connection is optimized onto a path which has a better optimization value or when the number of optimization attempts is exhausted. It represents the segment of the connection between the rerouting and rendezvous nodes.A value of ***undefined*** indicates that the global optimal optimization metric value is undetermined.<br><br>This attribute is only present if the connection segment has been granted the global rerouting protocol. |

| | |
|---|---|
| Values | Decimal (0..4294967294)<br>undefined |
| Default | No default |

### ATTRIBUTE AtmIf Vcc RerInfo globalOptimizationState (gOptSt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current global optimization state of the connection segment.<br><br>One of the following values is indicated:<br>***optimal:*** This is the initial value when the connection segment is first established. The connection segment is in optimal state whenever the optimization metric value of the connection segment is equal to the best known value.<br>***recovered:*** This value represents the state when the connection segment has been recovered to a path with an optimization metric value for the connection segment which is greater than the value specified by the optimal metric value.<br>***optimized:*** This value represents the state when the connection segment has moved to a path which is better than the recovered path but not as good as the optimal path.<br><br>This attribute is only present if the connection segment has been granted the global rerouting protocol. |
| Values | optimal<br>recovered<br>optimized |
| Default | No default |

### ATTRIBUTE AtmIf Vcc RerInfo globalTimeOfLastRecovery (gTime)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the date and time of the last global connection recovery.<br><br>This attribute is only present if the connection segment has been granted the global rerouting protocol. |

| | |
|---|---|
| Values | Time (DHMS) |
| Default | No default |

### GROUP AtmIf Vcc RerInfo EbrStatistics (EStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistics related to Ebr rerouting for the connection segment. |

### ATTRIBUTE AtmIf Vcc RerInfo totalEbrConnectionRecoveries (eConnRec)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts successful EBR connection recovery attempts. The counter wraps to zero when the maximum value is exceeded.<br><br>This attribute is only present if the connection segment has been granted the EBR protocol. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vcc RerInfo totalEbrPathOptimizations (ePathOpt)

| | |
|---|---|
| Access | Read only |
| Description | This attributes counts successful EBR path optimization attempts. The counter wraps to zero when the maximum value is exceeded.<br><br>This attribute is only present if the connection segment has been granted the EBR protocol. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vcc RerInfo totalEbrOptimizationAttempts (eOptAtt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of EBR path optimization attempts. The counter wraps to zero when the maximum value is |

exceeded.

This attribute is only present if the connection segment has been granted the EBR protocol.

Values: Decimal (0..4294967295)

Default: No default

### GROUP AtmIf Vcc RerInfo LocalStatistics (LStats)

Properties: Operational

Description: This group contains statistics related to local rerouting for the connection segment.

### ATTRIBUTE AtmIf Vcc RerInfo totalLocalConnectionRecoveries (lConnRec)

Access: Read only

Description: This attribute counts successful local connection recovery attempts. The counter wraps to zero when the maximum value is exceeded.

This attribute is only present if the connection segment has been granted the local rerouting protocol.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE AtmIf Vcc RerInfo totalLocalPathOptimizations (lPathOpt)

Access: Read only

Description: This attributes counts successful local path optimization attempts. The counter wraps to zero when the maximum value is exceeded.

This attribute is only present if the connection segment has been granted the local rerouting protocol.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE AtmIf Vcc RerInfo totalLocalOptimizationAttempts (lOptAtt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of local path optimization attempts. The counter wraps to zero when the maximum value is exceeded.<br><br>This attribute is only present if the connection segment has been granted the local rerouting protocol. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP AtmIf Vcc RerInfo GlobalStatistics (GStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistics related to global rerouting for the connection segment. |

### ATTRIBUTE AtmIf Vcc RerInfo totalGlobalConnectionRecoveries (gConnRec)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts successful global connection recovery attempts. The counter wraps to zero when the maximum value is exceeded.<br><br>This attribute is only present if the connection segment has been granted the global rerouting protocol. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vcc RerInfo totalGlobalPathOptimizations (gPathOpt)

| | |
|---|---|
| Access | Read only |
| Description | This attributes counts successful global path optimization attempts. The counter wraps to zero when the maximum value is exceeded. |

This attribute is only present if the connection segment has been granted the global rerouting protocol.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE AtmIf Vcc RerInfo totalGlobalOptimizationAttempts (gOptAtt)

Access: Read only

Description: This attribute counts the total number of global path optimization attempts. The counter wraps to zero when the maximum value is exceeded.

This attribute is only present if the connection segment has been granted the global rerouting protocol.

Values: Decimal (0..4294967295)

Default: No default

### COMPONENT AtmIf Vcc MulticastSourcePvc (Msrc)

Groups:
"GROUP AtmIf Vcc Msrc Provisioned (Prov)"
"GROUP AtmIf Vcc Msrc Operational (Oper)"
"GROUP AtmIf Vcc Msrc OsiState (State)"

Scope: Device

Description: *AtmIf/n Vcc/vpi.vci MulticastSourcePvc*

This component represents the source end of a multicast soft PVC.

Opt. Subcomp.: "COMPONENT AtmIf Vcc Msrc MulticastSpvcParty (Party)"

Common Verbs:
Help
List
Display
Add
DELete

## GROUP AtmIf Vcc Msrc Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This attribute group contains the provisionable attributes of the *MulticastSourcePvc* component. |

## ATTRIBUTE AtmIf Vcc Msrc callingAddress

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute represents the calling address of the multicast soft PVC. If it is a null string, then the calling address is the address of the current interface (that is, where the multicast soft PVC originates). |
| Values | String (0..20, Hex) |
| Default | "" |

## GROUP AtmIf Vcc Msrc Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains the operational attributes associated with the *MulticastSourcePvc* component. |

## ATTRIBUTE AtmIf Vcc Msrc totalParties

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the total number of parties provisioned on the *MulticastSourcePvc* component. |
| Values | Decimal (1..300) |
| Default | No default |

## ATTRIBUTE AtmIf Vcc Msrc establishedParties

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute indicates the total number of parties provisioned on the *MulticastSourcePvc* component which are currently up. |
| Values | Decimal (1..300) |
| Default | No default |

### ATTRIBUTE AtmIf Vcc Msrc expectedParties

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the total number of parties provisioned on the *MulticastSourcePvc* component which are expected to be up (not locked). |
| Values | Decimal (1..300) |
| Default | No default |

### GROUP AtmIf Vcc Msrc OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE AtmIf Vcc Msrc adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users |

only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE AtmIf Vcc Msrc operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE AtmIf Vcc Msrc usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has

spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

## COMPONENT AtmIf Vcc Msrc MulticastSpvcParty (Party)

Instance
Decimal (1..300)

Groups
"GROUP AtmIf Vcc Msrc Party Provisioned (Prov)"
"GROUP AtmIf Vcc Msrc Party Operational (Oper)"
"GROUP AtmIf Vcc Msrc Party OsiState (State)"

Scope
Device

Description
*AtmIf/n Vcc/vpi.vci MulticastSourcePvc MulticastSourcePvcParty/n*

This component represents a party of a multicast soft PVC.

Common Verbs
Help
List
Display
Add
DELete

## GROUP AtmIf Vcc Msrc Party Provisioned (Prov)

Properties
Provisioned

Description
This attribute group contains the provisionable attributes of the *AtmMsrcPvcParty* component.

## ATTRIBUTE AtmIf Vcc Msrc Party calledAddress

Access
Read: All
Write: All

Criticality
Component

| | |
|---|---|
| Description | This attribute represents the called (remote) address of the multicast soft PVC party. |
| Values | String (20, Hex) |
| Default | No default |

### ATTRIBUTE AtmIf Vcc Msrc Party calledVpiVci

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute represents the called (remote) VPI and VCI of the multicast soft PVC party. |
| Values | Integer Sequence (0..4095; 1..65535) |
| Default | No default |

### GROUP AtmIf Vcc Msrc Party Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains the operational attributes associated with the *AtmMsrcPvcParty* component. |

### ATTRIBUTE AtmIf Vcc Msrc Party retryCount

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of failed attempts to set up the multicast soft PVC party since the last time the connection failed. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vcc Msrc Party lastFailureCauseCode

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the cause code value of the last signalling message which contained the CAUSE information element. If there has been no previous failure, the value for this attribute is 0. |

| | |
|---|---|
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE AtmIf Vcc Msrc Party lastFailureDiagCode

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the diagnostic code associated with the *lastFailureCauseCode* attribute. If the diagnostic code was not provided with that CAUSE information element, or if there has been no previous failure, this attribute is empty. |
| Values | String (0..8, ASCII) |
| Default | No default |

### GROUP AtmIf Vcc Msrc Party OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE AtmIf Vcc Msrc Party adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down. |

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE AtmIf Vcc Msrc Party operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE AtmIf Vcc Msrc Party usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

## COMPONENT AtmIf UserNetworkInterface (Uni)

Groups
"GROUP AtmIf Uni Provisioned (Prov)"
"GROUP AtmIf Uni Operational (Oper)"
"GROUP AtmIf Uni AccountingOptions (AcctOpt)"

Scope
Device

Description
*AtmIf/n Uni*
This component represents an ATM UNI interface. If this component is provisioned the *Aini*, *Iisp*, or *Pnni* component can not be provisioned under that *AtmIf* component. If this component is deleted, then all associated *Vcc* components are deleted.

| | |
|---|---|
| Subcomponents | "COMPONENT AtmIf Uni Ilmi"<br>"COMPONENT AtmIf Uni Signalling (Sig)" |
| Opt. Subcomp. | "COMPONENT AtmIf Uni CallingAddressScreening (CallingAScr)"<br>"COMPONENT AtmIf Uni CalledAddressScreening (CalledAScr)"<br>"COMPONENT AtmIf Uni PathTraceFilter (Ptf)"<br>"COMPONENT AtmIf Uni ServiceTrace (SrvTrace)"<br>"COMPONENT AtmIf Uni Reroute" |
| Dyn. Subcomp. | "COMPONENT AtmIf Uni PathTraceTestConnection (Ptt)" |
| Dyn. Subcomp. | "COMPONENT AtmIf Uni Address (Addr)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP AtmIf Uni Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the *Uni* component. |

## ATTRIBUTE AtmIf Uni version

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies which specification the UNI complies with. The options are ATM FORUM 3.0, ATM FORUM 3.1 or ATM FORUM 4.0. If this attribute is changed then all switched *Vcc* components in this interface are cleared due to the fact that the two versions are incompatible. |

| | |
|---|---|
| Values | atmForum30<br>atmForum31<br>atmForum40 |
| Default | atmForum40 |

### ATTRIBUTE AtmIf Uni side

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute indicates which side the interface is, user or network. |
| Values | network<br>user |
| Default | network |

### ATTRIBUTE AtmIf Uni softPvpAndPvcRetryPeriod

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute represents the time in seconds to wait between soft PVP or soft PVC call setup retries. The resolution is to the nearest 10 seconds. |
| Values | Decimal (20..999999) |
| Units | seconds |
| Default | 60 |

### ATTRIBUTE AtmIf Uni softPvpAndPvcHoldOffTime (sHoldOffTime)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies how long to hold off retries following the release of a connection. Due to the way group timers are implemented, it can take from 100% to 150% of the provisioned timer to trigger the desired action. Since SPVC retries are paced, |

in cases where there are many connections, the entire process can take more than 150% of the provisioned timer value.

Values: Decimal (0; 50..20000)

Units: msec

Default: 0

### ATTRIBUTE AtmIf Uni loopPrevention

Access: Read: All
Write: Configuration

Description: This attribute specifies whether loop prevention is in effect on this interface.

When the value is ***enabled***, incoming calls on this interface cannot be routed back out the same interface. When the value is ***disabled***, routing of incoming calls back out the same interface is permitted.

The recommended value is ***enabled***. The value ***disabled*** should only be used if routing of incoming calls back out over this interface is actually required. As an example, the value ***disabled*** might be needed if the interface is connected to an end-user multiplexing device which has no routing capability.

Note that setting the value to ***enabled*** prevents only routing loops which involve two network nodes.

Values: disabled
enabled

Default: enabled

### ATTRIBUTE AtmIf Uni interfaceType

Access: Read: All
Write: All

Criticality: Component

Description: This attribute represents the *Type* of the interface, ***private*** or ***public***.

| | |
|---|---|
| Values | public<br>private |
| Default | private |

### GROUP AtmIf Uni Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains the operational attributes for the *Uni* component. |

### ATTRIBUTE AtmIf Uni macAddress

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the MAC address of the port, which is used for address registration of the user side as the default ESI. |
| Values | String (12, ASCII) |
| Default | No default |

### GROUP AtmIf Uni AccountingOptions (AcctOpt)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for accounting. |

### ATTRIBUTE AtmIf Uni accountCollection (aco)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute is used to turn accounting on or off for SVC and SPVC connections. It also specifies the reason(s) for which accounting data is collected: ***billing***, ***test***, ***study***, ***audit*** or ***force***.<br><br>If the set of reasons is not empty then accounting records will be generated by this interface in the following situations:<br>- on a TODA changeover if TODA is enabled;<br>- every 12 hours (per connection) if TODA is disabled;<br>- on every call clear (a call record with final cell counts).<br><br>If none of the reasons is present, then accounting will be suppressed. |

The reason for collection is recorded in the accounting record, in the attribute *callingCollectReason* or *calledCollectReason* as appropriate.

Set of
bill
test
study
audit
force

Default
No default

### ATTRIBUTE AtmIf Uni accountConnectionType (act)

Access
Read: All
Write: All

Description
This attribute specifies whether accounting records generated by this interface should be marked as originating, terminating or intermediate. This attribute, in combination with the direction of the call, determines the value of attribute *connPointType* of the accounting record and may be used by downstream accounting processes to correlate the records.

If the value is ***origTerm*** then records generated for incoming calls will be marked as ***originating*** and records generated for outgoing calls will be marked as ***terminating***.

If the value is ***intermediate*** then records generated for all calls will be marked as ***intermediate***.

Values
origTerm
intermediate

Default
origTerm

### ATTRIBUTE AtmIf Uni accountClass (acl)

Access
Read: All
Write: All

Description
This attribute specifies the accounting class associated with the interface. Its meaning is determined by the network operator.

Its value is simply recorded in the accounting records generated by this interface, in the attribute *callingServiceType* or *calledServiceType* as appropriate.

Values: Decimal (0..255)

Default: 0

### ATTRIBUTE AtmIf Uni serviceExchange (sre)

Access: Read: All
Write: All

Description: This attribute specifies the data service exchange associated with this interface. Its meaning is determined by the network operator.

Its value is simply recorded in the accounting records generated by this interface, in the attribute *callingDse* or *calledDse* as appropriate.

Values: Decimal (0..255)

Default: 0

### COMPONENT AtmIf Uni Ilmi

Groups: "GROUP AtmIf Uni Ilmi OsiState (State)"
"GROUP AtmIf Uni Ilmi Provisioned (Prov)"
"GROUP AtmIf Uni Ilmi Statistics (Stats)"

Scope: Device

Description: *AtmIf/n Uni Ilmi*
This component represents the Interim Local Management Interface (ILMI) protocol on the interface.

Opt. Subcomp.: "COMPONENT AtmIf Uni Ilmi Esi"

Common Verbs:
Help
List
Display

## GROUP AtmIf Uni Ilmi OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

## ATTRIBUTE AtmIf Uni Ilmi adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

## ATTRIBUTE AtmIf Uni Ilmi operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component. |

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

## ATTRIBUTE AtmIf Uni Ilmi usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

## GROUP AtmIf Uni Ilmi Provisioned (Prov)

Properties
Provisioned

Description
This attribute group contains the provisionable attributes for the *Ilmi* component.

### ATTRIBUTE AtmIf Uni Ilmi vci

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute identifies the ILMI channel number. |
| Values | Decimal (0..65535) |
| Default | 16 |

### ATTRIBUTE AtmIf Uni Ilmi operatingMode

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute is used to enable/disable the ILMI protocol. ***addressRegEnabled*** indicates that the ILMI address registration protocol is enabled. ***addressRegDisabled*** indicates that the ILMI address registration protocol is disabled. ***ilmiDisabled*** indicates that all of ILMI is disabled. |
| Values | addressRegEnabled<br>addressRegDisabled<br>ilmiDisabled |
| Default | addressRegEnabled |

### ATTRIBUTE AtmIf Uni Ilmi prefixToRegister

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute is a list of zero or more addresses. If the *side* attribute in the *Uni* component is set to ***user***, then this attribute must be empty; if the *side* attribute is set to ***network***, then this attribute is a list of prefixes.This attribute represents a list of prefix addresses (26 digits) that are sent to the user side. If no prefixes are entered, then the *nodeAddr*ess attribute in the *AtmCallRouter* component is used for address registration. |

| | |
|---|---|
| List of | String (26, ASCII) |
| List Size | 10 |
| Default | No default |

### GROUP AtmIf Uni Ilmi Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains the statistics for the *AtmIlmi* component. |

### ATTRIBUTE AtmIf Uni Ilmi txPdus

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of transmitted ILMI PDUs. The counter wraps to 0 when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Uni Ilmi rxPdus

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of received ILMI PDUs.The counter wraps to 0 when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Uni Ilmi rxBadPdusDiscarded

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the number of received ILMI PDUs that were discarded due to invalid SNMP format. The counter wraps to 0 when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT AtmIf Uni Ilmi Esi

| | |
|---|---|
| Instance | String (6, Hex) |
| Groups | "GROUP AtmIf Uni Ilmi Esi Provisioned (Prov)" |
| Scope | Device |
| Description | *AtmIf/n Uni Ilmi Esi*<br>This attribute represents the End System Identifier (ESI) associated with this UNI. If the *side* attribute of the *Uni* component is set to ***network*** then there should be no *Esi* components provisioned. If the *side* attribute is set to ***user***, then the instance of the *Esi* component is a 12 hex-digit user-part address, used to compose full ATM addresses that are registered with the network side. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP AtmIf Uni Ilmi Esi Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This attribute group contains the provisionable attributes for the *Esi* component. |

### ATTRIBUTE AtmIf Uni Ilmi Esi uniScope

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |

Description

This attribute defines the UNI address membership scope for all addresses created using this ESI. It specifies the inclusive routing hierarchy in which the address is to be known. This scope is used during ILMI dynamic address registration procedures.

The ***useDefaultScope*** value maps to ***localNetwork*** for ATM group
addresses, and to ***global*** for individual addresses.

The value of this attribute is ignored for UNI 3.x interfaces.

Values

useDefaultScope (def)
localNetwork (ln)
localPlusOne (lpo)
localPlusTwo (lpt)
siteMinusOne (smo)
intraSite (is)
intraSitePlusOne (ispo)
organizationMinusOne (omo)
intraOrganization (io)
organizationPlusOne (opo)
communityMinusOne (cmo)
intraCommunity (ic)
communityPlusOne (cpo)
regional (r)
interRegional (ir)
global (g)

Default

useDefaultScope

## COMPONENT AtmIf Uni Signalling (Sig)

Groups

"GROUP AtmIf Uni Sig Provisioned (Prov)"
"GROUP AtmIf Uni Sig OsiState (State)"
"GROUP AtmIf Uni Sig Operational (Oper)"
"GROUP AtmIf Uni Sig Statistics (Stats)"

Scope

Device

Description

*AtmIf/n Aini Signalling*
*AtmIf/n Iisp Signalling*
*AtmIf/n Uni Signalling*
*AtmIf/n Pnni Signalling*

*AtmIf/n Vpt/m Aini Signalling*
*AtmIf/n Vpt/m Iisp Signalling*
*AtmIf/n Vpt/m Uni Signalling*
*AtmIf/n Vpt/m Pnni Signalling*

This component represents the signaling entities for the interface.

Opt. Subcomp. "COMPONENT AtmIf Uni Sig VirtualChannelDescriptor (Vcd)"

Common Verbs
Help
List
Display

## GROUP AtmIf Uni Sig Provisioned (Prov)

Properties Provisioned

Description This attribute group contains the provisionable attributes for the *Signalling* component.

## ATTRIBUTE AtmIf Uni Sig vci

Access Read: All
Write: All

Criticality Component

Description This attribute specifies the signaling channel number.

Values Decimal (0..65535)

Default 5

## ATTRIBUTE AtmIf Uni Sig addressConversion

Access Read: All
Write: All

Description This attribute specifies the address conversion on the outgoing signaling PDUs. The options are ***none***, ***nativeE164***, or ***nsap***. The ***none*** option is the default and if this option is chosen then nothing is done to the address information element (IE) in the outgoing signaling message. If ***nativeE164*** option is chosen, then only NSAP encapsulated E.164 addresses with zeros in the ESI

are converted to native E.164 format in the outgoing signaling message. If the NSAP address is not encapsulated E.164 or the ESI field is not zeros and the ***nativeE164*** option is chosen, then the call is cleared. If the ***nsap*** option is chosen, then native E.164 addresses are converted to NSAP E.164 with zeros in the ESI field; otherwise the address is in NSAP format and is not changed.

Values
none
nativeE164
nsap

Default
none

### ATTRIBUTE AtmIf Uni Sig operatingMode

Access
Read: All
Write: All

Description
This attribute specifies the operating mode of the signaling channel ***provisionedOnly*** indicates that only SPVCs and SPVPs are supported on the interface and SVCs are not supported. This value is permitted only on UNI interfaces.
***normal*** indicates that SVCs, SPVCs, and SPVPs are supported on the interface.

Values
normal
provisionedOnly

Default
normal

### GROUP AtmIf Uni Sig OsiState (State)

Properties
Operational

Description
This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE AtmIf Uni Sig adminState (osiAdmin)

Access
Read only

Description

This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values

locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default

unlocked

## ATTRIBUTE AtmIf Uni Sig operationalState (osiOper)

Access

Read only

Description

This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values

enabled (ena)
disabled (dis)

Default

disabled

### ATTRIBUTE AtmIf Uni Sig usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP AtmIf Uni Sig Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute contains the operational attributes for the AtmSignalling component. |

### ATTRIBUTE AtmIf Uni Sig lastTxCauseCode

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the cause code in the last transmitted signaling message that contains the CAUSE information element. The cause code is used to describe the reason for generating certain signaling messages. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE AtmIf Uni Sig lastTxDiagCode

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute contains the diagnostic code in the last transmitted signaling message. The diagnostic code is contained in the CAUSE information element and identifies an information element type or timer type. The diagnostic code is present only if a procedural error is detected by the signaling protocol. A diagnostic code is always accompanied by the cause code. If there is no failure, this attribute is set to 0. |
| Values | Hex (H.0..H.ff) |
| Default | No default |

### ATTRIBUTE AtmIf Uni Sig lastRxCauseCode

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute contains the cause code in the last received signaling message that contains the CAUSE information element. The cause code is used to describe the reason for generating certain signaling messages. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE AtmIf Uni Sig lastRxDiagCode

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute contains the diagnostic code in the last received signaling message. The diagnostic code is contained in the CAUSE information element and identifies an information element type or timer type. The diagnostic code is present only if a procedural error is detected by the signaling protocol. A diagnostic code is always accompanied by the cause code. If there is no failure, this attribute is set to 0. |
| Values | Hex (H.0..H.ff) |

| | |
|---|---|
| Default | No default |

### GROUP AtmIf Uni Sig Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains the statistics associated with the AtmSignalling component. |

### ATTRIBUTE AtmIf Uni Sig peakConnections

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the high water mark of active point-to-point connections. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Uni Sig successfulConnections

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of switched point-to-point connections that were successfully established. The counter wraps to 0 when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Uni Sig failedConnections

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of unsuccessful attempts to establish switched point-to-point connections. The counter wraps to 0 when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Uni Sig txPdus

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of transmitted signaling PDUs.The counter wraps to 0 when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Uni Sig rxPdus

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of received signaling PDUs.The counter wraps to 0 when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Uni Sig currentPmpConnections

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of currently active point-to-multipoint connections. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Uni Sig peakPmpConnections

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the high water mark of active point-to-multipoint connections. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE AtmIf Uni Sig successfulPmpConnections

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of switched point-to-multipoint connections that were successfully established. The counter wraps to 0 when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Uni Sig failedPmpConnections

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of unsuccessful attempts to establish switched point-to-multipoint connections. The counter wraps to 0 when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Uni Sig currentConnections

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the total number of currently active point-to-<br>point connections. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT AtmIf Uni Sig VirtualChannelDescriptor (Vcd)

| | |
|---|---|
| Groups | "GROUP AtmIf Uni Sig Vcd Provisioned (Prov)" |
| Scope | Device |

Description

*AtmIf/n Uni Sig VirtualChannelDescriptor*
*AtmIf/n Uni Ilmi VirtualChannelDescriptor*
*AtmIf/n Aini Sig VirtualChannelDescriptor*
*AtmIf/n Iisp Sig VirtualChannelDescriptor*
*AtmIf/n Pnni Sig VirtualChannelDescriptor*
*AtmIf/n Pnni Rcc VirtualChannelDescriptor*
*AtmIf/n Vpt/m Uni Sig VirtualChannelDescriptor*
*AtmIf/n Vpt/m Aini Sig VirtualChannelDescriptor*
*AtmIf/n Vpt/m Iisp Sig VirtualChannelDescriptor*
*AtmIf/n Vpt/m Pnni Sig VirtualChannelDescriptor*
*AtmIf/n Vpt/m Pnni Rcc VirtualChannelDescriptor*

This component contains the provisionable traffic parameters for a control channel (Sig, *Ilmi* or *Rcc* component).

Common Verbs

Help
List
Display
Add
DELete

## GROUP AtmIf Uni Sig Vcd Provisioned (Prov)

Properties

Provisioned

Description

This group contains the provisionable traffic attributes for a control channel.

## ATTRIBUTE AtmIf Uni Sig Vcd trafficDescType (tdt)

Access

Read: All
Write: All

Criticality

Component

Description

This attribute specifies the type of traffic management which is applied to both the transmit and receive direction of this connection as defined in the ATM Forum. The *trafficDescType* determines the number and meaning of the parameters in the *trafficDescParm* attribute.

Values

3
6

7
8

Default 6

## ATTRIBUTE AtmIf Uni Sig Vcd atmServiceCategory (service)

Access Read: All
Write: All

Criticality Component

Description This attribute specifies the ATM service category for both directions of the connection.

The ***constantBitRate*** service category is intended for real time applications, that is those requiring tightly constrained delay and delay variation, as would be appropriate for voice and video applications. The consistent availability of a fixed quantity of bandwidth is considered appropriate for CBR service. Cells which are delayed beyond the value specified by CellTransfer Delay are assumed to be of significantly reduce value to the application.

The ***rtVariableBitRate*** service category is intended for real time applications, that is those requiring tightly constrained delay and delay variation, as would be appropriate for voice and video applications. Sources are expected to transmit at a rate which varies with time. Equivalently, the source can be described as “bursty”. Cells which are delayed beyond the value specified by CTD are assumed to be of significantly reduced value to the application. Real time VBR service may support statistical multiplexing of real time sources.

The ***nrtVariableBitRate*** service category is intended for non-real time applications which have bursty traffic characteristics and which can be characterized in terms of a PCR, SCR, and MBS. For those cells which are transferred within the traffic contract, the application expects a low cell loss ratio. For all connections, it expects a bound on the mean cell transfer delay. Non-real time VBR service may support statistical multiplexing of connections.

The ***unspecifiedBitRate*** service is intended for non-real time

applications; that is, those not requiring tightly constrained delay and delay variation. UBR sources are expected to be bursty. UBR service supports a high degree of statistical multiplexing among sources. UBR service does not specify traffic related service guarantees. No numerical commitments are made with respect to the cell loss ratio experienced by a UBR connection, or as to the cell transfer delay experienced by cells on the connection.

Values
unspecifiedBitRate (ubr)
constantBitRate (cbr)
rtVariableBitRate (rtvbr)
nrtVariableBitRate (nrtvbr)

Default
rtVariableBitRate

## ATTRIBUTE AtmIf Uni Sig Vcd weight

Access
Read and write

Criticality
Component

Description
This VCD component has an attribute that is called atmServiceCategory. This attribute specifies the service category that is used by the sig, rcc or ilmi channel. The *weight* attribute is related to two other attributes which are *weightPolicy* and *txQueueLimit*, as mentioned in the following description. These attributes can be found under the atmif/n ca <atmServiceCategory>/ m.

This attribute specifies an override for the *weight* of this unshaped connection. This attribute is ignored for shaped connections, for ABR connections, for connections on a CQC-based ATM FPs and basic VPTs.

When the value is set to ***sameAsCa***, the *weight* is determined by the *weightPolicy* attribute under the CA service category component for all but standard VPT VCCs. For standard VPT VCCs, the *weight* is determined by the VCC's service category, when the value is set to ***sameAsCa***.

When this attribute is set to a value from ***1*** to ***4095***, that value is used for the *weightPolicy* of this connection relative to other connections. For all but standard VPT VCCs, *weightPolicy*

determines the proportion of transit cell opportunities which are allocated to this connection, compared to other connections in the same service category. For standard VPT VCCs, *weightPolicy* determines the proportion of transmit cell opportunities which are allocated to this connection, compared to other connections associated with the VPT.

When the value is set to ***upToQueueLimit***, the *weightPolicy* is limited only by the *txQueueLimit*.

Values
Decimal (1..4095)
sameAsCa
upToQueueLimit

Default
sameAsCa

## ATTRIBUTE AtmIf Uni Sig Vcd qosClass (qos)

Access
Read and write

Criticality
Component

Description
This attribute specifies the quality of service for both the forward and backward direction for this connection.

Class ***1*** supports a QOS that meets Service Class A performance requirements (Circuit emulation, constant bit rate video).

Class ***2*** supports a QOS that meets Service Class B performance requirements (Variable bit rate audio and video).

Class ***3*** supports a QOS that meets Service Class C performance requirements (Connection-Oriented Data Transfer).

Class ***4*** supports a QOS that meets Service Class D performance requirements (Connectionless Data Transfer).

Class ***0*** is the unspecified bit rate QOS class; no objective is specified for the performance parameters.

Values
0
1
2

| | |
|---|---|
| | 3<br>4 |
| Default | 2 |

### ATTRIBUTE AtmIf Uni Sig Vcd trafficShaping (trShaping)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies whether this connection uses traffic shaping when transmitting traffic to the ATM interface.<br><br>When ***sameAsCa*** is selected, traffic shaping for this connection is based on the *trafficShaping* attribute of the connection's service category component under the *AtmIf CA*. If the service category has traffic shaping enabled, then traffic shaping is enabled for the connection. Note that enabling traffic shaping may have no effect under certain cases. These cases are listed in the description of the *trafficShaping* operational attribute, which is under the *Vcc Tm* and *Vpc Tm* components.<br><br>When ***disabled*** is selected, traffic shaping for this connection is disabled. |
| Values | disabled<br>sameAsCa |
| Default | disabled |

### ATTRIBUTE AtmIf Uni Sig Vcd unshapedTransmitQueueing (unshap)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute only applies when this connection is unshaped. This attribute specifies the transmit queuing method for this connection if it is unshaped. Refer to the *unshapedTransmitQueueing* attribute under the *AtmIf CA* service category subcomponent for more details on the meaning of this attribute.<br><br>When this attribute is set to ***sameAsCa***, the transmit queuing |

method for the connection is based on the *unshapedTransmitQueueing* attribute of the connection's service category component under the *ConnectionAdministrator.*

When this attribute is set to ***common***, transmit traffic on this unshaped connection is destined for the common queue.

The value ***sameAsInterface*** is for migration from previous software releases, but should no longer be used

Values
common
sameAsCa

Default
sameAsCa

## ATTRIBUTE AtmIf Uni Sig Vcd usageParameterControl (upc)

Access
Read and write

Criticality
Component

Description
This attribute specifies whether this connection enforces usage parameter control when receiving traffic from the ATM interface.

When ***sameAsCa*** is selected, UPC for the connection is based on the *usageParameterControl* attribute of the connection's service category component under the *ConnectionAdministrator.* If the service category has UPC enabled, then UPC is enabled for the connection. Note that enabling UPC may have no effect under certain cases. These cases are listed in the description of the *usageParameterControl* operational attribute, which is under the *Vcc Tm* or *Vpc Tm* component.

When ***disabled*** is selected, UPC for this connection is disabled.

The value ***sameAsInterface*** is for migration from previous software releases, but should no longer be used

Values
disabled
sameAsCa

Default
disabled

## ATTRIBUTE AtmIf Uni Sig Vcd trafficDescParm (tdp)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute is a vector of five traffic parameters whose meanings are defined by the *trafficDescType* attribute. The values of peak cell rate (PCR), sustained cell rate (SCR) and requested shaping rate are expressed in cell/s. Maximum burst size (MBS) is expressed in cells. CDVT is expressed in microseconds. The values of PCR, SCR, MBS and CDVT are used for connection admission control (CAC). The value of CDVT is only used for connections where the *atmServiceCategory* is ***constantBitRate***. For all other values of *atmServiceCategory*, CDVT is ignored. The values of PCR, SCR and requested shaping rate are used to determine the actual shaping rate where traffic shaping is enabled.<br><br>When *trafficDescType* is ***3***, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameter 1 must be non-zero. Parameters 2 and 3 must be zero.<br><br>When *trafficDescType* is ***6***, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 and 1 traffic; parameter 3 represents the MBS for CLP equal to 0 and 1 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameters 1, 2, and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2. Parameter 5 must either be zero (unused) or greater than or equal to parameter 2.<br><br>When *trafficDescType* is ***7***, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 with cell discard; parameter 3 represents the MBS for CLP equal to 0 traffic; parameter 4 represents the CDVT; and |

parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameters 1, 2, and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2. Parameter 5 must either be zero (unused) or greater than or equal to parameter 2.

When *trafficDescType* is ***8***, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 traffic with cell tagging; parameter 3 represents the MBS for CLP equal to 0 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameters 1, 2, and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2. Parameter 5 must either be zero (unused) or greater than or equal to parameter 2.

Whenever it is valid for PCR to be specified, parameter 5 may also be used to specify a requested shaping rate. A non-zero value in parameter 5 overrides the value in parameter 1 and is used as the peak cell rate in calculations of CAC and shaping rate.

For *trafficDescType* ***3*** the traffic is shaped at the next rate less than the PCR.

For *trafficDescType* ***6***, ***7***, and ***8***, the traffic is shaped at the highest available rate which is between PCR and SCR. However, if there is no available shaping rate between PCR and SCR, traffic is shaped at the next rate above the PCR.

| | |
|---|---|
| Vector of | Decimal (0..2147483647) |
| Index | Decimal (1..5) |
| Default | (250, 160, 5, 0, 0) |

## COMPONENT AtmIf Uni Address (Addr)

| | |
|---|---|
| Instance | address [String (1..40, ASCII)]<br>addressType [primary<br>alternate<br>registered<br>default] |
| Groups | "GROUP AtmIf Uni Addr Operational (Oper)" |
| Scope | Device |
| Description | *AtmIf/n Uni Address/address,type*<br>*AtmIf/n Vpt/m Uni Address/address,type*<br><br>This component represents an address (dynamic or static) associated with the interface. The index is a string of 1 to 40 hex digits or a single wild-card (‘?’), and a type. The type identifies whether the Address component is for a ***primary***, ***alternate***, ***registered***, or ***default*** address.<br><br>The types ***primary*** and ***alternate*** are used for provisioned addresses. The type ***registered*** is used for dynamic addresses through ILMI. The type ***default*** is used for Soft PVP and Soft PVC addresses. Virtual interfaces do not have addresses of type ***default***.<br><br>The wild-card is only valid for provisioned addresses. If the address is a single wild-card, then that indicates that the interface supports all addresses. If there is no better match, then this interface may be chosen in the routing. If there is more than one interface with a single wild-card static address, then the choice is made using a round robin algorithm.<br><br>The round robin algorithm first tries the primary routes. If none of the primary routes succeed, then the alternate routes are tried.<br><br>Note that the ***UniInfo*** and ***PnniInfo*** sub-components are |

mutually exclusive. Only one of these may be added under the ***AtmIf Uni Addr*** component.

Opt. Subcomp. "COMPONENT AtmIf Uni Addr TerminateSPvpAndSPvc (TermSP)"
"COMPONENT AtmIf Uni Addr PnniInfo"
"COMPONENT AtmIf Uni Addr UniInfo"

Common Verbs
Help
List
Display
Add
DELete

## GROUP AtmIf Uni Addr Operational (Oper)

Properties Operational

Description This attribute group contains the operational attributes for the *AtmIf/n Uni Address* component.

## ATTRIBUTE AtmIf Uni Addr reachability (reach)

Access Read: All
Write: Illegal

Description This attribute indicates whether the address is internal or exterior. An internal reachable address is an address of a destination that is directly attached to the logical node advertising the address. An exterior reachable address is an address that can be reached through a PNNI routing domain, but which is not located in that PNNI routing domain.

Values internal
exterior

Default No default

## ATTRIBUTE AtmIf Uni Addr pnniScope

Access Read: All
Write: Illegal

| | |
|---|---|
| Description | This attribute indicates the PNNI scope of the ATM address, which is the highest level to which this address will be advertised in the PNNI hierarchy. If no *PnniInfo* subcomponent has been provisioned, then the scope will default to the level of this node in the PNNI hierarchy.<br><br>This attribute will have the value of -1 if this node does not participate in a PNNI hierarchy, or if this address was provisioned with a UNI membership scope, rather than a PNNI routing level. |
| Values | Signed (-1..104) |
| Default | No default |

### ATTRIBUTE AtmIf Uni Addr uniScope

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the UNI membership scope of the ATM address. It specifies the inclusive routing hierarchy in which the address is known.<br><br>This attribute will have the value 0 if the address was provisioned with a PNNI routing level rather than a UNI membership scope. |
| Values | scopeNotAvailable<br>localNetwork<br>localPlusOne<br>localPlusTwo<br>siteMinusOne<br>intraSite<br>intraSitePlusOne<br>organizationMinusOne<br>intraOrganization<br>organizationPlusOne<br>communityMinusOne<br>intraCommunity<br>communityPlusOne<br>regional<br>interRegional<br>global |

Default No default

## COMPONENT AtmIf Uni Addr TerminateSPvpAndSPvc (TermSP)

Scope Device

Description *AtmIf/n Aini Address/address,type TerminateSPvpAndSPvc*
*AtmIf/n Iisp Address/address,type TerminateSPvpAndSPvc*
*AtmIf/n Uni Address/address,type TerminateSPvpAndSPvc*
*AtmIf/n Pnni Address/address,type TerminateSPvpAndSPvc*
*AtmIf/n Vpt/m Aini Address/address,type TerminateSPvpAndSPvc*
*AtmIf/n Vpt/m Iisp Address/address,type TerminateSPvpAndSPvc*
*AtmIf/n Vpt/m Uni Address/address,type TerminateSPvpAndSPvc*
*AtmIf/n Vpt/m Pnni Address/address,type TerminateSPvpAndSPvc*

The presence of this subcomponent indicates that SPvp and SPvc call setups terminate at this node if the destination address of the SPVP or SPVC matches the *Address* instance.

Common Verbs
Help
List
Display
Add
DELete

## COMPONENT AtmIf Uni Addr PnniInfo

Groups "GROUP AtmIf Uni Addr PnniInfo Provisioned (Prov)"

Scope Device

Description *AtmIf/n Aini Addr/address,type PnniInfo*
*AtmIf/n Iisp Addr/address,type PnniInfo*
*AtmIf/n Uni Addr/address,type PnniInfo*
*AtmIf/n Pnni Addr/address,type PnniInfo*
*AtmIf/n Vpt/m Aini Addr/address,type PnniInfo*
*AtmIf/n Vpt/m Iisp Addr/address,type PnniInfo*
*AtmIf/n Vpt/m Uni Addr/address,type PnniInfo*
*AtmIf/n Vpt/m Pnni Addr/address,type PnniInfo*

This component contains provisioned information associated with

the ATM address related to PNNI. This component appears only under provisioned *Address* components.

Common Verbs

Help
List
Display
Add
DELete

## GROUP AtmIf Uni Addr PnniInfo Provisioned (Prov)

Properties: Provisioned

Description: This attribute group contains the provisioned attributes relating to PNNI for a *PnniInfo* component.

## ATTRIBUTE AtmIf Uni Addr PnniInfo scope

Access: Read: All
Write: All

Criticality: Component

Description: This attribute specifies the scope of the ATM address, which is the highest level up to which this address will be advertised in the PNNI hierarchy. The scope must be set to a value numerically less than or equal to the level of the lowest level peer group containing this node. Setting the scope to 0 will cause the address to be advertised globally within this PNNI routing domain.

Values: Signed (-1..104)

Default: -1

## ATTRIBUTE AtmIf Uni Addr PnniInfo reachability (reach)

Access: Read: All
Write: All

Criticality: Component

Description: This attribute indicates whether the address is internal or exterior. An internal reachable address is an address of a destination that is directly attached to the logical node advertising the address. An exterior reachable address is an address that can be reached

through a PNNI routing domain, but which is not located in that PNNI routing domain.

Values
internal
exterior

Default
internal

## COMPONENT AtmIf Uni Addr UniInfo

Groups
"GROUP AtmIf Uni Addr UniInfo Provisioned (Prov)"

Scope
Device

Description
*AtmIf/n Uni Addr/address,type UniInfo*
*AtmIf/n Vpt/m Uni Addr/address,type UniInfo*

This component contains the provisioned information associated with the ATM address and related to the UNI. This component appears only under provisioned *Uni Address* components.

This component may not appear together with the *Atmif Uni Addr PnniInfo* component, they are mutually exclusive.

Common Verbs
Help
List
Display
Add
DELete

## GROUP AtmIf Uni Addr UniInfo Provisioned (Prov)

Properties
Provisioned

Description
This attribute group contains the provisioned attributes relating to a UNI address for a *UniInfo* component.

## ATTRIBUTE AtmIf Uni Addr UniInfo scope

Access
Read: All
Write: All

Criticality
Component

| | |
|---|---|
| Description | This attribute specifies the address UNI membership scope. It specifies the inclusive routing hierarchy in which the address will be known.<br><br>The ***useDefaultScope*** value maps to ***localNetwork*** for ATM group addresses, and to ***global*** for individual addresses.<br><br>Note that this value is ignored for UNI 3.x interfaces. |
| Values | useDefaultScope (def)<br>localNetwork (ln)<br>localPlusOne (lpo)<br>localPlusTwo (lpt)<br>siteMinusOne (smo)<br>intraSite (is)<br>intraSitePlusOne (ispo)<br>organizationMinusOne (omo)<br>intraOrganization (io)<br>organizationPlusOne (opo)<br>communityMinusOne (cmo)<br>intraCommunity (ic)<br>communityPlusOne (cpo)<br>regional (r)<br>interRegional (ir)<br>global (g) |
| Default | useDefaultScope |

### ATTRIBUTE AtmIf Uni Addr UniInfo pnniReachability (reach)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute indicates whether the address is internal or exterior. An internal reachable address is an address of a destination that is directly attached to the logical node advertising the address. An exterior reachable address is an address that can be reached through<br>a PNNI routing domain, but which is not located in that PNNI routing domain. |

| | |
|---|---|
| Values | internal<br>exterior |
| Default | internal |

### COMPONENT AtmIf Uni CallingAddressScreening (CallingAScr)

| | |
|---|---|
| Groups | "GROUP AtmIf Uni CallingAScr Provisioned (Prov)"<br>"GROUP AtmIf Uni CallingAScr Statistics (Stat)" |
| Scope | Device |
| Description | *AtmIf/n Aini CallingAddressScreening*<br>*AtmIf/n Uni CallingAddressScreening*<br>*AtmIf/n Iisp CallingAddressScreening*<br>This component represents the screening of incoming ATM SVC call requests against provisioned ATM calling addresses (that is, screening SVC calls coming from specific addresses). If this component is not provisioned, all call requests are accepted and no calling address screening takes place. |
| Opt. Subcomp. | "COMPONENT AtmIf Uni CallingAScr Address (Addr)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP AtmIf Uni CallingAScr Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This attribute group contains the provisionable attributes for the *CallingAScr* component. |

### ATTRIBUTE AtmIf Uni CallingAScr adminStatus

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies whether the calling address screening feature is ***enabled*** or ***disabled***. |

If ***enabled***, incoming SVC calls are screened against provisioned addresses. If ***enabled*** and the calling address in the ATM SVC call request is provisioned to be accepted, the call is accepted or rejected according to the action specified for that address. If the value is ***enabled***, and the calling address in the address request is not provisioned, the call is rejected

If the value is ***disabled***, no calling address screening is performed.

Values: enabled
disabled

Default: disabled

### ATTRIBUTE AtmIf Uni CallingAScr defaultInsertionAddress (defInsAddr)

Access: Read: All
Write: All

Description: This attribute specifies the address to be inserted into the SVC connection request if *adminStatus* is ***enabled*** and the connection request does not contain a calling address. If the *adminStatus* attribute is ***enabled*** and this attribute is empty, all incoming SVC calls which do not contain a calling address are rejected.

Values: String (0..20, Hex)

Default: ""

### GROUP AtmIf Uni CallingAScr Statistics (Stat)

Properties: Operational

Description: This attribute group contains statistics related to the incoming SVC call requests received while the *adminStatus* attribute is set to ***enabled***.

### ATTRIBUTE AtmIf Uni CallingAScr acceptedCalls

Access: Read: All
Write: Illegal

Description: This attribute counts the incoming SVC calls which were accepted because the address specified in the call request

matched a provisioned ATM address and the associated action was ***accept***.
When the counter exceeds the maximum, it wraps to 0.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE AtmIf Uni CallingAScr rejectedCalls

Access: Read: All
Write: Illegal

Description: This attribute counts the incoming SVC calls which were rejected because the address specified in the call request matched a provisioned ATM address, but the associated action was ***reject***.
When the counter exceeds the maximum, it wraps to 0.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE AtmIf Uni CallingAScr unmatchedCalls

Access: Read: All
Write: Illegal

Description: This attribute counts the incoming SVC calls which were rejected because none of the provisioned ATM addresses matched the applicable address in the incoming SVC call request.
When the counter exceeds the maximum, it wraps to 0.

Values: Decimal (0..4294967295)

Default: 0

### COMPONENT AtmIf Uni CallingAScr Address (Addr)

Instance: address [String (1..40, ASCII)]
addressAction [accept
reject]

Scope: Device

Description: *AtmIf/n Aini CallingAScr Address/addr,action*
*AtmIf/n Uni CallingAScr Address/addr,action*

*AtmIf/n Iisp CallingAScr Address/addr,action*
*AtmIf/n Aini CalledAScr Address/addr,action*
*AtmIf/n Uni CalledAScr Address/addr,action*
*AtmIf/n Iisp CalledAScr Address/addr,action*
This component specifies a calling (or called) address with an action to accept or reject a connection request which contains a matching calling (or called) address.
For the Calling Address Screening feature, if the specified action is ***accept***, any call whose calling address matches that address is accepted. If the specified action is ***reject***, any call whose calling address matches that address is rejected.
For the Called Address Screening feature, if the specified action is ***accept***, any call whose called address matches that address, is accepted. If the specified action is ***reject***, any call whose called address matches that address is rejected.
For both features, the incoming SVC call request is rejected if the address is not provisioned and the feature is ***enabled***.

Common Verbs

Help
List
Display
Add
DELete

## COMPONENT AtmIf Uni CalledAddressScreening (CalledAScr)

Groups

"GROUP AtmIf Uni CalledAScr Provisioned (Prov)"
"GROUP AtmIf Uni CalledAScr Statistics (Stat)"

Scope

Device

Description

*AtmIf/n Aini CalledAddressScreening*
*AtmIf/n Uni CalledAddressScreening*
*AtmIf/n Iisp CalledAddressScreening*
This component represents the screening of incoming ATM SVC call requests against provisioned ATM called addresses (that is, going to specific destinations). If this component is not

provisioned, all call requests are accepted and no called address screening takes place.

Opt. Subcomp. "COMPONENT AtmIf Uni CalledAScr Address (Addr)"

Common Verbs
Help
List
Display
Add
DELete

## GROUP AtmIf Uni CalledAScr Provisioned (Prov)

Properties Provisioned

Description This attribute group contains the provisionable attributes for the *CalledAScr* component.

## ATTRIBUTE AtmIf Uni CalledAScr adminStatus

Access Read: All
Write: All

Description This attribute specifies whether the called address screening feature is ***enabled*** or ***disabled***.
If the value is ***enabled***, incoming SVC calls will be screened against provisioned called addresses. If the value is ***enabled*** and the called address in the ATM SVC call request has been provisioned, the call is accepted or rejected according to the action specified for that address. If the value is ***enabled*** and the called address in the call request is not provisioned, the call is rejected.
If the value is ***disabled***, no called address screening is performed.

Values enabled
disabled

Default disabled

## GROUP AtmIf Uni CalledAScr Statistics (Stat)

Properties Operational

Description This attribute group contains statistics related to the incoming SVC call requests received while the *adminStatus* attribute is set to ***enabled***.

### ATTRIBUTE AtmIf Uni CalledAScr acceptedCalls

Access Read: All
Write: Illegal

Description This attribute counts the incoming SVC calls which were accepted because the address specified in the call request matched a provisioned ATM address and the associated action was ***accept***.
When the counter exceeds the maximum, it wraps to 0.

Values Decimal (0..4294967295)

Default 0

### ATTRIBUTE AtmIf Uni CalledAScr rejectedCalls

Access Read: All
Write: Illegal

Description This attribute counts the incoming SVC calls which were rejected because the address specified in the call request matched a provisioned ATM address, but the associated action was ***reject***.
When the counter exceeds the maximum, it wraps to 0.

Values Decimal (0..4294967295)

Default 0

### ATTRIBUTE AtmIf Uni CalledAScr unmatchedCalls

Access Read: All
Write: Illegal

Description This attribute counts the incoming SVC calls which were rejected because none of the provisioned ATM addresses matched the applicable address in the incoming SVC call request.
When the counter exceeds the maximum, it wraps to 0.

Values Decimal (0..4294967295)

Default 0

## COMPONENT AtmIf Uni CalledAScr Address (Addr)

Instance
address [String (1..40, ASCII)]
addressAction [accept
reject]

Scope
Device

Description
*AtmIf/n Aini CallingAScr Address/addr,action*
*AtmIf/n Uni CallingAScr Address/addr,action*
*AtmIf/n Iisp CallingAScr Address/addr,action*
*AtmIf/n Aini CalledAScr Address/addr,action*
*AtmIf/n Uni CalledAScr Address/addr,action*
*AtmIf/n Iisp CalledAScr Address/addr,action*
This component specifies a calling (or called) address with an action to accept or reject a connection request which contains a matching calling (or called) address.
For the Calling Address Screening feature, if the specified action is ***accept***, any call whose calling address matches that address is accepted. If the specified action is ***reject***, any call whose calling address matches that address is rejected.
For the Called Address Screening feature, if the specified action is ***accept***, any call whose called address matches that address, is accepted. If the specified action is ***reject***, any call whose called address matches that address is rejected.
For both features, the incoming SVC call request is rejected if the address is not provisioned and the feature is ***enabled***.

Common Verbs
Help
List
Display
Add
DELete

## COMPONENT AtmIf Uni PathTraceFilter (Ptf)

Groups
"GROUP AtmIf Uni Ptf Criteria"
"GROUP AtmIf Uni Ptf Operational (Oper)"
"GROUP AtmIf Uni Ptf RecordControl (Record)"

Scope
Device

Description

*AtmIf/n Aini PathTraceFilter*
*AtmIf/n Iisp PathTraceFilter*
*AtmIf/n Uni PathTraceFilter*
*AtmIf/n Pnni PathTraceFilter*
*AtmIf/n Vpt/vpi Aini PathTraceFilter*
*AtmIf/n Vpt/vpi Iisp PathTraceFilter*
*AtmIf/n Vpt/vpi Uni PathTraceFilter*
*AtmIf/n Vpt/vpi Pnni PathTraceFilter*

This component represents the path trace filtering capability on the ATM signaling interface. This capability allows the user to trace connections during the call setup phase against the criteria associated with this component. Only the connections that match all the criteria are traced.

When this component is provisioned, the network operator can control tracing activities by using the *Start*, *Stop*, and *Clear* verbs. When the *Start* verb is issued, the *traceTimeout* timer restarts. Once the timer times out, filtering stops and records are not removed. When the *Stop* verb is issued, the filter stops and the trace records are kept until the user clears them. When the *Clear* verb is issued, the trace records are cleared. When *AtmPathTraceFilter* component is deleted, all records are cleared.

Once the maximum specified by *maxTraceRecords* attribute under the *PathTraceFilter* component or *maxTraceRecords* attribute under the *Lp/n Eng PTrace* component has been reached, the oldest record is deleted.

The *AtmPathTraceFilter* component is not permitted to be added when the *Lp/n Eng PTrace Ov maxTraceRecords* attribute is set to zero.

| | |
|---|---|
| Dyn. Subcomp. | "COMPONENT AtmIf Uni Ptf PathTraceRecord (PTRecord)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## VERB START AtmIf Uni Ptf

| | |
|---|---|
| Impact | Service |
| Description | *START AtmIf/n Aini PathTraceFilter*<br>*START AtmIf/n Iisp PathTraceFilter*<br>*START AtmIf/n Uni PathTraceFilter*<br>*START AtmIf/n Pnni PathTraceFilter*<br>*START AtmIf/n Vpt/vpi Aini PathTraceFilter*<br>*START AtmIf/n Vpt/vpi Iisp PathTraceFilter*<br>*START AtmIf/n Vpt/vpi Uni PathTraceFilter*<br>*START AtmIf/n Vpt/vpi Pnni PathTraceFilter*<br><br>This command starts the path tracing based on the specified filtering criteria.<br><br>When the command is issued, the *traceTimeout* timer is reset. |

### VERB STOP AtmIf Uni Ptf

| | |
|---|---|
| Impact | Service |
| Description | *STOP AtmIf/n Aini PathTraceFilter*<br>*STOP AtmIf/n Iisp PathTraceFilter*<br>*STOP AtmIf/n Uni PathTraceFilter*<br>*STOP AtmIf/n Pnni PathTraceFilter*<br>*STOP AtmIf/n Vpt/vpi Aini PathTraceFilter*<br>*STOP AtmIf/n Vpt/vpi Iisp PathTraceFilter*<br>*STOP AtmIf/n Vpt/vpi Uni PathTraceFilter*<br>*STOP AtmIf/n Vpt/vpi Pnni PathTraceFilter*<br><br>This command causes the filter to stop, but keeps the trace records. |

### VERB CLEAR AtmIf Uni Ptf

| | |
|---|---|
| Impact | Service |
| Description | *CLEAR AtmIf/n Aini PathTraceFilter*<br>*CLEAR AtmIf/n Iisp PathTraceFilter*<br>*CLEAR AtmIf/n Uni PathTraceFilter*<br>*CLEAR AtmIf/n Pnni PathTraceFilter*<br>*CLEAR AtmIf/n Vpt/vpi Aini PathTraceFilter*<br>*CLEAR AtmIf/n Vpt/vpi Iisp PathTraceFilter*<br>*CLEAR AtmIf/n Vpt/vpi Uni PathTraceFilter*<br>*CLEAR AtmIf/n Vpt/vpi Pnni PathTraceFilter*<br><br>This command clears the path trace records associated with this filter. This command is rejected on an active filter. |

### GROUP AtmIf Uni Ptf Criteria

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational criteria for the *PathTraceFilter* component. |

### ATTRIBUTE AtmIf Uni Ptf traceInfo (tInfo)

| | |
|---|---|
| Access | Read: All<br>Write: All |

| | |
|---|---|
| Description | This attribute specifies the trace information that is included in the trace records.<br><br>***crankBack***: Crankback information is included if the connection is cranked back during the connection setup phase. If the option is turned on, all attempted paths including the final one are recorded. If the option is turned off, only the information of the final path is recorded. If the connection fails to reach the destination, no path information is returned.<br><br>***connId***: Connection Identifier information is included.<br><br>***callRef***: For point-to-point connections, the call reference is included. For point-to-multipoint connections, the call reference and end point reference are both included.<br><br>Basic trace information, such as node and port identifiers, are always included. |
| Set of | crankBack<br>connId<br>callRef |
| Default | (crankBack, connId, callRef) |

### ATTRIBUTE AtmIf Uni Ptf calledPartyPrefix (cldPref)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies an NSAP address prefix, which is compared with the called party IE in the connection setup request. When all the criteria in the filter match successfully, the call is traced.<br><br>An empty string matches any address. |
| Values | String (0..20, Hex) |
| Default | No default |

## ATTRIBUTE AtmIf Uni Ptf callingPartyPrefix (clgPref)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies an NSAP address prefix, which is compared with the calling party IE in the connection setup request. When all the criteria in the filter match successfully, the call is traced.<br><br>An empty string matches any address. |
| Values | String (0..20, Hex) |
| Default | No default |

## ATTRIBUTE AtmIf Uni Ptf connectionType (type)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies a connection type (SVC, SPVC, SVP, SPVP), which is compared against the connection setup request. When all the criteria in the filter match successfully, the call is traced. |
| Set of | svc<br>spvc<br>svp<br>spvp |
| Default | (svc, spvc, svp, spvp) |

## ATTRIBUTE AtmIf Uni Ptf connectionConfiguration (config)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies a type of topology (point-to-point or point-to-multipoint), which is compared against the connection setup request. When all the criteria in the filter match successfully, the call is traced. |

| | |
|---|---|
| Set of | ptp<br>ptmp |
| Default | (ptp, ptmp) |

### ATTRIBUTE AtmIf Uni Ptf serviceCategory (svcCat)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the service categories, which is compared against the connection setup request. When the all criteria in the filter match successfully, the call is traced. |
| Set of | cbr<br>rtVbr<br>nrtVbr<br>ubr |
| Default | (cbr, rtVbr, nrtVbr, ubr) |

### GROUP AtmIf Uni Ptf Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for the *PathTraceFilter* component. |

### ATTRIBUTE AtmIf Uni Ptf state

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the current state of the filter.<br><br>***active***: Indicates the filter is active.<br><br>***inactive:*** Indicates the filter is inactive. The records are available if the filter is stopped by the user using the *Stop* verb or if the filter has timed out. |

| | |
|---|---|
| Values | active<br>inactive |
| Default | inactive |

### ATTRIBUTE AtmIf Uni Ptf recordCount

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of records that have been acquired so far for this filter. The maximum number of records that can be stored is specified by *Lp/n Eng PathTrace maxTraceRecords* or *AtmPathTraceFilter maxTraceRecords*, which ever is less. |
| Values | Decimal (0..200) |
| Default | No default |

### ATTRIBUTE AtmIf Uni Ptf matchedConnections

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of connections that match the criteria of this filter. |
| Values | Decimal (0..2147483647) |
| Default | No default |

### ATTRIBUTE AtmIf Uni Ptf elapsedTime

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of minutes that have elapsed since the start of the filter. |
| Values | Decimal (0..70560) |
| Units | minutes |
| Default | No default |

### ATTRIBUTE AtmIf Uni Ptf timeRemaining

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of minutes remaining before the filter terminates itself. |
| Values | Decimal (0..70560) |
| Units | minutes |
| Default | No default |

### GROUP AtmIf Uni Ptf RecordControl (Record)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for the record control of the *PathTraceFilter* component. |

### ATTRIBUTE AtmIf Uni Ptf traceTimeout

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies how long this filter remains active. At the end of this time, the filter is stopped and all trace records associated with this filter are available. |
| Values | Decimal (1..70560) |
| Units | minutes |
| Default | 60 |

### ATTRIBUTE AtmIf Uni Ptf maxTraceRecords (mRecords)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the maximum number of records allowed to be stored with the filter.<br><br>Once the maximum has been reached, the oldest record is removed. |

| | |
|---|---|
| Values | Decimal (1..200) |
| Default | 2 |

## COMPONENT AtmIf Uni Ptf PathTraceRecord (PTRecord)

| | |
|---|---|
| Groups | "GROUP AtmIf Uni Ptf PTRecord Operational (Oper)" |
| Scope | Device |
| Description | *AtmIf/n Aini Ptf PTRecord*<br>*AtmIf/n Iisp Ptf PTRecord*<br>*AtmIf/n Uni Ptf PTRecord*<br>*AtmIf/n Pnni Ptf PTRecord*<br>*AtmIf/n Vpt/n Aini Ptf PTRecord*<br>*AtmIf/n Vpt/n Iisp Ptf PTRecord*<br>*AtmIf/n Vpt/n Uni Ptf PTRecord*<br>*AtmIf/n Vpt/n Pnni Ptf PTRecord*<br><br>This component represents the path trace record for the last failed connection against this filter. |
| Dyn. Subcomp. | "COMPONENT AtmIf Uni Ptf PTRecord Hop" |
| Common Verbs | Help<br>List<br>Display |

## GROUP AtmIf Uni Ptf PTRecord Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for the path trace record component. |

## ATTRIBUTE AtmIf Uni Ptf PTRecord status

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the status of the trace. The string is one of the following:<br><br>***Completed normally****:* The trace completed normally. |

***Incomplete**:* Partial trace returned.

***Exceeded information element length limitations**:* The number of traced nodes exceeded the maximum number of hops.

***Exceeded message length limitations**:* The message length exceeded the maximum allowed size.

| | |
|---|---|
| Values | Completed normally<br>Incomplete<br>Exceeded information element length limitations<br>Exceeded message length limitations |
| Default | No default |

### ATTRIBUTE AtmIf Uni Ptf PTRecord timeStamp

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute records the date and time of when the trace is completed. |
| Values | Time (DHMS) |
| Default | No default |

### ATTRIBUTE AtmIf Uni Ptf PTRecord srcPortId

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the trace's source port identifier used for this connection. This attribute only appears in the trace result for the trace source hop. |
| Values | Decimal (1..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Uni Ptf PTRecord srcPortName

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the name of the source port used for this connection. This attribute only appears in the trace result for the trace source hop. |
| Values | String (40, ASCII) |
| Default | No default |

### ATTRIBUTE AtmIf Uni Ptf PTRecord causeCode

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute contains the cause code in the transmitted signaling message that contains the CAUSE information element. The cause code is used to describe the reason for generating certain signaling messages. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE AtmIf Uni Ptf PTRecord diagCode

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute contains the diagnostic code in the transmitted signaling message. The diagnostic code is contained in the CAUSE information element and identifies an information element type or timer type. The diagnostic code is present only if a procedural error is detected by the signaling protocol. A diagnostic code is always accompanied by the cause code. If there is no failure, this attribute is set to NULL. |
| Values | String (0..8, ASCII) |

| | |
|---|---|
| Default | No default |

## COMPONENT AtmIf Uni Ptf PTRecord Hop

| | |
|---|---|
| Instance | Decimal (0..200) |
| Groups | "GROUP AtmIf Uni Ptf PTRecord Hop Operational (Oper)" |
| Scope | Device |
| Description | *AtmIf/n Aini Ptf PTRecord Hop/n*<br>*AtmIf/n Iisp Ptf PTRecord Hop/n*<br>*AtmIf/n Uni Ptf PTRecord Hop/n*<br>*AtmIf/n Pnni Ptf PTRecord Hop/n*<br>*AtmIf/n Vpt/n Aini Ptf PTRecord Hop/n*<br>*AtmIf/n Vpt/n Iisp Ptf PTRecord Hop/n*<br>*AtmIf/n Vpt/n Uni Ptf PTRecord Hop/n*<br>*AtmIf/n Vpt/n Pnni Ptf PTRecord Hop/n*<br>*AtmIf/n Vcc/x.y PTRecord Hop/n*<br>*AtmIf/n Vpc/n PTRecord Hop/n*<br>*AtmIf/n Vpt/n Vcc/x.y PTRecord Hop/n*<br><br>This component stores the result of a hop from a trace. An instance of this component is dynamically created for each hop in a trace record.<br><br>Depending on the hops, different attributes are present. |
| Dyn. Subcomp. | "COMPONENT AtmIf Uni Ptf PTRecord Hop VendorSpecificInfo (Vsi)" |
| Common Verbs | Help<br>List<br>Display |

## GROUP AtmIf Uni Ptf PTRecord Hop Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for the component *AtmPathTraceFilterRecordHop*. |

### ATTRIBUTE AtmIf Uni Ptf PTRecord Hop ingressVpiVci (vpiVci)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the VPI.VCI values used for this hop on the ingress side. This is the ingress side with respect to the trace or setup messages. This attribute is displayed for ATM interfaces only.<br><br>The VPI.VCI values are included in the trace when the *traceInfo* attribute sets the ***connId*** value. |
| Values | Integer Sequence (0..4095; 0..65535) |
| Default | No default |

### ATTRIBUTE AtmIf Uni Ptf PTRecord Hop ingressDlci (dlci)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the DLCI value used for this hop on the ingress side. This is the ingress side with respect to the trace or setup message. This attribute is displayed for FrAtm interfaces only.<br><br>The DLCI is included in the trace when the *traceInfo* attribute sets the ***connId*** value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Uni Ptf PTRecord Hop ingressCallReference (callref)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the call reference value used for this hop on the ingress side. This is the ingress side with respect to the |

trace or setup message.

The call reference is included in the trace when the *traceInfo* attribute sets the ***callRef*** value

Values: Hex (H.0..H.ffffff)

Default: No default

### ATTRIBUTE AtmIf Uni Ptf PTRecord Hop ingressEndPointReference (epref)

Access: Read: All
Write: Illegal

Criticality: Component

Description: This attribute indicates the end point reference value used for this hop on the ingress side. This is the ingress side with respect to the trace or setup messages.

The end point reference is included in the trace when the *traceInfo* attribute sets the ***callRef*** value and the connection is point-to-multipoint.

Values: Hex (H.0..H.ffff)

Default: No default

### ATTRIBUTE AtmIf Uni Ptf PTRecord Hop nodeId

Access: Read: All
Write: Illegal

Criticality: Component

Description: This attribute indicates the lowest level node ID traversed for this hop.

Values: String (22, Hex)

Default: No default

### ATTRIBUTE AtmIf Uni Ptf PTRecord Hop nodeName

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the *nodeName* under the *ModuleData* component for this hop. Only Passport nodes provide this information by including it in the Vendor Specific group. |
| Values | String (12, ASCII) |
| Default | No default |

### ATTRIBUTE AtmIf Uni Ptf PTRecord Hop portId

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the port identifier value for this hop on the egress side. This is the egress side with respect to the trace or setup messages. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Uni Ptf PTRecord Hop portName

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the port name for this hop on the egress side. This is the egress side with respect to the trace or setup messages. Only Passport nodes provide this information by including it in the Vendor Specific group. |
| Values | String (55, ASCII) |
| Default | No default |

### ATTRIBUTE AtmIf Uni Ptf PTRecord Hop pnniTraceContRefusalIndPresent (refusal)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates whether the “PNNI Trace Continuation Refusal” indicator is present. The “PNNI Trace Continuation Refusal” indicator indicates that this hop has refused to participate in the trace. |
| Values | absent<br>present |
| Default | absent |

### ATTRIBUTE AtmIf Uni Ptf PTRecord Hop crankbackDestNodeIndPresent (dest)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates whether the “PNNI Crankback Received at the Trace Destination Node” indicator is present. The “PNNI Crankback Received at Trace Destination Node” indicator indicates that this hop is acting as a trace destination node, receiving a crankback for this call from a non-PNNI interface. |
| Values | absent<br>present |
| Default | absent |

### ATTRIBUTE AtmIf Uni Ptf PTRecord Hop pnniCrankbackGapIndPresent (gap)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates whether the “PNNI Crankback Gap” indicator is present. The “PNNI Crankback Gap” indicator indicates that the call experienced a crankback, where no Trace Transit List IE was returned by the node initiating the crankback. |

| | |
|---|---|
| Values | absent<br>present |
| Default | absent |

### ATTRIBUTE AtmIf Uni Ptf PTRecord Hop crankBackCause (cause)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the crankback cause. Please refer to Private-Network-to-Network-Interface Specification Version 1.0 for more information.<br><br>This attribute is present when the *traceInfo* attribute sets the ***crankBack*** value and the connection has initiated the crankback procedure. |
| Values | Decimal (0..1000) |
| Default | No default |

### ATTRIBUTE AtmIf Uni Ptf PTRecord Hop blockedTransitType (type)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the blocked transit type.<br><br>This attribute is present when the *traceInfo* attribute sets the ***crankBack*** value and the connection has initiated the crankback procedure. |
| Values | Succeeding end blocked<br>Blocked node<br>Blocked link |
| Default | No default |

### ATTRIBUTE AtmIf Uni Ptf PTRecord Hop blockedNodeId (bNodeId)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the blocked node ID during the call setup request. The blocked node ID identifies the logical node where the connection or party has been blocked.<br><br>This attribute is present when the *blockedTransitType* attribute is ***Blocked node.*** |
| Values | String (22, Hex) |
| Default | No default |

### ATTRIBUTE AtmIf Uni Ptf PTRecord Hop blockedLinkPrecedingNodeId (pNodeId)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the blocked link's preceding node ID during the call setup request. The blocked link's preceding node ID identifies the logical node preceding a link, where the connection or party has been blocked.<br><br>This attribute is present when the *blockedTransitType* attribute is ***Blocked link***. |
| Values | String (22, Hex) |
| Default | No default |

### ATTRIBUTE AtmIf Uni Ptf PTRecord Hop blockedLinkPortId (bPortId)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the blocked link's port identifier used for this connection during the call setup request. The blocked link's port identifier identifies a logical port of the blocked link's |

preceding node identifier.

This attribute is present when the *blockedTransitType* attribute is ***Blocked link.***

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE AtmIf Uni Ptf PTRecord Hop blockedLinkSucceedingNodeId (sNodeId)

Access: Read: All
Write: Illegal

Criticality: Component

Description: This attribute indicates the blocked link's succeeding node ID during the call setup request. The blocked link's succeeding node ID identifies the logical node succeeding a link where the connection or party has been blocked.

This attribute is present when the *blockedTransitType* attribute is ***Blocked link.***

Values: String (22, Hex)

Default: No default

### ATTRIBUTE AtmIf Uni Ptf PTRecord Hop dstVpiVci

Access: Read: All
Write: Illegal

Criticality: Component

Description: This attribute indicates the VPI.VCI values on the destination side. This attribute only appears in the trace result for the trace destination node. This attribute is only displayed for ATM interfaces.

The VPI.VCI is included in the trace when the *traceInfo* attribute sets the ***connId*** value.

Values: Integer Sequence (0..4095; 0..65535)

| | |
|---|---|
| Default | No default |

### ATTRIBUTE AtmIf Uni Ptf PTRecord Hop dstDlci

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the DLCI value on the destination side. This attribute only appears in the trace result for the trace destination node. This attribute is only displayed for FrAtm interfaces.<br><br>The DLCI is included in the trace when the *traceInfo* attribute sets the ***connId*** value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Uni Ptf PTRecord Hop dstCallReference (dcr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the call reference value on the destination side. This attribute only appears in the trace result for the trace destination node.<br><br>The call reference value is included in the trace when the *traceInfo* attribute sets the ***callRef*** value. |
| Values | Hex (H.0..H.ffffff) |
| Default | No default |

### ATTRIBUTE AtmIf Uni Ptf PTRecord Hop dstEndPointReference (depr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |

| | |
|---|---|
| Description | This attribute indicates the end point call reference value on the destination side. This attribute only appears in the trace result for the trace destination node.<br><br>The call reference value is included in the trace when the *traceInfo* attribute sets the ***callRef*** value and the connection is point-to-multipoint. |
| Values | Hex (H.0..H.ffff) |
| Default | No default |

### ATTRIBUTE AtmIf Uni Ptf PTRecord Hop specifiedPath

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates whether this hop is the originator of this manually configured path. Only Passport nodes provide this information by including it in the Vendor Specific group. |
| Values | no<br>yes |
| Default | no |

### COMPONENT AtmIf Uni Ptf PTRecord Hop VendorSpecificInfo (Vsi)

| | |
|---|---|
| Instance | Decimal (0..10) |
| Groups | "GROUP AtmIf Uni Ptf PTRecord Hop Vsi Operational (Oper)" |
| Scope | Device |
| Description | *AtmIf/n Aini Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Iisp Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Uni Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vpt/n Aini Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vpt/n Iisp Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vpt/n Uni Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vpt/n Pnni Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vcc/x.y PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vpc/n PTRecord Hop/n VendorSpecificInfo/m* |

*AtmIf/n Vpt/n Vcc/x.y PTRecord Hop/n VendorSpecificInfo/m*

This component stores the vendor specific information of a non-Passport node for a hop. An instance of this component is dynamically created for the vendor specific information group of a hop in a trace. Several instances of this component are created if the trace has several groups of vendor specific information.

All the trace information for a Passport node is stored in the *PTRecord Hop/** component.

Common Verbs

Help
List
Display

## GROUP AtmIf Uni Ptf PTRecord Hop Vsi Operational (Oper)

Properties: Operational

Description: This group contains the operational attributes for the component *AtmPathTraceFilterRecordHopVen*.

## ATTRIBUTE AtmIf Uni Ptf PTRecord Hop Vsi length

Access: Read: All
Write: Illegal

Description: This attribute indicates the length of the vendor specific information group.

Values: Decimal (0..11)

Default: No default

## ATTRIBUTE AtmIf Uni Ptf PTRecord Hop Vsi organizationUniqueId (oui)

Access: Read: All
Write: Illegal

Description: This attribute indicates the Organization Unique Identifier (OUI) of a non-Passport node.

Values: String (3, Dashed Hex)

Default: No default

## ATTRIBUTE AtmIf Uni Ptf PTRecord Hop Vsi data

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the contents of the vendor specific information group. |
| Values | String (1..8, Hex) |
| Default | No default |

## COMPONENT AtmIf Uni PathTraceTestConnection (Ptt)

| | |
|---|---|
| Groups | "GROUP AtmIf Uni Ptt Operational (Oper)" |
| Scope | Device |
| Description | *AtmIf/n Aini PathTraceTestConnection*<br>*AtmIf/n Iisp PathTraceTestConnection*<br>*AtmIf/n Uni PathTraceTestConnection*<br>*AtmIf/n Pnni PathTraceTestConnection*<br>*AtmIf/n Vpt/vpi Aini PathTraceTestConnection*<br>*AtmIf/n Vpt/vpi Iisp PathTraceTestConnection*<br>*AtmIf/n Vpt/vpi Uni PathTraceTestConnection*<br>*AtmIf/n Vpt/vpi Pnni PathTraceTestConnection*<br><br>This component provides the capability to control the Path Trace Test Connection. A test connection is one way to find the logical nodes and ports that a connection traverses to a destination interface.<br><br>The *Trace* verb is used to initiate the test connection. The test connection is always released once it reaches the trace destination. The test connection responds with the trace results collected during a complete or partial trace. |
| Common Verbs | Help<br>List<br>Display |

## VERB TRACE Atmlf Uni Ptt

| | |
|---|---|
| Impact | Passive |
| Description | *TRACE AtmIf/n Aini AtmPathTraceTest*<br>*TRACE AtmIf/n Iisp AtmPathTraceTest*<br>*TRACE AtmIf/n Uni AtmPathTraceTest*<br>*TRACE AtmIf/n Pnni AtmPathTraceTest*<br>*TRACE AtmIf/n Vpt/vpi Aini AtmPathTraceTest*<br>*TRACE AtmIf/n Vpt/vpi Iisp AtmPathTraceTest*<br>*TRACE AtmIf/n Vpt/vpi Uni AtmPathTraceTest*<br>*TRACE AtmIf/n Vpt/vpi Pnni AtmPathTraceTest*<br><br>This command is used to initiate a Path Trace Test Connection and then responds with a list of logical nodes and ports from the trace source node to the trace destination node.<br><br>Only one *Trace* command is allowed at a time per signaling interface. If the test connection times out, the command fails. |

## GROUP Atmlf Uni Ptt Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for the *AtmPathTraceTest* component. |

## ATTRIBUTE Atmlf Uni Ptt traceCrankback

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute controls what trace information the trace records include. If the option is turned on, all attempted paths are recorded including the final one. If the option is turned off, only the information of the final path is recorded. If the connection fails to reached the destination, no path information is returned. |
| Values | no<br>yes |
| Default | no |

## ATTRIBUTE AtmIf Uni Ptt txTrafficDescType (txTdt)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the type of traffic management applied to the transmit direction, as defined by the ATM Forum. The *txTrafficDescType* determines the number and meaning of the parameters in the *txTrafficDescParm* attribute. |
| Values | 1<br>2<br>3<br>4<br>5<br>6<br>7<br>8<br>9 |
| Default | 1 |

## ATTRIBUTE AtmIf Uni Ptt rxTrafficDescType (rxTdt)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the type of traffic management, which is applied to the receive direction of this connection, as defined in the ATM Forum. The *rxTrafficDescType* determines the number and meaning of the parameters in the *rxTrafficDescParm* attribute<br><br>When ***sameAsTx*** is selected, the *rxTrafficDescType* and the *rxTrafficDescParm* are taken from the transmit values. |
| Values | 1<br>2<br>3<br>4<br>5<br>6<br>7 |

| | |
|---|---|
| | 8<br>9<br>sameAsTx |
| Default | sameAsTx |

### ATTRIBUTE AtmIf Uni Ptt atmServiceCategory (service)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the ATM service category for both directions of the connection.<br><br>If this attribute is set to ***derivedFromBBC***, the Broadband Bearer Capability (BBC) and *bestEffort* attributes are used to determine the *atmServiceCategory* of this connection.<br><br>If this attribute is set to a possible attribute other than ***derivedFromBBC***, the value of this attribute is used to override the provisioned BBC IE parameters. In those cases, the BBC attributes are not used.<br><br>The ***constantBitRate*** service category is intended for real time applications, that is, those requiring tightly constrained delay and delay variation such as for voice and video applications.<br><br>The ***rtVariableBitRate*** service category is intended for real time applications, that is, those requiring tightly constrained delay and delay variation, such as for voice and video applications. Sources are expected to transmit at a rate which varies with time. Equivalently, the source can be described as “bursty”. Cells, which are delayed beyond the value specified by CTD, are assumed to be of significantly reduced value to the application. The VBR real time service may support statistical multiplexing of real time sources.<br><br>The ***nrtVariableBitRate*** service category is intended for non-real time applications which have bursty traffic characteristics and can be characterized in terms of a PCR, SCR, and MBS. |

The ***unspecifiedBitRate*** service is intended for non-real time applications, that is, those not requiring tightly constrained delay and delay variation. UBR sources are expected to be bursty. The UBR service supports a high degree of statistical multiplexing among sources.

Values
unspecifiedBitRate (ubr)
constantBitRate (cbr)
rtVariableBitRate (rtvbr)
nrtVariableBitRate (nrtvbr)
derivedFromBBC (derived)

Default
unspecifiedBitRate

## ATTRIBUTE AtmIf Uni Ptt fwdQosClass (fwdQos)

Access
Read: All
Write: All

Criticality
Component

Description
This attribute specifies the quality of service for the forward direction for this connection.

Class ***1*** supports a QOS that will meet Service Class A performance requirements (circuit emulation, constant bit rate video).

Class ***2*** supports a QOS that will meet Service Class B performance requirements (variable bit rate audio and video).

Class ***3*** supports a QOS that will meet Service Class C performance requirements (connection-oriented data transfer).

Class ***4*** supports a QOS that will meet Service Class D performance requirements (connectionless data transfer).

Class ***0*** is the unspecified bit rate QOS class; no objective is specified for the performance parameters.

Values
0
1

| | |
|---|---|
| | 2<br>3<br>4 |
| Default | 0 |

### ATTRIBUTE AtmIf Uni Ptt bwdQosClass (bwdQos)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the quality of service for the backward direction for this connection.<br><br>Class ***1*** supports a QOS that will meet Service Class A performance requirements (circuit emulation, constant bit rate video).<br><br>Class ***2*** supports a QOS that will meet Service Class B performance requirements (variable bit rate audio and video).<br><br>Class ***3*** supports a QOS that will meet Service Class C performance requirements (connection-oriented data transfer).<br><br>Class ***4*** supports a QOS that will meet Service Class D performance requirements (connectionless data transfer).<br><br>Class ***0*** is the unspecified bit rate QOS class; no objective is specified for the performance parameters.<br><br>The ***sameAsFwd*** selection sets the backward quality of service to be the same as the forward quality of service. |
| Values | 0<br>1<br>2<br>3<br>4<br>sameAsFwd |
| Default | sameAsFwd |

## ATTRIBUTE AtmIf Uni Ptt bearerClassBbc (bcBbc)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the bearer capability. It is one of the Broadband Bearer Capability (BBC) attributes. The purpose of the BBC information element is to indicate a requested broadband connection-oriented bearer service to be provided by the network.<br><br>The value ***derivedFromServiceCategory*** specifies that the actual value, which is used for this connection and is derived from the value of the *atmServiceCategory*. Either this attribute must be set to ***derivedFromServiceCategory***, or the *atmServiceCategory* attribute must be set to ***derivedFromBBC***, but not both.<br><br>Class ***a*** service is a connection-oriented, constant bit rate ATM transport service. Class ***a*** service has end-to-end timing requirements and may require stringent cell loss, cell delay and cell delay variation performance.When ***a*** is set, the user is requesting more than an ATM only service. The network may look at the AAL to provide inter-working based on its contents.<br><br>Class ***c*** service is a connection-oriented, variable bit rate ATM transport service. Class ***c*** service has no end-to-end timing requirements. When ***c*** is set, the user is requesting more than an ATM only service. The network inter-working function may look at the AAL and provide service based on it.<br><br>Class ***x*** service is a connection-oriented ATM transport service where the AAL, *trafficType* (***vbr*** or ***cbr***), and timing requirements are user defined (that is, transparent to the network).When ***x*** is set, the user is requesting an ATM only service from the network. In this case, the network shall not process any higher layer protocols. |
| Values | a<br>c |

| | |
|---|---|
| | x<br>derivedFromServiceCategory |
| Default | derivedFromServiceCategory |

### ATTRIBUTE AtmIf Uni Ptt transferCapabilityBbc (tcBbc)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the transfer capability for this connection. UNI 3.0/3.1 traffic type and end-to-end timing parameters are mapped into this parameter as follows:<br><transferCapability: TrafficType, Timing><br>***0***: NoIndication, NoIndication<br>***1***: NoIndication, yes<br>***2***: NoIndication, no<br>***5***: CBR, yes<br>***8***: VBR, NoIndication<br>***9***: VBR, yes<br>***10***: VBR, no<br><br>***NotApplicable*** specifies that the user does not want to specify the transfer capability.<br><br>The CBR traffic type refers to the traffic offered on services such as a constant bit rate video service or a circuit emulation.<br><br>The VBR traffic type refers to the traffic offered on services such as packetized audio and video, or data.<br><br>The value ***NoIndication*** for traffic type is used if the user has not set the traffic type. This is also the case for end-to-end timing.<br><br>The value ***yes*** for end-to-end timing indicates that end-to-end timing is required.<br><br>The value ***no*** for end-to-end timing indicates that end-to-end timing is not required. |

The value ***derivedFromServiceCategory*** specifies that the actual value which is used for this connection and is derived from the value of the *atmServiceCategory.* Either, this attribute must be set to ***derivedFromServiceCategory*** or the *atmServiceCategory* attribute must be set to ***derivedFromBBC***, but not both.

Values
0
1
2
5
8
9
10
notApplicable
derivedFromServiceCategory

Default
derivedFromServiceCategory

## ATTRIBUTE AtmIf Uni Ptt clippingBbc (cBbc)

Access
Read: All
Write: All

Criticality
Component

Description
This attribute specifies the value for the clipping susceptibility parameter in the BBC IE. This attribute is only used for SPVC connections. It is one of the Broadband Bearer Capability attributes.

Clipping is an impairment where the first fraction of a second of information to be transferred is lost. It occurs after a call is answered and before an associated connection is switched through.

Values
no
yes

Default
no

## ATTRIBUTE AtmIf Uni Ptt bestEffort

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the value of the best effort parameter in the ATM Traffic Descriptor IE. It is one of the Broadband Bearer Capability attributes.<br><br>The value ***indicated*** implies that the quality of service for this connection is not guaranteed.<br><br>The value ***notIndicated*** implies that the quality of service for this connection is guaranteed.<br><br>The value ***derivedFromServiceCategory*** specifies that the actual value, which is used for this connection, is derived from the value of the *atmServiceCategory.* Either this attribute must be set to ***derivedFromServiceCategory*** or the *atmServiceCategory* attribute must be set to ***derivedFromBBC***, but not both. |
| Values | indicated<br>notIndicated<br>derivedFromServiceCategory (derived) |
| Default | derivedFromServiceCategory |

## ATTRIBUTE AtmIf Uni Ptt testCalledAddress

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the destination address of this test connection. |
| Values | String (20, Hex) |
| Default | No default |

## ATTRIBUTE AtmIf Uni Ptt testCalledVpiVci

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the called VPI.VCI values for this test connection on the destination interface. |
| Values | Integer Sequence (0..4095; 0..65535) |
| Default | No default |

## ATTRIBUTE AtmIf Uni Ptt testSpecifiedPath

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the path that will be used to get to the destination of this test connection. |
| Values | String (0..32, ASCII) |
| Default | No default |

## ATTRIBUTE AtmIf Uni Ptt bwdQosParameters (bqp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is a vector of three elements that specify the quality of service parameters for the backward direction for this connection. This attribute is used for SPVC connections.<br><br>The ***cdv*** element specifies the acceptable peak-to-peak cell delay variation (CDV) of real-time connections (CBR and rt-VBR).<br><br>It is signaled through the extended QoS information element.<br><br>The ***ctd*** specifies the acceptable maximum cell transfer delay (maxCtd) of real-time connections (CBR and rt-VBR). It is signaled through the end-to-end transit delay information element. |

The ***clr*** specifies the acceptable cell loss ratio (CLR) of CBR, rt-VBR, and nrt-VBR connections. It is signaled through the extended QoS information element.

| | |
|---|---|
| Vector of | Decimal (0..2147483647) |
| Index | cdv<br>ctd<br>clr |
| Default | (cdv: 16777215, ctd: 16777215, clr: 255) |

### ATTRIBUTE AtmIf Uni Ptt fwdQosParameters (fqp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is a vector of three elements that specify the quality of service parameters for the forward direction for this connection. This attribute is used for SPVC connections.<br><br>The ***cdv*** element specifies the acceptable peak-to-peak cell delay variation (CDV) of the real-time connections (CBR and rt-VBR). It is signaled through the extended QoS information element.<br><br>The ***ctd*** specifies the acceptable maximum cell transfer delay (maxCtd) of the real-time connections (CBR and rt-VBR). It is signaled through the end-to-end transit delay information element.<br><br>The ***clr*** specifies the acceptable cell loss ratio (CLR) of CBR, rt-VBR, and nrt-VBR connections. It is signaled through the extended QoS information element. |
| Vector of | Decimal (0..2147483647) |
| Index | cdv<br>ctd<br>clr |
| Default | (cdv: 16777215, ctd: 16777215, clr: 255) |

## ATTRIBUTE AtmIf Uni Ptt txTrafficDescParm (txTdp)

Access
Read: All
Write: All

Description

This attribute is a vector of five traffic parameters whose meanings are defined by the *txTrafficDescType* attribute. The values of peak cell rate (PCR), sustained cell rate (SCR), minimum cell rate (MCR) and requested shaping rate are expressed in cells/second. THe maximum burst size (MBS) is expressed in cells. The cell delay variance tolerance (CDVT) is expressed in microseconds. The values of PCR, SCR, MBS, MCR and CDVT are used for the connection admission control (CAC). The value of the CDVT is only used for connections where the *atmServiceCategory* is ***constantBitRate***. For all other values of *atmServiceCategory*, the CDVT is ignored. The values of PCR, SCR, and the requested shaping rate are used to determine the actual shaping rate, where traffic shaping is enabled.

When *txTrafficDescType* is ***1*** or ***2***, all of the parameters must be set to zero.

When *txTrafficDescType* is ***3***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameter 1 must be non-zero. Parameters 2 and 3 must be zero.

When *txTrafficDescType* is ***4***, parameter 1 represents the PCR for CLP0+1 traffic with cell discard; parameter 2 represents the PCR for CLP equal to 0 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameter 1 must be greater than or equal to parameter 2. Parameters 1 and 2 must be non-zero. Parameter 3 must be zero.

When *txTrafficDescType* is ***5***, parameter 1 represents the PCR for CLP0+1 traffic with cell tagging; parameter 2 represents the PCR

for CLP equal to 0 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameter 1 must be greater than or equal to parameter 2. Parameters 1 and 2 must be non-zero. Parameter 3 must be zero.

When *txTrafficDescType* is ***6***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the SCR for CLP0+1 traffic; parameter 3 represents the MBS for CLP0+1 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameters 1, 2, and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2. Parameter 5 must either be zero (unused) or greater than or equal to parameter 2.

When *txTrafficDescType* is ***7***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the SCR for CLP equal to 0 with cell discard; parameter 3 represents the MBS for CLP equal to 0 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameters 1, 2, and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2. Parameter 5 must either be zero (unused) or greater than or equal to parameter 2.

When *txTrafficDescType* is ***8***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the SCR for CLP equal to 0 traffic with cell tagging; parameter 3 represents the MBS for CLP equal to 0 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameters 1, 2 and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2. Parameter 5 must either be zero (unused) or greater than or equal to parameter 2.

When *txTrafficDescType* is ***9***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the CDVT; parameter 3

represents the MCR; parameter 5 represents the requested shaping rate; and parameter 4 is not used and must be zero. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameter 1 must either be zero or be greater than or equal to parameter 3. Parameter 3 may be optionally zero. Parameter 5 must either be zero (unused) or greater than or equal to parameter 3.

Whenever it is valid for PCR to be specified, parameter 5 may also be used to specify a requested shaping rate. A non-zero value in parameter 5 overrides the value in parameter 1 and is used as the peak cell rate in the calculations of CAC and the shaping rate.

For *txTrafficDescType* ***3***, ***4***, ***5*** and ***9***, the transmit traffic should be shaped at the next rate less than the PCR.

For *txTrafficDescType* ***6***, ***7,*** and ***8***, the transmit traffic should be shaped at the highest available rate which is between PCR and SCR. However, if there is no available shaping rate between PCR and SCR, traffic should be shaped at the next rate above the PCR.

Vector of: Decimal (0..2147483647)

Index: Decimal (1..5)

Default: ([5] 0)

## ATTRIBUTE AtmIf Uni Ptt rxTrafficDescParm (rxTdp)

Access: Read: All
Write: All

Description: This attribute is a vector of four traffic parameters whose meanings are defined by the *rxTrafficDescType* attribute. The values of the peak cell rate (PCR) and sustained cell rate (SCR) are expressed in
cells/second. The maximum burst size (MBS) is expressed in cells. The value of the cell delay variance tolerance (CDVT) is expressed in microseconds. The values of PCR, SCR, MBS and CDVT are used for the usage parameter control (UPC).

When *rxTrafficDescType* is ***1*** or ***2***, all of the parameters must be set to zero (unused).

When *rxTrafficDescType* is ***3***, parameter 1 represents the PCR for CLP0+1 traffic. Parameter 1 must be non-zero. Parameters 2 and 3 must be set to zero (unused).

When *rxTrafficDescType* is ***4***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the PCR for CLP equal to 0 traffic with cell discard. Parameters 1 and 2 must be non-zero. Parameter 3 must be set to zero (unused). Parameter 1 must be greater than or equal to parameter 2.

When *rxTrafficDescType* is ***5***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the PCR for CLP equal to 0 traffic with cell tagging. Parameters 1 and 2 must be non-zero. Parameter 3 must be set to zero (unused). Parameter 1 must be greater than or equal to parameter 2.

When *rxTrafficDescType* is a ***6***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the SCR for CLP0+1 traffic; parameter 3 represents the MBS for CLP0+1 traffic. Parameters 1, 2, and 3 must be non-zero. Parameter 1 must be greater than or equal to Parameter 2.

When *rxTrafficDescType* is ***7***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the SCR for CLP equal to 0 traffic with cell discard; parameter 3 represents the MBS for CLP equal to 0 traffic. Parameters 1, 2 and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2.

When *rxTrafficDescType* is ***8***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the SCR for CLP equal to 0 traffic with cell tagging; parameter 3 represents the MBS for CLP equal to 0 traffic. Parameter 1, 2, and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2.

When *rxTrafficDescType* is ***9***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the CDVT; parameter 3 represents the MCR. Parameter 4 is not used and must be zero. Parameter 1 must either be zero or be greater than or equal to parameter 3. Parameter 3 may optionally be zero.

When *rxTrafficDescType* is any value from ***3*** through ***8***, parameter 4 represents the CDVT. If this value is zero, the CDVT is taken from the *ConnectionAdministrator* defaults for the particular *atmServiceCategory* of this connection.

When *rxTrafficDescriptorType* is ***3*** through ***9***, there are certain extreme combinations of *rxTrafficDescParm* which are outside the capabilities of the UPC hardware.

To calculate the limits, use the following formulae:
I1 = 1 000 000 000 / PCR
L1 = CDVT * 1000
I2 = 1 000 000 000 / SCR
L2 = CDVT + (MBS - 1) * (I2 - I1)
I1 and I2 must be less than or equal to 335 523 840. I1 + L1 must be less than or equal to 1 342 156 800. I2 + L2 must be less than or equal to 1 342 156 800. Note that I2 and L2 only apply when the *rxTrafficDescriptorType* is ***6*** through ***8***.

If the values of I1, L1, I2, or L2 are closer to the limits described above, a further restriction applies. Specifically, if either:
I1 > 41 940 480 or
I2 > 41 940 480 or
I1 + L1 > 167 769 600 or
I2 + L2 > 167 769 600
then both I1 and I2 must be greater than 20 480.

Parameter 5 of the *rxTrafficDescParm* is always unused.

If the *rxTrafficDescType* is ***sameAsTx***, the values in this attribute are taken from the *txTrafficDescParm*.

| | |
|---|---|
| Vector of | Decimal (0..2147483647) |
| Index | Decimal (1..5) |
| Default | ([5] 0) |

## COMPONENT AtmIf Uni ServiceTrace (SrvTrace)

| | |
|---|---|
| Groups | "GROUP AtmIf Uni SrvTrace Operational" |
| Scope | Application |

Description

*AtmIf/n [Vpt/m] Uni ServiceTrace*
*AtmIf/n [Vpt/m] Iisp ServiceTrace*
*AtmIf/n [Vpt/m] Pnni ServiceTrace*
*AtmIf/n [Vpt/m] Aini ServiceTrace*
The *ServiceTrace* component of the ATM service determines if the trace capability is allowed on this service. If it is not provisioned, then a service trace session cannot be started on this service.

Currently, the ATM Trace features only support ***frAtmTraceRcvr*** and ***atmTraceRcvr*** features, if the name of a X25 or FR receiver is set to the *receiver* attribute of this component, the *Start* command responses with a “Receiver Not Supported” message.

Common Verbs

Help
List
Display
Add
DELete

### VERB Start AtmIf Uni SrvTrace

Impact

Service

Description

*Start AtmIf/n [Vpt/m] Uni ServiceTrace*
*Start AtmIf/n [Vpt/m] Iisp ServiceTrace*
*Start AtmIf/n [Vpt/m] Pnni ServiceTrace*
*Start AtmIf/n [Vpt/m] Aini ServiceTrace*
This command starts a service trace session.

### VERB Stop AtmIf Uni SrvTrace

Impact

Service

Description

*Stop AtmIf/n [Vpt/m] Uni ServiceTrace*
*Stop AtmIf/n [Vpt/m] Iisp ServiceTrace*
*Stop AtmIf/n [Vpt/m] Pnni ServiceTrace*
*Stop AtmIf/n [Vpt/m] Aini ServiceTrace*
This command stops a service trace session.

### GROUP AtmIf Uni SrvTrace Operational

Properties

Operational

| | |
|---|---|
| Description | This group provides the operational attributes for the *SrvTrace* component. |

### ATTRIBUTE AtmIf Uni SrvTrace receiverName (rcvr)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute should be set to the name of the desired trace receiver before starting a trace session. All available trace receivers are listed under the *SrvTrace Rcvr* component. This attribute cannot be set while the service trace is active. The receiver name is validated by the trace manager when the service *SrvTrace* is started. |
| Values | String (0..8, ASCII) |
| Default | No default |

### ATTRIBUTE AtmIf Uni SrvTrace duration

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the duration, in minutes, of a trace session. A value of ***0*** indicates unlimited duration in which case a trace session remains active until a *Stop* command is issued. This attribute cannot be set while a trace is active. |
| Values | Decimal (0..9999) |
| Units | minutes |
| Default | 60 |

### ATTRIBUTE AtmIf Uni SrvTrace queueLimit

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the total number of bytes of traced data which may be queued for transmission to the trace receiver. When this limit is exceeded, incoming traced frames are discarded. This attribute can be set while a trace is active and takes effect immediately. |
| Values | Decimal (1..100) |
| Units | Kbyte |

| | |
|---|---|
| Default | 20 |

### ATTRIBUTE AtmIf Uni SrvTrace session

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the *SrvTrace Session* component that is forwarding the trace data. This attribute is set automatically, and is empty unless the service trace is active. |
| Values | The name of the component |
| Default | No default |

### COMPONENT AtmIf Uni Reroute

| | |
|---|---|
| Groups | "GROUP AtmIf Uni Reroute LocalOperational (LOper)"<br>"GROUP AtmIf Uni Reroute GlobalOperational (GOper)"<br>"GROUP AtmIf Uni Reroute Statistics (Stats)" |
| Scope | Device |
| Description | *AtmIf/n Iisp Reroute*<br>*AtmIf/n Aini Reroute*<br>*AtmIf/n Uni Reroute*<br>*AtmIf/n Vpt/vpi Iisp Reroute*<br>*AtmIf/n Vpt/vpi Aini Reroute*<br>*AtmIf/n Vpt/vpi Uni Reroute*<br><br>This component represents the rerouting capabilities of the ATM Signaling interface. If this component is provisioned, the *Artg Pnni* component must already exist. The addition or deletion of this component, or changes to its provisionable attributes, does not affect existing connections. |
| Subcomponents | "COMPONENT AtmIf Uni Reroute Ov" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### VERB OPTIMIZE AtmIf Uni Reroute

| | |
|---|---|
| Impact | Service |
| Description | *Optimize [-all] AtmIf/n Uni outeouteouteouteouteoute*sBy default, only connection segsforation. The best known optimization metric value for the connection segment is indicated by the *localOptimalMetricValue* attribute under the *RerouteInfo* component for the connection.<br>The *-all* option causes all connection segments subscribed to path optimization to be considered.s |

### GROUP AtmIf Uni Reroute LocalOperational (LOper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes that indicate the local rerouting activities at the interface level. |

### ATTRIBUTE AtmIf Uni Reroute localSubscribedConnections (lsub)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the connection segments that are subscribed to one or more local rerouting capabilities. Note that a given connection segment is subscribed to either local rerouting capabilities capabilities, not both. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Uni Reroute localEligibleRecoveredCon (lerc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the connection segments that have been recovered using local rerouting and are eligible for local path optimization. The value decreases as counted connections are released. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Uni Reroute localIneligibleRecoveredCon (lirc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the connection segments that have been recovered by local rerouting but are not eligible for local path optimization. The value decreases as counted connections are released. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Uni Reroute localLastRrCauseCode (lrrcc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the value of the last local rerouting cause code received at this interface. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE AtmIf Uni Reroute localPathsOptimized (lPathsOpt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the paths that were successfully optimized by local rerouting or EBR during the last optimization pass at this interface. Successfully optimized paths are paths that switched to a better route. The value is reset to zero at the beginning of each optimization pass. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP AtmIf Uni Reroute GlobalOperational (GOper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes that indicate the global and EBR rerouting activities at the interface level. |

### ATTRIBUTE AtmIf Uni Reroute globalSubscribedConnections (gsub)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the connection segments that are subscribed to one or more global and EBR rerouting capabilities. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Uni Reroute globalEligibleRecoveredCon (gerc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the connections that have been recovered by global and EBR rerouting and are eligible for global or EBR path optimization. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Uni Reroute globalIneligibleRecoveredCon (girc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the connections that have been recovered by global and EBR rerouting but are not eligible for global or EBR path optimization. The value decreases as counted connections are released. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Uni Reroute globalLastRrCauseCode (grrcc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the value of the last global or EBR rerouting cause code received at this interface. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE AtmIf Uni Reroute globalPathsOptimized (gPathsOpt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the paths that were successfully optimized by global and EBR rerouting during the last optimization pass at this interface. Successfully optimized paths are paths that switched to a better route. The value is reset to zero at the beginning of each optimization pass. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP AtmIf Uni Reroute Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the rerouting statistics for the interface. |

### ATTRIBUTE AtmIf Uni Reroute totalLocalConnectionRecoveries (tLConRec)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts successful local connection recovery attempts. The counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Uni Reroute totalLocalFailedRecoveries (lFailedRec)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts failed local connection recovery attempts. A connection recovery attempt fails if a rerouting connection segment can not be established. The counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Uni Reroute totalLocalPathOptimizations (tLPathOpt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts successful local path optimization attempts. A successful path optimization attempt results in a switch to a better route. The counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Uni Reroute totalGlobalConnectionRecoveries (tGConRec)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts successful global and EBR connection recovery attempts. The counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Uni Reroute totalGlobalFailedRecoveries (gFailedRec)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts failed global and EBR connection recovery attempts. A connection recovery attempt fails if a rerouting connection segment cannot be established. The counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Uni Reroute totalGlobalPathOptimizations (tGPathOpt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts successful global and EBR path optimization attempts. A successful path optimization attempt results in a switch to a better route. The counter wraps to zero when the maximum value is exceeded. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Uni Reroute totalOptimizationPasses (optPass)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts optimization passes at the interface. Both module and interface optimization passes are counted. The counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT AtmIf Uni Reroute Ov

| | |
|---|---|
| Groups | "GROUP AtmIf Uni Reroute Ov Provisioned (Prov)"<br>"GROUP AtmIf Uni Reroute Ov LocalProvisioned (LProv)"<br>"GROUP AtmIf Uni Reroute Ov GlobalProvisioned (GProv)" |
| Scope | Device |
| Description | *AtmIf/n Iisp Reroute Ov*<br>*AtmIf/n Aini Reroute Ov*<br>*AtmIf/n Uni Reroute Ov*<br>*AtmIf/n Vpt/vpi Iisp Reroute Ov*<br>*AtmIf/n Vpt/vpi Aini Reroute Ov*<br>*AtmIf/n Vpt/vpi Uni Reroute Ov*<br><br>This component represents the provisioning capabilities of the rerouting functionality for the ATM Signaling interface. |
| Common Verbs | Help<br>List<br>Display |

### GROUP AtmIf Uni Reroute Ov Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the common provisionable attributes for rerouting capabilities at the ATM signaling interface. |

## ATTRIBUTE AtmIf Uni Reroute Ov protocol

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the rerouting protocols which are requested by connection segments on the interface, for which this node is the first rerouting node. This attribute has no effect on connection segments for which this node is not the first rerouting node. A subset of the requested protocols is granted by the last rendezvous node, according to its software level and provisioning.<br><br>One of the following values can be specified:<br>***sameAsARtgPnniReroute***: The requested rerouting protocols are specified by the *Artg Pnni Reroute protocol* attribute.<br>***localGlobal***: Local and global rerouting protocols are requested. Local and global rerouting are granted if the DTL terminator is provisioned with the Rerouting feature.<br>***localOnly***: Local rerouting is requested. This value guarantees interoperability with other vendors' equipment running the ATM Forum "Domain Based Rerouting" protocol. Local rerouting is granted if the DTL terminator is provisioned with the Rerouting feature.<br>***globalOnly***: Global rerouting is requested. Global rerouting is granted if the DTL terminator is provisioned with the Rerouting feature.<br>***localEbr*:** Local and EBR rerouting protocols are requested. Local rerouting is granted if the DTL terminator is provisioned with the Rerouting feature. Alternatively, EBR is granted if the DTL terminator is provisioned with the EBR feature.<br>***ebrOnly***: EBR is requested. EBR is granted if the DTL terminator is provisioned with the EBR feature. |
| Values | localGlobal<br>localOnly<br>globalOnly<br>localEbr<br>ebrOnly<br>sameAsARtgPnniReroute (sameAs) |
| Default | sameAsARtgPnniReroute |

## ATTRIBUTE AtmIf Uni Reroute Ov numOptAttempts

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the number of path optimizations attempted before declaring a recovered connection segment to be optimally routed. Following a connection recovery, each manual and automatic path optimization will attempt to optimize the connection segment. When a path is found with a better optimization metric than the best known value, or the number of optimization attempts is exhausted, the current optimization metric is declared to be the new optimal metric for the connection segment. Subsequent path optimizations will not attempt to optimize the connection segment unless all subscribed connection segments are eligible for path optimization.<br><br>If the value is set to ***0***, the optimization metric of a connection segment following connection recovery is declared to be the new optimal metric, and no connection recovery alarm is issued. A subsequent path optimization will not attempt to optimize the connection segment unless all subscribed connection segments are eligible for path optimization.<br><br>If the value is set to ***sameAsARtgPnniReroute***, the value of the *ARtg Pnni Reroute numOptAttempts* attribute is used. |
| Values | Decimal (0..15)<br>sameAsARtgPnniReroute (sameAs) |
| Default | sameAs |

## ATTRIBUTE AtmIf Uni Reroute Ov moduleOptimizationConnections

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies which connection segments on the interface will be considered by a module optimization pass as controlled by the *ARtg Pnni Reroute* component.<br><br>One of the following values can be specified:<br>***sameAsARtgPnniReroute***: The connection segments to be considered by a module optimization pass are specified by the *Artg Pnni Reroute moduleOptimization* attribute. |

***none***: No connection segments are considered for path optimization.
***recoveredOnly***: Only connection segments which are foration. The best known optimization metric value for the connection segment is indicated by the *localOptimalMetricValue* attribute under the *RerouteInfo* component for the connection
***allSubscribed***: All connection segments subscribed to path optimization are considered.

Values
none
recoveredOnly
allSubscribed
sameAsARtgPnniReroute (sameAs)

Default
sameAsARtgPnniReroute

## ATTRIBUTE AtmIf Uni Reroute Ov switchoverMechanism

Access
Read and write

Description
This attribute specifies the mechanism used for switchover of a rerouted connection segment.

One of the following values can be specified:
***sameAsARtgPnniReroute***: The switchover mechanism is specified by the *ARtg Pnni Reroute switchoverMechanism* attribute.
***standard***: The mechanism described in the ATM Forum “Domain based Rerouting” specification is used for switchover. This value ensures interoperability with other vendors’ equipment running ATM Forum “Domain based Rerouting”.
***rcl***: The Reduced Cell Loss mechanism is used for switchover. RCL is a value-added Passport extension to the standard mechanism that allows faster switchover time.

Values
standard
rcl
sameAsARtgPnniReroute (sameAs)

Default
sameAsARtgPnniReroute

## GROUP AtmIf Uni Reroute Ov LocalProvisioned (LProv)

Properties
Provisioned

Description — This group contains the provisionable attributes for EBR and local rerouting protocols.

## ATTRIBUTE AtmIf Uni Reroute Ov localConnectionRecoverySubscr (lConRec)

Access — Read and write

Description — This attribute specifies which connection segments on the interface request subscription to local connection recovery. This attribute only affects connection segments that request the local rerouting protocols. This attribute affects connection segments for a node that is either local domain rerouting node or a DTL originator.

Connection segments of the specified type(s) which request ***localGlobal*** or ***localOnly*** protocols request subscription to local connection recovery.

Connection segments of the specified type(s) which request ***localEbr*** request subscription to both local connection recovery and EBR connection recovery. Only one will be granted.

One or more of the following values can be specified:
***sameAsARtgPnniReroute:*** If this value is set, the local connection recovery subscription rule is determined by the *ARtg Pnni Reroute localConnectionRecoverySubscr* attribute. This value takes precedence over any other values.
***svcSvp***: If this value is set, all SVC and SVP connection segments request subscription to local connection recovery.
***sourceSpvcSpvp***: If this value is set, all source SPVC and SPVP connection segments request subscription to local connection recovery.
***transitSpvcSpvp***: If this value is set, all transit SPVC and SPVP connection segments request subscription to local connection recovery.

Set of — sameAsARtgPnniReroute (sameAs)
svc
sourceSpvcSpvp (source)
transitSpvcSpvp (transit)

Default — (sameAsARtgPnniReroute)

## ATTRIBUTE AtmIf Uni Reroute Ov localPathOptimizationSubscr (lPathOpt)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies which connection segments on the interface request subscription to local path optimization. This attribute only affects connection segments that request the local rerouting protocols. This attribute affects connection segments for a node that is either local domain rerouting node or a DTL originator.<br><br>Connection segments of the specified type(s) which request ***localGlobal*** or ***localOnly*** protocols request subscription to local path optimization.<br><br>Connection segments of the specified type(s) which request ***localEbr*** request subscription to both local path optimization and EBR path optimization. Only one will be granted.<br><br>One or more of the following values can be specified:<br>***sameAsARtgPnniReroute***: If this value is set, the local path optimization subscription rule is determined by the *ARtg Pnni Reroute localPathOptimizationSubscr* attribute. This setting takes precedence over the any other values.<br>***svcSvp***: If this value is set, then all SVC and SVP connection segments request subscription to local path optimization.<br>***sourceSpvcSpvp***: If this value is set, then all source SPVC and SPVP connection segments request subscription to local path optimization.<br>***transitSpvcSpvp***: If this value is set, then all transit SPVC and SPVP connection segments request subscription to local path optimization. |
| Set of | sameAsARtgPnniReroute (sameAs)<br>svc<br>sourceSpvcSpvp (source)<br>transitSpvcSpvp (transit) |
| Default | (sameAsARtgPnniReroute) |

## GROUP AtmIf Uni Reroute Ov GlobalProvisioned (GProv)

| | |
|---|---|
| Properties | Provisioned |

Description — This group contains the provisionable attributes for the global and EBR rerouting protocol.

## ATTRIBUTE AtmIf Uni Reroute Ov globalConnectionRecoverySubscr (gConRec)

Access — Read and write

Description — This attribute specifies which connection segments on the interface request subscription to global or EBR connection recovery. This attribute only affects connection segments that request the global or EBR rerouting protocols. This attribute affects connection segments for a node that is a DTL originator.

Connection segments of the specified type(s) which request ***localGlobal*** or ***globalOnly*** protocols request subscription to global connection recovery.

Connection segments of the specified type(s) which request ***ebrOnly*** request subscription to EBR connection recovery.

Connection segments of the specified type(s) which request ***localEbr*** request subscription to both local connection recovery and EBR connection recovery. Only one will be granted.

One or more of the following values can be specified:
***sameAsARtgPnniReroute***: If this value is set, the global or EBR connection recovery subscription rule is determined by the *ARtg Pnni Reroute globalConnectionRecoverySubscr* attribute.This setting takes precedence over any other values.
***svcSvp***: If this value is set, then all SVC and SVP connection segments request subscription to global or EBR connection recovery.
***sourceSpvcSpvp***: If this value is set, then all source SPVC and SPVP connection segments request subscription to global or EBR connection recovery.
***transitSpvcSpvp***: If this value is set, then all transit SPVC and SPVP connection segments request subscription to global or EBR connection recovery.

| | |
|---|---|
| Set of | sameAsARtgPnniReroute (sameAs)<br>svc<br>sourceSpvcSpvp (source)<br>transitSpvcSpvp (transit) |
| Default | (sameAsARtgPnniReroute) |

### ATTRIBUTE AtmIf Uni Reroute Ov globalPathOptimizationSubscr (gPathOpt)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies which connection segments on the interface request subscription to global or EBR path optimization. This attribute only affects connection segments that request the global or EBR rerouting protocols. This attribute affects connection segments for a node that is a DTL originator.<br><br>Connection segments of the specified type(s) which request ***localGlobal*** or ***globalOnly*** protocols request subscription to global path optimization.<br><br>Connection segments of the specified type(s) which request ***ebrOnly*** request subscription to EBR path optimization.<br><br>Connection segments of the specified type(s) which request ***localEbr*** request subscription to both local path optimization and EBR path optimization. Only one will be granted.<br><br>One or more of the following values can be specified:<br>***sameAsARtgPnniReroute***: If this value is set, the global or EBR path optimization subscription rule is determined by the *ARtg Pnni Reroute globalPathOptimizationSubscr* attribute. This setting takes precedence over any other values.<br>***svcSvp***: If this value is set, then all SVC and SVP connection segments request subscription to global or EBR path optimization.<br>***sourceSpvcSpvp***: If this value is set, then all source SPVC and SPVP connection segments request subscription to global or EBR path optimization.<br>***transitSpvcSpvp***: If this value is set, then all transit SPVC and |

| | |
|---|---|
| | SPVP connection segments request subscription to global or EBR path optimization. |
| Set of | sameAsARtgPnniReroute (sameAs)<br>svc<br>sourceSpvcSpvp (source)<br>transitSpvcSpvp (transit) |
| Default | (sameAsARtgPnniReroute) |

## COMPONENT AtmIf Iisp

| | |
|---|---|
| Groups | "GROUP AtmIf Iisp Provisioned (Prov)"<br>"GROUP AtmIf Iisp AccountingOptions (AcctOpt)" |
| Scope | Device |
| Description | *AtmIf/n Iisp*<br>This component represents an ATM Interim Inter-switch Signaling Protocol (IISP) interface. If this component is provisioned, the *Uni*, *Aini*, or *Pnni* component can not be provisioned under the same *AtmIf* component. If this component is deleted, then all associated *Vcc* components are deleted. |
| Subcomponents | "COMPONENT AtmIf Iisp Signalling (Sig)" |
| Opt. Subcomp. | "COMPONENT AtmIf Iisp CallingAddressScreening (CallingAScr)"<br>"COMPONENT AtmIf Iisp CalledAddressScreening (CalledAScr)"<br>"COMPONENT AtmIf Iisp PathTraceFilter (Ptf)"<br>"COMPONENT AtmIf Iisp ServiceTrace (SrvTrace)"<br>"COMPONENT AtmIf Iisp Reroute" |
| Dyn. Subcomp. | "COMPONENT AtmIf Iisp PathTraceTestConnection (Ptt)" |
| Dyn. Subcomp. | "COMPONENT AtmIf Iisp Address (Addr)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP AtmIf Iisp Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the *Iisp* component. |

## ATTRIBUTE AtmIf Iisp version

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute indicates which specification the IISP interface complies with. The options are ***iisp10Sig30*** which refers to IISP version 1.0 with 3.0 signaling and ***iisp10Sig31*** which refers to IISP version 1.0 with 3.1 signaling. If this attribute is changed, all switched *Vcc* components in this interface are cleared due to the fact that the two versions are incompatible. |
| Values | iisp10Sig30<br>iisp10Sig31 |
| Default | iisp10Sig31 |

## ATTRIBUTE AtmIf Iisp side

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute indicates which side the interface is, user or network. |
| Values | networkSide<br>userSide |
| Default | networkSide |

## ATTRIBUTE AtmIf Iisp softPvpAndPvcRetryPeriod (sRetryPeriod)

| | |
|---|---|
| Access | Read: All<br>Write: All |

| | |
|---|---|
| Description | This attribute specifies the time to wait between soft PVP or soft PVC call setup retries. The resolution is to the nearest 10 seconds. |
| Values | Decimal (20..999999) |
| Units | seconds |
| Default | 60 |

### ATTRIBUTE AtmIf lisp softPvpAndPvcHoldOffTime (sHoldOffTime)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies how long to hold off retries following the release of a connection. Due to the way group timers are implemented, it can take from 100% to 150% of the provisioned timer to trigger the desired action. Since SPVC retries are paced, in cases where there are many connections, the entire process can take more than 150% of the provisioned timer value. |
| Values | Decimal (0; 50..20000) |
| Units | msec |
| Default | 0 |

### ATTRIBUTE AtmIf lisp interDomainCrankback

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies whether the ATM Routing System inserts a Crankback information element (IE) when hop-by-hop routing crankback fails in a neighboring domain and this node is the DTL terminating node of the call.<br><br>By default, the ATM Routing System, when behaving as a DTL terminating node of a call, only inserts a Crankback IE if the routing system fails to find a static routing port that matches the called address. If this attribute is set to enabled, then a Crankback IE is also inserted when hop-by-hop crankback fails.<br><br>This attribute may be provisioned on IISP links that connect two |

PNNI domains.

Note that the cause codes that trigger the insertion of the Crankback IE are the same as those that apply to PNNI crankback normally. Not all of these cause codes apply to hop-by-hop routing. The insertion of a Crankback IE can cause extra call setup attempts in certain configurations such as PNNI domains interconnected by IISP links.

Values
disabled
enabled

Default
disabled

## GROUP AtmIf Iisp AccountingOptions (AcctOpt)

Properties
Provisioned

Description
This group contains the provisionable attributes for accounting.

## ATTRIBUTE AtmIf Iisp accountCollection (aco)

Access
Read: All
Write: All

Description
This attribute is used to turn accounting on or off for SVC and SPVC connections. It also specifies the reason(s) for which accounting data is collected: ***billing***, ***test***, ***study***, ***audit***, or ***force***.

If the set of reasons is not empty then accounting records will be generated by this interface in the following situations:
- on a TODA changeover if TODA is enabled;
- every 12 hours (per connection) if TODA is disabled;
- on every call clear (a call record with final cell counts).

If none of the reasons is present, then accounting will be suppressed.

The reason for collection is recorded in the accounting record, in the attribute *callingCollectReason* or *calledCollectReason* as appropriate.

| | |
|---|---|
| Set of | bill<br>test<br>study<br>audit<br>force |
| Default | No default |

### ATTRIBUTE AtmIf lisp accountConnectionType (act)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies whether accounting records generated by this interface should be marked as originating, terminating or intermediate. This attribute, in combination with the direction of the call, determines the value of attribute *connPointType* of the accounting record and may be used by downstream accounting processes to correlate the records.<br><br>If the value is ***origTerm*** then records generated for incoming calls will be marked as ***originating*** and records generated for outgoing calls will be marked as ***terminating***.<br><br>If the value is ***intermediate*** then records generated for all calls will be marked as ***intermediate***. |
| Values | origTerm<br>intermediate |
| Default | intermediate |

### ATTRIBUTE AtmIf lisp accountClass (acl)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the accounting class associated with the interface. Its meaning is determined by the network operator.<br><br>Its value is simply recorded in the accounting records generated |

by this interface, in the attribute *callingServiceType* or *calledServiceType* as appropriate.

Values: Decimal (0..255)

Default: 0

### ATTRIBUTE AtmIf Iisp serviceExchange (sre)

Access: Read: All
Write: All

Description: This attribute specifies the data service exchange associated with this interface. Its meaning is determined by the network operator.

Its value is simply recorded in the accounting records generated by this interface, in the attribute *callingDse* or *calledDse* as appropriate.

Values: Decimal (0..255)

Default: 0

### COMPONENT AtmIf Iisp Signalling (Sig)

Groups: "GROUP AtmIf Iisp Sig Provisioned (Prov)"
"GROUP AtmIf Iisp Sig OsiState (State)"
"GROUP AtmIf Iisp Sig Operational (Oper)"
"GROUP AtmIf Iisp Sig Statistics (Stats)"

Scope: Device

Description: *AtmIf/n Aini Signalling*
*AtmIf/n Iisp Signalling*
*AtmIf/n Uni Signalling*
*AtmIf/n Pnni Signalling*
*AtmIf/n Vpt/m Aini Signalling*
*AtmIf/n Vpt/m Iisp Signalling*
*AtmIf/n Vpt/m Uni Signalling*
*AtmIf/n Vpt/m Pnni Signalling*

This component represents the signaling entities for the interface.

Opt. Subcomp. "COMPONENT AtmIf Iisp Sig VirtualChannelDescriptor (Vcd)"

Common Verbs
Help
List
Display

## GROUP AtmIf Iisp Sig Provisioned (Prov)

Properties Provisioned

Description This attribute group contains the provisionable attributes for the *Signalling* component.

## ATTRIBUTE AtmIf Iisp Sig vci

Access Read: All
Write: All

Criticality Component

Description This attribute specifies the signaling channel number.

Values Decimal (0..65535)

Default 5

## ATTRIBUTE AtmIf Iisp Sig addressConversion

Access Read: All
Write: All

Description This attribute specifies the address conversion on the outgoing signaling PDUs. The options are ***none***, ***nativeE164***, or ***nsap***. The ***none*** option is the default and if this option is chosen then nothing is done to the address information element (IE) in the outgoing signaling message. If ***nativeE164*** option is chosen, then only NSAP encapsulated E.164 addresses with zeros in the ESI are converted to native E.164 format in the outgoing signaling message. If the NSAP address is not encapsulated E.164 or the ESI field is not zeros and the ***nativeE164*** option is chosen, then the call is cleared. If the ***nsap*** option is chosen, then native E.164

addresses are converted to NSAP E.164 with zeros in the ESI field; otherwise the address is in NSAP format and is not changed.

Values
none
nativeE164
nsap

Default
none

### ATTRIBUTE AtmIf lisp Sig operatingMode

Access
Read: All
Write: All

Description
This attribute specifies the operating mode of the signaling channel ***provisionedOnly*** indicates that only SPVCs and SPVPs are supported on the interface and SVCs are not supported. This value is permitted only on UNI interfaces.
***normal*** indicates that SVCs, SPVCs, and SPVPs are supported on the interface.

Values
normal
provisionedOnly

Default
normal

### GROUP AtmIf lisp Sig OsiState (State)

Properties
Operational

Description
This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE AtmIf lisp Sig adminState (osiAdmin)

Access
Read only

Description
This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values: locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default: unlocked

### ATTRIBUTE AtmIf lisp Sig operationalState (osiOper)

Access: Read only

Description: This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values: enabled (ena)
disabled (dis)

Default: disabled

### ATTRIBUTE AtmIf lisp Sig usageState (osiUsage)

Access: Read only

| | |
|---|---|
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP AtmIf Isp Sig Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute contains the operational attributes for the AtmSignalling component. |

### ATTRIBUTE AtmIf Isp Sig lastTxCauseCode

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the cause code in the last transmitted signaling message that contains the CAUSE information element. The cause code is used to describe the reason for generating certain signaling messages. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE AtmIf Isp Sig lastTxDiagCode

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute contains the diagnostic code in the last transmitted signaling message. The diagnostic code is contained in the |

| | |
|---|---|
| | CAUSE information element and identifies an information element type or timer type. The diagnostic code is present only if a procedural error is detected by the signaling protocol. A diagnostic code is always accompanied by the cause code. If there is no failure, this attribute is set to 0. |
| Values | Hex (H.0..H.ff) |
| Default | No default |

### ATTRIBUTE AtmIf lisp Sig lastRxCauseCode

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute contains the cause code in the last received signaling message that contains the CAUSE information element. The cause code is used to describe the reason for generating certain signaling messages. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE AtmIf lisp Sig lastRxDiagCode

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute contains the diagnostic code in the last received signaling message. The diagnostic code is contained in the CAUSE information element and identifies an information element type or timer type. The diagnostic code is present only if a procedural error is detected by the signaling protocol. A diagnostic code is always accompanied by the cause code. If there is no failure, this attribute is set to 0. |
| Values | Hex (H.0..H.ff) |
| Default | No default |

### GROUP AtmIf lisp Sig Statistics (Stats)

| | |
|---|---|
| Properties | Operational |

| | |
|---|---|
| Description | This attribute group contains the statistics associated with the AtmSignalling component. |

### ATTRIBUTE AtmIf Iisp Sig peakConnections

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the high water mark of active point-to-point connections. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Iisp Sig successfulConnections

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of switched point-to-point connections that were successfully established. The counter wraps to 0 when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Iisp Sig failedConnections

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of unsuccessful attempts to establish switched point-to-point connections. The counter wraps to 0 when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Iisp Sig txPdus

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the number of transmitted signaling PDUs.The counter wraps to 0 when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf lisp Sig rxPdus

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of received signaling PDUs.The counter wraps to 0 when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf lisp Sig currentPmpConnections

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of currently active point-to-multipoint connections. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf lisp Sig peakPmpConnections

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the high water mark of active point-to-multipoint connections. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Iisp Sig successfulPmpConnections

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of switched point-to-multipoint connections that were successfully established. The counter wraps to 0 when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Iisp Sig failedPmpConnections

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of unsuccessful attempts to establish switched point-to-multipoint connections. The counter wraps to 0 when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Iisp Sig currentConnections

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the total number of currently active point-to-<br>point connections. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT AtmIf Iisp Sig VirtualChannelDescriptor (Vcd)

| | |
|---|---|
| Groups | "GROUP AtmIf Iisp Sig Vcd Provisioned (Prov)" |
| Scope | Device |

Description

*AtmIf/n Uni Sig VirtualChannelDescriptor*
*AtmIf/n Uni Ilmi VirtualChannelDescriptor*
*AtmIf/n Aini Sig VirtualChannelDescriptor*
*AtmIf/n Iisp Sig VirtualChannelDescriptor*
*AtmIf/n Pnni Sig VirtualChannelDescriptor*
*AtmIf/n Pnni Rcc VirtualChannelDescriptor*
*AtmIf/n Vpt/m Uni Sig VirtualChannelDescriptor*
*AtmIf/n Vpt/m Aini Sig VirtualChannelDescriptor*
*AtmIf/n Vpt/m Iisp Sig VirtualChannelDescriptor*
*AtmIf/n Vpt/m Pnni Sig VirtualChannelDescriptor*
*AtmIf/n Vpt/m Pnni Rcc VirtualChannelDescriptor*

This component contains the provisionable traffic parameters for a control channel (Sig, *Ilmi* or *Rcc* component).

Common Verbs

Help
List
Display
Add
DELete

## GROUP Atmlf Iisp Sig Vcd Provisioned (Prov)

Properties

Provisioned

Description

This group contains the provisionable traffic attributes for a control channel.

## ATTRIBUTE Atmlf Iisp Sig Vcd trafficDescType (tdt)

Access

Read: All
Write: All

Criticality

Component

Description

This attribute specifies the type of traffic management which is applied to both the transmit and receive direction of this connection as defined in the ATM Forum. The *trafficDescType* determines the number and meaning of the parameters in the *trafficDescParm* attribute.

Values

3
6

| | |
|---|---|
| | 7<br>8 |
| Default | 6 |

### ATTRIBUTE AtmIf Iisp Sig Vcd atmServiceCategory (service)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the ATM service category for both directions of the connection.<br><br>The ***constantBitRate*** service category is intended for real time applications, that is those requiring tightly constrained delay and delay variation, as would be appropriate for voice and video applications. The consistent availability of a fixed quantity of bandwidth is considered appropriate for CBR service. Cells which are delayed beyond the value specified by CellTransfer Delay are assumed to be of significantly reduce value to the application.<br><br>The ***rtVariableBitRate*** service category is intended for real time applications, that is those requiring tightly constrained delay and delay variation, as would be appropriate for voice and video applications. Sources are expected to transmit at a rate which varies with time. Equivalently, the source can be described as “bursty”. Cells which are delayed beyond the value specified by CTD are assumed to be of significantly reduced value to the application. Real time VBR service may support statistical multiplexing of real time sources.<br><br>The ***nrtVariableBitRate*** service category is intended for non-real time applications which have bursty traffic characteristics and which can be characterized in terms of a PCR, SCR, and MBS. For those cells which are transferred within the traffic contract, the application expects a low cell loss ratio. For all connections, it expects a bound on the mean cell transfer delay. Non-real time VBR service may support statistical multiplexing of connections.<br><br>The ***unspecifiedBitRate*** service is intended for non-real time |

applications; that is, those not requiring tightly constrained delay and delay variation. UBR sources are expected to be bursty. UBR service supports a high degree of statistical multiplexing among sources. UBR service does not specify traffic related service guarantees. No numerical commitments are made with respect to the cell loss ratio experienced by a UBR connection, or as to the cell transfer delay experienced by cells on the connection.

Values
unspecifiedBitRate (ubr)
constantBitRate (cbr)
rtVariableBitRate (rtvbr)
nrtVariableBitRate (nrtvbr)

Default
rtVariableBitRate

## ATTRIBUTE AtmIf Iisp Sig Vcd weight

Access
Read and write

Criticality
Component

Description
This VCD component has an attribute that is called atmServiceCategory. This attribute specifies the service category that is used by the sig, rcc or ilmi channel. The *weight* attribute is related to two other attributes which are *weightPolicy* and *txQueueLimit*, as mentioned in the following description. These attributes can be found under the atmif/n ca <atmServiceCategory>/ m.

This attribute specifies an override for the *weight* of this unshaped connection. This attribute is ignored for shaped connections, for ABR connections, for connections on a CQC-based ATM FPs and basic VPTs.

When the value is set to ***sameAsCa***, the *weight* is determined by the *weightPolicy* attribute under the CA service category component for all but standard VPT VCCs. For standard VPT VCCs, the *weight* is determined by the VCC's service category, when the value is set to ***sameAsCa***.

When this attribute is set to a value from ***1*** to ***4095***, that value is used for the *weightPolicy* of this connection relative to other connections. For all but standard VPT VCCs, *weightPolicy*

determines the proportion of transit cell opportunities which are allocated to this connection, compared to other connections in the same service category. For standard VPT VCCs, *weightPolicy* determines the proportion of transmit cell opportunities which are allocated to this connection, compared to other connections associated with the VPT.

When the value is set to ***upToQueueLimit***, the *weightPolicy* is limited only by the *txQueueLimit*.

Values
Decimal (1..4095)
sameAsCa
upToQueueLimit

Default
sameAsCa

## ATTRIBUTE AtmIf Iisp Sig Vcd qosClass (qos)

Access
Read and write

Criticality
Component

Description
This attribute specifies the quality of service for both the forward and backward direction for this connection.

Class ***1*** supports a QOS that meets Service Class A performance requirements (Circuit emulation, constant bit rate video).

Class ***2*** supports a QOS that meets Service Class B performance requirements (Variable bit rate audio and video).

Class ***3*** supports a QOS that meets Service Class C performance requirements (Connection-Oriented Data Transfer).

Class ***4*** supports a QOS that meets Service Class D performance requirements (Connectionless Data Transfer).

Class ***0*** is the unspecified bit rate QOS class; no objective is specified for the performance parameters.

Values
0
1
2

| | |
|---|---|
| | 3<br>4 |
| Default | 2 |

### ATTRIBUTE AtmIf Iisp Sig Vcd trafficShaping (trShaping)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies whether this connection uses traffic shaping when transmitting traffic to the ATM interface.<br><br>When ***sameAsCa*** is selected, traffic shaping for this connection is based on the *trafficShaping* attribute of the connection's service category component under the *AtmIf CA*. If the service category has traffic shaping enabled, then traffic shaping is enabled for the connection. Note that enabling traffic shaping may have no effect under certain cases. These cases are listed in the description of the *trafficShaping* operational attribute, which is under the *Vcc Tm* and *Vpc Tm* components.<br><br>When ***disabled*** is selected, traffic shaping for this connection is disabled. |
| Values | disabled<br>sameAsCa |
| Default | disabled |

### ATTRIBUTE AtmIf Iisp Sig Vcd unshapedTransmitQueueing (unshap)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute only applies when this connection is unshaped. This attribute specifies the transmit queuing method for this connection if it is unshaped. Refer to the *unshapedTransmitQueueing* attribute under the *AtmIf CA* service category subcomponent for more details on the meaning of this attribute.<br><br>When this attribute is set to ***sameAsCa***, the transmit queuing |

method for the connection is based on the *unshapedTransmitQueueing* attribute of the connection's service category component under the *ConnectionAdministrator.*

When this attribute is set to ***common***, transmit traffic on this unshaped connection is destined for the common queue.

The value ***sameAsInterface*** is for migration from previous software releases, but should no longer be used

Values
common
sameAsCa

Default
sameAsCa

## ATTRIBUTE AtmIf Iisp Sig Vcd usageParameterControl (upc)

Access
Read and write

Criticality
Component

Description
This attribute specifies whether this connection enforces usage parameter control when receiving traffic from the ATM interface.

When ***sameAsCa*** is selected, UPC for the connection is based on the *usageParameterControl* attribute of the connection's service category component under the *ConnectionAdministrator.* If the service category has UPC enabled, then UPC is enabled for the connection. Note that enabling UPC may have no effect under certain cases. These cases are listed in the description of the *usageParameterControl* operational attribute, which is under the *Vcc Tm* or *Vpc Tm* component.

When ***disabled*** is selected, UPC for this connection is disabled.

The value ***sameAsInterface*** is for migration from previous software releases, but should no longer be used

Values
disabled
sameAsCa

Default
disabled

## ATTRIBUTE AtmIf Iisp Sig Vcd trafficDescParm (tdp)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute is a vector of five traffic parameters whose meanings are defined by the *trafficDescType* attribute. The values of peak cell rate (PCR), sustained cell rate (SCR) and requested shaping rate are expressed in cell/s. Maximum burst size (MBS) is expressed in cells. CDVT is expressed in microseconds. The values of PCR, SCR, MBS and CDVT are used for connection admission control (CAC). The value of CDVT is only used for connections where the *atmServiceCategory* is ***constantBitRate***. For all other values of *atmServiceCategory*, CDVT is ignored. The values of PCR, SCR and requested shaping rate are used to determine the actual shaping rate where traffic shaping is enabled.<br><br>When *trafficDescType* is ***3***, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameter 1 must be non-zero. Parameters 2 and 3 must be zero.<br><br>When *trafficDescType* is ***6***, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 and 1 traffic; parameter 3 represents the MBS for CLP equal to 0 and 1 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameters 1, 2, and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2. Parameter 5 must either be zero (unused) or greater than or equal to parameter 2.<br><br>When *trafficDescType* is ***7***, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 with cell discard; parameter 3 represents the MBS for CLP equal to 0 traffic; parameter 4 represents the CDVT; and |

parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameters 1, 2, and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2. Parameter 5 must either be zero (unused) or greater than or equal to parameter 2.

When *trafficDescType* is ***8***, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 traffic with cell tagging; parameter 3 represents the MBS for CLP equal to 0 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameters 1, 2, and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2. Parameter 5 must either be zero (unused) or greater than or equal to parameter 2.

Whenever it is valid for PCR to be specified, parameter 5 may also be used to specify a requested shaping rate. A non-zero value in parameter 5 overrides the value in parameter 1 and is used as the peak cell rate in calculations of CAC and shaping rate.

For *trafficDescType* ***3*** the traffic is shaped at the next rate less than the PCR.

For *trafficDescType* ***6***, ***7***, and ***8***, the traffic is shaped at the highest available rate which is between PCR and SCR. However, if there is no available shaping rate between PCR and SCR, traffic is shaped at the next rate above the PCR.

| | |
|---|---|
| Vector of | Decimal (0..2147483647) |
| Index | Decimal (1..5) |
| Default | (250, 160, 5, 0, 0) |

## COMPONENT AtmIf Iisp Address (Addr)

| | |
|---|---|
| Instance | address [String (1..40, ASCII)]<br>addressType [primary<br>alternate<br>default] |
| Groups | "GROUP AtmIf Iisp Addr Operational (Oper)" |
| Scope | Device |
| Description | *AtmIf/n Aini Address/address,type*<br>*AtmIf/n Iisp Address/address,type*<br>*AtmIf/n Uni Address/address,type*<br>*AtmIf/n Pnni Address/address,type*<br>*AtmIf/n Vpt/m Aini Address/address,type*<br>*AtmIf/n Vpt/m Iisp Address/address,type*<br>*AtmIf/n Vpt/m Uni Address/address,type*<br>*AtmIf/n Vpt/m Pnni Address/address,type*<br><br>This component represents an address (dynamic or static) associated with the interface. The index is a string of 1 to 40 hex digits or a single wildcard (‘?’), and a type. The type identifies whether the *Address* component is for a ***primary***, ***alternate, registered***, or ***default*** address.<br><br>The types ***primary*** and ***alternate*** are used for provisioned addresses. The type ***registered*** is used for dynamic addresses registered through ILMI. The type ***default*** is used for Soft PVP and Soft PVC addresses.Virtual interfaces do not have addresses of<br>type ***default***.<br><br>The wildcard is only valid for provisioned addresses. If the address is a single wildcard, then that indicates that the interface supports all addresses. If there is no better match, then this interface may be chosen in the routing. If there is more than one interface with a single wildcard static address, then the choice is driven through a round robin algorithm.<br><br>The round robin algorithm tries the primary routes and then the alternate routes if none of the primary routes succeed. |

| | |
|---|---|
| | If this node participates in a PNNI hierarchy, then a *PnniInfo* subcomponent can be provisioned under the *AtmAddress* component to specify the level to which this address will be advertised. |
| Opt. Subcomp. | "COMPONENT AtmIf Iisp Addr TerminateSPvpAndSPvc (TermSP)"<br>"COMPONENT AtmIf Iisp Addr PnniInfo" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Atmlf Iisp Addr Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains the operational attributes for the *Address* component. |

## ATTRIBUTE Atmlf Iisp Addr scope

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the scope of the ATM address, which is the highest level to which this address will be advertised in the PNNI hierarchy. If no *PnniInfo* subcomponent has been provisioned, then the scope will default to the level of this node in the PNNI hierarchy. If this node does not participate in a PNNI hierarchy, then this attribute will have the value of -1. |
| Values | Signed (-1..104) |
| Default | No default |

## ATTRIBUTE Atmlf Iisp Addr reachability (reach)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute indicates whether the address is internal or exterior. An internal reachable address is an address of a destination that is directly attached to the logical node advertising the address. An exterior reachable address is an address that can be reached through a PNNI routing domain, but which is not located in that PNNI routing domain. |
| Values | internal<br>exterior |
| Default | No default |

## COMPONENT Atmlf Iisp Addr TerminateSPvpAndSPvc (TermSP)

| | |
|---|---|
| Scope | Device |
| Description | *AtmIf/n Aini Address/address,type TerminateSPvpAndSPvc*<br>*AtmIf/n Iisp Address/address,type TerminateSPvpAndSPvc*<br>*AtmIf/n Uni Address/address,type TerminateSPvpAndSPvc*<br>*AtmIf/n Pnni Address/address,type TerminateSPvpAndSPvc*<br>*AtmIf/n Vpt/m Aini Address/address,type TerminateSPvpAndSPvc*<br>*AtmIf/n Vpt/m Iisp Address/address,type TerminateSPvpAndSPvc*<br>*AtmIf/n Vpt/m Uni Address/address,type TerminateSPvpAndSPvc*<br>*AtmIf/n Vpt/m Pnni Address/address,type TerminateSPvpAndSPvc*<br><br>The presence of this subcomponent indicates that SPvp and SPvc call setups terminate at this node if the destination address of the SPVP or SPVC matches the *Address* instance. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## COMPONENT Atmlf Iisp Addr PnniInfo

| | |
|---|---|
| Groups | "GROUP AtmIf Iisp Addr PnniInfo Provisioned (Prov)" |
| Scope | Device |

Description

*AtmIf/n Aini Addr/address,type PnniInfo*
*AtmIf/n Iisp Addr/address,type PnniInfo*
*AtmIf/n Uni Addr/address,type PnniInfo*
*AtmIf/n Pnni Addr/address,type PnniInfo*
*AtmIf/n Vpt/m Aini Addr/address,type PnniInfo*
*AtmIf/n Vpt/m Iisp Addr/address,type PnniInfo*
*AtmIf/n Vpt/m Uni Addr/address,type PnniInfo*
*AtmIf/n Vpt/m Pnni Addr/address,type PnniInfo*

This component contains provisioned information associated with the ATM address related to PNNI. This component appears only under provisioned *Address* components.

Common Verbs

Help
List
Display
Add
DELete

## GROUP AtmIf Iisp Addr PnniInfo Provisioned (Prov)

Properties: Provisioned

Description: This attribute group contains the provisioned attributes relating to PNNI for a *PnniInfo* component.

## ATTRIBUTE AtmIf Iisp Addr PnniInfo scope

Access: Read: All
Write: All

Criticality: Component

Description: This attribute specifies the scope of the ATM address, which is the highest level up to which this address will be advertised in the PNNI hierarchy. The scope must be set to a value numerically less than or equal to the level of the lowest level peer group containing this node. Setting the scope to 0 will cause the address to be advertised globally within this PNNI routing domain.

Values: Signed (-1..104)

Default: -1

### ATTRIBUTE AtmIf Iisp Addr PnniInfo reachability (reach)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute indicates whether the address is internal or exterior. An internal reachable address is an address of a destination that is directly attached to the logical node advertising the address. An exterior reachable address is an address that can be reached through a PNNI routing domain, but which is not located in that PNNI routing domain. |
| Values | internal<br>exterior |
| Default | internal |

### COMPONENT AtmIf Iisp CallingAddressScreening (CallingAScr)

| | |
|---|---|
| Groups | "GROUP AtmIf Iisp CallingAScr Provisioned (Prov)"<br>"GROUP AtmIf Iisp CallingAScr Statistics (Stat)" |
| Scope | Device |
| Description | *AtmIf/n Aini CallingAddressScreening*<br>*AtmIf/n Uni CallingAddressScreening*<br>*AtmIf/n Iisp CallingAddressScreening*<br>This component represents the screening of incoming ATM SVC call requests against provisioned ATM calling addresses (that is, screening SVC calls coming from specific addresses). If this component is not provisioned, all call requests are accepted and no calling address screening takes place. |
| Opt. Subcomp. | "COMPONENT AtmIf Iisp CallingAScr Address (Addr)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP AtmIf lisp CallingAScr Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This attribute group contains the provisionable attributes for the *CallingAScr* component. |

## ATTRIBUTE AtmIf lisp CallingAScr adminStatus

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies whether the calling address screening feature is ***enabled*** or ***disabled***.<br><br>If ***enabled***, incoming SVC calls are screened against provisioned addresses. If ***enabled*** and the calling address in the ATM SVC call request is provisioned to be accepted, the call is accepted or rejected according to the action specified for that address. If the value is ***enabled***, and the calling address in the address request is not provisioned, the call is rejected<br><br>If the value is ***disabled***, no calling address screening is performed. |
| Values | enabled<br>disabled |
| Default | disabled |

## ATTRIBUTE AtmIf lisp CallingAScr defaultInsertionAddress (defInsAddr)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the address to be inserted into the SVC connection request if *adminStatus* is ***enabled*** and the connection request does not contain a calling address. If the *adminStatus* attribute is ***enabled*** and this attribute is empty, all incoming SVC calls which do not contain a calling address are rejected. |
| Values | String (0..20, Hex) |
| Default | "" |

## GROUP AtmIf lisp CallingAScr Statistics (Stat)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains statistics related to the incoming SVC call requests received while the *adminStatus* attribute is set to ***enabled***. |

## ATTRIBUTE AtmIf lisp CallingAScr acceptedCalls

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the incoming SVC calls which were accepted because the address specified in the call request matched a provisioned ATM address and the associated action was ***accept***.<br>When the counter exceeds the maximum, it wraps to 0. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## ATTRIBUTE AtmIf lisp CallingAScr rejectedCalls

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the incoming SVC calls which were rejected because the address specified in the call request matched a provisioned ATM address, but the associated action was ***reject***.<br>When the counter exceeds the maximum, it wraps to 0. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## ATTRIBUTE AtmIf lisp CallingAScr unmatchedCalls

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the incoming SVC calls which were rejected because none of the provisioned ATM addresses matched the applicable address in the incoming SVC call request.<br>When the counter exceeds the maximum, it wraps to 0. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

## COMPONENT AtmIf Iisp CallingAScr Address (Addr)

| | |
|---|---|
| Instance | address [String (1..40, ASCII)]<br>addressAction [accept<br>reject] |
| Scope | Device |
| Description | *AtmIf/n Aini CallingAScr Address/addr,action*<br>*AtmIf/n Uni CallingAScr Address/addr,action*<br>*AtmIf/n Iisp CallingAScr Address/addr,action*<br>*AtmIf/n Aini CalledAScr Address/addr,action*<br>*AtmIf/n Uni CalledAScr Address/addr,action*<br>*AtmIf/n Iisp CalledAScr Address/addr,action*<br>This component specifies a calling (or called) address with an action to accept or reject a connection request which contains a matching calling (or called) address.<br>For the Calling Address Screening feature, if the specified action is ***accept***, any call whose calling address matches that address is accepted. If the specified action is ***reject***, any call whose calling address matches that address is rejected.<br>For the Called Address Screening feature, if the specified action is ***accept***, any call whose called address matches that address, is accepted. If the specified action is ***reject***, any call whose called address matches that address is rejected.<br>For both features, the incoming SVC call request is rejected if the address is not provisioned and the feature is ***enabled***. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## COMPONENT AtmIf Iisp CalledAddressScreening (CalledAScr)

| | |
|---|---|
| Groups | "GROUP AtmIf Iisp CalledAScr Provisioned (Prov)"<br>"GROUP AtmIf Iisp CalledAScr Statistics (Stat)" |

| | |
|---|---|
| Scope | Device |
| Description | *AtmIf/n Aini CalledAddressScreening*<br>*AtmIf/n Uni CalledAddressScreening*<br>*AtmIf/n Iisp CalledAddressScreening*<br>This component represents the screening of incoming ATM SVC call requests against provisioned ATM called addresses (that is, going to specific destinations). If this component is not provisioned, all call requests are accepted and no called address screening takes place. |
| Opt. Subcomp. | "COMPONENT AtmIf Iisp CalledAScr Address (Addr)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP AtmIf Iisp CalledAScr Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This attribute group contains the provisionable attributes for the *CalledAScr* component. |

## ATTRIBUTE AtmIf Iisp CalledAScr adminStatus

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies whether the called address screening feature is ***enabled*** or ***disabled***.<br>If the value is ***enabled***, incoming SVC calls will be screened against provisioned called addresses. If the value is ***enabled*** and the called address in the ATM SVC call request has been provisioned, the call is accepted or rejected according to the action specified for that address. If the value is ***enabled*** and the called address in the call request is not provisioned, the call is rejected.<br>If the value is ***disabled***, no called address screening is performed. |

| | |
|---|---|
| Values | enabled<br>disabled |
| Default | disabled |

### GROUP AtmIf lisp CalledAScr Statistics (Stat)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains statistics related to the incoming SVC call requests received while the *adminStatus* attribute is set to ***enabled***. |

### ATTRIBUTE AtmIf lisp CalledAScr acceptedCalls

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the incoming SVC calls which were accepted because the address specified in the call request matched a provisioned ATM address and the associated action was ***accept***.<br>When the counter exceeds the maximum, it wraps to 0. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE AtmIf lisp CalledAScr rejectedCalls

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the incoming SVC calls which were rejected because the address specified in the call request matched a provisioned ATM address, but the associated action was ***reject***.<br>When the counter exceeds the maximum, it wraps to 0. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE AtmIf lisp CalledAScr unmatchedCalls

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the incoming SVC calls which were rejected because none of the provisioned ATM addresses matched the applicable address in the incoming SVC call request.<br>When the counter exceeds the maximum, it wraps to 0. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## COMPONENT AtmIf Iisp CalledAScr Address (Addr)

| | |
|---|---|
| Instance | address [String (1..40, ASCII)]<br>addressAction [accept<br>reject] |
| Scope | Device |
| Description | *AtmIf/n Aini CallingAScr Address/addr,action*<br>*AtmIf/n Uni CallingAScr Address/addr,action*<br>*AtmIf/n Iisp CallingAScr Address/addr,action*<br>*AtmIf/n Aini CalledAScr Address/addr,action*<br>*AtmIf/n Uni CalledAScr Address/addr,action*<br>*AtmIf/n Iisp CalledAScr Address/addr,action*<br>This component specifies a calling (or called) address with an action to accept or reject a connection request which contains a matching calling (or called) address.<br>For the Calling Address Screening feature, if the specified action is ***accept***, any call whose calling address matches that address is accepted. If the specified action is ***reject***, any call whose calling address matches that address is rejected.<br>For the Called Address Screening feature, if the specified action is ***accept***, any call whose called address matches that address, is accepted. If the specified action is ***reject***, any call whose called address matches that address is rejected.<br>For both features, the incoming SVC call request is rejected if the address is not provisioned and the feature is ***enabled***. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## COMPONENT AtmIf Iisp PathTraceFilter (Ptf)

| | |
|---|---|
| Groups | "GROUP AtmIf Iisp Ptf Criteria"<br>"GROUP AtmIf Iisp Ptf Operational (Oper)"<br>"GROUP AtmIf Iisp Ptf RecordControl (Record)" |
| Scope | Device |
| Description | *AtmIf/n Aini PathTraceFilter*<br>*AtmIf/n Iisp PathTraceFilter*<br>*AtmIf/n Uni PathTraceFilter*<br>*AtmIf/n Pnni PathTraceFilter*<br>*AtmIf/n Vpt/vpi Aini PathTraceFilter*<br>*AtmIf/n Vpt/vpi Iisp PathTraceFilter*<br>*AtmIf/n Vpt/vpi Uni PathTraceFilter*<br>*AtmIf/n Vpt/vpi Pnni PathTraceFilter*<br><br>This component represents the path trace filtering capability on the ATM signaling interface. This capability allows the user to trace connections during the call setup phase against the criteria associated with this component. Only the connections that match all the criteria are traced.<br><br>When this component is provisioned, the network operator can control tracing activities by using the *Start*, *Stop*, and *Clear* verbs. When the *Start* verb is issued, the *traceTimeout* timer restarts. Once the timer times out, filtering stops and records are not removed. When the *Stop* verb is issued, the filter stops and the trace records are kept until the user clears them. When the *Clear* verb is issued, the trace records are cleared. When *AtmPathTraceFilter* component is deleted, all records are cleared.<br><br>Once the maximum specified by *maxTraceRecords* attribute under the *PathTraceFilter* component or *maxTraceRecords* attribute under the *Lp/n Eng PTrace* component has been reached, the oldest record is deleted.<br><br>The *AtmPathTraceFilter* component is not permitted to be added when the *Lp/n Eng PTrace Ov maxTraceRecords* attribute is set to zero. |

| | |
|---|---|
| Dyn. Subcomp. | "COMPONENT AtmIf Iisp Ptf PathTraceRecord (PTRecord)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## VERB START AtmIf Iisp Ptf

| | |
|---|---|
| Impact | Service |
| Description | *START AtmIf/n Aini PathTraceFilter*<br>*START AtmIf/n Iisp PathTraceFilter*<br>*START AtmIf/n Uni PathTraceFilter*<br>*START AtmIf/n Pnni PathTraceFilter*<br>*START AtmIf/n Vpt/vpi Aini PathTraceFilter*<br>*START AtmIf/n Vpt/vpi Iisp PathTraceFilter*<br>*START AtmIf/n Vpt/vpi Uni PathTraceFilter*<br>*START AtmIf/n Vpt/vpi Pnni PathTraceFilter*<br><br>This command starts the path tracing based on the specified filtering criteria.<br><br>When the command is issued, the *traceTimeout* timer is reset. |

### VERB STOP AtmIf lisp Ptf

| | |
|---|---|
| Impact | Service |
| Description | *STOP AtmIf/n Aini PathTraceFilter*<br>*STOP AtmIf/n Iisp PathTraceFilter*<br>*STOP AtmIf/n Uni PathTraceFilter*<br>*STOP AtmIf/n Pnni PathTraceFilter*<br>*STOP AtmIf/n Vpt/vpi Aini PathTraceFilter*<br>*STOP AtmIf/n Vpt/vpi Iisp PathTraceFilter*<br>*STOP AtmIf/n Vpt/vpi Uni PathTraceFilter*<br>*STOP AtmIf/n Vpt/vpi Pnni PathTraceFilter*<br><br>This command causes the filter to stop, but keeps the trace records. |

### VERB CLEAR AtmIf lisp Ptf

| | |
|---|---|
| Impact | Service |
| Description | *CLEAR AtmIf/n Aini PathTraceFilter*<br>*CLEAR AtmIf/n Iisp PathTraceFilter*<br>*CLEAR AtmIf/n Uni PathTraceFilter*<br>*CLEAR AtmIf/n Pnni PathTraceFilter*<br>*CLEAR AtmIf/n Vpt/vpi Aini PathTraceFilter*<br>*CLEAR AtmIf/n Vpt/vpi Iisp PathTraceFilter*<br>*CLEAR AtmIf/n Vpt/vpi Uni PathTraceFilter*<br>*CLEAR AtmIf/n Vpt/vpi Pnni PathTraceFilter*<br><br>This command clears the path trace records associated with this filter. This command is rejected on an active filter. |

### GROUP AtmIf lisp Ptf Criteria

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational criteria for the *PathTraceFilter* component. |

### ATTRIBUTE AtmIf lisp Ptf traceInfo (tInfo)

| | |
|---|---|
| Access | Read: All<br>Write: All |

| | |
|---|---|
| Description | This attribute specifies the trace information that is included in the trace records.<br><br>***crankBack***: Crankback information is included if the connection is cranked back during the connection setup phase. If the option is turned on, all attempted paths including the final one are recorded. If the option is turned off, only the information of the final path is recorded. If the connection fails to reach the destination, no path information is returned.<br><br>***connId***: Connection Identifier information is included.<br><br>***callRef***: For point-to-point connections, the call reference is included. For point-to-multipoint connections, the call reference and end point reference are both included.<br><br>Basic trace information, such as node and port identifiers, are always included. |
| Set of | crankBack<br>connId<br>callRef |
| Default | (crankBack, connId, callRef) |

### ATTRIBUTE AtmIf lisp Ptf calledPartyPrefix (cldPref)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies an NSAP address prefix, which is compared with the called party IE in the connection setup request. When all the criteria in the filter match successfully, the call is traced.<br><br>An empty string matches any address. |
| Values | String (0..20, Hex) |
| Default | No default |

### ATTRIBUTE AtmIf lisp Ptf callingPartyPrefix (clgPref)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies an NSAP address prefix, which is compared with the calling party IE in the connection setup request. When all the criteria in the filter match successfully, the call is traced.<br><br>An empty string matches any address. |
| Values | String (0..20, Hex) |
| Default | No default |

### ATTRIBUTE AtmIf lisp Ptf connectionType (type)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies a connection type (SVC, SPVC, SVP, SPVP), which is compared against the connection setup request. When all the criteria in the filter match successfully, the call is traced. |
| Set of | svc<br>spvc<br>svp<br>spvp |
| Default | (svc, spvc, svp, spvp) |

### ATTRIBUTE AtmIf lisp Ptf connectionConfiguration (config)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies a type of topology (point-to-point or point-to-multipoint), which is compared against the connection setup request. When all the criteria in the filter match successfully, the call is traced. |

| | |
|---|---|
| Set of | ptp<br>ptmp |
| Default | (ptp, ptmp) |

### ATTRIBUTE AtmIf lisp Ptf serviceCategory (svcCat)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the service categories, which is compared against the connection setup request. When the all criteria in the filter match successfully, the call is traced. |
| Set of | cbr<br>rtVbr<br>nrtVbr<br>ubr |
| Default | (cbr, rtVbr, nrtVbr, ubr) |

### GROUP AtmIf lisp Ptf Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for the *PathTraceFilter* component. |

### ATTRIBUTE AtmIf lisp Ptf state

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the current state of the filter.<br><br>***active***: Indicates the filter is active.<br><br>***inactive:*** Indicates the filter is inactive. The records are available if the filter is stopped by the user using the *Stop* verb or if the filter has timed out. |

| | |
|---|---|
| Values | active<br>inactive |
| Default | inactive |

### ATTRIBUTE AtmIf lisp Ptf recordCount

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of records that have been acquired so far for this filter. The maximum number of records that can be stored is specified by *Lp/n Eng PathTrace maxTraceRecords* or *AtmPathTraceFilter maxTraceRecords*, which ever is less. |
| Values | Decimal (0..200) |
| Default | No default |

### ATTRIBUTE AtmIf lisp Ptf matchedConnections

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of connections that match the criteria of this filter. |
| Values | Decimal (0..2147483647) |
| Default | No default |

### ATTRIBUTE AtmIf lisp Ptf elapsedTime

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of minutes that have elapsed since the start of the filter. |
| Values | Decimal (0..70560) |
| Units | minutes |
| Default | No default |

### ATTRIBUTE AtmIf lisp Ptf timeRemaining

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of minutes remaining before the filter terminates itself. |
| Values | Decimal (0..70560) |
| Units | minutes |
| Default | No default |

### GROUP AtmIf lisp Ptf RecordControl (Record)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for the record control of the *PathTraceFilter* component. |

### ATTRIBUTE AtmIf lisp Ptf traceTimeout

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies how long this filter remains active. At the end of this time, the filter is stopped and all trace records associated with this filter are available. |
| Values | Decimal (1..70560) |
| Units | minutes |
| Default | 60 |

### ATTRIBUTE AtmIf lisp Ptf maxTraceRecords (mRecords)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the maximum number of records allowed to be stored with the filter.<br><br>Once the maximum has been reached, the oldest record is removed. |

| | |
|---|---|
| Values | Decimal (1..200) |
| Default | 2 |

## COMPONENT AtmIf Iisp Ptf PathTraceRecord (PTRecord)

| | |
|---|---|
| Groups | "GROUP AtmIf Iisp Ptf PTRecord Operational (Oper)" |
| Scope | Device |
| Description | *AtmIf/n Aini Ptf PTRecord*<br>*AtmIf/n Iisp Ptf PTRecord*<br>*AtmIf/n Uni Ptf PTRecord*<br>*AtmIf/n Pnni Ptf PTRecord*<br>*AtmIf/n Vpt/n Aini Ptf PTRecord*<br>*AtmIf/n Vpt/n Iisp Ptf PTRecord*<br>*AtmIf/n Vpt/n Uni Ptf PTRecord*<br>*AtmIf/n Vpt/n Pnni Ptf PTRecord*<br><br>This component represents the path trace record for the last failed connection against this filter. |
| Dyn. Subcomp. | "COMPONENT AtmIf Iisp Ptf PTRecord Hop" |
| Common Verbs | Help<br>List<br>Display |

## GROUP AtmIf Iisp Ptf PTRecord Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for the path trace record component. |

## ATTRIBUTE AtmIf Iisp Ptf PTRecord status

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the status of the trace. The string is one of the following:<br><br>***Completed normally****:* The trace completed normally. |

***Incomplete**:* Partial trace returned.

***Exceeded information element length limitations**:* The number of traced nodes exceeded the maximum number of hops.

***Exceeded message length limitations**:* The message length exceeded the maximum allowed size.

| | |
|---|---|
| Values | Completed normally<br>Incomplete<br>Exceeded information element length limitations<br>Exceeded message length limitations |
| Default | No default |

### ATTRIBUTE AtmIf Iisp Ptf PTRecord timeStamp

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute records the date and time of when the trace is completed. |
| Values | Time (DHMS) |
| Default | No default |

### ATTRIBUTE AtmIf Iisp Ptf PTRecord srcPortId

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the trace's source port identifier used for this connection. This attribute only appears in the trace result for the trace source hop. |
| Values | Decimal (1..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Iisp Ptf PTRecord srcPortName

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the name of the source port used for this connection. This attribute only appears in the trace result for the trace source hop. |
| Values | String (40, ASCII) |
| Default | No default |

### ATTRIBUTE AtmIf Iisp Ptf PTRecord causeCode

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute contains the cause code in the transmitted signaling message that contains the CAUSE information element. The cause code is used to describe the reason for generating certain signaling messages. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE AtmIf Iisp Ptf PTRecord diagCode

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute contains the diagnostic code in the transmitted signaling message. The diagnostic code is contained in the CAUSE information element and identifies an information element type or timer type. The diagnostic code is present only if a procedural error is detected by the signaling protocol. A diagnostic code is always accompanied by the cause code. If there is no failure, this attribute is set to NULL. |
| Values | String (0..8, ASCII) |

| | |
|---|---|
| Default | No default |

## COMPONENT AtmIf Iisp Ptf PTRecord Hop

| | |
|---|---|
| Instance | Decimal (0..200) |
| Groups | "GROUP AtmIf Iisp Ptf PTRecord Hop Operational (Oper)" |
| Scope | Device |
| Description | *AtmIf/n Aini Ptf PTRecord Hop/n*<br>*AtmIf/n Iisp Ptf PTRecord Hop/n*<br>*AtmIf/n Uni Ptf PTRecord Hop/n*<br>*AtmIf/n Pnni Ptf PTRecord Hop/n*<br>*AtmIf/n Vpt/n Aini Ptf PTRecord Hop/n*<br>*AtmIf/n Vpt/n Iisp Ptf PTRecord Hop/n*<br>*AtmIf/n Vpt/n Uni Ptf PTRecord Hop/n*<br>*AtmIf/n Vpt/n Pnni Ptf PTRecord Hop/n*<br>*AtmIf/n Vcc/x.y PTRecord Hop/n*<br>*AtmIf/n Vpc/n PTRecord Hop/n*<br>*AtmIf/n Vpt/n Vcc/x.y PTRecord Hop/n*<br><br>This component stores the result of a hop from a trace. An instance of this component is dynamically created for each hop in a trace record.<br><br>Depending on the hops, different attributes are present. |
| Dyn. Subcomp. | "COMPONENT AtmIf Iisp Ptf PTRecord Hop VendorSpecificInfo (Vsi)" |
| Common Verbs | Help<br>List<br>Display |

## GROUP AtmIf Iisp Ptf PTRecord Hop Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for the component *AtmPathTraceFilterRecordHop*. |

### ATTRIBUTE AtmIf Iisp Ptf PTRecord Hop ingressVpiVci (vpiVci)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the VPI.VCI values used for this hop on the ingress side. This is the ingress side with respect to the trace or setup messages. This attribute is displayed for ATM interfaces only.<br><br>The VPI.VCI values are included in the trace when the *traceInfo* attribute sets the ***connId*** value. |
| Values | Integer Sequence (0..4095; 0..65535) |
| Default | No default |

### ATTRIBUTE AtmIf Iisp Ptf PTRecord Hop ingressDlci (dlci)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the DLCI value used for this hop on the ingress side. This is the ingress side with respect to the trace or setup message. This attribute is displayed for FrAtm interfaces only.<br><br>The DLCI is included in the trace when the *traceInfo* attribute sets the ***connId*** value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Iisp Ptf PTRecord Hop ingressCallReference (callref)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the call reference value used for this hop on the ingress side. This is the ingress side with respect to the |

trace or setup message.

The call reference is included in the trace when the *traceInfo* attribute sets the ***callRef*** value

Values: Hex (H.0..H.ffffff)

Default: No default

### ATTRIBUTE AtmIf Iisp Ptf PTRecord Hop ingressEndPointReference (epref)

Access: Read: All
Write: Illegal

Criticality: Component

Description: This attribute indicates the end point reference value used for this hop on the ingress side. This is the ingress side with respect to the trace or setup messages.

The end point reference is included in the trace when the *traceInfo* attribute sets the ***callRef*** value and the connection is point-to-multipoint.

Values: Hex (H.0..H.ffff)

Default: No default

### ATTRIBUTE AtmIf Iisp Ptf PTRecord Hop nodeId

Access: Read: All
Write: Illegal

Criticality: Component

Description: This attribute indicates the lowest level node ID traversed for this hop.

Values: String (22, Hex)

Default: No default

### ATTRIBUTE AtmIf lisp Ptf PTRecord Hop nodeName

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the *nodeName* under the *ModuleData* component for this hop. Only Passport nodes provide this information by including it in the Vendor Specific group. |
| Values | String (12, ASCII) |
| Default | No default |

### ATTRIBUTE AtmIf lisp Ptf PTRecord Hop portId

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the port identifier value for this hop on the egress side. This is the egress side with respect to the trace or setup messages. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf lisp Ptf PTRecord Hop portName

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the port name for this hop on the egress side. This is the egress side with respect to the trace or setup messages. Only Passport nodes provide this information by including it in the Vendor Specific group. |
| Values | String (55, ASCII) |
| Default | No default |

### ATTRIBUTE AtmIf Iisp Ptf PTRecord Hop pnniTraceContRefusalIndPresent (refusal)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates whether the “PNNI Trace Continuation Refusal” indicator is present. The “PNNI Trace Continuation Refusal” indicator indicates that this hop has refused to participate in the trace. |
| Values | absent<br>present |
| Default | absent |

### ATTRIBUTE AtmIf Iisp Ptf PTRecord Hop crankbackDestNodeIndPresent (dest)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates whether the “PNNI Crankback Received at the Trace Destination Node” indicator is present. The “PNNI Crankback Received at Trace Destination Node” indicator indicates that this hop is acting as a trace destination node, receiving a crankback for this call from a non-PNNI interface. |
| Values | absent<br>present |
| Default | absent |

### ATTRIBUTE AtmIf Iisp Ptf PTRecord Hop pnniCrankbackGapIndPresent (gap)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates whether the “PNNI Crankback Gap” indicator is present. The “PNNI Crankback Gap” indicator indicates that the call experienced a crankback, where no Trace Transit List IE was returned by the node initiating the crankback. |

| | |
|---|---|
| Values | absent<br>present |
| Default | absent |

### ATTRIBUTE AtmIf Iisp Ptf PTRecord Hop crankBackCause (cause)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the crankback cause. Please refer to Private-Network-to-Network-Interface Specification Version 1.0 for more information.<br><br>This attribute is present when the *traceInfo* attribute sets the ***crankBack*** value and the connection has initiated the crankback procedure. |
| Values | Decimal (0..1000) |
| Default | No default |

### ATTRIBUTE AtmIf Iisp Ptf PTRecord Hop blockedTransitType (type)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the blocked transit type.<br><br>This attribute is present when the *traceInfo* attribute sets the ***crankBack*** value and the connection has initiated the crankback procedure. |
| Values | Succeeding end blocked<br>Blocked node<br>Blocked link |
| Default | No default |

### ATTRIBUTE AtmIf Iisp Ptf PTRecord Hop blockedNodeId (bNodeId)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the blocked node ID during the call setup request. The blocked node ID identifies the logical node where the connection or party has been blocked.<br><br>This attribute is present when the *blockedTransitType* attribute is ***Blocked node.*** |
| Values | String (22, Hex) |
| Default | No default |

### ATTRIBUTE AtmIf Iisp Ptf PTRecord Hop blockedLinkPrecedingNodeId (pNodeId)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the blocked link's preceding node ID during the call setup request. The blocked link's preceding node ID identifies the logical node preceding a link, where the connection or party has been blocked.<br><br>This attribute is present when the *blockedTransitType* attribute is ***Blocked link***. |
| Values | String (22, Hex) |
| Default | No default |

### ATTRIBUTE AtmIf Iisp Ptf PTRecord Hop blockedLinkPortId (bPortId)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the blocked link's port identifier used for this connection during the call setup request. The blocked link's port identifier identifies a logical port of the blocked link's |

preceding node identifier.

This attribute is present when the *blockedTransitType* attribute is ***Blocked link.***

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE AtmIf Iisp Ptf PTRecord Hop blockedLinkSucceedingNodeId (sNodeId)

Access: Read: All
Write: Illegal

Criticality: Component

Description: This attribute indicates the blocked link's succeeding node ID during the call setup request. The blocked link's succeeding node ID identifies the logical node succeeding a link where the connection or party has been blocked.

This attribute is present when the *blockedTransitType* attribute is ***Blocked link.***

Values: String (22, Hex)

Default: No default

### ATTRIBUTE AtmIf Iisp Ptf PTRecord Hop dstVpiVci

Access: Read: All
Write: Illegal

Criticality: Component

Description: This attribute indicates the VPI.VCI values on the destination side. This attribute only appears in the trace result for the trace destination node. This attribute is only displayed for ATM interfaces.

The VPI.VCI is included in the trace when the *traceInfo* attribute sets the ***connId*** value.

Values: Integer Sequence (0..4095; 0..65535)

| | |
|---|---|
| Default | No default |

### ATTRIBUTE AtmIf Iisp Ptf PTRecord Hop dstDlci

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the DLCI value on the destination side. This attribute only appears in the trace result for the trace destination node. This attribute is only displayed for FrAtm interfaces.<br><br>The DLCI is included in the trace when the *traceInfo* attribute sets the ***connId*** value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Iisp Ptf PTRecord Hop dstCallReference (dcr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the call reference value on the destination side. This attribute only appears in the trace result for the trace destination node.<br><br>The call reference value is included in the trace when the *traceInfo* attribute sets the ***callRef*** value. |
| Values | Hex (H.0..H.ffffff) |
| Default | No default |

### ATTRIBUTE AtmIf Iisp Ptf PTRecord Hop dstEndPointReference (depr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |

| | |
|---|---|
| Description | This attribute indicates the end point call reference value on the destination side. This attribute only appears in the trace result for the trace destination node.<br><br>The call reference value is included in the trace when the *traceInfo* attribute sets the ***callRef*** value and the connection is point-to-multipoint. |
| Values | Hex (H.0..H.ffff) |
| Default | No default |

### ATTRIBUTE AtmIf Iisp Ptf PTRecord Hop specifiedPath

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates whether this hop is the originator of this manually configured path. Only Passport nodes provide this information by including it in the Vendor Specific group. |
| Values | no<br>yes |
| Default | no |

### COMPONENT AtmIf Iisp Ptf PTRecord Hop VendorSpecificInfo (Vsi)

| | |
|---|---|
| Instance | Decimal (0..10) |
| Groups | "GROUP AtmIf Iisp Ptf PTRecord Hop Vsi Operational (Oper)" |
| Scope | Device |
| Description | *AtmIf/n Aini Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Iisp Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Uni Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vpt/n Aini Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vpt/n Iisp Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vpt/n Uni Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vpt/n Pnni Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vcc/x.y PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vpc/n PTRecord Hop/n VendorSpecificInfo/m* |

*AtmIf/n Vpt/n Vcc/x.y PTRecord Hop/n VendorSpecificInfo/m*

This component stores the vendor specific information of a non-Passport node for a hop. An instance of this component is dynamically created for the vendor specific information group of a hop in a trace. Several instances of this component are created if the trace has several groups of vendor specific information.

All the trace information for a Passport node is stored in the *PTRecord Hop/** component.

Common Verbs

Help
List
Display

## GROUP AtmIf Iisp Ptf PTRecord Hop Vsi Operational (Oper)

Properties: Operational

Description: This group contains the operational attributes for the component *AtmPathTraceFilterRecordHopVen*.

## ATTRIBUTE AtmIf Iisp Ptf PTRecord Hop Vsi length

Access: Read: All
Write: Illegal

Description: This attribute indicates the length of the vendor specific information group.

Values: Decimal (0..11)

Default: No default

## ATTRIBUTE AtmIf Iisp Ptf PTRecord Hop Vsi organizationUniqueId (oui)

Access: Read: All
Write: Illegal

Description: This attribute indicates the Organization Unique Identifier (OUI) of a non-Passport node.

Values: String (3, Dashed Hex)

Default: No default

## ATTRIBUTE AtmIf Iisp Ptf PTRecord Hop Vsi data

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the contents of the vendor specific information group. |
| Values | String (1..8, Hex) |
| Default | No default |

## COMPONENT AtmIf Iisp PathTraceTestConnection (Ptt)

| | |
|---|---|
| Groups | "GROUP AtmIf Iisp Ptt Operational (Oper)" |
| Scope | Device |
| Description | *AtmIf/n Aini PathTraceTestConnection*<br>*AtmIf/n Iisp PathTraceTestConnection*<br>*AtmIf/n Uni PathTraceTestConnection*<br>*AtmIf/n Pnni PathTraceTestConnection*<br>*AtmIf/n Vpt/vpi Aini PathTraceTestConnection*<br>*AtmIf/n Vpt/vpi Iisp PathTraceTestConnection*<br>*AtmIf/n Vpt/vpi Uni PathTraceTestConnection*<br>*AtmIf/n Vpt/vpi Pnni PathTraceTestConnection*<br><br>This component provides the capability to control the Path Trace Test Connection. A test connection is one way to find the logical nodes and ports that a connection traverses to a destination interface.<br><br>The *Trace* verb is used to initiate the test connection. The test connection is always released once it reaches the trace destination. The test connection responds with the trace results collected during a complete or partial trace. |
| Common Verbs | Help<br>List<br>Display |

## VERB TRACE Atmlf Iisp Ptt

Impact: Passive

Description:

*TRACE AtmIf/n Aini AtmPathTraceTest*
*TRACE AtmIf/n Iisp AtmPathTraceTest*
*TRACE AtmIf/n Uni AtmPathTraceTest*
*TRACE AtmIf/n Pnni AtmPathTraceTest*
*TRACE AtmIf/n Vpt/vpi Aini AtmPathTraceTest*
*TRACE AtmIf/n Vpt/vpi Iisp AtmPathTraceTest*
*TRACE AtmIf/n Vpt/vpi Uni AtmPathTraceTest*
*TRACE AtmIf/n Vpt/vpi Pnni AtmPathTraceTest*

This command is used to initiate a Path Trace Test Connection and then responds with a list of logical nodes and ports from the trace source node to the trace destination node.

Only one *Trace* command is allowed at a time per signaling interface. If the test connection times out, the command fails.

## GROUP Atmlf Iisp Ptt Operational (Oper)

Properties: Operational

Description: This group contains the operational attributes for the *AtmPathTraceTest* component.

## ATTRIBUTE Atmlf Iisp Ptt traceCrankback

Access: Read: All
Write: All

Description: This attribute controls what trace information the trace records include. If the option is turned on, all attempted paths are recorded including the final one. If the option is turned off, only the information of the final path is recorded. If the connection fails to reached the destination, no path information is returned.

Values: no
yes

Default: no

## ATTRIBUTE AtmIf Iisp Ptt txTrafficDescType (txTdt)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the type of traffic management applied to the transmit direction, as defined by the ATM Forum. The *txTrafficDescType* determines the number and meaning of the parameters in the *txTrafficDescParm* attribute. |
| Values | 1<br>2<br>3<br>4<br>5<br>6<br>7<br>8<br>9 |
| Default | 1 |

## ATTRIBUTE AtmIf Iisp Ptt rxTrafficDescType (rxTdt)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the type of traffic management, which is applied to the receive direction of this connection, as defined in the ATM Forum. The *rxTrafficDescType* determines the number and meaning of the parameters in the *rxTrafficDescParm* attribute<br><br>When ***sameAsTx*** is selected, the *rxTrafficDescType* and the *rxTrafficDescParm* are taken from the transmit values. |
| Values | 1<br>2<br>3<br>4<br>5<br>6<br>7 |

8
9
sameAsTx

Default sameAsTx

### ATTRIBUTE AtmIf lisp Ptt atmServiceCategory (service)

Access Read: All
Write: All

Criticality Component

Description This attribute specifies the ATM service category for both directions of the connection.

If this attribute is set to ***derivedFromBBC***, the Broadband Bearer Capability (BBC) and *bestEffort* attributes are used to determine the *atmServiceCategory* of this connection.

If this attribute is set to a possible attribute other than ***derivedFromBBC***, the value of this attribute is used to override the provisioned BBC IE parameters. In those cases, the BBC attributes are not used.

The ***constantBitRate*** service category is intended for real time applications, that is, those requiring tightly constrained delay and delay variation such as for voice and video applications.

The ***rtVariableBitRate*** service category is intended for real time applications, that is, those requiring tightly constrained delay and delay variation, such as for voice and video applications. Sources are expected to transmit at a rate which varies with time. Equivalently, the source can be described as “bursty”. Cells, which are delayed beyond the value specified by CTD, are assumed to be of significantly reduced value to the application. The VBR real time service may support statistical multiplexing of real time sources.

The ***nrtVariableBitRate*** service category is intended for non-real time applications which have bursty traffic characteristics and can be characterized in terms of a PCR, SCR, and MBS.

The ***unspecifiedBitRate*** service is intended for non-real time applications, that is, those not requiring tightly constrained delay and delay variation. UBR sources are expected to be bursty. The UBR service supports a high degree of statistical multiplexing among sources.

Values
unspecifiedBitRate (ubr)
constantBitRate (cbr)
rtVariableBitRate (rtvbr)
nrtVariableBitRate (nrtvbr)
derivedFromBBC (derived)

Default
unspecifiedBitRate

## ATTRIBUTE AtmIf lisp Ptt fwdQosClass (fwdQos)

Access
Read: All
Write: All

Criticality
Component

Description
This attribute specifies the quality of service for the forward direction for this connection.

Class ***1*** supports a QOS that will meet Service Class A performance requirements (circuit emulation, constant bit rate video).

Class ***2*** supports a QOS that will meet Service Class B performance requirements (variable bit rate audio and video).

Class ***3*** supports a QOS that will meet Service Class C performance requirements (connection-oriented data transfer).

Class ***4*** supports a QOS that will meet Service Class D performance requirements (connectionless data transfer).

Class ***0*** is the unspecified bit rate QOS class; no objective is specified for the performance parameters.

Values
0
1

| | |
|---|---|
| | 2<br>3<br>4 |
| Default | 0 |

### ATTRIBUTE AtmIf lisp Ptt bwdQosClass (bwdQos)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the quality of service for the backward direction for this connection.<br><br>Class ***1*** supports a QOS that will meet Service Class A performance requirements (circuit emulation, constant bit rate video).<br><br>Class ***2*** supports a QOS that will meet Service Class B performance requirements (variable bit rate audio and video).<br><br>Class ***3*** supports a QOS that will meet Service Class C performance requirements (connection-oriented data transfer).<br><br>Class ***4*** supports a QOS that will meet Service Class D performance requirements (connectionless data transfer).<br><br>Class ***0*** is the unspecified bit rate QOS class; no objective is specified for the performance parameters.<br><br>The ***sameAsFwd*** selection sets the backward quality of service to be the same as the forward quality of service. |
| Values | 0<br>1<br>2<br>3<br>4<br>sameAsFwd |
| Default | sameAsFwd |

## ATTRIBUTE AtmIf lisp Ptt bearerClassBbc (bcBbc)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the bearer capability. It is one of the Broadband Bearer Capability (BBC) attributes. The purpose of the BBC information element is to indicate a requested broadband connection-oriented bearer service to be provided by the network.<br><br>The value ***derivedFromServiceCategory*** specifies that the actual value, which is used for this connection and is derived from the value of the *atmServiceCategory*. Either this attribute must be set to ***derivedFromServiceCategory***, or the *atmServiceCategory* attribute must be set to ***derivedFromBBC***, but not both.<br><br>Class ***a*** service is a connection-oriented, constant bit rate ATM transport service. Class ***a*** service has end-to-end timing requirements and may require stringent cell loss, cell delay and cell delay variation performance.When ***a*** is set, the user is requesting more than an ATM only service. The network may look at the AAL to provide inter-working based on its contents.<br><br>Class ***c*** service is a connection-oriented, variable bit rate ATM transport service. Class ***c*** service has no end-to-end timing requirements. When ***c*** is set, the user is requesting more than an ATM only service. The network inter-working function may look at the AAL and provide service based on it.<br><br>Class ***x*** service is a connection-oriented ATM transport service where the AAL, *trafficType* (***vbr*** or ***cbr***), and timing requirements are user defined (that is, transparent to the network).When ***x*** is set, the user is requesting an ATM only service from the network. In this case, the network shall not process any higher layer protocols. |
| Values | a<br>c |

| | |
|---|---|
| | x<br>derivedFromServiceCategory |
| Default | derivedFromServiceCategory |

### ATTRIBUTE AtmIf lisp Ptt transferCapabilityBbc (tcBbc)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the transfer capability for this connection. UNI 3.0/3.1 traffic type and end-to-end timing parameters are mapped into this parameter as follows:<br><transferCapability: TrafficType, Timing><br>***0***: NoIndication, NoIndication<br>***1***: NoIndication, yes<br>***2***: NoIndication, no<br>***5***: CBR, yes<br>***8***: VBR, NoIndication<br>***9***: VBR, yes<br>***10***: VBR, no<br><br>***NotApplicable*** specifies that the user does not want to specify the transfer capability.<br><br>The CBR traffic type refers to the traffic offered on services such as a constant bit rate video service or a circuit emulation.<br><br>The VBR traffic type refers to the traffic offered on services such as packetized audio and video, or data.<br><br>The value ***NoIndication*** for traffic type is used if the user has not set the traffic type. This is also the case for end-to-end timing.<br><br>The value ***yes*** for end-to-end timing indicates that end-to-end timing is required.<br><br>The value ***no*** for end-to-end timing indicates that end-to-end timing is not required. |

The value ***derivedFromServiceCategory*** specifies that the actual value which is used for this connection and is derived from the value of the *atmServiceCategory.* Either, this attribute must be set to ***derivedFromServiceCategory*** or the *atmServiceCategory* attribute must be set to ***derivedFromBBC***, but not both.

Values
0
1
2
5
8
9
10
notApplicable
derivedFromServiceCategory

Default
derivedFromServiceCategory

## ATTRIBUTE AtmIf lisp Ptt clippingBbc (cBbc)

Access
Read: All
Write: All

Criticality
Component

Description
This attribute specifies the value for the clipping susceptibility parameter in the BBC IE. This attribute is only used for SPVC connections. It is one of the Broadband Bearer Capability attributes.

Clipping is an impairment where the first fraction of a second of information to be transferred is lost. It occurs after a call is answered and before an associated connection is switched through.

Values
no
yes

Default
no

## ATTRIBUTE AtmIf lisp Ptt bestEffort

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the value of the best effort parameter in the ATM Traffic Descriptor IE. It is one of the Broadband Bearer Capability attributes.<br><br>The value ***indicated*** implies that the quality of service for this connection is not guaranteed.<br><br>The value ***notIndicated*** implies that the quality of service for this connection is guaranteed.<br><br>The value ***derivedFromServiceCategory*** specifies that the actual value, which is used for this connection, is derived from the value of the *atmServiceCategory.* Either this attribute must be set to ***derivedFromServiceCategory*** or the *atmServiceCategory* attribute must be set to ***derivedFromBBC***, but not both. |
| Values | indicated<br>notIndicated<br>derivedFromServiceCategory (derived) |
| Default | derivedFromServiceCategory |

## ATTRIBUTE AtmIf lisp Ptt testCalledAddress

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the destination address of this test connection. |
| Values | String (20, Hex) |
| Default | No default |

## ATTRIBUTE AtmIf lisp Ptt testCalledVpiVci

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the called VPI.VCI values for this test connection on the destination interface. |
| Values | Integer Sequence (0..4095; 0..65535) |
| Default | No default |

## ATTRIBUTE AtmIf lisp Ptt testSpecifiedPath

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the path that will be used to get to the destination of this test connection. |
| Values | String (0..32, ASCII) |
| Default | No default |

## ATTRIBUTE AtmIf lisp Ptt bwdQosParameters (bqp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is a vector of three elements that specify the quality of service parameters for the backward direction for this connection. This attribute is used for SPVC connections.<br><br>The ***cdv*** element specifies the acceptable peak-to-peak cell delay variation (CDV) of real-time connections (CBR and rt-VBR).<br><br>It is signaled through the extended QoS information element.<br><br>The ***ctd*** specifies the acceptable maximum cell transfer delay (maxCtd) of real-time connections (CBR and rt-VBR). It is signaled through the end-to-end transit delay information element. |

The ***clr*** specifies the acceptable cell loss ratio (CLR) of CBR, rt-VBR, and nrt-VBR connections. It is signaled through the extended QoS information element.

Vector of: Decimal (0..2147483647)

Index:
cdv
ctd
clr

Default: (cdv: 16777215, ctd: 16777215, clr: 255)

## ATTRIBUTE AtmIf lisp Ptt fwdQosParameters (fqp)

Access: Read and write

Description: This attribute is a vector of three elements that specify the quality of service parameters for the forward direction for this connection. This attribute is used for SPVC connections.

The ***cdv*** element specifies the acceptable peak-to-peak cell delay variation (CDV) of the real-time connections (CBR and rt-VBR). It is signaled through the extended QoS information element.

The ***ctd*** specifies the acceptable maximum cell transfer delay (maxCtd) of the real-time connections (CBR and rt-VBR). It is signaled through the end-to-end transit delay information element.

The ***clr*** specifies the acceptable cell loss ratio (CLR) of CBR, rt-VBR, and nrt-VBR connections. It is signaled through the extended QoS information element.

Vector of: Decimal (0..2147483647)

Index:
cdv
ctd
clr

Default: (cdv: 16777215, ctd: 16777215, clr: 255)

## ATTRIBUTE AtmIf lisp Ptt txTrafficDescParm (txTdp)

Access
Read: All
Write: All

Description

This attribute is a vector of five traffic parameters whose meanings are defined by the *txTrafficDescType* attribute. The values of peak cell rate (PCR), sustained cell rate (SCR), minimum cell rate (MCR) and requested shaping rate are expressed in cells/second. THe maximum burst size (MBS) is expressed in cells. The cell delay variance tolerance (CDVT) is expressed in microseconds. The values of PCR, SCR, MBS, MCR and CDVT are used for the connection admission control (CAC). The value of the CDVT is only used for connections where the *atmServiceCategory* is ***constantBitRate***. For all other values of *atmServiceCategory*, the CDVT is ignored. The values of PCR, SCR, and the requested shaping rate are used to determine the actual shaping rate, where traffic shaping is enabled.

When *txTrafficDescType* is ***1*** or ***2***, all of the parameters must be set to zero.

When *txTrafficDescType* is ***3***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameter 1 must be non-zero. Parameters 2 and 3 must be zero.

When *txTrafficDescType* is ***4***, parameter 1 represents the PCR for CLP0+1 traffic with cell discard; parameter 2 represents the PCR for CLP equal to 0 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameter 1 must be greater than or equal to parameter 2. Parameters 1 and 2 must be non-zero. Parameter 3 must be zero.

When *txTrafficDescType* is ***5***, parameter 1 represents the PCR for CLP0+1 traffic with cell tagging; parameter 2 represents the PCR

for CLP equal to 0 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameter 1 must be greater than or equal to parameter 2. Parameters 1 and 2 must be non-zero. Parameter 3 must be zero.

When *txTrafficDescType* is ***6***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the SCR for CLP0+1 traffic; parameter 3 represents the MBS for CLP0+1 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameters 1, 2, and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2. Parameter 5 must either be zero (unused) or greater than or equal to parameter 2.

When *txTrafficDescType* is ***7***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the SCR for CLP equal to 0 with cell discard; parameter 3 represents the MBS for CLP equal to 0 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameters 1, 2, and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2. Parameter 5 must either be zero (unused) or greater than or equal to parameter 2.

When *txTrafficDescType* is ***8***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the SCR for CLP equal to 0 traffic with cell tagging; parameter 3 represents the MBS for CLP equal to 0 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameters 1, 2 and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2. Parameter 5 must either be zero (unused) or greater than or equal to parameter 2.

When *txTrafficDescType* is ***9***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the CDVT; parameter 3

represents the MCR; parameter 5 represents the requested shaping rate; and parameter 4 is not used and must be zero. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameter 1 must either be zero or be greater than or equal to parameter 3. Parameter 3 may be optionally zero. Parameter 5 must either be zero (unused) or greater than or equal to parameter 3.

Whenever it is valid for PCR to be specified, parameter 5 may also be used to specify a requested shaping rate. A non-zero value in parameter 5 overrides the value in parameter 1 and is used as the peak cell rate in the calculations of CAC and the shaping rate.

For *txTrafficDescType* ***3***, ***4***, ***5*** and ***9***, the transmit traffic should be shaped at the next rate less than the PCR.

For *txTrafficDescType* ***6***, ***7,*** and ***8***, the transmit traffic should be shaped at the highest available rate which is between PCR and SCR. However, if there is no available shaping rate between PCR and SCR, traffic should be shaped at the next rate above the PCR.

Vector of: Decimal (0..2147483647)

Index: Decimal (1..5)

Default: ([5] 0)

## ATTRIBUTE AtmIf lisp Ptt rxTrafficDescParm (rxTdp)

Access: Read: All
Write: All

Description: This attribute is a vector of four traffic parameters whose meanings are defined by the *rxTrafficDescType* attribute. The values of the peak cell rate (PCR) and sustained cell rate (SCR) are expressed in
cells/second. The maximum burst size (MBS) is expressed in cells. The value of the cell delay variance tolerance (CDVT) is expressed in microseconds. The values of PCR, SCR, MBS and CDVT are used for the usage parameter control (UPC).

When *rxTrafficDescType* is ***1*** or ***2***, all of the parameters must be set to zero (unused).

When *rxTrafficDescType* is ***3***, parameter 1 represents the PCR for CLP0+1 traffic. Parameter 1 must be non-zero. Parameters 2 and 3 must be set to zero (unused).

When *rxTrafficDescType* is ***4***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the PCR for CLP equal to 0 traffic with cell discard. Parameters 1 and 2 must be non-zero. Parameter 3 must be set to zero (unused). Parameter 1 must be greater than or equal to parameter 2.

When *rxTrafficDescType* is ***5***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the PCR for CLP equal to 0 traffic with cell tagging. Parameters 1 and 2 must be non-zero. Parameter 3 must be set to zero (unused). Parameter 1 must be greater than or equal to parameter 2.

When *rxTrafficDescType* is a ***6***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the SCR for CLP0+1 traffic; parameter 3 represents the MBS for CLP0+1 traffic. Parameters 1, 2, and 3 must be non-zero. Parameter 1 must be greater than or equal to Parameter 2.

When *rxTrafficDescType* is ***7***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the SCR for CLP equal to 0 traffic with cell discard; parameter 3 represents the MBS for CLP equal to 0 traffic. Parameters 1, 2 and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2.

When *rxTrafficDescType* is ***8***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the SCR for CLP equal to 0 traffic with cell tagging; parameter 3 represents the MBS for CLP equal to 0 traffic. Parameter 1, 2, and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2.

When *rxTrafficDescType* is ***9***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the CDVT; parameter 3 represents the MCR. Parameter 4 is not used and must be zero. Parameter 1 must either be zero or be greater than or equal to parameter 3. Parameter 3 may optionally be zero.

When *rxTrafficDescType* is any value from ***3*** through ***8***, parameter 4 represents the CDVT. If this value is zero, the CDVT is taken from the *ConnectionAdministrator* defaults for the particular *atmServiceCategory* of this connection.

When *rxTrafficDescriptorType* is ***3*** through ***9***, there are certain extreme combinations of *rxTrafficDescParm* which are outside the capabilities of the UPC hardware.

To calculate the limits, use the following formulae:
I1 = 1 000 000 000 / PCR
L1 = CDVT * 1000
I2 = 1 000 000 000 / SCR
L2 = CDVT + (MBS - 1) * (I2 - I1)
I1 and I2 must be less than or equal to 335 523 840. I1 + L1 must be less than or equal to 1 342 156 800. I2 + L2 must be less than or equal to 1 342 156 800. Note that I2 and L2 only apply when the *rxTrafficDescriptorType* is ***6*** through ***8***.

If the values of I1, L1, I2, or L2 are closer to the limits described above, a further restriction applies. Specifically, if either:
I1 > 41 940 480 or
I2 > 41 940 480 or
I1 + L1 > 167 769 600 or
I2 + L2 > 167 769 600
then both I1 and I2 must be greater than 20 480.

Parameter 5 of the *rxTrafficDescParm* is always unused.

If the *rxTrafficDescType* is ***sameAsTx***, the values in this attribute are taken from the *txTrafficDescParm*.

| | |
|---|---|
| Vector of | Decimal (0..2147483647) |
| Index | Decimal (1..5) |
| Default | ([5] 0) |

## COMPONENT AtmIf Iisp ServiceTrace (SrvTrace)

| | |
|---|---|
| Groups | "GROUP AtmIf Iisp SrvTrace Operational" |
| Scope | Application |

Description

*AtmIf/n [Vpt/m] Uni ServiceTrace*
*AtmIf/n [Vpt/m] Iisp ServiceTrace*
*AtmIf/n [Vpt/m] Pnni ServiceTrace*
*AtmIf/n [Vpt/m] Aini ServiceTrace*
The *ServiceTrace* component of the ATM service determines if the trace capability is allowed on this service. If it is not provisioned, then a service trace session cannot be started on this service.

Currently, the ATM Trace features only support ***frAtmTraceRcvr*** and ***atmTraceRcvr*** features, if the name of a X25 or FR receiver is set to the *receiver* attribute of this component, the *Start* command responses with a “Receiver Not Supported” message.

Common Verbs

Help
List
Display
Add
DELete

## VERB Start AtmIf Iisp SrvTrace

Impact

Service

Description

*Start AtmIf/n [Vpt/m] Uni ServiceTrace*
*Start AtmIf/n [Vpt/m] Iisp ServiceTrace*
*Start AtmIf/n [Vpt/m] Pnni ServiceTrace*
*Start AtmIf/n [Vpt/m] Aini ServiceTrace*
This command starts a service trace session.

## VERB Stop AtmIf Iisp SrvTrace

Impact

Service

Description

*Stop AtmIf/n [Vpt/m] Uni ServiceTrace*
*Stop AtmIf/n [Vpt/m] Iisp ServiceTrace*
*Stop AtmIf/n [Vpt/m] Pnni ServiceTrace*
*Stop AtmIf/n [Vpt/m] Aini ServiceTrace*
This command stops a service trace session.

## GROUP AtmIf Iisp SrvTrace Operational

Properties

Operational

| | |
|---|---|
| Description | This group provides the operational attributes for the *SrvTrace* component. |

### ATTRIBUTE AtmIf Iisp SrvTrace receiverName (rcvr)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute should be set to the name of the desired trace receiver before starting a trace session. All available trace receivers are listed under the *SrvTrace Rcvr* component. This attribute cannot be set while the service trace is active. The receiver name is validated by the trace manager when the service *SrvTrace* is started. |
| Values | String (0..8, ASCII) |
| Default | No default |

### ATTRIBUTE AtmIf Iisp SrvTrace duration

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the duration, in minutes, of a trace session. A value of ***0*** indicates unlimited duration in which case a trace session remains active until a *Stop* command is issued. This attribute cannot be set while a trace is active. |
| Values | Decimal (0..9999) |
| Units | minutes |
| Default | 60 |

### ATTRIBUTE AtmIf Iisp SrvTrace queueLimit

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the total number of bytes of traced data which may be queued for transmission to the trace receiver. When this limit is exceeded, incoming traced frames are discarded. This attribute can be set while a trace is active and takes effect immediately. |
| Values | Decimal (1..100) |
| Units | Kbyte |

| | |
|---|---|
| Default | 20 |

### ATTRIBUTE AtmIf Iisp SrvTrace session

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the *SrvTrace Session* component that is forwarding the trace data. This attribute is set automatically, and is empty unless the service trace is active. |
| Values | The name of the component |
| Default | No default |

### COMPONENT AtmIf Iisp Reroute

| | |
|---|---|
| Groups | "GROUP AtmIf Iisp Reroute LocalOperational (LOper)"<br>"GROUP AtmIf Iisp Reroute GlobalOperational (GOper)"<br>"GROUP AtmIf Iisp Reroute Statistics (Stats)" |
| Scope | Device |
| Description | *AtmIf/n Iisp Reroute*<br>*AtmIf/n Aini Reroute*<br>*AtmIf/n Uni Reroute*<br>*AtmIf/n Vpt/vpi Iisp Reroute*<br>*AtmIf/n Vpt/vpi Aini Reroute*<br>*AtmIf/n Vpt/vpi Uni Reroute*<br><br>This component represents the rerouting capabilities of the ATM Signaling interface. If this component is provisioned, the *Artg Pnni* component must already exist. The addition or deletion of this component, or changes to its provisionable attributes, does not affect existing connections. |
| Subcomponents | "COMPONENT AtmIf Iisp Reroute Ov" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### VERB OPTIMIZE AtmIf lisp Reroute

| | |
|---|---|
| Impact | Service |
| Description | *Optimize [-all] AtmIf/n Uni outeouteouteouteouteoute*sBy default, only connection segsforation. The best known optimization metric value for the connection segment is indicated by the *localOptimalMetricValue* attribute under the *RerouteInfo* component for the connection.<br>The *-all* option causes all connection segments subscribed to path optimization to be considered.s |

### GROUP AtmIf lisp Reroute LocalOperational (LOper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes that indicate the local rerouting activities at the interface level. |

### ATTRIBUTE AtmIf lisp Reroute localSubscribedConnections (lsub)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the connection segments that are subscribed to one or more local rerouting capabilities. Note that a given connection segment is subscribed to either local rerouting capabilities capabilities, not both. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf lisp Reroute localEligibleRecoveredCon (lerc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the connection segments that have been recovered using local rerouting and are eligible for local path optimization. The value decreases as counted connections are released. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf lisp Reroute localIneligibleRecoveredCon (lirc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the connection segments that have been recovered by local rerouting but are not eligible for local path optimization. The value decreases as counted connections are released. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf lisp Reroute localLastRrCauseCode (lrrcc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the value of the last local rerouting cause code received at this interface. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE AtmIf lisp Reroute localPathsOptimized (lPathsOpt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the paths that were successfully optimized by local rerouting or EBR during the last optimization pass at this interface. Successfully optimized paths are paths that switched to a better route. The value is reset to zero at the beginning of each optimization pass. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP AtmIf lisp Reroute GlobalOperational (GOper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes that indicate the global and EBR rerouting activities at the interface level. |

### ATTRIBUTE AtmIf lisp Reroute globalSubscribedConnections (gsub)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the connection segments that are subscribed to one or more global and EBR rerouting capabilities. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf lisp Reroute globalEligibleRecoveredCon (gerc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the connections that have been recovered by global and EBR rerouting and are eligible for global or EBR path optimization. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf lisp Reroute globalIneligibleRecoveredCon (girc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the connections that have been recovered by global and EBR rerouting but are not eligible for global or EBR path optimization. The value decreases as counted connections are released. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf lisp Reroute globalLastRrCauseCode (grrcc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the value of the last global or EBR rerouting cause code received at this interface. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE AtmIf Iisp Reroute globalPathsOptimized (gPathsOpt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the paths that were successfully optimized by global and EBR rerouting during the last optimization pass at this interface. Successfully optimized paths are paths that switched to a better route. The value is reset to zero at the beginning of each optimization pass. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP AtmIf Iisp Reroute Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the rerouting statistics for the interface. |

### ATTRIBUTE AtmIf Iisp Reroute totalLocalConnectionRecoveries (tLConRec)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts successful local connection recovery attempts. The counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Iisp Reroute totalLocalFailedRecoveries (lFailedRec)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts failed local connection recovery attempts. A connection recovery attempt fails if a rerouting connection segment can not be established. The counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Iisp Reroute totalLocalPathOptimizations (tLPathOpt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts successful local path optimization attempts. A successful path optimization attempt results in a switch to a better route. The counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Iisp Reroute totalGlobalConnectionRecoveries (tGConRec)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts successful global and EBR connection recovery attempts. The counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Iisp Reroute totalGlobalFailedRecoveries (gFailedRec)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts failed global and EBR connection recovery attempts. A connection recovery attempt fails if a rerouting connection segment cannot be established. The counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Iisp Reroute totalGlobalPathOptimizations (tGPathOpt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts successful global and EBR path optimization attempts. A successful path optimization attempt results in a switch to a better route. The counter wraps to zero when the maximum value is exceeded. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Iisp Reroute totalOptimizationPasses (optPass)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts optimization passes at the interface. Both module and interface optimization passes are counted. The counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT AtmIf Iisp Reroute Ov

| | |
|---|---|
| Groups | "GROUP AtmIf Iisp Reroute Ov Provisioned (Prov)"<br>"GROUP AtmIf Iisp Reroute Ov LocalProvisioned (LProv)"<br>"GROUP AtmIf Iisp Reroute Ov GlobalProvisioned (GProv)" |
| Scope | Device |
| Description | *AtmIf/n Iisp Reroute Ov*<br>*AtmIf/n Aini Reroute Ov*<br>*AtmIf/n Uni Reroute Ov*<br>*AtmIf/n Vpt/vpi Iisp Reroute Ov*<br>*AtmIf/n Vpt/vpi Aini Reroute Ov*<br>*AtmIf/n Vpt/vpi Uni Reroute Ov*<br><br>This component represents the provisioning capabilities of the rerouting functionality for the ATM Signaling interface. |
| Common Verbs | Help<br>List<br>Display |

### GROUP AtmIf Iisp Reroute Ov Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the common provisionable attributes for rerouting capabilities at the ATM signaling interface. |

## ATTRIBUTE AtmIf Iisp Reroute Ov protocol

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the rerouting protocols which are requested by connection segments on the interface, for which this node is the first rerouting node. This attribute has no effect on connection segments for which this node is not the first rerouting node. A subset of the requested protocols is granted by the last rendezvous node, according to its software level and provisioning.<br><br>One of the following values can be specified:<br>***sameAsARtgPnniReroute***: The requested rerouting protocols are specified by the *Artg Pnni Reroute protocol* attribute.<br>***localGlobal***: Local and global rerouting protocols are requested. Local and global rerouting are granted if the DTL terminator is provisioned with the Rerouting feature.<br>***localOnly***: Local rerouting is requested. This value guarantees interoperability with other vendors' equipment running the ATM Forum "Domain Based Rerouting" protocol. Local rerouting is granted if the DTL terminator is provisioned with the Rerouting feature.<br>***globalOnly***: Global rerouting is requested. Global rerouting is granted if the DTL terminator is provisioned with the Rerouting feature.<br>***localEbr*:** Local and EBR rerouting protocols are requested. Local rerouting is granted if the DTL terminator is provisioned with the Rerouting feature. Alternatively, EBR is granted if the DTL terminator is provisioned with the EBR feature.<br>***ebrOnly***: EBR is requested. EBR is granted if the DTL terminator is provisioned with the EBR feature. |
| Values | localGlobal<br>localOnly<br>globalOnly<br>localEbr<br>ebrOnly<br>sameAsARtgPnniReroute (sameAs) |
| Default | sameAsARtgPnniReroute |

### ATTRIBUTE AtmIf Iisp Reroute Ov numOptAttempts

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the number of path optimizations attempted before declaring a recovered connection segment to be optimally routed. Following a connection recovery, each manual and automatic path optimization will attempt to optimize the connection segment. When a path is found with a better optimization metric than the best known value, or the number of optimization attempts is exhausted, the current optimization metric is declared to be the new optimal metric for the connection segment. Subsequent path optimizations will not attempt to optimize the connection segment unless all subscribed connection segments are eligible for path optimization.<br><br>If the value is set to ***0***, the optimization metric of a connection segment following connection recovery is declared to be the new optimal metric, and no connection recovery alarm is issued. A subsequent path optimization will not attempt to optimize the connection segment unless all subscribed connection segments are eligible for path optimization.<br><br>If the value is set to ***sameAsARtgPnniReroute***, the value of the *ARtg Pnni Reroute numOptAttempts* attribute is used. |
| Values | Decimal (0..15)<br>sameAsARtgPnniReroute (sameAs) |
| Default | sameAs |

### ATTRIBUTE AtmIf Iisp Reroute Ov moduleOptimizationConnections

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies which connection segments on the interface will be considered by a module optimization pass as controlled by the *ARtg Pnni Reroute* component.<br><br>One of the following values can be specified:<br>***sameAsARtgPnniReroute***: The connection segments to be considered by a module optimization pass are specified by the *Artg Pnni Reroute moduleOptimization* attribute. |

***none***: No connection segments are considered for path optimization.
***recoveredOnly***: Only connection segments which are foration. The best known optimization metric value for the connection segment is indicated by the *localOptimalMetricValue* attribute under the *RerouteInfo* component for the connection
***allSubscribed***: All connection segments subscribed to path optimization are considered.

Values
none
recoveredOnly
allSubscribed
sameAsARtgPnniReroute (sameAs)

Default
sameAsARtgPnniReroute

## ATTRIBUTE AtmIf Iisp Reroute Ov switchoverMechanism

Access
Read and write

Description
This attribute specifies the mechanism used for switchover of a rerouted connection segment.

One of the following values can be specified:
***sameAsARtgPnniReroute***: The switchover mechanism is specified by the *ARtg Pnni Reroute switchoverMechanism* attribute.
***standard***: The mechanism described in the ATM Forum “Domain based Rerouting” specification is used for switchover. This value ensures interoperability with other vendors’ equipment running ATM Forum “Domain based Rerouting”.
***rcl***: The Reduced Cell Loss mechanism is used for switchover. RCL is a value-added Passport extension to the standard mechanism that allows faster switchover time.

Values
standard
rcl
sameAsARtgPnniReroute (sameAs)

Default
sameAsARtgPnniReroute

## GROUP AtmIf Iisp Reroute Ov LocalProvisioned (LProv)

Properties
Provisioned

Description — This group contains the provisionable attributes for EBR and local rerouting protocols.

## ATTRIBUTE AtmIf Iisp Reroute Ov localConnectionRecoverySubscr (lConRec)

Access — Read and write

Description — This attribute specifies which connection segments on the interface request subscription to local connection recovery. This attribute only affects connection segments that request the local rerouting protocols. This attribute affects connection segments for a node that is either local domain rerouting node or a DTL originator.

Connection segments of the specified type(s) which request ***localGlobal*** or ***localOnly*** protocols request subscription to local connection recovery.

Connection segments of the specified type(s) which request ***localEbr*** request subscription to both local connection recovery and EBR connection recovery. Only one will be granted.

One or more of the following values can be specified:
***sameAsARtgPnniReroute:*** If this value is set, the local connection recovery subscription rule is determined by the *ARtg Pnni Reroute localConnectionRecoverySubscr* attribute. This value takes precedence over any other values.
***svcSvp***: If this value is set, all SVC and SVP connection segments request subscription to local connection recovery.
***sourceSpvcSpvp***: If this value is set, all source SPVC and SPVP connection segments request subscription to local connection recovery.
***transitSpvcSpvp***: If this value is set, all transit SPVC and SPVP connection segments request subscription to local connection recovery.

Set of — sameAsARtgPnniReroute (sameAs)
svc
sourceSpvcSpvp (source)
transitSpvcSpvp (transit)

Default — (sameAsARtgPnniReroute)

## ATTRIBUTE AtmIf Iisp Reroute Ov localPathOptimizationSubscr (lPathOpt)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies which connection segments on the interface request subscription to local path optimization. This attribute only affects connection segments that request the local rerouting protocols. This attribute affects connection segments for a node that is either local domain rerouting node or a DTL originator.<br><br>Connection segments of the specified type(s) which request ***localGlobal*** or ***localOnly*** protocols request subscription to local path optimization.<br><br>Connection segments of the specified type(s) which request ***localEbr*** request subscription to both local path optimization and EBR path optimization. Only one will be granted.<br><br>One or more of the following values can be specified:<br>***sameAsARtgPnniReroute***: If this value is set, the local path optimization subscription rule is determined by the *ARtg Pnni Reroute localPathOptimizationSubscr* attribute. This setting takes precedence over the any other values.<br>***svcSvp***: If this value is set, then all SVC and SVP connection segments request subscription to local path optimization.<br>***sourceSpvcSpvp***: If this value is set, then all source SPVC and SPVP connection segments request subscription to local path optimization.<br>***transitSpvcSpvp***: If this value is set, then all transit SPVC and SPVP connection segments request subscription to local path optimization. |
| Set of | sameAsARtgPnniReroute (sameAs)<br>svc<br>sourceSpvcSpvp (source)<br>transitSpvcSpvp (transit) |
| Default | (sameAsARtgPnniReroute) |

## GROUP AtmIf Iisp Reroute Ov GlobalProvisioned (GProv)

| | |
|---|---|
| Properties | Provisioned |

Description — This group contains the provisionable attributes for the global and EBR rerouting protocol.

## ATTRIBUTE AtmIf Iisp Reroute Ov globalConnectionRecoverySubscr (gConRec)

Access — Read and write

Description — This attribute specifies which connection segments on the interface request subscription to global or EBR connection recovery. This attribute only affects connection segments that request the global or EBR rerouting protocols. This attribute affects connection segments for a node that is a DTL originator.

Connection segments of the specified type(s) which request ***localGlobal*** or ***globalOnly*** protocols request subscription to global connection recovery.

Connection segments of the specified type(s) which request ***ebrOnly*** request subscription to EBR connection recovery.

Connection segments of the specified type(s) which request ***localEbr*** request subscription to both local connection recovery and EBR connection recovery. Only one will be granted.

One or more of the following values can be specified:
***sameAsARtgPnniReroute***: If this value is set, the global or EBR connection recovery subscription rule is determined by the *ARtg Pnni Reroute globalConnectionRecoverySubscr* attribute.This setting takes precedence over any other values.
***svcSvp***: If this value is set, then all SVC and SVP connection segments request subscription to global or EBR connection recovery.
***sourceSpvcSpvp***: If this value is set, then all source SPVC and SPVP connection segments request subscription to global or EBR connection recovery.
***transitSpvcSpvp***: If this value is set, then all transit SPVC and SPVP connection segments request subscription to global or EBR connection recovery.

| | |
|---|---|
| Set of | sameAsARtgPnniReroute (sameAs)<br>svc<br>sourceSpvcSpvp (source)<br>transitSpvcSpvp (transit) |
| Default | (sameAsARtgPnniReroute) |

### ATTRIBUTE AtmIf Iisp Reroute Ov globalPathOptimizationSubscr (gPathOpt)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies which connection segments on the interface request subscription to global or EBR path optimization. This attribute only affects connection segments that request the global or EBR rerouting protocols. This attribute affects connection segments for a node that is a DTL originator.<br><br>Connection segments of the specified type(s) which request ***localGlobal*** or ***globalOnly*** protocols request subscription to global path optimization.<br><br>Connection segments of the specified type(s) which request ***ebrOnly*** request subscription to EBR path optimization.<br><br>Connection segments of the specified type(s) which request ***localEbr*** request subscription to both local path optimization and EBR path optimization. Only one will be granted.<br><br>One or more of the following values can be specified:<br>***sameAsARtgPnniReroute***: If this value is set, the global or EBR path optimization subscription rule is determined by the *ARtg Pnni Reroute globalPathOptimizationSubscr* attribute. This setting takes precedence over any other values.<br>***svcSvp***: If this value is set, then all SVC and SVP connection segments request subscription to global or EBR path optimization.<br>***sourceSpvcSpvp***: If this value is set, then all source SPVC and SPVP connection segments request subscription to global or EBR path optimization.<br>***transitSpvcSpvp***: If this value is set, then all transit SPVC and |

SPVP connection segments request subscription to global or EBR path optimization.

Set of
sameAsARtgPnniReroute (sameAs)
svc
sourceSpvcSpvp (source)
transitSpvcSpvp (transit)

Default
(sameAsARtgPnniReroute)

## COMPONENT AtmIf NailedUpAccounting (NAcct)

Groups
"GROUP AtmIf NAcct Provisioned (Prov)"

Scope
Device

Description
*AtmIf/n NailedUpAccounting*
This component represents the ATM accounting options for all nailed up connections (PVCs) on this ATM interface. The component must be provisioned in order to perform PVC ATM accounting on this ATM interface.

Common Verbs
Help
List
Display
Add
DELete

## GROUP AtmIf NAcct Provisioned (Prov)

Properties
Provisioned

Description
This group contains the provisionable attributes for PVC accounting.

## ATTRIBUTE AtmIf NAcct accountCollection (aco)

Access
Read: All
Write: All

Description
This attribute specifies the reason(s) for which accounting data is collected: ***billing***, ***test***, ***study***, ***audit*** or ***force***.

If the set of reasons is not empty then accounting records will be

generated by this interface in the following situations:
- on a TODA (time of day accounting) changeover if TODA is enabled;
- every 12 hours (per connection) if TODA is disabled;
- when the PVC is deleted (a call record is generated with final cell counts).

If none of the reasons is present, then accounting will be suppressed for all PVCs on this interface. Accounting can be suppressed on individual PVCs by specifying a null *correlationTag* attribute in the *AtmIf NAcct* component.

The reason for collection is recorded in the accounting record, in the attribute *callingCollectReason* or *calledCollectReason*, as appropriate.

Set of
bill
test
study
audit
force

Default
No default

### ATTRIBUTE AtmIf NAcct accountConnectionType (act)

Access
Read: All
Write: All

Description
This attribute specifies whether accounting records generated for the PVCs on this interface should be marked as originating, terminating or intermediate. This attribute, in combination with the direction of the call, determines the value of attribute *connPointType* of the accounting record. It may be used by downstream accounting processing to correlate the records.

If the value is ***origTerm*** then the value of attribute *connPointType* in the accounting records generated for incoming calls will be ***originating*** and records generated for outgoing calls will be ***terminating***.

If the value is ***intermediate*** then the value of attribute

*connPointType* in the accounting records generated for all calls will be ***intermediate***.

Values: origTerm
intermediate

Default: origTerm

### ATTRIBUTE AtmIf NAcct accountClass (acl)

Access: Read: All
Write: All

Description: This attribute specifies the accounting class associated with the PVCs on this interface. Its meaning is determined by the network operator.

Its value is recorded in the accounting records generated by this interface, in the attributes, *callingServiceType* and *calledServiceType*.

Values: Decimal (0..255)

Default: 0

### ATTRIBUTE AtmIf NAcct serviceExchange (sre)

Access: Read: All
Write: All

Description: This attribute specifies the data service exchange associated with this interface. Its meaning is determined by the network operator.

Its value is recorded in the accounting records generated by this interface, in the attributes, *callingDse* and *calledDse*.

Values: Decimal (0..255)

Default: 0

## COMPONENT AtmIf VirtualPathTerminator (Vpt)

Instance: Decimal (0..4095)

Groups: "GROUP AtmIf Vpt OsiState (State)"
"GROUP AtmIf Vpt Operational (Oper)"

"GROUP AtmIf Vpt Status"
"GROUP AtmIf Vpt Statistics (Stats)"

"COLLECTED STATS AtmInterface VirtualPathTerminator"

| | |
|---|---|
| Scope | Device |
| Description | *AtmIf/n VirtualPathTerminator/vpi*<br>This component represents a virtual path terminator (VPT). The instance value defines the VPI value for this connection—for example, *Vpt/120* defines a terminator with a VPI of 120.<br><br>This component is not allowed to be provisioned for ***1pOC48SmSrPos*** cards. |
| Subcomponents | "COMPONENT AtmIf Vpt VirtualPathDescriptor (Vpd)" |
| Opt. Subcomp. | "COMPONENT AtmIf Vpt ConnectionAdministrator (CA)"<br>"COMPONENT AtmIf Vpt Iisp"<br>"COMPONENT AtmIf Vpt Pnni"<br>"COMPONENT AtmIf Vpt UserNetworkInterface (Uni)"<br>"COMPONENT AtmIf Vpt Aini" |
| Dyn. Subcomp. | "COMPONENT AtmIf Vpt TrafficManagement (Tm)" |
| Dyn. Subcomp. | "COMPONENT AtmIf Vpt VirtualChannelConnection (Vcc)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## VERB TRACE AtmIf Vpt

| | |
|---|---|
| Impact | Service |
| Description | *TRACE AtmIf/n Vpt/vpi*<br>This command traces the path of an intra-network segment of a connection. It displays the names of interface and connection components found along this segment of a connection path. The trace output also includes the *Virtual Path Terminator (VPT)* at the end of the path, should one exist. |

## GROUP AtmIf Vpt OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

## ATTRIBUTE AtmIf Vpt adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

## ATTRIBUTE AtmIf Vpt operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component. |

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE AtmIf Vpt usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP AtmIf Vpt Operational (Oper)

Properties
Operational

Description
This group contains operational information for a *Vcc*, *Vpc*, or *Vpt* component.

## ATTRIBUTE AtmIf Vpt connectionPointType (cpt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute reflects the role of the connection component at this interface.<br><br>A value of ***connectionEndPoint*** indicates that user cells, end-to-end OAM cells, and segment OAM cells are processed by the connection component.<br><br>A value of ***segmentEndPoint*** indicates that user cells and end-to-end OAM cells are relayed by the connection component, while segment OAM cells are processed by the connection component.<br><br>A value of ***connectingPoint*** indicates that user cells, end-to-end OAM cells, and segment OAM cells are relayed by the connection component.<br><br>A value of ***unknown*** indicates that the connection component is inactive. |
| Values | connectionEndPoint<br>segmentEndPoint<br>connectingPoint<br>unknown |
| Default | No default |

## GROUP AtmIf Vpt Status

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational status information for a *Vcc, Vpc* or *Vpt* component. |

## ATTRIBUTE AtmIf Vpt operStatus (opStat)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the present operational status of the *Vcc, Vpc* or *Vpt* component. Its value is dependent upon the current state of the *segLinkSideLoopbackState* and *endToEndLoopbackState* attributes. |

The value is ***end2endUp*** when the *endToEndLoopbackState* is ***good*** and the *segLinkSideLoopbackState* is either ***good*** or ***unknown***.

The value is ***end2endDown*** when the *endToEndLoopbackState* is ***bad*** and the *segLinkSideLoopbackState* is either ***good*** or ***unknown***.

The value is ***localUpEnd2endUnknown*** when the *endToEndLoopbackState* is ***unknown*** and the *segLinkSideLoopbackState* is ***good***.

The value is ***localDown*** when *segLinkSideLoopbackState* is ***bad***.

The value is ***localUpEnd2endUnknown*** when the *endToEndLoopbackState* is ***notApplicable*** and the *segLinkSideLoopbackState* is ***good***.

The value is ***unknown*** when the *endToEndLoopbackState* is either ***unknown*** or ***notApplicable*** and the *segLinkSideLoopbackState* is ***unknown***.

Values
unknown
end2endUp
end2endDown
localUpEnd2endUnknown
localDown

Default
No default

## ATTRIBUTE AtmIf Vpt localFailureCause

Access
Read only

Description
This attribute indicates the failure cause of the *Vcc*, *Vpc* or *Vpt* component. A value of ***noFailure*** indicates that there is currently no bandwidth related failure for this connection.

A value of ***portDown*** indicates that the interface corresponding to the parent *AtmIf* is down.

A value of ***localBwLoss*** indicates that the *AtmIf* has lost some, but not all bandwidth, and as a result, this connection has been released.

A value of ***notAdmitted*** indicates that this connection has failed to be admitted by the Connection Admission Control (CAC) algorithm.

A value of ***appNotRegistered*** indicates that there is no application registered to use this connection. This may be the case, for example when there is a *Vcc Test* application, but the test has not been started. Check the status of the application to determine why it is not functional.

A value of ***disabledByApp*** indicates that the application using this connection has requested that the connection be disabled. An example is a connection used by a trunk application where the trunk has timed out on an attempt to stage. Check the application to determine why it is not fully functional.

A value of ***bwReduced*** indicates that this connection is operating in a reduced bandwidth state. It is a bandwidth elastic connection which currently has been allocated less than the requested (equivalent) bandwidth.

A value of ***vpDown*** indicates that this connection has been notified of a fault detected at the associated VP-layer. A value of ***vpDown*** is applicable for *Vpt Vcc*s only.

Values

noFailure
localBwLoss
portDown
notAdmitted
appNotRegistered
disabledByApp
bwReduced
vpDown

Default

No default

## ATTRIBUTE AtmIf Vpt troubled

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether or not the connection is in a troubled state. Connections become troubled because of OAM failures; when one of the attributes *segLinkSideLoopbackState*, *segSwitchSideLoopbackState*, *endToEndLoopbackState*, *aisState* (when receiving AIS cells only) or *rdiState* go bad, this attribute is set to ***yes***; otherwise it is set to ***no***. |
| Values | no<br>yes |
| Default | no |

## ATTRIBUTE AtmIf Vpt segLinkSideLoopbackState (segLkLbkState)

| | |
|---|---|
| Access | Read only |
| Description | This attribute contains the current state of the link-side segment loopback for this connection. Link-side segment loopback cells are transmitted (inserted) by a connection component in the direction of the link (port). The value of this attribute is dependent upon the current setting of the *segLinkSideLoopback* provisionable attribute, the connection point type as specified by the *connectionPointType* attribute, and the current loopback state (if applicable).<br><br>The value is ***notApplicable*** when the *connectionPointType* is a ***connectingPoint***.<br><br>The value is ***notApplicable*** when the *distributionType* is ***pointToMultipoint***.<br><br>The value is ***good*** when the *segLinkSideLoopback* is ***on***, the *connectionPointType* is a ***segmentEndPoint*** or a ***connectionEndPoint***, and the segment link side loopback is working.<br><br>The value is ***bad*** when the *segLinkSideLoopback* is ***on***, the *connectionPointType* is a ***segmentEndPoint*** or a ***connectionEndPoint***, and the link side segment loopback is not |

working.

The value is ***unknown*** when the *segLinkSideLoopback* is ***off***.

The value is ***unknown*** when the *segLinkSideLoopback* is ***on***, the *connectionPointType* is a ***segmentEndPoint*** and the segment switch side loopback has not yet been determined.

The state of this attribute determines, in part, the value of the *operStatus* attribute**.**

Values

good
bad
unknown
notApplicable

Default

No default

### ATTRIBUTE AtmIf Vpt segSwitchSideLoopbackState (segSwLbkState)

Access

Read only

Description

This attribute contains the current state of the switch-side segment loopback for this connection. Switch-side segment loopback cells are transmitted (inserted) by a connection component in the direction of the bus. The value of this attribute is dependent upon the current setting of the *segSwitchSideLoopback* provisionable attribute, the connection point type as specified by the *connectionPointType* attribute, and the current loopback state (if applicable).

The value is only applicable when the *connectionPointType* is a ***segmentEndPoint***. The value is ***notApplicable*** when the *connectionPointType* is a ***connectingPoint*** or ***connectionEndPoint***. The value is ***notApplicable*** when the *distributionType* is ***pointToMultipoint***.

The value is ***good*** when the *segSwitchSideLoopback* is ***on***, the *connectionPointType* is a ***segmentEndPoint*** and the segment switch side loopback is working.

The value is ***bad*** when the *segSwitchSideLoopback* is ***on***, the

*connectionPointType* is a ***segmentEndPoint*** and the switch side segment loopback is not working.

The value is ***unknown*** when the *segSwitchSideLoopback* is ***off***.

The value is ***unknown*** when the *segSwitchSideLoopback* is ***on***, the *connectionPointType* is a ***segmentEndPoint*** and the segment switch side loopback has not been determined.

Values

good
bad
unknown
notApplicable

Default

No default

## ATTRIBUTE AtmIf Vpt endToEndLoopbackState (eeLbkState)

Access

Read only

Description

This attribute contains the current state of the end-to-end loopback for this connection. Its value is dependent upon the current setting of the *endToEndLoopback* provisionable attribute and the connection point type as specified by the *connectionPointType* attribute.

The value is only applicable when the *connectionPointType* is a ***connectionEndPoint***. The value is ***notApplicable*** when the *connectionPointType* is a ***connectingPoint*** or s***egmentEndPoint***. The value is ***notApplicable*** when the *distributionType* is a ***pointToMultipoint***.

The value is ***good*** when the *endToEndLoopback* is ***on***, the *connectionPointType* is a ***connectionEndPoint*** and the end-to-end loopback is working.

The value is ***bad*** when the *endToEndLoopback* is ***on***, the *connectionPointType* is a ***connectionEndPoint*** and the end-to-end loopback is not working.

The value is ***unknown*** when the *endToEndLoopback* is ***off***.

The value is ***unknown*** when the *endToEndLoopback* is ***on***, the *connectionPointType* is a ***connectionEndPoint*** and the end-to-end loopback status has not been determined.

The state of this attribute determines, in part, the value of the *operStatus* attribute.

Values

good
bad
unknown
notApplicable

Default

No default

### ATTRIBUTE AtmIf Vpt rxOamCellCongestionState (rxOamCongState)

Access

Read only

Description

This attribute contains the current state of the receive side OAM cell congestion for this connection. Its value reflects whether the rate of received OAM cells for this connection is below a specified threshold. The connection maintains a count of the number of OAM cells which are terminated per second. Once that count exceeds the specified threshold, extraction of all OAM cells for this connection is disabled for a period of one minute. This is a congestion management mechanism to prevent the processor from being overloaded with handling OAM cells for a particular connection. This mechanism ensures that tasks, such as trunks obtain enough processor cycles to remain in service, and are not adversely affected by excessive rate of OAM cells on a particular connection.

The value is ***good*** when the rate of received OAM cells is less than the allowed threshold.

The value is ***bad*** when the arrival rate has exceeded the allowed threshold. It remains ***bad*** for one minute, before returning to ***good*** again. During this timeout, extraction of all OAM cells is disabled for this connection. As a result, other loopback failure conditions may occur.

The value is ***unknown*** when the application has not yet begun to

use this connection. An example is the *Test* component before a test has been started.

Each type of OAM cell is counted separately. The threshold for AIS cells is three cells per second. If more than three AIS cells are received within a one second interval, this attribute is set to ***bad***. The threshold for RDI cells and each loopback type is also three, but the threshold for trace cells is 250 per second.

The state of this attribute has no direct effect on the value of the *operStatus* attribute or on the number of troubled connections.

Values
good
bad
unknown
notApplicable

Default
No default

## ATTRIBUTE AtmIf Vpt aisState

Access
Read only

Description
This attribute contains the current state of the Alarm Indication Signal for this connection.

A value of ***good*** indicates that the connection's application is active and no alarm has occurred.

A value of ***bad*** indicates that the connection's application is active and an alarm has occurred.

A value of ***unknown*** indicates that the connection's application is inactive.

A value of ***notApplicable*** occurs when the *connectionPointType* is either a ***segmentEndPoint*** or a ***connectingPoint***.

Values
good
bad
unknown
notApplicable

| | |
|---|---|
| Default | No default |

### ATTRIBUTE AtmIf Vpt rdiState

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current state of the Remote Defect Indication for this connection.<br><br>A value of ***good*** indicates that the connection's application is active and no alarm has occurred.<br><br>A value of ***bad*** indicates that the connection's application is active and an alarm has occurred.<br><br>A value of ***unknown*** indicates that the connection's application is inactive.<br><br>A value of ***notApplicable*** occurs when the *connectionPointType* is either a ***segmentEndPoint*** or a ***connectingPoint***. |
| Values | good<br>bad<br>unknown<br>notApplicable |
| Default | No default |

### GROUP AtmIf Vpt Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains traffic statistics for a *Vcc*, *Vpc*, or *Vpt* component. |

### ATTRIBUTE AtmIf Vpt txCell

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of cells that have been transmitted from the interface on this connection. |

The counter wraps to zero if it exceeds its maximum value of (2**64)-1.

Values: Long Integer

Default: No default

### ATTRIBUTE AtmIf Vpt txCellClp (txClp)

Access: Read only

Description: This attribute counts the number of cells that have been transmitted from the interface on this connection with the CLP=1.

The counter wraps to zero if it exceeds its maximum value of (2**64)-1.

Values: Long Integer

Default: No default

### ATTRIBUTE AtmIf Vpt txCellDiscard (txcd)

Access: Read only

Description: This attribute counts the number of cells received from the backplane on this connection that have been discarded.

Discarded cells are not counted in the *txCell* attribute.

Cells are discarded due to transmit congestion, Partial Packet Discard (PPD), Early Packet Discard (EPD), and Weighted Random Early Detection (W-RED) mechanisms, or when the connection's interface is disabled.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, this attribute is not applicable to connections that segment frames into cells (AAL5 adaptation). Such connections usually have a *connectionPointType* of ***connectionEndPoint***. AAL1 connections are an exception to this rule; although they have a *connectionPointType* of ***connectionEndPoint***, they do not do AAL5 adaptation at this point.

For *Vpt*s, this attribute provides an aggregated total of all *txCellDiscard* values for all connections associated with the *Vpt*.

The counter wraps to zero if it exceeds its maximum value of (2**64)-1.

Values: Long Integer

Default: No default

### ATTRIBUTE AtmIf Vpt txCellDiscardClp (txcdClp)

Access: Read only

Description: This attribute counts the number of cells received from the backplane on this connection with CLP=1 that have been discarded.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, this attribute is not applicable and is not displayed.

This count is included in the *txCellDiscard* attribute. Discarded cells are not counted in the *txCellClp* attribute.

Cells are discarded due to transmit congestion, Partial Packet Discard (PPD), Early Packet Discard (EPD), and Weighted Random Early Detection (W-RED) mechanisms, or when the connection's interface is disabled.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, this attribute is not applicable to connections that segment frames into cells (AAL5 adaptation). Such connections usually have a *connectionPointType* of ***connectionEndPoint***. AAL1 connections are an exception to this rule; although they have a *connectionPointType* of ***connectionEndPoint***, they do not do AAL5 adaptation at this point.

For *Vpt*s, this attribute provides an aggregated total of all *txCellDiscardClp* values for all connections associated with the *Vpt*.

The counter wraps to zero if it exceeds its maximum value of (2**64)-1.

Values: Long Integer

Default: No default

### ATTRIBUTE AtmIf Vpt txFrameDiscard (txfd)

Access: Read only

Description: This attribute counts the number of frames received from the backplane on this connection that have been discarded.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, this attribute is not applicable and is not displayed.

Frames are discarded due to congestion, Partial Packet Discard (PPD), Early Packet Discard (EPD), and Weighted Random Early Detection (W-RED) mechanisms, or when the connection interface is disabled.

This count is independent of the *txCell* or *txCellDiscard* attribute.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, this attribute is applicable only to connections that segment frames into cells (AAL5 adaptation). Such connections usually have a *connectionPointType* of ***connectionEndPoint***. AAL1 connections are an exception to this rule; although they have a *connectionPointType* of ***connectionEndPoint***, they do not do AAL5 adaptation at this point.

For *Vpt*s, this attribute provides an aggregated total of all *txFrameDiscard* values for all connections associated with the *Vpt*.

Discards due to EPD, PPD, and W-RED for a standard *Vpt Vcc* are not included in this attribute. These discards are counted in the *Vcc*'s parent *Vpt txFrameDiscard* attribute.

The counter wraps to zero if it exceeds its maximum value of (2**64)-1.

Values — Long Integer

Default — No default

### ATTRIBUTE AtmIf Vpt txFrameDiscardClp (txfdClp)

Access — Read only

Description — This attribute counts the number of discarded frames on this connection that were received from the backplane and composed of one or more CLP=1 cells.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, this attribute is not applicable and is not displayed.

Frames are discarded due to congestion, Partial Packet Discard (PPD), Early Packet Discard (EPD), and Weighted Random Early Detection (W-RED) mechanisms, or when the connection interface is disabled.

This count is included in the *txFrameDiscard* attribute.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, this attribute is applicable only to connections that segment frames into cells (AAL5 adaptation). Such connections usually have a *connectionPointType* of ***connectionEndPoint***. AAL1 connections are an exception to this rule; although they have a *connectionPointType* of ***connectionEndPoint***, they do not do AAL5 adaptation at this point.

For *Vpt*s, this attribute provides an aggregated total of all *txFrameDiscardClp* values for all connections associated with the *Vpt*.

Discards due to EPD, PPD, and W-RED for a standard *Vpt Vcc* are not included in this attribute. These discards are counted in the *Vcc*'s parent *Vpt txFrameDiscardClp* attribute.

The counter wraps to zero if it exceeds its maximum value of (2**64)-1.

Values: Long Integer

Default: No default

### ATTRIBUTE AtmIf Vpt rxCell

Access: Read only

Description: This attribute counts the number of cells that have been received from the interface on this connection.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, this count does not include cells that have been discarded by the interface due to non-conformance with UPC.

The counter wraps to zero if it exceeds its maximum value of (2**64)-1.

Values: Long Integer

Default: No default

### ATTRIBUTE AtmIf Vpt rxCellClp (rxClp)

Access: Read only

Description: This attribute counts the number of cells that have been received from the interface on this connection with the CLP=1.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, this attribute is not applicable and is not displayed.

The counter wraps to zero if it exceeds its maximum value of (2**64)-1.

Values: Long Integer

Default: No default

### ATTRIBUTE AtmIf Vpt rxCellDiscard (rxcd)

Access: Read only

Description

This attribute counts the number of cells received from the interface on this connection that have been discarded. This count is included in the *rxCell* attribute.

This count includes cells discarded due to non-conformance with UPC, cells which are part of a frame which has been discarded due to an AAL5 frame reassembly error, cells which are discarded due to congestion, or cells which are received while the next hop connection to which the traffic is directed across the backplane is down. The next hop connection is the *Vcc* or *Vpc* identified by the *nextHop* attribute of the *Nrp* or *Rp* component.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, this attribute is not applicable to connections that reassemble cells into frames (AAL5 adaptation). Such connections usually have a *connectionPointType* of ***connectionEndPoint***. AAL1 connections are an exception to this rule; although they have a *connectionPointType* of ***connectionEndPoint***, they do not do AAL5 adaptation at this point.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, this count does not include cells discarded due to non-conformance with UPC.

For *Vpt*s, this attribute provides an aggregated total of all *rxCellDiscard* values for all connections associated with the *Vpt*. Discards due to non-conformance with UPC at the VP layer, for a standard *Vpt Vcc*, are not included in this attribute. These discards are counted in the *Vcc*'s parent *Vpt rxCellDiscard* attribute.

The counter wraps to zero if it exceeds its maximum value of (2**64)-1.

Values

Long Integer

Default

No default

## ATTRIBUTE AtmIf Vpt rxCellDiscardClp (rxcdClp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of cells received from the interface on this connection with CLP=1 that have been discarded. This count is included in the *rxCell* and *rxCellDiscard* attributes.<br><br>This count includes cells discarded due to non-conformance with UPC, cells which are part of a frame which has been discarded due to an AAL5 frame reassembly error, cells which are discarded due to congestion, or cells which are received while the next hop connection to which the traffic is directed across the backplane is down. The next hop connection is the *Vcc* or *Vpc* identified by the *nextHop* attribute of the *Nrp* or *Rp* component.<br><br>For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, this attribute is not applicable and is not displayed.<br><br>For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, this attribute is not applicable to connections that reassemble cells into frames (AAL5 adaptation). Such connections usually have a *connectionPointType* of ***connectionEndPoint***. AAL1 connections are an exception to this rule; although they have a *connectionPointType* of ***connectionEndPoint***, they do not do AAL5 adaptation at this point.<br><br>For *Vpt*s, this attribute provides an aggregated total of all *rxCellDiscardClp* values for all connections associated with the *Vpt*. Discards due to non-conformance with UPC at the VP layer, for a standard *Vpt Vcc*, are not included in this attribute. These discards are counted in the *Vcc*'s parent *Vpt rxCellDiscardClp* attribute.<br><br>The counter wraps to zero if it exceeds its maximum value of (2**64)-1. |
| Values | Long Integer |

Default No default

### ATTRIBUTE AtmIf Vpt rxFrameDiscard (rxfd)

Access Read only

Description This attribute counts the number of frames received from the interface on this connection that have been discarded. This count is independent of the *rxCellDiscard* attribute.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, this attribute is not applicable and is not displayed.

This count includes frames discarded due to an AAL5 frame reassembly error, frames discarded due to early packet discard (EPD), frames discarded due to processor (CPU) congestion, and frames discarded due to insufficient frame memory. The amount of available frame memory is determined by the *Lp Eng Arc Ov* component.

This attribute is applicable only to connections that reassemble incoming cells into frames. Such connections usually have a *connectionPointType* of ***connectionEndPoint***. AAL1 connections are an exception to this rule; although they have a *connectionPointType* of ***connectionEndPoint***, they do not do AAL5 adaptation at this point.

For *Vpt*s, this attribute provides an aggregated total of all *rxFrameDiscard* values for all connections associated with the *Vpt*.

The counter wraps to zero if it exceeds its maximum value of (2**64)-1.

Values Long Integer

Default No default

### ATTRIBUTE AtmIf Vpt rxFrameDiscardClp (rxfdClp)

Access Read only

Description

This attribute counts the number of discarded frames on this connection that were received from the interface and composed of one or more CLP1 cells. This count is included in the *rxFrameDiscard* attribute. It is independent of the *rxCellDiscard* attribute.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, this attribute is not applicable and is not displayed.

This count includes frames discarded due to an AAL5 frame reassembly error, frames discarded due to early packet discard (EPD), frames discarded due to processor (CPU) congestion, and frames discarded due to insufficient frame memory. The amount of available frame memory is determined by the *Lp Eng Arc Ov* component.

This attribute is applicable only to connections that reassemble incoming cells into frames. Such connections usually have a *connectionPointType* of ***connectionEndPoint***. AAL1 connections are an exception to this rule; although they have a *connectionPointType* of ***connectionEndPoint***, they do not do AAL5 adaptation at this point.

For *Vpt*s, this attribute provides an aggregated total of all *rxFrameDiscardClp* values for all connections associated with the *Vpt*.

The counter wraps to zero if it exceeds its maximum value of (2**64)-1.

Values

Long Integer

Default

No default

## ATTRIBUTE AtmIf Vpt rxUpcViolationOnEnforcer1 (rxEnforcer1)

Access

Read only

Description

This attribute counts the number of UPC violations observed by the Generic Cell Rate Algorithm (GCRA) Enforcer 1. This attribute is only applicable if UPC is enforced or monitored on the connection.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm***, ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, ***16pOC3SmIrAtm***, ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, this attribute is not applicable and is not displayed.

When the value of the *rxTrafficDescType* attribute for this connection is 3, 4, 5, 6, 7, 8, or 9 (for UBR with MDCR connections) Enforcer 1 enforces conformance of traffic received from the interface to PCR CLP0+1.

When the value of the *rxTrafficDescType* attribute for this connection is 9 (for ABR connections), Enforcer 1 performs the Dynamic Generic Cell Rate Algorithm (DGCRA) used for the Available Bit Rate (ABR) service category.

If UPC is enforced all non-conforming cells are discarded by this enforcer. These discarded cells are included in the *rxCellDiscard* attribute.

For basic *Vpt*s, this attribute provides an aggregated total of all *rxUpcViolationOnEnforcer1* values for all *Vcc*s associated with the *Vpt*. This attribute is not applicable for standard *Vpt Vcc*s.

The counter wraps to zero if it exceeds its maximum value of (2**64)-1.

Values — Long Integer

Units — cells

Default — No default

### ATTRIBUTE AtmIf Vpt rxUpcViolationOnEnforcer2 (rxEnforcer2)

Access — Read only

Description — This attribute counts the number of UPC violations observed by the Generic Cell Rate Algorithm (GCRA) Enforcer 2. This attribute is only applicable if UPC is enforced or monitored on the connection.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm***, ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, ***16pOC3SmIrAtm***, ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, this attribute is not applicable and is not displayed.

This attribute is only applicable if the value of the *rxTrafficDescType* attribute for this connection is 4, 5, 6, 7, or 8.

When the value of the *rxTrafficDescType* attribute is 4, or 5**,** Enforcer 2 enforces conformance of traffic received from the interface to PCR CLP0.

When the value of the *rxTrafficDescType* attribute is 6**,** Enforcer 2 enforces conformance of traffic received from the interface to SCR CLP0+1.

When the value of the *rxTrafficDescType* attribute is 7, or 8, Enforcer 2 enforces conformance of traffic received from the interface to SCR CLP0.

If UPC is enforced, Enforcer 2 discards non-conforming cells for *rxTrafficDescType* values of 4, 6, and 7. It tags non-conforming cells for *rxTrafficDescType* values of 5, and 8. Discarded cells are counted in the rxCellDiscard attribute.

For basic *Vpt*s, this attribute provides an aggregated total of all *rxUpcViolationOnEnforcer2* values for all *Vcc*s associated with the *Vpt*. This attribute is not applicable for standard *Vpt Vcc*s.

The counter wraps to zero if it exceeds its maximum value of (2**64)-1.

| | |
|---|---|
| Values | Long Integer |
| Units | cells |
| Default | No default |

### ATTRIBUTE AtmIf Vpt rxAal5FrameError (rxfer)

| | |
|---|---|
| Access | Read only |

Description

This attribute counts the number of frames received from the interface on this connection that have AAL5 length errors or AAL5 CRC errors.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, this attribute is not applicable and is not displayed.

AAL5 length or CRC errors typically occur because of cell discards due to congestion, UPC, or due to corruption of data between the AAL5 segmentation and reassembly end points.

This attribute is applicable only to connections that reassemble incoming cells into frames. Such connections usually have a *connectionPointType* of ***connectionEndPoint***. AAL1 connections are an exception to this rule; although they have a *connectionPointType* of ***connectionEndPoint***, they do not do AAL5 adaptation at this point.

For *Vpt*s, this attribute provides an aggregated total of all *rxAal5FrameError* values for all connections associated with the *Vpt*.

The counter wraps to zero if it exceeds its maximum value of (2**64)-1.

Values

Long Integer

Default

No default

## ATTRIBUTE AtmIf Vpt rxAal5FrameAbort (rxfa)

Access

Read only

Description

This attribute counts the number of frames received from the interface on this connection that have the AAL5 length field set to zero.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, this attribute is not applicable and is not displayed.

An AAL5 length of zero is an indication by the far end segmentation point, to this reassembly point, that the frame is to be discarded without reassembly. This mechanism is typically used by a segmentation point if it detects an error in a frame after some of the cells belonging to that frame have already been transmitted.

This attribute is applicable only to connections that reassemble incoming cells into frames. Such connections usually have a *connectionPointType* of ***connectionEndPoint***. AAL1 connections are an exception to this rule; although they have a *connectionPointType* of ***connectionEndPoint***, they do not do AAL5 adaptation at this point.

For *Vpt*s, this attribute provides an aggregated total of all *rxAal5FrameAbort* values for all connections associated with the *Vpt*.

The counter wraps to zero if it exceeds its maximum value of (2**64)-1.

Values: Long Integer

Default: No default

## COLLECTED STATS AtmInterface VirtualPathTerminator

Description: The statistics record generated by the AtmInterface VirtualPathTerminator component.

### ATTRIBUTE AtmIf Vpt remoteInstance

Description: This attribute indicates the remote ATM interface, as provisioned in the *remoteAtmInterfaceLabel*.

Values: String (0..60, ASCII)

### ATTRIBUTE AtmIf Vpt provRate

Description: This attribute indicates the provisioned bandwidth for this ATM interface.

Values: Decimal (0..4294967295)

Units cell/s

### ATTRIBUTE AtmIf Vpt actualRate

Description This attribute indicates the actual bandwidth for this ATM interface. When no errors occur it has a value equal to *provRate*. When the link (or IMA group) is down for the entire collection interval it has a value of zero. When the link goes down during the collection interval it has a value representing the average bandwidth during the collection interval.

Values Decimal (0..4294967295)

Units cell/s

### ATTRIBUTE AtmIf Vpt txUtilization

Description This attribute indicates the average transmit traffic rate over the most recent collection interval expressed as a percentage of the ATM link bandwidth.

On *AtmIf*s linked to MPLS POS interfaces, the ATM link is the *LSP*. Many *LSP*s could share the same POS link. If the POS link is underutilized it is possible for an *LSP* to carry more traffic than it has been assigned. This occurs as bandwidth on an *LSP* is allocated based on determining whether the requested bandwidth exceeds the available bandwidth on an *LSP*, not on whether the actual bandwidth exceeds the available bandwidth. When the actual bandwidth is higher than the requested bandwith it is possible that this extra traffic will be carried over the *LSP*. Since this is possible, the value of this attribute may exceed 100%.

If the utilization exceeds 65535% then 65535 is displayed. If the *Lsp* has a bandwidth of 0, then 0 is displayed for the utilization.

Values Decimal (0..65535)

Units %

### ATTRIBUTE AtmIf Vpt rxUtilization

Description This attribute indicates the average receive traffic rate over the most recent collection interval expressed as a percentage of the ATM link bandwidth.

On *AtmIf*s linked to MPLS POS interfaces, the ATM link is the *LSP*. Many *LSP*s could share the same POS link. If the POS link is underutilized it is possible for an *LSP* to carry more traffic than it has been assigned. This occurs as bandwidth on an *LSP* is allocated based on determining whether the requested bandwidth exceeds the available bandwidth on an *LSP*, not on whether the actual bandwidth exceeds the available bandwidth. When the actual bandwidth is higher than the requested bandwith it is possible that this extra traffic will be carried over the *LSP*. Since this is possible, the value of this attribute may exceed 100%.

If the utilization exceeds 65535% then 65535 is displayed. If the *Lsp* has a bandwidth of 0, then 0 is displayed for the utilization.

Values: Decimal (0..65535)

Units: %

### ATTRIBUTE AtmIf Vpt txMaxCellRate

Description: This attribute indicates the transmitted cell rate (CLP=0+1) during the busiest minute of the collection interval.

Values: Decimal (0..4294967295)

Units: cell/s

### ATTRIBUTE AtmIf Vpt txMaxCellRateByServiceCat

Description: This attribute indicates the transmitted cell rate (CLP=0+1) during the busiest minute of the collection interval by ATM service category.

Vector of: Decimal (0..4294967295)

Index:
cbr
rtvbr
nrtvbr
abr
ubr

### ATTRIBUTE AtmIf Vpt txMinCellRate

| | |
|---|---|
| Description | This attribute indicates the transmitted cell rate (CLP=0+1) during the least busy minute of the collection interval. |
| Values | Decimal (0..4294967295) |
| Units | cell/s |

### ATTRIBUTE AtmIf Vpt txMinCellRateByServiceCat

| | |
|---|---|
| Description | This attribute indicates the transmitted cell rate (CLP=0+1) during the least busy minute of the collection interval by ATM service category. |
| Vector of | Decimal (0..4294967295) |
| Index | cbr<br>rtvbr<br>nrtvbr<br>abr<br>ubr |

### ATTRIBUTE AtmIf Vpt txAvgCellRate

| | |
|---|---|
| Description | This attribute indicates the average transmitted cell rate (CLP=0+1) during the collection interval. |
| Values | Decimal (0..4294967295) |
| Units | cell/s |

### ATTRIBUTE AtmIf Vpt txAvgCellRateByServiceCat

| | |
|---|---|
| Description | This attribute indicates the average transmitted cell rate (CLP=0+1) during the collection interval by ATM service category. |
| Vector of | Decimal (0..4294967295) |
| Index | cbr<br>rtvbr<br>nrtvbr<br>abr<br>ubr |

### ATTRIBUTE AtmIf Vpt rxMaxCellRate

| | |
|---|---|
| Description | This attribute indicates the received cell rate (CLP=0+1) during the busiest minute of the collection interval. |
| Values | Decimal (0..4294967295) |
| Units | cell/s |

### ATTRIBUTE AtmIf Vpt rxMaxCellRateByServiceCat

| | |
|---|---|
| Description | This attribute indicates the received cell rate (CLP=0+1) during the busiest minute of the collection interval by ATM service category. |
| Vector of | Decimal (0..4294967295) |
| Index | cbr<br>rtvbr<br>nrtvbr<br>abr<br>ubr |

### ATTRIBUTE AtmIf Vpt rxMinCellRate

| | |
|---|---|
| Description | This attribute indicates the received cell rate (CLP=0+1) during the least busy minute of the collection interval. |
| Values | Decimal (0..4294967295) |
| Units | cell/s |

### ATTRIBUTE AtmIf Vpt rxMinCellRateByServiceCat

| | |
|---|---|
| Description | This attribute indicates the received cell rate (CLP=0+1) during the least busy minute of the collection interval by ATM service category. |
| Vector of | Decimal (0..4294967295) |
| Index | cbr<br>rtvbr<br>nrtvbr<br>abr<br>ubr |

### ATTRIBUTE AtmIf Vpt rxAvgCellRate

| | |
|---|---|
| Description | This attribute indicates the average received cell rate (CLP=0+1) during the collection interval. |
| Values | Decimal (0..4294967295) |
| Units | cell/s |

### ATTRIBUTE AtmIf Vpt rxAvgCellRateByServiceCat

| | |
|---|---|
| Description | This attribute indicates the average received cell rate (CLP=0+1) during the collection interval by ATM service category. |
| Vector of | Decimal (0..4294967295) |
| Index | cbr<br>rtvbr<br>nrtvbr<br>abr<br>ubr |

### ATTRIBUTE AtmIf Vpt txMaxCellRateClp

| | |
|---|---|
| Description | This attribute indicates the transmitted cell rate (CLP=1) during the busiest minute of the collection interval. |
| Values | Decimal (0..4294967295) |
| Units | cell/s |

### ATTRIBUTE AtmIf Vpt txMaxCellRateClpByServiceCat

| | |
|---|---|
| Description | This attribute indicates the transmitted cell rate (CLP=1) during the busiest minute of the collection interval by ATM service category. |
| Vector of | Decimal (0..4294967295) |
| Index | cbr<br>rtvbr<br>nrtvbr<br>abr<br>ubr |

### ATTRIBUTE AtmIf Vpt txMinCellRateClp

| | |
|---|---|
| Description | This attribute indicates the transmitted cell rate (CLP=1) during the least busy minute of the collection interval. |
| Values | Decimal (0..4294967295) |
| Units | cell/s |

### ATTRIBUTE AtmIf Vpt txMinCellRateClpByServiceCat

| | |
|---|---|
| Description | This attribute indicates the transmitted cell rate (CLP=1) during the least busy minute of the collection interval by ATM service category. |
| Vector of | Decimal (0..4294967295) |
| Index | cbr<br>rtvbr<br>nrtvbr<br>abr<br>ubr |

### ATTRIBUTE AtmIf Vpt txAvgCellRateClp

| | |
|---|---|
| Description | This attribute indicates the average transmitted cell rate (CLP=1) during the collection interval. |
| Values | Decimal (0..4294967295) |
| Units | cell/s |

### ATTRIBUTE AtmIf Vpt txAvgCellRateClpByServiceCat

| | |
|---|---|
| Description | This attribute indicates the average transmitted cell rate (CLP=1) during the collection interval by ATM service category. |
| Vector of | Decimal (0..4294967295) |
| Index | cbr<br>rtvbr<br>nrtvbr<br>abr<br>ubr |

### ATTRIBUTE AtmIf Vpt rxMaxCellRateClp

| | |
|---|---|
| Description | This attribute indicates the received cell rate (CLP=1) during the busiest minute of the collection interval. |
| Values | Decimal (0..4294967295) |
| Units | cell/s |

### ATTRIBUTE AtmIf Vpt rxMaxCellRateClpByServiceCat

| | |
|---|---|
| Description | This attribute indicates the received cell rate (CLP=1) during the busiest minute of the collection interval by ATM service category. |
| Vector of | Decimal (0..4294967295) |
| Index | cbr<br>rtvbr<br>nrtvbr<br>abr<br>ubr |

### ATTRIBUTE AtmIf Vpt rxMinCellRateClp

| | |
|---|---|
| Description | This attribute indicates the received cell rate (CLP=1) during the least busy minute of the collection interval. |
| Values | Decimal (0..4294967295) |
| Units | cell/s |

### ATTRIBUTE AtmIf Vpt rxMinCellRateClpByServiceCat

| | |
|---|---|
| Description | This attribute indicates the received cell rate (CLP=1) during the least busy minute of the collection interval by ATM service category. |
| Vector of | Decimal (0..4294967295) |
| Index | cbr<br>rtvbr<br>nrtvbr<br>abr<br>ubr |

### ATTRIBUTE AtmIf Vpt rxAvgCellRateClp

| | |
|---|---|
| Description | This attribute indicates the average received cell rate (CLP=1) during the collection interval. |
| Values | Decimal (0..4294967295) |
| Units | cell/s |

### ATTRIBUTE AtmIf Vpt rxAvgCellRateClpByServiceCat

| | |
|---|---|
| Description | This attribute indicates the average received cell rate (CLP=1) during the collection interval by ATM service category. |
| Vector of | Decimal (0..4294967295) |
| Index | cbr<br>rtvbr<br>nrtvbr<br>abr<br>ubr |

### ATTRIBUTE AtmIf Vpt txCellDiscards

| | |
|---|---|
| Description | This attribute counts the cells (CLP=0+1) which are discarded before being transmitted during the collection interval. |
| Values | Long Integer |

### ATTRIBUTE AtmIf Vpt txCellDiscardsByServiceCat

| | |
|---|---|
| Description | This attribute counts the cells (CLP=0+1) which are discarded before being transmitted during the collection interval by ATM service category. |
| Vector of | Long Integer |
| Index | cbr<br>rtvbr<br>nrtvbr<br>abr<br>ubr |

### ATTRIBUTE AtmIf Vpt rxCellDiscards

Description: This attribute counts the cells (CLP=0+1) which are discarded after being received during the collection interval.

Values: Long Integer

### ATTRIBUTE AtmIf Vpt rxCellDiscardsByServiceCat

Description: This attribute counts the cells (CLP=0+1) which are discarded after being received during the collection interval by ATM service category.

Vector of: Long Integer

Index:
cbr
rtvbr
nrtvbr
abr
ubr

### ATTRIBUTE AtmIf Vpt txFrameDiscards

Description: This attribute counts the frames (CLP=0+1) which are discarded before being transmitted during the collection interval.

Values: Long Integer

### ATTRIBUTE AtmIf Vpt txFrameDiscardsByServiceCat

Description: This attribute counts the frames (CLP=0+1) which are discarded before being transmitted during the collection interval by ATM service category.

Vector of: Long Integer

Index:
cbr
rtvbr
nrtvbr
abr
ubr

### ATTRIBUTE AtmIf Vpt rxFrameDiscards

Description: This attribute counts the frames (CLP=0+1) which are discarded after being received during the collection interval.

Values Long Integer

### ATTRIBUTE AtmIf Vpt rxFrameDiscardsByServiceCat

Description This attribute counts the frames (CLP=0+1) which are discarded after being received during the collection interval by ATM service category.

Vector of Long Integer

Index
cbr
rtvbr
nrtvbr
abr
ubr

### ATTRIBUTE AtmIf Vpt txCellDiscardsClp

Description This attribute counts the cells (CLP=1) which are discarded before being transmitted during the collection interval.

Values Long Integer

### ATTRIBUTE AtmIf Vpt txCellDiscardsClpByServiceCat

Description This attribute counts the cells (CLP=1) which are discarded before being transmitted during the collection interval by ATM service category.

Vector of Long Integer

Index
cbr
rtvbr
nrtvbr
abr
ubr

### ATTRIBUTE AtmIf Vpt rxCellDiscardsClp

Description This attribute counts the cells (CLP=1) which are discarded after being received during the collection interval.

Values Long Integer

### ATTRIBUTE AtmIf Vpt rxCellDiscardsClpByServiceCat

| | |
|---|---|
| Description | This attribute counts the cells (CLP=1) which are discarded after being received during the collection interval by ATM service category. |
| Vector of | Long Integer |
| Index | cbr<br>rtvbr<br>nrtvbr<br>abr<br>ubr |

### ATTRIBUTE AtmIf Vpt txFrameDiscardsClp

| | |
|---|---|
| Description | This attribute counts the frames (CLP=1) which are discarded before being transmitted during the collection interval. |
| Values | Long Integer |

### ATTRIBUTE AtmIf Vpt txFrameDiscardsClpByServiceCat

| | |
|---|---|
| Description | This attribute counts the frames (CLP=1) which are discarded before being transmitted during the collection interval by ATM service category. |
| Vector of | Long Integer |
| Index | cbr<br>rtvbr<br>nrtvbr<br>abr<br>ubr |

### ATTRIBUTE AtmIf Vpt rxFrameDiscardsClp

| | |
|---|---|
| Description | This attribute counts the frames (CLP=1) which are discarded after being received during the collection interval. |
| Values | Long Integer |

## ATTRIBUTE AtmIf Vpt rxFrameDiscardsClpByServiceCat

| | |
|---|---|
| Description | This attribute counts the frames (CLP=1) which are discarded after being received during the collection interval by ATM service category. |
| Vector of | Long Integer |
| Index | cbr<br>rtvbr<br>nrtvbr<br>abr<br>ubr |

## COMPONENT AtmIf Vpt VirtualPathDescriptor (Vpd)

| | |
|---|---|
| Groups | "GROUP AtmIf Vpt Vpd Loopback (Lbk)"<br>"GROUP AtmIf Vpt Vpd Accounting (Acct)"<br>"GROUP AtmIf Vpt Vpd Provisioned (Prov)" |
| Scope | Device |
| Description | *AtmIf/n Vpt/vpi Vpd*<br>The *Vpt Vpd* component contains provisioning information about its parent *Vpt* component. |
| Subcomponents | "COMPONENT AtmIf Vpt Vpd TrafficManagement (Tm)" |
| Common Verbs | Help<br>List<br>Display |

## GROUP AtmIf Vpt Vpd Loopback (Lbk)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable loopback attributes for a *Vcc*, *Vpc*, or *Vpt* component.<br><br>Note that certain loopback requests may not be possible on a given connection. In such cases, the corresponding operational loopback attribute in the *Status* group of the *Vcc*, *Vpc*, or *Vpt* component indicates ***notApplicable*** and the requested loopback is not performed. |

If loopbacks are provisioned to be on, and for any reason the segment or end-to-end OAM loopback cells are not relayed, the connection component becomes troubled, and user cell traffic may be discarded. If loopbacks are provisioned to be on, all of the nodes in the segment, and external networks which are in the end-to-end connection must relay the OAM loopback cells.

## ATTRIBUTE AtmIf Vpt Vpd segLinkSideLoopback (segLkLbk)

Access — Read and write

Description — This attribute specifies whether link-side segment loopback insertion should be performed on this connection.

A value of ***sameAsInterface*** means the link-side segment loopback insertion for the connection is based on the *segLinkSideLoopback* attribute of the connection's parent *AtmIf* component—if the ATM interface has link-side segment loopback insertion turned on, then link-side segment loopback insertion is also on for the connection.

A value of ***on***, or ***off*** means link-side segment loopback insertion is turned on or off respectively for the connection regardless of the provisioning of the parent *AtmIf* component.

Note that link-side segment loopback insertion is not possible if the value of the *connectionPointType* attribute of the *Vcc* or *Vpc* component is ***connectingPoint***. Link-side segment loopback insertion is also not possible if the value of the *distributionType* attribute of the *Vcc* is ***pointToMultipoint***. In such cases, the operational *segLinkSideLoopbackState* attribute indicates ***notApplicable*** and link-side segment loopback insertion is not performed.

Link-side segment loopback insertion is always possible on a *Vpt*.

Values — on
off
sameAsInterface

Default — sameAsInterface

## ATTRIBUTE AtmIf Vpt Vpd segSwitchSideLoopback (segSwLbk)

Access: Read and write

Description: This attribute specifies whether switch-side segment loopback insertion should be performed on this connection.

A value of ***sameAsInterface*** means the switch-side segment loopback insertion for the connection is based on the *segSwitchSideLoopback* attribute of the connection's parent *AtmIf* component—if the ATM interface has switch-side segment loopback insertion turned on, then switch-side segment loopback insertion is also on for the connection.

A value of ***on***, or ***off*** means switch-side segment loopback insertion is turned on or off respectively for the connection regardless of the provisioning of the parent *AtmIf* component.

Note that switch-side segment loopback insertion is not possible if the value of the *connectionPointType* attribute of the *Vcc* or *Vpc* component is ***connectingPoint*** or ***connectionEndPoint***. Switch-side segment loopback insertion is also not possible if the value of the *distributionType* attribute of the *Vcc* is ***pointToMultipoint*** In such cases, the operational *segSwitchSideLoopbackState* attribute indicates ***notApplicable*** and switch-side segment loopback insertion is not performed.

Switch-side segment loopback is never possible on a *Vpt*.

Values:
on
off
sameAsInterface

Default: sameAsInterface

## ATTRIBUTE AtmIf Vpt Vpd endToEndLoopback (eeLbk)

Access: Read and write

Description: This attribute specifies whether end-to-end loopback insertion should be performed on this connection.

A value of ***sameAsInterface*** means the end-to-end loopback

insertion for the connection is based on the *endToEndLoopback* attribute of the connection's parent *AtmIf* component—if the ATM interface has end-to-end loopback insertion turned on, then end-to-end loopback insertion is also on for the connection.

A value of ***on***, or ***off*** means end-to-end loopback insertion is turned on or off respectively for the connection regardless of the provisioning of the parent *AtmIf* component.

Note that end-to-end loopback insertion is not possible if the value of the *connectionPointType* attribute of the *Vcc* or *Vpc* component is ***connectingPoint***, or ***segmentEndPoint***. End-to-end loopback insertion is also not possible if the value of the *distributionType* attribute of the *Vcc* is ***pointToMultipoint***. In such cases, the operational *endToEndLoopbackState* attribute indicates ***notApplicable*** and end-to-end loopback insertion is not performed.

End-to-end loopback insertion is always possible on a *Vpt*.

Values
on
off
sameAsInterface

Default
sameAsInterface

## ATTRIBUTE AtmIf Vpt Vpd mCastConnectionType (connType)

Access
Read and write

Criticality
Component

Description
This attribute specifies if this *Vcc* or *Vpc* is part of point-to-point or point-to-multiPoint connection.

A value of ***pointToMultiPointRoot*** must be set when this *Vcc* has an *Msrc* or an *Mnrp* subcomponent, or this *Vpc* has an *Mnrp* subcomponent.

A value of ***pointToMultiPointLeaf*** must be set when this *Vcc* or *Vpc* has a *Nrp* subcomponent and its *nextHop* attribute is linked to a *Mnrp* component.

| | |
|---|---|
| | Otherwise a value of ***pointToPoint*** must be set. |
| Values | pointToPoint (ptp)<br>pointToMultipointRoot (pmpRoot)<br>pointToMultipointLeaf (pmpLeaf) |
| Default | pointToPoint |

### GROUP AtmIf Vpt Vpd Accounting (Acct)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable ATM accounting attributes for a *Vcc*, *Vpc*, or *Vpt* component. |

### ATTRIBUTE AtmIf Vpt Vpd correlationTag (tag)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies a unique identifier for each end of a PVC. It that may be used by downstream processing systems to correlate accounting records issued at different nodes in the network. The attribute can be up to 64 bytes long. If it is less than 64 bytes, it is zero filled on the right to create a 64 byte value. The resulting value is recorded in the attribute *callConnId* for this PVC's ATM accounting records.<br><br>If the value is a null string then this PVC does not have any accounting records generated for it. |
| Values | String (0..64, ASCII) |
| Default | "" |

### GROUP AtmIf Vpt Vpd Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable ATM Virtual Path Descriptor attributes for a *Vpt* component. |

### ATTRIBUTE AtmIf Vpt Vpd vptType

| | |
|---|---|
| Access | Read and write |

Description

This attribute specifies the type of the *Vpt*.

A value of ***basic*** configures one level of traffic management (TM) for the VPT, at the VC level. VCs within the VP are treated like independent VCC connections, and thus, are scheduled the same as other VCs under the *AtmIf*, with no scheduling done for the VP itself.

A value of ***standard*** configures two levels of traffic management (TM) for the VPT, one level for VP TM and one level for VC TM. VCs within the VP use weighted fair queuing to schedule the VCs within the VPT, with VCs differentiated as either real-time (CBR, rt-VBR) or non-real-time (nrt-VBR, UBR) connections. The VP itself has a full range of emission scheduling and service category differentiation available between itself and the other connections under the *AtmIf*.

For ***1pOC48SmSrPos*** cards, *Vpts* are not supported.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm***, ***1pOC12SmLrAtm***, ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, ***16pOC3SmIrAtm***, ***16pOC3PosAtm***, and ***1pOC48ChSmIrAtm*** cards, all *Vpts* must be ***basic***.

For ***2pOC3MmAtm2***, ***2pOC3SmAtm2***, ***2pSTM1eAtm***, ***2pSTM1eCh***, ***4pOC3MmAtm***, ***4pOC3SmIrAtm***, ***4pDS3ChAtm***, ***3pDS3Atm2***, ***3pE3Atm2***, ***12pDS3Atm***, ***12pE3Atm***, and MSA32 cards, *Vpts* may be of any type.

Values

basic
standard

Default

basic

## COMPONENT AtmIf Vpt Vpd TrafficManagement (Tm)

Groups

"GROUP AtmIf Vpt Vpd Tm Provisioned (Prov)"

Scope

Device

Description

*AtmIf/n Vcc/vpi.vci Vcd TrafficManagement,*
*AtmIf/n Vpc/vci Vpd TrafficManagement,*

*AtmIf/n Vpt/vpi Vpd TrafficManagement,*
*AtmIf/n Vpt/vpi Vcc/vci Vcd TrafficManagement*
This component contains provisioned traffic management attributes of a connection. It is added automatically when a *Vcc*, *Vpc*, or *Vpt* is added in provisioning mode. It is a mandatory subcomponent of the *Vcd* or *Vpd* component.

Opt. Subcomp. "COMPONENT AtmIf Vpt Vpd Tm AvailableBitRate (Abr)"

Common Verbs
Help
List
Display

## GROUP AtmIf Vpt Vpd Tm Provisioned (Prov)

Properties Provisioned

Description This group contains traffic related provisionable attributes for the *Vcc*, *Vpc*, and *Vpt* components. Changing any of the attributes in this group causes a service interruption on the *Vcc*, *Vpc*, or *Vpt* component.

## ATTRIBUTE AtmIf Vpt Vpd Tm txTrafficDescType (txTdt)

Access Read and write

Criticality Component

Description This attribute specifies the type of traffic management which is applied to the transmit direction of this connection as defined in the ATM Forum. The *txTrafficDescType* determines the number and meaning of the parameters in the *txTrafficDescParm* attribute.

Values
1
2
3
4
5
6
7

| | |
|---|---|
| | 8<br>9 |
| Default | 1 |

### ATTRIBUTE AtmIf Vpt Vpd Tm fwdQosClass (fwdQos)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the quality of service for the forward direction for this connection. This attribute is only used for SPVC connections.<br><br>Class 1 supports a QOS that meets Service Class A performance requirements (circuit emulation, constant bit rate video).<br><br>Class 2 supports a QOS that meets Service Class B performance requirements (variable bit rate audio and video).<br><br>Class 3 supports a QOS that meets Service Class C performance requirements (Connection-Oriented Data Transfer).<br><br>Class 4 supports a QOS that meets Service Class D performance requirements (Connectionless Data Transfer).<br><br>Class 0 is the unspecified bit rate QOS class; no objective is specified for the performance parameters. |
| Values | 0<br>1<br>2<br>3<br>4 |
| Default | 0 |

### ATTRIBUTE AtmIf Vpt Vpd Tm txQueueLimit (txQlim)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |

| | |
|---|---|
| Description | This attribute specifies an override to the default transmit queue limit for this connection.<br><br>A value of ***sameAsCa*** means that the default common or per-VC transmit queue limit, as defined by the CA service category, is used for this connection. For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, the value ***sameAsCa*** must be specified.<br><br>A value from 5 to 512,000 means that the connection transmit queue limit differs from the default common or per-VC transmit queue limit, as defined by the CA service category. A value other than ***sameAsCa*** is ignored for connections where common queuing is specified for the service category.<br><br>For ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, this attribute is used to set the per-VC utilization limit of the service category common queue.<br><br>For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, the valid range for this attribute is from 5 to 512000 inclusive.<br><br>For ***16pOC3PosAtm*** cards, the valid range for this attribute is from ***32*** to ***261120*** inclusive.<br><br>On all other cards, the valid range for this attribute is from 5 to 63488 inclusive.<br><br>The actual transmit queue limit for a connection is visible in the *Vcc Tm*, *Vpc Tm* or *Vpt txQueueThresholds* attribute.<br><br>This attribute is not applicable for basic *Vpt*s. |
| Values | Decimal (5..512000)<br>sameAsCa |
| Units | cells |
| Default | sameAsCa |

### ATTRIBUTE AtmIf Vpt Vpd Tm holdingPriority (hpri)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the holding priority of this connection. In a situation where the link bandwidth fluctuates, such as over an IMA link, holding priority is used to determine which connections are held and which are released. Holding priority 4 connections are the first to be released. Holding priority 0 connections are the last to be released. The default holding priority for a provisioned connection is higher then default holding priorities for dynamic (SVC) connections.<br><br>The value of this attribute may be overridden by certain applications, for example *Vcc Test*, which use this connection.<br><br>This attribute is not applicable for *Vpt Vcc*s. |
| Values | 0<br>1<br>2<br>3<br>4 |
| Default | 2 |

### ATTRIBUTE AtmIf Vpt Vpd Tm rxTrafficDescType (rxTdt)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the type of traffic management which is applied to the receive direction of this connection as defined in the ATM Forum. The *rxTrafficDescType* determines the number and meaning of the parameters in the *rxTrafficDescParm* attribute.<br><br>The value ***sameAsTx*** means the *rxTrafficDescType* as well as the *rxTrafficDescParm* attribute values are taken from the values of the *txTrafficDescType* and *txTrafficDescParm* attributes. |

| | |
|---|---|
| Values | 1<br>2<br>3<br>4<br>5<br>6<br>7<br>8<br>9<br>sameAsTx |
| Default | sameAsTx |

### ATTRIBUTE AtmIf Vpt Vpd Tm bwdQosClass (bwdQos)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the quality of service for the backward direction for this connection. This attribute is only used for SPVC connections.<br><br>Class 1 supports a QOS that meets Service Class A performance requirements (Circuit emulation, constant bit rate video).<br><br>Class 2 supports a QOS that meets Service Class B performance requirements (Variable bit rate audio and video).<br><br>Class 3 supports a QOS that meets Service Class C performance requirements (Connection-Oriented Data Transfer).<br><br>Class 4 supports a QOS that meets Service Class D performance requirements (Connectionless Data Transfer).<br><br>Class 0 is the unspecified bit rate QOS class; no objective is specified for the performance parameters.<br><br>The ***sameAsFwd*** selection sets the backward quality of service to be the same as the forward quality of service. |
| Values | 0<br>1 |

2
3
4
sameAsFwd

Default sameAsFwd

### ATTRIBUTE AtmIf Vpt Vpd Tm atmServiceCategory (service)

Access Read and write

Criticality Component

Description This attribute specifies the ATM service category for both directions of the connection.

The value ***derivedFromBBC*** may only be used if the *Src* or *Dst* component is provisioned under this connection. Otherwise a specific ATM service category must be specified.

A value of ***derivedFromBBC*** means the Broadband Bearer Capability (BBC) and *bestEffort* attributes are used to determine the *atmServiceCategory* of this connection.

A value other than ***derivedFromBBC*** means the value of this attribute is used to override the provisioned BBC Information Element parameters. In this case, the BBC attributes are not used.

The ***constantBitRate*** service category is intended for real-time applications, that is those requiring tightly constrained delay and delay variation, as would be appropriate for voice and video applications. The consistent availability of a fixed quantity of bandwidth is considered appropriate for CBR service. Cells which are delayed beyond the value specified by Cell Transfer Delay are assumed to be of significantly reduced value to the application.

The ***rtVariableBitRate*** service category is intended for real-time applications, that is those requiring tightly constrained delay and delay variation, as would be appropriate for voice and video applications. Sources are expected to transmit at a rate which varies with time. Equivalently, the source can be described as “bursty”. Cells which are delayed beyond the value specified by

CTD are assumed to be of significantly reduced value to the application. Real-time VBR service may support statistical multiplexing of real-time sources.

The ***nrtVariableBitRate*** service category is intended for non-real time applications which have bursty traffic characteristics and which can be characterized in terms of a PCR, SCR, and MBS. For those cells which are transferred within the traffic contract, the application expects a low cell loss ratio. For all connections, it expects a bound on the mean cell transfer delay. Non real-time VBR service may support statistical multiplexing of connections.

The ***availableBitRate*** service is an ATM layer service category for which the limiting ATM layer transfer characteristics provided by the network may change subsequent to connection establishment. ABR service has a flow control mechanism which supports several types of feedback to control the source rate in response to changing ATM layer transfer characteristics. ABR service is not intended to support real-time applications.

The ***unspecifiedBitRate*** service is intended for non real-time applications; that is, those not requiring tightly constrained delay and delay variation. UBR sources are expected to be bursty. UBR service supports a high degree of statistical multiplexing among sources. UBR service does not specify traffic related service guarantees. No numerical commitments are made with respect to the cell loss ratio experienced by a UBR connection, or as to the cell transfer delay experienced by cells on the connection.

| | |
|---|---|
| Values | unspecifiedBitRate (ubr)<br>constantBitRate (cbr)<br>rtVariableBitRate (rtvbr)<br>nrtVariableBitRate (nrtvbr)<br>availableBitRate (abr)<br>derivedFromBBC (derived) |
| Default | unspecifiedBitRate |

### ATTRIBUTE AtmIf Vpt Vpd Tm trafficShaping (trShaping)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |

Description

This attribute specifies whether this connection uses traffic shaping when transmitting traffic to the ATM interface.

This attribute is ignored if the *atmServiceCategory* is ***availableBitRate***.

For ***1pOC12SmLrAtm***, ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, traffic shaping is not available, therefore this attribute is ignored.

A value of ***sameAsCa*** means traffic shaping for the connection is based on the value of the *trafficShaping* attribute of the connection's service category component under the *CA*. If the service category has *trafficShaping* set to ***enabled*** or ***inverseUpc***, then traffic shaping is enabled for the connection. Note that enabling traffic shaping may have no effect under certain cases. These cases are listed in the description of the *trafficShaping* operational attribute, which is under the *Vcc Tm*, *Vpc Tm*, or *Vpt Tm* components.

A value of ***disabled*** means traffic shaping for this connection is disabled regardless of the provisioning of the connection's service category component.

Values

disabled
sameAsCa

Default

sameAsCa

## ATTRIBUTE AtmIf Vpt Vpd Tm unshapedTransmitQueueing (unshap)

Access

Read and write

Criticality

Component

Description

This attribute specifies the transmit queuing method for this connection if it is unshaped. The two possible methods are per-VC queuing and common queuing. This attribute does not apply if the connection is shaped.

A value of ***sameAsCa*** means the transmit queuing method for the connection is based on the *unshapedTransmitQueueing* attribute of the connection's service category component under the *CA*.

A value of ***common*** means transmit traffic on this unshaped connection is destined for the common queue.

For ***2pOC3MmAtm2***, ***2pOC3SmAtm2***, ***2pSTM1eAtm***, ***2pSTM1eCh***, ***4pOC3MmAtm***, ***4pOC3SmIrAtm***, ***4pDS3ChAtm***, ***3pDS3Atm2***, ***3pE3Atm2***, ***12pDS3Atm***, ***12pE3Atm***, MSA32, ***1pOC12SmLrAtm***, ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, ***16pOC3SmIrAtm***, ***16pOC3PosAtm***, ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, this attribute must have the value ***sameAsCa***.

This attribute is ignored in the following situations:
- if the connection has *trafficShaping* ***enabled*** or ***inverseUpc***, or
- if the *atmServiceCategory* is ***availableBitRate***, or
- if the *atmServiceCategory* is ***constantBitRate***, or
- for basic *Vpt*s and standard *Vpt Vcc*s.

Values
common
sameAsCa

Default
sameAsCa

## ATTRIBUTE AtmIf Vpt Vpd Tm weight

Access
Read and write

Criticality
Component

Description
This attribute specifies an override for the weight of this unshaped connection. This attribute is ignored for shaped connections, for ABR connections, and basic *Vpt*s.

A value of ***sameAsCa*** means the weight is determined by the *weightPolicy* attribute under the *CA* service category component for all but standard *Vpt Vcc*s. For standard *Vpt Vcc*s, the weight is determined by the *Vcc*'s service category, when the value is set to ***sameAsCa***.

A value from 1 to 4095 means that value is used for the fairness weight of this connection relative to other connections. For all but standard *Vpt Vcc*s, fairness weight determines the proportion of transmit cell opportunities which are allocated to this connection,

compared to other connections in the same service category. For standard *Vpt Vcc*s, fairness weight determines the proportion of transmit cell opportunities which are allocated to this connection, compared to other connections associated with the *Vpt*.

A value of ***upToQueueLimit*** means the fairness weight is limited only by the *txQueueLimit*.

This attribute is not applicable and is ignored for ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm***, ***1pOC12SmLrAtm***, ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, ***16pOC3SmIrAtm***, and ***16pOC3PosAtm*** cards, the value ***upToQueueLimit*** is not permitted.

Values: Decimal (1..4095)
sameAsCa
upToQueueLimit

Default: sameAsCa

## ATTRIBUTE AtmIf Vpt Vpd Tm forceTagging (tagging)

Access: Read and write

Criticality: Component

Description: This attribute specifies whether force tagging of the CLP bit is enforced for cells of this connection.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm***, ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, and for *Vpt*s, this attribute is not applicable and is ignored.

A value of ***sameAsCa*** means the force tagging functionality is determined by the *forceTagging* attribute under the *CA* service category component.

A value of ***enabled*** means force tagging is enabled. When this option is selected, the CLP bit is set to 1 for all cells on the

connection.

A value of ***disabled*** means force tagging is disabled. When this option is selected, the CLP bit is unchanged for cells on the connection.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, force tagging applies to cells in the receive direction. For all other cards, force tagging applies to cells in the transmit direction. In this case, cells which are tagged are counted in the *txCellClp* attribute.

Values
sameAsCa
enabled
disabled

Default
sameAsCa

## ATTRIBUTE AtmIf Vpt Vpd Tm usageParameterControl (upc)

Access
Read and write

Criticality
Component

Description
This attribute specifies whether this connection enables usage parameter control (UPC) when receiving traffic from the ATM interface.

The value ***sameAsCa*** means UPC for the connection is based on the value of the *usageParameterControl* attribute of the service category component under the *AtmIf CA*. If the service category has UPC ***enforced*** or ***monitored***, then UPC is enabled on the connection.

The value ***disabled*** means UPC for this connection is disabled regardless of the provisioning of the service category.

The value ***enforced*** means UPC for this connection is enforced regardless of the provisioning of the service category. When UPC is enforced, non-conforming cells are either tagged or discarded depending on the *rxTrafficDescriptorType*.

The value ***monitored*** means UPC for this connection is

monitored regardless of the provisioning of the service category. When UPC is monitored, instead of the non-conforming cells being tagged or discarded, they are merely counted in the UPC violations counts and passed on unchanged.

Note that setting UPC to ***enforced*** or ***monitored*** may have no effect under certain cases. These cases are listed in the description of the *usageParameterControl* operational attribute, which is under the *Vcc, Vpc,* and *Vpt* components.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, the value ***monitored*** is not supported.

For ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, the values ***enforced***, and ***monitored***, are not supported.

Values
enforced
disabled
sameAsCa
monitored

Default
sameAsCa

## ATTRIBUTE AtmIf Vpt Vpd Tm bearerClassBbc (bcBbc)

Access
Read and write

Criticality
Component

Description
This attribute specifies the bearer capability. This attribute is only used for SPVC and SPVP connections. It is one of the Broadband Bearer Capability (BBC) attributes. The purpose of the BBC information element is to indicate a requested broadband connection-oriented bearer service to be provided by the network.

The value ***derivedFromServiceCategory*** specifies that the actual value which is used for this connection is derived from the value of the *atmServiceCategory.* Either, this attribute must be set to ***derivedFromServiceCategory***, or the *atmServiceCategory* attribute must be set to ***derivedFromBBC***, but not both.

Class ***a*** service is a connection-oriented, constant bit rate ATM

transport service. Class ***a*** service has end to end timing requirements and may require stringent cell loss, cell delay and cell delay variation performance.When ***a*** is set, the user is requesting more than an ATM only service. The network may look at the AAL to provide interworking based upon its contents.

Class ***c*** service is a connection-oriented, variable bit rate ATM transport service. Class ***c*** service has no end-to-end timing requirements. When ***c*** is set, the user is requesting more than an ATM only service. The network interworking function may look at the AAL and provide service based on it.

Class ***x*** service is a connection-oriented ATM transport service where the AAL, *trafficType* (***vbr*** or ***cbr***) and timing requirements are user defined (that is, transparent to the network).When ***x*** is set the user is requesting an ATM only service from the network. In this case, the network shall not process any higher layer protocol.

Class **vp** service is used to specify a transparent VP service. When the value of this attribute is vp, the user is requesting an ATM only service from the network. In this case, the network shall not process any higher layer protocol. This service differs from class x service in that with the class vp service both the VCI field (except or VCI values 0, 3, 4, and 6 through 15) and Payload Type field are transported transparently by the network. This attribute value is only applicable to SPVP connections.

Values
a
c
x
vp
derivedFromServiceCategory

Default
derivedFromServiceCategory

## ATTRIBUTE AtmIf Vpt Vpd Tm transferCapabilityBbc (tcBbc)

Access
Read and write

Criticality
Component

Description
This attribute specifies the transfer capability for this connection. Uni 3.0/3.1 traffic type and end-to-end timing parameters are

mapped into this parameter as follows:
<transferCapability: TrafficType, Timing>
0: NoIndication, NoIndication
1: NoIndication, yes
2: NoIndication, no
5: CBR, yes
8: VBR, NoIndication
9: VBR, yes
10: VBR, no

The value ***notApplicable*** specifies that the user does not want to specify the transfer capability.

The CBR traffic type refers to traffic offered on services such as a constant bit rate video service or a circuit emulation.
The VBR traffic type refers to traffic offered on services such as packetized audio and video, or data.

The value no indication for traffic type is used if the user has not set the traffic type; similarly for end-to-end timing.

The value yes for end-to-end timing indicates that end-to-end timing is required.

The value no for end-to-end timing indicates that end-to-end timing is not required.

The value ***derivedFromServiceCategory*** specifies that the actual value which is used for this connection is derived from the value of the *atmServiceCategory*. Either, this attribute must be set to ***derivedFromServiceCategory***, or the *atmServiceCategory* attribute must be set to ***derivedFromBBC***, but not both.

Values

0
1
2
5
8
9
10

| | |
|---|---|
| | notApplicable<br>derivedFromServiceCategory |
| Default | derivedFromServiceCategory |

### ATTRIBUTE AtmIf Vpt Vpd Tm txWredThreshold

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the threshold for weighted random early detection (WRED). This threshold is calculated as a percentage of the early packet discard (EPD) threshold, which is 85% of the transmit queue length. When the value is ***25%***, WRED starts as soon as the queue is 25% of the way to the EPD threshold. When the value is ***50%***, WRED starts later, after the queue is 50% of the way to the EPD threshold. When the value is ***75%***, WRED starts only when the queue is 75% of the way to the EPD threshold.<br><br>This attribute is ignored if the value of the *txWredMode* or *txPacketWiseDiscard* attributes is ***disabled.***<br><br>For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm***, and ***1pOC12SmLrAtm*** cards, this attribute is not applicable and is ignored. |
| Values | Decimal (25; 50; 75) |
| Units | % |
| Default | 25 |

### ATTRIBUTE AtmIf Vpt Vpd Tm clippingBbc (cBbc)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the value for the clipping susceptibility parameter in the BBC Information Element. This attribute is only used for SPVC connections. It is one of the Broadband Bearer |

Capability attributes.

Clipping is an impairment in which the first fraction of a second of information to be transferred is lost. It occurs after a call is answered and before an associated connection is switched through.

Values
no
yes

Default
no

## ATTRIBUTE AtmIf Vpt Vpd Tm bestEffort

Access
Read and write

Criticality
Component

Description
This attribute specifies the value of the best effort parameter in the ATM Traffic Descriptor Information Element. This attribute is only used for SPVC connections. It is one of the Broadband Bearer Capability attributes.

The value ***indicated*** implies that the quality of service for this connection is not guaranteed.

The value ***notIndicated*** implies that the quality of service for this connection is guaranteed.

The value ***derivedFromServiceCategory*** specifies that the actual value which is used for this connection is derived from the value of the *atmServiceCategory*. Either, this attribute must be set to ***derivedFromServiceCategory***, or the *atmServiceCategory* attribute must be set to ***derivedFromBBC***, but not both.

Values
indicated
notIndicated
derivedFromServiceCategory (derived)

Default
derivedFromServiceCategory

## ATTRIBUTE AtmIf Vpt Vpd Tm txPacketWiseDiscard (txpd)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies whether packet-wise discard functions are to be enabled or disabled in the transmit data direction for this connection. Packet-wise discard functions apply to AAL5 frame traffic. This attribute is not applicable for *Vpt*s.<br><br>For ***1pOC12SmLrAtm*** cards, this attribute is not applicable and is ignored.<br><br>Packet-wise functions increase the “goodput” of the link. The transmit packet-wise functions are Early Packet Discard (EPD) and Partial Packet Discard (PPD).<br><br>EPD allows the connection to discard an entire frame once the transmit queue has reached the EPD threshold. EPD increases the “goodput” of a link, since discarding an entire frame means that some queue capacity is guarded for some other frame which is already partially transmitted. All cells of the frame are discarded from the Beginning of Message (BOM) cell up to and including the End of Message (EOM) cell.<br><br>PPD allows the connection to discard the remainder of a cell-forwarded AAL5 frame if one cell of this frame has been discarded. All cells are discarded up to but not including the EOM cell. The PPD function increases the “goodput” of the link, since cells which are only going to be discarded at the AAL5 reassembly point are not transmitted.<br><br>For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, the packet-wise discard functions are PPD and EPD. PPD is applicable at cell-transfer points. PPD is not applicable at frame-to-cell conversion points, and is not applicable for *Vpc*s. PPD is configured by this attribute. Packet-wise discard should only be enabled for connections carrying AAL5 segmentation traffic. Setting this attribute to ***enabled*** for any other traffic type may result in all traffic being discarded. EPD is automatically |

***enabled*** at frame-to-cell conversion points, independent of the setting of this attribute.

For ***2pOC3MmAtm2***, ***2pOC3SmAtm2***, ***2pSTM1eAtm***, ***2pSTM1eCh***, ***4pOC3MmAtm***, ***4pOC3SmIrAtm***, ***4pDS3ChAtm***, ***3pDS3Atm2***, ***3pE3Atm2***, ***12pDS3Atm***, ***12pE3Atm***, MSA32, ***16pOC3PosAtm***, ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, packet-wise discard functions include EPD and PPD. PPD and EPD apply to individual VCCs and VCCs within VPCs at all connection points, including tandem VPC connections. Both PPD and EPD are controlled by this attribute. This attribute may safely be set to ***enabled*** for any connection (*Vcc* or *Vpc*) since these FPs have the ability to automatically detect AAL5-segmented traffic on a connection, and only enable packet-wise discards if AAL5-segmented traffic is detected.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, packet-wise discard functions include EPD and PPD. PPD and EPD apply to individual VCCs and VCCs within VPCs at all connection points, including tandem VPC connections. Packet-wise discard should only be enabled for connections carrying AAL5 segmentation traffic. Setting this attribute to ***enabled*** for any other traffic type may result in all traffic being discarded.

A value of ***enabled*** means packet-wise discard functions are applied to transmit traffic at this connection point. A value of ***disabled*** means packet-wise discard functions are not applied to transmit traffic at this connection point.

At a SPVC origin on a PNNI interface, a value of ***enabled*** specifies that frame discard is requested in the backward direction. When this attribute is set to ***disabled***, backward frame discard is not requested in the SPVC call setup.

The transmit packet-wise discard functions that are active are visible in the *Vcc/Vpc Tm txPacketWiseDiscard* operational attribute.

Values

disabled
enabled

Default disabled

## ATTRIBUTE AtmIf Vpt Vpd Tm rxPacketWiseDiscard (rxpd)

Access Read and write

Criticality Component

Description This attribute specifies whether packet-wise discard functions are to be enabled or disabled in the receive data direction for this connection. Packet-wise discard functions apply to AAL5 frame traffic. This attribute is not applicable for *Vpt*s.

For ***1pOC12SmLrAtm*** cards, this attribute is not applicable and is ignored.

Packet-wise functions increase the “goodput” of the link. The receive packet-wise function is Partial Packet Discard (PPD).

PPD allows the connection to discard the remainder of a cell-forwarded AAL5 frame if one cell of this frame has been discarded, for example due to UPC. All cells are discarded up to but not including the EOM cell. The PPD function increases the “goodput” of the link, since cells which are only going to be discarded at the AAL5 reassembly point are not transmitted.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, PPD is available at all VCC connection points where UPC may be activated. PPD is not applicable for *Vpcs*. Packet-wise discards should only be enabled for connections carrying AAL5 segmentation traffic. Setting the value to ***enabled*** for any other traffic type may result in traffic being discarded. PPD is automatically ***enabled*** at frame-to-cell conversion points, independent of the setting of this attribute.

For ***2pOC3MmAtm2***, ***2pOC3SmAtm2***, ***2pSTM1eAtm***, ***2pSTM1eCh***, ***4pOC3MmAtm***, ***4pOC3SmIrAtm***, ***4pDS3ChAtm***, ***3pDS3Atm2***, ***3pE3Atm2***, ***12pDS3Atm***, ***12pE3Atm***, MSA32, ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, this attribute may safely be set to ***enabled*** for any connection (*Vcc* or *Vpc*) since these FPs have the ability to automatically detect AAL5-

segmented traffic on a connection, and only enable packet-wise discards if AAL5-segmented traffic is detected.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, packet-wise discard functions include EPD and PPD. PPD and EPD apply to individual VCCs and VCCs within VPCs at all connection points, including tandem VPC connections. Packet-wise discard should only be enabled for connections carrying AAL5 segmentation traffic. Setting this attribute to ***enabled*** for any other traffic type may result in all traffic being discarded.

A value of ***enabled*** means packet-wise discard functions are applied to receive traffic at this connection point. A value of ***disabled*** means packet-wise discard functions are not applied to receive traffic at this connection point.

At a SPVC origin on a PNNI interface, a value of ***enabled*** specifies that frame discard is requested in the forward direction. When this attribute is set to ***disabled***, forward frame discard is not requested in the SPVC call setup.

For ***16pOC3PosAtm*** cards, the value of this attribute must be ***disabled***. PPD and EPD are enabled by default at a connection endpoint which is performing AAL5 segmentation and assembly.

The receive packet-wise discard functions that are active are visible in the *Vcc/Vpc Tm rxPacketWiseDiscard* operational attribute.

| | |
|---|---|
| Values | disabled<br>enabled |
| Default | disabled |

### ATTRIBUTE AtmIf Vpt Vpd Tm txWredMode

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the activation of weighted random early detection (WRED) functionality. WRED is considered a packet-wise discard function and as such applies only to AAL5 frame |

traffic.

WRED is applied in the transmit direction for this connection. WRED function should be enabled only for connections which are transferring TCP/IP traffic. WRED acts to prevent synchronization of multiple TCP/IP sources by randomly discarding a small percentage of frames when transmit queue congestion reaches the designated level. WRED may also be used to differentiate service on VCC's by preferentially discarding one VCC before another. Discards start at 0% of cells, when the queue is part-way to the Early Packet Discard (EPD) threshold, and rise to 100% of cells discarded at the EPD threshold. WRED discards all the cells in a frame.

A value of ***enabled*** means WRED is enabled for all applications linked to the given *Vcc*.

A value of ***perFlow*** means each TCP application has individual control over whether to enable or disable WRED.

If the value of the *txPacketWiseDiscard* attribute is ***disabled***, or if the value of this attribute is ***disabled***, WRED functionality is disabled.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm***, and ***1pOC12SmLrAtm*** cards, the value of this attribute must be ***disabled***.

If WRED is active, it is visible in the *Vcc/Vpc Tm txPacketWiseDiscard* operational attribute.

This attribute is not applicable for *Vpt*s or *Vpt Vcc*s.

Values

disabled
enabled
perFlow

Default

disabled

## ATTRIBUTE AtmIf Vpt Vpd Tm abrConnectionType (abrType)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the type of ABR behavior which is to be enforced at this connection. This attribute is only applicable if the value of the *atmServiceCategory* attribute is ***availableBitRate***. If the value of the *atmServicecategory* attribute is not ***availableBitRate***, this attribute is ignored.<br><br>The value ***sameAsCa*** is used to request the default behavior as specified in the *CA Abr* component for this *Vcc*. Otherwise, this attribute overrides the default behavior.<br><br>The value ***virtualSourceDest*** is used to request that this connection point function as a virtual source/virtual destination.<br><br>The value ***sourceDest*** requires that this connection point function as a S/D for RM cells. S/D mode is automatically invoked at this connection point either if this is a connection end point, or if the next hop connection point is configured as ***nonAbrInterworking***.<br><br>The value ***nonAbrInterworking*** is used to request that this connection point function as an interworking between ABR and non-ABR service categories. This means that there are no RM cells on the link side of this connection, and that the next hop connection point is performing as an ABR ***sourceDest***.<br><br>The value ***abrSwitch*** is used to request ABR switch behavior for this connection point. The ABR switch behavior is first, to conform to ***virtualSourceDest*** or ***nonAbrInterworking*** setting on the next hop, and otherwise to implement ABR ER switch behavior.<br><br>For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, the only allowable values are ***sameAsCa***, ***nonAbrInterworking*** or ***abrSwitch***. If ***abrSwitch*** is selected, EFCI marking behavior is implemented. |

For ***1pOC12SmLrAtm*** cards, the only allowable values are ***sameAsCa*** or ***abrSwitch.*** If ***abrSwitch*** is selected, EFCI marking behavior is implemented.

For ***16pOC3PosAtm*** cards, the only allowable value is ***sameAsCa***.

The actual ABR functionality which is in effect is visible in the *Vcc/Vpc/Vpt Tm abrConnectionType* operational attribute.

Values
abrSwitch
virtualSourceDest
sourceDest
nonAbrInterworking
sameAsCa

Default
sameAsCa

## ATTRIBUTE AtmIf Vpt Vpd Tm txTrafficDescParm (txTdp)

Access
Read and write

Criticality
Component

Description
This attribute is a vector of five traffic parameters whose meanings are defined by the *txTrafficDescType* attribute.

The values of peak cell rate (PCR), sustained cell rate (SCR), Minimum Cell Rate (MCR) and requested shaping rate are expressed in cell/s. Maximum burst size (MBS) is expressed in cells. CDVT is expressed in microseconds. The values of PCR, SCR, MCR, MBS and CDVT are used for connection admission control (CAC). The value of CDVT is only used for connections where the *atmServiceCategory* is ***constantBitRate***. For all other values of *atmServiceCategory*, CDVT is ignored. The values of PCR, SCR, MCR and requested shaping rate are used to determine the actual shaping rate where traffic shaping is enabled.

When *txTrafficDescType* is 1 or 2, all of the parameters must be set to zero.

When *txTrafficDescType* is 3, parameter 1 represents the PCR for

CLP equal to 0 and 1 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameter 1 must be non-zero. Parameters 2 and 3 must be zero.

When *txTrafficDescType* is 4, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic with cell discard; parameter 2 represents the PCR for CLP equal to 0 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameter 1 must be greater than or equal to parameter 2. Parameters 1 and 2 must be non-zero. Parameter 3 must be zero.

When *txTrafficDescType* is 5, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic with cell tagging; parameter 2 represents the PCR for CLP equal to 0 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameter 1 must be greater than or equal to parameter 2. Parameters 1 and 2 must be non-zero. Parameter 3 must be zero.

When *txTrafficDescType* is 6, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 and 1 traffic; parameter 3 represents the MBS for CLP equal to 0 and 1 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameters 1, 2 and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2. Parameter 5, must either be zero (unused) or greater than or equal to parameter 2.

When *txTrafficDescType* is 7, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 with cell discard; parameter 3 represents the MBS for CLP equal to 0 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This

result is used as the PCR. Parameters 1, 2 and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2. Parameter 5, must either be zero (unused) or greater than or equal to parameter 2.

When *txTrafficDescType* is 8, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 traffic with cell tagging; parameter 3 represents the MBS for CLP equal to 0 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameters 1, 2 and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2. Parameter 5, must either be zero (unused) or greater than or equal to parameter 2.

When *txTrafficDescType* is 9, parameter 1 represents the PCR; parameter 2 represents the CDVT; parameter 3 represents the MCR; parameter 4 and parameter 5 represent are not used and must be zero. Parameter 1 must be non-zero and must be greater than or equal to parameter 3. Parameter 3 may be optionally zero.

Whenever it is valid for PCR to be specified, parameter 5 may also be used to specify a requested shaping rate. A non-zero value in parameter 5 overrides the value in parameter 1 and is used as the peak cell rate in calculations of CAC and shaping rate. When the *atmServiceCategory* is ***availableBitRate*** (ABR), the shaping rate is dynamically chosen, based on the ABR flow control mechanism, as a value between the MCR and the PCR or the requested shaping rate if applicable.

For *txTrafficDescType* 3, 4 and 5, the transmit traffic is shaped at the next available shaping rate less than the PCR.

For *txTrafficDescType* 6, 7 and 8 if linear traffic shaping is selected, the transmit traffic is shaped at the highest available rate which is between PCR and SCR. However, if there is no available shaping rate between PCR and SCR, traffic is shaped at the next rate above the PCR.

For *txTrafficDescType* 6, 7 and 8 if inverse-UPC traffic shaping is

selected, the transmit traffic is shaped at a variable rate which conforms to the PCR, SCR and MBS of the connection traffic descriptor.

| | |
|---|---|
| Vector of | Decimal (0..2147483647) |
| Index | Decimal (1..5) |
| Default | ([5] 0) |

### ATTRIBUTE AtmIf Vpt Vpd Tm rxTrafficDescParm (rxTdp)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute is a vector of five traffic parameters whose meanings are defined by the *rxTrafficDescType* attribute. If the value of the *rxTrafficDescType* attribute is ***sameAsTx***, the values provisioned in this attribute are ignored. The traffic parameters for the receive direction are taken from the *txTrafficDescParm* attribute.<br><br>The values of peak cell rate (PCR), sustained cell rate (SCR), and Minimum Cell Rate (MCR) are expressed in cell/s. Maximum burst size (MBS) is expressed in cells. The value of CDVT is expressed in microseconds. The values of PCR, SCR, MCR, MBS and CDVT are used for usage parameter control (UPC).<br><br>When *rxTrafficDescType* is 1 or 2, all of the parameters must be set to zero (unused).<br><br>When *rxTrafficDescType* is 3, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; and parameter 4 represents the CDVT. Parameter 1 must be non-zero. Parameters 2 and 3 must be set to zero (unused).<br><br>When *rxTrafficDescType* is 4, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the PCR for CLP equal to 0 traffic with cell discard; and parameter 4 represents the CDVT. Parameters 1 and 2 must be non-zero. Parameter 3 must be set to zero (unused). Parameter 1 must be greater than or equal to parameter 2. |

When *rxTrafficDescType* is 5, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the PCR for CLP equal to 0 traffic with cell tagging; and parameter 4 represents the CDVT. Parameters 1 and 2 must be non-zero. Parameter 3 must be set to zero (unused). Parameter 1 must be greater than or equal to parameter 2.

When *rxTrafficDescType* is a 6, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 and 1 traffic; parameter 3 represents the MBS for CLP equal to 0 and 1 traffic; and parameter 4 represents the CDVT. Parameters 1, 2 and 3 must be non-zero. Parameter 1 must be greater than or equal to Parameter 2.

When *rxTrafficDescType* is 7, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 traffic with cell discard; parameter 3 represents the MBS for CLP equal to 0 traffic; and parameter 4 represents the CDVT. Parameters 1, 2 and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2.

When *rxTrafficDescType* is 8, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 traffic with cell tagging; parameter 3 represents the MBS for CLP equal to 0 traffic; and parameter 4 represents the CDVT. Parameter 1, 2 and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2.

When *rxTrafficDescType* is 9, parameter 1 represents the PCR; parameter 2 represents the CDVT; parameter 3 represents the MCR. Parameter 4 is not used and must be zero. Parameter 1 must be non-zero and must be greater than or equal to parameter 3. Parameter 3 may optionally be zero.

If the value of CDVT either in parameter 2 or in parameter 4 is zero, the CDVT is taken from the *CA* defaults for the particular *atmServiceCategory* of this connection.

Parameter 5 of the *rxTrafficDescParm* is always unused.

When *rxTrafficDescriptorType* is 3 through 8, there are certain extreme combinations of *rxTrafficDescParm* which are outside the capabilities of the UPC hardware. The *check prov* command detects such cases and generates an error message. If this happens, adjust the parameters until they fall within the supported limits.
To calculate the limits, use the following formulae:
I1 = 1,000,000,000 / PCR
L1 = CDVT * 1000
I2 = 1,000,000,000 / SCR
L2 = CDVT + (MBS - 1) * (I2 - I1)
Note that I2 and L2 only apply when the *rxTrafficDescriptorType* is 6 through 8.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, I1 and I2 must be less than or equal to 335,523,840. I1 + L1 must be less than or equal to 1,342,156,800. I2 + L2 must be less than or equal to 1,342,156,800. If the values of I1, L1, I2 or L2 are closer to the limits described above, a further restriction applies. Specifically, if either:
I1 > 41,940,480 or
I2 > 41,940,480 or
I1 + L1 > 167,769,600 or
I2 + L2 > 167,769,600
then both I1 and I2 must be greater than 20,480.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, L2 must be less than or equal to 2,674,011,406.

For ***16pOC3PosAtm*** cards, L2 must be less than or equal to 17,179,869,180.

| | |
|---|---|
| Vector of | Decimal (0..2147483647) |
| Index | Decimal (1..5) |
| Default | ([5] 0) |

## ATTRIBUTE AtmIf Vpt Vpd Tm fwdQosParameters (fqp)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute is a vector of three elements that specify the quality of service parameters for the forward direction for this connection. This attribute is used for SPVC connections.<br><br>The *cdv* element specifies the acceptable peak-to-peak Cell Delay Variation (CDV) of real-time connections (CBR and rt-VBR). It is signaled through the extended QoS information element. For nrt-VBR and UBR the CDV is irrelevant, and its value is forced to the default.<br><br>The *ctd* specifies the acceptable maximum Cell Transfer Delay (maxCtd) of real-time connections (CBR and rt-VBR).<br>It is signaled through the end to end transit delay information element. For nrt-VBR and UBR the CTD is irrelevant, and its value is forced to the default.<br><br>The *clr* specifies the acceptable Cell Loss Ratio (CLR) of CBR, rt-VBR, and nrt-VBR connections. It is signaled through the extended QoS information element. For UBR the CLR is irrelevant, and its value is forced to the default. |
| Vector of | Decimal (0..16777215) |
| Index | cdv<br>ctd<br>clr |
| Default | (cdv: 16777215, ctd: 16777215, clr: 255) |

### ATTRIBUTE AtmIf Vpt Vpd Tm bwdQosParameters (bqp)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute is a vector of two elements that specify the quality of service parameters for the backward direction for this connection. This attribute is used for SPVC connections.<br><br>The *cdv* specifies the acceptable peak-to-peak Cell Delay |

Variation (CDV) of real-time connections (CBR and rt-VBR). It is signaled through the extended QoS information element. For nrt-VBR and UBR, the CDV is irrelevant, and its value is forced to the default.

The *clr* specifies the acceptable Cell Loss Ratio (CLR) of CBR, rt-VBR, and nrt-VBR connections. It is signaled through the extended QoS information element. For UBR the CLR is irrelevant, and its value is forced to the default.

Vector of: Decimal (0..16777215)

Index: cdv
clr

Default: (cdv: 16777215, clr: 255)

## COMPONENT AtmIf Vpt Vpd Tm AvailableBitRate (Abr)

Groups: "GROUP AtmIf Vpt Vpd Tm Abr Provisioned (Prov)"

Scope: Device

Description: *AtmIf/n Vcc/vpi.vci Vcd Tm AvailableBitRate,*
*AtmIf/n Vpc/vci Vpd Tm AvailableBitRate,*
*AtmIf/n Vpt/vpi Vpd Tm AvailableBitRate,*
*AtmIf/n Vpt/vpi Vcc/vci Vcd Tm AvailableBitRate*
This component contains provisioned ABR-related attributes of a connection. It is an optional subcomponent of the *Vcd Tm* and *Vpd Tm* component. It is used to override DGCRA-related defaults in the *CA Abr* component. It contains the specific configuration for the ABR connection at this connection point. If this is the source of an SPVC connection, this component also contains the ABR parameters required for the SPVC call request.

Common Verbs:
Help
List
Display
Add
DELete

## GROUP AtmIf Vpt Vpd Tm Abr Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisioned attributes for the ABR ATM connections configured on an ATM interface. |

## ATTRIBUTE AtmIf Vpt Vpd Tm Abr initialCellRate (icr)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the Initial Cell Rate (ICR) parameter for this connection. ICR is the rate at which a source should send initially and after an idle period.<br><br>The value ***sameAsCa*** means the initial cell rate is determined by the *AtmIf CA Abr*/0 *icr* attribute.<br><br>The value ***useMcr*** means ICR is set to the same value as the Minimum Cell Rate (MCR) for the connection.<br><br>The value ***usePcr*** means ICR is set to the same value as the Peak Cell Rate (PCR) for the connection.<br><br>If the value is less than the MCR of the connection, then the MCR is used as the ICR. If the value is more than PCR of the connection, then PCR is used as the ICR.<br><br>This attribute is ignored under all conditions where the operational attribute *abrConnectionType* indicates ***erSwitch*** or ***efciSwitch***. |
| Values | Decimal (0..16777215)<br>sameAsCa<br>useMcr<br>usePcr |
| Units | cell/s |
| Default | sameAsCa |

### ATTRIBUTE AtmIf Vpt Vpd Tm Abr transientBufferExposure (tbe)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the Transient Buffer Exposure (TBE) for this connection. TBE is the negotiated number of cells that the network would like to limit the source to send during start-up periods, before the first Resource Management (RM) cell returns.<br><br>TBE divided by *fixedRoundTripTime* determines an upper bound for the operational value of *initialCellRate*, the rate at which a source should send initially and after an idle period.<br><br>TBE divided by *maxCellsPerRmCell* specifies the operational value of *forwardRmCellLimit*, the limit of the number of forward Resource Management (RM) cells which may be sent in the absence of received backward RM cells.<br><br>This attribute is ignored under all conditions where the operational attribute *abrConnectionType* is set to ***erSwitch***. |
| Values | Decimal (0..16777215) |
| Units | cells |
| Default | 16777215 |

### ATTRIBUTE AtmIf Vpt Vpd Tm Abr fixedRoundTripTime (frtt)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the Fixed Round-Trip Time (FRTT) parameter for this connection. FRTT is the sum of the fixed and propagation delays from the source to a destination and back.<br><br>The value of *transientBufferExposure* divided by the value of FRTT (in seconds) determines an upper bound for the operational value of *initialCellRate*, the rate at which a source should send initially and after an idle period.<br><br>This attribute is ignored under all conditions where the |

operational attribute *abrConnectionType* indicates ***erSwitch*** or ***efciSwitch***.

Values: Decimal (0..16700000)

Units: microsec

Default: 5000000

### ATTRIBUTE AtmIf Vpt Vpd Tm Abr rateDecreaseFactor (rdf)

Access: Read and write

Criticality: Component

Description: This attribute specifies the Rate Decrease Factor (RDF) for this connection. The RDF value is computed by using the provisioned value of this attribute, n, as 2 to the inverse power n. For example, if the value of this attribute is 8, RDF is 2E-8 = 1/256.

RDF controls the amount by which the cell transmission rate may decrease upon receipt of a backward Resource Management (RM) cell. For example, if a backward RM cell is received with the Congestion Indication (CI) field set to 1, the Allowed Cell Rate (ACR) value would be reduced by the amount (RDF*ACR). The ACR is not allowed to fall below the Minimum Cell Rate (MCR), in which case the ACR is set to MCR.

This attribute is ignored under all conditions where the operational attribute *abrConnectionType* has the value ***erSwitch***.

Values: Decimal (0..15)
sameAsCa

Default: sameAsCa

### ATTRIBUTE AtmIf Vpt Vpd Tm Abr rateIncreaseFactor (rif)

Access: Read and write

Criticality: Component

Description: This attribute specifies the Rate Increase Factor (RIF) for this connection. The RIF value is computed by using the provisioned value of this attribute, n, as 2 to the inverse power n. For example, if the value of this attribute is 6, RIF is 2E-6 = 1/64.

RIF controls the amount by which the cell transmission rate may increase upon receipt of a backward Resource Management (RM) cell. For example, if a backward RM cell is received with the Congestion Indication (CI) and the No Increase (NI) fields both set to 0, the Allowed Cell Rate (ACR) value would be increased by the amount (RIF*ACR). The ACR is not allowed to exceed the Peak Cell Rate (PCR), in which case the ACR is set to PCR.

This attribute is ignored under all conditions where the operational attribute *abrConnectionType* has the value ***erSwitch***.

Values: Decimal (0..15)
sameAsCa

Default: sameAsCa

### ATTRIBUTE AtmIf Vpt Vpd Tm Abr maxCellPerRmCell (nrm)

Access: Read and write

Criticality: Component

Description: This attribute specifies the maximum number of cells an ABR source may transmit for each forward Resource Management (RM) cell. The count of the cells transmitted includes data cells, OAM cells, backward RM cells, and the forward RM cell.

A value of 2 is not recommended although it is permitted according to the ATM Forum standard. When this attribute is set to a value of 2, it is possible that only one forward and one backward RM cell are repeatedly transmitted, and all data traffic is queued up indefinitely.

This attribute is ignored under all conditions where the operational attribute *abrConnectionType* has the value ***erSwitch***.

Values: Decimal (2; 4; 8; 16; 32; 64; 128; 256)
sameAsCa

Units: cells

Default: sameAsCa

### ATTRIBUTE AtmIf Vpt Vpd Tm Abr maxTimeBetweenRmCells (trm)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the TRM parameter for this connection.<br><br>TRM provides an lower bound on the time interval between forward Resource Management (RM) cells for an ABR source. Since the last forward RM cell was sent, if at least TRM time has elapsed since and at least two other cells have been sent, then the next cell to be transmitted would be a forward RM cell.<br><br>This attribute is ignored under all conditions where the operational attribute *abrConnectionType* has the value ***erSwitch***.<br><br>The provisioned value of 781 is signaled as TRM = 0, in the ABR Additional Parameters Information Element.<br>1563 is signaled as TRM = 1.<br>3125 is signaled as TRM = 2.<br>6250 is signaled as TRM = 3.<br>12500 is signaled as TRM = 4<br>25000 is signaled as TRM = 5.<br>50000 is signaled as TRM = 6.<br>100000 is signaled as TRM = 7. |
| Values | Decimal (781; 1563; 3125; 6250; 12500; 25000; 50000; 100000)<br>sameAsCa |
| Units | microsec |
| Default | sameAsCa |

### ATTRIBUTE AtmIf Vpt Vpd Tm Abr cutoffDecreaseFactor (cdf)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the Cutoff Decrease Factor (CDF) parameter for this connection. When the value of this attribute is non-zero, CDF is computed as the inverse of the value. For example, if the value is 32, the value of CDF is 1/32. When the |

value of this attribute is 0, CDF is also zero.

CDF controls the decrease in the Allowed Cell Rate (ACR) associated with the CRM parameter, the limit of the number of forward Resource Management (RM) cells which may be sent in the absence of received backward RM cells. When this limit is crossed, the ACR value would be decreased by the amount (CDF*ACR). The ACR is not allowed to fall below the Minimum Cell Rate (MCR), in which case the ACR is set to MCR.

The value of CRM is indicated by the *forwardRmCellLimit* attribute.

This attribute is ignored under all conditions where the operational attribute *abrConnectionType* indicates ***erSwitch*** or ***efciSwitch***.

Values: Decimal (0; 1; 2; 4; 8; 16; 32; 64)
sameAsCa

Default: sameAsCa

## ATTRIBUTE AtmIf Vpt Vpd Tm Abr acrDecreaseTimeFactor (adtf)

Access: Read and write

Criticality: Component

Description: This attribute specifies the Allowed Cell Rate Decrease Time Factor (ADTF) parameter for this connection.

ADTF is the maximum time interval permitted between sending forward Resource Management (RM) cells before the Allowed Cell Rate (ACR) is decreased to *initialCellRate*. In other words, if the source does not transit a forward RM cell for the period specified by *adtf*, it reduces its ACR to the value of its *initialCellRate*.

This attribute is ignored under all conditions where the operational attribute *abrConnectionType* indicates ***erSwitch*** or ***efciSwitch***.

| | |
|---|---|
| Values | Decimal (0..1023)<br>sameAsCa |
| Units | centiseconds |
| Default | sameAsCa |

### ATTRIBUTE AtmIf Vpt Vpd Tm Abr dgcraMaximumDelay (dgcraMaxDelay)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies an upper bound on the delay after which the rate change induced by a backward Resource Management (RM) cell departing from this connection point (in the backward direction) is expected to be observed at this connection point (in the forward direction).<br><br>This upper bound may be approximated as the sum of the round trip fixed and propagation delays and the maximum queuing delays between the ABR source and this interface.<br><br>The value of this attribute is used in policing an ABR connection using the Dynamic General Cell Rate Algorithm (DGCRA). A larger value for this attribute implies a more lenient policer. When there is a reduction in the Allowed Cell Rate (ACR), the policer waits for a correspondingly longer period of time before it enforces at the new cell rate.<br><br>The value of this attribute must not be less than the *dgcraMinimumDelay* attribute. |
| Values | Decimal (1..16700000)<br>sameAsCa |
| Units | microsec |
| Default | sameAsCa |

### ATTRIBUTE AtmIf Vpt Vpd Tm Abr dgcraMinimumDelay (dgcraMinDelay)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |

| | |
|---|---|
| Description | This attribute specifies a lower bound on the delay after which the rate change induced by a backward Resource Management (RM) cell departing from this connection point (in the backward direction) is expected to be observed at this connection point (in the forward connection).<br><br>This lower bound may be approximated as the sum of the round trip fixed and propagation delays between the ABR source and this interface.<br><br>The value of this attribute is used in policing an ABR connection using the Dynamic General Cell Rate Algorithm (DGCRA). A smaller value for this attribute implies a more lenient policer. When there is a increase in the Allowed Cell Rate (ACR), the policer waits for a correspondingly shorter period of time before it enforces at the new cell rate. |
| Values | Decimal (1..16700000)<br>sameAsCa |
| Units | microsec |
| Default | sameAsCa |

### ATTRIBUTE AtmIf Vpt Vpd Tm Abr farEndAcrDecreaseTimeFactor (feAdtf)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the Allowed Cell Rate Decrease Time Factor (ADTF) of the far end ABR source. The value specified should be the same as the ADTF parameter at the far end of this ABR connection.<br><br>The value of this attribute is used in policing an ABR connection using the Dynamic Generic Cell Rate Algorithm (DGCRA). A larger value for this attribute implies a more lenient policer. When the delay between two consecutive forward Resource Management (RM) cells received at this interface corresponds to a value greater than the value of this attribute, the policer begins to limit enforce the incoming traffic at the initial cell rate (ICR) of the far end, as specified by the *farEndInitialCellRate* attribute. |

| | |
|---|---|
| Values | Decimal (0..1023) |
| Units | centiseconds |
| Default | 50 |

### ATTRIBUTE AtmIf Vpt Vpd Tm Abr farEndInitialCellRate (feIcr)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the Initial Cell Rate (ICR) of the far end ABR source. The value specified should be the same as the ICR parameter at the far end of this ABR connection.<br><br>The value of this attribute is used in policing an ABR connection using the Dynamic Generic Cell Rate Algorithm (DGCRA). A larger value for this attribute implies a more lenient policer. When the delay between two consecutive forward Resource Management (RM) cells received at this interface corresponds to a value greater than the *farEndAcrDecreaseTimeFactor* attribute, the policer begins to enforce the incoming traffic at the value of this attribute.<br><br>If this attribute is specified less than the MCR of the connection, then the MCR is used as the *feIcr*. If this attribute is more than the PCR of the connection, then PCR is used as the *feIcr*. |
| Values | Decimal (0..16777215) |
| Units | cell/s |
| Default | 0 |

### COMPONENT AtmIf Vpt ConnectionAdministrator (CA)

| | |
|---|---|
| Groups | "GROUP AtmIf Vpt CA Provisioned (Prov)"<br>"GROUP AtmIf Vpt CA Operational (Oper)" |
| Scope | Device |
| Description | *AtmIf/n Vpt/n ConnectionAdministrator*<br>This component controls connection admission and reports statistics about the ATM connections which have been admitted |

on this Virtual Path Terminator (VPT).

If the VPT does not have the optional *CA* component, all connections associated with the given *VPT* attempt their admission through the *AtmIf CA*.

The provisionable attributes of this *ConnectionAdministrator* override those of the *AtmIf CA*, for all connections associated with this *Vpt*. Any attributes of the *AtmIf CA* that cannot be overridden in the *Vpt CA* affect all connections, including *Vpt Vcc*s.

Subcomponents

"COMPONENT AtmIf Vpt CA ConstantBitRate (Cbr)"
"COMPONENT AtmIf Vpt CA RealTimeVariableBitRate (RtVbr)"
"COMPONENT AtmIf Vpt CA NonRealTimeVariableBitRate (NrtVbr)"
"COMPONENT AtmIf Vpt CA AvailableBitRate (Abr)"
"COMPONENT AtmIf Vpt CA UnspecifiedBitRate (Ubr)"

Common Verbs

Help
List
Display
Add
DELete

## GROUP AtmIf Vpt CA Provisioned (Prov)

Properties

Provisioned

Description

This group contains provisioned attributes which specify the behavior of Connection Admission Control (CAC) for the ATM connections associated with a Virtual Path Terminator. Note that the names of some of the attributes follow the conventions of UNI 4.0 for forward compatibility reasons. This does not imply conformance in general with the UNI 4.0 specification.

The provisioned attributes of this *ConnectionAdministrator* override those of the *AtmIf CA*, for all connections associated with this *Vpt*. Any attributes of the *AtmIf CA* that cannot be

overridden in the *Vpt CA* affect all connections, including *Vpt Vcc*s.

### ATTRIBUTE AtmIf Vpt CA maxVccs (vccs)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the maximum number of *Vcc*s that can be associated with this *Vpt*. The value must not exceed the *maxVccs* attribute of the *Atmif CA*.<br><br>A value of ***autoConfigure*** means an appropriate value is selected based on the card type. For ***2pSTM1eCh***, and MSA32 cards, the value is ***100***. For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, ***16pOC3SmIrAtm***, and ***16pOC3PosAtm*** cards, the value is ***127***. For all other cards, the value is ***255***. |
| Values | Decimal (0..16384)<br>autoConfigure |
| Default | autoConfigure |

### ATTRIBUTE AtmIf Vpt CA permittedAtmServiceCategories (permitAtm)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies which ATM service categories are permitted on this *Vpt* for SVCs. The value of this attribute does not affect control *Vccs*, such as signaling and ILMI channels. If the value is empty, no SVCs are permitted to use this *Vpt*. |
| Set of | unspecifiedBitRate (ubr)<br>constantBitRate (cbr)<br>rtVariableBitRate (rtVbr)<br>nrtVariableBitRate (nrtVbr) |
| Default | (unspecifiedBitRate, constantBitRate, rtVariableBitRate, nrtVariableBitRate) |

### ATTRIBUTE AtmIf Vpt CA bandwidthPool (bwPool)

| | |
|---|---|
| Access | Read and write |
| Description | Total *Vpt* bandwidth capacity is partitioned into five bandwidth pools. This attribute specifies the percentage of *Vpt* bandwidth that is allowed for each pool. The percentage for each pool ranges from 0% to 12,800%. This allows for both under and over subscription of the *Vpt* bandwidth. Under subscription occurs when the sum of the percentages assigned to the five pools is less than 100%. Over subscription occurs when the sum of the percentages for the five pools exceeds 100%. |
| Vector of | Decimal (0..12800) |
| Units | % |
| Index | Decimal (1..5) |
| Default | (100, 0, 0, 0, 0) |

### GROUP AtmIf Vpt CA Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational attributes giving statistics about the ATM connections associated with a Virtual Path Terminator (VPT). |

### ATTRIBUTE AtmIf Vpt CA actualMaxVccs (mVccs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the maximum number of *Vcc*s that can be supported on this *Vpt*. The value includes both provisioned and dynamic connections. This value is determined from the provisioned attribute *maxVccs*. |
| Values | Decimal (0..16384) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt CA permanentVccs (pVccs)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the number of permanent *Vccs* that are currently associated with this *Vpt*. |
| Values | Decimal (0..16384) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt CA switchedVccs (sVccs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of switched *Vccs* that are currently associated with this *Vpt*. |
| Values | Decimal (0..16384) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt CA troubledVccs (trVccs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of troubled *Vcc*s associated with this *Vpt*. A *Vcc* is “troubled” if its operational *troubled* attribute has the value ***yes***. |
| Values | Decimal (0..16384) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt CA connectionPoolUsage (connUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of allocated *Vcc*s associated with this *Vpt*.<br><br>Each of these *Vcc*s uses a single connection. Each *Vcc* reduces the number of connections indicated in the *Lp Eng Arc connectionPoolAvailable*, or *protectedConnectionPoolAvailable* attributes, and increases the number of connections indicated in *Arc connectionPoolUsage*, or *protectedConnectionPoolUsage* attributes. |
| Values | Decimal (0..10752) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE AtmIf Vpt CA poolAvailableBandwidth (poolAvailBw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total available bandwidth in the bandwidth pool. A positive value indicates that there is still bandwidth available in the pool which has not been allocated. A negative value indicates that some bandwidth-elastic provisioned connections are running in reduced mode, where their allocated bandwidth is below their originally allocated ECR. The negative amount is equal to the sum of the *bwReduction* attribute for all connections. |
| Vector of | Signed (0..2147483647) |
| Units | cell/s |
| Index | Decimal (1..5) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt CA poolProvisionedBandwidth (poolProvBw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total bandwidth from the bandwidth pool that is specified by provisioned connections. The value of this attribute is the sum of the equivalent cell rate (ECR) of the provisioned connections. |
| Vector of | Decimal (0..2147483647) |
| Units | cell/s |
| Index | Decimal (1..5) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt CA poolRequestedBandwidth (poolRequBw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total requested bandwidth from the bandwidth pool. This attribute includes the bandwidth for ATM |

| | |
|---|---|
| | networking signaling connections. The value of this attribute is the sum of the equivalent cell rate (ECR) for connections which are admitted, and for connections which are requesting admission, but have not yet been admitted. |
| Vector of | Decimal (0..2147483647) |
| Units | cell/s |
| Index | Decimal (1..5) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt CA poolAdmittedBandwidth (poolAdmitBw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total admitted bandwidth from the bandwidth pool. This attribute includes the bandwidth for ATM networking signaling connections. The value of this attribute is the sum of the equivalent cell rate (ECR) of the admitted connections. |
| Vector of | Decimal (0..2147483647) |
| Units | cell/s |
| Index | Decimal (1..5) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt CA poolAdmittedConnections (poolAdmConns)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of connections which are currently admitted in the bandwidth pool. This attribute includes ATM networking signaling connections. |
| Vector of | Decimal (0..16384) |
| Index | Decimal (1..5) |
| Default | No default |

## ATTRIBUTE AtmIf Vpt CA poolWaitAdmitConnections (poolWaitAdmConns)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of connections which have requested admission in the bandwidth pool but are not yet admitted. This attribute does not include ATM networking signaling connections. |
| Vector of | Decimal (0..16384) |
| Index | Decimal (1..5) |
| Default | No default |

## COMPONENT AtmIf Vpt CA ConstantBitRate (Cbr)

| | |
|---|---|
| Instance | Decimal (0) |
| Groups | "GROUP AtmIf Vpt CA Cbr Provisioned (Prov)" |
| Scope | Device |
| Description | *AtmIf/n Vpt/n CA ConstantBitRate/n*<br>This component controls default characteristics of the constant bit rate (CBR) service category, for *Vcc*s administered by this *CA*. Any attributes of the *AtmIf CA Cbr* that cannot be overridden in the *Vpt CA Cbr* affect all connections, including *Vpt Vcc*s. |
| Common Verbs | Help<br>List<br>Display<br>Add |

## GROUP AtmIf Vpt CA Cbr Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisioned attributes which control Connection Admission Control (CAC) and Usage Parameter Control (UPC) attributes for the CBR ATM connections managed by this *Vpt*. Any attributes of the *AtmIf CA Cbr* that cannot be overridden in the *Vpt CA Cbr* affect all connections, including *Vpt Vcc*s. |

## ATTRIBUTE AtmIf Vpt CA Cbr pool

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the bandwidth pool which is to be used to support the constant bit rate (CBR) service category. The percentage of *Vpt* bandwidth capacity reserved for the given bandwidth pool is the maximum bandwidth that can be allocated to CBR traffic. The percentage allocated to each bandwidth pool can be provisioned through the *bandwidthPool* attribute of the *Vpt CA* component. |
| Values | pool1<br>pool2<br>pool3<br>pool4<br>pool5 |
| Default | pool1 |

## ATTRIBUTE AtmIf Vpt CA Cbr cdvt

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the default cell delay variation tolerance (CDVT) for connections of the CBR service category. An override to this default may be specified for a provisioned connection under the *Vcd Tm* or *Vpd Tm* component.<br><br>This attribute is used by the Connection Admission Control (CAC) algorithm to compute the equivalent cell rate (ECR) required by a given CBR connection. The larger the value of CDVT, the larger is its ECR.<br><br>If Usage Parameter Control (UPC) is enabled for a connection, CDVT is used by the UPC function to decide whether a cell is conforming or non-conforming based on the connection's traffic descriptor type. The larger the CDVT value, the more tolerant is the UPC of bandwidth usage beyond the traffic contract. |

| | |
|---|---|
| Values | Decimal (1..10000) |
| Units | microsec |
| Default | 250 |

### ATTRIBUTE AtmIf Vpt CA Cbr cdv

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the peak-to-peak cell delay variation (CDV) which is contributed to all CBR connections associated with this *Vpt*.<br><br>The CDV is a measure of the delay jitter introduced mostly by traffic buffering and cell scheduling.<br><br>This attribute is used by PNNI in the Resource Availability Information Group (RAIG) topology updates and route selection. It is also used by CAC at connection set-up time to determine whether this *Vpt* can meet the CDV requirement for that connection. If so, the value of this attribute is added to the cumulative CDV field of the extended QoS information element. |
| Values | Decimal (0..16777215) |
| Units | microsec |
| Default | 250 |

### ATTRIBUTE AtmIf Vpt CA Cbr maxCtd

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum cell transfer delay (MaxCTD) which is applied to all CBR connections associated with this *Vpt*.<br><br>MaxCTD is the sum of the fixed delay and the CDV. The components of the fixed delay include propagation delay through the physical media, delays induced by the transmission system and fixed components of switch processing delay.<br><br>This attribute is used by PNNI in the Resource Availability Information Group (RAIG) topology updates and route selection. |

It is also used by CAC at connection set-up time to determine whether this *Vpt* can meet the ATM connection's MaxCTD requirement.

Values: Decimal (0..16777215)

Units: microsec

Default: 1000

## ATTRIBUTE AtmIf Vpt CA Cbr cellLossRatio (clr)

Access: Read and write

Criticality: Component

Description: This attribute specifies the tolerable cell loss ratio (CLR) for CBR traffic. The value specified is the negative base 10 logarithm of the CLR. For example, if the target CLR = 1E-10 then the value of the *cellLossRatio* attribute is ***10***. The value of this attribute must be the same as the value of the *RtVbr cellLossRatio* attribute since CBR and rt-VBR traffic have the same discard priority.

This attribute is used by the Connection Admission Control (CAC) algorithm to compute the equivalent cell rate (ECR) required for CBR connections.

There is a trade-off between the service category CLR and the achievable *Vpt* bandwidth utilization. To guarantee an excellent service category, the CLR should be as small as possible (for example, 1E-10). However, a smaller CLR results in a larger equivalent cell rate for a given connection and hence a lower *Vpt* bandwidth utilization.

A value of ***anyClrValue*** means that no bandwidth is reserved for CBR connections, and CAC is effectively turned off. All CBR connections are admitted.

Values: Decimal (1..15)
anyClrValue

Default: 10

## COMPONENT AtmIf Vpt CA RealTimeVariableBitRate (RtVbr)

| | |
|---|---|
| Instance | Decimal (0) |
| Groups | "GROUP AtmIf Vpt CA RtVbr Provisioned (Prov)" |
| Scope | Device |
| Description | *AtmIf/n Vpt/n CA RealTimeVariableBitRate/n*<br>This component controls default characteristics of the real-time variable bit rate (rt-VBR) service category, for *Vcc*s administered by this *CA*. Any attributes of the *AtmIf CA RtVbr* that cannot be overridden in the *Vpt CA RtVbr* affect all connections, including *Vpt Vcc*s. |
| Common Verbs | Help<br>List<br>Display<br>Add |

## GROUP AtmIf Vpt CA RtVbr Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisioned attributes which control Connection Admission Control (CAC) for the rt-VBR ATM connections associated with this *Vpt*. Any attributes of the *AtmIf CA RtVbr* that cannot be overridden in the *Vpt CA RtVbr* affect all connections, including *Vpt Vcc*s. |

## ATTRIBUTE AtmIf Vpt CA RtVbr pool

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the bandwidth pool which is to be used to support the real-time variable bit rate (rt-VBR) service category. The percentage of *Vpt* bandwidth capacity reserved for the given bandwidth pool is the maximum bandwidth that can be allocated to rt-VBR traffic. The percentage allocated to each bandwidth pool can be provisioned through the *bandwidthPool* attribute of the *Vpt CA* component. |

| | |
|---|---|
| Values | pool1<br>pool2<br>pool3<br>pool4<br>pool5 |
| Default | pool1 |

### ATTRIBUTE AtmIf Vpt CA RtVbr cdv

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the peak-to-peak cell delay variation (CDV) which is contributed to all rt-VBR connections associated with this *Vpt*.<br><br>The CDV is a measure of the delay jitter introduced mostly by traffic buffering and cell scheduling.<br><br>This attribute is used by PNNI in the Resource Availability Information Group (RAIG) topology updates and route selection. It is also used by CAC at connection set-up time to determine whether this *Vpt* can meet the CDV requirement for that connection. If so, the value of this attribute is added to the cumulative CDV field of the extended QoS information element. |
| Values | Decimal (0..16777215) |
| Units | microsec |
| Default | 1268 |

### ATTRIBUTE AtmIf Vpt CA RtVbr maxCtd

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum cell transfer delay (MaxCTD) which is applied to all rt-VBR connections associated with this *Vpt*.<br><br>MaxCTD is the sum of the fixed delay and the CDV. The components of the fixed delay include propagation delay through the physical media, delays induced by the transmission system and fixed components of switch processing delay. |

This attribute is used by PNNI in the Resource Availability Information Group (RAIG) topology updates and route selection. It is also used by CAC at connection set-up time to determine whether this *Vpt* can meet the ATM connection's MaxCTD requirement.

Values: Decimal (0..16777215)

Units: microsec

Default: 2000

### ATTRIBUTE AtmIf Vpt CA RtVbr cellLossRatio (clr)

Access: Read and write

Criticality: Component

Description: This attribute specifies the tolerable cell loss ratio (CLR) for rt-VBR traffic. The value specified is the negative base 10 logarithm of the CLR. For example, if the target CLR = 1E-10 then the value of the *cellLossRatio* attribute is ***10***. The value of this attribute must be the same as the value of the *Cbr cellLossRatio* attribute since CBR and rt-VBR traffic have the same discard priority. The value of this attribute must also be greater than or equal to the value of the *NrtVbr cellLossRatio* attribute since rt-VBR traffic has a higher discard priority.

This attribute is used by the Connection Admission Control (CAC) algorithm to compute the equivalent cell rate (ECR) required for rt-VBR connections.

There is a trade-off between the service category CLR and the achievable *Vpt* bandwidth utilization. To guarantee an excellent service category, the CLR should be as small as possible (for example, 1E-10). However, a smaller CLR results in a larger equivalent cell rate for a given connection and hence a lower *Vpt* bandwidth utilization.

A value of ***anyClrValue*** means that no bandwidth is reserved for rt-VBR connections and CAC is effectively turned off. All rt-VBR connections are admitted.

| | |
|---|---|
| Values | Decimal (1..15)<br>anyClrValue |
| Default | 10 |

## COMPONENT AtmIf Vpt CA NonRealTimeVariableBitRate (NrtVbr)

| | |
|---|---|
| Instance | Decimal (0) |
| Groups | "GROUP AtmIf Vpt CA NrtVbr Provisioned (Prov)" |
| Scope | Device |
| Description | *AtmIf/n Vpt/n CA NonRealTimeVariableBitRate/n*<br>This component controls default characteristics of the non-real-time variable bit rate (nrt-VBR) service category, for *Vcc*s administered by this *CA*. Any attributes of the *AtmIf CA NrtVbr* that cannot be overridden in the *Vpt CA NrtVbr* affect all connections, including *Vpt Vcc*s. |
| Common Verbs | Help<br>List<br>Display<br>Add |

## GROUP AtmIf Vpt CA NrtVbr Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisioned attributes which control Connection Admission Control (CAC) for the nrt-VBR ATM connections associated with this *Vpt*. Any attributes of the *AtmIf CA NrtVbr* that cannot be overridden in the *Vpt CA NrtVbr* affect all connections, including *Vpt Vcc*s. |

## ATTRIBUTE AtmIf Vpt CA NrtVbr pool

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the bandwidth pool which is to be used to support the non-real time variable bit rate (nrt-VBR) service category. The percentage of *Vpt* bandwidth capacity reserved for the given bandwidth pool is the maximum bandwidth that can be |

allocated to nrt-VBR traffic. The percentage allocated to each bandwidth pool can be provisioned through the *bandwidthPool* attribute of the *Vpt CA* component.

Values
pool1
pool2
pool3
pool4
pool5

Default
pool1

## ATTRIBUTE AtmIf Vpt CA NrtVbr cellLossRatio (clr)

Access
Read and write

Criticality
Component

Description
This attribute specifies the tolerable cell loss ratio (CLR) for nrt-VBR traffic. The value specified is the negative base 10 logarithm of the CLR. For example, if the target CLR = 1E-10 then the value of the *cellLossRatio* attribute is ***10***. The value of this attribute must be less than or equal to the value of the *RtVbr cellLossRatio* attribute since rt-VBR traffic has a higher discard priority.

This attribute is used by the Connection Admission Control (CAC) algorithm to compute the equivalent cell rate (ECR) required for nrt-VBR connections.

There is a trade-off between the service category CLR and the achievable *Vpt* bandwidth utilization. To guarantee an excellent service category, the CLR should be as small as possible (for example, 1E-10). However, a smaller CLR results in a larger equivalent cell rate for a given connection and hence a lower *Vpt* bandwidth utilization.

A value of ***anyClrValue*** means that no bandwidth is reserved for nrt-VBR connections and CAC is effectively turned off. All nrt-VBR connections are admitted.

Values
Decimal (1..15)
anyClrValue

| | |
|---|---|
| Default | 7 |

## COMPONENT AtmIf Vpt CA AvailableBitRate (Abr)

| | |
|---|---|
| Instance | Decimal (0) |
| Groups | "GROUP AtmIf Vpt CA Abr Provisioned (Prov)" |
| Scope | Device |
| Description | *AtmIf/n Vpt/n CA AvailableBitRate/n*<br>This component controls default characteristics of the available bit rate (ABR) service category, for *Vcc*s administered by this *CA*. Any attributes of the *AtmIf CA Abr* that cannot be overridden in the *Vpt CA Abr* affect all connections, including *Vpt Vcc*s. |
| Common Verbs | Help<br>List<br>Display<br>Add |

## GROUP AtmIf Vpt CA Abr Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisioned attributes which control Connection Admission Control (CAC) for ABR connections associated with this *Vpt*. Any attributes of the *AtmIf CA Abr* that cannot be overridden in the *Vpt CA Abr* affect all connections, including *Vpt Vcc*s. |

## ATTRIBUTE AtmIf Vpt CA Abr pool

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the bandwidth pool which is to be used to support the available bit rate (ABR) service category. The percentage of *Vpt* bandwidth capacity reserved for the given bandwidth pool is the maximum bandwidth that can be allocated to ABR traffic. The percentage allocated to each bandwidth pool can be provisioned through the *bandwidthPool* attribute of the *Vpt CA* component. |

| | |
|---|---|
| Values | pool1<br>pool2<br>pool3<br>pool4<br>pool5 |
| Default | pool1 |

## COMPONENT AtmIf Vpt CA UnspecifiedBitRate (Ubr)

| | |
|---|---|
| Instance | Decimal (0) |
| Groups | "GROUP AtmIf Vpt CA Ubr Provisioned (Prov)"<br>"GROUP AtmIf Vpt CA Ubr Operational (Oper)" |
| Scope | Device |
| Description | *AtmIf/n Vpt/n CA UnspecifiedBitRate/n*<br>This component controls default characteristics of the unspecified bit rate (UBR) service category, for *Vcc*s administered by this *CA*. Any attributes of the *AtmIf CA Ubr* that cannot be overridden in the *Vpt CA Ubr* affect all connections, including *Vpt Vcc*s. |
| Common Verbs | Help<br>List<br>Display<br>Add |

## GROUP AtmIf Vpt CA Ubr Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisioned attributes which control Connection Admission Control (CAC) attributes for UBR connections associated with this *Vpt*. Any attributes of the *AtmIf CA Ubr* that cannot be overridden in the *Vpt CA Ubr* affect all connections, including *Vpt Vcc*s. |

## ATTRIBUTE AtmIf Vpt CA Ubr maxVccs (vccs)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum number of UBR *Vcc*s that can be associated with this *Vpt*. The value of this attribute must |

not exceed the *maxVccs* attribute of the parent *Vpt CA* component.

A value of ***sameAsCa*** means the maximum number of UBR *Vccs* is defined by the *maxVccs* attribute of the *Vpt CA*.

Changes to this attribute are not critical to the *Vpt*, and do not affect existing *Vcc*s. If the value is changed to a number smaller than the current number of active UBR VCCs, no new UBR VCCs are admitted until the number of active UBR VCCs drops below the value of this attribute. The current number of active UBR VCCs is indicated by the *vccUsage* operational attribute of the *Vpt CA Ubr* component.

Values: Decimal (0..16384)
sameAsCa

Default: sameAsCa

## ATTRIBUTE AtmIf Vpt CA Ubr pool

Access: Read and write

Criticality: Component

Description: This attribute specifies the bandwidth pool which is to be used to support the unspecified bit rate (UBR) service category. The percentage of *Vpt* bandwidth capacity reserved for the given bandwidth pool is the maximum bandwidth that can be allocated to UBR traffic. The percentage allocated to each bandwidth pool can be provisioned through the *bandwidthPool* attribute of the *Vpt CA* component.

Values:
pool1
pool2
pool3
pool4
pool5

Default: pool1

## ATTRIBUTE AtmIf Vpt CA Ubr minimumCellRate (mcr)

Access: Read and write

| | |
|---|---|
| Description | This attribute specifies the default minimum cell rate (MCR) which is allocated from the UBR bandwidth pool for each UBR connection which is admitted using Connection Admission Control (CAC). UBR connections normally are serviced on a best effort basis, but this attribute allows allocation of a default minimum bandwidth for each connection. |
| Values | Decimal (0..2147483647) |
| Default | 0 |

### GROUP AtmIf Vpt CA Ubr Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational attributes for UBR connections associated with this *Vpt*. |

### ATTRIBUTE AtmIf Vpt CA Ubr vccUsage

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of active UBR *Vccs* associated with this *Vpt*. It includes switched and permanent connections. |
| Values | Decimal (0..16384) |
| Default | No default |

### COMPONENT AtmIf Vpt Iisp

| | |
|---|---|
| Groups | "GROUP AtmIf Vpt Iisp Provisioned (Prov)"<br>"GROUP AtmIf Vpt Iisp AccountingOptions (AcctOpt)"<br>"GROUP AtmIf Vpt Iisp VIispProvisioned (VProv)" |
| Scope | Device |
| Description | *AtmIf/n VirtualPathTerminator/m Iisp*<br>This component represents a virtual ATM Interim Inter-switch Signaling Protocol (IISP) interface. If this component is provisioned, neither a *Uni*, an *Aini*, nor a *Pnni* component can be provisioned under the same *Vpt* component. If this component is deleted, then all associated *Vcc* components are deleted. |

| | |
|---|---|
| Subcomponents | "COMPONENT AtmIf Vpt Iisp Signalling (Sig)" |
| Opt. Subcomp. | "COMPONENT AtmIf Vpt Iisp CallingAddressScreening (CallingAScr)"<br>"COMPONENT AtmIf Vpt Iisp CalledAddressScreening (CalledAScr)"<br>"COMPONENT AtmIf Vpt Iisp PathTraceFilter (Ptf)"<br>"COMPONENT AtmIf Vpt Iisp ServiceTrace (SrvTrace)"<br>"COMPONENT AtmIf Vpt Iisp Reroute" |
| Dyn. Subcomp. | "COMPONENT AtmIf Vpt Iisp PathTraceTestConnection (Ptt)" |
| Dyn. Subcomp. | "COMPONENT AtmIf Vpt Iisp Address (Addr)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP AtmIf Vpt Iisp Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the *Iisp* component. |

## ATTRIBUTE AtmIf Vpt Iisp version

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute indicates which specification the IISP interface complies with. The options are ***iisp10Sig30*** which refers to IISP version 1.0 with 3.0 signaling and ***iisp10Sig31*** which refers to IISP version 1.0 with 3.1 signaling. If this attribute is changed, all switched *Vcc* components in this interface are cleared due to the fact that the two versions are incompatible. |

| | |
|---|---|
| Values | iisp10Sig30<br>iisp10Sig31 |
| Default | iisp10Sig31 |

### ATTRIBUTE AtmIf Vpt Iisp side

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute indicates which side the interface is, user or network. |
| Values | networkSide<br>userSide |
| Default | networkSide |

### ATTRIBUTE AtmIf Vpt Iisp softPvpAndPvcRetryPeriod (sRetryPeriod)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the time to wait between soft PVP or soft PVC call setup retries. The resolution is to the nearest 10 seconds. |
| Values | Decimal (20..999999) |
| Units | seconds |
| Default | 60 |

### ATTRIBUTE AtmIf Vpt Iisp softPvpAndPvcHoldOffTime (sHoldOffTime)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies how long to hold off retries following the release of a connection. Due to the way group timers are implemented, it can take from 100% to 150% of the provisioned timer to trigger the desired action. Since SPVC retries are paced, in cases where there are many connections, the entire process can take more than 150% of the provisioned timer value. |

| | |
|---|---|
| Values | Decimal (0; 50..20000) |
| Units | msec |
| Default | 0 |

### ATTRIBUTE AtmIf Vpt Iisp interDomainCrankback

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies whether the ATM Routing System inserts a Crankback information element (IE) when hop-by-hop routing crankback fails in a neighboring domain and this node is the DTL terminating node of the call.<br><br>By default, the ATM Routing System, when behaving as a DTL terminating node of a call, only inserts a Crankback IE if the routing system fails to find a static routing port that matches the called address. If this attribute is set to enabled, then a Crankback IE is also inserted when hop-by-hop crankback fails.<br><br>This attribute may be provisioned on IISP links that connect two PNNI domains.<br><br>Note that the cause codes that trigger the insertion of the Crankback IE are the same as those that apply to PNNI crankback normally. Not all of these cause codes apply to hop-by-hop routing. The insertion of a Crankback IE can cause extra call setup attempts in certain configurations such as PNNI domains interconnected by IISP links. |
| Values | disabled<br>enabled |
| Default | disabled |

### GROUP AtmIf Vpt Iisp AccountingOptions (AcctOpt)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for accounting. |

## ATTRIBUTE AtmIf Vpt lisp accountCollection (aco)

Access
Read: All
Write: All

Description
This attribute is used to turn accounting on or off for SVC and SPVC connections. It also specifies the reason(s) for which accounting data is collected: ***billing***, ***test***, ***study***, ***audit***, or ***force***.

If the set of reasons is not empty then accounting records will be generated by this interface in the following situations:
- on a TODA changeover if TODA is enabled;
- every 12 hours (per connection) if TODA is disabled;
- on every call clear (a call record with final cell counts).

If none of the reasons is present, then accounting will be suppressed.

The reason for collection is recorded in the accounting record, in the attribute *callingCollectReason* or *calledCollectReason* as appropriate.

Set of
bill
test
study
audit
force

Default
No default

## ATTRIBUTE AtmIf Vpt lisp accountConnectionType (act)

Access
Read: All
Write: All

Description
This attribute specifies whether accounting records generated by this interface should be marked as originating, terminating or intermediate. This attribute, in combination with the direction of the call, determines the value of attribute *connPointType* of the accounting record and may be used by downstream accounting processes to correlate the records.

If the value is ***origTerm*** then records generated for incoming

calls will be marked as ***originating*** and records generated for outgoing calls will be marked as ***terminating***.

If the value is ***intermediate*** then records generated for all calls will be marked as ***intermediate***.

Values: origTerm
intermediate

Default: intermediate

### ATTRIBUTE AtmIf Vpt lisp accountClass (acl)

Access: Read: All
Write: All

Description: This attribute specifies the accounting class associated with the interface. Its meaning is determined by the network operator.

Its value is simply recorded in the accounting records generated by this interface, in the attribute *callingServiceType* or *calledServiceType* as appropriate.

Values: Decimal (0..255)

Default: 0

### ATTRIBUTE AtmIf Vpt lisp serviceExchange (sre)

Access: Read: All
Write: All

Description: This attribute specifies the data service exchange associated with this interface. Its meaning is determined by the network operator.

Its value is simply recorded in the accounting records generated by this interface, in the attribute *callingDse* or *calledDse* as appropriate.

Values: Decimal (0..255)

Default: 0

## GROUP AtmIf Vpt Iisp VIispProvisioned (VProv)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the *Iisp* component which are specific to virtual IISP interfaces. |

## ATTRIBUTE AtmIf Vpt Iisp vpci

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the Virtual Path Connection Identifier (VPCI) to be used between this signaling entity and its peer. The VPCI of the peer virtual IISP must have the same value for switched connections to be set up across the interface. |
| Values | Decimal (0..255) |
| Default | 0 |

## COMPONENT AtmIf Vpt Iisp Signalling (Sig)

| | |
|---|---|
| Groups | "GROUP AtmIf Vpt Iisp Sig Provisioned (Prov)"<br>"GROUP AtmIf Vpt Iisp Sig OsiState (State)"<br>"GROUP AtmIf Vpt Iisp Sig Operational (Oper)"<br>"GROUP AtmIf Vpt Iisp Sig Statistics (Stats)" |
| Scope | Device |
| Description | *AtmIf/n Aini Signalling*<br>*AtmIf/n Iisp Signalling*<br>*AtmIf/n Uni Signalling*<br>*AtmIf/n Pnni Signalling*<br>*AtmIf/n Vpt/m Aini Signalling*<br>*AtmIf/n Vpt/m Iisp Signalling*<br>*AtmIf/n Vpt/m Uni Signalling*<br>*AtmIf/n Vpt/m Pnni Signalling* |

This component represents the signaling entities for the interface.

Opt. Subcomp. "COMPONENT AtmIf Vpt Iisp Sig VirtualChannelDescriptor (Vcd)"

Common Verbs
Help
List
Display

## GROUP AtmIf Vpt Iisp Sig Provisioned (Prov)

Properties Provisioned

Description This attribute group contains the provisionable attributes for the *Signalling* component.

## ATTRIBUTE AtmIf Vpt Iisp Sig vci

Access Read: All
Write: All

Criticality Component

Description This attribute specifies the signaling channel number.

Values Decimal (0..65535)

Default 5

## ATTRIBUTE AtmIf Vpt Iisp Sig addressConversion

Access Read: All
Write: All

Description This attribute specifies the address conversion on the outgoing signaling PDUs. The options are ***none***, ***nativeE164***, or ***nsap***. The ***none*** option is the default and if this option is chosen then nothing is done to the address information element (IE) in the outgoing signaling message. If ***nativeE164*** option is chosen, then only NSAP encapsulated E.164 addresses with zeros in the ESI are converted to native E.164 format in the outgoing signaling message. If the NSAP address is not encapsulated E.164 or the ESI field is not zeros and the ***nativeE164*** option is chosen, then the call is cleared. If the ***nsap*** option is chosen, then native E.164

addresses are converted to NSAP E.164 with zeros in the ESI field; otherwise the address is in NSAP format and is not changed.

Values
none
nativeE164
nsap

Default
none

### ATTRIBUTE AtmIf Vpt Iisp Sig operatingMode

Access
Read: All
Write: All

Description
This attribute specifies the operating mode of the signaling channel ***provisionedOnly*** indicates that only SPVCs and SPVPs are supported on the interface and SVCs are not supported. This value is permitted only on UNI interfaces.
***normal*** indicates that SVCs, SPVCs, and SPVPs are supported on the interface.

Values
normal
provisionedOnly

Default
normal

### GROUP AtmIf Vpt Iisp Sig OsiState (State)

Properties
Operational

Description
This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE AtmIf Vpt Iisp Sig adminState (osiAdmin)

Access
Read only

Description
This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE AtmIf Vpt lisp Sig operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE AtmIf Vpt lisp Sig usageState (osiUsage)

Access
Read only

| | |
|---|---|
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP AtmIf Vpt Iisp Sig Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute contains the operational attributes for the AtmSignalling component. |

### ATTRIBUTE AtmIf Vpt Iisp Sig lastTxCauseCode

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the cause code in the last transmitted signaling message that contains the CAUSE information element. The cause code is used to describe the reason for generating certain signaling messages. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Iisp Sig lastTxDiagCode

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute contains the diagnostic code in the last transmitted signaling message. The diagnostic code is contained in the |

| | |
|---|---|
| | CAUSE information element and identifies an information element type or timer type. The diagnostic code is present only if a procedural error is detected by the signaling protocol. A diagnostic code is always accompanied by the cause code. If there is no failure, this attribute is set to 0. |
| Values | Hex (H.0..H.ff) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt lisp Sig lastRxCauseCode

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute contains the cause code in the last received signaling message that contains the CAUSE information element. The cause code is used to describe the reason for generating certain signaling messages. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt lisp Sig lastRxDiagCode

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute contains the diagnostic code in the last received signaling message. The diagnostic code is contained in the CAUSE information element and identifies an information element type or timer type. The diagnostic code is present only if a procedural error is detected by the signaling protocol. A diagnostic code is always accompanied by the cause code. If there is no failure, this attribute is set to 0. |
| Values | Hex (H.0..H.ff) |
| Default | No default |

### GROUP AtmIf Vpt lisp Sig Statistics (Stats)

| | |
|---|---|
| Properties | Operational |

| | |
|---|---|
| Description | This attribute group contains the statistics associated with the AtmSignalling component. |

### ATTRIBUTE AtmIf Vpt Iisp Sig peakConnections

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the high water mark of active point-to-point connections. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Iisp Sig successfulConnections

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of switched point-to-point connections that were successfully established. The counter wraps to 0 when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Iisp Sig failedConnections

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of unsuccessful attempts to establish switched point-to-point connections. The counter wraps to 0 when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Iisp Sig txPdus

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the number of transmitted signaling PDUs.The counter wraps to 0 when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt lisp Sig rxPdus

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of received signaling PDUs.The counter wraps to 0 when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt lisp Sig currentPmpConnections

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of currently active point-to-multipoint connections. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt lisp Sig peakPmpConnections

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the high water mark of active point-to-multipoint connections. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt lisp Sig successfulPmpConnections

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the total number of switched point-to-multipoint connections that were successfully established. The counter wraps to 0 when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Iisp Sig failedPmpConnections

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of unsuccessful attempts to establish switched point-to-multipoint connections. The counter wraps to 0 when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Iisp Sig currentConnections

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the total number of currently active point-to-<br>point connections. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT AtmIf Vpt Iisp Sig VirtualChannelDescriptor (Vcd)

| | |
|---|---|
| Groups | "GROUP AtmIf Vpt Iisp Sig Vcd Provisioned (Prov)" |
| Scope | Device |
| Description | *AtmIf/n Uni Sig VirtualChannelDescriptor*<br>*AtmIf/n Uni Ilmi VirtualChannelDescriptor*<br>*AtmIf/n Aini Sig VirtualChannelDescriptor*<br>*AtmIf/n Iisp Sig VirtualChannelDescriptor*<br>*AtmIf/n Pnni Sig VirtualChannelDescriptor* |

*AtmIf/n Pnni Rcc VirtualChannelDescriptor*
*AtmIf/n Vpt/m Uni Sig VirtualChannelDescriptor*
*AtmIf/n Vpt/m Aini Sig VirtualChannelDescriptor*
*AtmIf/n Vpt/m Iisp Sig VirtualChannelDescriptor*
*AtmIf/n Vpt/m Pnni Sig VirtualChannelDescriptor*
*AtmIf/n Vpt/m Pnni Rcc VirtualChannelDescriptor*

This component contains the provisionable traffic parameters for a control channel (Sig, *Ilmi* or *Rcc* component).

Common Verbs

Help
List
Display
Add
DELete

## GROUP AtmIf Vpt Iisp Sig Vcd Provisioned (Prov)

Properties: Provisioned

Description: This group contains the provisionable traffic attributes for a control channel.

## ATTRIBUTE AtmIf Vpt Iisp Sig Vcd trafficDescType (tdt)

Access: Read: All
Write: All

Criticality: Component

Description: This attribute specifies the type of traffic management which is applied to both the transmit and receive direction of this connection as defined in the ATM Forum. The *trafficDescType* determines the number and meaning of the parameters in the *trafficDescParm* attribute.

Values:
3
6
7
8

Default: 6

## ATTRIBUTE AtmIf Vpt Iisp Sig Vcd atmServiceCategory (service)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the ATM service category for both directions of the connection.<br><br>The ***constantBitRate*** service category is intended for real time applications, that is those requiring tightly constrained delay and delay variation, as would be appropriate for voice and video applications. The consistent availability of a fixed quantity of bandwidth is considered appropriate for CBR service. Cells which are delayed beyond the value specified by CellTransfer Delay are assumed to be of significantly reduce value to the application.<br><br>The ***rtVariableBitRate*** service category is intended for real time applications, that is those requiring tightly constrained delay and delay variation, as would be appropriate for voice and video applications. Sources are expected to transmit at a rate which varies with time. Equivalently, the source can be described as “bursty”. Cells which are delayed beyond the value specified by CTD are assumed to be of significantly reduced value to the application. Real time VBR service may support statistical multiplexing of real time sources.<br><br>The ***nrtVariableBitRate*** service category is intended for non-real time applications which have bursty traffic characteristics and which can be characterized in terms of a PCR, SCR, and MBS. For those cells which are transferred within the traffic contract, the application expects a low cell loss ratio. For all connections, it expects a bound on the mean cell transfer delay. Non-real time VBR service may support statistical multiplexing of connections.<br><br>The ***unspecifiedBitRate*** service is intended for non-real time applications; that is, those not requiring tightly constrained delay and delay variation. UBR sources are expected to be bursty. UBR service supports a high degree of statistical multiplexing among sources. UBR service does not specify traffic related service |

guarantees. No numerical commitments are made with respect to the cell loss ratio experienced by a UBR connection, or as to the cell transfer delay experienced by cells on the connection.

Values
unspecifiedBitRate (ubr)
constantBitRate (cbr)
rtVariableBitRate (rtvbr)
nrtVariableBitRate (nrtvbr)

Default
rtVariableBitRate

## ATTRIBUTE AtmIf Vpt Iisp Sig Vcd weight

Access
Read and write

Criticality
Component

Description
This VCD component has an attribute that is called atmServiceCategory. This attribute specifies the service category that is used by the sig, rcc or ilmi channel. The *weight* attribute is related to two other attributes which are *weightPolicy* and *txQueueLimit*, as mentioned in the following description. These attributes can be found under the atmif/n ca <atmServiceCategory>/ m.

This attribute specifies an override for the *weight* of this unshaped connection. This attribute is ignored for shaped connections, for ABR connections, for connections on a CQC-based ATM FPs and basic VPTs.

When the value is set to ***sameAsCa***, the *weight* is determined by the *weightPolicy* attribute under the CA service category component for all but standard VPT VCCs. For standard VPT VCCs, the *weight* is determined by the VCC's service category, when the value is set to ***sameAsCa***.

When this attribute is set to a value from ***1*** to ***4095***, that value is used for the *weightPolicy* of this connection relative to other connections. For all but standard VPT VCCs, *weightPolicy* determines the proportion of transit cell opportunities which are allocated to this connection, compared to other connections in the same service category. For standard VPT VCCs, *weightPolicy* determines the proportion of transmit cell opportunities which are

allocated to this connection, compared to other connections associated with the VPT.

When the value is set to ***upToQueueLimit***, the *weightPolicy* is limited only by the *txQueueLimit*.

Values
Decimal (1..4095)
sameAsCa
upToQueueLimit

Default
sameAsCa

## ATTRIBUTE AtmIf Vpt Iisp Sig Vcd qosClass (qos)

Access
Read and write

Criticality
Component

Description
This attribute specifies the quality of service for both the forward and backward direction for this connection.

Class ***1*** supports a QOS that meets Service Class A performance requirements (Circuit emulation, constant bit rate video).

Class ***2*** supports a QOS that meets Service Class B performance requirements (Variable bit rate audio and video).

Class ***3*** supports a QOS that meets Service Class C performance requirements (Connection-Oriented Data Transfer).

Class ***4*** supports a QOS that meets Service Class D performance requirements (Connectionless Data Transfer).

Class ***0*** is the unspecified bit rate QOS class; no objective is specified for the performance parameters.

Values
0
1
2
3
4

Default
2

### ATTRIBUTE AtmIf Vpt Iisp Sig Vcd trafficShaping (trShaping)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies whether this connection uses traffic shaping when transmitting traffic to the ATM interface.<br><br>When ***sameAsCa*** is selected, traffic shaping for this connection is based on the *trafficShaping* attribute of the connection's service category component under the *AtmIf CA*. If the service category has traffic shaping enabled, then traffic shaping is enabled for the connection. Note that enabling traffic shaping may have no effect under certain cases. These cases are listed in the description of the *trafficShaping* operational attribute, which is under the *Vcc Tm* and *Vpc Tm* components.<br><br>When ***disabled*** is selected, traffic shaping for this connection is disabled. |
| Values | disabled<br>sameAsCa |
| Default | disabled |

### ATTRIBUTE AtmIf Vpt Iisp Sig Vcd unshapedTransmitQueueing (unshap)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute only applies when this connection is unshaped. This attribute specifies the transmit queuing method for this connection if it is unshaped. Refer to the *unshapedTransmitQueueing* attribute under the *AtmIf CA* service category subcomponent for more details on the meaning of this attribute.<br><br>When this attribute is set to ***sameAsCa***, the transmit queuing method for the connection is based on the *unshapedTransmitQueueing* attribute of the connection's service category component under the *ConnectionAdministrator.* |

When this attribute is set to ***common***, transmit traffic on this unshaped connection is destined for the common queue.

The value ***sameAsInterface*** is for migration from previous software releases, but should no longer be used

Values
common
sameAsCa

Default
sameAsCa

## ATTRIBUTE AtmIf Vpt lisp Sig Vcd usageParameterControl (upc)

Access
Read and write

Criticality
Component

Description
This attribute specifies whether this connection enforces usage parameter control when receiving traffic from the ATM interface.

When ***sameAsCa*** is selected, UPC for the connection is based on the *usageParameterControl* attribute of the connection's service category component under the *ConnectionAdministrator*. If the service category has UPC enabled, then UPC is enabled for the connection. Note that enabling UPC may have no effect under certain cases. These cases are listed in the description of the *usageParameterControl* operational attribute, which is under the *Vcc Tm* or *Vpc Tm* component.

When ***disabled*** is selected, UPC for this connection is disabled.

The value ***sameAsInterface*** is for migration from previous software releases, but should no longer be used

Values
disabled
sameAsCa

Default
disabled

## ATTRIBUTE AtmIf Vpt lisp Sig Vcd trafficDescParm (tdp)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute is a vector of five traffic parameters whose meanings are defined by the *trafficDescType* attribute. The values of peak cell rate (PCR), sustained cell rate (SCR) and requested shaping rate are expressed in cell/s. Maximum burst size (MBS) is expressed in cells. CDVT is expressed in microseconds. The values of PCR, SCR, MBS and CDVT are used for connection admission control (CAC). The value of CDVT is only used for connections where the *atmServiceCategory* is ***constantBitRate***. For all other values of *atmServiceCategory,* CDVT is ignored. The values of PCR, SCR and requested shaping rate are used to determine the actual shaping rate where traffic shaping is enabled.<br><br>When *trafficDescType* is ***3***, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameter 1 must be non-zero. Parameters 2 and 3 must be zero.<br><br>When *trafficDescType* is ***6***, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 and 1 traffic; parameter 3 represents the MBS for CLP equal to 0 and 1 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameters 1, 2, and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2. Parameter 5 must either be zero (unused) or greater than or equal to parameter 2.<br><br>When *trafficDescType* is ***7***, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 with cell discard; parameter 3 represents the MBS for CLP equal to 0 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero |

value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameters 1, 2, and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2. Parameter 5 must either be zero (unused) or greater than or equal to parameter 2.

When *trafficDescType* is ***8***, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 traffic with cell tagging; parameter 3 represents the MBS for CLP equal to 0 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameters 1, 2, and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2. Parameter 5 must either be zero (unused) or greater than or equal to parameter 2.

Whenever it is valid for PCR to be specified, parameter 5 may also be used to specify a requested shaping rate. A non-zero value in parameter 5 overrides the value in parameter 1 and is used as the peak cell rate in calculations of CAC and shaping rate.

For *trafficDescType* ***3*** the traffic is shaped at the next rate less than the PCR.

For *trafficDescType* ***6***, ***7***, and ***8***, the traffic is shaped at the highest available rate which is between PCR and SCR. However, if there is no available shaping rate between PCR and SCR, traffic is shaped at the next rate above the PCR.

| | |
|---|---|
| Vector of | Decimal (0..2147483647) |
| Index | Decimal (1..5) |
| Default | (250, 160, 5, 0, 0) |

## COMPONENT Atmlf Vpt lisp Address (Addr)

| | |
|---|---|
| Instance | address [String (1..40, ASCII)]<br>addressType [primary<br>alternate<br>default] |

| | |
|---|---|
| Groups | "GROUP AtmIf Vpt Iisp Addr Operational (Oper)" |
| Scope | Device |
| Description | *AtmIf/n Aini Address/address,type*<br>*AtmIf/n Iisp Address/address,type*<br>*AtmIf/n Uni Address/address,type*<br>*AtmIf/n Pnni Address/address,type*<br>*AtmIf/n Vpt/m Aini Address/address,type*<br>*AtmIf/n Vpt/m Iisp Address/address,type*<br>*AtmIf/n Vpt/m Uni Address/address,type*<br>*AtmIf/n Vpt/m Pnni Address/address,type*<br><br>This component represents an address (dynamic or static) associated with the interface. The index is a string of 1 to 40 hex digits or a single wildcard (‘?’), and a type. The type identifies whether the *Address* component is for a ***primary***, ***alternate, registered***, or ***default*** address.<br><br>The types ***primary*** and ***alternate*** are used for provisioned addresses. The type ***registered*** is used for dynamic addresses registered through ILMI. The type ***default*** is used for Soft PVP and Soft PVC addresses.Virtual interfaces do not have addresses of<br>type ***default***.<br><br>The wildcard is only valid for provisioned addresses. If the address is a single wildcard, then that indicates that the interface supports all addresses. If there is no better match, then this interface may be chosen in the routing. If there is more than one interface with a single wildcard static address, then the choice is driven through a round robin algorithm.<br><br>The round robin algorithm tries the primary routes and then the alternate routes if none of the primary routes succeed.<br>If this node participates in a PNNI hierarchy, then a *PnniInfo* subcomponent can be provisioned under the *AtmAddress* component to specify the level to which this address will be advertised. |

| | |
|---|---|
| Opt. Subcomp. | "COMPONENT AtmIf Vpt Iisp Addr TerminateSPvpAndSPvc (TermSP)"<br>"COMPONENT AtmIf Vpt Iisp Addr PnniInfo" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Atmlf Vpt Iisp Addr Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains the operational attributes for the *Address* component. |

## ATTRIBUTE Atmlf Vpt Iisp Addr scope

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the scope of the ATM address, which is the highest level to which this address will be advertised in the PNNI hierarchy. If no *PnniInfo* subcomponent has been provisioned, then the scope will default to the level of this node in the PNNI hierarchy. If this node does not participate in a PNNI hierarchy, then this attribute will have the value of -1. |
| Values | Signed (-1..104) |
| Default | No default |

## ATTRIBUTE Atmlf Vpt Iisp Addr reachability (reach)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates whether the address is internal or exterior. An internal reachable address is an address of a destination that is directly attached to the logical node advertising the address. An |

exterior reachable address is an address that can be reached through a PNNI routing domain, but which is not located in that PNNI routing domain.

Values
internal
exterior

Default
No default

## COMPONENT Atmlf Vpt Iisp Addr TerminateSPvpAndSPvc (TermSP)

Scope
Device

Description
*AtmIf/n Aini Address/address,type TerminateSPvpAndSPvc*
*AtmIf/n Iisp Address/address,type TerminateSPvpAndSPvc*
*AtmIf/n Uni Address/address,type TerminateSPvpAndSPvc*
*AtmIf/n Pnni Address/address,type TerminateSPvpAndSPvc*
*AtmIf/n Vpt/m Aini Address/address,type TerminateSPvpAndSPvc*
*AtmIf/n Vpt/m Iisp Address/address,type TerminateSPvpAndSPvc*
*AtmIf/n Vpt/m Uni Address/address,type TerminateSPvpAndSPvc*
*AtmIf/n Vpt/m Pnni Address/address,type TerminateSPvpAndSPvc*

The presence of this subcomponent indicates that SPvp and SPvc call setups terminate at this node if the destination address of the SPVP or SPVC matches the *Address* instance.

Common Verbs
Help
List
Display
Add
DELete

## COMPONENT Atmlf Vpt Iisp Addr PnniInfo

Groups
"GROUP AtmIf Vpt Iisp Addr PnniInfo Provisioned (Prov)"

Scope
Device

Description
*AtmIf/n Aini Addr/address,type PnniInfo*
*AtmIf/n Iisp Addr/address,type PnniInfo*
*AtmIf/n Uni Addr/address,type PnniInfo*
*AtmIf/n Pnni Addr/address,type PnniInfo*

*AtmIf/n Vpt/m Aini Addr/address,type PnniInfo*
*AtmIf/n Vpt/m Iisp Addr/address,type PnniInfo*
*AtmIf/n Vpt/m Uni Addr/address,type PnniInfo*
*AtmIf/n Vpt/m Pnni Addr/address,type PnniInfo*

This component contains provisioned information associated with the ATM address related to PNNI. This component appears only under provisioned *Address* components.

Common Verbs

Help
List
Display
Add
DELete

## GROUP AtmIf Vpt Iisp Addr PnniInfo Provisioned (Prov)

Properties: Provisioned

Description: This attribute group contains the provisioned attributes relating to PNNI for a *PnniInfo* component.

## ATTRIBUTE AtmIf Vpt Iisp Addr PnniInfo scope

Access: Read: All
Write: All

Criticality: Component

Description: This attribute specifies the scope of the ATM address, which is the highest level up to which this address will be advertised in the PNNI hierarchy. The scope must be set to a value numerically less than or equal to the level of the lowest level peer group containing this node. Setting the scope to 0 will cause the address to be advertised globally within this PNNI routing domain.

Values: Signed (-1..104)

Default: -1

## ATTRIBUTE AtmIf Vpt Iisp Addr PnniInfo reachability (reach)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute indicates whether the address is internal or exterior. An internal reachable address is an address of a destination that is directly attached to the logical node advertising the address. An exterior reachable address is an address that can be reached through a PNNI routing domain, but which is not located in that PNNI routing domain. |
| Values | internal<br>exterior |
| Default | internal |

## COMPONENT AtmIf Vpt Iisp CallingAddressScreening (CallingAScr)

| | |
|---|---|
| Groups | "GROUP AtmIf Vpt Iisp CallingAScr Provisioned (Prov)"<br>"GROUP AtmIf Vpt Iisp CallingAScr Statistics (Stat)" |
| Scope | Device |
| Description | *AtmIf/n Aini CallingAddressScreening*<br>*AtmIf/n Uni CallingAddressScreening*<br>*AtmIf/n Iisp CallingAddressScreening*<br>This component represents the screening of incoming ATM SVC call requests against provisioned ATM calling addresses (that is, screening SVC calls coming from specific addresses). If this component is not provisioned, all call requests are accepted and no calling address screening takes place. |
| Opt. Subcomp. | "COMPONENT AtmIf Vpt Iisp CallingAScr Address (Addr)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP AtmIf Vpt Iisp CallingAScr Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This attribute group contains the provisionable attributes for the *CallingAScr* component. |

### ATTRIBUTE AtmIf Vpt Iisp CallingAScr adminStatus

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies whether the calling address screening feature is ***enabled*** or ***disabled***.<br><br>If ***enabled***, incoming SVC calls are screened against provisioned addresses. If ***enabled*** and the calling address in the ATM SVC call request is provisioned to be accepted, the call is accepted or rejected according to the action specified for that address. If the value is ***enabled***, and the calling address in the address request is not provisioned, the call is rejected<br><br>If the value is ***disabled***, no calling address screening is performed. |
| Values | enabled<br>disabled |
| Default | disabled |

### ATTRIBUTE AtmIf Vpt Iisp CallingAScr defaultInsertionAddress (defInsAddr)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the address to be inserted into the SVC connection request if *adminStatus* is ***enabled*** and the connection request does not contain a calling address. If the *adminStatus* attribute is ***enabled*** and this attribute is empty, all incoming SVC calls which do not contain a calling address are rejected. |
| Values | String (0..20, Hex) |
| Default | "" |

## GROUP AtmIf Vpt lisp CallingAScr Statistics (Stat)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains statistics related to the incoming SVC call requests received while the *adminStatus* attribute is set to ***enabled***. |

## ATTRIBUTE AtmIf Vpt lisp CallingAScr acceptedCalls

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the incoming SVC calls which were accepted because the address specified in the call request matched a provisioned ATM address and the associated action was ***accept***.<br>When the counter exceeds the maximum, it wraps to 0. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## ATTRIBUTE AtmIf Vpt lisp CallingAScr rejectedCalls

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the incoming SVC calls which were rejected because the address specified in the call request matched a provisioned ATM address, but the associated action was ***reject***.<br>When the counter exceeds the maximum, it wraps to 0. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## ATTRIBUTE AtmIf Vpt lisp CallingAScr unmatchedCalls

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the incoming SVC calls which were rejected because none of the provisioned ATM addresses matched the applicable address in the incoming SVC call request.<br>When the counter exceeds the maximum, it wraps to 0. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

## COMPONENT AtmIf Vpt Iisp CallingAScr Address (Addr)

| | |
|---|---|
| Instance | address [String (1..40, ASCII)]<br>addressAction [accept<br>reject] |
| Scope | Device |
| Description | *AtmIf/n Aini CallingAScr Address/addr,action*<br>*AtmIf/n Uni CallingAScr Address/addr,action*<br>*AtmIf/n Iisp CallingAScr Address/addr,action*<br>*AtmIf/n Aini CalledAScr Address/addr,action*<br>*AtmIf/n Uni CalledAScr Address/addr,action*<br>*AtmIf/n Iisp CalledAScr Address/addr,action*<br>This component specifies a calling (or called) address with an action to accept or reject a connection request which contains a matching calling (or called) address.<br>For the Calling Address Screening feature, if the specified action is ***accept***, any call whose calling address matches that address is accepted. If the specified action is ***reject***, any call whose calling address matches that address is rejected.<br>For the Called Address Screening feature, if the specified action is ***accept***, any call whose called address matches that address, is accepted. If the specified action is ***reject***, any call whose called address matches that address is rejected.<br>For both features, the incoming SVC call request is rejected if the address is not provisioned and the feature is ***enabled***. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## COMPONENT AtmIf Vpt Iisp CalledAddressScreening (CalledAScr)

| | |
|---|---|
| Groups | "GROUP AtmIf Vpt Iisp CalledAScr Provisioned (Prov)"<br>"GROUP AtmIf Vpt Iisp CalledAScr Statistics (Stat)" |

| | |
|---|---|
| Scope | Device |
| Description | *AtmIf/n Aini CalledAddressScreening*<br>*AtmIf/n Uni CalledAddressScreening*<br>*AtmIf/n Iisp CalledAddressScreening*<br>This component represents the screening of incoming ATM SVC call requests against provisioned ATM called addresses (that is, going to specific destinations). If this component is not provisioned, all call requests are accepted and no called address screening takes place. |
| Opt. Subcomp. | "COMPONENT AtmIf Vpt Iisp CalledAScr Address (Addr)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP AtmIf Vpt Iisp CalledAScr Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This attribute group contains the provisionable attributes for the *CalledAScr* component. |

## ATTRIBUTE AtmIf Vpt Iisp CalledAScr adminStatus

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies whether the called address screening feature is ***enabled*** or ***disabled***.<br>If the value is ***enabled***, incoming SVC calls will be screened against provisioned called addresses. If the value is ***enabled*** and the called address in the ATM SVC call request has been provisioned, the call is accepted or rejected according to the action specified for that address. If the value is ***enabled*** and the called address in the call request is not provisioned, the call is rejected.<br>If the value is ***disabled***, no called address screening is performed. |

| | |
|---|---|
| Values | enabled<br>disabled |
| Default | disabled |

### GROUP AtmIf Vpt Iisp CalledAScr Statistics (Stat)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains statistics related to the incoming SVC call requests received while the *adminStatus* attribute is set to ***enabled***. |

### ATTRIBUTE AtmIf Vpt Iisp CalledAScr acceptedCalls

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the incoming SVC calls which were accepted because the address specified in the call request matched a provisioned ATM address and the associated action was ***accept***.<br>When the counter exceeds the maximum, it wraps to 0. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE AtmIf Vpt Iisp CalledAScr rejectedCalls

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the incoming SVC calls which were rejected because the address specified in the call request matched a provisioned ATM address, but the associated action was ***reject***.<br>When the counter exceeds the maximum, it wraps to 0. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE AtmIf Vpt Iisp CalledAScr unmatchedCalls

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the incoming SVC calls which were rejected because none of the provisioned ATM addresses matched the applicable address in the incoming SVC call request.<br>When the counter exceeds the maximum, it wraps to 0. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## COMPONENT AtmIf Vpt Iisp CalledAScr Address (Addr)

| | |
|---|---|
| Instance | address [String (1..40, ASCII)]<br>addressAction [accept<br>reject] |
| Scope | Device |
| Description | *AtmIf/n Aini CallingAScr Address/addr,action*<br>*AtmIf/n Uni CallingAScr Address/addr,action*<br>*AtmIf/n Iisp CallingAScr Address/addr,action*<br>*AtmIf/n Aini CalledAScr Address/addr,action*<br>*AtmIf/n Uni CalledAScr Address/addr,action*<br>*AtmIf/n Iisp CalledAScr Address/addr,action*<br>This component specifies a calling (or called) address with an action to accept or reject a connection request which contains a matching calling (or called) address.<br>For the Calling Address Screening feature, if the specified action is ***accept***, any call whose calling address matches that address is accepted. If the specified action is ***reject***, any call whose calling address matches that address is rejected.<br>For the Called Address Screening feature, if the specified action is ***accept***, any call whose called address matches that address, is accepted. If the specified action is ***reject***, any call whose called address matches that address is rejected.<br>For both features, the incoming SVC call request is rejected if the address is not provisioned and the feature is ***enabled***. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## COMPONENT AtmIf Vpt Iisp PathTraceFilter (Ptf)

Groups

"GROUP AtmIf Vpt Iisp Ptf Criteria"
"GROUP AtmIf Vpt Iisp Ptf Operational (Oper)"
"GROUP AtmIf Vpt Iisp Ptf RecordControl (Record)"

Scope

Device

Description

*AtmIf/n Aini PathTraceFilter*
*AtmIf/n Iisp PathTraceFilter*
*AtmIf/n Uni PathTraceFilter*
*AtmIf/n Pnni PathTraceFilter*
*AtmIf/n Vpt/vpi Aini PathTraceFilter*
*AtmIf/n Vpt/vpi Iisp PathTraceFilter*
*AtmIf/n Vpt/vpi Uni PathTraceFilter*
*AtmIf/n Vpt/vpi Pnni PathTraceFilter*

This component represents the path trace filtering capability on the ATM signaling interface. This capability allows the user to trace connections during the call setup phase against the criteria associated with this component. Only the connections that match all the criteria are traced.

When this component is provisioned, the network operator can control tracing activities by using the *Start*, *Stop*, and *Clear* verbs. When the *Start* verb is issued, the *traceTimeout* timer restarts. Once the timer times out, filtering stops and records are not removed. When the *Stop* verb is issued, the filter stops and the trace records are kept until the user clears them. When the *Clear* verb is issued, the trace records are cleared. When *AtmPathTraceFilter* component is deleted, all records are cleared.

Once the maximum specified by *maxTraceRecords* attribute under the *PathTraceFilter* component or *maxTraceRecords* attribute under the *Lp/n Eng PTrace* component has been reached, the oldest record is deleted.

The *AtmPathTraceFilter* component is not permitted to be added when the *Lp/n Eng PTrace Ov maxTraceRecords* attribute is set to zero.

| | |
|---|---|
| Dyn. Subcomp. | "COMPONENT AtmIf Vpt Iisp Ptf PathTraceRecord (PTRecord)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## VERB START AtmIf Vpt Iisp Ptf

| | |
|---|---|
| Impact | Service |
| Description | *START AtmIf/n Aini PathTraceFilter*<br>*START AtmIf/n Iisp PathTraceFilter*<br>*START AtmIf/n Uni PathTraceFilter*<br>*START AtmIf/n Pnni PathTraceFilter*<br>*START AtmIf/n Vpt/vpi Aini PathTraceFilter*<br>*START AtmIf/n Vpt/vpi Iisp PathTraceFilter*<br>*START AtmIf/n Vpt/vpi Uni PathTraceFilter*<br>*START AtmIf/n Vpt/vpi Pnni PathTraceFilter*<br><br>This command starts the path tracing based on the specified filtering criteria.<br><br>When the command is issued, the *traceTimeout* timer is reset. |

### VERB STOP AtmIf Vpt Iisp Ptf

| | |
|---|---|
| Impact | Service |
| Description | *STOP AtmIf/n Aini PathTraceFilter*<br>*STOP AtmIf/n Iisp PathTraceFilter*<br>*STOP AtmIf/n Uni PathTraceFilter*<br>*STOP AtmIf/n Pnni PathTraceFilter*<br>*STOP AtmIf/n Vpt/vpi Aini PathTraceFilter*<br>*STOP AtmIf/n Vpt/vpi Iisp PathTraceFilter*<br>*STOP AtmIf/n Vpt/vpi Uni PathTraceFilter*<br>*STOP AtmIf/n Vpt/vpi Pnni PathTraceFilter*<br><br>This command causes the filter to stop, but keeps the trace records. |

### VERB CLEAR AtmIf Vpt Iisp Ptf

| | |
|---|---|
| Impact | Service |
| Description | *CLEAR AtmIf/n Aini PathTraceFilter*<br>*CLEAR AtmIf/n Iisp PathTraceFilter*<br>*CLEAR AtmIf/n Uni PathTraceFilter*<br>*CLEAR AtmIf/n Pnni PathTraceFilter*<br>*CLEAR AtmIf/n Vpt/vpi Aini PathTraceFilter*<br>*CLEAR AtmIf/n Vpt/vpi Iisp PathTraceFilter*<br>*CLEAR AtmIf/n Vpt/vpi Uni PathTraceFilter*<br>*CLEAR AtmIf/n Vpt/vpi Pnni PathTraceFilter*<br><br>This command clears the path trace records associated with this filter. This command is rejected on an active filter. |

### GROUP AtmIf Vpt Iisp Ptf Criteria

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational criteria for the *PathTraceFilter* component. |

### ATTRIBUTE AtmIf Vpt Iisp Ptf traceInfo (tInfo)

| | |
|---|---|
| Access | Read: All<br>Write: All |

| | |
|---|---|
| Description | This attribute specifies the trace information that is included in the trace records.<br><br>***crankBack***: Crankback information is included if the connection is cranked back during the connection setup phase. If the option is turned on, all attempted paths including the final one are recorded. If the option is turned off, only the information of the final path is recorded. If the connection fails to reach the destination, no path information is returned.<br><br>***connId***: Connection Identifier information is included.<br><br>***callRef***: For point-to-point connections, the call reference is included. For point-to-multipoint connections, the call reference and end point reference are both included.<br><br>Basic trace information, such as node and port identifiers, are always included. |
| Set of | crankBack<br>connId<br>callRef |
| Default | (crankBack, connId, callRef) |

### ATTRIBUTE AtmIf Vpt Iisp Ptf calledPartyPrefix (cldPref)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies an NSAP address prefix, which is compared with the called party IE in the connection setup request. When all the criteria in the filter match successfully, the call is traced.<br><br>An empty string matches any address. |
| Values | String (0..20, Hex) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt lisp Ptf callingPartyPrefix (clgPref)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies an NSAP address prefix, which is compared with the calling party IE in the connection setup request. When all the criteria in the filter match successfully, the call is traced.<br><br>An empty string matches any address. |
| Values | String (0..20, Hex) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt lisp Ptf connectionType (type)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies a connection type (SVC, SPVC, SVP, SPVP), which is compared against the connection setup request. When all the criteria in the filter match successfully, the call is traced. |
| Set of | svc<br>spvc<br>svp<br>spvp |
| Default | (svc, spvc, svp, spvp) |

### ATTRIBUTE AtmIf Vpt lisp Ptf connectionConfiguration (config)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies a type of topology (point-to-point or point-to-multipoint), which is compared against the connection setup request. When all the criteria in the filter match successfully, the call is traced. |

| | |
|---|---|
| Set of | ptp<br>ptmp |
| Default | (ptp, ptmp) |

### ATTRIBUTE AtmIf Vpt lisp Ptf serviceCategory (svcCat)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the service categories, which is compared against the connection setup request. When the all criteria in the filter match successfully, the call is traced. |
| Set of | cbr<br>rtVbr<br>nrtVbr<br>ubr |
| Default | (cbr, rtVbr, nrtVbr, ubr) |

### GROUP AtmIf Vpt lisp Ptf Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for the *PathTraceFilter* component. |

### ATTRIBUTE AtmIf Vpt lisp Ptf state

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the current state of the filter.<br><br>***active***: Indicates the filter is active.<br><br>***inactive:*** Indicates the filter is inactive. The records are available if the filter is stopped by the user using the *Stop* verb or if the filter has timed out. |

| | |
|---|---|
| Values | active<br>inactive |
| Default | inactive |

### ATTRIBUTE AtmIf Vpt lisp Ptf recordCount

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of records that have been acquired so far for this filter. The maximum number of records that can be stored is specified by *Lp/n Eng PathTrace maxTraceRecords* or *AtmPathTraceFilter maxTraceRecords*, which ever is less. |
| Values | Decimal (0..200) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt lisp Ptf matchedConnections

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of connections that match the criteria of this filter. |
| Values | Decimal (0..2147483647) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt lisp Ptf elapsedTime

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of minutes that have elapsed since the start of the filter. |
| Values | Decimal (0..70560) |
| Units | minutes |
| Default | No default |

### ATTRIBUTE AtmIf Vpt lisp Ptf timeRemaining

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of minutes remaining before the filter terminates itself. |
| Values | Decimal (0..70560) |
| Units | minutes |
| Default | No default |

### GROUP AtmIf Vpt lisp Ptf RecordControl (Record)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for the record control of the *PathTraceFilter* component. |

### ATTRIBUTE AtmIf Vpt lisp Ptf traceTimeout

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies how long this filter remains active. At the end of this time, the filter is stopped and all trace records associated with this filter are available. |
| Values | Decimal (1..70560) |
| Units | minutes |
| Default | 60 |

### ATTRIBUTE AtmIf Vpt lisp Ptf maxTraceRecords (mRecords)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the maximum number of records allowed to be stored with the filter.<br><br>Once the maximum has been reached, the oldest record is removed. |

| | |
|---|---|
| Values | Decimal (1..200) |
| Default | 2 |

## COMPONENT AtmIf Vpt Iisp Ptf PathTraceRecord (PTRecord)

| | |
|---|---|
| Groups | "GROUP AtmIf Vpt Iisp Ptf PTRecord Operational (Oper)" |
| Scope | Device |
| Description | *AtmIf/n Aini Ptf PTRecord*<br>*AtmIf/n Iisp Ptf PTRecord*<br>*AtmIf/n Uni Ptf PTRecord*<br>*AtmIf/n Pnni Ptf PTRecord*<br>*AtmIf/n Vpt/n Aini Ptf PTRecord*<br>*AtmIf/n Vpt/n Iisp Ptf PTRecord*<br>*AtmIf/n Vpt/n Uni Ptf PTRecord*<br>*AtmIf/n Vpt/n Pnni Ptf PTRecord*<br><br>This component represents the path trace record for the last failed connection against this filter. |
| Dyn. Subcomp. | "COMPONENT AtmIf Vpt Iisp Ptf PTRecord Hop" |
| Common Verbs | Help<br>List<br>Display |

## GROUP AtmIf Vpt Iisp Ptf PTRecord Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for the path trace record component. |

## ATTRIBUTE AtmIf Vpt Iisp Ptf PTRecord status

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the status of the trace. The string is one of the following:<br><br>***Completed normally****:* The trace completed normally. |

***Incomplete**:* Partial trace returned.

***Exceeded information element length limitations**:* The number of traced nodes exceeded the maximum number of hops.

***Exceeded message length limitations**:* The message length exceeded the maximum allowed size.

Values
Completed normally
Incomplete
Exceeded information element length limitations
Exceeded message length limitations

Default
No default

### ATTRIBUTE AtmIf Vpt lisp Ptf PTRecord timeStamp

Access
Read: All
Write: Illegal

Description
This attribute records the date and time of when the trace is completed.

Values
Time (DHMS)

Default
No default

### ATTRIBUTE AtmIf Vpt lisp Ptf PTRecord srcPortId

Access
Read: All
Write: Illegal

Description
This attribute indicates the trace's source port identifier used for this connection. This attribute only appears in the trace result for the trace source hop.

Values
Decimal (1..4294967295)

Default
No default

### ATTRIBUTE AtmIf Vpt lisp Ptf PTRecord srcPortName

Access
Read: All
Write: Illegal

Criticality
Component

| | |
|---|---|
| Description | This attribute indicates the name of the source port used for this connection. This attribute only appears in the trace result for the trace source hop. |
| Values | String (40, ASCII) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Iisp Ptf PTRecord causeCode

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute contains the cause code in the transmitted signaling message that contains the CAUSE information element. The cause code is used to describe the reason for generating certain signaling messages. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Iisp Ptf PTRecord diagCode

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute contains the diagnostic code in the transmitted signaling message. The diagnostic code is contained in the CAUSE information element and identifies an information element type or timer type. The diagnostic code is present only if a procedural error is detected by the signaling protocol. A diagnostic code is always accompanied by the cause code. If there is no failure, this attribute is set to NULL. |
| Values | String (0..8, ASCII) |
| Default | No default |

### COMPONENT AtmIf Vpt Iisp Ptf PTRecord Hop

| | |
|---|---|
| Instance | Decimal (0..200) |

| | |
|---|---|
| Groups | "GROUP AtmIf Vpt Iisp Ptf PTRecord Hop Operational (Oper)" |
| Scope | Device |
| Description | *AtmIf/n Aini Ptf PTRecord Hop/n*<br>*AtmIf/n Iisp Ptf PTRecord Hop/n*<br>*AtmIf/n Uni Ptf PTRecord Hop/n*<br>*AtmIf/n Pnni Ptf PTRecord Hop/n*<br>*AtmIf/n Vpt/n Aini Ptf PTRecord Hop/n*<br>*AtmIf/n Vpt/n Iisp Ptf PTRecord Hop/n*<br>*AtmIf/n Vpt/n Uni Ptf PTRecord Hop/n*<br>*AtmIf/n Vpt/n Pnni Ptf PTRecord Hop/n*<br>*AtmIf/n Vcc/x.y PTRecord Hop/n*<br>*AtmIf/n Vpc/n PTRecord Hop/n*<br>*AtmIf/n Vpt/n Vcc/x.y PTRecord Hop/n*<br><br>This component stores the result of a hop from a trace. An instance of this component is dynamically created for each hop in a trace record.<br><br>Depending on the hops, different attributes are present. |
| Dyn. Subcomp. | "COMPONENT AtmIf Vpt Iisp Ptf PTRecord Hop VendorSpecificInfo (Vsi)" |
| Common Verbs | Help<br>List<br>Display |

### GROUP AtmIf Vpt Iisp Ptf PTRecord Hop Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for the component *AtmPathTraceFilterRecordHop*. |

### ATTRIBUTE AtmIf Vpt Iisp Ptf PTRecord Hop ingressVpiVci (vpiVci)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |

| | |
|---|---|
| Description | This attribute indicates the VPI.VCI values used for this hop on the ingress side. This is the ingress side with respect to the trace or setup messages. This attribute is displayed for ATM interfaces only.<br><br>The VPI.VCI values are included in the trace when the *traceInfo* attribute sets the ***connId*** value. |
| Values | Integer Sequence (0..4095; 0..65535) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Iisp Ptf PTRecord Hop ingressDlci (dlci)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the DLCI value used for this hop on the ingress side. This is the ingress side with respect to the trace or setup message. This attribute is displayed for FrAtm interfaces only.<br><br>The DLCI is included in the trace when the *traceInfo* attribute sets the ***connId*** value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Iisp Ptf PTRecord Hop ingressCallReference (callref)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the call reference value used for this hop on the ingress side. This is the ingress side with respect to the trace or setup message.<br><br>The call reference is included in the trace when the *traceInfo* attribute sets the ***callRef*** value |

| | |
|---|---|
| Values | Hex (H.0..H.ffffff) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt lisp Ptf PTRecord Hop ingressEndPointReference (epref)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the end point reference value used for this hop on the ingress side. This is the ingress side with respect to the trace or setup messages.<br><br>The end point reference is included in the trace when the *traceInfo* attribute sets the ***callRef*** value and the connection is point-to-multipoint. |
| Values | Hex (H.0..H.ffff) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt lisp Ptf PTRecord Hop nodeId

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the lowest level node ID traversed for this hop. |
| Values | String (22, Hex) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt lisp Ptf PTRecord Hop nodeName

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the *nodeName* under the *ModuleData* component for this hop. Only Passport nodes provide this information by including it in the Vendor Specific group. |

| | |
|---|---|
| Values | String (12, ASCII) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Iisp Ptf PTRecord Hop portId

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the port identifier value for this hop on the egress side. This is the egress side with respect to the trace or setup messages. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Iisp Ptf PTRecord Hop portName

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the port name for this hop on the egress side. This is the egress side with respect to the trace or setup messages. Only Passport nodes provide this information by including it in the Vendor Specific group. |
| Values | String (55, ASCII) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Iisp Ptf PTRecord Hop pnniTraceContRefusalIndPresent (refusal)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates whether the “PNNI Trace Continuation Refusal” indicator is present. The “PNNI Trace Continuation Refusal” indicator indicates that this hop has refused to participate in the trace. |

| | |
|---|---|
| Values | absent<br>present |
| Default | absent |

### ATTRIBUTE AtmIf Vpt Iisp Ptf PTRecord Hop crankbackDestNodeIndPresent (dest)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates whether the “PNNI Crankback Received at the Trace Destination Node” indicator is present. The “PNNI Crankback Received at Trace Destination Node” indicator indicates that this hop is acting as a trace destination node, receiving a crankback for this call from a non-PNNI interface. |
| Values | absent<br>present |
| Default | absent |

### ATTRIBUTE AtmIf Vpt Iisp Ptf PTRecord Hop pnniCrankbackGapIndPresent (gap)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates whether the “PNNI Crankback Gap” indicator is present. The “PNNI Crankback Gap” indicator indicates that the call experienced a crankback, where no Trace Transit List IE was returned by the node initiating the crankback. |
| Values | absent<br>present |
| Default | absent |

### ATTRIBUTE AtmIf Vpt Iisp Ptf PTRecord Hop crankBackCause (cause)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |

| | |
|---|---|
| Description | This attribute indicates the crankback cause. Please refer to Private-Network-to-Network-Interface Specification Version 1.0 for more information.<br><br>This attribute is present when the *traceInfo* attribute sets the ***crankBack*** value and the connection has initiated the crankback procedure. |
| Values | Decimal (0..1000) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt lisp Ptf PTRecord Hop blockedTransitType (type)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the blocked transit type.<br><br>This attribute is present when the *traceInfo* attribute sets the ***crankBack*** value and the connection has initiated the crankback procedure. |
| Values | Succeeding end blocked<br>Blocked node<br>Blocked link |
| Default | No default |

### ATTRIBUTE AtmIf Vpt lisp Ptf PTRecord Hop blockedNodeId (bNodeId)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the blocked node ID during the call setup request. The blocked node ID identifies the logical node where the connection or party has been blocked.<br><br>This attribute is present when the *blockedTransitType* attribute is ***Blocked node.*** |

| | |
|---|---|
| Values | String (22, Hex) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Iisp Ptf PTRecord Hop blockedLinkPrecedingNodeId (pNodeId)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the blocked link's preceding node ID during the call setup request. The blocked link's preceding node ID identifies the logical node preceding a link, where the connection or party has been blocked.<br><br>This attribute is present when the *blockedTransitType* attribute is ***Blocked link***. |
| Values | String (22, Hex) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Iisp Ptf PTRecord Hop blockedLinkPortId (bPortId)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the blocked link's port identifier used for this connection during the call setup request. The blocked link's port identifier identifies a logical port of the blocked link's preceding node identifier.<br><br>This attribute is present when the *blockedTransitType* attribute is ***Blocked link.*** |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt lisp Ptf PTRecord Hop blockedLinkSucceedingNodeId (sNodeId)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the blocked link's succeeding node ID during the call setup request. The blocked link's succeeding node ID identifies the logical node succeeding a link where the connection or party has been blocked.<br><br>This attribute is present when the *blockedTransitType* attribute is ***Blocked link.*** |
| Values | String (22, Hex) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt lisp Ptf PTRecord Hop dstVpiVci

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the VPI.VCI values on the destination side. This attribute only appears in the trace result for the trace destination node. This attribute is only displayed for ATM interfaces.<br><br>The VPI.VCI is included in the trace when the *traceInfo* attribute sets the ***connId*** value. |
| Values | Integer Sequence (0..4095; 0..65535) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt lisp Ptf PTRecord Hop dstDlci

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |

| | |
|---|---|
| Description | This attribute indicates the DLCI value on the destination side. This attribute only appears in the trace result for the trace destination node. This attribute is only displayed for FrAtm interfaces.<br><br>The DLCI is included in the trace when the *traceInfo* attribute sets the ***connId*** value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Iisp Ptf PTRecord Hop dstCallReference (dcr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the call reference value on the destination side. This attribute only appears in the trace result for the trace destination node.<br><br>The call reference value is included in the trace when the *traceInfo* attribute sets the ***callRef*** value. |
| Values | Hex (H.0..H.ffffff) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Iisp Ptf PTRecord Hop dstEndPointReference (depr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the end point call reference value on the destination side. This attribute only appears in the trace result for the trace destination node.<br><br>The call reference value is included in the trace when the *traceInfo* attribute sets the ***callRef*** value and the connection is point-to-multipoint. |

| | |
|---|---|
| Values | Hex (H.0..H.ffff) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Iisp Ptf PTRecord Hop specifiedPath

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates whether this hop is the originator of this manually configured path. Only Passport nodes provide this information by including it in the Vendor Specific group. |
| Values | no<br>yes |
| Default | no |

### COMPONENT AtmIf Vpt Iisp Ptf PTRecord Hop VendorSpecificInfo (Vsi)

| | |
|---|---|
| Instance | Decimal (0..10) |
| Groups | "GROUP AtmIf Vpt Iisp Ptf PTRecord Hop Vsi Operational (Oper)" |
| Scope | Device |
| Description | *AtmIf/n Aini Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Iisp Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Uni Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vpt/n Aini Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vpt/n Iisp Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vpt/n Uni Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vpt/n Pnni Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vcc/x.y PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vpc/n PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vpt/n Vcc/x.y PTRecord Hop/n VendorSpecificInfo/m*<br><br>This component stores the vendor specific information of a non-Passport node for a hop. An instance of this component is dynamically created for the vendor specific information group of a hop in a trace. Several instances of this component are created |

if the trace has several groups of vendor specific information.

All the trace information for a Passport node is stored in the *PTRecord Hop/** component.

Common Verbs

Help
List
Display

## GROUP AtmIf Vpt Iisp Ptf PTRecord Hop Vsi Operational (Oper)

Properties: Operational

Description: This group contains the operational attributes for the component *AtmPathTraceFilterRecordHopVen*.

## ATTRIBUTE AtmIf Vpt Iisp Ptf PTRecord Hop Vsi length

Access: Read: All
Write: Illegal

Description: This attribute indicates the length of the vendor specific information group.

Values: Decimal (0..11)

Default: No default

## ATTRIBUTE AtmIf Vpt Iisp Ptf PTRecord Hop Vsi organizationUniqueId (oui)

Access: Read: All
Write: Illegal

Description: This attribute indicates the Organization Unique Identifier (OUI) of a non-Passport node.

Values: String (3, Dashed Hex)

Default: No default

## ATTRIBUTE AtmIf Vpt Iisp Ptf PTRecord Hop Vsi data

Access: Read: All
Write: Illegal

Description: This attribute indicates the contents of the vendor specific information group.

| | |
|---|---|
| Values | String (1..8, Hex) |
| Default | No default |

## COMPONENT AtmIf Vpt Iisp PathTraceTestConnection (Ptt)

| | |
|---|---|
| Groups | "GROUP AtmIf Vpt Iisp Ptt Operational (Oper)" |
| Scope | Device |
| Description | *AtmIf/n Aini PathTraceTestConnection*<br>*AtmIf/n Iisp PathTraceTestConnection*<br>*AtmIf/n Uni PathTraceTestConnection*<br>*AtmIf/n Pnni PathTraceTestConnection*<br>*AtmIf/n Vpt/vpi Aini PathTraceTestConnection*<br>*AtmIf/n Vpt/vpi Iisp PathTraceTestConnection*<br>*AtmIf/n Vpt/vpi Uni PathTraceTestConnection*<br>*AtmIf/n Vpt/vpi Pnni PathTraceTestConnection*<br><br>This component provides the capability to control the Path Trace Test Connection. A test connection is one way to find the logical nodes and ports that a connection traverses to a destination interface.<br><br>The *Trace* verb is used to initiate the test connection. The test connection is always released once it reaches the trace destination. The test connection responds with the trace results collected during a complete or partial trace. |
| Common Verbs | Help<br>List<br>Display |

## VERB TRACE Atmlf Vpt Iisp Ptt

| | |
|---|---|
| Impact | Passive |
| Description | *TRACE AtmIf/n Aini AtmPathTraceTest*<br>*TRACE AtmIf/n Iisp AtmPathTraceTest*<br>*TRACE AtmIf/n Uni AtmPathTraceTest*<br>*TRACE AtmIf/n Pnni AtmPathTraceTest*<br>*TRACE AtmIf/n Vpt/vpi Aini AtmPathTraceTest*<br>*TRACE AtmIf/n Vpt/vpi Iisp AtmPathTraceTest*<br>*TRACE AtmIf/n Vpt/vpi Uni AtmPathTraceTest*<br>*TRACE AtmIf/n Vpt/vpi Pnni AtmPathTraceTest*<br><br>This command is used to initiate a Path Trace Test Connection and then responds with a list of logical nodes and ports from the trace source node to the trace destination node.<br><br>Only one *Trace* command is allowed at a time per signaling interface. If the test connection times out, the command fails. |

## GROUP Atmlf Vpt Iisp Ptt Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for the *AtmPathTraceTest* component. |

## ATTRIBUTE Atmlf Vpt Iisp Ptt traceCrankback

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute controls what trace information the trace records include. If the option is turned on, all attempted paths are recorded including the final one. If the option is turned off, only the information of the final path is recorded. If the connection fails to reached the destination, no path information is returned. |
| Values | no<br>yes |
| Default | no |

### ATTRIBUTE AtmIf Vpt Iisp Ptt txTrafficDescType (txTdt)

Access
Read: All
Write: All

Description
This attribute specifies the type of traffic management applied to the transmit direction, as defined by the ATM Forum. The *txTrafficDescType* determines the number and meaning of the parameters in the *txTrafficDescParm* attribute.

Values
1
2
3
4
5
6
7
8
9

Default
1

### ATTRIBUTE AtmIf Vpt Iisp Ptt rxTrafficDescType (rxTdt)

Access
Read: All
Write: All

Description
This attribute specifies the type of traffic management, which is applied to the receive direction of this connection, as defined in the ATM Forum. The *rxTrafficDescType* determines the number and meaning of the parameters in the *rxTrafficDescParm* attribute

When ***sameAsTx*** is selected, the *rxTrafficDescType* and the *rxTrafficDescParm* are taken from the transmit values.

Values
1
2
3
4
5
6
7
8

| | |
|---|---|
| | 9<br>sameAsTx |
| Default | sameAsTx |

### ATTRIBUTE AtmIf Vpt Iisp Ptt atmServiceCategory (service)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the ATM service category for both directions of the connection.<br><br>If this attribute is set to ***derivedFromBBC***, the Broadband Bearer Capability (BBC) and *bestEffort* attributes are used to determine the *atmServiceCategory* of this connection.<br><br>If this attribute is set to a possible attribute other than ***derivedFromBBC***, the value of this attribute is used to override the provisioned BBC IE parameters. In those cases, the BBC attributes are not used.<br><br>The ***constantBitRate*** service category is intended for real time applications, that is, those requiring tightly constrained delay and delay variation such as for voice and video applications.<br><br>The ***rtVariableBitRate*** service category is intended for real time applications, that is, those requiring tightly constrained delay and delay variation, such as for voice and video applications. Sources are expected to transmit at a rate which varies with time. Equivalently, the source can be described as “bursty”. Cells, which are delayed beyond the value specified by CTD, are assumed to be of significantly reduced value to the application. The VBR real time service may support statistical multiplexing of real time sources.<br><br>The ***nrtVariableBitRate*** service category is intended for non-real time applications which have bursty traffic characteristics and can be characterized in terms of a PCR, SCR, and MBS.<br><br>The ***unspecifiedBitRate*** service is intended for non-real time |

applications, that is, those not requiring tightly constrained delay and delay variation. UBR sources are expected to be bursty. The UBR service supports a high degree of statistical multiplexing among sources.

Values
unspecifiedBitRate (ubr)
constantBitRate (cbr)
rtVariableBitRate (rtvbr)
nrtVariableBitRate (nrtvbr)
derivedFromBBC (derived)

Default
unspecifiedBitRate

### ATTRIBUTE AtmIf Vpt lisp Ptt fwdQosClass (fwdQos)

Access
Read: All
Write: All

Criticality
Component

Description
This attribute specifies the quality of service for the forward direction for this connection.

Class ***1*** supports a QOS that will meet Service Class A performance requirements (circuit emulation, constant bit rate video).

Class ***2*** supports a QOS that will meet Service Class B performance requirements (variable bit rate audio and video).

Class ***3*** supports a QOS that will meet Service Class C performance requirements (connection-oriented data transfer).

Class ***4*** supports a QOS that will meet Service Class D performance requirements (connectionless data transfer).

Class ***0*** is the unspecified bit rate QOS class; no objective is specified for the performance parameters.

Values
0
1
2

3
4

Default 0

## ATTRIBUTE AtmIf Vpt Iisp Ptt bwdQosClass (bwdQos)

Access Read: All
Write: All

Criticality Component

Description This attribute specifies the quality of service for the backward direction for this connection.

Class ***1*** supports a QOS that will meet Service Class A performance requirements (circuit emulation, constant bit rate video).

Class ***2*** supports a QOS that will meet Service Class B performance requirements (variable bit rate audio and video).

Class ***3*** supports a QOS that will meet Service Class C performance requirements (connection-oriented data transfer).

Class ***4*** supports a QOS that will meet Service Class D performance requirements (connectionless data transfer).

Class ***0*** is the unspecified bit rate QOS class; no objective is specified for the performance parameters.

The ***sameAsFwd*** selection sets the backward quality of service to be the same as the forward quality of service.

Values
0
1
2
3
4
sameAsFwd

Default sameAsFwd

## ATTRIBUTE AtmIf Vpt Iisp Ptt bearerClassBbc (bcBbc)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the bearer capability. It is one of the Broadband Bearer Capability (BBC) attributes. The purpose of the BBC information element is to indicate a requested broadband connection-oriented bearer service to be provided by the network.<br><br>The value ***derivedFromServiceCategory*** specifies that the actual value, which is used for this connection and is derived from the value of the *atmServiceCategory.* Either this attribute must be set to ***derivedFromServiceCategory***, or the *atmServiceCategory* attribute must be set to ***derivedFromBBC***, but not both.<br><br>Class ***a*** service is a connection-oriented, constant bit rate ATM transport service. Class ***a*** service has end-to-end timing requirements and may require stringent cell loss, cell delay and cell delay variation performance.When ***a*** is set, the user is requesting more than an ATM only service. The network may look at the AAL to provide inter-working based on its contents.<br><br>Class ***c*** service is a connection-oriented, variable bit rate ATM transport service. Class ***c*** service has no end-to-end timing requirements. When ***c*** is set, the user is requesting more than an ATM only service. The network inter-working function may look at the AAL and provide service based on it.<br><br>Class ***x*** service is a connection-oriented ATM transport service where the AAL, *trafficType* (***vbr*** or ***cbr***), and timing requirements are user defined (that is, transparent to the network).When ***x*** is set, the user is requesting an ATM only service from the network. In this case, the network shall not process any higher layer protocols. |
| Values | a<br>c |

| | |
|---|---|
| | x<br>derivedFromServiceCategory |
| Default | derivedFromServiceCategory |

### ATTRIBUTE AtmIf Vpt Iisp Ptt transferCapabilityBbc (tcBbc)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the transfer capability for this connection. UNI 3.0/3.1 traffic type and end-to-end timing parameters are mapped into this parameter as follows:<br><transferCapability: TrafficType, Timing><br>***0***: NoIndication, NoIndication<br>***1***: NoIndication, yes<br>***2***: NoIndication, no<br>***5***: CBR, yes<br>***8***: VBR, NoIndication<br>***9***: VBR, yes<br>***10***: VBR, no<br><br>***NotApplicable*** specifies that the user does not want to specify the transfer capability.<br><br>The CBR traffic type refers to the traffic offered on services such as a constant bit rate video service or a circuit emulation.<br><br>The VBR traffic type refers to the traffic offered on services such as packetized audio and video, or data.<br><br>The value ***NoIndication*** for traffic type is used if the user has not set the traffic type. This is also the case for end-to-end timing.<br><br>The value ***yes*** for end-to-end timing indicates that end-to-end timing is required.<br><br>The value ***no*** for end-to-end timing indicates that end-to-end timing is not required.<br><br>The value ***derivedFromServiceCategory*** specifies that the actual |

value which is used for this connection and is derived from the value of the *atmServiceCategory*. Either, this attribute must be set to ***derivedFromServiceCategory*** or the *atmServiceCategory* attribute must be set to ***derivedFromBBC***, but not both.

Values
0
1
2
5
8
9
10
notApplicable
derivedFromServiceCategory

Default
derivedFromServiceCategory

### ATTRIBUTE Atmlf Vpt lisp Ptt clippingBbc (cBbc)

Access
Read: All
Write: All

Criticality
Component

Description
This attribute specifies the value for the clipping susceptibility parameter in the BBC IE. This attribute is only used for SPVC connections. It is one of the Broadband Bearer Capability attributes.

Clipping is an impairment where the first fraction of a second of information to be transferred is lost. It occurs after a call is answered and before an associated connection is switched through.

Values
no
yes

Default
no

### ATTRIBUTE Atmlf Vpt lisp Ptt bestEffort

Access
Read: All
Write: All

Criticality
Component

| | |
|---|---|
| Description | This attribute specifies the value of the best effort parameter in the ATM Traffic Descriptor IE. It is one of the Broadband Bearer Capability attributes.<br><br>The value ***indicated*** implies that the quality of service for this connection is not guaranteed.<br><br>The value ***notIndicated*** implies that the quality of service for this connection is guaranteed.<br><br>The value ***derivedFromServiceCategory*** specifies that the actual value, which is used for this connection, is derived from the value of the *atmServiceCategory.* Either this attribute must be set to ***derivedFromServiceCategory*** or the *atmServiceCategory* attribute must be set to ***derivedFromBBC***, but not both. |
| Values | indicated<br>notIndicated<br>derivedFromServiceCategory (derived) |
| Default | derivedFromServiceCategory |

### ATTRIBUTE AtmIf Vpt lisp Ptt testCalledAddress

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the destination address of this test connection. |
| Values | String (20, Hex) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt lisp Ptt testCalledVpiVci

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the called VPI.VCI values for this test connection on the destination interface. |

| | |
|---|---|
| Values | Integer Sequence (0..4095; 0..65535) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt lisp Ptt testSpecifiedPath

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the path that will be used to get to the destination of this test connection. |
| Values | String (0..32, ASCII) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt lisp Ptt bwdQosParameters (bqp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is a vector of three elements that specify the quality of service parameters for the backward direction for this connection. This attribute is used for SPVC connections.<br><br>The ***cdv*** element specifies the acceptable peak-to-peak cell delay variation (CDV) of real-time connections (CBR and rt-VBR).<br><br>It is signaled through the extended QoS information element.<br><br>The ***ctd*** specifies the acceptable maximum cell transfer delay (maxCtd) of real-time connections (CBR and rt-VBR). It is signaled through the end-to-end transit delay information element.<br><br>The ***clr*** specifies the acceptable cell loss ratio (CLR) of CBR, rt-VBR, and nrt-VBR connections. It is signaled through the extended QoS information element. |

| | |
|---|---|
| Vector of | Decimal (0..2147483647) |
| Index | cdv<br>ctd<br>clr |
| Default | (cdv: 16777215, ctd: 16777215, clr: 255) |

### ATTRIBUTE AtmIf Vpt lisp Ptt fwdQosParameters (fqp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is a vector of three elements that specify the quality of service parameters for the forward direction for this connection. This attribute is used for SPVC connections.<br><br>The ***cdv*** element specifies the acceptable peak-to-peak cell delay variation (CDV) of the real-time connections (CBR and rt-VBR). It is signaled through the extended QoS information element.<br><br>The ***ctd*** specifies the acceptable maximum cell transfer delay (maxCtd) of the real-time connections (CBR and rt-VBR). It is signaled through the end-to-end transit delay information element.<br><br>The ***clr*** specifies the acceptable cell loss ratio (CLR) of CBR, rt-VBR, and nrt-VBR connections. It is signaled through the extended QoS information element. |
| Vector of | Decimal (0..2147483647) |
| Index | cdv<br>ctd<br>clr |
| Default | (cdv: 16777215, ctd: 16777215, clr: 255) |

### ATTRIBUTE AtmIf Vpt lisp Ptt txTrafficDescParm (txTdp)

| | |
|---|---|
| Access | Read: All<br>Write: All |

Description

This attribute is a vector of five traffic parameters whose meanings are defined by the *txTrafficDescType* attribute. The values of peak cell rate (PCR), sustained cell rate (SCR), minimum cell rate (MCR) and requested shaping rate are expressed in cells/second. THe maximum burst size (MBS) is expressed in cells. The cell delay variance tolerance (CDVT) is expressed in microseconds. The values of PCR, SCR, MBS, MCR and CDVT are used for the connection admission control (CAC). The value of the CDVT is only used for connections where the *atmServiceCategory* is ***constantBitRate***. For all other values of *atmServiceCategory*, the CDVT is ignored. The values of PCR, SCR, and the requested shaping rate are used to determine the actual shaping rate, where traffic shaping is enabled.

When *txTrafficDescType* is ***1*** or ***2***, all of the parameters must be set to zero.

When *txTrafficDescType* is ***3***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameter 1 must be non-zero. Parameters 2 and 3 must be zero.

When *txTrafficDescType* is ***4***, parameter 1 represents the PCR for CLP0+1 traffic with cell discard; parameter 2 represents the PCR for CLP equal to 0 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameter 1 must be greater than or equal to parameter 2. Parameters 1 and 2 must be non-zero. Parameter 3 must be zero.

When *txTrafficDescType* is ***5***, parameter 1 represents the PCR for CLP0+1 traffic with cell tagging; parameter 2 represents the PCR for CLP equal to 0 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameter 1 must be greater than or equal to parameter 2. Parameters 1 and 2 must be non-zero.

Parameter 3 must be zero.

When *txTrafficDescType* is ***6***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the SCR for CLP0+1 traffic; parameter 3 represents the MBS for CLP0+1 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameters 1, 2, and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2. Parameter 5 must either be zero (unused) or greater than or equal to parameter 2.

When *txTrafficDescType* is ***7***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the SCR for CLP equal to 0 with cell discard; parameter 3 represents the MBS for CLP equal to 0 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameters 1, 2, and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2. Parameter 5 must either be zero (unused) or greater than or equal to parameter 2.

When *txTrafficDescType* is ***8***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the SCR for CLP equal to 0 traffic with cell tagging; parameter 3 represents the MBS for CLP equal to 0 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameters 1, 2 and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2. Parameter 5 must either be zero (unused) or greater than or equal to parameter 2.

When *txTrafficDescType* is ***9***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the CDVT; parameter 3 represents the MCR; parameter 5 represents the requested shaping rate; and parameter 4 is not used and must be zero. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameter 1 must either be zero or be greater than or equal to parameter 3. Parameter 3 may be

optionally zero. Parameter 5 must either be zero (unused) or greater than or equal to parameter 3.

Whenever it is valid for PCR to be specified, parameter 5 may also be used to specify a requested shaping rate. A non-zero value in parameter 5 overrides the value in parameter 1 and is used as the peak cell rate in the calculations of CAC and the shaping rate.

For *txTrafficDescType* ***3***, ***4***, ***5*** and ***9***, the transmit traffic should be shaped at the next rate less than the PCR.

For *txTrafficDescType* ***6***, ***7,*** and ***8***, the transmit traffic should be shaped at the highest available rate which is between PCR and SCR. However, if there is no available shaping rate between PCR and SCR, traffic should be shaped at the next rate above the PCR.

| | |
|---|---|
| Vector of | Decimal (0..2147483647) |
| Index | Decimal (1..5) |
| Default | ([5] 0) |

### ATTRIBUTE AtmIf Vpt lisp Ptt rxTrafficDescParm (rxTdp)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute is a vector of four traffic parameters whose meanings are defined by the *rxTrafficDescType* attribute. The values of the peak cell rate (PCR) and sustained cell rate (SCR) are expressed in<br>cells/second. The maximum burst size (MBS) is expressed in cells. The value of the cell delay variance tolerance (CDVT) is expressed in microseconds. The values of PCR, SCR, MBS and CDVT are used for the usage parameter control (UPC).<br><br>When *rxTrafficDescType* is ***1*** or ***2***, all of the parameters must be set to zero (unused).<br><br>When *rxTrafficDescType* is ***3***, parameter 1 represents the PCR for CLP0+1 traffic. Parameter 1 must be non-zero. Parameters 2 and 3 must be set to zero (unused). |

When *rxTrafficDescType* is ***4***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the PCR for CLP equal to 0 traffic with cell discard. Parameters 1 and 2 must be non-zero. Parameter 3 must be set to zero (unused). Parameter 1 must be greater than or equal to parameter 2.

When *rxTrafficDescType* is ***5***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the PCR for CLP equal to 0 traffic with cell tagging. Parameters 1 and 2 must be non-zero. Parameter 3 must be set to zero (unused). Parameter 1 must be greater than or equal to parameter 2.

When *rxTrafficDescType* is a ***6***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the SCR for CLP0+1 traffic; parameter 3 represents the MBS for CLP0+1 traffic. Parameters 1, 2, and 3 must be non-zero. Parameter 1 must be greater than or equal to Parameter 2.

When *rxTrafficDescType* is ***7***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the SCR for CLP equal to 0 traffic with cell discard; parameter 3 represents the MBS for CLP equal to 0 traffic. Parameters 1, 2 and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2.

When *rxTrafficDescType* is ***8***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the SCR for CLP equal to 0 traffic with cell tagging; parameter 3 represents the MBS for CLP equal to 0 traffic. Parameter 1, 2, and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2.

When *rxTrafficDescType* is ***9***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the CDVT; parameter 3 represents the MCR. Parameter 4 is not used and must be zero. Parameter 1 must either be zero or be greater than or equal to parameter 3. Parameter 3 may optionally be zero.

When *rxTrafficDescType* is any value from ***3*** through ***8***, parameter 4 represents the CDVT. If this value is zero, the CDVT is taken from the *ConnectionAdministrator* defaults for the particular *atmServiceCategory* of this connection.

When *rxTrafficDescriptorType* is ***3*** through ***9***, there are certain extreme combinations of *rxTrafficDescParm* which are outside the capabilities of the UPC hardware.

To calculate the limits, use the following formulae:
I1 = 1 000 000 000 / PCR
L1 = CDVT * 1000
I2 = 1 000 000 000 / SCR
L2 = CDVT + (MBS - 1) * (I2 - I1)
I1 and I2 must be less than or equal to 335 523 840. I1 + L1 must be less than or equal to 1 342 156 800. I2 + L2 must be less than or equal to 1 342 156 800. Note that I2 and L2 only apply when the *rxTrafficDescriptorType* is ***6*** through ***8***.

If the values of I1, L1, I2, or L2 are closer to the limits described above, a further restriction applies. Specifically, if either:
I1 > 41 940 480 or
I2 > 41 940 480 or
I1 + L1 > 167 769 600 or
I2 + L2 > 167 769 600
then both I1 and I2 must be greater than 20 480.

Parameter 5 of the *rxTrafficDescParm* is always unused.

If the *rxTrafficDescType* is ***sameAsTx***, the values in this attribute are taken from the *txTrafficDescParm*.

| | |
|---|---|
| Vector of | Decimal (0..2147483647) |
| Index | Decimal (1..5) |
| Default | ([5] 0) |

## COMPONENT Atmlf Vpt Iisp ServiceTrace (SrvTrace)

| | |
|---|---|
| Groups | "GROUP AtmIf Vpt Iisp SrvTrace Operational" |
| Scope | Application |
| Description | *AtmIf/n [Vpt/m] Uni ServiceTrace*<br>*AtmIf/n [Vpt/m] Iisp ServiceTrace*<br>*AtmIf/n [Vpt/m] Pnni ServiceTrace*<br>*AtmIf/n [Vpt/m] Aini ServiceTrace* |

The *ServiceTrace* component of the ATM service determines if the trace capability is allowed on this service. If it is not provisioned, then a service trace session cannot be started on this service.

Currently, the ATM Trace features only support ***frAtmTraceRcvr*** and ***atmTraceRcvr*** features, if the name of a X25 or FR receiver is set to the *receiver* attribute of this component, the *Start* command responses with a “Receiver Not Supported” message.

Common Verbs

Help
List
Display
Add
DELete

## VERB Start AtmIf Vpt Iisp SrvTrace

Impact: Service

Description:
*Start AtmIf/n [Vpt/m] Uni ServiceTrace*
*Start AtmIf/n [Vpt/m] Iisp ServiceTrace*
*Start AtmIf/n [Vpt/m] Pnni ServiceTrace*
*Start AtmIf/n [Vpt/m] Aini ServiceTrace*
This command starts a service trace session.

## VERB Stop AtmIf Vpt Iisp SrvTrace

Impact: Service

Description:
*Stop AtmIf/n [Vpt/m] Uni ServiceTrace*
*Stop AtmIf/n [Vpt/m] Iisp ServiceTrace*
*Stop AtmIf/n [Vpt/m] Pnni ServiceTrace*
*Stop AtmIf/n [Vpt/m] Aini ServiceTrace*
This command stops a service trace session.

## GROUP AtmIf Vpt Iisp SrvTrace Operational

Properties: Operational

Description: This group provides the operational attributes for the *SrvTrace* component.

### ATTRIBUTE AtmIf Vpt lisp SrvTrace receiverName (rcvr)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute should be set to the name of the desired trace receiver before starting a trace session. All available trace receivers are listed under the *SrvTrace Rcvr* component. This attribute cannot be set while the service trace is active. The receiver name is validated by the trace manager when the service *SrvTrace* is started. |
| Values | String (0..8, ASCII) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt lisp SrvTrace duration

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the duration, in minutes, of a trace session. A value of ***0*** indicates unlimited duration in which case a trace session remains active until a *Stop* command is issued. This attribute cannot be set while a trace is active. |
| Values | Decimal (0..9999) |
| Units | minutes |
| Default | 60 |

### ATTRIBUTE AtmIf Vpt lisp SrvTrace queueLimit

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the total number of bytes of traced data which may be queued for transmission to the trace receiver. When this limit is exceeded, incoming traced frames are discarded. This attribute can be set while a trace is active and takes effect immediately. |
| Values | Decimal (1..100) |
| Units | Kbyte |
| Default | 20 |

## ATTRIBUTE AtmIf Vpt Iisp SrvTrace session

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the *SrvTrace Session* component that is forwarding the trace data. This attribute is set automatically, and is empty unless the service trace is active. |
| Values | The name of the component |
| Default | No default |

## COMPONENT AtmIf Vpt Iisp Reroute

| | |
|---|---|
| Groups | "GROUP AtmIf Vpt Iisp Reroute LocalOperational (LOper)"<br>"GROUP AtmIf Vpt Iisp Reroute GlobalOperational (GOper)"<br>"GROUP AtmIf Vpt Iisp Reroute Statistics (Stats)" |
| Scope | Device |
| Description | *AtmIf/n Iisp Reroute*<br>*AtmIf/n Aini Reroute*<br>*AtmIf/n Uni Reroute*<br>*AtmIf/n Vpt/vpi Iisp Reroute*<br>*AtmIf/n Vpt/vpi Aini Reroute*<br>*AtmIf/n Vpt/vpi Uni Reroute*<br><br>This component represents the rerouting capabilities of the ATM Signaling interface. If this component is provisioned, the *Artg Pnni* component must already exist. The addition or deletion of this component, or changes to its provisionable attributes, does not affect existing connections. |
| Subcomponents | "COMPONENT AtmIf Vpt Iisp Reroute Ov" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### VERB OPTIMIZE AtmIf Vpt lisp Reroute

| | |
|---|---|
| Impact | Service |
| Description | *Optimize [-all] AtmIf/n Uni outeouteouteouteouteoute*sBy default, only connection segsforation. The best known optimization metric value for the connection segment is indicated by the *localOptimalMetricValue* attribute under the *RerouteInfo* component for the connection.<br>The *-all* option causes all connection segments subscribed to path optimization to be considered.s |

### GROUP AtmIf Vpt lisp Reroute LocalOperational (LOper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes that indicate the local rerouting activities at the interface level. |

### ATTRIBUTE AtmIf Vpt lisp Reroute localSubscribedConnections (lsub)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the connection segments that are subscribed to one or more local rerouting capabilities. Note that a given connection segment is subscribed to either local rerouting capabilities capabilities, not both. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt lisp Reroute localEligibleRecoveredCon (lerc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the connection segments that have been recovered using local rerouting and are eligible for local path optimization. The value decreases as counted connections are released. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Iisp Reroute localIneligibleRecoveredCon (lirc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the connection segments that have been recovered by local rerouting but are not eligible for local path optimization. The value decreases as counted connections are released. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Iisp Reroute localLastRrCauseCode (lrrcc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the value of the last local rerouting cause code received at this interface. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Iisp Reroute localPathsOptimized (lPathsOpt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the paths that were successfully optimized by local rerouting or EBR during the last optimization pass at this interface. Successfully optimized paths are paths that switched to a better route. The value is reset to zero at the beginning of each optimization pass. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP AtmIf Vpt Iisp Reroute GlobalOperational (GOper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes that indicate the global and EBR rerouting activities at the interface level. |

### ATTRIBUTE AtmIf Vpt Iisp Reroute globalSubscribedConnections (gsub)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the connection segments that are subscribed to one or more global and EBR rerouting capabilities. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt lisp Reroute globalEligibleRecoveredCon (gerc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the connections that have been recovered by global and EBR rerouting and are eligible for global or EBR path optimization. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt lisp Reroute globalIneligibleRecoveredCon (girc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the connections that have been recovered by global and EBR rerouting but are not eligible for global or EBR path optimization. The value decreases as counted connections are released. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt lisp Reroute globalLastRrCauseCode (grrcc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the value of the last global or EBR rerouting cause code received at this interface. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt lisp Reroute globalPathsOptimized (gPathsOpt)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the paths that were successfully optimized by global and EBR rerouting during the last optimization pass at this interface. Successfully optimized paths are paths that switched to a better route. The value is reset to zero at the beginning of each optimization pass. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP AtmIf Vpt Iisp Reroute Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the rerouting statistics for the interface. |

### ATTRIBUTE AtmIf Vpt Iisp Reroute totalLocalConnectionRecoveries (tLConRec)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts successful local connection recovery attempts. The counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Iisp Reroute totalLocalFailedRecoveries (lFailedRec)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts failed local connection recovery attempts. A connection recovery attempt fails if a rerouting connection segment can not be established. The counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Iisp Reroute totalLocalPathOptimizations (tLPathOpt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts successful local path optimization attempts. A successful path optimization attempt results in a switch to a |

| | |
|---|---|
| | better route. The counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt lisp Reroute totalGlobalConnectionRecoveries (tGConRec)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts successful global and EBR connection recovery attempts. The counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt lisp Reroute totalGlobalFailedRecoveries (gFailedRec)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts failed global and EBR connection recovery attempts. A connection recovery attempt fails if a rerouting connection segment cannot be established. The counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt lisp Reroute totalGlobalPathOptimizations (tGPathOpt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts successful global and EBR path optimization attempts. A successful path optimization attempt results in a switch to a better route. The counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt lisp Reroute totalOptimizationPasses (optPass)

| | |
|---|---|
| Access | Read only |

Description This attribute counts optimization passes at the interface. Both module and interface optimization passes are counted. The counter wraps to zero when the maximum value is exceeded.

Values Decimal (0..4294967295)

Default No default

## COMPONENT AtmIf Vpt Iisp Reroute Ov

Groups "GROUP AtmIf Vpt Iisp Reroute Ov Provisioned (Prov)"
"GROUP AtmIf Vpt Iisp Reroute Ov LocalProvisioned (LProv)"
"GROUP AtmIf Vpt Iisp Reroute Ov GlobalProvisioned (GProv)"

Scope Device

Description *AtmIf/n Iisp Reroute Ov*
*AtmIf/n Aini Reroute Ov*
*AtmIf/n Uni Reroute Ov*
*AtmIf/n Vpt/vpi Iisp Reroute Ov*
*AtmIf/n Vpt/vpi Aini Reroute Ov*
*AtmIf/n Vpt/vpi Uni Reroute Ov*

This component represents the provisioning capabilities of the rerouting functionality for the ATM Signaling interface.

Common Verbs
Help
List
Display

## GROUP AtmIf Vpt Iisp Reroute Ov Provisioned (Prov)

Properties Provisioned

Description This group contains the common provisionable attributes for rerouting capabilities at the ATM signaling interface.

## ATTRIBUTE AtmIf Vpt Iisp Reroute Ov protocol

Access Read and write

Description This attribute specifies the rerouting protocols which are requested by connection segments on the interface, for which this node is the first rerouting node. This attribute has no effect on connection segments for which this node is not the first rerouting

node. A subset of the requested protocols is granted by the last rendezvous node, according to its software level and provisioning.

One of the following values can be specified:
***sameAsARtgPnniReroute***: The requested rerouting protocols are specified by the *Artg Pnni Reroute protocol* attribute.
***localGlobal***: Local and global rerouting protocols are requested. Local and global rerouting are granted if the DTL terminator is provisioned with the Rerouting feature.
***localOnly***: Local rerouting is requested. This value guarantees interoperability with other vendors' equipment running the ATM Forum "Domain Based Rerouting" protocol. Local rerouting is granted if the DTL terminator is provisioned with the Rerouting feature.
***globalOnly***: Global rerouting is requested. Global rerouting is granted if the DTL terminator is provisioned with the Rerouting feature.
***localEbr*:** Local and EBR rerouting protocols are requested. Local rerouting is granted if the DTL terminator is provisioned with the Rerouting feature. Alternatively, EBR is granted if the DTL terminator is provisioned with the EBR feature.
***ebrOnly***: EBR is requested. EBR is granted if the DTL terminator is provisioned with the EBR feature.

Values

localGlobal
localOnly
globalOnly
localEbr
ebrOnly
sameAsARtgPnniReroute (sameAs)

Default

sameAsARtgPnniReroute

## ATTRIBUTE AtmIf Vpt lisp Reroute Ov numOptAttempts

Access

Read and write

Description

This attribute specifies the number of path optimizations attempted before declaring a recovered connection segment to be optimally routed. Following a connection recovery, each manual and automatic path optimization will attempt to optimize the connection segment. When a path is found with a better

optimization metric than the best known value, or the number of optimization attempts is exhausted, the current optimization metric is declared to be the new optimal metric for the connection segment. Subsequent path optimizations will not attempt to optimize the connection segment unless all subscribed connection segments are eligible for path optimization.

If the value is set to ***0***, the optimization metric of a connection segment following connection recovery is declared to be the new optimal metric, and no connection recovery alarm is issued. A subsequent path optimization will not attempt to optimize the connection segment unless all subscribed connection segments are eligible for path optimization.

If the value is set to ***sameAsARtgPnniReroute***, the value of the *ARtg Pnni Reroute numOptAttempts* attribute is used.

Values: Decimal (0..15)
sameAsARtgPnniReroute (sameAs)

Default: sameAs

## ATTRIBUTE AtmIf Vpt Iisp Reroute Ov moduleOptimizationConnections

Access: Read and write

Description: This attribute specifies which connection segments on the interface will be considered by a module optimization pass as controlled by the *ARtg Pnni Reroute* component.

One of the following values can be specified:
***sameAsARtgPnniReroute***: The connection segments to be considered by a module optimization pass are specified by the *Artg Pnni Reroute moduleOptimization* attribute.
***none***: No connection segments are considered for path optimization.
***recoveredOnly***: Only connection segments which are foration. The best known optimization metric value for the connection segment is indicated by the *localOptimalMetricValue* attribute under the *RerouteInfo* component for the connection
***allSubscribed***: All connection segments subscribed to path optimization are considered.

| | |
|---|---|
| Values | none<br>recoveredOnly<br>allSubscribed<br>sameAsARtgPnniReroute (sameAs) |
| Default | sameAsARtgPnniReroute |

### ATTRIBUTE AtmIf Vpt Iisp Reroute Ov switchoverMechanism

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the mechanism used for switchover of a rerouted connection segment.<br><br>One of the following values can be specified:<br>***sameAsARtgPnniReroute***: The switchover mechanism is specified by the *ARtg Pnni Reroute switchoverMechanism* attribute.<br>***standard***: The mechanism described in the ATM Forum "Domain based Rerouting" specification is used for switchover. This value ensures interoperability with other vendors' equipment running ATM Forum "Domain based Rerouting".<br>***rcl***: The Reduced Cell Loss mechanism is used for switchover. RCL is a value-added Passport extension to the standard mechanism that allows faster switchover time. |
| Values | standard<br>rcl<br>sameAsARtgPnniReroute (sameAs) |
| Default | sameAsARtgPnniReroute |

### GROUP AtmIf Vpt Iisp Reroute Ov LocalProvisioned (LProv)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for EBR and local rerouting protocols. |

### ATTRIBUTE AtmIf Vpt Iisp Reroute Ov localConnectionRecoverySubscr (lConRec)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies which connection segments on the interface request subscription to local connection recovery. This attribute only affects connection segments that request the local |

rerouting protocols. This attribute affects connection segments for a node that is either local domain rerouting node or a DTL originator.

Connection segments of the specified type(s) which request ***localGlobal*** or ***localOnly*** protocols request subscription to local connection recovery.

Connection segments of the specified type(s) which request ***localEbr*** request subscription to both local connection recovery and EBR connection recovery. Only one will be granted.

One or more of the following values can be specified:
***sameAsARtgPnniReroute:*** If this value is set, the local connection recovery subscription rule is determined by the *ARtg Pnni Reroute localConnectionRecoverySubscr* attribute. This value takes precedence over any other values.
***svcSvp***: If this value is set, all SVC and SVP connection segments request subscription to local connection recovery.
***sourceSpvcSpvp***: If this value is set, all source SPVC and SPVP connection segments request subscription to local connection recovery.
***transitSpvcSpvp***: If this value is set, all transit SPVC and SPVP connection segments request subscription to local connection recovery.

Set of — sameAsARtgPnniReroute (sameAs)
svc
sourceSpvcSpvp (source)
transitSpvcSpvp (transit)

Default — (sameAsARtgPnniReroute)

## ATTRIBUTE AtmIf Vpt lisp Reroute Ov localPathOptimizationSubscr (lPathOpt)

Access — Read and write

Description — This attribute specifies which connection segments on the interface request subscription to local path optimization. This attribute only affects connection segments that request the local rerouting protocols. This attribute affects connection segments for a node that is either local domain rerouting node or a DTL originator.

Connection segments of the specified type(s) which request ***localGlobal*** or ***localOnly*** protocols request subscription to local path optimization.

Connection segments of the specified type(s) which request ***localEbr*** request subscription to both local path optimization and EBR path optimization. Only one will be granted.

One or more of the following values can be specified:
***sameAsARtgPnniReroute***: If this value is set, the local path optimization subscription rule is determined by the *ARtg Pnni Reroute localPathOptimizationSubscr* attribute. This setting takes precedence over the any other values.
***svcSvp***: If this value is set, then all SVC and SVP connection segments request subscription to local path optimization.
***sourceSpvcSpvp***: If this value is set, then all source SPVC and SPVP connection segments request subscription to local path optimization.
***transitSpvcSpvp***: If this value is set, then all transit SPVC and SPVP connection segments request subscription to local path optimization.

Set of: sameAsARtgPnniReroute (sameAs)
svc
sourceSpvcSpvp (source)
transitSpvcSpvp (transit)

Default: (sameAsARtgPnniReroute)

## GROUP AtmIf Vpt Iisp Reroute Ov GlobalProvisioned (GProv)

Properties: Provisioned

Description: This group contains the provisionable attributes for the global and EBR rerouting protocol.

## ATTRIBUTE AtmIf Vpt Iisp Reroute Ov globalConnectionRecoverySubscr (gConRec)

Access: Read and write

Description: This attribute specifies which connection segments on the interface request subscription to global or EBR connection recovery. This attribute only affects connection segments that

request the global or EBR rerouting protocols. This attribute affects connection segments for a node that is a DTL originator.

Connection segments of the specified type(s) which request ***localGlobal*** or ***globalOnly*** protocols request subscription to global connection recovery.

Connection segments of the specified type(s) which request ***ebrOnly*** request subscription to EBR connection recovery.

Connection segments of the specified type(s) which request ***localEbr*** request subscription to both local connection recovery and EBR connection recovery. Only one will be granted.

One or more of the following values can be specified:
***sameAsARtgPnniReroute***: If this value is set, the global or EBR connection recovery subscription rule is determined by the *ARtg Pnni Reroute globalConnectionRecoverySubscr* attribute.This setting takes precedence over any other values.
***svcSvp***: If this value is set, then all SVC and SVP connection segments request subscription to global or EBR connection recovery.
***sourceSpvcSpvp***: If this value is set, then all source SPVC and SPVP connection segments request subscription to global or EBR connection recovery.
***transitSpvcSpvp***: If this value is set, then all transit SPVC and SPVP connection segments request subscription to global or EBR connection recovery.

Set of — sameAsARtgPnniReroute (sameAs)
svc
sourceSpvcSpvp (source)
transitSpvcSpvp (transit)

Default — (sameAsARtgPnniReroute)

## ATTRIBUTE AtmIf Vpt Iisp Reroute Ov globalPathOptimizationSubscr (gPathOpt)

Access — Read and write

Description — This attribute specifies which connection segments on the interface request subscription to global or EBR path optimization. This attribute only affects connection segments that request the

global or EBR rerouting protocols. This attribute affects connection segments for a node that is a DTL originator.

Connection segments of the specified type(s) which request ***localGlobal*** or ***globalOnly*** protocols request subscription to global path optimization.

Connection segments of the specified type(s) which request ***ebrOnly*** request subscription to EBR path optimization.

Connection segments of the specified type(s) which request ***localEbr*** request subscription to both local path optimization and EBR path optimization. Only one will be granted.

One or more of the following values can be specified:
***sameAsARtgPnniReroute***: If this value is set, the global or EBR path optimization subscription rule is determined by the *ARtg Pnni Reroute globalPathOptimizationSubscr* attribute. This setting takes precedence over any other values.
***svcSvp***: If this value is set, then all SVC and SVP connection segments request subscription to global or EBR path optimization.
***sourceSpvcSpvp***: If this value is set, then all source SPVC and SPVP connection segments request subscription to global or EBR path optimization.
***transitSpvcSpvp***: If this value is set, then all transit SPVC and SPVP connection segments request subscription to global or EBR path optimization.

Set of — sameAsARtgPnniReroute (sameAs)
svc
sourceSpvcSpvp (source)
transitSpvcSpvp (transit)

Default — (sameAsARtgPnniReroute)

## COMPONENT AtmIf Vpt Pnni

Groups — "GROUP AtmIf Vpt Pnni Provisioned (Prov)"
"GROUP AtmIf Vpt Pnni AdminWeights"
"GROUP AtmIf Vpt Pnni AccountingOptions (AcctOpt)"
"GROUP AtmIf Vpt Pnni Operational"

| | |
|---|---|
| | "GROUP AtmIf Vpt Pnni VPnniProvisioned (VProv)"<br>"GROUP AtmIf Vpt Pnni Threshold"<br>"GROUP AtmIf Vpt Pnni TraceProv (Trace)" |
| Scope | Device |
| Description | *AtmIf/n VirtualPathTerminator/m Pnni*<br>This component represents a virtual ATM Private Network-Network Interface (PNNI) interface. If this component is provisioned, neither a *Uni*, an *Aini*, nor an *Iisp* component can be provisioned under the same *Vpt* component. Also, the *ARtg Pnni* component and the *ConfiguredNode* component corresponding to the participation of this node in a lowest level peer group must both exist if a *Pnni* component is to be provisioned under a *Vpt* component. If this component is deleted, then all associated *Vcc* components are deleted. |
| Subcomponents | "COMPONENT AtmIf Vpt Pnni Signalling (Sig)"<br>"COMPONENT AtmIf Vpt Pnni RoutingControlChannel (Rcc)" |
| Opt. Subcomp. | "COMPONENT AtmIf Vpt Pnni PathTraceFilter (Ptf)"<br>"COMPONENT AtmIf Vpt Pnni ServiceTrace (SrvTrace)" |
| Dyn. Subcomp. | "COMPONENT AtmIf Vpt Pnni PathTraceTestConnection (Ptt)" |
| Dyn. Subcomp. | "COMPONENT AtmIf Vpt Pnni Address (Addr)"<br>"COMPONENT AtmIf Vpt Pnni Reroute" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP AtmIf Vpt Pnni Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the Pnni component. |

### ATTRIBUTE AtmIf Vpt Pnni softPvpAndPvcRetryPeriod

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute represents the time in seconds to wait between soft PVP or soft PVC call setup retries. The resolution is to the nearest 10 seconds. |
| Values | Decimal (20..999999) |
| Units | seconds |
| Default | 60 |

### ATTRIBUTE AtmIf Vpt Pnni softPvpAndPvcHoldOffTime (sHoldOffTime)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies how long to hold off retries following the release of a connection. Due to the way group timers are implemented, it can take from 100% to 150% of the provisioned timer to trigger the desired action. Since SPVC retries are paced, in cases where there are many connections, the entire process can take more than 150% of the provisioned timer value. |
| Values | Decimal (0; 50..20000) |
| Units | msec |
| Default | 0 |

### GROUP AtmIf Vpt Pnni AdminWeights

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable administrative weights for the *Pnni* component. These weights will be used by Generic Connection Admission Control (GCAC) if administrative weight is the selected optimization criterion. |

### ATTRIBUTE AtmIf Vpt Pnni cbrWeight (cbrWt)

| | |
|---|---|
| Access | Read: All<br>Write: All |

| | |
|---|---|
| Description | This attribute specifies the administrative weight assigned for setting up switched calls with a service category of Constant Bit Rate (CBR) for this PNNI interface. The value specified will be used by Generic Connection Admission Control (GCAC) if administrative weight is the selected optimization criterion; the higher the value, the less desirable the link will be in path selection. |
| Values | Decimal (1..16777215) |
| Default | 5040 |

### ATTRIBUTE AtmIf Vpt Pnni rtVbrWeight (rtVbrWt)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the administrative weight assigned for setting up switched calls with a service category of Real-Time Variable Bit Rate (RT-VBR) for this PNNI interface. The value specified will be used by Generic Connection Admission Control (GCAC) if administrative weight is the selected optimization criterion; the higher the value, the less desirable the link will be in path selection. |
| Values | Decimal (1..16777215) |
| Default | 5040 |

### ATTRIBUTE AtmIf Vpt Pnni nrtVbrWeight (nrtVbrWt)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the administrative weight assigned for setting up switched calls with a service category of Non Real-Time Variable Bit Rate (NRT-VBR) for this PNNI interface. The value specified will be used by Generic Connection Admission Control (GCAC) if administrative weight is the selected optimization criterion; the higher the value, the less desirable the link will be in path selection. |
| Values | Decimal (1..16777215) |
| Default | 5040 |

### ATTRIBUTE AtmIf Vpt Pnni ubrWeight (ubrWt)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the administrative weight assigned for setting up switched calls with a service category of Unspecified Bit Rate (UBR) for this PNNI interface. The value specified will be used by Generic Connection Admission Control (GCAC) if administrative weight is the selected optimization criterion; the higher the value, the less desirable the link will be in path selection. |
| Values | Decimal (1..16777215) |
| Default | 5040 |

### GROUP AtmIf Vpt Pnni AccountingOptions (AcctOpt)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for accounting. |

### ATTRIBUTE AtmIf Vpt Pnni accountCollection (aco)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute is used to turn accounting on or off for SVC and SPVC connections. It also specifies the reason(s) for which accounting data is collected: ***billing***, ***test***, ***study***, ***audit***, or ***force***.<br><br>If the set of reasons is not empty then accounting records will be generated by this interface in the following situations:<br>- on a TODA changeover if TODA is enabled;<br>- every 12 hours (per connection) if TODA is disabled;<br>- on every call clear (a call record with final cell counts).<br><br>If none of the reasons is present, then accounting will be suppressed.<br><br>The reason for collection is recorded in the accounting record, in |

the attribute *callingCollectReason* or *calledCollectReason* as appropriate.

Set of
bill
test
study
audit
force

Default
No default

### ATTRIBUTE AtmIf Vpt Pnni accountConnectionType (act)

Access
Read: All
Write: All

Description
This attribute specifies whether accounting records generated by this interface should be marked as originating, terminating or intermediate. This attribute, in combination with the direction of the call, determines the value of attribute *connPointType* of the accounting record and may be used by downstream accounting processes to correlate the records.

If the value is ***origTerm*** then records generated for incoming calls will be marked as ***originating*** and records generated for outgoing calls will be marked as ***terminating***.

If the value is ***intermediate*** then records generated for all calls will be marked as ***intermediate***.

Values
origTerm
intermediate

Default
intermediate

### ATTRIBUTE AtmIf Vpt Pnni accountClass (acl)

Access
Read: All
Write: All

Description
This attribute specifies the accounting class associated with the interface. Its meaning is determined by the network operator.

Its value is simply recorded in the accounting records generated

| | |
|---|---|
| | by this interface, in the attribute *callingServiceType* or *calledServiceType* as appropriate. |
| Values | Decimal (0..255) |
| Default | 0 |

### ATTRIBUTE AtmIf Vpt Pnni serviceExchange (sre)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the data service exchange associated with this interface. Its meaning is determined by the network operator.<br><br>Its value is simply recorded in the accounting records generated by this interface, in the attribute *callingDse* or *calledDse* as appropriate. |
| Values | Decimal (0..255) |
| Default | 0 |

### GROUP AtmIf Vpt Pnni Operational

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for a *Pnni* component. |

### ATTRIBUTE AtmIf Vpt Pnni portId

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the port id of the PNNI interface, which is the parent *AtmIf*'s instance number. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP AtmIf Vpt Pnni VPnniProvisioned (VProv)

| | |
|---|---|
| Properties | Provisioned |

| | |
|---|---|
| Description | This group contains the provisionable attributes for the *Pnni* component which are specific to virtual PNNI interfaces. |

### ATTRIBUTE AtmIf Vpt Pnni vpci

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the Virtual Path Connection Identifier (VPCI) to be used between this signaling entity and its peer. The VPCI of the peer virtual PNNI must have the same value for switched connections to be set up across the interface. |
| Values | Decimal (0..255) |
| Default | 0 |

### GROUP AtmIf Vpt Pnni Threshold

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the change threshold for the *Atmif Pnni* component. |

### ATTRIBUTE AtmIf Vpt Pnni avcrMt

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute, multiplied by the Maximum Cell Rate, specifies the minimum threshold used in the algorithms that determine significant change for average cell rate parameters for this interface. If the value of this attribute is ***sameAsPnni***, then the actual value is taken from *ARtg Pnni avcrMt*. |
| Values | Decimal (1..99)<br>sameAsPnni |
| Units | % |
| Default | sameAsPnni |

### ATTRIBUTE AtmIf Vpt Pnni avcrPm

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute multiplied by the current Available Cell Rate (AvCr) specifies the threshold used in the algorithms that determine significant change for AvCR parameters for this interface. If the resulting threshold is lower than the AvCr, the minimum threshold (*Atmif pnni avcrMt*) is used.<br><br>Increasing the value of the attribute increases the range of insignificance and reduces the amount of PTSP flooding due to changes in resource availability. If the value of this attribute is ***sameAsPnni***, then the actual value is taken from *ARtg Pnni avcrPm*. |
| Values | Decimal (1..99)<br>sameAsPnni |
| Units | % |
| Default | sameAsPnni |

### GROUP AtmIf Vpt Pnni TraceProv (Trace)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable trace attributes for the Pnni component. |

### ATTRIBUTE AtmIf Vpt Pnni traceDestination (tDst)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies if this node is a trace destination. A PNNI interface may be a trace destination interface. By default, it's not. If an operator wants to trace only until this PNNI interface, this interface can be set to trace destination by setting this attribute. |
| Values | no<br>yes |
| Default | no |

## COMPONENT AtmIf Vpt Pnni Signalling (Sig)

| | |
|---|---|
| Groups | "GROUP AtmIf Vpt Pnni Sig Provisioned (Prov)"<br>"GROUP AtmIf Vpt Pnni Sig OsiState (State)"<br>"GROUP AtmIf Vpt Pnni Sig Operational (Oper)"<br>"GROUP AtmIf Vpt Pnni Sig Statistics (Stats)" |
| Scope | Device |
| Description | *AtmIf/n Aini Signalling*<br>*AtmIf/n Iisp Signalling*<br>*AtmIf/n Uni Signalling*<br>*AtmIf/n Pnni Signalling*<br>*AtmIf/n Vpt/m Aini Signalling*<br>*AtmIf/n Vpt/m Iisp Signalling*<br>*AtmIf/n Vpt/m Uni Signalling*<br>*AtmIf/n Vpt/m Pnni Signalling*<br><br>This component represents the signaling entities for the interface. |
| Opt. Subcomp. | "COMPONENT AtmIf Vpt Pnni Sig VirtualChannelDescriptor (Vcd)" |
| Common Verbs | Help<br>List<br>Display |

## GROUP AtmIf Vpt Pnni Sig Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This attribute group contains the provisionable attributes for the *Signalling* component. |

## ATTRIBUTE AtmIf Vpt Pnni Sig vci

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the signaling channel number. |
| Values | Decimal (0..65535) |

Default 5

### ATTRIBUTE AtmIf Vpt Pnni Sig addressConversion

Access
Read: All
Write: All

Description
This attribute specifies the address conversion on the outgoing signaling PDUs. The options are ***none***, ***nativeE164***, or ***nsap***. The ***none*** option is the default and if this option is chosen then nothing is done to the address information element (IE) in the outgoing signaling message. If ***nativeE164*** option is chosen, then only NSAP encapsulated E.164 addresses with zeros in the ESI are converted to native E.164 format in the outgoing signaling message. If the NSAP address is not encapsulated E.164 or the ESI field is not zeros and the ***nativeE164*** option is chosen, then the call is cleared. If the ***nsap*** option is chosen, then native E.164 addresses are converted to NSAP E.164 with zeros in the ESI field; otherwise the address is in NSAP format and is not changed.

Values
none
nativeE164
nsap

Default none

### ATTRIBUTE AtmIf Vpt Pnni Sig operatingMode

Access
Read: All
Write: All

Description
This attribute specifies the operating mode of the signaling channel ***provisionedOnly*** indicates that only SPVCs and SPVPs are supported on the interface and SVCs are not supported. This value is permitted only on UNI interfaces.
***normal*** indicates that SVCs, SPVCs, and SPVPs are supported on the interface.

Values
normal
provisionedOnly

Default normal

## GROUP AtmIf Vpt Pnni Sig OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

## ATTRIBUTE AtmIf Vpt Pnni Sig adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

## ATTRIBUTE AtmIf Vpt Pnni Sig operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component. |

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

## ATTRIBUTE AtmIf Vpt Pnni Sig usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

## GROUP AtmIf Vpt Pnni Sig Operational (Oper)

Properties
Operational

Description
This attribute contains the operational attributes for the AtmSignalling component.

### ATTRIBUTE AtmIf Vpt Pnni Sig lastTxCauseCode

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the cause code in the last transmitted signaling message that contains the CAUSE information element. The cause code is used to describe the reason for generating certain signaling messages. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Pnni Sig lastTxDiagCode

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute contains the diagnostic code in the last transmitted signaling message. The diagnostic code is contained in the CAUSE information element and identifies an information element type or timer type. The diagnostic code is present only if a procedural error is detected by the signaling protocol. A diagnostic code is always accompanied by the cause code. If there is no failure, this attribute is set to 0. |
| Values | Hex (H.0..H.ff) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Pnni Sig lastRxCauseCode

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute contains the cause code in the last received signaling message that contains the CAUSE information element. The cause code is used to describe the reason for generating certain signaling messages. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Pnni Sig lastRxDiagCode

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute contains the diagnostic code in the last received signaling message. The diagnostic code is contained in the CAUSE information element and identifies an information element type or timer type. The diagnostic code is present only if a procedural error is detected by the signaling protocol. A diagnostic code is always accompanied by the cause code. If there is no failure, this attribute is set to 0. |
| Values | Hex (H.0..H.ff) |
| Default | No default |

### GROUP AtmIf Vpt Pnni Sig Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains the statistics associated with the AtmSignalling component. |

### ATTRIBUTE AtmIf Vpt Pnni Sig peakConnections

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the high water mark of active point-to-point connections. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Pnni Sig successfulConnections

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of switched point-to-point connections that were successfully established. The counter wraps to 0 when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE AtmIf Vpt Pnni Sig failedConnections

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of unsuccessful attempts to establish switched point-to-point connections. The counter wraps to 0 when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Pnni Sig txPdus

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of transmitted signaling PDUs.The counter wraps to 0 when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Pnni Sig rxPdus

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of received signaling PDUs.The counter wraps to 0 when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Pnni Sig currentPmpConnections

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of currently active point-to-multipoint connections. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Pnni Sig peakPmpConnections

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the high water mark of active point-to-multipoint connections. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Pnni Sig successfulPmpConnections

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of switched point-to-multipoint connections that were successfully established. The counter wraps to 0 when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Pnni Sig failedPmpConnections

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of unsuccessful attempts to establish switched point-to-multipoint connections. The counter wraps to 0 when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Pnni Sig currentConnections

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute indicates the total number of currently active point-to-<br>point connections. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## COMPONENT AtmIf Vpt Pnni Sig VirtualChannelDescriptor (Vcd)

| | |
|---|---|
| Groups | "GROUP AtmIf Vpt Pnni Sig Vcd Provisioned (Prov)" |
| Scope | Device |
| Description | *AtmIf/n Uni Sig VirtualChannelDescriptor*<br>*AtmIf/n Uni Ilmi VirtualChannelDescriptor*<br>*AtmIf/n Aini Sig VirtualChannelDescriptor*<br>*AtmIf/n Iisp Sig VirtualChannelDescriptor*<br>*AtmIf/n Pnni Sig VirtualChannelDescriptor*<br>*AtmIf/n Pnni Rcc VirtualChannelDescriptor*<br>*AtmIf/n Vpt/m Uni Sig VirtualChannelDescriptor*<br>*AtmIf/n Vpt/m Aini Sig VirtualChannelDescriptor*<br>*AtmIf/n Vpt/m Iisp Sig VirtualChannelDescriptor*<br>*AtmIf/n Vpt/m Pnni Sig VirtualChannelDescriptor*<br>*AtmIf/n Vpt/m Pnni Rcc VirtualChannelDescriptor*<br><br>This component contains the provisionable traffic parameters for a control channel (Sig, *Ilmi* or *Rcc* component). |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP AtmIf Vpt Pnni Sig Vcd Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable traffic attributes for a control channel. |

### ATTRIBUTE AtmIf Vpt Pnni Sig Vcd trafficDescType (tdt)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the type of traffic management which is applied to both the transmit and receive direction of this connection as defined in the ATM Forum. The *trafficDescType* determines the number and meaning of the parameters in the *trafficDescParm* attribute. |
| Values | 3<br>6<br>7<br>8 |
| Default | 6 |

### ATTRIBUTE AtmIf Vpt Pnni Sig Vcd atmServiceCategory (service)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the ATM service category for both directions of the connection.<br><br>The ***constantBitRate*** service category is intended for real time applications, that is those requiring tightly constrained delay and delay variation, as would be appropriate for voice and video applications. The consistent availability of a fixed quantity of bandwidth is considered appropriate for CBR service. Cells which are delayed beyond the value specified by CellTransfer Delay are assumed to be of significantly reduce value to the application.<br><br>The ***rtVariableBitRate*** service category is intended for real time applications, that is those requiring tightly constrained delay and delay variation, as would be appropriate for voice and video applications. Sources are expected to transmit at a rate which varies with time. Equivalently, the source can be described as |

"bursty". Cells which are delayed beyond the value specified by CTD are assumed to be of significantly reduced value to the application. Real time VBR service may support statistical multiplexing of real time sources.

The ***nrtVariableBitRate*** service category is intended for non-real time applications which have bursty traffic characteristics and which can be characterized in terms of a PCR, SCR, and MBS. For those cells which are transferred within the traffic contract, the application expects a low cell loss ratio. For all connections, it expects a bound on the mean cell transfer delay. Non-real time VBR service may support statistical multiplexing of connections.

The ***unspecifiedBitRate*** service is intended for non-real time applications; that is, those not requiring tightly constrained delay and delay variation. UBR sources are expected to be bursty. UBR service supports a high degree of statistical multiplexing among sources. UBR service does not specify traffic related service guarantees. No numerical commitments are made with respect to the cell loss ratio experienced by a UBR connection, or as to the cell transfer delay experienced by cells on the connection.

Values
unspecifiedBitRate (ubr)
constantBitRate (cbr)
rtVariableBitRate (rtvbr)
nrtVariableBitRate (nrtvbr)

Default
rtVariableBitRate

## ATTRIBUTE AtmIf Vpt Pnni Sig Vcd weight

Access
Read and write

Criticality
Component

Description
This VCD component has an attribute that is called atmServiceCategory. This attribute specifies the service category that is used by the sig, rcc or ilmi channel. The *weight* attribute is related to two other attributes which are *weightPolicy* and *txQueueLimit*, as mentioned in the following description. These attributes can be found under the atmif/n ca <atmServiceCategory>/ m.

This attribute specifies an override for the *weight* of this unshaped connection. This attribute is ignored for shaped connections, for ABR connections, for connections on a CQC-based ATM FPs and basic VPTs.

When the value is set to ***sameAsCa***, the *weight* is determined by the *weightPolicy* attribute under the CA service category component for all but standard VPT VCCs. For standard VPT VCCs, the *weight* is determined by the VCC's service category, when the value is set to ***sameAsCa***.

When this attribute is set to a value from ***1*** to ***4095***, that value is used for the *weightPolicy* of this connection relative to other connections. For all but standard VPT VCCs, *weightPolicy* determines the proportion of transit cell opportunities which are allocated to this connection, compared to other connections in the same service category. For standard VPT VCCs, *weightPolicy* determines the proportion of transmit cell opportunities which are allocated to this connection, compared to other connections associated with the VPT.

When the value is set to ***upToQueueLimit***, the *weightPolicy* is limited only by the *txQueueLimit*.

Values: Decimal (1..4095)
sameAsCa
upToQueueLimit

Default: sameAsCa

## ATTRIBUTE AtmIf Vpt Pnni Sig Vcd qosClass (qos)

Access: Read and write

Criticality: Component

Description: This attribute specifies the quality of service for both the forward and backward direction for this connection.

Class ***1*** supports a QOS that meets Service Class A performance requirements (Circuit emulation, constant bit rate video).

Class ***2*** supports a QOS that meets Service Class B performance

requirements (Variable bit rate audio and video).

Class ***3*** supports a QOS that meets Service Class C performance requirements (Connection-Oriented Data Transfer).

Class ***4*** supports a QOS that meets Service Class D performance requirements (Connectionless Data Transfer).

Class ***0*** is the unspecified bit rate QOS class; no objective is specified for the performance parameters.

Values
0
1
2
3
4

Default
2

## ATTRIBUTE AtmIf Vpt Pnni Sig Vcd trafficShaping (trShaping)

Access
Read and write

Criticality
Component

Description
This attribute specifies whether this connection uses traffic shaping when transmitting traffic to the ATM interface.

When ***sameAsCa*** is selected, traffic shaping for this connection is based on the *trafficShaping* attribute of the connection's service category component under the *AtmIf CA*. If the service category has traffic shaping enabled, then traffic shaping is enabled for the connection. Note that enabling traffic shaping may have no effect under certain cases. These cases are listed in the description of the *trafficShaping* operational attribute, which is under the *Vcc Tm* and *Vpc Tm* components.

When ***disabled*** is selected, traffic shaping for this connection is disabled.

Values
disabled
sameAsCa

Default
disabled

### ATTRIBUTE AtmIf Vpt Pnni Sig Vcd unshapedTransmitQueueing (unshap)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute only applies when this connection is unshaped. This attribute specifies the transmit queuing method for this connection if it is unshaped. Refer to the *unshapedTransmitQueueing* attribute under the *AtmIf CA* service category subcomponent for more details on the meaning of this attribute.<br><br>When this attribute is set to ***sameAsCa***, the transmit queuing method for the connection is based on the *unshapedTransmitQueueing* attribute of the connection's service category component under the *ConnectionAdministrator.*<br><br>When this attribute is set to ***common***, transmit traffic on this unshaped connection is destined for the common queue.<br><br>The value ***sameAsInterface*** is for migration from previous software releases, but should no longer be used |
| Values | common<br>sameAsCa |
| Default | sameAsCa |

### ATTRIBUTE AtmIf Vpt Pnni Sig Vcd usageParameterControl (upc)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies whether this connection enforces usage parameter control when receiving traffic from the ATM interface.<br><br>When ***sameAsCa*** is selected, UPC for the connection is based on the *usageParameterControl* attribute of the connection's service category component under the *ConnectionAdministrator.* If the service category has UPC enabled, then UPC is enabled for the connection. Note that enabling UPC may have no effect under |

certain cases. These cases are listed in the description of the *usageParameterControl* operational attribute, which is under the *Vcc Tm* or *Vpc Tm* component.

When ***disabled*** is selected, UPC for this connection is disabled.

The value ***sameAsInterface*** is for migration from previous software releases, but should no longer be used

Values
disabled
sameAsCa

Default
disabled

## ATTRIBUTE AtmIf Vpt Pnni Sig Vcd trafficDescParm (tdp)

Access
Read: All
Write: All

Criticality
Component

Description
This attribute is a vector of five traffic parameters whose meanings are defined by the *trafficDescType* attribute. The values of peak cell rate (PCR), sustained cell rate (SCR) and requested shaping rate are expressed in cell/s. Maximum burst size (MBS) is expressed in cells. CDVT is expressed in microseconds. The values of PCR, SCR, MBS and CDVT are used for connection admission control (CAC). The value of CDVT is only used for connections where the *atmServiceCategory* is ***constantBitRate***. For all other values of *atmServiceCategory*, CDVT is ignored. The values of PCR, SCR and requested shaping rate are used to determine the actual shaping rate where traffic shaping is enabled.

When *trafficDescType* is ***3***, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameter 1 must be non-zero. Parameters 2 and 3 must be zero.

When *trafficDescType* is ***6***, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for

CLP equal to 0 and 1 traffic; parameter 3 represents the MBS for CLP equal to 0 and 1 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameters 1, 2, and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2. Parameter 5 must either be zero (unused) or greater than or equal to parameter 2.

When *trafficDescType* is ***7***, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 with cell discard; parameter 3 represents the MBS for CLP equal to 0 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameters 1, 2, and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2. Parameter 5 must either be zero (unused) or greater than or equal to parameter 2.

When *trafficDescType* is ***8***, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 traffic with cell tagging; parameter 3 represents the MBS for CLP equal to 0 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameters 1, 2, and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2. Parameter 5 must either be zero (unused) or greater than or equal to parameter 2.

Whenever it is valid for PCR to be specified, parameter 5 may also be used to specify a requested shaping rate. A non-zero value in parameter 5 overrides the value in parameter 1 and is used as the peak cell rate in calculations of CAC and shaping rate.

For *trafficDescType* ***3*** the traffic is shaped at the next rate less than the PCR.

For *trafficDescType* ***6***, ***7***, and ***8***, the traffic is shaped at the highest available rate which is between PCR and SCR. However, if there

| | |
|---|---|
| | is no available shaping rate between PCR and SCR, traffic is shaped at the next rate above the PCR. |
| Vector of | Decimal (0..2147483647) |
| Index | Decimal (1..5) |
| Default | (250, 160, 5, 0, 0) |

## COMPONENT AtmIf Vpt Pnni RoutingControlChannel (Rcc)

| | |
|---|---|
| Groups | "GROUP AtmIf Vpt Pnni Rcc Provisioned (Prov)"<br>"GROUP AtmIf Vpt Pnni Rcc HelloParms (HlParms)"<br>"GROUP AtmIf Vpt Pnni Rcc OsiState (State)"<br>"GROUP AtmIf Vpt Pnni Rcc Operational (Oper)"<br>"GROUP AtmIf Vpt Pnni Rcc Statistics (Stats)" |
| Scope | Device |
| Description | *AtmIf/n Pnni RoutingControlChannel*<br>*AtmIf/n Vpt/m Pnni RoutingControlChannel*<br><br>This component represents the Routing Control Channel (RCC) associated with a PNNI interface. The RCC is used to exchange routing information between nodes in a peer group. |
| Opt. Subcomp. | "COMPONENT AtmIf Vpt Pnni Rcc VirtualChannelDescriptor (Vcd)" |
| Common Verbs | Help<br>List<br>Display |

## GROUP AtmIf Vpt Pnni Rcc Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the generic provisionable attributes of an *Rcc* component. |

### ATTRIBUTE AtmIf Vpt Pnni Rcc vci

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the VCI for the Routing Control Channel (RCC). The value should not be changed from the default of 18 unless absolutely necessary. If a different VCI is specified, ensure that the RCC at the far end is provisioned to use the same VCI, otherwise the RCC will not come up. |
| Values | Decimal (0..65535) |
| Default | 18 |

### ATTRIBUTE AtmIf Vpt Pnni Rcc aggregationToken

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the aggregation token for this interface at the local end of the link. The aggregation tokens at both ends are use to form the *derivedAggregationToken* for the link. The aggregation token controls how links are aggregated together. Except for the lowest level nodes, links between two logical nodes are aggregated together if they have the same aggregation token. Link aggregation is not done at the lowest level node, except in the degenerate node situation, where the lowest level node is a neighbor to an LGN. The value is ignored for links having a type value of ***unknown*** or ***lowestLevelHorizLink***. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### GROUP AtmIf Vpt Pnni Rcc HelloParms (HlParms)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable Hello protocol parameters for an *Rcc* component. |

## ATTRIBUTE AtmIf Vpt Pnni Rcc helloHoldDown (hhd)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the rate at which this node sends out Hello packets. It specifies the default minimum length of time between successive Hellos used by routing control channels on this node. A provisioning check is made to ensure that this value cannot be greater than *helloInterval*.<br><br>A value of 0 specifies that the value provisioned for the *helloHoldDown* attribute of the *ARtg Pnni* component should be used. |
| Values | Decimal (0.0..65535.0) |
| Units | seconds |
| Default | 0.0 |

## ATTRIBUTE AtmIf Vpt Pnni Rcc helloInterval (hli)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the default duration of the Hello Timer for routing control channels on this node. Every *helloInterval* seconds, this node sends out a Hello packet to the neighbor node, subject to the *helloHoldDown* timer having expired at least once since the last Hello packet was sent.<br>A provisioning check is made to ensure that this value cannot be less than *helloHoldDown*.<br><br>A value of 0 specifies that the value provisioned for the *helloInterval* attribute of the *ARtg Pnni* component should be used. |
| Values | Decimal (0..65535) |
| Units | seconds |

Default 0

### ATTRIBUTE AtmIf Vpt Pnni Rcc helloInactivityFactor (hif)

Access
Read: All
Write: All

Criticality Component

Description This attribute specifies the number of Hello intervals allowed to pass without receiving a Hello from a neighbor, before an attempt is made to stage the RCC to that neighbor. The hello inactivity timer is enabled when the *helloState* is one of ***oneWayInside***, ***twoWayInside***, ***oneWayOutside***, ***twoWayOutside*** or ***commonOutside***.

A value of 0 specifies that the value provisioned for the *helloInactivityFactor* attribute of the *ARtg Pnni* component should be used.

Values Decimal (0..65535)

Default 0

### GROUP AtmIf Vpt Pnni Rcc OsiState (State)

Properties Operational

Description This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE AtmIf Vpt Pnni Rcc adminState (osiAdmin)

Access Read only

Description This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component.

When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE AtmIf Vpt Pnni Rcc operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE AtmIf Vpt Pnni Rcc usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

## GROUP AtmIf Vpt Pnni Rcc Operational (Oper)

Properties
Operational

Description
This group contains the operational attributes for an *Rcc* component.

## ATTRIBUTE AtmIf Vpt Pnni Rcc type

Access
Read: All
Write: Illegal

Description
This attribute indicates the role of this link in the PNNI hierarchy. The following values are possible:

***unknown***: the Hello protocol has not yet determined the role of the link.

***lowestLevelHorizLink***: the link is a horizontal link between two lowest level nodes.

***lowestLevelOutsideLink***: the link is an outside link between two border nodes.

***horizontalLinkToLgn***: the link is a horizontal link to a Logical Group Node (LGN).

***uplink***: the link is a uplink to a higher level LGN.

Values
unknown
lowestLevelHorizLink
lowestLevelOutsideLink
horizontalLinkToLGN
uplink

Default
No default

### ATTRIBUTE AtmIf Vpt Pnni Rcc negotiatedVersion

Access
Read: All
Write: Illegal

Description
This attribute indicates the PNNI version negotiated with the neighbor node.

Values
unsupported
version1point0

Default
No default

### ATTRIBUTE AtmIf Vpt Pnni Rcc helloState

Access
Read: All
Write: Illegal

Description
This attribute indicates the state of the Hello protocol exchange over this link. The following are the possible values for this attribute:

***down***: the link is down. No PNNI routing packets are sent or received over such a link. This is the initial state of the Hello Finite State Machine, and can also be reached when lower-level protocols have indicated that the link is not usable.

***attempt***: no Hello packets or Hello packets, with mismatched information, have been received recently from the neighbor. Attempts are made to contact the neighbor node by sending out Hello packets every *helloInterval* seconds.

***oneWayInside***: Hello packets have been recently received from the neighbor and it has been established that both nodes are members of the same peer group, but the remote node ID and remote port ID in the neighbor's Hello packets were set to zero.

A Hello packet is sent to the neighbor and the Hello timer is restarted.

***twoWayInsid***e: Bidirectional communication over this link between this node and the neighbor node has been achieved.

***oneWayOutside***: Hello packets have been recently received from the neighbor and it has been established that both nodes are members of a different peer group, but the remote node ID and remote port ID in the neighbor's Hello packets were set to zero.

***twoWayOutside***: Hello packetss have recently been received from the neighbor indicating that the neighbor node belongs to a different peer group. The correct remote node ID and remote port ID fields were included in the Hello packet, but the nodal hierarchy list did not include any common peer group. This state can also be reached if a hierarchy mismatch occurs while in the ***commonOutside*** state.

***commonOutside***: A common level of the routing hierarchy has been found, in addition to achieving full bi-directional communication between the two nodes.

| | |
|---|---|
| Values | notApplicable<br>down<br>attempt<br>oneWayInside<br>twoWayInside<br>oneWayOutside<br>twoWayOutside<br>commonOutside |
| Default | No default |

## ATTRIBUTE AtmIf Vpt Pnni Rcc remoteNodeId

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the node id at the far end of the link. |
| Values | String (22, Hex) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE AtmIf Vpt Pnni Rcc remotePortId

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the PortID of the neighboring node, which is an unsigned integer of 32 bits. When the remote end of a PNNI physical link is terminated by a Passport, the first 16 bits of the hex encoded format represent the *AtmIf* instance of the PNNI link of the remote node, the next 12 bits correspond to the VPI of the PNNI link and the last 4 bits are unspecified(that is, it provide no value for physical interpretation). |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Pnni Rcc derivedAggregationToken

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the derived aggregation token value used on this link.<br>The algorithm for computing the value of the derived aggregation token is:<br>1. If neighbors exchange identical values of the configured aggregation token, that value is the derived aggregation token value.<br>2. If the configured aggregation token value of one neighbor is zero (default), and that of the other neighbor is non-zero, the non-zero value is the derived aggregation token value.<br>3. If the configured aggregation token values of the neighbors are different and both non-zero, the derived aggregation token value is zero.<br>The attribute is not displayed for links having a type value of ***unknown*** or ***lowestLevelHorizLink***. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## ATTRIBUTE AtmIf Vpt Pnni Rcc remoteNodeName

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the node name and the hierarchy level for the node at the far end of the link.<br><br>A typical value for this attribute has the following form: ***OBELIX@96***.<br><br>Here, ***OBELIX*** is the node name and ***96*** is the hierarchy level for the upnode. The **@** symbol is used to separate the node name from the hierarchy level in the display.<br><br>This attribute is left blank if the far end is a non-Passport node. |
| Values | String (1..16, ASCII) |
| Default | No default |

## ATTRIBUTE AtmIf Vpt Pnni Rcc remoteInterfaceName

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the interface name of the node at the far end of the link.<br><br>When the far end of the link is a Passport node, this attribute's value can take one of the following forms:<br>(a) ***AtmIf/<1-4095>*** - If the far end is an Atm Interface.<br>(b) ***AtmIf/<1-4095> Vpt/<1-4095>*** - If the far end is a VPT interface.<br>(c) Values ***0-4294967295*** - If the link is a logical link.<br><br>This attribute will remain blank if the far end is a non-Passport node. |
| Values | String (0..19, ASCII) |
| Default | No default |

## GROUP AtmIf Vpt Pnni Rcc Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the statistical attributes for an *Rcc* component. |

## ATTRIBUTE AtmIf Vpt Pnni Rcc helloPacketsRx

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of Hello packets received across this RCC, including bad and mismatched Hello packets. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## ATTRIBUTE AtmIf Vpt Pnni Rcc helloPacketsTx

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of Hello packets transmitted across this RCC. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## ATTRIBUTE AtmIf Vpt Pnni Rcc mismatchedHelloPacketsRx

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of mismatched Hello packets received over this RCC. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## ATTRIBUTE AtmIf Vpt Pnni Rcc badHelloPacketsRx

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of bad Hello packets received over this RCC. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## COMPONENT AtmIf Vpt Pnni Rcc VirtualChannelDescriptor (Vcd)

| | |
|---|---|
| Groups | "GROUP AtmIf Vpt Pnni Rcc Vcd Provisioned (Prov)" |
| Scope | Device |
| Description | *AtmIf/n Uni Sig VirtualChannelDescriptor*<br>*AtmIf/n Uni Ilmi VirtualChannelDescriptor*<br>*AtmIf/n Aini Sig VirtualChannelDescriptor*<br>*AtmIf/n Iisp Sig VirtualChannelDescriptor*<br>*AtmIf/n Pnni Sig VirtualChannelDescriptor*<br>*AtmIf/n Pnni Rcc VirtualChannelDescriptor*<br>*AtmIf/n Vpt/m Uni Sig VirtualChannelDescriptor*<br>*AtmIf/n Vpt/m Aini Sig VirtualChannelDescriptor*<br>*AtmIf/n Vpt/m Iisp Sig VirtualChannelDescriptor*<br>*AtmIf/n Vpt/m Pnni Sig VirtualChannelDescriptor*<br>*AtmIf/n Vpt/m Pnni Rcc VirtualChannelDescriptor*<br><br>This component contains the provisionable traffic parameters for a control channel (Sig, *Ilmi* or *Rcc* component). |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP AtmIf Vpt Pnni Rcc Vcd Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |

Description This group contains the provisionable traffic attributes for a control channel.

### ATTRIBUTE AtmIf Vpt Pnni Rcc Vcd trafficDescType (tdt)

Access
Read: All
Write: All

Criticality Component

Description This attribute specifies the type of traffic management which is applied to both the transmit and receive direction of this connection as defined in the ATM Forum. The *trafficDescType* determines the number and meaning of the parameters in the *trafficDescParm* attribute.

Values
3
6
7
8

Default 6

### ATTRIBUTE AtmIf Vpt Pnni Rcc Vcd atmServiceCategory (service)

Access
Read: All
Write: All

Criticality Component

Description This attribute specifies the ATM service category for both directions of the connection.

The ***constantBitRate*** service category is intended for real time applications, that is those requiring tightly constrained delay and delay variation, as would be appropriate for voice and video applications. The consistent availability of a fixed quantity of bandwidth is considered appropriate for CBR service. Cells which are delayed beyond the value specified by CellTransfer Delay are assumed to be of significantly reduce value to the application.

The ***rtVariableBitRate*** service category is intended for real time applications, that is those requiring tightly constrained delay and delay variation, as would be appropriate for voice and video

applications. Sources are expected to transmit at a rate which varies with time. Equivalently, the source can be described as “bursty”. Cells which are delayed beyond the value specified by CTD are assumed to be of significantly reduced value to the application. Real time VBR service may support statistical multiplexing of real time sources.

The ***nrtVariableBitRate*** service category is intended for non-real time applications which have bursty traffic characteristics and which can be characterized in terms of a PCR, SCR, and MBS. For those cells which are transferred within the traffic contract, the application expects a low cell loss ratio. For all connections, it expects a bound on the mean cell transfer delay. Non-real time VBR service may support statistical multiplexing of connections.

The ***unspecifiedBitRate*** service is intended for non-real time applications; that is, those not requiring tightly constrained delay and delay variation. UBR sources are expected to be bursty. UBR service supports a high degree of statistical multiplexing among sources. UBR service does not specify traffic related service guarantees. No numerical commitments are made with respect to the cell loss ratio experienced by a UBR connection, or as to the cell transfer delay experienced by cells on the connection.

| | |
|---|---|
| Values | unspecifiedBitRate (ubr)<br>constantBitRate (cbr)<br>rtVariableBitRate (rtvbr)<br>nrtVariableBitRate (nrtvbr) |
| Default | rtVariableBitRate |

### ATTRIBUTE AtmIf Vpt Pnni Rcc Vcd weight

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This VCD component has an attribute that is called atmServiceCategory. This attribute specifies the service category that is used by the sig, rcc or ilmi channel. The *weight* attribute is related to two other attributes which are *weightPolicy* and *txQueueLimit*, as mentioned in the following description. These attributes can be found under the atmif/n ca |

<atmServiceCategory>/ m.

This attribute specifies an override for the *weight* of this unshaped connection. This attribute is ignored for shaped connections, for ABR connections, for connections on a CQC-based ATM FPs and basic VPTs.

When the value is set to ***sameAsCa***, the *weight* is determined by the *weightPolicy* attribute under the CA service category component for all but standard VPT VCCs. For standard VPT VCCs, the *weight* is determined by the VCC's service category, when the value is set to ***sameAsCa***.

When this attribute is set to a value from ***1*** to ***4095***, that value is used for the *weightPolicy* of this connection relative to other connections. For all but standard VPT VCCs, *weightPolicy* determines the proportion of transit cell opportunities which are allocated to this connection, compared to other connections in the same service category. For standard VPT VCCs, *weightPolicy* determines the proportion of transmit cell opportunities which are allocated to this connection, compared to other connections associated with the VPT.

When the value is set to ***upToQueueLimit***, the *weightPolicy* is limited only by the *txQueueLimit*.

Values: Decimal (1..4095)
sameAsCa
upToQueueLimit

Default: sameAsCa

## ATTRIBUTE AtmIf Vpt Pnni Rcc Vcd qosClass (qos)

Access: Read and write

Criticality: Component

Description: This attribute specifies the quality of service for both the forward and backward direction for this connection.

Class ***1*** supports a QOS that meets Service Class A performance requirements (Circuit emulation, constant bit rate video).

Class ***2*** supports a QOS that meets Service Class B performance requirements (Variable bit rate audio and video).

Class ***3*** supports a QOS that meets Service Class C performance requirements (Connection-Oriented Data Transfer).

Class ***4*** supports a QOS that meets Service Class D performance requirements (Connectionless Data Transfer).

Class ***0*** is the unspecified bit rate QOS class; no objective is specified for the performance parameters.

Values
0
1
2
3
4

Default 2

## ATTRIBUTE AtmIf Vpt Pnni Rcc Vcd trafficShaping (trShaping)

Access Read and write

Criticality Component

Description This attribute specifies whether this connection uses traffic shaping when transmitting traffic to the ATM interface.

When ***sameAsCa*** is selected, traffic shaping for this connection is based on the *trafficShaping* attribute of the connection's service category component under the *AtmIf CA*. If the service category has traffic shaping enabled, then traffic shaping is enabled for the connection. Note that enabling traffic shaping may have no effect under certain cases. These cases are listed in the description of the *trafficShaping* operational attribute, which is under the *Vcc Tm* and *Vpc Tm* components.

When ***disabled*** is selected, traffic shaping for this connection is disabled.

| | |
|---|---|
| Values | disabled<br>sameAsCa |
| Default | disabled |

### ATTRIBUTE AtmIf Vpt Pnni Rcc Vcd unshapedTransmitQueueing (unshap)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute only applies when this connection is unshaped. This attribute specifies the transmit queuing method for this connection if it is unshaped. Refer to the *unshapedTransmitQueueing* attribute under the *AtmIf CA* service category subcomponent for more details on the meaning of this attribute.<br><br>When this attribute is set to ***sameAsCa***, the transmit queuing method for the connection is based on the *unshapedTransmitQueueing* attribute of the connection's service category component under the *ConnectionAdministrator.*<br><br>When this attribute is set to ***common***, transmit traffic on this unshaped connection is destined for the common queue.<br><br>The value ***sameAsInterface*** is for migration from previous software releases, but should no longer be used |
| Values | common<br>sameAsCa |
| Default | sameAsCa |

### ATTRIBUTE AtmIf Vpt Pnni Rcc Vcd usageParameterControl (upc)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies whether this connection enforces usage parameter control when receiving traffic from the ATM interface.<br><br>When ***sameAsCa*** is selected, UPC for the connection is based on |

the *usageParameterControl* attribute of the connection's service category component under the *ConnectionAdministrator*. If the service category has UPC enabled, then UPC is enabled for the connection. Note that enabling UPC may have no effect under certain cases. These cases are listed in the description of the *usageParameterControl* operational attribute, which is under the *Vcc Tm* or *Vpc Tm* component.

When ***disabled*** is selected, UPC for this connection is disabled.

The value ***sameAsInterface*** is for migration from previous software releases, but should no longer be used

Values
disabled
sameAsCa

Default
disabled

## ATTRIBUTE AtmIf Vpt Pnni Rcc Vcd trafficDescParm (tdp)

Access
Read: All
Write: All

Criticality
Component

Description
This attribute is a vector of five traffic parameters whose meanings are defined by the *trafficDescType* attribute. The values of peak cell rate (PCR), sustained cell rate (SCR) and requested shaping rate are expressed in cell/s. Maximum burst size (MBS) is expressed in cells. CDVT is expressed in microseconds. The values of PCR, SCR, MBS and CDVT are used for connection admission control (CAC). The value of CDVT is only used for connections where the *atmServiceCategory* is ***constantBitRate***. For all other values of *atmServiceCategory*, CDVT is ignored. The values of PCR, SCR and requested shaping rate are used to determine the actual shaping rate where traffic shaping is enabled.

When *trafficDescType* is ***3***, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameter 1 must be non-zero.

Parameters 2 and 3 must be zero.

When *trafficDescType* is ***6***, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 and 1 traffic; parameter 3 represents the MBS for CLP equal to 0 and 1 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameters 1, 2, and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2. Parameter 5 must either be zero (unused) or greater than or equal to parameter 2.

When *trafficDescType* is ***7***, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 with cell discard; parameter 3 represents the MBS for CLP equal to 0 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameters 1, 2, and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2. Parameter 5 must either be zero (unused) or greater than or equal to parameter 2.

When *trafficDescType* is ***8***, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 traffic with cell tagging; parameter 3 represents the MBS for CLP equal to 0 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameters 1, 2, and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2. Parameter 5 must either be zero (unused) or greater than or equal to parameter 2.

Whenever it is valid for PCR to be specified, parameter 5 may also be used to specify a requested shaping rate. A non-zero value in parameter 5 overrides the value in parameter 1 and is used as the peak cell rate in calculations of CAC and shaping rate.

For *trafficDescType* ***3*** the traffic is shaped at the next rate less

than the PCR.

For *trafficDescType* ***6***, ***7***, and ***8***, the traffic is shaped at the highest available rate which is between PCR and SCR. However, if there is no available shaping rate between PCR and SCR, traffic is shaped at the next rate above the PCR.

| | |
|---|---|
| Vector of | Decimal (0..2147483647) |
| Index | Decimal (1..5) |
| Default | (250, 160, 5, 0, 0) |

## COMPONENT AtmIf Vpt Pnni Address (Addr)

| | |
|---|---|
| Instance | address [String (1..40, ASCII)]<br>addressType [primary<br>alternate<br>registered<br>default] |
| Groups | "GROUP AtmIf Vpt Pnni Addr Operational (Oper)" |
| Scope | Device |
| Description | *AtmIf/n Aini Address/address,type*<br>*AtmIf/n Iisp Address/address,type*<br>*AtmIf/n Uni Address/address,type*<br>*AtmIf/n Pnni Address/address,type*<br>*AtmIf/n Vpt/m Aini Address/address,type*<br>*AtmIf/n Vpt/m Iisp Address/address,type*<br>*AtmIf/n Vpt/m Uni Address/address,type*<br>*AtmIf/n Vpt/m Pnni Address/address,type*<br><br>This component represents an address (dynamic or static) associated with the interface. The index is a string of 1 to 40 hex digits or a single wildcard (‘?’), and a type. The type identifies whether the *Address* component is for a ***primary***, ***alternate, registered***, or ***default*** address.<br><br>The types ***primary*** and ***alternate*** are used for provisioned addresses. The type ***registered*** is used for dynamic addresses registered through ILMI. The type ***default*** is used for Soft PVP |

and Soft PVC addresses.Virtual interfaces do not have addresses of
type ***default***.

The wildcard is only valid for provisioned addresses. If the address is a single wildcard, then that indicates that the interface supports all addresses. If there is no better match, then this interface may be chosen in the routing. If there is more than one interface with a single wildcard static address, then the choice is driven through a round robin algorithm.

The round robin algorithm tries the primary routes and then the alternate routes if none of the primary routes succeed.
If this node participates in a PNNI hierarchy, then a *PnniInfo* subcomponent can be provisioned under the *AtmAddress* component to specify the level to which this address will be advertised.

Opt. Subcomp. "COMPONENT AtmIf Vpt Pnni Addr TerminateSPvpAndSPvc (TermSP)"
"COMPONENT AtmIf Vpt Pnni Addr PnniInfo"

Common Verbs
Help
List
Display
Add
DELete

## GROUP AtmIf Vpt Pnni Addr Operational (Oper)

Properties Operational

Description This attribute group contains the operational attributes for the *Address* component.

## ATTRIBUTE AtmIf Vpt Pnni Addr scope

Access Read: All
Write: Illegal

Description This attribute indicates the scope of the ATM address, which is the highest level to which this address will be advertised in the PNNI hierarchy. If no *PnniInfo* subcomponent has been

provisioned, then the scope will default to the level of this node in the PNNI hierarchy. If this node does not participate in a PNNI hierarchy, then this attribute will have the value of -1.

Values: Signed (-1..104)

Default: No default

### ATTRIBUTE AtmIf Vpt Pnni Addr reachability (reach)

Access: Read: All
Write: Illegal

Description: This attribute indicates whether the address is internal or exterior. An internal reachable address is an address of a destination that is directly attached to the logical node advertising the address. An exterior reachable address is an address that can be reached through a PNNI routing domain, but which is not located in that PNNI routing domain.

Values: internal
exterior

Default: No default

### COMPONENT AtmIf Vpt Pnni Addr TerminateSPvpAndSPvc (TermSP)

Scope: Device

Description: *AtmIf/n Aini Address/address,type TerminateSPvpAndSPvc*
*AtmIf/n Iisp Address/address,type TerminateSPvpAndSPvc*
*AtmIf/n Uni Address/address,type TerminateSPvpAndSPvc*
*AtmIf/n Pnni Address/address,type TerminateSPvpAndSPvc*
*AtmIf/n Vpt/m Aini Address/address,type TerminateSPvpAndSPvc*
*AtmIf/n Vpt/m Iisp Address/address,type TerminateSPvpAndSPvc*
*AtmIf/n Vpt/m Uni Address/address,type TerminateSPvpAndSPvc*
*AtmIf/n Vpt/m Pnni Address/address,type TerminateSPvpAndSPvc*

The presence of this subcomponent indicates that SPvp and SPvc call setups terminate at this node if the destination address of the SPVP or SPVC matches the *Address* instance.

Common Verbs

Help
List
Display
Add
DELete

## COMPONENT AtmIf Vpt Pnni Addr PnniInfo

Groups

"GROUP AtmIf Vpt Pnni Addr PnniInfo Provisioned (Prov)"

Scope

Device

Description

*AtmIf/n Aini Addr/address,type PnniInfo*
*AtmIf/n Iisp Addr/address,type PnniInfo*
*AtmIf/n Uni Addr/address,type PnniInfo*
*AtmIf/n Pnni Addr/address,type PnniInfo*
*AtmIf/n Vpt/m Aini Addr/address,type PnniInfo*
*AtmIf/n Vpt/m Iisp Addr/address,type PnniInfo*
*AtmIf/n Vpt/m Uni Addr/address,type PnniInfo*
*AtmIf/n Vpt/m Pnni Addr/address,type PnniInfo*

This component contains provisioned information associated with the ATM address related to PNNI. This component appears only under provisioned *Address* components.

Common Verbs

Help
List
Display
Add
DELete

## GROUP AtmIf Vpt Pnni Addr PnniInfo Provisioned (Prov)

Properties

Provisioned

Description

This attribute group contains the provisioned attributes relating to PNNI for a *PnniInfo* component.

### ATTRIBUTE AtmIf Vpt Pnni Addr PnniInfo scope

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the scope of the ATM address, which is the highest level up to which this address will be advertised in the PNNI hierarchy. The scope must be set to a value numerically less than or equal to the level of the lowest level peer group containing this node. Setting the scope to 0 will cause the address to be advertised globally within this PNNI routing domain. |
| Values | Signed (-1..104) |
| Default | -1 |

### ATTRIBUTE AtmIf Vpt Pnni Addr PnniInfo reachability (reach)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute indicates whether the address is internal or exterior. An internal reachable address is an address of a destination that is directly attached to the logical node advertising the address. An exterior reachable address is an address that can be reached through a PNNI routing domain, but which is not located in that PNNI routing domain. |
| Values | internal<br>exterior |
| Default | internal |

### COMPONENT AtmIf Vpt Pnni PathTraceFilter (Ptf)

| | |
|---|---|
| Groups | "GROUP AtmIf Vpt Pnni Ptf Criteria"<br>"GROUP AtmIf Vpt Pnni Ptf Operational (Oper)"<br>"GROUP AtmIf Vpt Pnni Ptf RecordControl (Record)" |
| Scope | Device |

Description

*AtmIf/n Aini PathTraceFilter*
*AtmIf/n Iisp PathTraceFilter*
*AtmIf/n Uni PathTraceFilter*
*AtmIf/n Pnni PathTraceFilter*
*AtmIf/n Vpt/vpi Aini PathTraceFilter*
*AtmIf/n Vpt/vpi Iisp PathTraceFilter*
*AtmIf/n Vpt/vpi Uni PathTraceFilter*
*AtmIf/n Vpt/vpi Pnni PathTraceFilter*

This component represents the path trace filtering capability on the ATM signaling interface. This capability allows the user to trace connections during the call setup phase against the criteria associated with this component. Only the connections that match all the criteria are traced.

When this component is provisioned, the network operator can control tracing activities by using the *Start*, *Stop*, and *Clear* verbs. When the *Start* verb is issued, the *traceTimeout* timer restarts. Once the timer times out, filtering stops and records are not removed. When the *Stop* verb is issued, the filter stops and the trace records are kept until the user clears them. When the *Clear* verb is issued, the trace records are cleared. When *AtmPathTraceFilter* component is deleted, all records are cleared.

Once the maximum specified by *maxTraceRecords* attribute under the *PathTraceFilter* component or *maxTraceRecords* attribute under the *Lp/n Eng PTrace* component has been reached, the oldest record is deleted.

The *AtmPathTraceFilter* component is not permitted to be added when the *Lp/n Eng PTrace Ov maxTraceRecords* attribute is set to zero.

| | |
|---|---|
| Dyn. Subcomp. | "COMPONENT AtmIf Vpt Pnni Ptf PathTraceRecord (PTRecord)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## VERB START AtmIf Vpt Pnni Ptf

| | |
|---|---|
| Impact | Service |
| Description | *START AtmIf/n Aini PathTraceFilter*<br>*START AtmIf/n Iisp PathTraceFilter*<br>*START AtmIf/n Uni PathTraceFilter*<br>*START AtmIf/n Pnni PathTraceFilter*<br>*START AtmIf/n Vpt/vpi Aini PathTraceFilter*<br>*START AtmIf/n Vpt/vpi Iisp PathTraceFilter*<br>*START AtmIf/n Vpt/vpi Uni PathTraceFilter*<br>*START AtmIf/n Vpt/vpi Pnni PathTraceFilter*<br><br>This command starts the path tracing based on the specified filtering criteria.<br><br>When the command is issued, the *traceTimeout* timer is reset. |

### VERB STOP AtmIf Vpt Pnni Ptf

| | |
|---|---|
| Impact | Service |
| Description | *STOP AtmIf/n Aini PathTraceFilter*<br>*STOP AtmIf/n Iisp PathTraceFilter*<br>*STOP AtmIf/n Uni PathTraceFilter*<br>*STOP AtmIf/n Pnni PathTraceFilter*<br>*STOP AtmIf/n Vpt/vpi Aini PathTraceFilter*<br>*STOP AtmIf/n Vpt/vpi Iisp PathTraceFilter*<br>*STOP AtmIf/n Vpt/vpi Uni PathTraceFilter*<br>*STOP AtmIf/n Vpt/vpi Pnni PathTraceFilter*<br><br>This command causes the filter to stop, but keeps the trace records. |

### VERB CLEAR AtmIf Vpt Pnni Ptf

| | |
|---|---|
| Impact | Service |
| Description | *CLEAR AtmIf/n Aini PathTraceFilter*<br>*CLEAR AtmIf/n Iisp PathTraceFilter*<br>*CLEAR AtmIf/n Uni PathTraceFilter*<br>*CLEAR AtmIf/n Pnni PathTraceFilter*<br>*CLEAR AtmIf/n Vpt/vpi Aini PathTraceFilter*<br>*CLEAR AtmIf/n Vpt/vpi Iisp PathTraceFilter*<br>*CLEAR AtmIf/n Vpt/vpi Uni PathTraceFilter*<br>*CLEAR AtmIf/n Vpt/vpi Pnni PathTraceFilter*<br><br>This command clears the path trace records associated with this filter. This command is rejected on an active filter. |

### GROUP AtmIf Vpt Pnni Ptf Criteria

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational criteria for the *PathTraceFilter* component. |

### ATTRIBUTE AtmIf Vpt Pnni Ptf traceInfo (tInfo)

| | |
|---|---|
| Access | Read: All<br>Write: All |

| | |
|---|---|
| Description | This attribute specifies the trace information that is included in the trace records.<br><br>***crankBack***: Crankback information is included if the connection is cranked back during the connection setup phase. If the option is turned on, all attempted paths including the final one are recorded. If the option is turned off, only the information of the final path is recorded. If the connection fails to reach the destination, no path information is returned.<br><br>***connId***: Connection Identifier information is included.<br><br>***callRef***: For point-to-point connections, the call reference is included. For point-to-multipoint connections, the call reference and end point reference are both included.<br><br>Basic trace information, such as node and port identifiers, are always included. |
| Set of | crankBack<br>connId<br>callRef |
| Default | (crankBack, connId, callRef) |

### ATTRIBUTE AtmIf Vpt Pnni Ptf calledPartyPrefix (cldPref)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies an NSAP address prefix, which is compared with the called party IE in the connection setup request. When all the criteria in the filter match successfully, the call is traced.<br><br>An empty string matches any address. |
| Values | String (0..20, Hex) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Pnni Ptf callingPartyPrefix (clgPref)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies an NSAP address prefix, which is compared with the calling party IE in the connection setup request. When all the criteria in the filter match successfully, the call is traced.<br><br>An empty string matches any address. |
| Values | String (0..20, Hex) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Pnni Ptf connectionType (type)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies a connection type (SVC, SPVC, SVP, SPVP), which is compared against the connection setup request. When all the criteria in the filter match successfully, the call is traced. |
| Set of | svc<br>spvc<br>svp<br>spvp |
| Default | (svc, spvc, svp, spvp) |

### ATTRIBUTE AtmIf Vpt Pnni Ptf connectionConfiguration (config)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies a type of topology (point-to-point or point-to-multipoint), which is compared against the connection setup request. When all the criteria in the filter match successfully, the call is traced. |

| | |
|---|---|
| Set of | ptp<br>ptmp |
| Default | (ptp, ptmp) |

### ATTRIBUTE AtmIf Vpt Pnni Ptf serviceCategory (svcCat)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the service categories, which is compared against the connection setup request. When the all criteria in the filter match successfully, the call is traced. |
| Set of | cbr<br>rtVbr<br>nrtVbr<br>ubr |
| Default | (cbr, rtVbr, nrtVbr, ubr) |

### GROUP AtmIf Vpt Pnni Ptf Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for the *PathTraceFilter* component. |

### ATTRIBUTE AtmIf Vpt Pnni Ptf state

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the current state of the filter.<br><br>***active***: Indicates the filter is active.<br><br>***inactive:*** Indicates the filter is inactive. The records are available if the filter is stopped by the user using the *Stop* verb or if the filter has timed out. |

| | |
|---|---|
| Values | active<br>inactive |
| Default | inactive |

### ATTRIBUTE AtmIf Vpt Pnni Ptf recordCount

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of records that have been acquired so far for this filter. The maximum number of records that can be stored is specified by *Lp/n Eng PathTrace maxTraceRecords* or *AtmPathTraceFilter maxTraceRecords*, which ever is less. |
| Values | Decimal (0..200) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Pnni Ptf matchedConnections

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of connections that match the criteria of this filter. |
| Values | Decimal (0..2147483647) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Pnni Ptf elapsedTime

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of minutes that have elapsed since the start of the filter. |
| Values | Decimal (0..70560) |
| Units | minutes |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Pnni Ptf timeRemaining

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of minutes remaining before the filter terminates itself. |
| Values | Decimal (0..70560) |
| Units | minutes |
| Default | No default |

### GROUP AtmIf Vpt Pnni Ptf RecordControl (Record)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for the record control of the *PathTraceFilter* component. |

### ATTRIBUTE AtmIf Vpt Pnni Ptf traceTimeout

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies how long this filter remains active. At the end of this time, the filter is stopped and all trace records associated with this filter are available. |
| Values | Decimal (1..70560) |
| Units | minutes |
| Default | 60 |

### ATTRIBUTE AtmIf Vpt Pnni Ptf maxTraceRecords (mRecords)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the maximum number of records allowed to be stored with the filter.<br><br>Once the maximum has been reached, the oldest record is removed. |

| | |
|---|---|
| Values | Decimal (1..200) |
| Default | 2 |

## COMPONENT AtmIf Vpt Pnni Ptf PathTraceRecord (PTRecord)

| | |
|---|---|
| Groups | "GROUP AtmIf Vpt Pnni Ptf PTRecord Operational (Oper)" |
| Scope | Device |
| Description | *AtmIf/n Aini Ptf PTRecord*<br>*AtmIf/n Iisp Ptf PTRecord*<br>*AtmIf/n Uni Ptf PTRecord*<br>*AtmIf/n Pnni Ptf PTRecord*<br>*AtmIf/n Vpt/n Aini Ptf PTRecord*<br>*AtmIf/n Vpt/n Iisp Ptf PTRecord*<br>*AtmIf/n Vpt/n Uni Ptf PTRecord*<br>*AtmIf/n Vpt/n Pnni Ptf PTRecord*<br><br>This component represents the path trace record for the last failed connection against this filter. |
| Dyn. Subcomp. | "COMPONENT AtmIf Vpt Pnni Ptf PTRecord Hop" |
| Common Verbs | Help<br>List<br>Display |

## GROUP AtmIf Vpt Pnni Ptf PTRecord Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for the path trace record component. |

## ATTRIBUTE AtmIf Vpt Pnni Ptf PTRecord status

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the status of the trace. The string is one of the following:<br><br>***Completed normally****:* The trace completed normally. |

***Incomplete**:* Partial trace returned.

***Exceeded information element length limitations**:* The number of traced nodes exceeded the maximum number of hops.

***Exceeded message length limitations**:* The message length exceeded the maximum allowed size.

Values: Completed normally
Incomplete
Exceeded information element length limitations
Exceeded message length limitations

Default: No default

### ATTRIBUTE AtmIf Vpt Pnni Ptf PTRecord timeStamp

Access: Read: All
Write: Illegal

Description: This attribute records the date and time of when the trace is completed.

Values: Time (DHMS)

Default: No default

### ATTRIBUTE AtmIf Vpt Pnni Ptf PTRecord srcPortId

Access: Read: All
Write: Illegal

Description: This attribute indicates the trace's source port identifier used for this connection. This attribute only appears in the trace result for the trace source hop.

Values: Decimal (1..4294967295)

Default: No default

### ATTRIBUTE AtmIf Vpt Pnni Ptf PTRecord srcPortName

Access: Read: All
Write: Illegal

Criticality: Component

| | |
|---|---|
| Description | This attribute indicates the name of the source port used for this connection. This attribute only appears in the trace result for the trace source hop. |
| Values | String (40, ASCII) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Pnni Ptf PTRecord causeCode

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute contains the cause code in the transmitted signaling message that contains the CAUSE information element. The cause code is used to describe the reason for generating certain signaling messages. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Pnni Ptf PTRecord diagCode

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute contains the diagnostic code in the transmitted signaling message. The diagnostic code is contained in the CAUSE information element and identifies an information element type or timer type. The diagnostic code is present only if a procedural error is detected by the signaling protocol. A diagnostic code is always accompanied by the cause code. If there is no failure, this attribute is set to NULL. |
| Values | String (0..8, ASCII) |
| Default | No default |

### COMPONENT AtmIf Vpt Pnni Ptf PTRecord Hop

| | |
|---|---|
| Instance | Decimal (0..200) |

| | |
|---|---|
| Groups | "GROUP AtmIf Vpt Pnni Ptf PTRecord Hop Operational (Oper)" |
| Scope | Device |
| Description | *AtmIf/n Aini Ptf PTRecord Hop/n*<br>*AtmIf/n Iisp Ptf PTRecord Hop/n*<br>*AtmIf/n Uni Ptf PTRecord Hop/n*<br>*AtmIf/n Pnni Ptf PTRecord Hop/n*<br>*AtmIf/n Vpt/n Aini Ptf PTRecord Hop/n*<br>*AtmIf/n Vpt/n Iisp Ptf PTRecord Hop/n*<br>*AtmIf/n Vpt/n Uni Ptf PTRecord Hop/n*<br>*AtmIf/n Vpt/n Pnni Ptf PTRecord Hop/n*<br>*AtmIf/n Vcc/x.y PTRecord Hop/n*<br>*AtmIf/n Vpc/n PTRecord Hop/n*<br>*AtmIf/n Vpt/n Vcc/x.y PTRecord Hop/n*<br><br>This component stores the result of a hop from a trace. An instance of this component is dynamically created for each hop in a trace record.<br><br>Depending on the hops, different attributes are present. |
| Dyn. Subcomp. | "COMPONENT AtmIf Vpt Pnni Ptf PTRecord Hop VendorSpecificInfo (Vsi)" |
| Common Verbs | Help<br>List<br>Display |

## GROUP AtmIf Vpt Pnni Ptf PTRecord Hop Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for the component *AtmPathTraceFilterRecordHop*. |

## ATTRIBUTE AtmIf Vpt Pnni Ptf PTRecord Hop ingressVpiVci (vpiVci)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |

| | |
|---|---|
| Description | This attribute indicates the VPI.VCI values used for this hop on the ingress side. This is the ingress side with respect to the trace or setup messages. This attribute is displayed for ATM interfaces only.<br><br>The VPI.VCI values are included in the trace when the *traceInfo* attribute sets the ***connId*** value. |
| Values | Integer Sequence (0..4095; 0..65535) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Pnni Ptf PTRecord Hop ingressDlci (dlci)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the DLCI value used for this hop on the ingress side. This is the ingress side with respect to the trace or setup message. This attribute is displayed for FrAtm interfaces only.<br><br>The DLCI is included in the trace when the *traceInfo* attribute sets the ***connId*** value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Pnni Ptf PTRecord Hop ingressCallReference (callref)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the call reference value used for this hop on the ingress side. This is the ingress side with respect to the trace or setup message.<br><br>The call reference is included in the trace when the *traceInfo* attribute sets the ***callRef*** value |

| | |
|---|---|
| Values | Hex (H.0..H.ffffff) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Pnni Ptf PTRecord Hop ingressEndPointReference (epref)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the end point reference value used for this hop on the ingress side. This is the ingress side with respect to the trace or setup messages.<br><br>The end point reference is included in the trace when the *traceInfo* attribute sets the ***callRef*** value and the connection is point-to-multipoint. |
| Values | Hex (H.0..H.ffff) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Pnni Ptf PTRecord Hop nodeId

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the lowest level node ID traversed for this hop. |
| Values | String (22, Hex) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Pnni Ptf PTRecord Hop nodeName

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the *nodeName* under the *ModuleData* component for this hop. Only Passport nodes provide this information by including it in the Vendor Specific group. |

| | |
|---|---|
| Values | String (12, ASCII) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Pnni Ptf PTRecord Hop portId

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the port identifier value for this hop on the egress side. This is the egress side with respect to the trace or setup messages. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Pnni Ptf PTRecord Hop portName

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the port name for this hop on the egress side. This is the egress side with respect to the trace or setup messages. Only Passport nodes provide this information by including it in the Vendor Specific group. |
| Values | String (55, ASCII) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Pnni Ptf PTRecord Hop pnniTraceContRefusalIndPresent (refusal)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates whether the “PNNI Trace Continuation Refusal” indicator is present. The “PNNI Trace Continuation Refusal” indicator indicates that this hop has refused to participate in the trace. |

| | |
|---|---|
| Values | absent<br>present |
| Default | absent |

### ATTRIBUTE AtmIf Vpt Pnni Ptf PTRecord Hop crankbackDestNodeIndPresent (dest)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates whether the “PNNI Crankback Received at the Trace Destination Node” indicator is present. The “PNNI Crankback Received at Trace Destination Node” indicator indicates that this hop is acting as a trace destination node, receiving a crankback for this call from a non-PNNI interface. |
| Values | absent<br>present |
| Default | absent |

### ATTRIBUTE AtmIf Vpt Pnni Ptf PTRecord Hop pnniCrankbackGapIndPresent (gap)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates whether the “PNNI Crankback Gap” indicator is present. The “PNNI Crankback Gap” indicator indicates that the call experienced a crankback, where no Trace Transit List IE was returned by the node initiating the crankback. |
| Values | absent<br>present |
| Default | absent |

### ATTRIBUTE AtmIf Vpt Pnni Ptf PTRecord Hop crankBackCause (cause)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |

| | |
|---|---|
| Description | This attribute indicates the crankback cause. Please refer to Private-Network-to-Network-Interface Specification Version 1.0 for more information.<br><br>This attribute is present when the *traceInfo* attribute sets the ***crankBack*** value and the connection has initiated the crankback procedure. |
| Values | Decimal (0..1000) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Pnni Ptf PTRecord Hop blockedTransitType (type)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the blocked transit type.<br><br>This attribute is present when the *traceInfo* attribute sets the ***crankBack*** value and the connection has initiated the crankback procedure. |
| Values | Succeeding end blocked<br>Blocked node<br>Blocked link |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Pnni Ptf PTRecord Hop blockedNodeId (bNodeId)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the blocked node ID during the call setup request. The blocked node ID identifies the logical node where the connection or party has been blocked.<br><br>This attribute is present when the *blockedTransitType* attribute is ***Blocked node.*** |

| | |
|---|---|
| Values | String (22, Hex) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Pnni Ptf PTRecord Hop blockedLinkPrecedingNodeId (pNodeId)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the blocked link's preceding node ID during the call setup request. The blocked link's preceding node ID identifies the logical node preceding a link, where the connection or party has been blocked.<br><br>This attribute is present when the *blockedTransitType* attribute is ***Blocked link***. |
| Values | String (22, Hex) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Pnni Ptf PTRecord Hop blockedLinkPortId (bPortId)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the blocked link's port identifier used for this connection during the call setup request. The blocked link's port identifier identifies a logical port of the blocked link's preceding node identifier.<br><br>This attribute is present when the *blockedTransitType* attribute is ***Blocked link.*** |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Pnni Ptf PTRecord Hop blockedLinkSucceedingNodeId (sNodeId)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the blocked link's succeeding node ID during the call setup request. The blocked link's succeeding node ID identifies the logical node succeeding a link where the connection or party has been blocked.<br><br>This attribute is present when the *blockedTransitType* attribute is ***Blocked link.*** |
| Values | String (22, Hex) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Pnni Ptf PTRecord Hop dstVpiVci

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the VPI.VCI values on the destination side. This attribute only appears in the trace result for the trace destination node. This attribute is only displayed for ATM interfaces.<br><br>The VPI.VCI is included in the trace when the *traceInfo* attribute sets the ***connId*** value. |
| Values | Integer Sequence (0..4095; 0..65535) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Pnni Ptf PTRecord Hop dstDlci

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |

| | |
|---|---|
| Description | This attribute indicates the DLCI value on the destination side. This attribute only appears in the trace result for the trace destination node. This attribute is only displayed for FrAtm interfaces.<br><br>The DLCI is included in the trace when the *traceInfo* attribute sets the ***connId*** value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Pnni Ptf PTRecord Hop dstCallReference (dcr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the call reference value on the destination side. This attribute only appears in the trace result for the trace destination node.<br><br>The call reference value is included in the trace when the *traceInfo* attribute sets the ***callRef*** value. |
| Values | Hex (H.0..H.ffffff) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Pnni Ptf PTRecord Hop dstEndPointReference (depr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the end point call reference value on the destination side. This attribute only appears in the trace result for the trace destination node.<br><br>The call reference value is included in the trace when the *traceInfo* attribute sets the ***callRef*** value and the connection is point-to-multipoint. |

| | |
|---|---|
| Values | Hex (H.0..H.ffff) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Pnni Ptf PTRecord Hop specifiedPath

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates whether this hop is the originator of this manually configured path. Only Passport nodes provide this information by including it in the Vendor Specific group. |
| Values | no<br>yes |
| Default | no |

### COMPONENT AtmIf Vpt Pnni Ptf PTRecord Hop VendorSpecificInfo (Vsi)

| | |
|---|---|
| Instance | Decimal (0..10) |
| Groups | "GROUP AtmIf Vpt Pnni Ptf PTRecord Hop Vsi Operational (Oper)" |
| Scope | Device |
| Description | *AtmIf/n Aini Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Iisp Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Uni Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vpt/n Aini Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vpt/n Iisp Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vpt/n Uni Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vpt/n Pnni Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vcc/x.y PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vpc/n PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vpt/n Vcc/x.y PTRecord Hop/n VendorSpecificInfo/m*<br><br>This component stores the vendor specific information of a non-Passport node for a hop. An instance of this component is dynamically created for the vendor specific information group of a hop in a trace. Several instances of this component are created |

if the trace has several groups of vendor specific information.

All the trace information for a Passport node is stored in the *PTRecord Hop/** component.

Common Verbs

Help
List
Display

## GROUP AtmIf Vpt Pnni Ptf PTRecord Hop Vsi Operational (Oper)

Properties: Operational

Description: This group contains the operational attributes for the component *AtmPathTraceFilterRecordHopVen*.

## ATTRIBUTE AtmIf Vpt Pnni Ptf PTRecord Hop Vsi length

Access: Read: All
Write: Illegal

Description: This attribute indicates the length of the vendor specific information group.

Values: Decimal (0..11)

Default: No default

## ATTRIBUTE AtmIf Vpt Pnni Ptf PTRecord Hop Vsi organizationUniqueId (oui)

Access: Read: All
Write: Illegal

Description: This attribute indicates the Organization Unique Identifier (OUI) of a non-Passport node.

Values: String (3, Dashed Hex)

Default: No default

## ATTRIBUTE AtmIf Vpt Pnni Ptf PTRecord Hop Vsi data

Access: Read: All
Write: Illegal

Description: This attribute indicates the contents of the vendor specific information group.

| | |
|---|---|
| Values | String (1..8, Hex) |
| Default | No default |

## COMPONENT AtmIf Vpt Pnni PathTraceTestConnection (Ptt)

| | |
|---|---|
| Groups | "GROUP AtmIf Vpt Pnni Ptt Operational (Oper)" |
| Scope | Device |
| Description | *AtmIf/n Aini PathTraceTestConnection*<br>*AtmIf/n Iisp PathTraceTestConnection*<br>*AtmIf/n Uni PathTraceTestConnection*<br>*AtmIf/n Pnni PathTraceTestConnection*<br>*AtmIf/n Vpt/vpi Aini PathTraceTestConnection*<br>*AtmIf/n Vpt/vpi Iisp PathTraceTestConnection*<br>*AtmIf/n Vpt/vpi Uni PathTraceTestConnection*<br>*AtmIf/n Vpt/vpi Pnni PathTraceTestConnection*<br><br>This component provides the capability to control the Path Trace Test Connection. A test connection is one way to find the logical nodes and ports that a connection traverses to a destination interface.<br><br>The *Trace* verb is used to initiate the test connection. The test connection is always released once it reaches the trace destination. The test connection responds with the trace results collected during a complete or partial trace. |
| Common Verbs | Help<br>List<br>Display |

## VERB TRACE Atmlf Vpt Pnni Ptt

| | |
|---|---|
| Impact | Passive |
| Description | *TRACE AtmIf/n Aini AtmPathTraceTest*<br>*TRACE AtmIf/n Iisp AtmPathTraceTest*<br>*TRACE AtmIf/n Uni AtmPathTraceTest*<br>*TRACE AtmIf/n Pnni AtmPathTraceTest*<br>*TRACE AtmIf/n Vpt/vpi Aini AtmPathTraceTest*<br>*TRACE AtmIf/n Vpt/vpi Iisp AtmPathTraceTest*<br>*TRACE AtmIf/n Vpt/vpi Uni AtmPathTraceTest*<br>*TRACE AtmIf/n Vpt/vpi Pnni AtmPathTraceTest*<br><br>This command is used to initiate a Path Trace Test Connection and then responds with a list of logical nodes and ports from the trace source node to the trace destination node.<br><br>Only one *Trace* command is allowed at a time per signaling interface. If the test connection times out, the command fails. |

## GROUP Atmlf Vpt Pnni Ptt Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for the *AtmPathTraceTest* component. |

## ATTRIBUTE Atmlf Vpt Pnni Ptt traceCrankback

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute controls what trace information the trace records include. If the option is turned on, all attempted paths are recorded including the final one. If the option is turned off, only the information of the final path is recorded. If the connection fails to reached the destination, no path information is returned. |
| Values | no<br>yes |
| Default | no |

## ATTRIBUTE AtmIf Vpt Pnni Ptt txTrafficDescType (txTdt)

Access
Read: All
Write: All

Description
This attribute specifies the type of traffic management applied to the transmit direction, as defined by the ATM Forum. The *txTrafficDescType* determines the number and meaning of the parameters in the *txTrafficDescParm* attribute.

Values
1
2
3
4
5
6
7
8
9

Default
1

## ATTRIBUTE AtmIf Vpt Pnni Ptt rxTrafficDescType (rxTdt)

Access
Read: All
Write: All

Description
This attribute specifies the type of traffic management, which is applied to the receive direction of this connection, as defined in the ATM Forum. The *rxTrafficDescType* determines the number and meaning of the parameters in the *rxTrafficDescParm* attribute

When ***sameAsTx*** is selected, the *rxTrafficDescType* and the *rxTrafficDescParm* are taken from the transmit values.

Values
1
2
3
4
5
6
7
8

| | |
|---|---|
| | 9<br>sameAsTx |
| Default | sameAsTx |

### ATTRIBUTE AtmIf Vpt Pnni Ptt atmServiceCategory (service)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the ATM service category for both directions of the connection.<br><br>If this attribute is set to ***derivedFromBBC***, the Broadband Bearer Capability (BBC) and *bestEffort* attributes are used to determine the *atmServiceCategory* of this connection.<br><br>If this attribute is set to a possible attribute other than ***derivedFromBBC***, the value of this attribute is used to override the provisioned BBC IE parameters. In those cases, the BBC attributes are not used.<br><br>The ***constantBitRate*** service category is intended for real time applications, that is, those requiring tightly constrained delay and delay variation such as for voice and video applications.<br><br>The ***rtVariableBitRate*** service category is intended for real time applications, that is, those requiring tightly constrained delay and delay variation, such as for voice and video applications. Sources are expected to transmit at a rate which varies with time. Equivalently, the source can be described as “bursty”. Cells, which are delayed beyond the value specified by CTD, are assumed to be of significantly reduced value to the application. The VBR real time service may support statistical multiplexing of real time sources.<br><br>The ***nrtVariableBitRate*** service category is intended for non-real time applications which have bursty traffic characteristics and can be characterized in terms of a PCR, SCR, and MBS.<br><br>The ***unspecifiedBitRate*** service is intended for non-real time |

applications, that is, those not requiring tightly constrained delay and delay variation. UBR sources are expected to be bursty. The UBR service supports a high degree of statistical multiplexing among sources.

Values
unspecifiedBitRate (ubr)
constantBitRate (cbr)
rtVariableBitRate (rtvbr)
nrtVariableBitRate (nrtvbr)
derivedFromBBC (derived)

Default
unspecifiedBitRate

## ATTRIBUTE AtmIf Vpt Pnni Ptt fwdQosClass (fwdQos)

Access
Read: All
Write: All

Criticality
Component

Description
This attribute specifies the quality of service for the forward direction for this connection.

Class ***1*** supports a QOS that will meet Service Class A performance requirements (circuit emulation, constant bit rate video).

Class ***2*** supports a QOS that will meet Service Class B performance requirements (variable bit rate audio and video).

Class ***3*** supports a QOS that will meet Service Class C performance requirements (connection-oriented data transfer).

Class ***4*** supports a QOS that will meet Service Class D performance requirements (connectionless data transfer).

Class ***0*** is the unspecified bit rate QOS class; no objective is specified for the performance parameters.

Values
0
1
2

| | |
|---|---|
| | 3<br>4 |
| Default | 0 |

### ATTRIBUTE AtmIf Vpt Pnni Ptt bwdQosClass (bwdQos)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the quality of service for the backward direction for this connection.<br><br>Class ***1*** supports a QOS that will meet Service Class A performance requirements (circuit emulation, constant bit rate video).<br><br>Class ***2*** supports a QOS that will meet Service Class B performance requirements (variable bit rate audio and video).<br><br>Class ***3*** supports a QOS that will meet Service Class C performance requirements (connection-oriented data transfer).<br><br>Class ***4*** supports a QOS that will meet Service Class D performance requirements (connectionless data transfer).<br><br>Class ***0*** is the unspecified bit rate QOS class; no objective is specified for the performance parameters.<br><br>The ***sameAsFwd*** selection sets the backward quality of service to be the same as the forward quality of service. |
| Values | 0<br>1<br>2<br>3<br>4<br>sameAsFwd |
| Default | sameAsFwd |

## ATTRIBUTE AtmIf Vpt Pnni Ptt bearerClassBbc (bcBbc)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the bearer capability. It is one of the Broadband Bearer Capability (BBC) attributes. The purpose of the BBC information element is to indicate a requested broadband connection-oriented bearer service to be provided by the network.<br><br>The value ***derivedFromServiceCategory*** specifies that the actual value, which is used for this connection and is derived from the value of the *atmServiceCategory.* Either this attribute must be set to ***derivedFromServiceCategory***, or the *atmServiceCategory* attribute must be set to ***derivedFromBBC***, but not both.<br><br>Class ***a*** service is a connection-oriented, constant bit rate ATM transport service. Class ***a*** service has end-to-end timing requirements and may require stringent cell loss, cell delay and cell delay variation performance.When ***a*** is set, the user is requesting more than an ATM only service. The network may look at the AAL to provide inter-working based on its contents.<br><br>Class ***c*** service is a connection-oriented, variable bit rate ATM transport service. Class ***c*** service has no end-to-end timing requirements. When ***c*** is set, the user is requesting more than an ATM only service. The network inter-working function may look at the AAL and provide service based on it.<br><br>Class ***x*** service is a connection-oriented ATM transport service where the AAL, *trafficType* (***vbr*** or ***cbr***), and timing requirements are user defined (that is, transparent to the network).When ***x*** is set, the user is requesting an ATM only service from the network. In this case, the network shall not process any higher layer protocols. |
| Values | a<br>c |

| | |
|---|---|
| | x<br>derivedFromServiceCategory |
| Default | derivedFromServiceCategory |

### ATTRIBUTE AtmIf Vpt Pnni Ptt transferCapabilityBbc (tcBbc)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the transfer capability for this connection. UNI 3.0/3.1 traffic type and end-to-end timing parameters are mapped into this parameter as follows:<br><transferCapability: TrafficType, Timing><br>***0***: NoIndication, NoIndication<br>***1***: NoIndication, yes<br>***2***: NoIndication, no<br>***5***: CBR, yes<br>***8***: VBR, NoIndication<br>***9***: VBR, yes<br>***10***: VBR, no<br><br>***NotApplicable*** specifies that the user does not want to specify the transfer capability.<br><br>The CBR traffic type refers to the traffic offered on services such as a constant bit rate video service or a circuit emulation.<br><br>The VBR traffic type refers to the traffic offered on services such as packetized audio and video, or data.<br><br>The value ***NoIndication*** for traffic type is used if the user has not set the traffic type. This is also the case for end-to-end timing.<br><br>The value ***yes*** for end-to-end timing indicates that end-to-end timing is required.<br><br>The value ***no*** for end-to-end timing indicates that end-to-end timing is not required.<br><br>The value ***derivedFromServiceCategory*** specifies that the actual |

value which is used for this connection and is derived from the value of the *atmServiceCategory*. Either, this attribute must be set to ***derivedFromServiceCategory*** or the *atmServiceCategory* attribute must be set to ***derivedFromBBC***, but not both.

Values
0
1
2
5
8
9
10
notApplicable
derivedFromServiceCategory

Default
derivedFromServiceCategory

### ATTRIBUTE AtmIf Vpt Pnni Ptt clippingBbc (cBbc)

Access
Read: All
Write: All

Criticality
Component

Description
This attribute specifies the value for the clipping susceptibility parameter in the BBC IE. This attribute is only used for SPVC connections. It is one of the Broadband Bearer Capability attributes.

Clipping is an impairment where the first fraction of a second of information to be transferred is lost. It occurs after a call is answered and before an associated connection is switched through.

Values
no
yes

Default
no

### ATTRIBUTE AtmIf Vpt Pnni Ptt bestEffort

Access
Read: All
Write: All

Criticality
Component

| | |
|---|---|
| Description | This attribute specifies the value of the best effort parameter in the ATM Traffic Descriptor IE. It is one of the Broadband Bearer Capability attributes.<br><br>The value ***indicated*** implies that the quality of service for this connection is not guaranteed.<br><br>The value ***notIndicated*** implies that the quality of service for this connection is guaranteed.<br><br>The value ***derivedFromServiceCategory*** specifies that the actual value, which is used for this connection, is derived from the value of the *atmServiceCategory.* Either this attribute must be set to ***derivedFromServiceCategory*** or the *atmServiceCategory* attribute must be set to ***derivedFromBBC***, but not both. |
| Values | indicated<br>notIndicated<br>derivedFromServiceCategory (derived) |
| Default | derivedFromServiceCategory |

### ATTRIBUTE AtmIf Vpt Pnni Ptt testCalledAddress

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the destination address of this test connection. |
| Values | String (20, Hex) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Pnni Ptt testCalledVpiVci

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the called VPI.VCI values for this test connection on the destination interface. |

| | |
|---|---|
| Values | Integer Sequence (0..4095; 0..65535) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Pnni Ptt testSpecifiedPath

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the path that will be used to get to the destination of this test connection. |
| Values | String (0..32, ASCII) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Pnni Ptt bwdQosParameters (bqp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is a vector of three elements that specify the quality of service parameters for the backward direction for this connection. This attribute is used for SPVC connections.<br><br>The ***cdv*** element specifies the acceptable peak-to-peak cell delay variation (CDV) of real-time connections (CBR and rt-VBR).<br><br>It is signaled through the extended QoS information element.<br><br>The ***ctd*** specifies the acceptable maximum cell transfer delay (maxCtd) of real-time connections (CBR and rt-VBR). It is signaled through the end-to-end transit delay information element.<br><br>The ***clr*** specifies the acceptable cell loss ratio (CLR) of CBR, rt-VBR, and nrt-VBR connections. It is signaled through the extended QoS information element. |

| | |
|---|---|
| Vector of | Decimal (0..2147483647) |
| Index | cdv<br>ctd<br>clr |
| Default | (cdv: 16777215, ctd: 16777215, clr: 255) |

### ATTRIBUTE AtmIf Vpt Pnni Ptt fwdQosParameters (fqp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is a vector of three elements that specify the quality of service parameters for the forward direction for this connection. This attribute is used for SPVC connections.<br><br>The ***cdv*** element specifies the acceptable peak-to-peak cell delay variation (CDV) of the real-time connections (CBR and rt-VBR). It is signaled through the extended QoS information element.<br><br>The ***ctd*** specifies the acceptable maximum cell transfer delay (maxCtd) of the real-time connections (CBR and rt-VBR). It is signaled through the end-to-end transit delay information element.<br><br>The ***clr*** specifies the acceptable cell loss ratio (CLR) of CBR, rt-VBR, and nrt-VBR connections. It is signaled through the extended QoS information element. |
| Vector of | Decimal (0..2147483647) |
| Index | cdv<br>ctd<br>clr |
| Default | (cdv: 16777215, ctd: 16777215, clr: 255) |

### ATTRIBUTE AtmIf Vpt Pnni Ptt txTrafficDescParm (txTdp)

| | |
|---|---|
| Access | Read: All<br>Write: All |

Description

This attribute is a vector of five traffic parameters whose meanings are defined by the *txTrafficDescType* attribute. The values of peak cell rate (PCR), sustained cell rate (SCR), minimum cell rate (MCR) and requested shaping rate are expressed in cells/second. THe maximum burst size (MBS) is expressed in cells. The cell delay variance tolerance (CDVT) is expressed in microseconds. The values of PCR, SCR, MBS, MCR and CDVT are used for the connection admission control (CAC). The value of the CDVT is only used for connections where the *atmServiceCategory* is ***constantBitRate***. For all other values of *atmServiceCategory*, the CDVT is ignored. The values of PCR, SCR, and the requested shaping rate are used to determine the actual shaping rate, where traffic shaping is enabled.

When *txTrafficDescType* is ***1*** or ***2***, all of the parameters must be set to zero.

When *txTrafficDescType* is ***3***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameter 1 must be non-zero. Parameters 2 and 3 must be zero.

When *txTrafficDescType* is ***4***, parameter 1 represents the PCR for CLP0+1 traffic with cell discard; parameter 2 represents the PCR for CLP equal to 0 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameter 1 must be greater than or equal to parameter 2. Parameters 1 and 2 must be non-zero. Parameter 3 must be zero.

When *txTrafficDescType* is ***5***, parameter 1 represents the PCR for CLP0+1 traffic with cell tagging; parameter 2 represents the PCR for CLP equal to 0 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameter 1 must be greater than or equal to parameter 2. Parameters 1 and 2 must be non-zero.

Parameter 3 must be zero.

When *txTrafficDescType* is ***6***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the SCR for CLP0+1 traffic; parameter 3 represents the MBS for CLP0+1 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameters 1, 2, and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2. Parameter 5 must either be zero (unused) or greater than or equal to parameter 2.

When *txTrafficDescType* is ***7***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the SCR for CLP equal to 0 with cell discard; parameter 3 represents the MBS for CLP equal to 0 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameters 1, 2, and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2. Parameter 5 must either be zero (unused) or greater than or equal to parameter 2.

When *txTrafficDescType* is ***8***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the SCR for CLP equal to 0 traffic with cell tagging; parameter 3 represents the MBS for CLP equal to 0 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameters 1, 2 and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2. Parameter 5 must either be zero (unused) or greater than or equal to parameter 2.

When *txTrafficDescType* is ***9***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the CDVT; parameter 3 represents the MCR; parameter 5 represents the requested shaping rate; and parameter 4 is not used and must be zero. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameter 1 must either be zero or be greater than or equal to parameter 3. Parameter 3 may be

optionally zero. Parameter 5 must either be zero (unused) or greater than or equal to parameter 3.

Whenever it is valid for PCR to be specified, parameter 5 may also be used to specify a requested shaping rate. A non-zero value in parameter 5 overrides the value in parameter 1 and is used as the peak cell rate in the calculations of CAC and the shaping rate.

For *txTrafficDescType* ***3***, ***4***, ***5*** and ***9***, the transmit traffic should be shaped at the next rate less than the PCR.

For *txTrafficDescType* ***6***, ***7,*** and ***8***, the transmit traffic should be shaped at the highest available rate which is between PCR and SCR. However, if there is no available shaping rate between PCR and SCR, traffic should be shaped at the next rate above the PCR.

| | |
|---|---|
| Vector of | Decimal (0..2147483647) |
| Index | Decimal (1..5) |
| Default | ([5] 0) |

### ATTRIBUTE AtmIf Vpt Pnni Ptt rxTrafficDescParm (rxTdp)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute is a vector of four traffic parameters whose meanings are defined by the *rxTrafficDescType* attribute. The values of the peak cell rate (PCR) and sustained cell rate (SCR) are expressed in<br>cells/second. The maximum burst size (MBS) is expressed in cells. The value of the cell delay variance tolerance (CDVT) is expressed in microseconds. The values of PCR, SCR, MBS and CDVT are used for the usage parameter control (UPC).<br><br>When *rxTrafficDescType* is ***1*** or ***2***, all of the parameters must be set to zero (unused).<br><br>When *rxTrafficDescType* is ***3***, parameter 1 represents the PCR for CLP0+1 traffic. Parameter 1 must be non-zero. Parameters 2 and 3 must be set to zero (unused). |

When *rxTrafficDescType* is ***4***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the PCR for CLP equal to 0 traffic with cell discard. Parameters 1 and 2 must be non-zero. Parameter 3 must be set to zero (unused). Parameter 1 must be greater than or equal to parameter 2.

When *rxTrafficDescType* is ***5***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the PCR for CLP equal to 0 traffic with cell tagging. Parameters 1 and 2 must be non-zero. Parameter 3 must be set to zero (unused). Parameter 1 must be greater than or equal to parameter 2.

When *rxTrafficDescType* is a ***6***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the SCR for CLP0+1 traffic; parameter 3 represents the MBS for CLP0+1 traffic. Parameters 1, 2, and 3 must be non-zero. Parameter 1 must be greater than or equal to Parameter 2.

When *rxTrafficDescType* is ***7***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the SCR for CLP equal to 0 traffic with cell discard; parameter 3 represents the MBS for CLP equal to 0 traffic. Parameters 1, 2 and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2.

When *rxTrafficDescType* is ***8***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the SCR for CLP equal to 0 traffic with cell tagging; parameter 3 represents the MBS for CLP equal to 0 traffic. Parameter 1, 2, and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2.

When *rxTrafficDescType* is ***9***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the CDVT; parameter 3 represents the MCR. Parameter 4 is not used and must be zero. Parameter 1 must either be zero or be greater than or equal to parameter 3. Parameter 3 may optionally be zero.

When *rxTrafficDescType* is any value from ***3*** through ***8***, parameter 4 represents the CDVT. If this value is zero, the CDVT is taken from the *ConnectionAdministrator* defaults for the particular *atmServiceCategory* of this connection.

When *rxTrafficDescriptorType* is ***3*** through ***9***, there are certain extreme combinations of *rxTrafficDescParm* which are outside the capabilities of the UPC hardware.

To calculate the limits, use the following formulae:
I1 = 1 000 000 000 / PCR
L1 = CDVT * 1000
I2 = 1 000 000 000 / SCR
L2 = CDVT + (MBS - 1) * (I2 - I1)
I1 and I2 must be less than or equal to 335 523 840. I1 + L1 must be less than or equal to 1 342 156 800. I2 + L2 must be less than or equal to 1 342 156 800. Note that I2 and L2 only apply when the *rxTrafficDescriptorType* is ***6*** through ***8***.

If the values of I1, L1, I2, or L2 are closer to the limits described above, a further restriction applies. Specifically, if either:
I1 > 41 940 480 or
I2 > 41 940 480 or
I1 + L1 > 167 769 600 or
I2 + L2 > 167 769 600
then both I1 and I2 must be greater than 20 480.

Parameter 5 of the *rxTrafficDescParm* is always unused.

If the *rxTrafficDescType* is ***sameAsTx***, the values in this attribute are taken from the *txTrafficDescParm*.

| | |
|---|---|
| Vector of | Decimal (0..2147483647) |
| Index | Decimal (1..5) |
| Default | ([5] 0) |

## COMPONENT AtmIf Vpt Pnni ServiceTrace (SrvTrace)

| | |
|---|---|
| Groups | "GROUP AtmIf Vpt Pnni SrvTrace Operational" |
| Scope | Application |
| Description | *AtmIf/n [Vpt/m] Uni ServiceTrace*<br>*AtmIf/n [Vpt/m] Iisp ServiceTrace*<br>*AtmIf/n [Vpt/m] Pnni ServiceTrace*<br>*AtmIf/n [Vpt/m] Aini ServiceTrace* |

The *ServiceTrace* component of the ATM service determines if the trace capability is allowed on this service. If it is not provisioned, then a service trace session cannot be started on this service.

Currently, the ATM Trace features only support ***frAtmTraceRcvr*** and ***atmTraceRcvr*** features, if the name of a X25 or FR receiver is set to the *receiver* attribute of this component, the *Start* command responses with a “Receiver Not Supported” message.

Common Verbs

Help
List
Display
Add
DELete

## VERB Start AtmIf Vpt Pnni SrvTrace

Impact: Service

Description:

*Start AtmIf/n [Vpt/m] Uni ServiceTrace*
*Start AtmIf/n [Vpt/m] Iisp ServiceTrace*
*Start AtmIf/n [Vpt/m] Pnni ServiceTrace*
*Start AtmIf/n [Vpt/m] Aini ServiceTrace*
This command starts a service trace session.

## VERB Stop AtmIf Vpt Pnni SrvTrace

Impact: Service

Description:

*Stop AtmIf/n [Vpt/m] Uni ServiceTrace*
*Stop AtmIf/n [Vpt/m] Iisp ServiceTrace*
*Stop AtmIf/n [Vpt/m] Pnni ServiceTrace*
*Stop AtmIf/n [Vpt/m] Aini ServiceTrace*
This command stops a service trace session.

## GROUP AtmIf Vpt Pnni SrvTrace Operational

Properties: Operational

Description: This group provides the operational attributes for the *SrvTrace* component.

### ATTRIBUTE AtmIf Vpt Pnni SrvTrace receiverName (rcvr)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute should be set to the name of the desired trace receiver before starting a trace session. All available trace receivers are listed under the *SrvTrace Rcvr* component. This attribute cannot be set while the service trace is active. The receiver name is validated by the trace manager when the service *SrvTrace* is started. |
| Values | String (0..8, ASCII) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Pnni SrvTrace duration

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the duration, in minutes, of a trace session. A value of ***0*** indicates unlimited duration in which case a trace session remains active until a *Stop* command is issued. This attribute cannot be set while a trace is active. |
| Values | Decimal (0..9999) |
| Units | minutes |
| Default | 60 |

### ATTRIBUTE AtmIf Vpt Pnni SrvTrace queueLimit

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the total number of bytes of traced data which may be queued for transmission to the trace receiver. When this limit is exceeded, incoming traced frames are discarded. This attribute can be set while a trace is active and takes effect immediately. |
| Values | Decimal (1..100) |
| Units | Kbyte |
| Default | 20 |

## ATTRIBUTE AtmIf Vpt Pnni SrvTrace session

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the *SrvTrace Session* component that is forwarding the trace data. This attribute is set automatically, and is empty unless the service trace is active. |
| Values | The name of the component |
| Default | No default |

## COMPONENT AtmIf Vpt Pnni Reroute

| | |
|---|---|
| Groups | "GROUP AtmIf Vpt Pnni Reroute DomainOperational (DOper)"<br>"GROUP AtmIf Vpt Pnni Reroute LocalOperational (LOper)"<br>"GROUP AtmIf Vpt Pnni Reroute GlobalOperational (GOper)"<br>"GROUP AtmIf Vpt Pnni Reroute Statistics (Stats)" |
| Scope | Device |
| Description | *AtmIf/n Pnni Reroute*<br>*AtmIf/n Vpt/vpi Pnni Reroute*<br><br>This component represents the rerouting capabilities of the ATM Signaling interface. If this component is provisioned, the *Artg Pnni* component must already exist. The addition or deletion of this component, or changes to its provisionable attributes, does not affect existing connections. |
| Subcomponents | "COMPONENT AtmIf Vpt Pnni Reroute Ov" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## VERB OPTIMIZE AtmIf Vpt Pnni Reroute

| | |
|---|---|
| Impact | Service |
| Description | *Optimize [-all] AtmIf/n Pnni Reroute*<br>*Optimize [-all] AtmIf/n Vpt/vpi Pnni Reroute*<br><br>This command triggers path optimization for the connection segments managed by the *Reroute* component.<br><br>By default, only connection segsforation. The best known optimization metric value for the connection segment is indicated by the *localOptimalMetricValue* attribute under the *RerouteInfo* component for the connection.<br>The *-all* option causes all connection segments subscribed to path optimization to be considered.<br><br>Using the *Optimize* command results in service disruptions when connection segments are moved to a better path. Care should be exercised when using this command. It is recommended that the command be used during maintenance windows. |

## GROUP AtmIf Vpt Pnni Reroute DomainOperational (DOper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes specific to rerouting activities on a PNNI interface. |

## ATTRIBUTE AtmIf Vpt Pnni Reroute localDomainLink (domain)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the local PNNI domain link type.<br><br>One of the following values is indicated:<br>***intraDomainLink***: The PNNI interface is not a local domain edge node.<br>***interDomainLink***: The PNNI interface acts as a local domain edge node. |
| Values | intraDomainLink<br>interDomainLink |

| | |
|---|---|
| Default | No default |

### GROUP AtmIf Vpt Pnni Reroute LocalOperational (LOper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes that indicate the local rerouting activities at the interface level. |

### ATTRIBUTE AtmIf Vpt Pnni Reroute localSubscribedConnections (lsub)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the connection segments that are subscribed to one or more local rerouting capabilities. Note that a given connection segment is subscribed to either local rerouting capabilities capabilities, not both. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Pnni Reroute localEligibleRecoveredCon (lerc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the connection segments that have been recovered using local rerouting and are eligible for local path optimization. The value decreases as counted connections are released. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Pnni Reroute localIneligibleRecoveredCon (lirc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the connection segments that have been recovered by local rerouting but are not eligible for local path optimization. The value decreases as counted connections are released. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Pnni Reroute localLastRrCauseCode (lrrcc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the value of the last local rerouting cause code received at this interface. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Pnni Reroute localPathsOptimized (lPathsOpt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the paths that were successfully optimized by local rerouting or EBR during the last optimization pass at this interface. Successfully optimized paths are paths that switched to a better route. The value is reset to zero at the beginning of each optimization pass. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP AtmIf Vpt Pnni Reroute GlobalOperational (GOper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes that indicate the global and EBR rerouting activities at the interface level. |

### ATTRIBUTE AtmIf Vpt Pnni Reroute globalSubscribedConnections (gsub)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the connection segments that are subscribed to one or more global and EBR rerouting capabilities. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Pnni Reroute globalEligibleRecoveredCon (gerc)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the connections that have been recovered by global and EBR rerouting and are eligible for global or EBR path optimization. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Pnni Reroute globalIneligibleRecoveredCon (girc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the connections that have been recovered by global and EBR rerouting but are not eligible for global or EBR path optimization. The value decreases as counted connections are released. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Pnni Reroute globalLastRrCauseCode (grrcc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the value of the last global or EBR rerouting cause code received at this interface. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Pnni Reroute globalPathsOptimized (gPathsOpt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the paths that were successfully optimized by global and EBR rerouting during the last optimization pass at this interface. Successfully optimized paths are paths that switched to a better route. The value is reset to zero at the beginning of each optimization pass. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## GROUP AtmIf Vpt Pnni Reroute Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the rerouting statistics for the interface. |

## ATTRIBUTE AtmIf Vpt Pnni Reroute totalLocalConnectionRecoveries (tLConRec)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts successful local connection recovery attempts. The counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## ATTRIBUTE AtmIf Vpt Pnni Reroute totalLocalFailedRecoveries (lFailedRec)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts failed local connection recovery attempts. A connection recovery attempt fails if a rerouting connection segment can not be established. The counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## ATTRIBUTE AtmIf Vpt Pnni Reroute totalLocalPathOptimizations (tLPathOpt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts successful local path optimization attempts. A successful path optimization attempt results in a switch to a better route. The counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## ATTRIBUTE AtmIf Vpt Pnni Reroute totalGlobalConnectionRecoveries (tGConRec)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts successful global and EBR connection recovery attempts. The counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Pnni Reroute totalGlobalFailedRecoveries (gFailedRec)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts failed global and EBR connection recovery attempts. A connection recovery attempt fails if a rerouting connection segment cannot be established. The counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Pnni Reroute totalGlobalPathOptimizations (tGPathOpt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts successful global and EBR path optimization attempts. A successful path optimization attempt results in a switch to a better route. The counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Pnni Reroute totalOptimizationPasses (optPass)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts optimization passes at the interface. Both module and interface optimization passes are counted. The counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## COMPONENT AtmIf Vpt Pnni Reroute Ov

| | |
|---|---|
| Groups | "GROUP AtmIf Vpt Pnni Reroute Ov DomainProvisioned (DProv)"<br>"GROUP AtmIf Vpt Pnni Reroute Ov Provisioned (Prov)"<br>"GROUP AtmIf Vpt Pnni Reroute Ov LocalProvisioned (LProv)"<br>"GROUP AtmIf Vpt Pnni Reroute Ov GlobalProvisioned (GProv)" |
| Scope | Device |
| Description | *AtmIf/n Pnni Reroute Ov*<br>*AtmIf/n Vpt/vpi Pnni Reroute Ov*<br><br>This component represents the provisioning capabilities of the rerouting functionality for the ATM Signaling interface. |
| Common Verbs | Help<br>List<br>Display |

## GROUP AtmIf Vpt Pnni Reroute Ov DomainProvisioned (DProv)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes specific to rerouting on a PNNI interface. |

## ATTRIBUTE AtmIf Vpt Pnni Reroute Ov localDomainLink (domain)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the method used to identify the type of local domain link.<br><br>One of the following values can be specified:<br>***sameAsARtgPnniReroute***: The type of the local domain link is determined by the exchange of the *ARtg Pnni Reroute localDomain* value with the PNNI neighbor.<br>***intraDomainLink***: The result of the exchange of the *localDomain* is ignored. The local domain link type is set to intra-domain link.<br>***interDomainLink***: The result of the exchange of the *localDomain* is ignored. The local domain link type is set to inter-domain link. |

| | |
|---|---|
| Values | sameAsARtgPnniReroute (sameAs)<br>intraDomainLink (intra)<br>interDomainLink (inter) |
| Default | sameAsARtgPnniReroute |

## GROUP AtmIf Vpt Pnni Reroute Ov Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the common provisionable attributes for rerouting capabilities at the ATM signaling interface. |

## ATTRIBUTE AtmIf Vpt Pnni Reroute Ov protocol

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the rerouting protocols which are requested by connection segments on the interface, for which this node is the first rerouting node. This attribute has no effect on connection segments for which this node is not the first rerouting node. A subset of the requested protocols is granted by the last rendezvous node, according to its software level and provisioning.<br><br>One of the following values can be specified:<br>***sameAsARtgPnniReroute***: The requested rerouting protocols are specified by the *Artg Pnni Reroute protocol* attribute.<br>***localGlobal***: Local and global rerouting protocols are requested. Local and global rerouting are granted if the DTL terminator is provisioned with the Rerouting feature.<br>***localOnly***: Local rerouting is requested. This value guarantees interoperability with other vendors' equipment running the ATM Forum "Domain Based Rerouting" protocol. Local rerouting is granted if the DTL terminator is provisioned with the Rerouting feature.<br>***globalOnly***: Global rerouting is requested. Global rerouting is granted if the DTL terminator is provisioned with the Rerouting feature.<br>***localEbr*:** Local and EBR rerouting protocols are requested. Local rerouting is granted if the DTL terminator is provisioned with the Rerouting feature. Alternatively, EBR is granted if the DTL terminator is provisioned with the EBR feature. |

***ebrOnly***: EBR is requested. EBR is granted if the DTL terminator is provisioned with the EBR feature.

Values
localGlobal
localOnly
globalOnly
localEbr
ebrOnly
sameAsARtgPnniReroute (sameAs)

Default
sameAsARtgPnniReroute

## ATTRIBUTE AtmIf Vpt Pnni Reroute Ov numOptAttempts

Access
Read and write

Description
This attribute specifies the number of path optimizations attempted before declaring a recovered connection segment to be optimally routed. Following a connection recovery, each manual and automatic path optimization will attempt to optimize the connection segment. When a path is found with a better optimization metric than the best known value, or the number of optimization attempts is exhausted, the current optimization metric is declared to be the new optimal metric for the connection segment. Subsequent path optimizations will not attempt to optimize the connection segment unless all subscribed connection segments are eligible for path optimization.

If the value is set to ***0***, the optimization metric of a connection segment following connection recovery is declared to be the new optimal metric, and no connection recovery alarm is issued. A subsequent path optimization will not attempt to optimize the connection segment unless all subscribed connection segments are eligible for path optimization.

If the value is set to ***sameAsARtgPnniReroute***, the value of the *ARtg Pnni Reroute numOptAttempts* attribute is used.

Values
Decimal (0..15)
sameAsARtgPnniReroute (sameAs)

Default
sameAs

## ATTRIBUTE AtmIf Vpt Pnni Reroute Ov moduleOptimizationConnections

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies which connection segments on the interface will be considered by a module optimization pass as controlled by the *ARtg Pnni Reroute* component.<br><br>One of the following values can be specified:<br>***sameAsARtgPnniReroute***: The connection segments to be considered by a module optimization pass are specified by the *Artg Pnni Reroute moduleOptimization* attribute.<br>***none***: No connection segments are considered for path optimization.<br>***recoveredOnly***: Only connection segments which are foration. The best known optimization metric value for the connection segment is indicated by the *localOptimalMetricValue* attribute under the *RerouteInfo* component for the connection<br>***allSubscribed***: All connection segments subscribed to path optimization are considered. |
| Values | none<br>recoveredOnly<br>allSubscribed<br>sameAsARtgPnniReroute (sameAs) |
| Default | sameAsARtgPnniReroute |

## ATTRIBUTE AtmIf Vpt Pnni Reroute Ov switchoverMechanism

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the mechanism used for switchover of a rerouted connection segment.<br><br>One of the following values can be specified:<br>***sameAsARtgPnniReroute***: The switchover mechanism is specified by the *ARtg Pnni Reroute switchoverMechanism* attribute.<br>***standard***: The mechanism described in the ATM Forum “Domain based Rerouting” specification is used for switchover. This value ensures interoperability with other vendors’ equipment running ATM Forum “Domain based Rerouting”.<br>***rcl***: The Reduced Cell Loss mechanism is used for switchover. |

RCL is a value-added Passport extension to the standard mechanism that allows faster switchover time.

Values
standard
rcl
sameAsARtgPnniReroute (sameAs)

Default
sameAsARtgPnniReroute

## GROUP AtmIf Vpt Pnni Reroute Ov LocalProvisioned (LProv)

Properties
Provisioned

Description
This group contains the provisionable attributes for EBR and local rerouting protocols.

## ATTRIBUTE AtmIf Vpt Pnni Reroute Ov localConnectionRecoverySubscr (lConRec)

Access
Read and write

Description
This attribute specifies which connection segments on the interface request subscription to local connection recovery. This attribute only affects connection segments that request the local rerouting protocols. This attribute affects connection segments for a node that is either local domain rerouting node or a DTL originator.

Connection segments of the specified type(s) which request ***localGlobal*** or ***localOnly*** protocols request subscription to local connection recovery.

Connection segments of the specified type(s) which request ***localEbr*** request subscription to both local connection recovery and EBR connection recovery. Only one will be granted.

One or more of the following values can be specified:
***sameAsARtgPnniReroute:*** If this value is set, the local connection recovery subscription rule is determined by the *ARtg Pnni Reroute localConnectionRecoverySubscr* attribute. This value takes precedence over any other values.
***svcSvp***: If this value is set, all SVC and SVP connection segments request subscription to local connection recovery.
***sourceSpvcSpvp***: If this value is set, all source SPVC and SPVP connection segments request subscription to local connection

recovery.
***transitSpvcSpvp***: If this value is set, all transit SPVC and SPVP connection segments request subscription to local connection recovery.

Set of
sameAsARtgPnniReroute (sameAs)
svc
sourceSpvcSpvp (source)
transitSpvcSpvp (transit)

Default
(sameAsARtgPnniReroute)

## ATTRIBUTE AtmIf Vpt Pnni Reroute Ov localPathOptimizationSubscr (lPathOpt)

Access
Read and write

Description
This attribute specifies which connection segments on the interface request subscription to local path optimization. This attribute only affects connection segments that request the local rerouting protocols. This attribute affects connection segments for a node that is either local domain rerouting node or a DTL originator.

Connection segments of the specified type(s) which request ***localGlobal*** or ***localOnly*** protocols request subscription to local path optimization.

Connection segments of the specified type(s) which request ***localEbr*** request subscription to both local path optimization and EBR path optimization. Only one will be granted.

One or more of the following values can be specified:
***sameAsARtgPnniReroute***: If this value is set, the local path optimization subscription rule is determined by the *ARtg Pnni Reroute localPathOptimizationSubscr* attribute. This setting takes precedence over the any other values.
***svcSvp***: If this value is set, then all SVC and SVP connection segments request subscription to local path optimization.
***sourceSpvcSpvp***: If this value is set, then all source SPVC and SPVP connection segments request subscription to local path optimization.
***transitSpvcSpvp***: If this value is set, then all transit SPVC and

SPVP connection segments request subscription to local path optimization.

Set of
sameAsARtgPnniReroute (sameAs)
svc
sourceSpvcSpvp (source)
transitSpvcSpvp (transit)

Default (sameAsARtgPnniReroute)

## GROUP AtmIf Vpt Pnni Reroute Ov GlobalProvisioned (GProv)

Properties Provisioned

Description This group contains the provisionable attributes for the global and EBR rerouting protocol.

## ATTRIBUTE AtmIf Vpt Pnni Reroute Ov globalConnectionRecoverySubscr (gConRec)

Access Read and write

Description This attribute specifies which connection segments on the interface request subscription to global or EBR connection recovery. This attribute only affects connection segments that request the global or EBR rerouting protocols. This attribute affects connection segments for a node that is a DTL originator.

Connection segments of the specified type(s) which request ***localGlobal*** or ***globalOnly*** protocols request subscription to global connection recovery.

Connection segments of the specified type(s) which request ***ebrOnly*** request subscription to EBR connection recovery.

Connection segments of the specified type(s) which request ***localEbr*** request subscription to both local connection recovery and EBR connection recovery. Only one will be granted.

One or more of the following values can be specified:
***sameAsARtgPnniReroute***: If this value is set, the global or EBR connection recovery subscription rule is determined by the *ARtg Pnni Reroute globalConnectionRecoverySubscr* attribute.This setting takes precedence over any other values.
***svcSvp***: If this value is set, then all SVC and SVP connection

segments request subscription to global or EBR connection recovery.
***sourceSpvcSpvp***: If this value is set, then all source SPVC and SPVP connection segments request subscription to global or EBR connection recovery.
***transitSpvcSpvp***: If this value is set, then all transit SPVC and SPVP connection segments request subscription to global or EBR connection recovery.

Set of — sameAsARtgPnniReroute (sameAs)
svc
sourceSpvcSpvp (source)
transitSpvcSpvp (transit)

Default — (sameAsARtgPnniReroute)

## ATTRIBUTE AtmIf Vpt Pnni Reroute Ov globalPathOptimizationSubscr (gPathOpt)

Access — Read and write

Description — This attribute specifies which connection segments on the interface request subscription to global or EBR path optimization. This attribute only affects connection segments that request the global or EBR rerouting protocols. This attribute affects connection segments for a node that is a DTL originator.

Connection segments of the specified type(s) which request ***localGlobal*** or ***globalOnly*** protocols request subscription to global path optimization.

Connection segments of the specified type(s) which request ***ebrOnly*** request subscription to EBR path optimization.

Connection segments of the specified type(s) which request ***localEbr*** request subscription to both local path optimization and EBR path optimization. Only one will be granted.

One or more of the following values can be specified:
***sameAsARtgPnniReroute***: If this value is set, the global or EBR path optimization subscription rule is determined by the *ARtg Pnni Reroute globalPathOptimizationSubscr* attribute. This setting takes precedence over any other values.
***svcSvp***: If this value is set, then all SVC and SVP connection

segments request subscription to global or EBR path optimization.
***sourceSpvcSpvp***: If this value is set, then all source SPVC and SPVP connection segments request subscription to global or EBR path optimization.
***transitSpvcSpvp***: If this value is set, then all transit SPVC and SPVP connection segments request subscription to global or EBR path optimization.

Set of
sameAsARtgPnniReroute (sameAs)
svc
sourceSpvcSpvp (source)
transitSpvcSpvp (transit)

Default
(sameAsARtgPnniReroute)

## COMPONENT AtmIf Vpt UserNetworkInterface (Uni)

Groups
"GROUP AtmIf Vpt Uni Provisioned (Prov)"
"GROUP AtmIf Vpt Uni AccountingOptions (AcctOpt)"
"GROUP AtmIf Vpt Uni VUniProvisioned (VProv)"

Scope
Device

Description
*AtmIf/n VirtualPathTerminator/m Uni*
This component represents a virtual ATM UNI interface. If this component is provisioned, neither an *Iisp*, an *Aini*, nor a *Pnni* component can be provisioned under the same *Vpt* component. If this component is deleted, then all associated *Vcc* components are deleted.

| | |
|---|---|
| Subcomponents | "COMPONENT AtmIf Vpt Uni Signalling (Sig)" |
| Opt. Subcomp. | "COMPONENT AtmIf Vpt Uni CallingAddressScreening (CallingAScr)"<br>"COMPONENT AtmIf Vpt Uni CalledAddressScreening (CalledAScr)"<br>"COMPONENT AtmIf Vpt Uni PathTraceFilter (Ptf)"<br>"COMPONENT AtmIf Vpt Uni ServiceTrace (SrvTrace)"<br>"COMPONENT AtmIf Vpt Uni Reroute" |
| Dyn. Subcomp. | "COMPONENT AtmIf Vpt Uni PathTraceTestConnection (Ptt)" |
| Dyn. Subcomp. | "COMPONENT AtmIf Vpt Uni Address (Addr)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP AtmIf Vpt Uni Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the *Uni* component. |

## ATTRIBUTE AtmIf Vpt Uni version

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies which specification the UNI complies with. The options are ATM FORUM 3.0, ATM FORUM 3.1 or ATM FORUM 4.0. If this attribute is changed then all switched *Vcc* components in this interface are cleared due to the fact that the two versions are incompatible. |

| | |
|---|---|
| Values | atmForum30<br>atmForum31<br>atmForum40 |
| Default | atmForum40 |

### ATTRIBUTE AtmIf Vpt Uni side

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute indicates which side the interface is, user or network. |
| Values | network<br>user |
| Default | network |

### ATTRIBUTE AtmIf Vpt Uni softPvpAndPvcRetryPeriod

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute represents the time in seconds to wait between soft PVP or soft PVC call setup retries. The resolution is to the nearest 10 seconds. |
| Values | Decimal (20..999999) |
| Units | seconds |
| Default | 60 |

### ATTRIBUTE AtmIf Vpt Uni softPvpAndPvcHoldOffTime (sHoldOffTime)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies how long to hold off retries following the release of a connection. Due to the way group timers are implemented, it can take from 100% to 150% of the provisioned timer to trigger the desired action. Since SPVC retries are paced, |

in cases where there are many connections, the entire process can take more than 150% of the provisioned timer value.

Values: Decimal (0; 50..20000)

Units: msec

Default: 0

### ATTRIBUTE AtmIf Vpt Uni loopPrevention

Access: Read: All
Write: Configuration

Description: This attribute specifies whether loop prevention is in effect on this interface.

When the value is ***enabled***, incoming calls on this interface cannot be routed back out the same interface. When the value is ***disabled***, routing of incoming calls back out the same interface is permitted.

The recommended value is ***enabled***. The value ***disabled*** should only be used if routing of incoming calls back out over this interface is actually required. As an example, the value ***disabled*** might be needed if the interface is connected to an end-user multiplexing device which has no routing capability.

Note that setting the value to ***enabled*** prevents only routing loops which involve two network nodes.

Values: disabled
enabled

Default: enabled

### ATTRIBUTE AtmIf Vpt Uni interfaceType

Access: Read: All
Write: All

Criticality: Component

Description: This attribute represents the *Type* of the interface, ***private*** or ***public***.

| | |
|---|---|
| Values | public<br>private |
| Default | private |

### GROUP AtmIf Vpt Uni AccountingOptions (AcctOpt)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for accounting. |

### ATTRIBUTE AtmIf Vpt Uni accountCollection (aco)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute is used to turn accounting on or off for SVC and SPVC connections. It also specifies the reason(s) for which accounting data is collected: ***billing***, ***test***, ***study***, ***audit*** or ***force***.<br><br>If the set of reasons is not empty then accounting records will be generated by this interface in the following situations:<br>- on a TODA changeover if TODA is enabled;<br>- every 12 hours (per connection) if TODA is disabled;<br>- on every call clear (a call record with final cell counts).<br><br>If none of the reasons is present, then accounting will be suppressed.<br><br>The reason for collection is recorded in the accounting record, in the attribute *callingCollectReason* or *calledCollectReason* as appropriate. |
| Set of | bill<br>test<br>study<br>audit<br>force |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Uni accountConnectionType (act)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies whether accounting records generated by this interface should be marked as originating, terminating or intermediate. This attribute, in combination with the direction of the call, determines the value of attribute *connPointType* of the accounting record and may be used by downstream accounting processes to correlate the records.<br><br>If the value is ***origTerm*** then records generated for incoming calls will be marked as ***originating*** and records generated for outgoing calls will be marked as ***terminating***.<br><br>If the value is ***intermediate*** then records generated for all calls will be marked as ***intermediate***. |
| Values | origTerm<br>intermediate |
| Default | origTerm |

### ATTRIBUTE AtmIf Vpt Uni accountClass (acl)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the accounting class associated with the interface. Its meaning is determined by the network operator.<br><br>Its value is simply recorded in the accounting records generated by this interface, in the attribute *callingServiceType* or *calledServiceType* as appropriate. |
| Values | Decimal (0..255) |
| Default | 0 |

### ATTRIBUTE AtmIf Vpt Uni serviceExchange (sre)

| | |
|---|---|
| Access | Read: All<br>Write: All |

| | |
|---|---|
| Description | This attribute specifies the data service exchange associated with this interface. Its meaning is determined by the network operator.<br><br>Its value is simply recorded in the accounting records generated by this interface, in the attribute *callingDse* or *calledDse* as appropriate. |
| Values | Decimal (0..255) |
| Default | 0 |

### GROUP AtmIf Vpt Uni VUniProvisioned (VProv)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the *Uni* component which are specific to virtual UNI interfaces. |

### ATTRIBUTE AtmIf Vpt Uni vpci

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the Virtual Path Connection Identifier (VPCI) to be used between this signaling entity and its peer. The VPCI of the peer virtual UNI must have the same value for switched connections to be set up across the interface. |
| Values | Decimal (0..255) |
| Default | 0 |

### COMPONENT AtmIf Vpt Uni Signalling (Sig)

| | |
|---|---|
| Groups | "GROUP AtmIf Vpt Uni Sig Provisioned (Prov)"<br>"GROUP AtmIf Vpt Uni Sig OsiState (State)"<br>"GROUP AtmIf Vpt Uni Sig Operational (Oper)"<br>"GROUP AtmIf Vpt Uni Sig Statistics (Stats)" |
| Scope | Device |
| Description | *AtmIf/n Aini Signalling*<br>*AtmIf/n Iisp Signalling*<br>*AtmIf/n Uni Signalling* |

*AtmIf/n Pnni Signalling*
*AtmIf/n Vpt/m Aini Signalling*
*AtmIf/n Vpt/m Iisp Signalling*
*AtmIf/n Vpt/m Uni Signalling*
*AtmIf/n Vpt/m Pnni Signalling*

This component represents the signaling entities for the interface.

Opt. Subcomp. "COMPONENT AtmIf Vpt Uni Sig VirtualChannelDescriptor (Vcd)"

Common Verbs
Help
List
Display

## GROUP AtmIf Vpt Uni Sig Provisioned (Prov)

Properties Provisioned

Description This attribute group contains the provisionable attributes for the *Signalling* component.

## ATTRIBUTE AtmIf Vpt Uni Sig vci

Access Read: All
Write: All

Criticality Component

Description This attribute specifies the signaling channel number.

Values Decimal (0..65535)

Default 5

## ATTRIBUTE AtmIf Vpt Uni Sig addressConversion

Access Read: All
Write: All

Description This attribute specifies the address conversion on the outgoing signaling PDUs. The options are ***none***, ***nativeE164***, or ***nsap***. The ***none*** option is the default and if this option is chosen then nothing is done to the address information element (IE) in the outgoing signaling message. If ***nativeE164*** option is chosen, then

only NSAP encapsulated E.164 addresses with zeros in the ESI are converted to native E.164 format in the outgoing signaling message. If the NSAP address is not encapsulated E.164 or the ESI field is not zeros and the ***nativeE164*** option is chosen, then the call is cleared. If the ***nsap*** option is chosen, then native E.164 addresses are converted to NSAP E.164 with zeros in the ESI field; otherwise the address is in NSAP format and is not changed.

Values
none
nativeE164
nsap

Default
none

## ATTRIBUTE AtmIf Vpt Uni Sig operatingMode

Access
Read: All
Write: All

Description
This attribute specifies the operating mode of the signaling channel ***provisionedOnly*** indicates that only SPVCs and SPVPs are supported on the interface and SVCs are not supported. This value is permitted only on UNI interfaces.
***normal*** indicates that SVCs, SPVCs, and SPVPs are supported on the interface.

Values
normal
provisionedOnly

Default
normal

## GROUP AtmIf Vpt Uni Sig OsiState (State)

Properties
Operational

Description
This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

## ATTRIBUTE AtmIf Vpt Uni Sig adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

## ATTRIBUTE AtmIf Vpt Uni Sig operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |

| | |
|---|---|
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE AtmIf Vpt Uni Sig usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP AtmIf Vpt Uni Sig Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute contains the operational attributes for the AtmSignalling component. |

### ATTRIBUTE AtmIf Vpt Uni Sig lastTxCauseCode

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the cause code in the last transmitted signaling message that contains the CAUSE information element. The cause code is used to describe the reason for generating certain signaling messages. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Uni Sig lastTxDiagCode

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute contains the diagnostic code in the last transmitted signaling message. The diagnostic code is contained in the CAUSE information element and identifies an information element type or timer type. The diagnostic code is present only if a procedural error is detected by the signaling protocol. A diagnostic code is always accompanied by the cause code. If there is no failure, this attribute is set to 0. |
| Values | Hex (H.0..H.ff) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Uni Sig lastRxCauseCode

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute contains the cause code in the last received signaling message that contains the CAUSE information element. The cause code is used to describe the reason for generating certain signaling messages. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Uni Sig lastRxDiagCode

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute contains the diagnostic code in the last received signaling message. The diagnostic code is contained in the CAUSE information element and identifies an information element type or timer type. The diagnostic code is present only if a procedural error is detected by the signaling protocol. A diagnostic code is always accompanied by the cause code. If there is no failure, this attribute is set to 0. |
| Values | Hex (H.0..H.ff) |

| | |
|---|---|
| Default | No default |

### GROUP AtmIf Vpt Uni Sig Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains the statistics associated with the AtmSignalling component. |

### ATTRIBUTE AtmIf Vpt Uni Sig peakConnections

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the high water mark of active point-to-point connections. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Uni Sig successfulConnections

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of switched point-to-point connections that were successfully established. The counter wraps to 0 when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Uni Sig failedConnections

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of unsuccessful attempts to establish switched point-to-point connections. The counter wraps to 0 when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Uni Sig txPdus

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of transmitted signaling PDUs.The counter wraps to 0 when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Uni Sig rxPdus

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of received signaling PDUs.The counter wraps to 0 when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Uni Sig currentPmpConnections

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of currently active point-to-multipoint connections. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Uni Sig peakPmpConnections

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the high water mark of active point-to-multipoint connections. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Uni Sig successfulPmpConnections

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of switched point-to-multipoint connections that were successfully established. The counter wraps to 0 when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Uni Sig failedPmpConnections

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of unsuccessful attempts to establish switched point-to-multipoint connections. The counter wraps to 0 when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Uni Sig currentConnections

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the total number of currently active point-to-<br>point connections. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT AtmIf Vpt Uni Sig VirtualChannelDescriptor (Vcd)

| | |
|---|---|
| Groups | "GROUP AtmIf Vpt Uni Sig Vcd Provisioned (Prov)" |
| Scope | Device |

Description

*AtmIf/n Uni Sig VirtualChannelDescriptor*
*AtmIf/n Uni Ilmi VirtualChannelDescriptor*
*AtmIf/n Aini Sig VirtualChannelDescriptor*
*AtmIf/n Iisp Sig VirtualChannelDescriptor*
*AtmIf/n Pnni Sig VirtualChannelDescriptor*
*AtmIf/n Pnni Rcc VirtualChannelDescriptor*
*AtmIf/n Vpt/m Uni Sig VirtualChannelDescriptor*
*AtmIf/n Vpt/m Aini Sig VirtualChannelDescriptor*
*AtmIf/n Vpt/m Iisp Sig VirtualChannelDescriptor*
*AtmIf/n Vpt/m Pnni Sig VirtualChannelDescriptor*
*AtmIf/n Vpt/m Pnni Rcc VirtualChannelDescriptor*

This component contains the provisionable traffic parameters for a control channel (Sig, *Ilmi* or *Rcc* component).

Common Verbs

Help
List
Display
Add
DELete

## GROUP AtmIf Vpt Uni Sig Vcd Provisioned (Prov)

Properties

Provisioned

Description

This group contains the provisionable traffic attributes for a control channel.

## ATTRIBUTE AtmIf Vpt Uni Sig Vcd trafficDescType (tdt)

Access

Read: All
Write: All

Criticality

Component

Description

This attribute specifies the type of traffic management which is applied to both the transmit and receive direction of this connection as defined in the ATM Forum. The *trafficDescType* determines the number and meaning of the parameters in the *trafficDescParm* attribute.

Values

3
6

| | |
|---|---|
| | 7<br>8 |
| Default | 6 |

### ATTRIBUTE AtmIf Vpt Uni Sig Vcd atmServiceCategory (service)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the ATM service category for both directions of the connection.<br><br>The ***constantBitRate*** service category is intended for real time applications, that is those requiring tightly constrained delay and delay variation, as would be appropriate for voice and video applications. The consistent availability of a fixed quantity of bandwidth is considered appropriate for CBR service. Cells which are delayed beyond the value specified by CellTransfer Delay are assumed to be of significantly reduce value to the application.<br><br>The ***rtVariableBitRate*** service category is intended for real time applications, that is those requiring tightly constrained delay and delay variation, as would be appropriate for voice and video applications. Sources are expected to transmit at a rate which varies with time. Equivalently, the source can be described as “bursty”. Cells which are delayed beyond the value specified by CTD are assumed to be of significantly reduced value to the application. Real time VBR service may support statistical multiplexing of real time sources.<br><br>The ***nrtVariableBitRate*** service category is intended for non-real time applications which have bursty traffic characteristics and which can be characterized in terms of a PCR, SCR, and MBS. For those cells which are transferred within the traffic contract, the application expects a low cell loss ratio. For all connections, it expects a bound on the mean cell transfer delay. Non-real time VBR service may support statistical multiplexing of connections.<br><br>The ***unspecifiedBitRate*** service is intended for non-real time |

applications; that is, those not requiring tightly constrained delay and delay variation. UBR sources are expected to be bursty. UBR service supports a high degree of statistical multiplexing among sources. UBR service does not specify traffic related service guarantees. No numerical commitments are made with respect to the cell loss ratio experienced by a UBR connection, or as to the cell transfer delay experienced by cells on the connection.

Values
unspecifiedBitRate (ubr)
constantBitRate (cbr)
rtVariableBitRate (rtvbr)
nrtVariableBitRate (nrtvbr)

Default
rtVariableBitRate

### ATTRIBUTE AtmIf Vpt Uni Sig Vcd weight

Access
Read and write

Criticality
Component

Description
This VCD component has an attribute that is called atmServiceCategory. This attribute specifies the service category that is used by the sig, rcc or ilmi channel. The *weight* attribute is related to two other attributes which are *weightPolicy* and *txQueueLimit*, as mentioned in the following description. These attributes can be found under the atmif/n ca <atmServiceCategory>/ m.

This attribute specifies an override for the *weight* of this unshaped connection. This attribute is ignored for shaped connections, for ABR connections, for connections on a CQC-based ATM FPs and basic VPTs.

When the value is set to ***sameAsCa***, the *weight* is determined by the *weightPolicy* attribute under the CA service category component for all but standard VPT VCCs. For standard VPT VCCs, the *weight* is determined by the VCC's service category, when the value is set to ***sameAsCa***.

When this attribute is set to a value from ***1*** to ***4095***, that value is used for the *weightPolicy* of this connection relative to other connections. For all but standard VPT VCCs, *weightPolicy*

determines the proportion of transit cell opportunities which are allocated to this connection, compared to other connections in the same service category. For standard VPT VCCs, *weightPolicy* determines the proportion of transmit cell opportunities which are allocated to this connection, compared to other connections associated with the VPT.

When the value is set to ***upToQueueLimit***, the *weightPolicy* is limited only by the *txQueueLimit*.

Values
Decimal (1..4095)
sameAsCa
upToQueueLimit

Default
sameAsCa

## ATTRIBUTE AtmIf Vpt Uni Sig Vcd qosClass (qos)

Access
Read and write

Criticality
Component

Description
This attribute specifies the quality of service for both the forward and backward direction for this connection.

Class ***1*** supports a QOS that meets Service Class A performance requirements (Circuit emulation, constant bit rate video).

Class ***2*** supports a QOS that meets Service Class B performance requirements (Variable bit rate audio and video).

Class ***3*** supports a QOS that meets Service Class C performance requirements (Connection-Oriented Data Transfer).

Class ***4*** supports a QOS that meets Service Class D performance requirements (Connectionless Data Transfer).

Class ***0*** is the unspecified bit rate QOS class; no objective is specified for the performance parameters.

Values
0
1
2

| | |
|---|---|
| | 3<br>4 |
| Default | 2 |

### ATTRIBUTE AtmIf Vpt Uni Sig Vcd trafficShaping (trShaping)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies whether this connection uses traffic shaping when transmitting traffic to the ATM interface.<br><br>When ***sameAsCa*** is selected, traffic shaping for this connection is based on the *trafficShaping* attribute of the connection's service category component under the *AtmIf CA*. If the service category has traffic shaping enabled, then traffic shaping is enabled for the connection. Note that enabling traffic shaping may have no effect under certain cases. These cases are listed in the description of the *trafficShaping* operational attribute, which is under the *Vcc Tm* and *Vpc Tm* components.<br><br>When ***disabled*** is selected, traffic shaping for this connection is disabled. |
| Values | disabled<br>sameAsCa |
| Default | disabled |

### ATTRIBUTE AtmIf Vpt Uni Sig Vcd unshapedTransmitQueueing (unshap)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute only applies when this connection is unshaped. This attribute specifies the transmit queuing method for this connection if it is unshaped. Refer to the *unshapedTransmitQueueing* attribute under the *AtmIf CA* service category subcomponent for more details on the meaning of this attribute.<br><br>When this attribute is set to ***sameAsCa***, the transmit queuing |

method for the connection is based on the *unshapedTransmitQueueing* attribute of the connection's service category component under the *ConnectionAdministrator.*

When this attribute is set to ***common***, transmit traffic on this unshaped connection is destined for the common queue.

The value ***sameAsInterface*** is for migration from previous software releases, but should no longer be used

Values
common
sameAsCa

Default
sameAsCa

## ATTRIBUTE AtmIf Vpt Uni Sig Vcd usageParameterControl (upc)

Access
Read and write

Criticality
Component

Description
This attribute specifies whether this connection enforces usage parameter control when receiving traffic from the ATM interface.

When ***sameAsCa*** is selected, UPC for the connection is based on the *usageParameterControl* attribute of the connection's service category component under the *ConnectionAdministrator.* If the service category has UPC enabled, then UPC is enabled for the connection. Note that enabling UPC may have no effect under certain cases. These cases are listed in the description of the *usageParameterControl* operational attribute, which is under the *Vcc Tm* or *Vpc Tm* component.

When ***disabled*** is selected, UPC for this connection is disabled.

The value ***sameAsInterface*** is for migration from previous software releases, but should no longer be used

Values
disabled
sameAsCa

Default
disabled

## ATTRIBUTE AtmIf Vpt Uni Sig Vcd trafficDescParm (tdp)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute is a vector of five traffic parameters whose meanings are defined by the *trafficDescType* attribute. The values of peak cell rate (PCR), sustained cell rate (SCR) and requested shaping rate are expressed in cell/s. Maximum burst size (MBS) is expressed in cells. CDVT is expressed in microseconds. The values of PCR, SCR, MBS and CDVT are used for connection admission control (CAC). The value of CDVT is only used for connections where the *atmServiceCategory* is ***constantBitRate***. For all other values of *atmServiceCategory*, CDVT is ignored. The values of PCR, SCR and requested shaping rate are used to determine the actual shaping rate where traffic shaping is enabled.<br><br>When *trafficDescType* is ***3***, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameter 1 must be non-zero. Parameters 2 and 3 must be zero.<br><br>When *trafficDescType* is ***6***, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 and 1 traffic; parameter 3 represents the MBS for CLP equal to 0 and 1 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameters 1, 2, and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2. Parameter 5 must either be zero (unused) or greater than or equal to parameter 2.<br><br>When *trafficDescType* is ***7***, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 with cell discard; parameter 3 represents the MBS for CLP equal to 0 traffic; parameter 4 represents the CDVT; and |

parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameters 1, 2, and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2. Parameter 5 must either be zero (unused) or greater than or equal to parameter 2.

When *trafficDescType* is ***8***, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 traffic with cell tagging; parameter 3 represents the MBS for CLP equal to 0 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameters 1, 2, and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2. Parameter 5 must either be zero (unused) or greater than or equal to parameter 2.

Whenever it is valid for PCR to be specified, parameter 5 may also be used to specify a requested shaping rate. A non-zero value in parameter 5 overrides the value in parameter 1 and is used as the peak cell rate in calculations of CAC and shaping rate.

For *trafficDescType* ***3*** the traffic is shaped at the next rate less than the PCR.

For *trafficDescType* ***6***, ***7***, and ***8***, the traffic is shaped at the highest available rate which is between PCR and SCR. However, if there is no available shaping rate between PCR and SCR, traffic is shaped at the next rate above the PCR.

| | |
|---|---|
| Vector of | Decimal (0..2147483647) |
| Index | Decimal (1..5) |
| Default | (250, 160, 5, 0, 0) |

## COMPONENT AtmIf Vpt Uni Address (Addr)

| | |
|---|---|
| Instance | address [String (1..40, ASCII)]<br>addressType [primary<br>alternate<br>registered<br>default] |
| Groups | "GROUP AtmIf Vpt Uni Addr Operational (Oper)" |
| Scope | Device |
| Description | *AtmIf/n Uni Address/address,type*<br>*AtmIf/n Vpt/m Uni Address/address,type*<br><br>This component represents an address (dynamic or static) associated with the interface. The index is a string of 1 to 40 hex digits or a single wild-card (‘?’), and a type. The type identifies whether the Address component is for a ***primary***, ***alternate***, ***registered***, or ***default*** address.<br><br>The types ***primary*** and ***alternate*** are used for provisioned addresses. The type ***registered*** is used for dynamic addresses through ILMI. The type ***default*** is used for Soft PVP and Soft PVC addresses. Virtual interfaces do not have addresses of type ***default***.<br><br>The wild-card is only valid for provisioned addresses. If the address is a single wild-card, then that indicates that the interface supports all addresses. If there is no better match, then this interface may be chosen in the routing. If there is more than one interface with a single wild-card static address, then the choice is made using a round robin algorithm.<br><br>The round robin algorithm first tries the primary routes. If none of the primary routes succeed, then the alternate routes are tried.<br><br>Note that the ***UniInfo*** and ***PnniInfo*** sub-components are |

mutually exclusive. Only one of these may be added under the ***AtmIf Uni Addr*** component.

Opt. Subcomp. "COMPONENT AtmIf Vpt Uni Addr TerminateSPvpAndSPvc (TermSP)"
"COMPONENT AtmIf Vpt Uni Addr PnniInfo"
"COMPONENT AtmIf Vpt Uni Addr UniInfo"

Common Verbs
Help
List
Display
Add
DELete

## GROUP AtmIf Vpt Uni Addr Operational (Oper)

Properties Operational

Description This attribute group contains the operational attributes for the *AtmIf/n Uni Address* component.

## ATTRIBUTE AtmIf Vpt Uni Addr reachability (reach)

Access Read: All
Write: Illegal

Description This attribute indicates whether the address is internal or exterior. An internal reachable address is an address of a destination that is directly attached to the logical node advertising the address. An exterior reachable address is an address that can be reached through a PNNI routing domain, but which is not located in that PNNI routing domain.

Values internal
exterior

Default No default

## ATTRIBUTE AtmIf Vpt Uni Addr pnniScope

Access Read: All
Write: Illegal

Description

This attribute indicates the PNNI scope of the ATM address, which is the highest level to which this address will be advertised in the PNNI hierarchy. If no *PnniInfo* subcomponent has been provisioned, then the scope will default to the level of this node in the PNNI hierarchy.

This attribute will have the value of -1 if this node does not participate in a PNNI hierarchy, or if this address was provisioned with a UNI membership scope, rather than a PNNI routing level.

Values

Signed (-1..104)

Default

No default

## ATTRIBUTE AtmIf Vpt Uni Addr uniScope

Access

Read: All
Write: Illegal

Description

This attribute indicates the UNI membership scope of the ATM address. It specifies the inclusive routing hierarchy in which the address is known.

This attribute will have the value 0 if the address was provisioned with a PNNI routing level rather than a UNI membership scope.

Values

scopeNotAvailable
localNetwork
localPlusOne
localPlusTwo
siteMinusOne
intraSite
intraSitePlusOne
organizationMinusOne
intraOrganization
organizationPlusOne
communityMinusOne
intraCommunity
communityPlusOne
regional
interRegional
global

Default No default

## COMPONENT AtmIf Vpt Uni Addr TerminateSPvpAndSPvc (TermSP)

Scope Device

Description *AtmIf/n Aini Address/address,type TerminateSPvpAndSPvc*
*AtmIf/n Iisp Address/address,type TerminateSPvpAndSPvc*
*AtmIf/n Uni Address/address,type TerminateSPvpAndSPvc*
*AtmIf/n Pnni Address/address,type TerminateSPvpAndSPvc*
*AtmIf/n Vpt/m Aini Address/address,type TerminateSPvpAndSPvc*
*AtmIf/n Vpt/m Iisp Address/address,type TerminateSPvpAndSPvc*
*AtmIf/n Vpt/m Uni Address/address,type TerminateSPvpAndSPvc*
*AtmIf/n Vpt/m Pnni Address/address,type TerminateSPvpAndSPvc*

The presence of this subcomponent indicates that SPvp and SPvc call setups terminate at this node if the destination address of the SPVP or SPVC matches the *Address* instance.

Common Verbs
Help
List
Display
Add
DELete

## COMPONENT AtmIf Vpt Uni Addr PnniInfo

Groups "GROUP AtmIf Vpt Uni Addr PnniInfo Provisioned (Prov)"

Scope Device

Description *AtmIf/n Aini Addr/address,type PnniInfo*
*AtmIf/n Iisp Addr/address,type PnniInfo*
*AtmIf/n Uni Addr/address,type PnniInfo*
*AtmIf/n Pnni Addr/address,type PnniInfo*
*AtmIf/n Vpt/m Aini Addr/address,type PnniInfo*
*AtmIf/n Vpt/m Iisp Addr/address,type PnniInfo*
*AtmIf/n Vpt/m Uni Addr/address,type PnniInfo*
*AtmIf/n Vpt/m Pnni Addr/address,type PnniInfo*

This component contains provisioned information associated with

the ATM address related to PNNI. This component appears only under provisioned *Address* components.

Common Verbs

Help
List
Display
Add
DELete

### GROUP AtmIf Vpt Uni Addr PnniInfo Provisioned (Prov)

Properties: Provisioned

Description: This attribute group contains the provisioned attributes relating to PNNI for a *PnniInfo* component.

### ATTRIBUTE AtmIf Vpt Uni Addr PnniInfo scope

Access: Read: All
Write: All

Criticality: Component

Description: This attribute specifies the scope of the ATM address, which is the highest level up to which this address will be advertised in the PNNI hierarchy. The scope must be set to a value numerically less than or equal to the level of the lowest level peer group containing this node. Setting the scope to 0 will cause the address to be advertised globally within this PNNI routing domain.

Values: Signed (-1..104)

Default: -1

### ATTRIBUTE AtmIf Vpt Uni Addr PnniInfo reachability (reach)

Access: Read: All
Write: All

Criticality: Component

Description: This attribute indicates whether the address is internal or exterior. An internal reachable address is an address of a destination that is directly attached to the logical node advertising the address. An exterior reachable address is an address that can be reached

through a PNNI routing domain, but which is not located in that PNNI routing domain.

Values
internal
exterior

Default
internal

## COMPONENT AtmIf Vpt Uni Addr UniInfo

Groups
"GROUP AtmIf Vpt Uni Addr UniInfo Provisioned (Prov)"

Scope
Device

Description
*AtmIf/n Uni Addr/address,type UniInfo*
*AtmIf/n Vpt/m Uni Addr/address,type UniInfo*

This component contains the provisioned information associated with the ATM address and related to the UNI. This component appears only under provisioned *Uni Address* components.

This component may not appear together with the *Atmif Uni Addr PnniInfo* component, they are mutually exclusive.

Common Verbs
Help
List
Display
Add
DELete

## GROUP AtmIf Vpt Uni Addr UniInfo Provisioned (Prov)

Properties
Provisioned

Description
This attribute group contains the provisioned attributes relating to a UNI address for a *UniInfo* component.

## ATTRIBUTE AtmIf Vpt Uni Addr UniInfo scope

Access
Read: All
Write: All

Criticality
Component

Description

This attribute specifies the address UNI membership scope. It specifies the inclusive routing hierarchy in which the address will be known.

The ***useDefaultScope*** value maps to ***localNetwork*** for ATM group addresses, and to ***global*** for individual addresses.

Note that this value is ignored for UNI 3.x interfaces.

Values

useDefaultScope (def)
localNetwork (ln)
localPlusOne (lpo)
localPlusTwo (lpt)
siteMinusOne (smo)
intraSite (is)
intraSitePlusOne (ispo)
organizationMinusOne (omo)
intraOrganization (io)
organizationPlusOne (opo)
communityMinusOne (cmo)
intraCommunity (ic)
communityPlusOne (cpo)
regional (r)
interRegional (ir)
global (g)

Default

useDefaultScope

## ATTRIBUTE AtmIf Vpt Uni Addr UniInfo pnniReachability (reach)

Access

Read: All
Write: All

Criticality

Component

Description

This attribute indicates whether the address is internal or exterior. An internal reachable address is an address of a destination that is directly attached to the logical node advertising the address. An exterior reachable address is an address that can be reached through
a PNNI routing domain, but which is not located in that PNNI routing domain.

| | |
|---|---|
| Values | internal<br>exterior |
| Default | internal |

## COMPONENT AtmIf Vpt Uni CallingAddressScreening (CallingAScr)

| | |
|---|---|
| Groups | "GROUP AtmIf Vpt Uni CallingAScr Provisioned (Prov)"<br>"GROUP AtmIf Vpt Uni CallingAScr Statistics (Stat)" |
| Scope | Device |
| Description | *AtmIf/n Aini CallingAddressScreening*<br>*AtmIf/n Uni CallingAddressScreening*<br>*AtmIf/n Iisp CallingAddressScreening*<br>This component represents the screening of incoming ATM SVC call requests against provisioned ATM calling addresses (that is, screening SVC calls coming from specific addresses). If this component is not provisioned, all call requests are accepted and no calling address screening takes place. |
| Opt. Subcomp. | "COMPONENT AtmIf Vpt Uni CallingAScr Address (Addr)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP AtmIf Vpt Uni CallingAScr Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This attribute group contains the provisionable attributes for the *CallingAScr* component. |

## ATTRIBUTE AtmIf Vpt Uni CallingAScr adminStatus

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies whether the calling address screening feature is ***enabled*** or ***disabled***. |

If ***enabled***, incoming SVC calls are screened against provisioned addresses. If ***enabled*** and the calling address in the ATM SVC call request is provisioned to be accepted, the call is accepted or rejected according to the action specified for that address. If the value is ***enabled***, and the calling address in the address request is not provisioned, the call is rejected

If the value is ***disabled***, no calling address screening is performed.

Values
enabled
disabled

Default
disabled

### ATTRIBUTE AtmIf Vpt Uni CallingAScr defaultInsertionAddress (defInsAddr)

Access
Read: All
Write: All

Description
This attribute specifies the address to be inserted into the SVC connection request if *adminStatus* is ***enabled*** and the connection request does not contain a calling address. If the *adminStatus* attribute is ***enabled*** and this attribute is empty, all incoming SVC calls which do not contain a calling address are rejected.

Values
String (0..20, Hex)

Default
""

### GROUP AtmIf Vpt Uni CallingAScr Statistics (Stat)

Properties
Operational

Description
This attribute group contains statistics related to the incoming SVC call requests received while the *adminStatus* attribute is set to ***enabled***.

### ATTRIBUTE AtmIf Vpt Uni CallingAScr acceptedCalls

Access
Read: All
Write: Illegal

Description
This attribute counts the incoming SVC calls which were accepted because the address specified in the call request

matched a provisioned ATM address and the associated action was ***accept***.
When the counter exceeds the maximum, it wraps to 0.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE AtmIf Vpt Uni CallingAScr rejectedCalls

Access: Read: All
Write: Illegal

Description: This attribute counts the incoming SVC calls which were rejected because the address specified in the call request matched a provisioned ATM address, but the associated action was ***reject***.
When the counter exceeds the maximum, it wraps to 0.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE AtmIf Vpt Uni CallingAScr unmatchedCalls

Access: Read: All
Write: Illegal

Description: This attribute counts the incoming SVC calls which were rejected because none of the provisioned ATM addresses matched the applicable address in the incoming SVC call request.
When the counter exceeds the maximum, it wraps to 0.

Values: Decimal (0..4294967295)

Default: 0

### COMPONENT AtmIf Vpt Uni CallingAScr Address (Addr)

Instance: address [String (1..40, ASCII)]
addressAction [accept
reject]

Scope: Device

Description: *AtmIf/n Aini CallingAScr Address/addr,action*
*AtmIf/n Uni CallingAScr Address/addr,action*

*AtmIf/n Iisp CallingAScr Address/addr,action*
*AtmIf/n Aini CalledAScr Address/addr,action*
*AtmIf/n Uni CalledAScr Address/addr,action*
*AtmIf/n Iisp CalledAScr Address/addr,action*
This component specifies a calling (or called) address with an action to accept or reject a connection request which contains a matching calling (or called) address.
For the Calling Address Screening feature, if the specified action is ***accept***, any call whose calling address matches that address is accepted. If the specified action is ***reject***, any call whose calling address matches that address is rejected.
For the Called Address Screening feature, if the specified action is ***accept***, any call whose called address matches that address, is accepted. If the specified action is ***reject***, any call whose called address matches that address is rejected.
For both features, the incoming SVC call request is rejected if the address is not provisioned and the feature is ***enabled***.

Common Verbs

Help
List
Display
Add
DELete

## COMPONENT AtmIf Vpt Uni CalledAddressScreening (CalledAScr)

Groups

"GROUP AtmIf Vpt Uni CalledAScr Provisioned (Prov)"
"GROUP AtmIf Vpt Uni CalledAScr Statistics (Stat)"

Scope

Device

Description

*AtmIf/n Aini CalledAddressScreening*
*AtmIf/n Uni CalledAddressScreening*
*AtmIf/n Iisp CalledAddressScreening*
This component represents the screening of incoming ATM SVC call requests against provisioned ATM called addresses (that is, going to specific destinations). If this component is not provisioned, all call requests are accepted and no called address screening takes place.

| | |
|---|---|
| Opt. Subcomp. | "COMPONENT AtmIf Vpt Uni CalledAScr Address (Addr)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP AtmIf Vpt Uni CalledAScr Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This attribute group contains the provisionable attributes for the *CalledAScr* component. |

## ATTRIBUTE AtmIf Vpt Uni CalledAScr adminStatus

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies whether the called address screening feature is ***enabled*** or ***disabled***.<br>If the value is ***enabled***, incoming SVC calls will be screened against provisioned called addresses. If the value is ***enabled*** and the called address in the ATM SVC call request has been provisioned, the call is accepted or rejected according to the action specified for that address. If the value is ***enabled*** and the called address in the call request is not provisioned, the call is rejected.<br>If the value is ***disabled***, no called address screening is performed. |
| Values | enabled<br>disabled |
| Default | disabled |

## GROUP AtmIf Vpt Uni CalledAScr Statistics (Stat)

| | |
|---|---|
| Properties | Operational |

Description — This attribute group contains statistics related to the incoming SVC call requests received while the *adminStatus* attribute is set to ***enabled***.

### ATTRIBUTE AtmIf Vpt Uni CalledAScr acceptedCalls

Access — Read: All
Write: Illegal

Description — This attribute counts the incoming SVC calls which were accepted because the address specified in the call request matched a provisioned ATM address and the associated action was ***accept***.
When the counter exceeds the maximum, it wraps to 0.

Values — Decimal (0..4294967295)

Default — 0

### ATTRIBUTE AtmIf Vpt Uni CalledAScr rejectedCalls

Access — Read: All
Write: Illegal

Description — This attribute counts the incoming SVC calls which were rejected because the address specified in the call request matched a provisioned ATM address, but the associated action was ***reject***.
When the counter exceeds the maximum, it wraps to 0.

Values — Decimal (0..4294967295)

Default — 0

### ATTRIBUTE AtmIf Vpt Uni CalledAScr unmatchedCalls

Access — Read: All
Write: Illegal

Description — This attribute counts the incoming SVC calls which were rejected because none of the provisioned ATM addresses matched the applicable address in the incoming SVC call request.
When the counter exceeds the maximum, it wraps to 0.

Values — Decimal (0..4294967295)

Default — 0

## COMPONENT AtmIf Vpt Uni CalledAScr Address (Addr)

Instance
address [String (1..40, ASCII)]
addressAction [accept
reject]

Scope
Device

Description
*AtmIf/n Aini CallingAScr Address/addr,action*
*AtmIf/n Uni CallingAScr Address/addr,action*
*AtmIf/n Iisp CallingAScr Address/addr,action*
*AtmIf/n Aini CalledAScr Address/addr,action*
*AtmIf/n Uni CalledAScr Address/addr,action*
*AtmIf/n Iisp CalledAScr Address/addr,action*
This component specifies a calling (or called) address with an action to accept or reject a connection request which contains a matching calling (or called) address.
For the Calling Address Screening feature, if the specified action is ***accept***, any call whose calling address matches that address is accepted. If the specified action is ***reject***, any call whose calling address matches that address is rejected.
For the Called Address Screening feature, if the specified action is ***accept***, any call whose called address matches that address, is accepted. If the specified action is ***reject***, any call whose called address matches that address is rejected.
For both features, the incoming SVC call request is rejected if the address is not provisioned and the feature is ***enabled***.

Common Verbs
Help
List
Display
Add
DELete

## COMPONENT AtmIf Vpt Uni PathTraceFilter (Ptf)

Groups
"GROUP AtmIf Vpt Uni Ptf Criteria"
"GROUP AtmIf Vpt Uni Ptf Operational (Oper)"
"GROUP AtmIf Vpt Uni Ptf RecordControl (Record)"

Scope
Device

Description

*AtmIf/n Aini PathTraceFilter*
*AtmIf/n Iisp PathTraceFilter*
*AtmIf/n Uni PathTraceFilter*
*AtmIf/n Pnni PathTraceFilter*
*AtmIf/n Vpt/vpi Aini PathTraceFilter*
*AtmIf/n Vpt/vpi Iisp PathTraceFilter*
*AtmIf/n Vpt/vpi Uni PathTraceFilter*
*AtmIf/n Vpt/vpi Pnni PathTraceFilter*

This component represents the path trace filtering capability on the ATM signaling interface. This capability allows the user to trace connections during the call setup phase against the criteria associated with this component. Only the connections that match all the criteria are traced.

When this component is provisioned, the network operator can control tracing activities by using the *Start*, *Stop*, and *Clear* verbs. When the *Start* verb is issued, the *traceTimeout* timer restarts. Once the timer times out, filtering stops and records are not removed. When the *Stop* verb is issued, the filter stops and the trace records are kept until the user clears them. When the *Clear* verb is issued, the trace records are cleared. When *AtmPathTraceFilter* component is deleted, all records are cleared.

Once the maximum specified by *maxTraceRecords* attribute under the *PathTraceFilter* component or *maxTraceRecords* attribute under the *Lp/n Eng PTrace* component has been reached, the oldest record is deleted.

The *AtmPathTraceFilter* component is not permitted to be added when the *Lp/n Eng PTrace Ov maxTraceRecords* attribute is set to zero.

| | |
|---|---|
| Dyn. Subcomp. | "COMPONENT AtmIf Vpt Uni Ptf PathTraceRecord (PTRecord)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## VERB START AtmIf Vpt Uni Ptf

| | |
|---|---|
| Impact | Service |
| Description | *START AtmIf/n Aini PathTraceFilter*<br>*START AtmIf/n Iisp PathTraceFilter*<br>*START AtmIf/n Uni PathTraceFilter*<br>*START AtmIf/n Pnni PathTraceFilter*<br>*START AtmIf/n Vpt/vpi Aini PathTraceFilter*<br>*START AtmIf/n Vpt/vpi Iisp PathTraceFilter*<br>*START AtmIf/n Vpt/vpi Uni PathTraceFilter*<br>*START AtmIf/n Vpt/vpi Pnni PathTraceFilter*<br><br>This command starts the path tracing based on the specified filtering criteria.<br><br>When the command is issued, the *traceTimeout* timer is reset. |

### VERB STOP AtmIf Vpt Uni Ptf

| | |
|---|---|
| Impact | Service |
| Description | *STOP AtmIf/n Aini PathTraceFilter*<br>*STOP AtmIf/n Iisp PathTraceFilter*<br>*STOP AtmIf/n Uni PathTraceFilter*<br>*STOP AtmIf/n Pnni PathTraceFilter*<br>*STOP AtmIf/n Vpt/vpi Aini PathTraceFilter*<br>*STOP AtmIf/n Vpt/vpi Iisp PathTraceFilter*<br>*STOP AtmIf/n Vpt/vpi Uni PathTraceFilter*<br>*STOP AtmIf/n Vpt/vpi Pnni PathTraceFilter*<br><br>This command causes the filter to stop, but keeps the trace records. |

### VERB CLEAR AtmIf Vpt Uni Ptf

| | |
|---|---|
| Impact | Service |
| Description | *CLEAR AtmIf/n Aini PathTraceFilter*<br>*CLEAR AtmIf/n Iisp PathTraceFilter*<br>*CLEAR AtmIf/n Uni PathTraceFilter*<br>*CLEAR AtmIf/n Pnni PathTraceFilter*<br>*CLEAR AtmIf/n Vpt/vpi Aini PathTraceFilter*<br>*CLEAR AtmIf/n Vpt/vpi Iisp PathTraceFilter*<br>*CLEAR AtmIf/n Vpt/vpi Uni PathTraceFilter*<br>*CLEAR AtmIf/n Vpt/vpi Pnni PathTraceFilter*<br><br>This command clears the path trace records associated with this filter. This command is rejected on an active filter. |

### GROUP AtmIf Vpt Uni Ptf Criteria

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational criteria for the *PathTraceFilter* component. |

### ATTRIBUTE AtmIf Vpt Uni Ptf traceInfo (tInfo)

| | |
|---|---|
| Access | Read: All<br>Write: All |

| | |
|---|---|
| Description | This attribute specifies the trace information that is included in the trace records.<br><br>***crankBack***: Crankback information is included if the connection is cranked back during the connection setup phase. If the option is turned on, all attempted paths including the final one are recorded. If the option is turned off, only the information of the final path is recorded. If the connection fails to reach the destination, no path information is returned.<br><br>***connId***: Connection Identifier information is included.<br><br>***callRef***: For point-to-point connections, the call reference is included. For point-to-multipoint connections, the call reference and end point reference are both included.<br><br>Basic trace information, such as node and port identifiers, are always included. |
| Set of | crankBack<br>connId<br>callRef |
| Default | (crankBack, connId, callRef) |

### ATTRIBUTE AtmIf Vpt Uni Ptf calledPartyPrefix (cldPref)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies an NSAP address prefix, which is compared with the called party IE in the connection setup request. When all the criteria in the filter match successfully, the call is traced.<br><br>An empty string matches any address. |
| Values | String (0..20, Hex) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Uni Ptf callingPartyPrefix (clgPref)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies an NSAP address prefix, which is compared with the calling party IE in the connection setup request. When all the criteria in the filter match successfully, the call is traced.<br><br>An empty string matches any address. |
| Values | String (0..20, Hex) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Uni Ptf connectionType (type)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies a connection type (SVC, SPVC, SVP, SPVP), which is compared against the connection setup request. When all the criteria in the filter match successfully, the call is traced. |
| Set of | svc<br>spvc<br>svp<br>spvp |
| Default | (svc, spvc, svp, spvp) |

### ATTRIBUTE AtmIf Vpt Uni Ptf connectionConfiguration (config)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies a type of topology (point-to-point or point-to-multipoint), which is compared against the connection setup request. When all the criteria in the filter match successfully, the call is traced. |

| | |
|---|---|
| Set of | ptp<br>ptmp |
| Default | (ptp, ptmp) |

### ATTRIBUTE AtmIf Vpt Uni Ptf serviceCategory (svcCat)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the service categories, which is compared against the connection setup request. When the all criteria in the filter match successfully, the call is traced. |
| Set of | cbr<br>rtVbr<br>nrtVbr<br>ubr |
| Default | (cbr, rtVbr, nrtVbr, ubr) |

### GROUP AtmIf Vpt Uni Ptf Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for the *PathTraceFilter* component. |

### ATTRIBUTE AtmIf Vpt Uni Ptf state

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the current state of the filter.<br><br>***active***: Indicates the filter is active.<br><br>***inactive:*** Indicates the filter is inactive. The records are available if the filter is stopped by the user using the *Stop* verb or if the filter has timed out. |

| | |
|---|---|
| Values | active<br>inactive |
| Default | inactive |

### ATTRIBUTE AtmIf Vpt Uni Ptf recordCount

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of records that have been acquired so far for this filter. The maximum number of records that can be stored is specified by *Lp/n Eng PathTrace maxTraceRecords* or *AtmPathTraceFilter maxTraceRecords*, which ever is less. |
| Values | Decimal (0..200) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Uni Ptf matchedConnections

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of connections that match the criteria of this filter. |
| Values | Decimal (0..2147483647) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Uni Ptf elapsedTime

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of minutes that have elapsed since the start of the filter. |
| Values | Decimal (0..70560) |
| Units | minutes |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Uni Ptf timeRemaining

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of minutes remaining before the filter terminates itself. |
| Values | Decimal (0..70560) |
| Units | minutes |
| Default | No default |

### GROUP AtmIf Vpt Uni Ptf RecordControl (Record)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for the record control of the *PathTraceFilter* component. |

### ATTRIBUTE AtmIf Vpt Uni Ptf traceTimeout

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies how long this filter remains active. At the end of this time, the filter is stopped and all trace records associated with this filter are available. |
| Values | Decimal (1..70560) |
| Units | minutes |
| Default | 60 |

### ATTRIBUTE AtmIf Vpt Uni Ptf maxTraceRecords (mRecords)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the maximum number of records allowed to be stored with the filter.<br><br>Once the maximum has been reached, the oldest record is removed. |

| | |
|---|---|
| Values | Decimal (1..200) |
| Default | 2 |

## COMPONENT AtmIf Vpt Uni Ptf PathTraceRecord (PTRecord)

| | |
|---|---|
| Groups | "GROUP AtmIf Vpt Uni Ptf PTRecord Operational (Oper)" |
| Scope | Device |
| Description | *AtmIf/n Aini Ptf PTRecord*<br>*AtmIf/n Iisp Ptf PTRecord*<br>*AtmIf/n Uni Ptf PTRecord*<br>*AtmIf/n Pnni Ptf PTRecord*<br>*AtmIf/n Vpt/n Aini Ptf PTRecord*<br>*AtmIf/n Vpt/n Iisp Ptf PTRecord*<br>*AtmIf/n Vpt/n Uni Ptf PTRecord*<br>*AtmIf/n Vpt/n Pnni Ptf PTRecord*<br><br>This component represents the path trace record for the last failed connection against this filter. |
| Dyn. Subcomp. | "COMPONENT AtmIf Vpt Uni Ptf PTRecord Hop" |
| Common Verbs | Help<br>List<br>Display |

## GROUP AtmIf Vpt Uni Ptf PTRecord Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for the path trace record component. |

## ATTRIBUTE AtmIf Vpt Uni Ptf PTRecord status

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the status of the trace. The string is one of the following:<br><br>***Completed normally****:* The trace completed normally. |

***Incomplete**:* Partial trace returned.

***Exceeded information element length limitations**:* The number of traced nodes exceeded the maximum number of hops.

***Exceeded message length limitations**:* The message length exceeded the maximum allowed size.

Values
Completed normally
Incomplete
Exceeded information element length limitations
Exceeded message length limitations

Default
No default

### ATTRIBUTE AtmIf Vpt Uni Ptf PTRecord timeStamp

Access
Read: All
Write: Illegal

Description
This attribute records the date and time of when the trace is completed.

Values
Time (DHMS)

Default
No default

### ATTRIBUTE AtmIf Vpt Uni Ptf PTRecord srcPortId

Access
Read: All
Write: Illegal

Description
This attribute indicates the trace's source port identifier used for this connection. This attribute only appears in the trace result for the trace source hop.

Values
Decimal (1..4294967295)

Default
No default

### ATTRIBUTE AtmIf Vpt Uni Ptf PTRecord srcPortName

Access
Read: All
Write: Illegal

Criticality
Component

| | |
|---|---|
| Description | This attribute indicates the name of the source port used for this connection. This attribute only appears in the trace result for the trace source hop. |
| Values | String (40, ASCII) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Uni Ptf PTRecord causeCode

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute contains the cause code in the transmitted signaling message that contains the CAUSE information element. The cause code is used to describe the reason for generating certain signaling messages. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Uni Ptf PTRecord diagCode

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute contains the diagnostic code in the transmitted signaling message. The diagnostic code is contained in the CAUSE information element and identifies an information element type or timer type. The diagnostic code is present only if a procedural error is detected by the signaling protocol. A diagnostic code is always accompanied by the cause code. If there is no failure, this attribute is set to NULL. |
| Values | String (0..8, ASCII) |
| Default | No default |

### COMPONENT AtmIf Vpt Uni Ptf PTRecord Hop

| | |
|---|---|
| Instance | Decimal (0..200) |

| | |
|---|---|
| Groups | "GROUP AtmIf Vpt Uni Ptf PTRecord Hop Operational (Oper)" |
| Scope | Device |
| Description | *AtmIf/n Aini Ptf PTRecord Hop/n*<br>*AtmIf/n Iisp Ptf PTRecord Hop/n*<br>*AtmIf/n Uni Ptf PTRecord Hop/n*<br>*AtmIf/n Pnni Ptf PTRecord Hop/n*<br>*AtmIf/n Vpt/n Aini Ptf PTRecord Hop/n*<br>*AtmIf/n Vpt/n Iisp Ptf PTRecord Hop/n*<br>*AtmIf/n Vpt/n Uni Ptf PTRecord Hop/n*<br>*AtmIf/n Vpt/n Pnni Ptf PTRecord Hop/n*<br>*AtmIf/n Vcc/x.y PTRecord Hop/n*<br>*AtmIf/n Vpc/n PTRecord Hop/n*<br>*AtmIf/n Vpt/n Vcc/x.y PTRecord Hop/n*<br><br>This component stores the result of a hop from a trace. An instance of this component is dynamically created for each hop in a trace record.<br><br>Depending on the hops, different attributes are present. |
| Dyn. Subcomp. | "COMPONENT AtmIf Vpt Uni Ptf PTRecord Hop VendorSpecificInfo (Vsi)" |
| Common Verbs | Help<br>List<br>Display |

## GROUP AtmIf Vpt Uni Ptf PTRecord Hop Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for the component *AtmPathTraceFilterRecordHop*. |

## ATTRIBUTE AtmIf Vpt Uni Ptf PTRecord Hop ingressVpiVci (vpiVci)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |

| | |
|---|---|
| Description | This attribute indicates the VPI.VCI values used for this hop on the ingress side. This is the ingress side with respect to the trace or setup messages. This attribute is displayed for ATM interfaces only.<br><br>The VPI.VCI values are included in the trace when the *traceInfo* attribute sets the ***connId*** value. |
| Values | Integer Sequence (0..4095; 0..65535) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Uni Ptf PTRecord Hop ingressDlci (dlci)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the DLCI value used for this hop on the ingress side. This is the ingress side with respect to the trace or setup message. This attribute is displayed for FrAtm interfaces only.<br><br>The DLCI is included in the trace when the *traceInfo* attribute sets the ***connId*** value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Uni Ptf PTRecord Hop ingressCallReference (callref)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the call reference value used for this hop on the ingress side. This is the ingress side with respect to the trace or setup message.<br><br>The call reference is included in the trace when the *traceInfo* attribute sets the ***callRef*** value |

| | |
|---|---|
| Values | Hex (H.0..H.ffffff) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Uni Ptf PTRecord Hop ingressEndPointReference (epref)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the end point reference value used for this hop on the ingress side. This is the ingress side with respect to the trace or setup messages.<br><br>The end point reference is included in the trace when the *traceInfo* attribute sets the ***callRef*** value and the connection is point-to-multipoint. |
| Values | Hex (H.0..H.ffff) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Uni Ptf PTRecord Hop nodeId

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the lowest level node ID traversed for this hop. |
| Values | String (22, Hex) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Uni Ptf PTRecord Hop nodeName

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the *nodeName* under the *ModuleData* component for this hop. Only Passport nodes provide this information by including it in the Vendor Specific group. |

| | |
|---|---|
| Values | String (12, ASCII) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Uni Ptf PTRecord Hop portId

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the port identifier value for this hop on the egress side. This is the egress side with respect to the trace or setup messages. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Uni Ptf PTRecord Hop portName

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the port name for this hop on the egress side. This is the egress side with respect to the trace or setup messages. Only Passport nodes provide this information by including it in the Vendor Specific group. |
| Values | String (55, ASCII) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Uni Ptf PTRecord Hop pnniTraceContRefusalIndPresent (refusal)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates whether the “PNNI Trace Continuation Refusal” indicator is present. The “PNNI Trace Continuation Refusal” indicator indicates that this hop has refused to participate in the trace. |

| | |
|---|---|
| Values | absent<br>present |
| Default | absent |

### ATTRIBUTE AtmIf Vpt Uni Ptf PTRecord Hop crankbackDestNodeIndPresent (dest)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates whether the “PNNI Crankback Received at the Trace Destination Node” indicator is present. The “PNNI Crankback Received at Trace Destination Node” indicator indicates that this hop is acting as a trace destination node, receiving a crankback for this call from a non-PNNI interface. |
| Values | absent<br>present |
| Default | absent |

### ATTRIBUTE AtmIf Vpt Uni Ptf PTRecord Hop pnniCrankbackGapIndPresent (gap)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates whether the “PNNI Crankback Gap” indicator is present. The “PNNI Crankback Gap” indicator indicates that the call experienced a crankback, where no Trace Transit List IE was returned by the node initiating the crankback. |
| Values | absent<br>present |
| Default | absent |

### ATTRIBUTE AtmIf Vpt Uni Ptf PTRecord Hop crankBackCause (cause)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |

| | |
|---|---|
| Description | This attribute indicates the crankback cause. Please refer to Private-Network-to-Network-Interface Specification Version 1.0 for more information.<br><br>This attribute is present when the *traceInfo* attribute sets the ***crankBack*** value and the connection has initiated the crankback procedure. |
| Values | Decimal (0..1000) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Uni Ptf PTRecord Hop blockedTransitType (type)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the blocked transit type.<br><br>This attribute is present when the *traceInfo* attribute sets the ***crankBack*** value and the connection has initiated the crankback procedure. |
| Values | Succeeding end blocked<br>Blocked node<br>Blocked link |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Uni Ptf PTRecord Hop blockedNodeId (bNodeId)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the blocked node ID during the call setup request. The blocked node ID identifies the logical node where the connection or party has been blocked.<br><br>This attribute is present when the *blockedTransitType* attribute is ***Blocked node.*** |

| | |
|---|---|
| Values | String (22, Hex) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Uni Ptf PTRecord Hop blockedLinkPrecedingNodeId (pNodeId)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the blocked link's preceding node ID during the call setup request. The blocked link's preceding node ID identifies the logical node preceding a link, where the connection or party has been blocked.<br><br>This attribute is present when the *blockedTransitType* attribute is ***Blocked link***. |
| Values | String (22, Hex) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Uni Ptf PTRecord Hop blockedLinkPortId (bPortId)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the blocked link's port identifier used for this connection during the call setup request. The blocked link's port identifier identifies a logical port of the blocked link's preceding node identifier.<br><br>This attribute is present when the *blockedTransitType* attribute is ***Blocked link.*** |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Uni Ptf PTRecord Hop blockedLinkSucceedingNodeId (sNodeId)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the blocked link's succeeding node ID during the call setup request. The blocked link's succeeding node ID identifies the logical node succeeding a link where the connection or party has been blocked.<br><br>This attribute is present when the *blockedTransitType* attribute is ***Blocked link.*** |
| Values | String (22, Hex) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Uni Ptf PTRecord Hop dstVpiVci

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the VPI.VCI values on the destination side. This attribute only appears in the trace result for the trace destination node. This attribute is only displayed for ATM interfaces.<br><br>The VPI.VCI is included in the trace when the *traceInfo* attribute sets the ***connId*** value. |
| Values | Integer Sequence (0..4095; 0..65535) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Uni Ptf PTRecord Hop dstDlci

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |

| | |
|---|---|
| Description | This attribute indicates the DLCI value on the destination side. This attribute only appears in the trace result for the trace destination node. This attribute is only displayed for FrAtm interfaces.<br><br>The DLCI is included in the trace when the *traceInfo* attribute sets the ***connId*** value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Uni Ptf PTRecord Hop dstCallReference (dcr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the call reference value on the destination side. This attribute only appears in the trace result for the trace destination node.<br><br>The call reference value is included in the trace when the *traceInfo* attribute sets the ***callRef*** value. |
| Values | Hex (H.0..H.ffffff) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Uni Ptf PTRecord Hop dstEndPointReference (depr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the end point call reference value on the destination side. This attribute only appears in the trace result for the trace destination node.<br><br>The call reference value is included in the trace when the *traceInfo* attribute sets the ***callRef*** value and the connection is point-to-multipoint. |

| | |
|---|---|
| Values | Hex (H.0..H.ffff) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Uni Ptf PTRecord Hop specifiedPath

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates whether this hop is the originator of this manually configured path. Only Passport nodes provide this information by including it in the Vendor Specific group. |
| Values | no<br>yes |
| Default | no |

### COMPONENT AtmIf Vpt Uni Ptf PTRecord Hop VendorSpecificInfo (Vsi)

| | |
|---|---|
| Instance | Decimal (0..10) |
| Groups | "GROUP AtmIf Vpt Uni Ptf PTRecord Hop Vsi Operational (Oper)" |
| Scope | Device |
| Description | *AtmIf/n Aini Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Iisp Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Uni Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vpt/n Aini Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vpt/n Iisp Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vpt/n Uni Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vpt/n Pnni Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vcc/x.y PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vpc/n PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vpt/n Vcc/x.y PTRecord Hop/n VendorSpecificInfo/m*<br><br>This component stores the vendor specific information of a non-Passport node for a hop. An instance of this component is dynamically created for the vendor specific information group of a hop in a trace. Several instances of this component are created |

if the trace has several groups of vendor specific information.

All the trace information for a Passport node is stored in the *PTRecord Hop/** component.

Common Verbs

Help
List
Display

## GROUP AtmIf Vpt Uni Ptf PTRecord Hop Vsi Operational (Oper)

Properties: Operational

Description: This group contains the operational attributes for the component *AtmPathTraceFilterRecordHopVen*.

## ATTRIBUTE AtmIf Vpt Uni Ptf PTRecord Hop Vsi length

Access: Read: All
Write: Illegal

Description: This attribute indicates the length of the vendor specific information group.

Values: Decimal (0..11)

Default: No default

## ATTRIBUTE AtmIf Vpt Uni Ptf PTRecord Hop Vsi organizationUniqueId (oui)

Access: Read: All
Write: Illegal

Description: This attribute indicates the Organization Unique Identifier (OUI) of a non-Passport node.

Values: String (3, Dashed Hex)

Default: No default

## ATTRIBUTE AtmIf Vpt Uni Ptf PTRecord Hop Vsi data

Access: Read: All
Write: Illegal

Description: This attribute indicates the contents of the vendor specific information group.

| | |
|---|---|
| Values | String (1..8, Hex) |
| Default | No default |

## COMPONENT AtmIf Vpt Uni PathTraceTestConnection (Ptt)

| | |
|---|---|
| Groups | "GROUP AtmIf Vpt Uni Ptt Operational (Oper)" |
| Scope | Device |
| Description | *AtmIf/n Aini PathTraceTestConnection*<br>*AtmIf/n Iisp PathTraceTestConnection*<br>*AtmIf/n Uni PathTraceTestConnection*<br>*AtmIf/n Pnni PathTraceTestConnection*<br>*AtmIf/n Vpt/vpi Aini PathTraceTestConnection*<br>*AtmIf/n Vpt/vpi Iisp PathTraceTestConnection*<br>*AtmIf/n Vpt/vpi Uni PathTraceTestConnection*<br>*AtmIf/n Vpt/vpi Pnni PathTraceTestConnection*<br><br>This component provides the capability to control the Path Trace Test Connection. A test connection is one way to find the logical nodes and ports that a connection traverses to a destination interface.<br><br>The *Trace* verb is used to initiate the test connection. The test connection is always released once it reaches the trace destination. The test connection responds with the trace results collected during a complete or partial trace. |
| Common Verbs | Help<br>List<br>Display |

## VERB TRACE AtmIf Vpt Uni Ptt

| | |
|---|---|
| Impact | Passive |
| Description | *TRACE AtmIf/n Aini AtmPathTraceTest*<br>*TRACE AtmIf/n Iisp AtmPathTraceTest*<br>*TRACE AtmIf/n Uni AtmPathTraceTest*<br>*TRACE AtmIf/n Pnni AtmPathTraceTest*<br>*TRACE AtmIf/n Vpt/vpi Aini AtmPathTraceTest*<br>*TRACE AtmIf/n Vpt/vpi Iisp AtmPathTraceTest*<br>*TRACE AtmIf/n Vpt/vpi Uni AtmPathTraceTest*<br>*TRACE AtmIf/n Vpt/vpi Pnni AtmPathTraceTest*<br><br>This command is used to initiate a Path Trace Test Connection and then responds with a list of logical nodes and ports from the trace source node to the trace destination node.<br><br>Only one *Trace* command is allowed at a time per signaling interface. If the test connection times out, the command fails. |

## GROUP AtmIf Vpt Uni Ptt Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for the *AtmPathTraceTest* component. |

## ATTRIBUTE AtmIf Vpt Uni Ptt traceCrankback

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute controls what trace information the trace records include. If the option is turned on, all attempted paths are recorded including the final one. If the option is turned off, only the information of the final path is recorded. If the connection fails to reached the destination, no path information is returned. |
| Values | no<br>yes |
| Default | no |

### ATTRIBUTE AtmIf Vpt Uni Ptt txTrafficDescType (txTdt)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the type of traffic management applied to the transmit direction, as defined by the ATM Forum. The *txTrafficDescType* determines the number and meaning of the parameters in the *txTrafficDescParm* attribute. |
| Values | 1<br>2<br>3<br>4<br>5<br>6<br>7<br>8<br>9 |
| Default | 1 |

### ATTRIBUTE AtmIf Vpt Uni Ptt rxTrafficDescType (rxTdt)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the type of traffic management, which is applied to the receive direction of this connection, as defined in the ATM Forum. The *rxTrafficDescType* determines the number and meaning of the parameters in the *rxTrafficDescParm* attribute<br><br>When ***sameAsTx*** is selected, the *rxTrafficDescType* and the *rxTrafficDescParm* are taken from the transmit values. |
| Values | 1<br>2<br>3<br>4<br>5<br>6<br>7<br>8 |

| | |
|---|---|
| | 9<br>sameAsTx |
| Default | sameAsTx |

### ATTRIBUTE AtmIf Vpt Uni Ptt atmServiceCategory (service)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the ATM service category for both directions of the connection.<br><br>If this attribute is set to ***derivedFromBBC***, the Broadband Bearer Capability (BBC) and *bestEffort* attributes are used to determine the *atmServiceCategory* of this connection.<br><br>If this attribute is set to a possible attribute other than ***derivedFromBBC***, the value of this attribute is used to override the provisioned BBC IE parameters. In those cases, the BBC attributes are not used.<br><br>The ***constantBitRate*** service category is intended for real time applications, that is, those requiring tightly constrained delay and delay variation such as for voice and video applications.<br><br>The ***rtVariableBitRate*** service category is intended for real time applications, that is, those requiring tightly constrained delay and delay variation, such as for voice and video applications. Sources are expected to transmit at a rate which varies with time. Equivalently, the source can be described as “bursty”. Cells, which are delayed beyond the value specified by CTD, are assumed to be of significantly reduced value to the application. The VBR real time service may support statistical multiplexing of real time sources.<br><br>The ***nrtVariableBitRate*** service category is intended for non-real time applications which have bursty traffic characteristics and can be characterized in terms of a PCR, SCR, and MBS.<br><br>The ***unspecifiedBitRate*** service is intended for non-real time |

applications, that is, those not requiring tightly constrained delay and delay variation. UBR sources are expected to be bursty. The UBR service supports a high degree of statistical multiplexing among sources.

Values
unspecifiedBitRate (ubr)
constantBitRate (cbr)
rtVariableBitRate (rtvbr)
nrtVariableBitRate (nrtvbr)
derivedFromBBC (derived)

Default
unspecifiedBitRate

### ATTRIBUTE AtmIf Vpt Uni Ptt fwdQosClass (fwdQos)

Access
Read: All
Write: All

Criticality
Component

Description
This attribute specifies the quality of service for the forward direction for this connection.

Class ***1*** supports a QOS that will meet Service Class A performance requirements (circuit emulation, constant bit rate video).

Class ***2*** supports a QOS that will meet Service Class B performance requirements (variable bit rate audio and video).

Class ***3*** supports a QOS that will meet Service Class C performance requirements (connection-oriented data transfer).

Class ***4*** supports a QOS that will meet Service Class D performance requirements (connectionless data transfer).

Class ***0*** is the unspecified bit rate QOS class; no objective is specified for the performance parameters.

Values
0
1
2

| | |
|---|---|
| | 3<br>4 |
| Default | 0 |

### ATTRIBUTE AtmIf Vpt Uni Ptt bwdQosClass (bwdQos)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the quality of service for the backward direction for this connection.<br><br>Class ***1*** supports a QOS that will meet Service Class A performance requirements (circuit emulation, constant bit rate video).<br><br>Class ***2*** supports a QOS that will meet Service Class B performance requirements (variable bit rate audio and video).<br><br>Class ***3*** supports a QOS that will meet Service Class C performance requirements (connection-oriented data transfer).<br><br>Class ***4*** supports a QOS that will meet Service Class D performance requirements (connectionless data transfer).<br><br>Class ***0*** is the unspecified bit rate QOS class; no objective is specified for the performance parameters.<br><br>The ***sameAsFwd*** selection sets the backward quality of service to be the same as the forward quality of service. |
| Values | 0<br>1<br>2<br>3<br>4<br>sameAsFwd |
| Default | sameAsFwd |

## ATTRIBUTE AtmIf Vpt Uni Ptt bearerClassBbc (bcBbc)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the bearer capability. It is one of the Broadband Bearer Capability (BBC) attributes. The purpose of the BBC information element is to indicate a requested broadband connection-oriented bearer service to be provided by the network.<br><br>The value ***derivedFromServiceCategory*** specifies that the actual value, which is used for this connection and is derived from the value of the *atmServiceCategory.* Either this attribute must be set to ***derivedFromServiceCategory***, or the *atmServiceCategory* attribute must be set to ***derivedFromBBC***, but not both.<br><br>Class ***a*** service is a connection-oriented, constant bit rate ATM transport service. Class ***a*** service has end-to-end timing requirements and may require stringent cell loss, cell delay and cell delay variation performance.When ***a*** is set, the user is requesting more than an ATM only service. The network may look at the AAL to provide inter-working based on its contents.<br><br>Class ***c*** service is a connection-oriented, variable bit rate ATM transport service. Class ***c*** service has no end-to-end timing requirements. When ***c*** is set, the user is requesting more than an ATM only service. The network inter-working function may look at the AAL and provide service based on it.<br><br>Class ***x*** service is a connection-oriented ATM transport service where the AAL, *trafficType* (***vbr*** or ***cbr***), and timing requirements are user defined (that is, transparent to the network).When ***x*** is set, the user is requesting an ATM only service from the network. In this case, the network shall not process any higher layer protocols. |
| Values | a<br>c |

| | |
|---|---|
| | x<br>derivedFromServiceCategory |
| Default | derivedFromServiceCategory |

### ATTRIBUTE AtmIf Vpt Uni Ptt transferCapabilityBbc (tcBbc)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the transfer capability for this connection. UNI 3.0/3.1 traffic type and end-to-end timing parameters are mapped into this parameter as follows:<br><transferCapability: TrafficType, Timing><br>***0***: NoIndication, NoIndication<br>***1***: NoIndication, yes<br>***2***: NoIndication, no<br>***5***: CBR, yes<br>***8***: VBR, NoIndication<br>***9***: VBR, yes<br>***10***: VBR, no<br><br>***NotApplicable*** specifies that the user does not want to specify the transfer capability.<br><br>The CBR traffic type refers to the traffic offered on services such as a constant bit rate video service or a circuit emulation.<br><br>The VBR traffic type refers to the traffic offered on services such as packetized audio and video, or data.<br><br>The value ***NoIndication*** for traffic type is used if the user has not set the traffic type. This is also the case for end-to-end timing.<br><br>The value ***yes*** for end-to-end timing indicates that end-to-end timing is required.<br><br>The value ***no*** for end-to-end timing indicates that end-to-end timing is not required.<br><br>The value ***derivedFromServiceCategory*** specifies that the actual |

value which is used for this connection and is derived from the value of the *atmServiceCategory*. Either, this attribute must be set to ***derivedFromServiceCategory*** or the *atmServiceCategory* attribute must be set to ***derivedFromBBC***, but not both.

Values
0
1
2
5
8
9
10
notApplicable
derivedFromServiceCategory

Default
derivedFromServiceCategory

### ATTRIBUTE AtmIf Vpt Uni Ptt clippingBbc (cBbc)

Access
Read: All
Write: All

Criticality
Component

Description
This attribute specifies the value for the clipping susceptibility parameter in the BBC IE. This attribute is only used for SPVC connections. It is one of the Broadband Bearer Capability attributes.

Clipping is an impairment where the first fraction of a second of information to be transferred is lost. It occurs after a call is answered and before an associated connection is switched through.

Values
no
yes

Default
no

### ATTRIBUTE AtmIf Vpt Uni Ptt bestEffort

Access
Read: All
Write: All

Criticality
Component

| | |
|---|---|
| Description | This attribute specifies the value of the best effort parameter in the ATM Traffic Descriptor IE. It is one of the Broadband Bearer Capability attributes.<br><br>The value ***indicated*** implies that the quality of service for this connection is not guaranteed.<br><br>The value ***notIndicated*** implies that the quality of service for this connection is guaranteed.<br><br>The value ***derivedFromServiceCategory*** specifies that the actual value, which is used for this connection, is derived from the value of the *atmServiceCategory.* Either this attribute must be set to ***derivedFromServiceCategory*** or the *atmServiceCategory* attribute must be set to ***derivedFromBBC***, but not both. |
| Values | indicated<br>notIndicated<br>derivedFromServiceCategory (derived) |
| Default | derivedFromServiceCategory |

### ATTRIBUTE AtmIf Vpt Uni Ptt testCalledAddress

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the destination address of this test connection. |
| Values | String (20, Hex) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Uni Ptt testCalledVpiVci

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the called VPI.VCI values for this test connection on the destination interface. |

| | |
|---|---|
| Values | Integer Sequence (0..4095; 0..65535) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Uni Ptt testSpecifiedPath

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the path that will be used to get to the destination of this test connection. |
| Values | String (0..32, ASCII) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Uni Ptt bwdQosParameters (bqp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is a vector of three elements that specify the quality of service parameters for the backward direction for this connection. This attribute is used for SPVC connections.<br><br>The ***cdv*** element specifies the acceptable peak-to-peak cell delay variation (CDV) of real-time connections (CBR and rt-VBR).<br><br>It is signaled through the extended QoS information element.<br><br>The ***ctd*** specifies the acceptable maximum cell transfer delay (maxCtd) of real-time connections (CBR and rt-VBR). It is signaled through the end-to-end transit delay information element.<br><br>The ***clr*** specifies the acceptable cell loss ratio (CLR) of CBR, rt-VBR, and nrt-VBR connections. It is signaled through the extended QoS information element. |

| | |
|---|---|
| Vector of | Decimal (0..2147483647) |
| Index | cdv<br>ctd<br>clr |
| Default | (cdv: 16777215, ctd: 16777215, clr: 255) |

### ATTRIBUTE AtmIf Vpt Uni Ptt fwdQosParameters (fqp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is a vector of three elements that specify the quality of service parameters for the forward direction for this connection. This attribute is used for SPVC connections.<br><br>The ***cdv*** element specifies the acceptable peak-to-peak cell delay variation (CDV) of the real-time connections (CBR and rt-VBR). It is signaled through the extended QoS information element.<br><br>The ***ctd*** specifies the acceptable maximum cell transfer delay (maxCtd) of the real-time connections (CBR and rt-VBR). It is signaled through the end-to-end transit delay information element.<br><br>The ***clr*** specifies the acceptable cell loss ratio (CLR) of CBR, rt-VBR, and nrt-VBR connections. It is signaled through the extended QoS information element. |
| Vector of | Decimal (0..2147483647) |
| Index | cdv<br>ctd<br>clr |
| Default | (cdv: 16777215, ctd: 16777215, clr: 255) |

### ATTRIBUTE AtmIf Vpt Uni Ptt txTrafficDescParm (txTdp)

| | |
|---|---|
| Access | Read: All<br>Write: All |

Description

This attribute is a vector of five traffic parameters whose meanings are defined by the *txTrafficDescType* attribute. The values of peak cell rate (PCR), sustained cell rate (SCR), minimum cell rate (MCR) and requested shaping rate are expressed in cells/second. THe maximum burst size (MBS) is expressed in cells. The cell delay variance tolerance (CDVT) is expressed in microseconds. The values of PCR, SCR, MBS, MCR and CDVT are used for the connection admission control (CAC). The value of the CDVT is only used for connections where the *atmServiceCategory* is ***constantBitRate***. For all other values of *atmServiceCategory*, the CDVT is ignored. The values of PCR, SCR, and the requested shaping rate are used to determine the actual shaping rate, where traffic shaping is enabled.

When *txTrafficDescType* is ***1*** or ***2***, all of the parameters must be set to zero.

When *txTrafficDescType* is ***3***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameter 1 must be non-zero. Parameters 2 and 3 must be zero.

When *txTrafficDescType* is ***4***, parameter 1 represents the PCR for CLP0+1 traffic with cell discard; parameter 2 represents the PCR for CLP equal to 0 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameter 1 must be greater than or equal to parameter 2. Parameters 1 and 2 must be non-zero. Parameter 3 must be zero.

When *txTrafficDescType* is ***5***, parameter 1 represents the PCR for CLP0+1 traffic with cell tagging; parameter 2 represents the PCR for CLP equal to 0 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameter 1 must be greater than or equal to parameter 2. Parameters 1 and 2 must be non-zero.

Parameter 3 must be zero.

When *txTrafficDescType* is ***6***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the SCR for CLP0+1 traffic; parameter 3 represents the MBS for CLP0+1 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameters 1, 2, and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2. Parameter 5 must either be zero (unused) or greater than or equal to parameter 2.

When *txTrafficDescType* is ***7***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the SCR for CLP equal to 0 with cell discard; parameter 3 represents the MBS for CLP equal to 0 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameters 1, 2, and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2. Parameter 5 must either be zero (unused) or greater than or equal to parameter 2.

When *txTrafficDescType* is ***8***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the SCR for CLP equal to 0 traffic with cell tagging; parameter 3 represents the MBS for CLP equal to 0 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameters 1, 2 and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2. Parameter 5 must either be zero (unused) or greater than or equal to parameter 2.

When *txTrafficDescType* is ***9***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the CDVT; parameter 3 represents the MCR; parameter 5 represents the requested shaping rate; and parameter 4 is not used and must be zero. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameter 1 must either be zero or be greater than or equal to parameter 3. Parameter 3 may be

optionally zero. Parameter 5 must either be zero (unused) or greater than or equal to parameter 3.

Whenever it is valid for PCR to be specified, parameter 5 may also be used to specify a requested shaping rate. A non-zero value in parameter 5 overrides the value in parameter 1 and is used as the peak cell rate in the calculations of CAC and the shaping rate.

For *txTrafficDescType* ***3***, ***4***, ***5*** and ***9***, the transmit traffic should be shaped at the next rate less than the PCR.

For *txTrafficDescType* ***6***, ***7,*** and ***8***, the transmit traffic should be shaped at the highest available rate which is between PCR and SCR. However, if there is no available shaping rate between PCR and SCR, traffic should be shaped at the next rate above the PCR.

Vector of — Decimal (0..2147483647)

Index — Decimal (1..5)

Default — ([5] 0)

## ATTRIBUTE AtmIf Vpt Uni Ptt rxTrafficDescParm (rxTdp)

Access — Read: All
Write: All

Description — This attribute is a vector of four traffic parameters whose meanings are defined by the *rxTrafficDescType* attribute. The values of the peak cell rate (PCR) and sustained cell rate (SCR) are expressed in
cells/second. The maximum burst size (MBS) is expressed in cells. The value of the cell delay variance tolerance (CDVT) is expressed in microseconds. The values of PCR, SCR, MBS and CDVT are used for the usage parameter control (UPC).

When *rxTrafficDescType* is ***1*** or ***2***, all of the parameters must be set to zero (unused).

When *rxTrafficDescType* is ***3***, parameter 1 represents the PCR for CLP0+1 traffic. Parameter 1 must be non-zero. Parameters 2 and 3 must be set to zero (unused).

When *rxTrafficDescType* is ***4***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the PCR for CLP equal to 0 traffic with cell discard. Parameters 1 and 2 must be non-zero. Parameter 3 must be set to zero (unused). Parameter 1 must be greater than or equal to parameter 2.

When *rxTrafficDescType* is ***5***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the PCR for CLP equal to 0 traffic with cell tagging. Parameters 1 and 2 must be non-zero. Parameter 3 must be set to zero (unused). Parameter 1 must be greater than or equal to parameter 2.

When *rxTrafficDescType* is a ***6***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the SCR for CLP0+1 traffic; parameter 3 represents the MBS for CLP0+1 traffic. Parameters 1, 2, and 3 must be non-zero. Parameter 1 must be greater than or equal to Parameter 2.

When *rxTrafficDescType* is ***7***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the SCR for CLP equal to 0 traffic with cell discard; parameter 3 represents the MBS for CLP equal to 0 traffic. Parameters 1, 2 and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2.

When *rxTrafficDescType* is ***8***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the SCR for CLP equal to 0 traffic with cell tagging; parameter 3 represents the MBS for CLP equal to 0 traffic. Parameter 1, 2, and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2.

When *rxTrafficDescType* is ***9***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the CDVT; parameter 3 represents the MCR. Parameter 4 is not used and must be zero. Parameter 1 must either be zero or be greater than or equal to parameter 3. Parameter 3 may optionally be zero.

When *rxTrafficDescType* is any value from ***3*** through ***8***, parameter 4 represents the CDVT. If this value is zero, the CDVT is taken from the *ConnectionAdministrator* defaults for the particular *atmServiceCategory* of this connection.

When *rxTrafficDescriptorType* is ***3*** through ***9***, there are certain extreme combinations of *rxTrafficDescParm* which are outside the capabilities of the UPC hardware.

To calculate the limits, use the following formulae:
I1 = 1 000 000 000 / PCR
L1 = CDVT * 1000
I2 = 1 000 000 000 / SCR
L2 = CDVT + (MBS - 1) * (I2 - I1)
I1 and I2 must be less than or equal to 335 523 840. I1 + L1 must be less than or equal to 1 342 156 800. I2 + L2 must be less than or equal to 1 342 156 800. Note that I2 and L2 only apply when the *rxTrafficDescriptorType* is ***6*** through ***8***.

If the values of I1, L1, I2, or L2 are closer to the limits described above, a further restriction applies. Specifically, if either:
I1 > 41 940 480 or
I2 > 41 940 480 or
I1 + L1 > 167 769 600 or
I2 + L2 > 167 769 600
then both I1 and I2 must be greater than 20 480.

Parameter 5 of the *rxTrafficDescParm* is always unused.

If the *rxTrafficDescType* is ***sameAsTx***, the values in this attribute are taken from the *txTrafficDescParm*.

| | |
|---|---|
| Vector of | Decimal (0..2147483647) |
| Index | Decimal (1..5) |
| Default | ([5] 0) |

## COMPONENT AtmIf Vpt Uni ServiceTrace (SrvTrace)

| | |
|---|---|
| Groups | "GROUP AtmIf Vpt Uni SrvTrace Operational" |
| Scope | Application |
| Description | *AtmIf/n [Vpt/m] Uni ServiceTrace*<br>*AtmIf/n [Vpt/m] Iisp ServiceTrace*<br>*AtmIf/n [Vpt/m] Pnni ServiceTrace*<br>*AtmIf/n [Vpt/m] Aini ServiceTrace* |

The *ServiceTrace* component of the ATM service determines if the trace capability is allowed on this service. If it is not provisioned, then a service trace session cannot be started on this service.

Currently, the ATM Trace features only support ***frAtmTraceRcvr*** and ***atmTraceRcvr*** features, if the name of a X25 or FR receiver is set to the *receiver* attribute of this component, the *Start* command responses with a “Receiver Not Supported” message.

Common Verbs

Help
List
Display
Add
DELete

## VERB Start AtmIf Vpt Uni SrvTrace

Impact: Service

Description:
*Start AtmIf/n [Vpt/m] Uni ServiceTrace*
*Start AtmIf/n [Vpt/m] Iisp ServiceTrace*
*Start AtmIf/n [Vpt/m] Pnni ServiceTrace*
*Start AtmIf/n [Vpt/m] Aini ServiceTrace*
This command starts a service trace session.

## VERB Stop AtmIf Vpt Uni SrvTrace

Impact: Service

Description:
*Stop AtmIf/n [Vpt/m] Uni ServiceTrace*
*Stop AtmIf/n [Vpt/m] Iisp ServiceTrace*
*Stop AtmIf/n [Vpt/m] Pnni ServiceTrace*
*Stop AtmIf/n [Vpt/m] Aini ServiceTrace*
This command stops a service trace session.

## GROUP AtmIf Vpt Uni SrvTrace Operational

Properties: Operational

Description: This group provides the operational attributes for the *SrvTrace* component.

### ATTRIBUTE AtmIf Vpt Uni SrvTrace receiverName (rcvr)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute should be set to the name of the desired trace receiver before starting a trace session. All available trace receivers are listed under the *SrvTrace Rcvr* component. This attribute cannot be set while the service trace is active. The receiver name is validated by the trace manager when the service *SrvTrace* is started. |
| Values | String (0..8, ASCII) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Uni SrvTrace duration

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the duration, in minutes, of a trace session. A value of ***0*** indicates unlimited duration in which case a trace session remains active until a *Stop* command is issued. This attribute cannot be set while a trace is active. |
| Values | Decimal (0..9999) |
| Units | minutes |
| Default | 60 |

### ATTRIBUTE AtmIf Vpt Uni SrvTrace queueLimit

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the total number of bytes of traced data which may be queued for transmission to the trace receiver. When this limit is exceeded, incoming traced frames are discarded. This attribute can be set while a trace is active and takes effect immediately. |
| Values | Decimal (1..100) |
| Units | Kbyte |
| Default | 20 |

## ATTRIBUTE AtmIf Vpt Uni SrvTrace session

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the *SrvTrace Session* component that is forwarding the trace data. This attribute is set automatically, and is empty unless the service trace is active. |
| Values | The name of the component |
| Default | No default |

## COMPONENT AtmIf Vpt Uni Reroute

| | |
|---|---|
| Groups | "GROUP AtmIf Vpt Uni Reroute LocalOperational (LOper)"<br>"GROUP AtmIf Vpt Uni Reroute GlobalOperational (GOper)"<br>"GROUP AtmIf Vpt Uni Reroute Statistics (Stats)" |
| Scope | Device |
| Description | *AtmIf/n Iisp Reroute*<br>*AtmIf/n Aini Reroute*<br>*AtmIf/n Uni Reroute*<br>*AtmIf/n Vpt/vpi Iisp Reroute*<br>*AtmIf/n Vpt/vpi Aini Reroute*<br>*AtmIf/n Vpt/vpi Uni Reroute*<br><br>This component represents the rerouting capabilities of the ATM Signaling interface. If this component is provisioned, the *Artg Pnni* component must already exist. The addition or deletion of this component, or changes to its provisionable attributes, does not affect existing connections. |
| Subcomponents | "COMPONENT AtmIf Vpt Uni Reroute Ov" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### VERB OPTIMIZE AtmIf Vpt Uni Reroute

| | |
|---|---|
| Impact | Service |
| Description | *Optimize [-all] AtmIf/n Uni outeouteouteouteouteoute*sBy default, only connection segsforation. The best known optimization metric value for the connection segment is indicated by the *localOptimalMetricValue* attribute under the *RerouteInfo* component for the connection.<br>The *-all* option causes all connection segments subscribed to path optimization to be considered.s |

### GROUP AtmIf Vpt Uni Reroute LocalOperational (LOper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes that indicate the local rerouting activities at the interface level. |

### ATTRIBUTE AtmIf Vpt Uni Reroute localSubscribedConnections (lsub)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the connection segments that are subscribed to one or more local rerouting capabilities. Note that a given connection segment is subscribed to either local rerouting capabilities capabilities, not both. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Uni Reroute localEligibleRecoveredCon (lerc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the connection segments that have been recovered using local rerouting and are eligible for local path optimization. The value decreases as counted connections are released. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Uni Reroute localIneligibleRecoveredCon (lirc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the connection segments that have been recovered by local rerouting but are not eligible for local path optimization. The value decreases as counted connections are released. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Uni Reroute localLastRrCauseCode (lrrcc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the value of the last local rerouting cause code received at this interface. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Uni Reroute localPathsOptimized (lPathsOpt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the paths that were successfully optimized by local rerouting or EBR during the last optimization pass at this interface. Successfully optimized paths are paths that switched to a better route. The value is reset to zero at the beginning of each optimization pass. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP AtmIf Vpt Uni Reroute GlobalOperational (GOper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes that indicate the global and EBR rerouting activities at the interface level. |

### ATTRIBUTE AtmIf Vpt Uni Reroute globalSubscribedConnections (gsub)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the connection segments that are subscribed to one or more global and EBR rerouting capabilities. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Uni Reroute globalEligibleRecoveredCon (gerc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the connections that have been recovered by global and EBR rerouting and are eligible for global or EBR path optimization. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Uni Reroute globalIneligibleRecoveredCon (girc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the connections that have been recovered by global and EBR rerouting but are not eligible for global or EBR path optimization. The value decreases as counted connections are released. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Uni Reroute globalLastRrCauseCode (grrcc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the value of the last global or EBR rerouting cause code received at this interface. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Uni Reroute globalPathsOptimized (gPathsOpt)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the paths that were successfully optimized by global and EBR rerouting during the last optimization pass at this interface. Successfully optimized paths are paths that switched to a better route. The value is reset to zero at the beginning of each optimization pass. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP AtmIf Vpt Uni Reroute Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the rerouting statistics for the interface. |

### ATTRIBUTE AtmIf Vpt Uni Reroute totalLocalConnectionRecoveries (tLConRec)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts successful local connection recovery attempts. The counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Uni Reroute totalLocalFailedRecoveries (lFailedRec)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts failed local connection recovery attempts. A connection recovery attempt fails if a rerouting connection segment can not be established. The counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Uni Reroute totalLocalPathOptimizations (tLPathOpt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts successful local path optimization attempts. A successful path optimization attempt results in a switch to a |

| | |
|---|---|
| | better route. The counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Uni Reroute totalGlobalConnectionRecoveries (tGConRec)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts successful global and EBR connection recovery attempts. The counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Uni Reroute totalGlobalFailedRecoveries (gFailedRec)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts failed global and EBR connection recovery attempts. A connection recovery attempt fails if a rerouting connection segment cannot be established. The counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Uni Reroute totalGlobalPathOptimizations (tGPathOpt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts successful global and EBR path optimization attempts. A successful path optimization attempt results in a switch to a better route. The counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Uni Reroute totalOptimizationPasses (optPass)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts optimization passes at the interface. Both module and interface optimization passes are counted. The counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT AtmIf Vpt Uni Reroute Ov

| | |
|---|---|
| Groups | "GROUP AtmIf Vpt Uni Reroute Ov Provisioned (Prov)"<br>"GROUP AtmIf Vpt Uni Reroute Ov LocalProvisioned (LProv)"<br>"GROUP AtmIf Vpt Uni Reroute Ov GlobalProvisioned (GProv)" |
| Scope | Device |
| Description | *AtmIf/n Iisp Reroute Ov*<br>*AtmIf/n Aini Reroute Ov*<br>*AtmIf/n Uni Reroute Ov*<br>*AtmIf/n Vpt/vpi Iisp Reroute Ov*<br>*AtmIf/n Vpt/vpi Aini Reroute Ov*<br>*AtmIf/n Vpt/vpi Uni Reroute Ov*<br><br>This component represents the provisioning capabilities of the rerouting functionality for the ATM Signaling interface. |
| Common Verbs | Help<br>List<br>Display |

### GROUP AtmIf Vpt Uni Reroute Ov Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the common provisionable attributes for rerouting capabilities at the ATM signaling interface. |

### ATTRIBUTE AtmIf Vpt Uni Reroute Ov protocol

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the rerouting protocols which are requested by connection segments on the interface, for which this node is the first rerouting node. This attribute has no effect on connection segments for which this node is not the first rerouting |

node. A subset of the requested protocols is granted by the last rendezvous node, according to its software level and provisioning.

One of the following values can be specified:
***sameAsARtgPnniReroute***: The requested rerouting protocols are specified by the *Artg Pnni Reroute protocol* attribute.
***localGlobal***: Local and global rerouting protocols are requested. Local and global rerouting are granted if the DTL terminator is provisioned with the Rerouting feature.
***localOnly***: Local rerouting is requested. This value guarantees interoperability with other vendors' equipment running the ATM Forum "Domain Based Rerouting" protocol. Local rerouting is granted if the DTL terminator is provisioned with the Rerouting feature.
***globalOnly***: Global rerouting is requested. Global rerouting is granted if the DTL terminator is provisioned with the Rerouting feature.
***localEbr*:** Local and EBR rerouting protocols are requested. Local rerouting is granted if the DTL terminator is provisioned with the Rerouting feature. Alternatively, EBR is granted if the DTL terminator is provisioned with the EBR feature.
***ebrOnly***: EBR is requested. EBR is granted if the DTL terminator is provisioned with the EBR feature.

Values

localGlobal
localOnly
globalOnly
localEbr
ebrOnly
sameAsARtgPnniReroute (sameAs)

Default

sameAsARtgPnniReroute

## ATTRIBUTE AtmIf Vpt Uni Reroute Ov numOptAttempts

Access

Read and write

Description

This attribute specifies the number of path optimizations attempted before declaring a recovered connection segment to be optimally routed. Following a connection recovery, each manual and automatic path optimization will attempt to optimize the connection segment. When a path is found with a better

optimization metric than the best known value, or the number of optimization attempts is exhausted, the current optimization metric is declared to be the new optimal metric for the connection segment. Subsequent path optimizations will not attempt to optimize the connection segment unless all subscribed connection segments are eligible for path optimization.

If the value is set to ***0***, the optimization metric of a connection segment following connection recovery is declared to be the new optimal metric, and no connection recovery alarm is issued. A subsequent path optimization will not attempt to optimize the connection segment unless all subscribed connection segments are eligible for path optimization.

If the value is set to ***sameAsARtgPnniReroute***, the value of the *ARtg Pnni Reroute numOptAttempts* attribute is used.

Values: Decimal (0..15)
sameAsARtgPnniReroute (sameAs)

Default: sameAs

## ATTRIBUTE AtmIf Vpt Uni Reroute Ov moduleOptimizationConnections

Access: Read and write

Description: This attribute specifies which connection segments on the interface will be considered by a module optimization pass as controlled by the *ARtg Pnni Reroute* component.

One of the following values can be specified:
***sameAsARtgPnniReroute***: The connection segments to be considered by a module optimization pass are specified by the *Artg Pnni Reroute moduleOptimization* attribute.
***none***: No connection segments are considered for path optimization.
***recoveredOnly***: Only connection segments which are foration. The best known optimization metric value for the connection segment is indicated by the *localOptimalMetricValue* attribute under the *RerouteInfo* component for the connection
***allSubscribed***: All connection segments subscribed to path optimization are considered.

| | |
|---|---|
| Values | none<br>recoveredOnly<br>allSubscribed<br>sameAsARtgPnniReroute (sameAs) |
| Default | sameAsARtgPnniReroute |

### ATTRIBUTE AtmIf Vpt Uni Reroute Ov switchoverMechanism

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the mechanism used for switchover of a rerouted connection segment.<br><br>One of the following values can be specified:<br>***sameAsARtgPnniReroute***: The switchover mechanism is specified by the *ARtg Pnni Reroute switchoverMechanism* attribute.<br>***standard***: The mechanism described in the ATM Forum “Domain based Rerouting” specification is used for switchover. This value ensures interoperability with other vendors’ equipment running ATM Forum “Domain based Rerouting”.<br>***rcl***: The Reduced Cell Loss mechanism is used for switchover. RCL is a value-added Passport extension to the standard mechanism that allows faster switchover time. |
| Values | standard<br>rcl<br>sameAsARtgPnniReroute (sameAs) |
| Default | sameAsARtgPnniReroute |

### GROUP AtmIf Vpt Uni Reroute Ov LocalProvisioned (LProv)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for EBR and local rerouting protocols. |

### ATTRIBUTE AtmIf Vpt Uni Reroute Ov localConnectionRecoverySubscr (lConRec)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies which connection segments on the interface request subscription to local connection recovery. This attribute only affects connection segments that request the local |

rerouting protocols. This attribute affects connection segments for a node that is either local domain rerouting node or a DTL originator.

Connection segments of the specified type(s) which request ***localGlobal*** or ***localOnly*** protocols request subscription to local connection recovery.

Connection segments of the specified type(s) which request ***localEbr*** request subscription to both local connection recovery and EBR connection recovery. Only one will be granted.

One or more of the following values can be specified:
***sameAsARtgPnniReroute:*** If this value is set, the local connection recovery subscription rule is determined by the *ARtg Pnni Reroute localConnectionRecoverySubscr* attribute. This value takes precedence over any other values.
***svcSvp***: If this value is set, all SVC and SVP connection segments request subscription to local connection recovery.
***sourceSpvcSpvp***: If this value is set, all source SPVC and SPVP connection segments request subscription to local connection recovery.
***transitSpvcSpvp***: If this value is set, all transit SPVC and SPVP connection segments request subscription to local connection recovery.

Set of — sameAsARtgPnniReroute (sameAs)
svc
sourceSpvcSpvp (source)
transitSpvcSpvp (transit)

Default — (sameAsARtgPnniReroute)

## ATTRIBUTE AtmIf Vpt Uni Reroute Ov localPathOptimizationSubscr (lPathOpt)

Access — Read and write

Description — This attribute specifies which connection segments on the interface request subscription to local path optimization. This attribute only affects connection segments that request the local rerouting protocols. This attribute affects connection segments for a node that is either local domain rerouting node or a DTL originator.

Connection segments of the specified type(s) which request ***localGlobal*** or ***localOnly*** protocols request subscription to local path optimization.

Connection segments of the specified type(s) which request ***localEbr*** request subscription to both local path optimization and EBR path optimization. Only one will be granted.

One or more of the following values can be specified:
***sameAsARtgPnniReroute***: If this value is set, the local path optimization subscription rule is determined by the *ARtg Pnni Reroute localPathOptimizationSubscr* attribute. This setting takes precedence over the any other values.
***svcSvp***: If this value is set, then all SVC and SVP connection segments request subscription to local path optimization.
***sourceSpvcSpvp***: If this value is set, then all source SPVC and SPVP connection segments request subscription to local path optimization.
***transitSpvcSpvp***: If this value is set, then all transit SPVC and SPVP connection segments request subscription to local path optimization.

Set of: sameAsARtgPnniReroute (sameAs)
svc
sourceSpvcSpvp (source)
transitSpvcSpvp (transit)

Default: (sameAsARtgPnniReroute)

## GROUP AtmIf Vpt Uni Reroute Ov GlobalProvisioned (GProv)

Properties: Provisioned

Description: This group contains the provisionable attributes for the global and EBR rerouting protocol.

## ATTRIBUTE AtmIf Vpt Uni Reroute Ov globalConnectionRecoverySubscr (gConRec)

Access: Read and write

Description: This attribute specifies which connection segments on the interface request subscription to global or EBR connection recovery. This attribute only affects connection segments that

request the global or EBR rerouting protocols. This attribute affects connection segments for a node that is a DTL originator.

Connection segments of the specified type(s) which request ***localGlobal*** or ***globalOnly*** protocols request subscription to global connection recovery.

Connection segments of the specified type(s) which request ***ebrOnly*** request subscription to EBR connection recovery.

Connection segments of the specified type(s) which request ***localEbr*** request subscription to both local connection recovery and EBR connection recovery. Only one will be granted.

One or more of the following values can be specified:
***sameAsARtgPnniReroute***: If this value is set, the global or EBR connection recovery subscription rule is determined by the *ARtg Pnni Reroute globalConnectionRecoverySubscr* attribute.This setting takes precedence over any other values.
***svcSvp***: If this value is set, then all SVC and SVP connection segments request subscription to global or EBR connection recovery.
***sourceSpvcSpvp***: If this value is set, then all source SPVC and SPVP connection segments request subscription to global or EBR connection recovery.
***transitSpvcSpvp***: If this value is set, then all transit SPVC and SPVP connection segments request subscription to global or EBR connection recovery.

Set of — sameAsARtgPnniReroute (sameAs)
svc
sourceSpvcSpvp (source)
transitSpvcSpvp (transit)

Default — (sameAsARtgPnniReroute)

## ATTRIBUTE AtmIf Vpt Uni Reroute Ov globalPathOptimizationSubscr (gPathOpt)

Access — Read and write

Description — This attribute specifies which connection segments on the interface request subscription to global or EBR path optimization. This attribute only affects connection segments that request the

global or EBR rerouting protocols. This attribute affects connection segments for a node that is a DTL originator.

Connection segments of the specified type(s) which request ***localGlobal*** or ***globalOnly*** protocols request subscription to global path optimization.

Connection segments of the specified type(s) which request ***ebrOnly*** request subscription to EBR path optimization.

Connection segments of the specified type(s) which request ***localEbr*** request subscription to both local path optimization and EBR path optimization. Only one will be granted.

One or more of the following values can be specified:
***sameAsARtgPnniReroute***: If this value is set, the global or EBR path optimization subscription rule is determined by the *ARtg Pnni Reroute globalPathOptimizationSubscr* attribute. This setting takes precedence over any other values.
***svcSvp***: If this value is set, then all SVC and SVP connection segments request subscription to global or EBR path optimization.
***sourceSpvcSpvp***: If this value is set, then all source SPVC and SPVP connection segments request subscription to global or EBR path optimization.
***transitSpvcSpvp***: If this value is set, then all transit SPVC and SPVP connection segments request subscription to global or EBR path optimization.

| | |
|---|---|
| Set of | sameAsARtgPnniReroute (sameAs)<br>svc<br>sourceSpvcSpvp (source)<br>transitSpvcSpvp (transit) |
| Default | (sameAsARtgPnniReroute) |

## COMPONENT AtmIf Vpt TrafficManagement (Tm)

| | |
|---|---|
| Groups | "GROUP AtmIf Vpt Tm Operational (Oper)" |
| Scope | Device |

| | |
|---|---|
| Description | *AtmIf/n Vpc/vpi TrafficManagement,*<br>*AtmIf/n Vcc/vpi.vci TrafficManagement,*<br>*AtmIf/n Vpt/vpi TrafficManagement,*<br>*AtmIf/n Vpt/vpi Vcc/vci TrafficManagement*<br>The *Tm* subcomponent contains the operational traffic management attributes of a connection. It is created dynamically for each activated *Vcc*, *Vpc*, or *Vpt* component. |
| Dyn. Subcomp. | "COMPONENT AtmIf Vpt Tm AvailableBitRate (Abr)" |
| Common Verbs | Help<br>List<br>Display |

## GROUP AtmIf Vpt Tm Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains attributes for the *Tm* component to reflect operational traffic attributes. |

## ATTRIBUTE AtmIf Vpt Tm txTrafficDescType (txTdt)

| | |
|---|---|
| Access | Read only |
| Description | T his attribute indicates the type of traffic management which is applied to the transmit direction of this connection as defined in the ATM Forum. The *txTrafficDescType* determines the number and meaning of the parameters in the *txTrafficDescParm* attribute. |
| Values | 1<br>2<br>3<br>4<br>5<br>6<br>7<br>8<br>9 |
| Default | No default |

## ATTRIBUTE AtmIf Vpt Tm txQosClass (txQos)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the quality of service for the calling to called direction for this connection. This is only applicable to Soft PVC and SVC connections.<br><br>Class 1 supports a QOS that meets Service Class A performance requirements (Circuit emulation, constant bit rate video).<br><br>Class 2 supports a QOS that meets Service Class B performance requirements (Variable bit rate audio and video).<br><br>Class ***3*** supports a QOS that meets Service Class C performance requirements (Connection-Oriented Data Transfer).<br><br>Class 4 supports a QOS that meets Service Class D performance requirements (Connectionless Data Transfer).<br><br>Class 0 is the unspecified QOS class; no objective is specified for the performance parameters.<br><br>A value of ***notApplicable*** is displayed in the case of nailed-up PVCs for which this attribute has no significance. |
| Values | 0<br>1<br>2<br>3<br>4<br>notApplicable |
| Default | No default |

## ATTRIBUTE AtmIf Vpt Tm txQueueLength (txQLen)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current number of cells in the transmit queue for this connection.<br><br>If this connection has *unshapedTransmitQueueing* attribute |

displayed as ***common***, this attribute displays the length of the common queue which is used for this ATM service category.

If this connection has *unshapedTransmitQueueing* attribute displayed as ***fifo***, this attribute indicates the number of cells for this connection which are enqueued in a first-in-first-out queuing method for this ATM service category. This will only occur for connections on ATM IP cards with *atmServiceCategory* of ***nrtVbr*** or ***ubr***.

If this connection has *unshapedTransmitQueueing* attribute displayed as ***perVc*** or as ***notApplicable***, this attribute displays the length of the per-VC queue.

For ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, this attribute displays the current number of cells in the link class queue used by this connection to buffer its traffic.

This attribute does not apply to basic *Vpt*s.

Values — Decimal (0..512000)

Units — cells

Default — No default

### ATTRIBUTE AtmIf Vpt Tm txQueueCongestionState (txQCong)

Access — Read only

Description — This attribute indicates the congestion state of the transmit queue for this connection.

If this connection has *unshapedTransmitQueueing* attribute displayed as ***common***, this attribute displays the congestion state of the common queue. If this connection has *unshapedTransmitQueueing* attribute displayed as ***perVc*** or as ***notApplicable***, this attribute displays the congestion state of the per-VC queue.

The congestion state of a queue is indicated by a numeric value ranging from 0 to 3. When a queue is in a congested state x, only traffic with discard priority (DP) 0 to x are enqueued. Traffic with

DP > x is discarded.

For example, if the congestion state is 3, there is no congestion and all traffic is enqueued. Likewise, when the congestion state is 0, there is maximum congestion and only traffic with DP=0 is enqueued on that queue.

For ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, this attribute displays the current congestion state of the link class queue used by this connection to buffer its traffic.

This attribute does not apply to basic *Vpt*s.

Values: Decimal (0..3)

Default: No default

## ATTRIBUTE AtmIf Vpt Tm holdingPriority (hpri)

Access: Read only

Description: This attribute indicates the actual holding priority in effect for this connection. In a situation where the link bandwidth fluctuates, such as over an IMA link, holding priority is used to determine which connections are held and which are released. Holding priority 4 connections are the first to be released. Holding priority 0 connections are the last to be released. Some applications, for example *Vcc Test*, may override the provisioned holding priority.

A value of ***notApplicable*** is displayed when this is an elastic connection. Holding priority does not apply to bandwidth elastic connections.

Holding priority has no effect if the equivalent cell rate (ECR) for a connection is zero.

This attribute does not apply to *Vpt Vcc*s.

Values:
0
1
2
3

4
notApplicable

Default No default

### ATTRIBUTE AtmIf Vpt Tm rxTrafficDescType (rxTdt)

Access Read only

Description This attribute indicates the type of traffic management which is applied to the receive direction of this connection as defined in the ATM Forum. The *rxTrafficDescType* determines the number and meaning of the parameters in the *rxTrafficDescParm* attribute.

Values
1
2
3
4
5
6
7
8
9

Default No default

### ATTRIBUTE AtmIf Vpt Tm rxQosClass (rxQos)

Access Read only

Description This attribute indicates the quality of service for the called to calling direction for this connection. This is only applicable to Soft PVC and SVC connections.

Class 1 supports a QOS that meets Service Class A performance requirements (circuit emulation, constant bit rate video).

Class 2 supports a QOS that meets Service Class B performance requirements (variable bit rate audio and video).

Class 3 supports a QOS that meets Service Class C performance requirements (Connection-Oriented Data Transfer).

Class 4 supports a QOS that meets Service Class D performance requirements (Connectionless Data Transfer).

Class 0 is the unspecified QOS class; no objective is specified for the performance parameters.

A value of ***notApplicable*** is displayed in the case of nailed-up PVCs for which this attribute has no significance.

Values

0
1
2
3
4
notApplicable
sameAsFwd

Default

No default

## ATTRIBUTE AtmIf Vpt Tm atmServiceCategory (service)

Access

Read only

Description

This attribute indicates the ATM service category used for traffic in both directions of the connection.

The ***constantBitRate*** service category is intended for real time applications, that is, those requiring tightly constrained delay and delay variation, as would be appropriate for voice and video applications. The consistent availability of a fixed quantity of bandwidth is considered appropriate for CBR service. Cells which are delayed beyond the value specified by Cell Transfer Delay are assumed to have significantly reduced value for the application.

The ***rtVariableBitRate*** service category is intended for real time applications; that is those requiring tightly constrained delay and delay variation, as would be appropriate for voice and video applications. Sources are expected to transmit at a rate which varies with time. Equivalently, the source can be described as “bursty”. Cells which are delayed beyond the value specified by Cell Transfer Delay are assumed to be of significantly reduced

value to the application. Real time VBR service may support statistical multiplexing of real time sources.

The ***nrtVariableBitRate*** service category is intended for non-real time applications which have bursty traffic characteristics and which can be characterized in terms of a PCR, SCR, and MBS. For those cells which are transferred within the traffic contract, the application expects a low cell loss ratio. For all connections, it expects a bound on the mean cell transfer delay. Non-real time VBR service may support statistical multiplexing of connections.

The ***availableBitRate*** service is an ATM layer service category for which the limiting ATM layer transfer characteristics provided by the network may change subsequent to connection establishment. ABR service has a flow control mechanism which supports several types of feedback to control the source rate in response to changing ATM layer transfer characteristics. ABR service is not intended to support real-time applications.

The ***unspecifiedBitRate*** service is intended for non-real time applications, that is those not requiring tightly constrained delay and delay variation. UBR sources are expected to be bursty. UBR service supports a high degree of statistical multiplexing among sources. UBR service does not specify traffic related service guarantees. No numerical commitments are made with respect to the cell loss ratio experienced by a UBR connection, or as to the cell transfer delay experienced by cells on the connection.

Values
unspecifiedBitRate (ubr)
constantBitRate (cbr)
rtVariableBitRate (rtVbr)
nrtVariableBitRate (nrtVbr)
availableBitRate (abr)

Default
No default

## ATTRIBUTE AtmIf Vpt Tm trafficShaping (trShaping)

Access
Read only

Description
This attribute indicates the traffic shaping state of the connection.

A value of ***notApplicable*** indicates that traffic shaping is not applicable or not supported for this connection. This is the case:
- when the *txTrafficDescType* is 1 or 2.
- for standard *Vpt Vcc*s and basic *Vpt*s.
- for ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm*** cards, when the *atmServiceCategory* is ***constantBitRate***.

In these cases, the value of ***notApplicable*** is indicated regardless of whether traffic shaping is enabled or disabled in the provisioning data.

A value of ***disabled*** indicates that traffic shaping is applicable and supported for the type of connection but has been turned off in the provisioning data.

A value of ***linear*** or ***inverseUpc*** indicates that traffic shaping is applicable and supported for the type of connection and has been turned on in the provisioning data. This is the only case that indicates that traffic shaping is performed on the connection. In this case, the actual shaping rate is reflected in the *txTrafficDescParm* attribute, parameter number 4. A value of ***linear*** indicates that traffic is being shaped at the constant rate indicated in *txTrafficDescParm* 4. A value of ***inverseUpc*** indicates that the shaper strictly conforms to the requirements of a dual leaky bucket UPC enforcer. This value is indicated if traffic shaping is enabled, and the *txTrafficDescType* for this connection is 6, 7 or 8.

For ***1pOC12SmLrAtm***, ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, traffic shaping is not available, therefore this attribute is always ***disabled***.

Traffic shaping for connections with *atmServiceCategory* as ***availableBitRate*** (*txTrafficDescType* 9) depends upon the *abrConnectionType* attribute. If *abrConnectionType* is ***sourceDest*** or ***virtualSourceDest***, the value of this attribute is ***linear***. If *abrConnectionType* is ***erSwitch*** or ***efciSwitch***, this attribute is ***notApplicable***.

| | |
|---|---|
| Values | disabled<br>linear<br>inverseUpc<br>notApplicable |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Tm bearerClassBbc (bcBbc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the bearer capability for this connection.<br><br>Class ***a*** service is a connection-oriented, constant bit rate ATM transport service. Class ***a*** service has end to end timing requirements and may require stringent cell loss, cell delay and cell delay variation performance.When ***a*** is displayed, the user is requesting more than an ATM only service. The network may look at the AAL to provide interworking based upon its contents.<br><br>Class ***c*** service is a connection-oriented, variable bit rate ATM transport service. Class ***c*** service has no end-to-end timing requirements.When ***c*** is displayed, the user is requesting more than an ATM only service. The network interworking function may look at the AAL and provide service based on it.<br><br>Class ***x*** service is a connection-oriented ATM transport service where the AAL, *trafficType* (***cbr*** or ***vbr***), and timing requirements are user defined (that is, transparent to the network). When the value of this attribute is ***x***, the user is requesting an ATM only service from the network. In this case, the network shall not process any higher layer protocol.<br><br>Class vp service is used to indicate a transparent VP service when the user is requesting an ATM only service from the network. In this case, the network does not process any higher layer protocol. This service differs from class x service in that with the class vp service both the VCI field (except for VCI values 0, 3, 4, and 6 through 15) and Payload Type field are transported transparently by the network. This attribute value is only applicable to SPVP and SVP connections. |

A value of ***notApplicable*** is displayed in the case of nailed-up PVCs for which this attribute has no significance.

Values

a
c
x
vp
notApplicable

Default

No default

### ATTRIBUTE AtmIf Vpt Tm transferCapabilityBbc (tcBbc)

Access

Read only

Description

This attribute indicates the transfer capability for this connection. Uni 3.0/3.1 traffic type and end-to-end timing parameters are mapped into this parameter as follows:
<transferCapability: TrafficType, Timing>
0: NoIndication, NoIndication
1: NoIndication, yes
2: NoIndication, no
5: CBR, yes
8: VBR, NoIndication
9: VBR, yes
10: VBR, no

A value of ***notApplicable*** is displayed in the case of nailed-up PVCs for which this attribute has no significance, or in the case that the transfer capability in the call request was set to NoIndication.

The CBR traffic type refers to traffic offered on services such as a constant bit rate video service or a circuit emulation.

The VBR traffic type refers to traffic offered on services such as packetized audio and video, or data.

The value NoIndication for traffic type is used if the user has not set the traffic type; similarly for end-to-end timing.

The value yes for end-to-end timing indicates that end-to-end

timing is required for the connection.

The value no for end-to-end timing indicates that end-to-end timing is not required for the connection.

Values
0
1
2
5
8
9
10
notApplicable

Default
No default

### ATTRIBUTE AtmIf Vpt Tm clippingBbc (cBbc)

Access
Read only

Description
This attribute indicates the value of the clipping susceptibility parameter in the broadband bearer capability (BBC) Information Element.

Clipping is an impairment in which the first fraction of a second of information to be transferred is lost. It occurs after a call is answered and before an associated connection is switched through.

A value of ***notApplicable*** is displayed in the case of nailed-up PVCs for which this attribute has no significance.

Values
no
yes
notApplicable

Default
No default

### ATTRIBUTE AtmIf Vpt Tm unshapedTransmitQueueing (unshap)

Access
Read only

Description
This attribute indicates the unshaped transmit queuing state of the connection.

A value of ***common*** indicates that transmit traffic is being enqueued onto the common transmit queue for this service category.
The *txQueueLength* attribute indicates the current length of the common transmit queue.

A value of ***fifo*** indicates that transmit traffic is being queued in a first-in-first-out basis for this service category. This is similar to ***common*** queuing, but the *txQueueLength* attribute indicates the number of cells in this connection queue. A value of ***fifo*** will only be indicated for connections on ***2pOC3MmAtm2***, ***2pOC3SmAtm2***, ***2pSTM1eAtm***, ***2pSTM1eCh***, ***4pOC3MmAtm***, ***4pOC3SmIrAtm***, ***4pDS3ChAtm***, ***3pDS3Atm2***, ***3pE3Atm2***, ***12pDS3Atm***, ***12pE3Atm***, and MSA32 cards with *atmServiceCategory* of ***nrtVbr*** or ***ubr***.

A value of ***perVc*** indicates that transmit traffic is being enqueued onto a per-VC queue for this connection.

A value of ***notApplicable*** indicates that transmit traffic is being shaped for this connection, or that unshaped transmit queuing is not applicable for this type of connection. Transmit traffic for a shaped connection is enqueued onto a per-VC queue, but this attribute is only applicable for unshaped connections. Unshaped transmit queuing is not applicable for basic *Vpt*s.

Values

perVc
common
notApplicable
fifo

Default

No default

## ATTRIBUTE AtmIf Vpt Tm bestEffort

Access

Read only

Description

This attribute indicates value of best effort parameter in the ATM Traffic Descriptor Information Element.

The value ***indicated*** implies that the quality of service for this

connection is not guaranteed.

The value ***notIndicated*** implies that the quality of service for this connection is guaranteed.

A value of ***notApplicable*** is displayed in the case of nailed-up PVCs for which this attribute has no significance.

Values
indicated
notIndicated
notApplicable

Default
No default

### ATTRIBUTE AtmIf Vpt Tm forceTagging (tagging)

Access
Read only

Description
This attribute indicates the state of force tagging option for this connection. Force tagging refers to setting the CLP bit for all cells on a connection.

A value of ***enabled*** indicates that the CLP bit is being set to 1 for all cells in the transmit direction on this connection.

A value of ***disabled*** indicates that the CLP bit is unchanged for cells in the transmit direction on this connection. The value ***disabled*** is always displayed for *Vpt*s since forced tagging is applied on a per *Vpt Vcc* basis.

Values
disabled
enabled

Default
No default

### ATTRIBUTE AtmIf Vpt Tm weight

Access
Read only

Description
This attribute indicates the relative weight of this unshaped connection. Connections with a larger weight get a larger proportion of the link bandwidth or in the case of standard *Vpt Vcc*s, the *Vpt* bandwidth.

For all but standard *Vpt Vcc*s, the default connection weight is determined by the weight policy for a service category and the traffic descriptor for a connection. For standard *Vpt Vcc*s, the default connection weight is determined by the *Vcc*'s service category.

A value from 1 to 4095 indicates an actual weight. The value ***upToQueueLimit*** indicates that the weight of a connection is up to the transmit queue limit for this connection and is used for connections which have the value of the *unshapedTransmitQueueing* attribute displayed as ***fifo***.

This attribute has a displayed value of ***notApplicable*** in the following cases:
- This connection has the value of the *trafficShaping* attribute displayed as either ***linear*** or ***inverseUpc***.
- This connection has the value of the *trafficShaping* attribute displayed as ***disabled***, but the connection's service category has the *trafficShaping* attribute provisioned as either ***enabled*** or ***inverseUpc***.
- This connection has the value of the *unshapedTransmitQueueing* attribute displayed as ***common***.
- This is a basic *Vpt* connection.
- For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm*** cards, since per-connection weight is not supported.

Values

Decimal (1..4095)
upToQueueLimit
notApplicable

Default

No default

## ATTRIBUTE AtmIf Vpt Tm usageParameterControl (upc)

Access

Read only

Description

This attribute indicates the UPC state of the connection.

A value of ***notApplicable*** indicates that UPC is not applicable or not supported for the connection. This is the case:
- when the connection's *rxTrafficDescType* is 1 or 2.

- for standard *Vpt Vcc*s and basic *Vpt*s.

A value of ***notApplicable*** is set regardless of whether UPC is disabled or enabled in provisioning data.

A value of ***disabled*** indicates that UPC is applicable and supported for the type of connection but has been turned off in the provisioning data.

A value of ***enforced*** indicates that UPC is actively checking conformance for the connection and is discarding or tagging cells which do not conform to the connection traffic contract. The traffic descriptor parameters used for UPC conformance are reflected in the *rxTrafficDescParms* of the connection. On some ATM cards, the counts of UPC violations are visible in the *Vcc*, *Vpc* or *Vpt rxUpcViolationsOnEnforcer1* or *rxUpcViolationsOnEnforcer2* attributes.

A value of ***monitored*** indicates that UPC is actively checking conformance for the connection and counting the violations, but is not discarding or tagging cells which do not conform to the connection traffic contract. The traffic descriptor parameters used for UPC conformance are reflected in the *rxTrafficDescParms* of the connection. The counts of UPC violations are visible in the *Vcc*, *Vpc* or *Vpt. rxUpcViolationsOnEnforcer1* or *rxUpcViolationsOnEnforcer2* attributes.

If the *atmServiceCategory* for this connection is ***availableBitRate***, a value of ***enforced*** indicates that Dynamic Generic Cell Rate Algorithm (DGCRA) is active for the connection. The traffic descriptor parameters used for DGCRA enforcement are reflected in the *rxTrafficDescParm* of the connection.

Values

enforced
disabled
monitored
notApplicable

Default

No default

## ATTRIBUTE AtmIf Vpt Tm txPacketWiseDiscard (txpd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current set of packet-wise discard functions in effect in the transmit data direction at this connection point.<br><br>A value of ***ppd*** indicates that the Partial Packet Discard (PPD) function is in effect. PPD may be applied at an intermediate connecting point for a connection which is transporting frame traffic (AAL5 at the endpoint). PPD is controlled by provisioning for PVCs and SPVCs, and by call setup parameters in the AAL and Traffic Descriptor Information Elements.<br><br>A value of ***epd*** indicates that the Early Packet Discard (EPD) function is in effect at this connection point.<br><br>A value of ***wred*** indicates that Weighted Random Early Detection is in effect at this connection point. W-RED can be enabled by provisioning for PVCs and SPVCs.<br><br>For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, PPD and EPD are enabled by default at a connection endpoint which is performing AAL5 segmentation and assembly. Packet-wise functions are not applicable to virtual path connections (VPCs) on these cards.<br><br>On all other ATM cards, all packet-wise discard functions also apply to virtual path connections (VPCs).<br><br>This attribute is not applicable for *Vpt*s. |
| Set of | ppd<br>epd<br>wred |
| Default | No default |

## ATTRIBUTE AtmIf Vpt Tm rxPacketWiseDiscard (rxpd)

| | |
|---|---|
| Access | Read only |

Description

This attribute indicates the current set of packet-wise discard functions in effect in the receive data direction at this connection point.

A value of ***ppd*** indicates that the Partial Packet Discard (PPD) function is in effect. PPD may be applied at an intermediate connecting point for a connection which is transporting frame traffic (AAL5 at the endpoint). PPD is controlled by provisioning for PVCs and SPVCs, and by call setup parameters in the AAL and Traffic Descriptor Information Elements.

A value of ***epd*** indicates that the Early Packet Discard (EPD) function is in effect at this connection point. PPD and EPD are enabled by default at a connection endpoint which is performing AAL5 segmentation and assembly.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, packet-wise functions are not applicable to virtual path connections (VPCs).

For ***16pOC3PosAtm*** cards, PPD and EPD are enabled by default at a connection endpoint which is performing AAL5 segmentation and assembly.

On all other ATM cards, all packet-wise discard functions also apply to virtual path connections (VPCs).

This attribute is not applicable for *Vpt*s.

Set of

ppd
epd

Default

No default

## ATTRIBUTE AtmIf Vpt Tm bandwidthElastic (bwElastic)

Access

Read only

Description

This attribute is only of importance for connections which are carried on a link with a variable bandwidth. For example, the bandwidth may be reduced in the event that one or more physical

links in the IMA group fail, such that the originally requested bandwidth cannot be maintained. This attribute shows whether the application (for example, *Trunk*) running on this connection can continue to operate if the bandwidth is reduced. If the bandwidth is reduced, the amount by which it is reduced is displayed in the *bandwidthReduction* attribute.

A value of ***yes***, indicates that this connection is elastic, and the bandwidth may be reduced but the connection is not released.

A value of ***no*** indicates that the bandwidth for this connection is not reduced in the event of link bandwidth reduction. However, this connection may be released based on its *holdingPriority.*

Bandwidth elasticity has no effect for connections which have an equivalent cell rate (ECR) of zero.

This attribute is not applicable for *Vpt*s and *Vpt Vcc*s.

Values
no
yes

Default
No default

### ATTRIBUTE AtmIf Vpt Tm bandwidthReduction (bwReduction)

Access
Read only

Description
This attribute shows the amount by which the bandwidth has been reduced for this connection. This value is non-zero only for connections which have *bandwidthElastic* displayed as ***yes***, and which are also operating in a reduced bandwidth mode. This is typically the case for selected connections running over an IMA link. This attribute takes a value from 0 (no reduction) up to the ECR. For all connections which are running at their full allocated bandwidth, *bwReduction* has the value 0. Connections which have been reduced in allocated bandwidth have a positive number for this attribute. The *bwReduction* may be subtracted from the ECR (which is displayed as *txTrafficDescParm* 5) to determine the actual bandwidth allocated to this connection.

Values
Decimal (0..2147483647)

| | |
|---|---|
| Units | cell/s |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Tm abrConnectionType (abrType)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the type of ABR behavior which is in effect at this connection. This attribute is only applicable if the *atmServiceCategory* attribute is ***availableBitRate***. If the *atmServiceCategory* attribute is not ***availableBitRate***, this attribute value is set to ***notApplicable***.<br><br>For ATM cards which do not support ABR connections, the possible values for this attribute are ***notApplicable***, ***efciSwitch***, or ***nonAbrInterworking***. In EFCI marking mode, the Explicit Forward Congestion Indication (EFCI) field in the data cell headers is used to indicate transmit queue congestion.<br><br>For ATM cards which do support ABR connections, if the *connectionPointType* is ***connectionEndPoint***, the value of this attribute is ***sourceDest***. In this mode, the ABR Source and Destination behavior is in effect at this connection. This attribute is also ***sourceDest*** in the case where the next hop connection is specified as ***nonAbrInterworking***. The next hop connection is the *Vcc* or *Vpc* identified by the *nextHop* attribute of the *Nrp* or *Rp* component.<br><br>If the *connectionPointType* is not ***connectionEndPoint***, the value of this attribute depends upon the *abrConnectionType* provisioning and the card type to which the traffic is forwarded on the backplane. The default *abrConnectionType* is provisioned at the *CA Abr abrConnectionType* attribute, and may be overridden for a provisioned connection in the *Vcd Tm abrConnectionType* or *Vpd Tm abrConnectionType* attribute. If the *CA Abr abrConnectionType* attribute is ***virtualSourceDest*** at either one of the two connection points, and if both the connection points are defined on ATM cards which support ABR connections, virtual source and destination behavior is applied to the connection. In this instance, the attribute displays the value ***virtualSourceDest***. |

This attribute has the value ***erSwitch*** if ABR explicit rate functionality is in effect at this connection. In this mode, the switch may modify the Explicit Rate (ER) field of backward Resource Management (RM) cells to indicate the status of congestion at this connection point.

This attribute has the value ***nonAbrInterworking*** in the case where this connection point is functioning as an SPVC origin for an ABR connection where the link side of this connection is configured as a non-ABR ATM service category. This means that there are no RM cells on the link side of this connection, and that the next hop connection point is performing as an ABR ***sourceDest***.

Values

erSwitch
efciSwitch
virtualSourceDest
sourceDest
nonAbrInterworking
notApplicable

Default

No default

## ATTRIBUTE AtmIf Vpt Tm txTrafficDescParm (txTdp)

Access

Read only

Description

This attribute is a vector of five transmit traffic parameters whose mapping is defined by the *txTrafficDescType* attribute.

The values of peak cell rate (PCR), sustained cell rate (SCR), Minimum Cell Rate (MCR), actual cell rate (ACR), explicit rate (ER), equivalent cell rate (ECR), and actual shaping rate are expressed in cell/s. Maximum burst size (MBS) is expressed in cells. CDVT is expressed in microseconds.

When *txTrafficDescType* is 1 or 2, parameters 1 through 5 are unused.

In this description, PCR is the greater of either the PCR or the requested shaping rate (parameter 1 or parameter 5) specified in

the *txTrafficDescParm* attribute under the *Vcd Tm* or *Vpd Tm* component.

When *txTrafficDescType* is 3, parameter 1 represents the PCR for CLP equal to 0 or 1 traffic; parameters 2 and 3 are unused.

When *txTrafficDescType* is 4, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the PCR for CLP equal to 0 traffic with cell discard.

When *txTrafficDescType* is 5, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the PCR for CLP equal to 0 traffic with cell tagging.

When *txTrafficDescType* is 6, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 and 1 traffic; parameter 3 represents the MBS for CLP equal to 0 and 1 traffic.

When *txTrafficDescType* is 7, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 traffic with cell discard; parameter 3 represents the MBS for CLP equal to 0 traffic.

When *txTrafficDescType* is 8, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 traffic with cell tagging; parameter 3 represents the MBS for CLP equal to 0 traffic.

When *txTrafficDescType* is 3, 4, 5, 6, 7, or 8, parameter 4 reflects the actual shaping rate in cell/s for this connection. For CQC-based ATM cards, the set of available shaping rates is based on the number of interfaces doing shaping (attribute *perVcQueueInterfaces*), and the *shapingScalingFactor* attribute of the *Arc Cqc Override* component. A rate of zero (0) indicates that shaping is not performed, or that the interface is down.

When *txTrafficDescType* is 9**,** parameter 1 represents the PCR; parameter 2 represents the Cell Delay Variation Toleration (CDVT); parameter 3 represents the Minimum Cell Rate (MCR); the meaning of parameter 4 depends upon the value of the

*abrConnectionType* attribute. if *abrConnectionType* is ***sourceDest*** or ***virtualSourceDest***, parameter 4 represents the Allowed Cell Rate (ACR); If *abrConnectionType* is ***erSwitch***, parameter 4 represents the Explicit Rate (ER); and if *abrConnectionType* is ***efciSwitch***, parameter 4 reflects the actual shaping rate in cell/s for this connection.

When *txTrafficDescType* is 3, 4, 5, 6, 7, 8, or 9, parameter 5 reflects the equivalent cell rate in cell/s for this connection as determined by the Connection Admission Control (CAC) algorithm. The equivalent cell rate is useful in determining the admission characteristics of this connection.

| | |
|---|---|
| Vector of | Decimal (0..2147483647) |
| Index | Decimal (1..5) |
| Default | No default |

## ATTRIBUTE AtmIf Vpt Tm txQueueThresholds (txQThresh)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the queue limit and the discard thresholds for the transmit queue of this connection.<br><br>If this connection has *unshapedTransmitQueueing* attribute displayed as ***common***, this attribute displays the thresholds of the common queue. If this connection has *unshapedTransmitQueueing* attribute displayed as ***perVc*** or as ***notApplicable***, this attribute displays the thresholds of the per-VC queue.<br><br>The first element indicates the queue limit. The provisioned value of the transmit queue limit is derived from the *txQueueLimit* attribute under the service category subcomponents of the *CA* component for the service category of this connection.<br><br>The second element is the threshold that marks the transition from congestion state 1 to congestion state 0. This is the threshold at which traffic with discard priority (DP) = 1 is discarded. This threshold is set at approximately 90 percent of the first parameter, the operational queue limit. |

The third element is the threshold that marks the transition from congestion state 2 to congestion state 1. This is the threshold at which traffic with DP = 2 is discarded. This threshold is set at approximately 75 percent of the first parameter, the operational queue limit.

The fourth element is the threshold that marks the transition from congestion state 3 to congestion state 2. This is the threshold at which traffic with DP = 3 is discarded. This threshold is set at approximately 35 percent of the first parameter, the operational queue limit.

For ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, this attribute displays the thresholds of the link class queue used by this connection to buffer it traffic.

This attribute does not apply to basic *Vpt*s.

| | |
|---|---|
| Vector of | Decimal (0..512000) |
| Units | cells |
| Index | Decimal (0..3) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Tm rxTrafficDescParm (rxTdp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is a vector of four traffic parameters whose meanings are defined by the *rxTrafficDescType* attribute. The values of peak cell rate (PCR), sustained cell rate (SCR), minimum cell rate (MCR) are expressed in cell/s. Maximum burst size (MBS) is expressed in cells. Cell delay variation tolerance (CDVT) is expressed in microseconds.<br><br>When *rxTrafficDescType* is 1 or 2, none of the parameters are used.<br><br>When *rxTrafficDescType* is 3, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 4 represents the CDVT. |

When *rxTrafficDescType* is 4, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the PCR for CLP equal to 0 traffic with cell discard; parameter 4 represents the CDVT.

When *rxTrafficDescType* is 5, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the PCR for CLP equal to 0 traffic with cell tagging; parameter 4 represents the CDVT.

When *rxTrafficDescType* is 6, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 and 1 traffic; parameter 3 represents the MBS for CLP equal to 0 and 1 traffic; parameter 4 represents the CDVT.

When *rxTrafficDescType* is 7, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 traffic with cell discard; parameter 3 represents the MBS for CLP equal to 0 traffic; parameter 4 represents the CDVT.

When *rxTrafficDescType* is 8, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 traffic with cell tagging; parameter 3 represents the MBS for CLP equal to 0 traffic; parameter 4 represents the CDVT.

When *rxTrafficDescType* is 9, parameter 1 represents the PCR; parameter 2 represents CDVT; parameter 3 represents the MCR; parameter 4 is not used.

If *upc* is ***disabled*** for this connection, the values of PCR, SCR, MBS and CDVT are the provisioned parameters.

If *upc* is ***enabled***, the values of PCR, SCR, MBS, and CDVT are exactly the values used by the usage parameter control hardware in policing the arriving traffic. These may vary slightly from the provisioned values due to granularity of the hardware. In the case where the PCR is equal to the SCR, the effective MBS is zero.

| | |
|---|---|
| Vector of | Decimal (0..2147483647) |
| Index | Decimal (1..4) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Tm txQosParameters (tqp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is a vector of three elements that indicate the quality of service parameters for the forward direction for this connection. This attribute is used for SPVC and SVC connections on a PNNI interface.<br><br>The ***cdv*** element indicates the acceptable peak-to-peak Cell Delay Variation (CDV) of real-time connections (CBR and rt-VBR).<br><br>The ***ctd*** element indicates the acceptable maximum Cell Transfer Delay (maxCtd) of real-time connections (CBR and rt-VBR).<br><br>The ***clr*** element indicates the acceptable Cell Loss Ratio (CLR) of CBR, rt-VBR, and nrt-VBR connections. |
| Vector of | Decimal (0..2147483647) |
| Index | cdv<br>ctd<br>clr |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Tm rxQosParameters (rqp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is a vector of three elements that indicate the quality of service parameters for the backward direction for this connection. This attribute is used for SPVC and SVC connections on a PNNI interface.<br><br>The ***cdv*** element indicates the acceptable peak-to-peak Cell Delay |

Variation (CDV) of real-time connections (CBR and rt-VBR).

The ***ctd*** element indicates the acceptable maximum Cell Transfer Delay (maxCtd) of real-time connections (CBR and rt-VBR).

The ***clr*** element indicates the acceptable Cell Loss Ratio (CLR) of CBR, rt-VBR, and nrt-VBR connections.

| | |
|---|---|
| Vector of | Decimal (0..2147483647) |
| Index | cdv<br>ctd<br>clr |
| Default | No default |

## COMPONENT AtmIf Vpt Tm AvailableBitRate (Abr)

| | |
|---|---|
| Groups | "GROUP AtmIf Vpt Tm Abr Operational (Oper)" |
| Scope | Device |
| Description | *AtmIf/n Vpc/vpi Tm AvailableBitRate,*<br>*AtmIf/n Vcc/vpi.vci Tm AvailableBitRate,*<br>*AtmIf/n Vpt/vpi Tm AvailableBitRate,*<br>*AtmIf/n Vpt/vpi Vcc/vci Tm AvailableBitRate*<br>This component contains ABR-related operational attributes of a connection. It is dynamically created for connections where the value of the *atmServiceCategory* attribute is ***availableBitRate***, and where the value of the *abrConnectionType* attribute is ***sourceDest***, or ***virtualSourceDest***. |
| Common Verbs | Help<br>List<br>Display |

## GROUP AtmIf Vpt Tm Abr Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational attributes for connections using ABR service category. |

### ATTRIBUTE AtmIf Vpt Tm Abr initialCellRate (icr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Initial Cell Rate (ICR) parameter for this connection. ICR is the rate at which a source should send initially and after an idle period.<br><br>For nailed-up connections, this attribute is determined by the provisioned value of the *initialCellRate* attribute. For signaled connections, it is indicated in the ABR Setup Parameters Information Element.<br><br>The ICR for a connection is a value between the MCR and the PCR. Furthermore, ICR has an upper bound determined by the *transientBufferExposure* divided by *fixedRoundTripTime*. |
| Values | Decimal (0..16777215) |
| Units | cell/s |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Tm Abr transientBufferExposure (tbe)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Transient Buffer Exposure (TBE) for this connection. TBE is the negotiated number of cells that the network would like to limit the resource to send during start-up periods, before the first Resource Management (RM) cell returns.<br><br>For nailed-up connections, this attribute is determined by the provisioned value of the *transientBufferExposure* attribute. For signaled connections, it is indicated in the ABR Setup Parameters Information Element. |
| Values | Decimal (0..16777215) |
| Units | cells |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Tm Abr fixedRoundTripTime (frtt)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the Fixed Round-Trip Time (FRTT) parameter for this connection. FRTT is the sum of the fixed and propagation delays from the source to a destination and back.<br><br>For nailed-up connections, this attribute is determined by the provisioned value of the *fixedRoundTripTime* attribute. For signaled connections, it is indicated in the ABR Setup Parameters Information Element. |
| Values | Decimal (0..16700000) |
| Units | microsec |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Tm Abr rateDecreaseFactor (rdf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Rate Decrease Factor (RDF) for this connection. The RDF value is computed by using the operational value of this attribute, n, as 2 to the inverse power n. For example, if the value of this attribute is 8, RDF is 2E-8 = 1/256.<br><br>RDF controls the amount by which the cell transmission rate may decrease upon receipt of a backward Resource Management (RM) cell. For example, if a backward RM cell is received with the Congestion Indication (CI) field set to 1, the Allowed Cell Rate (ACR) value would be reduced by the amount (RDF*ACR). The ACR is not allowed to fall below the Minimum Cell Rate (MCR), in which case the ACR is set to MCR.<br><br>For nailed-up connections, this attribute is determined by the provisioned value of the *rateDecreaseFactor* attribute. For signaled connections, it is indicated in the ABR Setup Parameters Information Element. |
| Values | Decimal (0..15) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Tm Abr rateIncreaseFactor (rif)

| | |
|---|---|
| Access | Read only |

Description

This attribute indicates the Rate Increase Factor (RIF) for this connection. The RIF value is computed by using the operational value of this attribute, n, as 2 to the inverse power n. For example, if the value of this attribute is 6, RIF is 2E-6 = 1/64.

RIF controls the amount by which the cell transmission rate may increase upon receipt of a backward Resource Management (RM) cell. For example, if a backward RM cell is received with the Congestion Indication (CI) and the No Increase (NI) fields both set to 0, the Allowed Cell Rate (ACR) value would be increased by the amount (RIF*ACR). The ACR is not allowed to exceed the Peak Cell Rate (PCR), in which case the ACR is set to PCR.

For nailed-up connections, this attribute is determined by the provisioned value of the *rateIncreaseFactor* attribute. For signaled connections, it is indicated in the ABR Setup Parameters Information Element.

Values

Decimal (0..15)

Default

No default

## ATTRIBUTE AtmIf Vpt Tm Abr maxCellPerRmCell (nrm)

Access

Read only

Description

This attribute indicates the maximum number of cells an ABR source may transmit for each forward Resource Management (RM) cell. The count of the cells transmitted includes data cells, OAM cells, backward RM cells, and the forward RM cell.

For nailed-up connections, this attribute is determined by the provisioned value of the *maxCellsPerRmCell* attribute. For signaled connections, it is indicated in the ABR Additional Parameters Information Element.

Values

Decimal (2; 4; 8; 16; 32; 64; 128; 256)

Units

cells

Default

No default

### ATTRIBUTE AtmIf Vpt Tm Abr maxTimeBetweenRmCell (trm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the TRM parameter for this connection.<br><br>TRM provides an upper bound on the time interval between forward Resource Management (RM) cells for an ABR source. Since the last forward RM cell was sent, if at least TRM time has elapsed since and at least 2 other cells have been sent, the next cell to be transmitted would be a forward RM cell.<br><br>For nailed-up connections, this attribute is determined by the provisioned value of the *maxTimeBetweenRmCell* attribute. For signaled connections, it is indicated in the ABR Additional Parameters Information Element. |
| Values | Decimal (781; 1563; 3125; 6250; 12500; 25000; 50000; 100000) |
| Units | microsec |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Tm Abr cutoffDecreaseFactor (cdf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Cutoff Decrease Factor (CDF) parameter for this connection. When the value of this attribute is non-zero, CDF is computed as the inverse of the value. For example, if the value is 32, the value of CDF is 1/32. When the value of this attribute is 0, CDF is also zero.<br><br>CDF controls the decrease in the Allowed Cell Rate (ACR) associated with the *forwardRmCellLimit* attribute, the limit of the number of forward Resource Management (RM) cells which may be sent in the absence of received backward RM cells. When this limit is crossed, the ACR value would be decreased by the amount (CDF*ACR). The ACR is not allowed to fall below the Minimum Cell Rate (MCR), in which case the ACR is set to MCR.<br><br>For nailed-up connections, this attribute is determined by the provisioned value of the *cutoffDecreaseFactor* attribute. For |

signaled connections, it is indicated in the ABR Additional Parameters Information Element.

Values: Decimal (0; 1; 2; 4; 8; 16; 32; 64)

Default: No default

### ATTRIBUTE AtmIf Vpt Tm Abr acrDecreaseTimeFactor (adtf)

Access: Read only

Description: This attribute indicates the Allowed Cell Rate Decrease Time Factor (ADTF) parameter for this connection.

ADTF is the time interval permitted between sending forward Resource Management (RM) cells before the Allowed Cell Rate (ACR) is decreased to *initialCellRate*. In other words, if the source does not transit a forward RM cell for the period specified by *adtf*, it reduces its ACR to the value of its *initialCellRate*.

For nailed-up connections, this attribute is determined by the provisioned value of the *acrDecreaseTimeFactor* attribute. For signaled connections, it is indicated in the ABR Additional Parameters Information Element.

Values: Decimal (0..1023)

Units: centiseconds

Default: No default

### ATTRIBUTE AtmIf Vpt Tm Abr forwardRmCellLimit (crm)

Access: Read only

Description: This attribute indicates the CRM parameter for this connection.

CRM is the limit of the number of forward Resource Management (RM) cells which may be sent in the absence of received backward RM cells. When this limit is crossed, the Allowed Cell Rate (ACR) value would be decreased by the amount (CDF*ACR), where CDF is determined by the *cutoffDecreaseFactor*. The ACR is not allowed to fall below the Minimum Cell Rate (MCR), in which case the ACR is set to MCR.

The value of CRM is obtained as *transientBufferExposure* divided by *maxCellsPerRmCell*.

Values: Decimal (1; 3; 7; 15; 31; 63; 127; 255; 511; 1023; 2047; 4095)

Units: cells

Default: No default

### ATTRIBUTE AtmIf Vpt Tm Abr txRateChangeInfo (txrci)

Access: Read only

Description: This attribute indicates the rate change information put into the last forward Resource Management (RM) cell turned around as a backward-RM cell. For connections configured as an ABR Source or Destination, the turned around backward-RM cell is sent over the interface. For connections configured as an ABR Virtual Source or Virtual Destination, the turned around backward-RM cell is sent over the backplane.

Values:
congestionIndicated
noIncreaseIndicated
explicitRateIndicated

Default: No default

### ATTRIBUTE AtmIf Vpt Tm Abr acrRateChangeInfo (arci)

Access: Read only

Description: This attribute indicates the type of change in the Allowed Cell Rate (ACR) as a result of the information in the last backward Resource Management (B-RM) cell received from the interface.

This attribute value is only applicable when the *Vcc Tm* or *Vpc Tm abrConnectionType* attribute is ***sourceDest*** or ***VirtualSourceDest***. In all other cases, this attribute value is ***notApplicable***.

A value of ***noChange*** indicates that the rate did not change as a result of the last backward RM cell received.

A value of ***decreasedByRdf*** or ***increasedByRif*** indicates that the

ACR was increased or decreased by the corresponding factor. This change is as a result of the CI or NI bit setting in the last backward RM cell, or an ADTF timeout.

A value of ***setToExplicitRate*** indicates that the ACR was set to the ER value in the last backward RM cell.

Values
noChange
decreasedByRdf
increasedByRif
setToExplicitRate
notApplicable

Default
No default

## ATTRIBUTE AtmIf Vpt Tm Abr txFwdRmCells

Access
Read only

Description
This attribute counts the number of forward Resource Management (RM) cells sent over the interface since the last backward RM-cell was received from the interface. If the value of this attribute is greater than or equal to the value of *forwardRmCellLimit*, the Allowed Cell Rate (ACR) value would be decreased by the amount (CDF*ACR), where CDF is determined by the *cutoffDecreaseFactor*.

This counter is reset to zero each time a backward-RM cell is received.

This counter does not wrap to zero if it reaches its maximum value of 4095 in order to indicate that no backward RM cell has been received.

Values
Decimal (0..4095)

Units
cells

Default
No default

## ATTRIBUTE AtmIf Vpt Tm Abr rxEfci

Access
Read only

| | |
|---|---|
| Description | This attribute indicates the value of the Explicit Forward Congestion Indication (EFCI) bit of the last data cell received from the interface.<br><br>When a forward Resource Management (RM) cell is turned around as a backward-RM cell, the Congestion Indication (CI) field of the backward-RM cell is set to 1, if the value of this attribute is ***indicated***.<br><br>This attribute is set to ***notIndicated*** each time a backward-RM cell is transmitted. |
| Values | notIndicated<br>indicated |
| Default | No default |

## COMPONENT AtmIf Vpt Aini

| | |
|---|---|
| Groups | "GROUP AtmIf Vpt Aini Provisioned (Prov)"<br>"GROUP AtmIf Vpt Aini AccountingOptions (AcctOpt)"<br>"GROUP AtmIf Vpt Aini VAiniProvisioned (VProv)" |
| Scope | Device |
| Description | *AtmIf/n VirtualPathTerminator/m Aini*<br>This component represents an ATM Inter-Network Interface (AINI) signaling interface. If this component is provisioned, the *Uni*, *Iisp*, or *Pnni* component can not be provisioned under the same *AtmIf Vpt* component. If this component is deleted, then all associated *Vcc* components are deleted. |

| | |
|---|---|
| Subcomponents | "COMPONENT AtmIf Vpt Aini Signalling (Sig)" |
| Opt. Subcomp. | "COMPONENT AtmIf Vpt Aini CallingAddressScreening (CallingAScr)"<br>"COMPONENT AtmIf Vpt Aini CalledAddressScreening (CalledAScr)"<br>"COMPONENT AtmIf Vpt Aini PathTraceFilter (Ptf)"<br>"COMPONENT AtmIf Vpt Aini ServiceTrace (SrvTrace)"<br>"COMPONENT AtmIf Vpt Aini Reroute" |
| Dyn. Subcomp. | "COMPONENT AtmIf Vpt Aini PathTraceTestConnection (Ptt)" |
| Dyn. Subcomp. | "COMPONENT AtmIf Vpt Aini Address (Addr)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP AtmIf Vpt Aini Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the *Aini* component. |

## ATTRIBUTE AtmIf Vpt Aini side

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute indicates which side the interface is, user or network. |
| Values | networkSide<br>userSide |
| Default | networkSide |

### ATTRIBUTE AtmIf Vpt Aini softPvpAndPvcRetryPeriod (sRetryPeriod)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the time to wait between soft PVP or soft PVC call setup retries. The resolution is to the nearest 10 seconds. |
| Values | Decimal (20..999999) |
| Units | seconds |
| Default | 60 |

### ATTRIBUTE AtmIf Vpt Aini softPvpAndPvcHoldOffTime (sHoldOffTime)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies how long to hold of retries following the release of a connection. Due to the way group timers are implemented, it can take from 100% to 150% of the provisioned timer to trigger the desired action. Since SPVC retries are paced, in cases where there are many connections, the entire process can take more than 150% of the provisioned timer value. |
| Values | Decimal (0; 50..20000) |
| Units | msec |
| Default | 0 |

### ATTRIBUTE AtmIf Vpt Aini passAlongRequest

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies whether unrecognized messages and information elements with the pass along request set are accepted when received at the interface. If they are not allowed, then they are discarded and the procedures specified by the message or information element’s action indicator field are followed. |
| Values | allowed<br>discarded |

| | |
|---|---|
| Default | allowed |

### GROUP AtmIf Vpt Aini AccountingOptions (AcctOpt)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for accounting. |

### ATTRIBUTE AtmIf Vpt Aini accountCollection (aco)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute is used to turn accounting on or off for SVC and SPVC connections. It also specifies the reason(s) for which accounting data is collected: ***billing***, ***test***, ***study***, ***audit***, or ***force***.<br><br>If the set of reasons is not empty then accounting records will be generated by this interface in the following situations:<br>- on a TODA changeover if TODA is enabled;<br>- every 12 hours (per connection) if TODA is disabled;<br>- on every call clear (a call record with final cell counts).<br><br>If none of the reasons is present, then accounting will be suppressed.<br><br>The reason for collection is recorded in the accounting record, in the attribute *callingCollectReason* or *calledCollectReason* as appropriate. |
| Set of | bill<br>test<br>study<br>audit<br>force |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Aini accountConnectionType (act)

| | |
|---|---|
| Access | Read: All<br>Write: All |

Description

This attribute specifies whether accounting records generated by this interface should be marked as originating, terminating or intermediate. This attribute, in combination with the direction of the call, determines the value of attribute *connPointType* of the accounting record and may be used by downstream accounting processes to correlate the records.

If the value is ***origTerm*** then records generated for incoming calls will be marked as ***originating*** and records generated for outgoing calls will be marked as ***terminating***.

If the value is ***intermediate*** then records generated for all calls will be marked as ***intermediate***.

Values

origTerm
intermediate

Default

intermediate

### ATTRIBUTE AtmIf Vpt Aini accountClass (acl)

Access

Read: All
Write: All

Description

This attribute specifies the accounting class associated with the interface. Its meaning is determined by the network operator.

Its value is simply recorded in the accounting records generated by this interface, in the attribute *callingServiceType* or *calledServiceType* as appropriate.

Values

Decimal (0..255)

Default

0

### ATTRIBUTE AtmIf Vpt Aini serviceExchange (sre)

Access

Read: All
Write: All

Description

This attribute specifies the data service exchange associated with this interface. Its meaning is determined by the network operator.

Its value is simply recorded in the accounting records generated

| | |
|---|---|
| | by this interface, in the attribute *callingDse* or *calledDse* as appropriate. |
| Values | Decimal (0..255) |
| Default | 0 |

### GROUP AtmIf Vpt Aini VAiniProvisioned (VProv)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the *Aini* component which are specific to virtual AINI interfaces. |

### ATTRIBUTE AtmIf Vpt Aini vpci

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the Virtual Path Connection Identifier (VPCI) to be used between this signalling entity and its peer. The VPCI of the peer virtual AINI must have the same value for switched connections to be set up across the interface. |
| Values | Decimal (0..255) |
| Default | 0 |

### COMPONENT AtmIf Vpt Aini Signalling (Sig)

| | |
|---|---|
| Groups | "GROUP AtmIf Vpt Aini Sig Provisioned (Prov)"<br>"GROUP AtmIf Vpt Aini Sig OsiState (State)"<br>"GROUP AtmIf Vpt Aini Sig Operational (Oper)"<br>"GROUP AtmIf Vpt Aini Sig Statistics (Stats)" |
| Scope | Device |
| Description | *AtmIf/n Aini Signalling*<br>*AtmIf/n Iisp Signalling*<br>*AtmIf/n Uni Signalling*<br>*AtmIf/n Pnni Signalling*<br>*AtmIf/n Vpt/m Aini Signalling*<br>*AtmIf/n Vpt/m Iisp Signalling*<br>*AtmIf/n Vpt/m Uni Signalling* |

*AtmIf/n Vpt/m Pnni Signalling*

This component represents the signaling entities for the interface.

Opt. Subcomp. "COMPONENT AtmIf Vpt Aini Sig VirtualChannelDescriptor (Vcd)"

Common Verbs
Help
List
Display

## GROUP AtmIf Vpt Aini Sig Provisioned (Prov)

Properties Provisioned

Description This attribute group contains the provisionable attributes for the *Signalling* component.

## ATTRIBUTE AtmIf Vpt Aini Sig vci

Access
Read: All
Write: All

Criticality Component

Description This attribute specifies the signaling channel number.

Values Decimal (0..65535)

Default 5

## ATTRIBUTE AtmIf Vpt Aini Sig addressConversion

Access
Read: All
Write: All

Description This attribute specifies the address conversion on the outgoing signaling PDUs. The options are ***none***, ***nativeE164***, or ***nsap***. The ***none*** option is the default and if this option is chosen then nothing is done to the address information element (IE) in the outgoing signaling message. If ***nativeE164*** option is chosen, then only NSAP encapsulated E.164 addresses with zeros in the ESI are converted to native E.164 format in the outgoing signaling message. If the NSAP address is not encapsulated E.164 or the ESI field is not zeros and the ***nativeE164*** option is chosen, then

the call is cleared. If the ***nsap*** option is chosen, then native E.164 addresses are converted to NSAP E.164 with zeros in the ESI field; otherwise the address is in NSAP format and is not changed.

Values
none
nativeE164
nsap

Default
none

### ATTRIBUTE AtmIf Vpt Aini Sig operatingMode

Access
Read: All
Write: All

Description
This attribute specifies the operating mode of the signaling channel ***provisionedOnly*** indicates that only SPVCs and SPVPs are supported on the interface and SVCs are not supported. This value is permitted only on UNI interfaces.
***normal*** indicates that SVCs, SPVCs, and SPVPs are supported on the interface.

Values
normal
provisionedOnly

Default
normal

### GROUP AtmIf Vpt Aini Sig OsiState (State)

Properties
Operational

Description
This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE AtmIf Vpt Aini Sig adminState (osiAdmin)

Access
Read only

Description
This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE AtmIf Vpt Aini Sig operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE AtmIf Vpt Aini Sig usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP AtmIf Vpt Aini Sig Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute contains the operational attributes for the AtmSignalling component. |

### ATTRIBUTE AtmIf Vpt Aini Sig lastTxCauseCode

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the cause code in the last transmitted signaling message that contains the CAUSE information element. The cause code is used to describe the reason for generating certain signaling messages. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Aini Sig lastTxDiagCode

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute contains the diagnostic code in the last transmitted signaling message. The diagnostic code is contained in the CAUSE information element and identifies an information element type or timer type. The diagnostic code is present only if a procedural error is detected by the signaling protocol. A diagnostic code is always accompanied by the cause code. If there is no failure, this attribute is set to 0. |
| Values | Hex (H.0..H.ff) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Aini Sig lastRxCauseCode

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute contains the cause code in the last received signaling message that contains the CAUSE information element. The cause code is used to describe the reason for generating certain signaling messages. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Aini Sig lastRxDiagCode

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute contains the diagnostic code in the last received signaling message. The diagnostic code is contained in the CAUSE information element and identifies an information element type or timer type. The diagnostic code is present only if a procedural error is detected by the signaling protocol. A diagnostic code is always accompanied by the cause code. If there is no failure, this attribute is set to 0. |
| Values | Hex (H.0..H.ff) |
| Default | No default |

### GROUP AtmIf Vpt Aini Sig Statistics (Stats)

| | |
|---|---|
| Properties | Operational |

| | |
|---|---|
| Description | This attribute group contains the statistics associated with the AtmSignalling component. |

### ATTRIBUTE AtmIf Vpt Aini Sig peakConnections

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the high water mark of active point-to-point connections. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Aini Sig successfulConnections

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of switched point-to-point connections that were successfully established. The counter wraps to 0 when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Aini Sig failedConnections

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of unsuccessful attempts to establish switched point-to-point connections. The counter wraps to 0 when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Aini Sig txPdus

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the number of transmitted signaling PDUs.The counter wraps to 0 when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Aini Sig rxPdus

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of received signaling PDUs.The counter wraps to 0 when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Aini Sig currentPmpConnections

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of currently active point-to-multipoint connections. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Aini Sig peakPmpConnections

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the high water mark of active point-to-multipoint connections. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Aini Sig successfulPmpConnections

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the total number of switched point-to-multipoint connections that were successfully established. The counter wraps to 0 when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Aini Sig failedPmpConnections

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of unsuccessful attempts to establish switched point-to-multipoint connections. The counter wraps to 0 when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Aini Sig currentConnections

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the total number of currently active point-to-<br>point connections. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT AtmIf Vpt Aini Sig VirtualChannelDescriptor (Vcd)

| | |
|---|---|
| Groups | "GROUP AtmIf Vpt Aini Sig Vcd Provisioned (Prov)" |
| Scope | Device |
| Description | *AtmIf/n Uni Sig VirtualChannelDescriptor*<br>*AtmIf/n Uni Ilmi VirtualChannelDescriptor*<br>*AtmIf/n Aini Sig VirtualChannelDescriptor*<br>*AtmIf/n Iisp Sig VirtualChannelDescriptor*<br>*AtmIf/n Pnni Sig VirtualChannelDescriptor* |

*AtmIf/n Pnni Rcc VirtualChannelDescriptor*
*AtmIf/n Vpt/m Uni Sig VirtualChannelDescriptor*
*AtmIf/n Vpt/m Aini Sig VirtualChannelDescriptor*
*AtmIf/n Vpt/m Iisp Sig VirtualChannelDescriptor*
*AtmIf/n Vpt/m Pnni Sig VirtualChannelDescriptor*
*AtmIf/n Vpt/m Pnni Rcc VirtualChannelDescriptor*

This component contains the provisionable traffic parameters for a control channel (Sig, *Ilmi* or *Rcc* component).

Common Verbs

Help
List
Display
Add
DELete

## GROUP AtmIf Vpt Aini Sig Vcd Provisioned (Prov)

Properties: Provisioned

Description: This group contains the provisionable traffic attributes for a control channel.

## ATTRIBUTE AtmIf Vpt Aini Sig Vcd trafficDescType (tdt)

Access: Read: All
Write: All

Criticality: Component

Description: This attribute specifies the type of traffic management which is applied to both the transmit and receive direction of this connection as defined in the ATM Forum. The *trafficDescType* determines the number and meaning of the parameters in the *trafficDescParm* attribute.

Values:
3
6
7
8

Default: 6

## ATTRIBUTE AtmIf Vpt Aini Sig Vcd atmServiceCategory (service)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the ATM service category for both directions of the connection.<br><br>The ***constantBitRate*** service category is intended for real time applications, that is those requiring tightly constrained delay and delay variation, as would be appropriate for voice and video applications. The consistent availability of a fixed quantity of bandwidth is considered appropriate for CBR service. Cells which are delayed beyond the value specified by CellTransfer Delay are assumed to be of significantly reduce value to the application.<br><br>The ***rtVariableBitRate*** service category is intended for real time applications, that is those requiring tightly constrained delay and delay variation, as would be appropriate for voice and video applications. Sources are expected to transmit at a rate which varies with time. Equivalently, the source can be described as “bursty”. Cells which are delayed beyond the value specified by CTD are assumed to be of significantly reduced value to the application. Real time VBR service may support statistical multiplexing of real time sources.<br><br>The ***nrtVariableBitRate*** service category is intended for non-real time applications which have bursty traffic characteristics and which can be characterized in terms of a PCR, SCR, and MBS. For those cells which are transferred within the traffic contract, the application expects a low cell loss ratio. For all connections, it expects a bound on the mean cell transfer delay. Non-real time VBR service may support statistical multiplexing of connections.<br><br>The ***unspecifiedBitRate*** service is intended for non-real time applications; that is, those not requiring tightly constrained delay and delay variation. UBR sources are expected to be bursty. UBR service supports a high degree of statistical multiplexing among sources. UBR service does not specify traffic related service |

guarantees. No numerical commitments are made with respect to the cell loss ratio experienced by a UBR connection, or as to the cell transfer delay experienced by cells on the connection.

Values
unspecifiedBitRate (ubr)
constantBitRate (cbr)
rtVariableBitRate (rtvbr)
nrtVariableBitRate (nrtvbr)

Default
rtVariableBitRate

### ATTRIBUTE AtmIf Vpt Aini Sig Vcd weight

Access
Read and write

Criticality
Component

Description
This VCD component has an attribute that is called atmServiceCategory. This attribute specifies the service category that is used by the sig, rcc or ilmi channel. The *weight* attribute is related to two other attributes which are *weightPolicy* and *txQueueLimit*, as mentioned in the following description. These attributes can be found under the atmif/n ca <atmServiceCategory>/ m.

This attribute specifies an override for the *weight* of this unshaped connection. This attribute is ignored for shaped connections, for ABR connections, for connections on a CQC-based ATM FPs and basic VPTs.

When the value is set to ***sameAsCa***, the *weight* is determined by the *weightPolicy* attribute under the CA service category component for all but standard VPT VCCs. For standard VPT VCCs, the *weight* is determined by the VCC's service category, when the value is set to ***sameAsCa***.

When this attribute is set to a value from ***1*** to ***4095***, that value is used for the *weightPolicy* of this connection relative to other connections. For all but standard VPT VCCs, *weightPolicy* determines the proportion of transit cell opportunities which are allocated to this connection, compared to other connections in the same service category. For standard VPT VCCs, *weightPolicy* determines the proportion of transmit cell opportunities which are

allocated to this connection, compared to other connections associated with the VPT.

When the value is set to ***upToQueueLimit***, the *weightPolicy* is limited only by the *txQueueLimit*.

Values
Decimal (1..4095)
sameAsCa
upToQueueLimit

Default
sameAsCa

## ATTRIBUTE AtmIf Vpt Aini Sig Vcd qosClass (qos)

Access
Read and write

Criticality
Component

Description
This attribute specifies the quality of service for both the forward and backward direction for this connection.

Class ***1*** supports a QOS that meets Service Class A performance requirements (Circuit emulation, constant bit rate video).

Class ***2*** supports a QOS that meets Service Class B performance requirements (Variable bit rate audio and video).

Class ***3*** supports a QOS that meets Service Class C performance requirements (Connection-Oriented Data Transfer).

Class ***4*** supports a QOS that meets Service Class D performance requirements (Connectionless Data Transfer).

Class ***0*** is the unspecified bit rate QOS class; no objective is specified for the performance parameters.

Values
0
1
2
3
4

Default
2

### ATTRIBUTE AtmIf Vpt Aini Sig Vcd trafficShaping (trShaping)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies whether this connection uses traffic shaping when transmitting traffic to the ATM interface.<br><br>When ***sameAsCa*** is selected, traffic shaping for this connection is based on the *trafficShaping* attribute of the connection's service category component under the *AtmIf CA*. If the service category has traffic shaping enabled, then traffic shaping is enabled for the connection. Note that enabling traffic shaping may have no effect under certain cases. These cases are listed in the description of the *trafficShaping* operational attribute, which is under the *Vcc Tm* and *Vpc Tm* components.<br><br>When ***disabled*** is selected, traffic shaping for this connection is disabled. |
| Values | disabled<br>sameAsCa |
| Default | disabled |

### ATTRIBUTE AtmIf Vpt Aini Sig Vcd unshapedTransmitQueueing (unshap)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute only applies when this connection is unshaped. This attribute specifies the transmit queuing method for this connection if it is unshaped. Refer to the *unshapedTransmitQueueing* attribute under the *AtmIf CA* service category subcomponent for more details on the meaning of this attribute.<br><br>When this attribute is set to ***sameAsCa***, the transmit queuing method for the connection is based on the *unshapedTransmitQueueing* attribute of the connection's service category component under the *ConnectionAdministrator.* |

When this attribute is set to ***common***, transmit traffic on this unshaped connection is destined for the common queue.

The value ***sameAsInterface*** is for migration from previous software releases, but should no longer be used

Values
common
sameAsCa

Default
sameAsCa

## ATTRIBUTE AtmIf Vpt Aini Sig Vcd usageParameterControl (upc)

Access
Read and write

Criticality
Component

Description
This attribute specifies whether this connection enforces usage parameter control when receiving traffic from the ATM interface.

When ***sameAsCa*** is selected, UPC for the connection is based on the *usageParameterControl* attribute of the connection's service category component under the *ConnectionAdministrator*. If the service category has UPC enabled, then UPC is enabled for the connection. Note that enabling UPC may have no effect under certain cases. These cases are listed in the description of the *usageParameterControl* operational attribute, which is under the *Vcc Tm* or *Vpc Tm* component.

When ***disabled*** is selected, UPC for this connection is disabled.

The value ***sameAsInterface*** is for migration from previous software releases, but should no longer be used

Values
disabled
sameAsCa

Default
disabled

## ATTRIBUTE AtmIf Vpt Aini Sig Vcd trafficDescParm (tdp)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute is a vector of five traffic parameters whose meanings are defined by the *trafficDescType* attribute. The values of peak cell rate (PCR), sustained cell rate (SCR) and requested shaping rate are expressed in cell/s. Maximum burst size (MBS) is expressed in cells. CDVT is expressed in microseconds. The values of PCR, SCR, MBS and CDVT are used for connection admission control (CAC). The value of CDVT is only used for connections where the *atmServiceCategory* is ***constantBitRate***. For all other values of *atmServiceCategory*, CDVT is ignored. The values of PCR, SCR and requested shaping rate are used to determine the actual shaping rate where traffic shaping is enabled.<br><br>When *trafficDescType* is ***3***, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameter 1 must be non-zero. Parameters 2 and 3 must be zero.<br><br>When *trafficDescType* is ***6***, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 and 1 traffic; parameter 3 represents the MBS for CLP equal to 0 and 1 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameters 1, 2, and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2. Parameter 5 must either be zero (unused) or greater than or equal to parameter 2.<br><br>When *trafficDescType* is ***7***, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 with cell discard; parameter 3 represents the MBS for CLP equal to 0 traffic; parameter 4 represents the CDVT; and |

parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameters 1, 2, and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2. Parameter 5 must either be zero (unused) or greater than or equal to parameter 2.

When *trafficDescType* is ***8***, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 traffic with cell tagging; parameter 3 represents the MBS for CLP equal to 0 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameters 1, 2, and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2. Parameter 5 must either be zero (unused) or greater than or equal to parameter 2.

Whenever it is valid for PCR to be specified, parameter 5 may also be used to specify a requested shaping rate. A non-zero value in parameter 5 overrides the value in parameter 1 and is used as the peak cell rate in calculations of CAC and shaping rate.

For *trafficDescType* ***3*** the traffic is shaped at the next rate less than the PCR.

For *trafficDescType* ***6***, ***7***, and ***8***, the traffic is shaped at the highest available rate which is between PCR and SCR. However, if there is no available shaping rate between PCR and SCR, traffic is shaped at the next rate above the PCR.

| | |
|---|---|
| Vector of | Decimal (0..2147483647) |
| Index | Decimal (1..5) |
| Default | (250, 160, 5, 0, 0) |

## COMPONENT AtmIf Vpt Aini Address (Addr)

| | |
|---|---|
| Instance | address [String (1..40, ASCII)]<br>addressType [primary<br>alternate<br>default] |
| Groups | "GROUP AtmIf Vpt Aini Addr Operational (Oper)" |
| Scope | Device |
| Description | *AtmIf/n Aini Address/address,type*<br>*AtmIf/n Iisp Address/address,type*<br>*AtmIf/n Uni Address/address,type*<br>*AtmIf/n Pnni Address/address,type*<br>*AtmIf/n Vpt/m Aini Address/address,type*<br>*AtmIf/n Vpt/m Iisp Address/address,type*<br>*AtmIf/n Vpt/m Uni Address/address,type*<br>*AtmIf/n Vpt/m Pnni Address/address,type*<br><br>This component represents an address (dynamic or static) associated with the interface. The index is a string of 1 to 40 hex digits or a single wildcard (‘?’), and a type. The type identifies whether the *Address* component is for a ***primary***, ***alternate, registered***, or ***default*** address.<br><br>The types ***primary*** and ***alternate*** are used for provisioned addresses. The type ***registered*** is used for dynamic addresses registered through ILMI. The type ***default*** is used for Soft PVP and Soft PVC addresses.Virtual interfaces do not have addresses of<br>type ***default***.<br><br>The wildcard is only valid for provisioned addresses. If the address is a single wildcard, then that indicates that the interface supports all addresses. If there is no better match, then this interface may be chosen in the routing. If there is more than one interface with a single wildcard static address, then the choice is driven through a round robin algorithm.<br><br>The round robin algorithm tries the primary routes and then the alternate routes if none of the primary routes succeed. |

If this node participates in a PNNI hierarchy, then a *PnniInfo* subcomponent can be provisioned under the *AtmAddress* component to specify the level to which this address will be advertised.

Opt. Subcomp. "COMPONENT AtmIf Vpt Aini Addr TerminateSPvpAndSPvc (TermSP)"
"COMPONENT AtmIf Vpt Aini Addr PnniInfo"

Common Verbs
Help
List
Display
Add
DELete

## GROUP AtmIf Vpt Aini Addr Operational (Oper)

Properties Operational

Description This attribute group contains the operational attributes for the *Address* component.

## ATTRIBUTE AtmIf Vpt Aini Addr scope

Access Read: All
Write: Illegal

Description This attribute indicates the scope of the ATM address, which is the highest level to which this address will be advertised in the PNNI hierarchy. If no *PnniInfo* subcomponent has been provisioned, then the scope will default to the level of this node in the PNNI hierarchy. If this node does not participate in a PNNI hierarchy, then this attribute will have the value of -1.

Values Signed (-1..104)

Default No default

## ATTRIBUTE AtmIf Vpt Aini Addr reachability (reach)

Access Read: All
Write: Illegal

| | |
|---|---|
| Description | This attribute indicates whether the address is internal or exterior. An internal reachable address is an address of a destination that is directly attached to the logical node advertising the address. An exterior reachable address is an address that can be reached through a PNNI routing domain, but which is not located in that PNNI routing domain. |
| Values | internal<br>exterior |
| Default | No default |

## COMPONENT AtmIf Vpt Aini Addr TerminateSPvpAndSPvc (TermSP)

| | |
|---|---|
| Scope | Device |
| Description | *AtmIf/n Aini Address/address,type TerminateSPvpAndSPvc*<br>*AtmIf/n Iisp Address/address,type TerminateSPvpAndSPvc*<br>*AtmIf/n Uni Address/address,type TerminateSPvpAndSPvc*<br>*AtmIf/n Pnni Address/address,type TerminateSPvpAndSPvc*<br>*AtmIf/n Vpt/m Aini Address/address,type TerminateSPvpAndSPvc*<br>*AtmIf/n Vpt/m Iisp Address/address,type TerminateSPvpAndSPvc*<br>*AtmIf/n Vpt/m Uni Address/address,type TerminateSPvpAndSPvc*<br>*AtmIf/n Vpt/m Pnni Address/address,type TerminateSPvpAndSPvc*<br><br>The presence of this subcomponent indicates that SPvp and SPvc call setups terminate at this node if the destination address of the SPVP or SPVC matches the *Address* instance. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## COMPONENT AtmIf Vpt Aini Addr PnniInfo

| | |
|---|---|
| Groups | "GROUP AtmIf Vpt Aini Addr PnniInfo Provisioned (Prov)" |
| Scope | Device |

Description

*AtmIf/n Aini Addr/address,type PnniInfo*
*AtmIf/n Iisp Addr/address,type PnniInfo*
*AtmIf/n Uni Addr/address,type PnniInfo*
*AtmIf/n Pnni Addr/address,type PnniInfo*
*AtmIf/n Vpt/m Aini Addr/address,type PnniInfo*
*AtmIf/n Vpt/m Iisp Addr/address,type PnniInfo*
*AtmIf/n Vpt/m Uni Addr/address,type PnniInfo*
*AtmIf/n Vpt/m Pnni Addr/address,type PnniInfo*

This component contains provisioned information associated with the ATM address related to PNNI. This component appears only under provisioned *Address* components.

Common Verbs

Help
List
Display
Add
DELete

## GROUP AtmIf Vpt Aini Addr PnniInfo Provisioned (Prov)

Properties: Provisioned

Description: This attribute group contains the provisioned attributes relating to PNNI for a *PnniInfo* component.

## ATTRIBUTE AtmIf Vpt Aini Addr PnniInfo scope

Access: Read: All
Write: All

Criticality: Component

Description: This attribute specifies the scope of the ATM address, which is the highest level up to which this address will be advertised in the PNNI hierarchy. The scope must be set to a value numerically less than or equal to the level of the lowest level peer group containing this node. Setting the scope to 0 will cause the address to be advertised globally within this PNNI routing domain.

Values: Signed (-1..104)

Default: -1

## ATTRIBUTE AtmIf Vpt Aini Addr PnniInfo reachability (reach)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute indicates whether the address is internal or exterior. An internal reachable address is an address of a destination that is directly attached to the logical node advertising the address. An exterior reachable address is an address that can be reached through a PNNI routing domain, but which is not located in that PNNI routing domain. |
| Values | internal<br>exterior |
| Default | internal |

## COMPONENT AtmIf Vpt Aini CallingAddressScreening (CallingAScr)

| | |
|---|---|
| Groups | "GROUP AtmIf Vpt Aini CallingAScr Provisioned (Prov)"<br>"GROUP AtmIf Vpt Aini CallingAScr Statistics (Stat)" |
| Scope | Device |
| Description | *AtmIf/n Aini CallingAddressScreening*<br>*AtmIf/n Uni CallingAddressScreening*<br>*AtmIf/n Iisp CallingAddressScreening*<br>This component represents the screening of incoming ATM SVC call requests against provisioned ATM calling addresses (that is, screening SVC calls coming from specific addresses). If this component is not provisioned, all call requests are accepted and no calling address screening takes place. |
| Opt. Subcomp. | "COMPONENT AtmIf Vpt Aini CallingAScr Address (Addr)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP AtmIf Vpt Aini CallingAScr Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This attribute group contains the provisionable attributes for the *CallingAScr* component. |

## ATTRIBUTE AtmIf Vpt Aini CallingAScr adminStatus

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies whether the calling address screening feature is ***enabled*** or ***disabled***.<br><br>If ***enabled***, incoming SVC calls are screened against provisioned addresses. If ***enabled*** and the calling address in the ATM SVC call request is provisioned to be accepted, the call is accepted or rejected according to the action specified for that address. If the value is ***enabled***, and the calling address in the address request is not provisioned, the call is rejected<br><br>If the value is ***disabled***, no calling address screening is performed. |
| Values | enabled<br>disabled |
| Default | disabled |

## ATTRIBUTE AtmIf Vpt Aini CallingAScr defaultInsertionAddress (defInsAddr)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the address to be inserted into the SVC connection request if *adminStatus* is ***enabled*** and the connection request does not contain a calling address. If the *adminStatus* attribute is ***enabled*** and this attribute is empty, all incoming SVC calls which do not contain a calling address are rejected. |
| Values | String (0..20, Hex) |
| Default | "" |

## GROUP AtmIf Vpt Aini CallingAScr Statistics (Stat)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains statistics related to the incoming SVC call requests received while the *adminStatus* attribute is set to ***enabled***. |

## ATTRIBUTE AtmIf Vpt Aini CallingAScr acceptedCalls

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the incoming SVC calls which were accepted because the address specified in the call request matched a provisioned ATM address and the associated action was ***accept***.<br>When the counter exceeds the maximum, it wraps to 0. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## ATTRIBUTE AtmIf Vpt Aini CallingAScr rejectedCalls

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the incoming SVC calls which were rejected because the address specified in the call request matched a provisioned ATM address, but the associated action was ***reject***.<br>When the counter exceeds the maximum, it wraps to 0. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## ATTRIBUTE AtmIf Vpt Aini CallingAScr unmatchedCalls

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the incoming SVC calls which were rejected because none of the provisioned ATM addresses matched the applicable address in the incoming SVC call request.<br>When the counter exceeds the maximum, it wraps to 0. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

## COMPONENT AtmIf Vpt Aini CallingAScr Address (Addr)

| | |
|---|---|
| Instance | address [String (1..40, ASCII)]<br>addressAction [accept<br>reject] |
| Scope | Device |
| Description | *AtmIf/n Aini CallingAScr Address/addr,action*<br>*AtmIf/n Uni CallingAScr Address/addr,action*<br>*AtmIf/n Iisp CallingAScr Address/addr,action*<br>*AtmIf/n Aini CalledAScr Address/addr,action*<br>*AtmIf/n Uni CalledAScr Address/addr,action*<br>*AtmIf/n Iisp CalledAScr Address/addr,action*<br>This component specifies a calling (or called) address with an action to accept or reject a connection request which contains a matching calling (or called) address.<br>For the Calling Address Screening feature, if the specified action is ***accept***, any call whose calling address matches that address is accepted. If the specified action is ***reject***, any call whose calling address matches that address is rejected.<br>For the Called Address Screening feature, if the specified action is ***accept***, any call whose called address matches that address, is accepted. If the specified action is ***reject***, any call whose called address matches that address is rejected.<br>For both features, the incoming SVC call request is rejected if the address is not provisioned and the feature is ***enabled***. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## COMPONENT AtmIf Vpt Aini CalledAddressScreening (CalledAScr)

| | |
|---|---|
| Groups | "GROUP AtmIf Vpt Aini CalledAScr Provisioned (Prov)"<br>"GROUP AtmIf Vpt Aini CalledAScr Statistics (Stat)" |

| | |
|---|---|
| Scope | Device |
| Description | *AtmIf/n Aini CalledAddressScreening*<br>*AtmIf/n Uni CalledAddressScreening*<br>*AtmIf/n Iisp CalledAddressScreening*<br>This component represents the screening of incoming ATM SVC call requests against provisioned ATM called addresses (that is, going to specific destinations). If this component is not provisioned, all call requests are accepted and no called address screening takes place. |
| Opt. Subcomp. | "COMPONENT AtmIf Vpt Aini CalledAScr Address (Addr)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP AtmIf Vpt Aini CalledAScr Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This attribute group contains the provisionable attributes for the *CalledAScr* component. |

## ATTRIBUTE AtmIf Vpt Aini CalledAScr adminStatus

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies whether the called address screening feature is ***enabled*** or ***disabled***.<br>If the value is ***enabled***, incoming SVC calls will be screened against provisioned called addresses. If the value is ***enabled*** and the called address in the ATM SVC call request has been provisioned, the call is accepted or rejected according to the action specified for that address. If the value is ***enabled*** and the called address in the call request is not provisioned, the call is rejected.<br>If the value is ***disabled***, no called address screening is performed. |

| | |
|---|---|
| Values | enabled<br>disabled |
| Default | disabled |

### GROUP AtmIf Vpt Aini CalledAScr Statistics (Stat)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains statistics related to the incoming SVC call requests received while the *adminStatus* attribute is set to ***enabled***. |

### ATTRIBUTE AtmIf Vpt Aini CalledAScr acceptedCalls

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the incoming SVC calls which were accepted because the address specified in the call request matched a provisioned ATM address and the associated action was ***accept***.<br>When the counter exceeds the maximum, it wraps to 0. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE AtmIf Vpt Aini CalledAScr rejectedCalls

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the incoming SVC calls which were rejected because the address specified in the call request matched a provisioned ATM address, but the associated action was ***reject***.<br>When the counter exceeds the maximum, it wraps to 0. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE AtmIf Vpt Aini CalledAScr unmatchedCalls

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the incoming SVC calls which were rejected because none of the provisioned ATM addresses matched the applicable address in the incoming SVC call request.<br>When the counter exceeds the maximum, it wraps to 0. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## COMPONENT AtmIf Vpt Aini CalledAScr Address (Addr)

| | |
|---|---|
| Instance | address [String (1..40, ASCII)]<br>addressAction [accept<br>reject] |
| Scope | Device |
| Description | *AtmIf/n Aini CallingAScr Address/addr,action*<br>*AtmIf/n Uni CallingAScr Address/addr,action*<br>*AtmIf/n Iisp CallingAScr Address/addr,action*<br>*AtmIf/n Aini CalledAScr Address/addr,action*<br>*AtmIf/n Uni CalledAScr Address/addr,action*<br>*AtmIf/n Iisp CalledAScr Address/addr,action*<br>This component specifies a calling (or called) address with an action to accept or reject a connection request which contains a matching calling (or called) address.<br>For the Calling Address Screening feature, if the specified action is ***accept***, any call whose calling address matches that address is accepted. If the specified action is ***reject***, any call whose calling address matches that address is rejected.<br>For the Called Address Screening feature, if the specified action is ***accept***, any call whose called address matches that address, is accepted. If the specified action is ***reject***, any call whose called address matches that address is rejected.<br>For both features, the incoming SVC call request is rejected if the address is not provisioned and the feature is ***enabled***. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## COMPONENT AtmIf Vpt Aini PathTraceFilter (Ptf)

Groups
"GROUP AtmIf Vpt Aini Ptf Criteria"
"GROUP AtmIf Vpt Aini Ptf Operational (Oper)"
"GROUP AtmIf Vpt Aini Ptf RecordControl (Record)"

Scope
Device

Description
*AtmIf/n Aini PathTraceFilter*
*AtmIf/n Iisp PathTraceFilter*
*AtmIf/n Uni PathTraceFilter*
*AtmIf/n Pnni PathTraceFilter*
*AtmIf/n Vpt/vpi Aini PathTraceFilter*
*AtmIf/n Vpt/vpi Iisp PathTraceFilter*
*AtmIf/n Vpt/vpi Uni PathTraceFilter*
*AtmIf/n Vpt/vpi Pnni PathTraceFilter*

This component represents the path trace filtering capability on the ATM signaling interface. This capability allows the user to trace connections during the call setup phase against the criteria associated with this component. Only the connections that match all the criteria are traced.

When this component is provisioned, the network operator can control tracing activities by using the *Start*, *Stop*, and *Clear* verbs. When the *Start* verb is issued, the *traceTimeout* timer restarts. Once the timer times out, filtering stops and records are not removed. When the *Stop* verb is issued, the filter stops and the trace records are kept until the user clears them. When the *Clear* verb is issued, the trace records are cleared. When *AtmPathTraceFilter* component is deleted, all records are cleared.

Once the maximum specified by *maxTraceRecords* attribute under the *PathTraceFilter* component or *maxTraceRecords* attribute under the *Lp/n Eng PTrace* component has been reached, the oldest record is deleted.

The *AtmPathTraceFilter* component is not permitted to be added when the *Lp/n Eng PTrace Ov maxTraceRecords* attribute is set to zero.

| | |
|---|---|
| Dyn. Subcomp. | "COMPONENT AtmIf Vpt Aini Ptf PathTraceRecord (PTRecord)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## VERB START AtmIf Vpt Aini Ptf

| | |
|---|---|
| Impact | Service |
| Description | *START AtmIf/n Aini PathTraceFilter*<br>*START AtmIf/n Iisp PathTraceFilter*<br>*START AtmIf/n Uni PathTraceFilter*<br>*START AtmIf/n Pnni PathTraceFilter*<br>*START AtmIf/n Vpt/vpi Aini PathTraceFilter*<br>*START AtmIf/n Vpt/vpi Iisp PathTraceFilter*<br>*START AtmIf/n Vpt/vpi Uni PathTraceFilter*<br>*START AtmIf/n Vpt/vpi Pnni PathTraceFilter*<br><br>This command starts the path tracing based on the specified filtering criteria.<br><br>When the command is issued, the *traceTimeout* timer is reset. |

### VERB STOP AtmIf Vpt Aini Ptf

| | |
|---|---|
| Impact | Service |
| Description | *STOP AtmIf/n Aini PathTraceFilter*<br>*STOP AtmIf/n Iisp PathTraceFilter*<br>*STOP AtmIf/n Uni PathTraceFilter*<br>*STOP AtmIf/n Pnni PathTraceFilter*<br>*STOP AtmIf/n Vpt/vpi Aini PathTraceFilter*<br>*STOP AtmIf/n Vpt/vpi Iisp PathTraceFilter*<br>*STOP AtmIf/n Vpt/vpi Uni PathTraceFilter*<br>*STOP AtmIf/n Vpt/vpi Pnni PathTraceFilter*<br><br>This command causes the filter to stop, but keeps the trace records. |

### VERB CLEAR AtmIf Vpt Aini Ptf

| | |
|---|---|
| Impact | Service |
| Description | *CLEAR AtmIf/n Aini PathTraceFilter*<br>*CLEAR AtmIf/n Iisp PathTraceFilter*<br>*CLEAR AtmIf/n Uni PathTraceFilter*<br>*CLEAR AtmIf/n Pnni PathTraceFilter*<br>*CLEAR AtmIf/n Vpt/vpi Aini PathTraceFilter*<br>*CLEAR AtmIf/n Vpt/vpi Iisp PathTraceFilter*<br>*CLEAR AtmIf/n Vpt/vpi Uni PathTraceFilter*<br>*CLEAR AtmIf/n Vpt/vpi Pnni PathTraceFilter*<br><br>This command clears the path trace records associated with this filter. This command is rejected on an active filter. |

### GROUP AtmIf Vpt Aini Ptf Criteria

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational criteria for the *PathTraceFilter* component. |

### ATTRIBUTE AtmIf Vpt Aini Ptf traceInfo (tInfo)

| | |
|---|---|
| Access | Read: All<br>Write: All |

| | |
|---|---|
| Description | This attribute specifies the trace information that is included in the trace records.<br><br>***crankBack***: Crankback information is included if the connection is cranked back during the connection setup phase. If the option is turned on, all attempted paths including the final one are recorded. If the option is turned off, only the information of the final path is recorded. If the connection fails to reach the destination, no path information is returned.<br><br>***connId***: Connection Identifier information is included.<br><br>***callRef***: For point-to-point connections, the call reference is included. For point-to-multipoint connections, the call reference and end point reference are both included.<br><br>Basic trace information, such as node and port identifiers, are always included. |
| Set of | crankBack<br>connId<br>callRef |
| Default | (crankBack, connId, callRef) |

### ATTRIBUTE AtmIf Vpt Aini Ptf calledPartyPrefix (cldPref)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies an NSAP address prefix, which is compared with the called party IE in the connection setup request. When all the criteria in the filter match successfully, the call is traced.<br><br>An empty string matches any address. |
| Values | String (0..20, Hex) |
| Default | No default |

## ATTRIBUTE AtmIf Vpt Aini Ptf callingPartyPrefix (clgPref)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies an NSAP address prefix, which is compared with the calling party IE in the connection setup request. When all the criteria in the filter match successfully, the call is traced.<br><br>An empty string matches any address. |
| Values | String (0..20, Hex) |
| Default | No default |

## ATTRIBUTE AtmIf Vpt Aini Ptf connectionType (type)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies a connection type (SVC, SPVC, SVP, SPVP), which is compared against the connection setup request. When all the criteria in the filter match successfully, the call is traced. |
| Set of | svc<br>spvc<br>svp<br>spvp |
| Default | (svc, spvc, svp, spvp) |

## ATTRIBUTE AtmIf Vpt Aini Ptf connectionConfiguration (config)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies a type of topology (point-to-point or point-to-multipoint), which is compared against the connection setup request. When all the criteria in the filter match successfully, the call is traced. |

| | |
|---|---|
| Set of | ptp<br>ptmp |
| Default | (ptp, ptmp) |

### ATTRIBUTE AtmIf Vpt Aini Ptf serviceCategory (svcCat)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the service categories, which is compared against the connection setup request. When the all criteria in the filter match successfully, the call is traced. |
| Set of | cbr<br>rtVbr<br>nrtVbr<br>ubr |
| Default | (cbr, rtVbr, nrtVbr, ubr) |

### GROUP AtmIf Vpt Aini Ptf Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for the *PathTraceFilter* component. |

### ATTRIBUTE AtmIf Vpt Aini Ptf state

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the current state of the filter.<br><br>***active***: Indicates the filter is active.<br><br>***inactive:*** Indicates the filter is inactive. The records are available if the filter is stopped by the user using the *Stop* verb or if the filter has timed out. |

| | |
|---|---|
| Values | active<br>inactive |
| Default | inactive |

### ATTRIBUTE AtmIf Vpt Aini Ptf recordCount

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of records that have been acquired so far for this filter. The maximum number of records that can be stored is specified by *Lp/n Eng PathTrace maxTraceRecords* or *AtmPathTraceFilter maxTraceRecords*, which ever is less. |
| Values | Decimal (0..200) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Aini Ptf matchedConnections

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of connections that match the criteria of this filter. |
| Values | Decimal (0..2147483647) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Aini Ptf elapsedTime

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of minutes that have elapsed since the start of the filter. |
| Values | Decimal (0..70560) |
| Units | minutes |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Aini Ptf timeRemaining

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of minutes remaining before the filter terminates itself. |
| Values | Decimal (0..70560) |
| Units | minutes |
| Default | No default |

### GROUP AtmIf Vpt Aini Ptf RecordControl (Record)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for the record control of the *PathTraceFilter* component. |

### ATTRIBUTE AtmIf Vpt Aini Ptf traceTimeout

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies how long this filter remains active. At the end of this time, the filter is stopped and all trace records associated with this filter are available. |
| Values | Decimal (1..70560) |
| Units | minutes |
| Default | 60 |

### ATTRIBUTE AtmIf Vpt Aini Ptf maxTraceRecords (mRecords)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the maximum number of records allowed to be stored with the filter.<br><br>Once the maximum has been reached, the oldest record is removed. |

| | |
|---|---|
| Values | Decimal (1..200) |
| Default | 2 |

## COMPONENT AtmIf Vpt Aini Ptf PathTraceRecord (PTRecord)

| | |
|---|---|
| Groups | "GROUP AtmIf Vpt Aini Ptf PTRecord Operational (Oper)" |
| Scope | Device |
| Description | *AtmIf/n Aini Ptf PTRecord*<br>*AtmIf/n Iisp Ptf PTRecord*<br>*AtmIf/n Uni Ptf PTRecord*<br>*AtmIf/n Pnni Ptf PTRecord*<br>*AtmIf/n Vpt/n Aini Ptf PTRecord*<br>*AtmIf/n Vpt/n Iisp Ptf PTRecord*<br>*AtmIf/n Vpt/n Uni Ptf PTRecord*<br>*AtmIf/n Vpt/n Pnni Ptf PTRecord*<br><br>This component represents the path trace record for the last failed connection against this filter. |
| Dyn. Subcomp. | "COMPONENT AtmIf Vpt Aini Ptf PTRecord Hop" |
| Common Verbs | Help<br>List<br>Display |

## GROUP AtmIf Vpt Aini Ptf PTRecord Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for the path trace record component. |

## ATTRIBUTE AtmIf Vpt Aini Ptf PTRecord status

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the status of the trace. The string is one of the following:<br><br>***Completed normally****:* The trace completed normally. |

***Incomplete**:* Partial trace returned.

***Exceeded information element length limitations**:* The number of traced nodes exceeded the maximum number of hops.

***Exceeded message length limitations**:* The message length exceeded the maximum allowed size.

Values
Completed normally
Incomplete
Exceeded information element length limitations
Exceeded message length limitations

Default
No default

### ATTRIBUTE AtmIf Vpt Aini Ptf PTRecord timeStamp

Access
Read: All
Write: Illegal

Description
This attribute records the date and time of when the trace is completed.

Values
Time (DHMS)

Default
No default

### ATTRIBUTE AtmIf Vpt Aini Ptf PTRecord srcPortId

Access
Read: All
Write: Illegal

Description
This attribute indicates the trace's source port identifier used for this connection. This attribute only appears in the trace result for the trace source hop.

Values
Decimal (1..4294967295)

Default
No default

### ATTRIBUTE AtmIf Vpt Aini Ptf PTRecord srcPortName

Access
Read: All
Write: Illegal

Criticality
Component

| | |
|---|---|
| Description | This attribute indicates the name of the source port used for this connection. This attribute only appears in the trace result for the trace source hop. |
| Values | String (40, ASCII) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Aini Ptf PTRecord causeCode

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute contains the cause code in the transmitted signaling message that contains the CAUSE information element. The cause code is used to describe the reason for generating certain signaling messages. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Aini Ptf PTRecord diagCode

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute contains the diagnostic code in the transmitted signaling message. The diagnostic code is contained in the CAUSE information element and identifies an information element type or timer type. The diagnostic code is present only if a procedural error is detected by the signaling protocol. A diagnostic code is always accompanied by the cause code. If there is no failure, this attribute is set to NULL. |
| Values | String (0..8, ASCII) |
| Default | No default |

### COMPONENT AtmIf Vpt Aini Ptf PTRecord Hop

| | |
|---|---|
| Instance | Decimal (0..200) |

| | |
|---|---|
| Groups | "GROUP AtmIf Vpt Aini Ptf PTRecord Hop Operational (Oper)" |
| Scope | Device |
| Description | *AtmIf/n Aini Ptf PTRecord Hop/n*<br>*AtmIf/n Iisp Ptf PTRecord Hop/n*<br>*AtmIf/n Uni Ptf PTRecord Hop/n*<br>*AtmIf/n Pnni Ptf PTRecord Hop/n*<br>*AtmIf/n Vpt/n Aini Ptf PTRecord Hop/n*<br>*AtmIf/n Vpt/n Iisp Ptf PTRecord Hop/n*<br>*AtmIf/n Vpt/n Uni Ptf PTRecord Hop/n*<br>*AtmIf/n Vpt/n Pnni Ptf PTRecord Hop/n*<br>*AtmIf/n Vcc/x.y PTRecord Hop/n*<br>*AtmIf/n Vpc/n PTRecord Hop/n*<br>*AtmIf/n Vpt/n Vcc/x.y PTRecord Hop/n*<br><br>This component stores the result of a hop from a trace. An instance of this component is dynamically created for each hop in a trace record.<br><br>Depending on the hops, different attributes are present. |
| Dyn. Subcomp. | "COMPONENT AtmIf Vpt Aini Ptf PTRecord Hop VendorSpecificInfo (Vsi)" |
| Common Verbs | Help<br>List<br>Display |

## GROUP AtmIf Vpt Aini Ptf PTRecord Hop Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for the component *AtmPathTraceFilterRecordHop*. |

## ATTRIBUTE AtmIf Vpt Aini Ptf PTRecord Hop ingressVpiVci (vpiVci)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |

| | |
|---|---|
| Description | This attribute indicates the VPI.VCI values used for this hop on the ingress side. This is the ingress side with respect to the trace or setup messages. This attribute is displayed for ATM interfaces only.<br><br>The VPI.VCI values are included in the trace when the *traceInfo* attribute sets the ***connId*** value. |
| Values | Integer Sequence (0..4095; 0..65535) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Aini Ptf PTRecord Hop ingressDlci (dlci)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the DLCI value used for this hop on the ingress side. This is the ingress side with respect to the trace or setup message. This attribute is displayed for FrAtm interfaces only.<br><br>The DLCI is included in the trace when the *traceInfo* attribute sets the ***connId*** value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Aini Ptf PTRecord Hop ingressCallReference (callref)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the call reference value used for this hop on the ingress side. This is the ingress side with respect to the trace or setup message.<br><br>The call reference is included in the trace when the *traceInfo* attribute sets the ***callRef*** value |

| | |
|---|---|
| Values | Hex (H.0..H.ffffff) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Aini Ptf PTRecord Hop ingressEndPointReference (epref)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the end point reference value used for this hop on the ingress side. This is the ingress side with respect to the trace or setup messages.<br><br>The end point reference is included in the trace when the *traceInfo* attribute sets the ***callRef*** value and the connection is point-to-multipoint. |
| Values | Hex (H.0..H.ffff) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Aini Ptf PTRecord Hop nodeId

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the lowest level node ID traversed for this hop. |
| Values | String (22, Hex) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Aini Ptf PTRecord Hop nodeName

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the *nodeName* under the *ModuleData* component for this hop. Only Passport nodes provide this information by including it in the Vendor Specific group. |

| | |
|---|---|
| Values | String (12, ASCII) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Aini Ptf PTRecord Hop portId

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the port identifier value for this hop on the egress side. This is the egress side with respect to the trace or setup messages. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Aini Ptf PTRecord Hop portName

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the port name for this hop on the egress side. This is the egress side with respect to the trace or setup messages. Only Passport nodes provide this information by including it in the Vendor Specific group. |
| Values | String (55, ASCII) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Aini Ptf PTRecord Hop pnniTraceContRefusalIndPresent (refusal)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates whether the “PNNI Trace Continuation Refusal” indicator is present. The “PNNI Trace Continuation Refusal” indicator indicates that this hop has refused to participate in the trace. |

| | |
|---|---|
| Values | absent<br>present |
| Default | absent |

### ATTRIBUTE AtmIf Vpt Aini Ptf PTRecord Hop crankbackDestNodeIndPresent (dest)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates whether the “PNNI Crankback Received at the Trace Destination Node” indicator is present. The “PNNI Crankback Received at Trace Destination Node” indicator indicates that this hop is acting as a trace destination node, receiving a crankback for this call from a non-PNNI interface. |
| Values | absent<br>present |
| Default | absent |

### ATTRIBUTE AtmIf Vpt Aini Ptf PTRecord Hop pnniCrankbackGapIndPresent (gap)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates whether the “PNNI Crankback Gap” indicator is present. The “PNNI Crankback Gap” indicator indicates that the call experienced a crankback, where no Trace Transit List IE was returned by the node initiating the crankback. |
| Values | absent<br>present |
| Default | absent |

### ATTRIBUTE AtmIf Vpt Aini Ptf PTRecord Hop crankBackCause (cause)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |

| | |
|---|---|
| Description | This attribute indicates the crankback cause. Please refer to Private-Network-to-Network-Interface Specification Version 1.0 for more information.<br><br>This attribute is present when the *traceInfo* attribute sets the ***crankBack*** value and the connection has initiated the crankback procedure. |
| Values | Decimal (0..1000) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Aini Ptf PTRecord Hop blockedTransitType (type)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the blocked transit type.<br><br>This attribute is present when the *traceInfo* attribute sets the ***crankBack*** value and the connection has initiated the crankback procedure. |
| Values | Succeeding end blocked<br>Blocked node<br>Blocked link |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Aini Ptf PTRecord Hop blockedNodeId (bNodeId)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the blocked node ID during the call setup request. The blocked node ID identifies the logical node where the connection or party has been blocked.<br><br>This attribute is present when the *blockedTransitType* attribute is ***Blocked node.*** |

| | |
|---|---|
| Values | String (22, Hex) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Aini Ptf PTRecord Hop blockedLinkPrecedingNodeId (pNodeId)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the blocked link's preceding node ID during the call setup request. The blocked link's preceding node ID identifies the logical node preceding a link, where the connection or party has been blocked.<br><br>This attribute is present when the *blockedTransitType* attribute is ***Blocked link***. |
| Values | String (22, Hex) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Aini Ptf PTRecord Hop blockedLinkPortId (bPortId)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the blocked link's port identifier used for this connection during the call setup request. The blocked link's port identifier identifies a logical port of the blocked link's preceding node identifier.<br><br>This attribute is present when the *blockedTransitType* attribute is ***Blocked link.*** |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Aini Ptf PTRecord Hop blockedLinkSucceedingNodeId (sNodeId)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the blocked link's succeeding node ID during the call setup request. The blocked link's succeeding node ID identifies the logical node succeeding a link where the connection or party has been blocked.<br><br>This attribute is present when the *blockedTransitType* attribute is ***Blocked link.*** |
| Values | String (22, Hex) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Aini Ptf PTRecord Hop dstVpiVci

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the VPI.VCI values on the destination side. This attribute only appears in the trace result for the trace destination node. This attribute is only displayed for ATM interfaces.<br><br>The VPI.VCI is included in the trace when the *traceInfo* attribute sets the ***connId*** value. |
| Values | Integer Sequence (0..4095; 0..65535) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Aini Ptf PTRecord Hop dstDlci

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |

| | |
|---|---|
| Description | This attribute indicates the DLCI value on the destination side. This attribute only appears in the trace result for the trace destination node. This attribute is only displayed for FrAtm interfaces.<br><br>The DLCI is included in the trace when the *traceInfo* attribute sets the ***connId*** value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Aini Ptf PTRecord Hop dstCallReference (dcr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the call reference value on the destination side. This attribute only appears in the trace result for the trace destination node.<br><br>The call reference value is included in the trace when the *traceInfo* attribute sets the ***callRef*** value. |
| Values | Hex (H.0..H.ffffff) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Aini Ptf PTRecord Hop dstEndPointReference (depr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the end point call reference value on the destination side. This attribute only appears in the trace result for the trace destination node.<br><br>The call reference value is included in the trace when the *traceInfo* attribute sets the ***callRef*** value and the connection is point-to-multipoint. |

| | |
|---|---|
| Values | Hex (H.0..H.ffff) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Aini Ptf PTRecord Hop specifiedPath

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates whether this hop is the originator of this manually configured path. Only Passport nodes provide this information by including it in the Vendor Specific group. |
| Values | no<br>yes |
| Default | no |

### COMPONENT AtmIf Vpt Aini Ptf PTRecord Hop VendorSpecificInfo (Vsi)

| | |
|---|---|
| Instance | Decimal (0..10) |
| Groups | "GROUP AtmIf Vpt Aini Ptf PTRecord Hop Vsi Operational (Oper)" |
| Scope | Device |
| Description | *AtmIf/n Aini Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Iisp Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Uni Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vpt/n Aini Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vpt/n Iisp Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vpt/n Uni Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vpt/n Pnni Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vcc/x.y PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vpc/n PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vpt/n Vcc/x.y PTRecord Hop/n VendorSpecificInfo/m*<br><br>This component stores the vendor specific information of a non-Passport node for a hop. An instance of this component is dynamically created for the vendor specific information group of a hop in a trace. Several instances of this component are created |

if the trace has several groups of vendor specific information.

All the trace information for a Passport node is stored in the *PTRecord Hop/** component.

Common Verbs

Help
List
Display

## GROUP AtmIf Vpt Aini Ptf PTRecord Hop Vsi Operational (Oper)

Properties: Operational

Description: This group contains the operational attributes for the component *AtmPathTraceFilterRecordHopVen*.

## ATTRIBUTE AtmIf Vpt Aini Ptf PTRecord Hop Vsi length

Access: Read: All
Write: Illegal

Description: This attribute indicates the length of the vendor specific information group.

Values: Decimal (0..11)

Default: No default

## ATTRIBUTE AtmIf Vpt Aini Ptf PTRecord Hop Vsi organizationUniqueId (oui)

Access: Read: All
Write: Illegal

Description: This attribute indicates the Organization Unique Identifier (OUI) of a non-Passport node.

Values: String (3, Dashed Hex)

Default: No default

## ATTRIBUTE AtmIf Vpt Aini Ptf PTRecord Hop Vsi data

Access: Read: All
Write: Illegal

Description: This attribute indicates the contents of the vendor specific information group.

| | |
|---|---|
| Values | String (1..8, Hex) |
| Default | No default |

## COMPONENT AtmIf Vpt Aini PathTraceTestConnection (Ptt)

| | |
|---|---|
| Groups | "GROUP AtmIf Vpt Aini Ptt Operational (Oper)" |
| Scope | Device |
| Description | *AtmIf/n Aini PathTraceTestConnection*<br>*AtmIf/n Iisp PathTraceTestConnection*<br>*AtmIf/n Uni PathTraceTestConnection*<br>*AtmIf/n Pnni PathTraceTestConnection*<br>*AtmIf/n Vpt/vpi Aini PathTraceTestConnection*<br>*AtmIf/n Vpt/vpi Iisp PathTraceTestConnection*<br>*AtmIf/n Vpt/vpi Uni PathTraceTestConnection*<br>*AtmIf/n Vpt/vpi Pnni PathTraceTestConnection*<br><br>This component provides the capability to control the Path Trace Test Connection. A test connection is one way to find the logical nodes and ports that a connection traverses to a destination interface.<br><br>The *Trace* verb is used to initiate the test connection. The test connection is always released once it reaches the trace destination. The test connection responds with the trace results collected during a complete or partial trace. |
| Common Verbs | Help<br>List<br>Display |

## VERB TRACE Atmlf Vpt Aini Ptt

| | |
|---|---|
| Impact | Passive |
| Description | *TRACE AtmIf/n Aini AtmPathTraceTest*<br>*TRACE AtmIf/n Iisp AtmPathTraceTest*<br>*TRACE AtmIf/n Uni AtmPathTraceTest*<br>*TRACE AtmIf/n Pnni AtmPathTraceTest*<br>*TRACE AtmIf/n Vpt/vpi Aini AtmPathTraceTest*<br>*TRACE AtmIf/n Vpt/vpi Iisp AtmPathTraceTest*<br>*TRACE AtmIf/n Vpt/vpi Uni AtmPathTraceTest*<br>*TRACE AtmIf/n Vpt/vpi Pnni AtmPathTraceTest*<br><br>This command is used to initiate a Path Trace Test Connection and then responds with a list of logical nodes and ports from the trace source node to the trace destination node.<br><br>Only one *Trace* command is allowed at a time per signaling interface. If the test connection times out, the command fails. |

## GROUP Atmlf Vpt Aini Ptt Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for the *AtmPathTraceTest* component. |

## ATTRIBUTE Atmlf Vpt Aini Ptt traceCrankback

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute controls what trace information the trace records include. If the option is turned on, all attempted paths are recorded including the final one. If the option is turned off, only the information of the final path is recorded. If the connection fails to reached the destination, no path information is returned. |
| Values | no<br>yes |
| Default | no |

## ATTRIBUTE AtmIf Vpt Aini Ptt txTrafficDescType (txTdt)

Access
Read: All
Write: All

Description
This attribute specifies the type of traffic management applied to the transmit direction, as defined by the ATM Forum. The *txTrafficDescType* determines the number and meaning of the parameters in the *txTrafficDescParm* attribute.

Values
1
2
3
4
5
6
7
8
9

Default
1

## ATTRIBUTE AtmIf Vpt Aini Ptt rxTrafficDescType (rxTdt)

Access
Read: All
Write: All

Description
This attribute specifies the type of traffic management, which is applied to the receive direction of this connection, as defined in the ATM Forum. The *rxTrafficDescType* determines the number and meaning of the parameters in the *rxTrafficDescParm* attribute

When ***sameAsTx*** is selected, the *rxTrafficDescType* and the *rxTrafficDescParm* are taken from the transmit values.

Values
1
2
3
4
5
6
7
8

| | |
|---|---|
| | 9<br>sameAsTx |
| Default | sameAsTx |

### ATTRIBUTE AtmIf Vpt Aini Ptt atmServiceCategory (service)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the ATM service category for both directions of the connection.<br><br>If this attribute is set to ***derivedFromBBC***, the Broadband Bearer Capability (BBC) and *bestEffort* attributes are used to determine the *atmServiceCategory* of this connection.<br><br>If this attribute is set to a possible attribute other than ***derivedFromBBC***, the value of this attribute is used to override the provisioned BBC IE parameters. In those cases, the BBC attributes are not used.<br><br>The ***constantBitRate*** service category is intended for real time applications, that is, those requiring tightly constrained delay and delay variation such as for voice and video applications.<br><br>The ***rtVariableBitRate*** service category is intended for real time applications, that is, those requiring tightly constrained delay and delay variation, such as for voice and video applications. Sources are expected to transmit at a rate which varies with time. Equivalently, the source can be described as “bursty”. Cells, which are delayed beyond the value specified by CTD, are assumed to be of significantly reduced value to the application. The VBR real time service may support statistical multiplexing of real time sources.<br><br>The ***nrtVariableBitRate*** service category is intended for non-real time applications which have bursty traffic characteristics and can be characterized in terms of a PCR, SCR, and MBS.<br><br>The ***unspecifiedBitRate*** service is intended for non-real time |

applications, that is, those not requiring tightly constrained delay and delay variation. UBR sources are expected to be bursty. The UBR service supports a high degree of statistical multiplexing among sources.

Values
unspecifiedBitRate (ubr)
constantBitRate (cbr)
rtVariableBitRate (rtvbr)
nrtVariableBitRate (nrtvbr)
derivedFromBBC (derived)

Default
unspecifiedBitRate

### ATTRIBUTE AtmIf Vpt Aini Ptt fwdQosClass (fwdQos)

Access
Read: All
Write: All

Criticality
Component

Description
This attribute specifies the quality of service for the forward direction for this connection.

Class ***1*** supports a QOS that will meet Service Class A performance requirements (circuit emulation, constant bit rate video).

Class ***2*** supports a QOS that will meet Service Class B performance requirements (variable bit rate audio and video).

Class ***3*** supports a QOS that will meet Service Class C performance requirements (connection-oriented data transfer).

Class ***4*** supports a QOS that will meet Service Class D performance requirements (connectionless data transfer).

Class ***0*** is the unspecified bit rate QOS class; no objective is specified for the performance parameters.

Values
0
1
2

| | |
|---|---|
| | 3<br>4 |
| Default | 0 |

### ATTRIBUTE AtmIf Vpt Aini Ptt bwdQosClass (bwdQos)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the quality of service for the backward direction for this connection.<br><br>Class ***1*** supports a QOS that will meet Service Class A performance requirements (circuit emulation, constant bit rate video).<br><br>Class ***2*** supports a QOS that will meet Service Class B performance requirements (variable bit rate audio and video).<br><br>Class ***3*** supports a QOS that will meet Service Class C performance requirements (connection-oriented data transfer).<br><br>Class ***4*** supports a QOS that will meet Service Class D performance requirements (connectionless data transfer).<br><br>Class ***0*** is the unspecified bit rate QOS class; no objective is specified for the performance parameters.<br><br>The ***sameAsFwd*** selection sets the backward quality of service to be the same as the forward quality of service. |
| Values | 0<br>1<br>2<br>3<br>4<br>sameAsFwd |
| Default | sameAsFwd |

## ATTRIBUTE AtmIf Vpt Aini Ptt bearerClassBbc (bcBbc)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the bearer capability. It is one of the Broadband Bearer Capability (BBC) attributes. The purpose of the BBC information element is to indicate a requested broadband connection-oriented bearer service to be provided by the network.<br><br>The value ***derivedFromServiceCategory*** specifies that the actual value, which is used for this connection and is derived from the value of the *atmServiceCategory.* Either this attribute must be set to ***derivedFromServiceCategory***, or the *atmServiceCategory* attribute must be set to ***derivedFromBBC***, but not both.<br><br>Class ***a*** service is a connection-oriented, constant bit rate ATM transport service. Class ***a*** service has end-to-end timing requirements and may require stringent cell loss, cell delay and cell delay variation performance.When ***a*** is set, the user is requesting more than an ATM only service. The network may look at the AAL to provide inter-working based on its contents.<br><br>Class ***c*** service is a connection-oriented, variable bit rate ATM transport service. Class ***c*** service has no end-to-end timing requirements. When ***c*** is set, the user is requesting more than an ATM only service. The network inter-working function may look at the AAL and provide service based on it.<br><br>Class ***x*** service is a connection-oriented ATM transport service where the AAL, *trafficType* (***vbr*** or ***cbr***), and timing requirements are user defined (that is, transparent to the network).When ***x*** is set, the user is requesting an ATM only service from the network. In this case, the network shall not process any higher layer protocols. |
| Values | a<br>c |

x
derivedFromServiceCategory

Default derivedFromServiceCategory

## ATTRIBUTE AtmIf Vpt Aini Ptt transferCapabilityBbc (tcBbc)

Access Read: All
Write: All

Criticality Component

Description This attribute specifies the transfer capability for this connection. UNI 3.0/3.1 traffic type and end-to-end timing parameters are mapped into this parameter as follows:
<transferCapability: TrafficType, Timing>
***0***: NoIndication, NoIndication
***1***: NoIndication, yes
***2***: NoIndication, no
***5***: CBR, yes
***8***: VBR, NoIndication
***9***: VBR, yes
***10***: VBR, no

***NotApplicable*** specifies that the user does not want to specify the transfer capability.

The CBR traffic type refers to the traffic offered on services such as a constant bit rate video service or a circuit emulation.

The VBR traffic type refers to the traffic offered on services such as packetized audio and video, or data.

The value ***NoIndication*** for traffic type is used if the user has not set the traffic type. This is also the case for end-to-end timing.

The value ***yes*** for end-to-end timing indicates that end-to-end timing is required.

The value ***no*** for end-to-end timing indicates that end-to-end timing is not required.

The value ***derivedFromServiceCategory*** specifies that the actual

value which is used for this connection and is derived from the value of the *atmServiceCategory*. Either, this attribute must be set to ***derivedFromServiceCategory*** or the *atmServiceCategory* attribute must be set to ***derivedFromBBC***, but not both.

Values
0
1
2
5
8
9
10
notApplicable
derivedFromServiceCategory

Default
derivedFromServiceCategory

### ATTRIBUTE AtmIf Vpt Aini Ptt clippingBbc (cBbc)

Access
Read: All
Write: All

Criticality
Component

Description
This attribute specifies the value for the clipping susceptibility parameter in the BBC IE. This attribute is only used for SPVC connections. It is one of the Broadband Bearer Capability attributes.

Clipping is an impairment where the first fraction of a second of information to be transferred is lost. It occurs after a call is answered and before an associated connection is switched through.

Values
no
yes

Default
no

### ATTRIBUTE AtmIf Vpt Aini Ptt bestEffort

Access
Read: All
Write: All

Criticality
Component

| | |
|---|---|
| Description | This attribute specifies the value of the best effort parameter in the ATM Traffic Descriptor IE. It is one of the Broadband Bearer Capability attributes.<br><br>The value ***indicated*** implies that the quality of service for this connection is not guaranteed.<br><br>The value ***notIndicated*** implies that the quality of service for this connection is guaranteed.<br><br>The value ***derivedFromServiceCategory*** specifies that the actual value, which is used for this connection, is derived from the value of the *atmServiceCategory.* Either this attribute must be set to ***derivedFromServiceCategory*** or the *atmServiceCategory* attribute must be set to ***derivedFromBBC***, but not both. |
| Values | indicated<br>notIndicated<br>derivedFromServiceCategory (derived) |
| Default | derivedFromServiceCategory |

### ATTRIBUTE AtmIf Vpt Aini Ptt testCalledAddress

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the destination address of this test connection. |
| Values | String (20, Hex) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Aini Ptt testCalledVpiVci

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the called VPI.VCI values for this test connection on the destination interface. |

| | |
|---|---|
| Values | Integer Sequence (0..4095; 0..65535) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Aini Ptt testSpecifiedPath

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the path that will be used to get to the destination of this test connection. |
| Values | String (0..32, ASCII) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Aini Ptt bwdQosParameters (bqp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is a vector of three elements that specify the quality of service parameters for the backward direction for this connection. This attribute is used for SPVC connections.<br><br>The ***cdv*** element specifies the acceptable peak-to-peak cell delay variation (CDV) of real-time connections (CBR and rt-VBR).<br><br>It is signaled through the extended QoS information element.<br><br>The ***ctd*** specifies the acceptable maximum cell transfer delay (maxCtd) of real-time connections (CBR and rt-VBR). It is signaled through the end-to-end transit delay information element.<br><br>The ***clr*** specifies the acceptable cell loss ratio (CLR) of CBR, rt-VBR, and nrt-VBR connections. It is signaled through the extended QoS information element. |

| | |
|---|---|
| Vector of | Decimal (0..2147483647) |
| Index | cdv<br>ctd<br>clr |
| Default | (cdv: 16777215, ctd: 16777215, clr: 255) |

### ATTRIBUTE AtmIf Vpt Aini Ptt fwdQosParameters (fqp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is a vector of three elements that specify the quality of service parameters for the forward direction for this connection. This attribute is used for SPVC connections.<br><br>The ***cdv*** element specifies the acceptable peak-to-peak cell delay variation (CDV) of the real-time connections (CBR and rt-VBR). It is signaled through the extended QoS information element.<br><br>The ***ctd*** specifies the acceptable maximum cell transfer delay (maxCtd) of the real-time connections (CBR and rt-VBR). It is signaled through the end-to-end transit delay information element.<br><br>The ***clr*** specifies the acceptable cell loss ratio (CLR) of CBR, rt-VBR, and nrt-VBR connections. It is signaled through the extended QoS information element. |
| Vector of | Decimal (0..2147483647) |
| Index | cdv<br>ctd<br>clr |
| Default | (cdv: 16777215, ctd: 16777215, clr: 255) |

### ATTRIBUTE AtmIf Vpt Aini Ptt txTrafficDescParm (txTdp)

| | |
|---|---|
| Access | Read: All<br>Write: All |

Description

This attribute is a vector of five traffic parameters whose meanings are defined by the *txTrafficDescType* attribute. The values of peak cell rate (PCR), sustained cell rate (SCR), minimum cell rate (MCR) and requested shaping rate are expressed in cells/second. THe maximum burst size (MBS) is expressed in cells. The cell delay variance tolerance (CDVT) is expressed in microseconds. The values of PCR, SCR, MBS, MCR and CDVT are used for the connection admission control (CAC). The value of the CDVT is only used for connections where the *atmServiceCategory* is ***constantBitRate***. For all other values of *atmServiceCategory*, the CDVT is ignored. The values of PCR, SCR, and the requested shaping rate are used to determine the actual shaping rate, where traffic shaping is enabled.

When *txTrafficDescType* is ***1*** or ***2***, all of the parameters must be set to zero.

When *txTrafficDescType* is ***3***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameter 1 must be non-zero. Parameters 2 and 3 must be zero.

When *txTrafficDescType* is ***4***, parameter 1 represents the PCR for CLP0+1 traffic with cell discard; parameter 2 represents the PCR for CLP equal to 0 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameter 1 must be greater than or equal to parameter 2. Parameters 1 and 2 must be non-zero. Parameter 3 must be zero.

When *txTrafficDescType* is ***5***, parameter 1 represents the PCR for CLP0+1 traffic with cell tagging; parameter 2 represents the PCR for CLP equal to 0 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameter 1 must be greater than or equal to parameter 2. Parameters 1 and 2 must be non-zero.

Parameter 3 must be zero.

When *txTrafficDescType* is ***6***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the SCR for CLP0+1 traffic; parameter 3 represents the MBS for CLP0+1 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameters 1, 2, and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2. Parameter 5 must either be zero (unused) or greater than or equal to parameter 2.

When *txTrafficDescType* is ***7***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the SCR for CLP equal to 0 with cell discard; parameter 3 represents the MBS for CLP equal to 0 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameters 1, 2, and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2. Parameter 5 must either be zero (unused) or greater than or equal to parameter 2.

When *txTrafficDescType* is ***8***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the SCR for CLP equal to 0 traffic with cell tagging; parameter 3 represents the MBS for CLP equal to 0 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameters 1, 2 and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2. Parameter 5 must either be zero (unused) or greater than or equal to parameter 2.

When *txTrafficDescType* is ***9***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the CDVT; parameter 3 represents the MCR; parameter 5 represents the requested shaping rate; and parameter 4 is not used and must be zero. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameter 1 must either be zero or be greater than or equal to parameter 3. Parameter 3 may be

optionally zero. Parameter 5 must either be zero (unused) or greater than or equal to parameter 3.

Whenever it is valid for PCR to be specified, parameter 5 may also be used to specify a requested shaping rate. A non-zero value in parameter 5 overrides the value in parameter 1 and is used as the peak cell rate in the calculations of CAC and the shaping rate.

For *txTrafficDescType* ***3***, ***4***, ***5*** and ***9***, the transmit traffic should be shaped at the next rate less than the PCR.

For *txTrafficDescType* ***6***, ***7,*** and ***8***, the transmit traffic should be shaped at the highest available rate which is between PCR and SCR. However, if there is no available shaping rate between PCR and SCR, traffic should be shaped at the next rate above the PCR.

Vector of — Decimal (0..2147483647)

Index — Decimal (1..5)

Default — ([5] 0)

## ATTRIBUTE AtmIf Vpt Aini Ptt rxTrafficDescParm (rxTdp)

Access — Read: All
Write: All

Description — This attribute is a vector of four traffic parameters whose meanings are defined by the *rxTrafficDescType* attribute. The values of the peak cell rate (PCR) and sustained cell rate (SCR) are expressed in
cells/second. The maximum burst size (MBS) is expressed in cells. The value of the cell delay variance tolerance (CDVT) is expressed in microseconds. The values of PCR, SCR, MBS and CDVT are used for the usage parameter control (UPC).

When *rxTrafficDescType* is ***1*** or ***2***, all of the parameters must be set to zero (unused).

When *rxTrafficDescType* is ***3***, parameter 1 represents the PCR for CLP0+1 traffic. Parameter 1 must be non-zero. Parameters 2 and 3 must be set to zero (unused).

When *rxTrafficDescType* is ***4***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the PCR for CLP equal to 0 traffic with cell discard. Parameters 1 and 2 must be non-zero. Parameter 3 must be set to zero (unused). Parameter 1 must be greater than or equal to parameter 2.

When *rxTrafficDescType* is ***5***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the PCR for CLP equal to 0 traffic with cell tagging. Parameters 1 and 2 must be non-zero. Parameter 3 must be set to zero (unused). Parameter 1 must be greater than or equal to parameter 2.

When *rxTrafficDescType* is a ***6***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the SCR for CLP0+1 traffic; parameter 3 represents the MBS for CLP0+1 traffic. Parameters 1, 2, and 3 must be non-zero. Parameter 1 must be greater than or equal to Parameter 2.

When *rxTrafficDescType* is ***7***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the SCR for CLP equal to 0 traffic with cell discard; parameter 3 represents the MBS for CLP equal to 0 traffic. Parameters 1, 2 and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2.

When *rxTrafficDescType* is ***8***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the SCR for CLP equal to 0 traffic with cell tagging; parameter 3 represents the MBS for CLP equal to 0 traffic. Parameter 1, 2, and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2.

When *rxTrafficDescType* is ***9***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the CDVT; parameter 3 represents the MCR. Parameter 4 is not used and must be zero. Parameter 1 must either be zero or be greater than or equal to parameter 3. Parameter 3 may optionally be zero.

When *rxTrafficDescType* is any value from ***3*** through ***8***, parameter 4 represents the CDVT. If this value is zero, the CDVT is taken from the *ConnectionAdministrator* defaults for the particular *atmServiceCategory* of this connection.

When *rxTrafficDescriptorType* is ***3*** through ***9***, there are certain extreme combinations of *rxTrafficDescParm* which are outside the capabilities of the UPC hardware.

To calculate the limits, use the following formulae:
I1 = 1 000 000 000 / PCR
L1 = CDVT * 1000
I2 = 1 000 000 000 / SCR
L2 = CDVT + (MBS - 1) * (I2 - I1)
I1 and I2 must be less than or equal to 335 523 840. I1 + L1 must be less than or equal to 1 342 156 800. I2 + L2 must be less than or equal to 1 342 156 800. Note that I2 and L2 only apply when the *rxTrafficDescriptorType* is ***6*** through ***8***.

If the values of I1, L1, I2, or L2 are closer to the limits described above, a further restriction applies. Specifically, if either:
I1 > 41 940 480 or
I2 > 41 940 480 or
I1 + L1 > 167 769 600 or
I2 + L2 > 167 769 600
then both I1 and I2 must be greater than 20 480.

Parameter 5 of the *rxTrafficDescParm* is always unused.

If the *rxTrafficDescType* is ***sameAsTx***, the values in this attribute are taken from the *txTrafficDescParm*.

| | |
|---|---|
| Vector of | Decimal (0..2147483647) |
| Index | Decimal (1..5) |
| Default | ([5] 0) |

## COMPONENT AtmIf Vpt Aini ServiceTrace (SrvTrace)

| | |
|---|---|
| Groups | "GROUP AtmIf Vpt Aini SrvTrace Operational" |
| Scope | Application |
| Description | *AtmIf/n [Vpt/m] Uni ServiceTrace*<br>*AtmIf/n [Vpt/m] Iisp ServiceTrace*<br>*AtmIf/n [Vpt/m] Pnni ServiceTrace*<br>*AtmIf/n [Vpt/m] Aini ServiceTrace* |

The *ServiceTrace* component of the ATM service determines if the trace capability is allowed on this service. If it is not provisioned, then a service trace session cannot be started on this service.

Currently, the ATM Trace features only support ***frAtmTraceRcvr*** and ***atmTraceRcvr*** features, if the name of a X25 or FR receiver is set to the *receiver* attribute of this component, the *Start* command responses with a “Receiver Not Supported” message.

Common Verbs

Help
List
Display
Add
DELete

## VERB Start AtmIf Vpt Aini SrvTrace

Impact: Service

Description:

*Start AtmIf/n [Vpt/m] Uni ServiceTrace*
*Start AtmIf/n [Vpt/m] Iisp ServiceTrace*
*Start AtmIf/n [Vpt/m] Pnni ServiceTrace*
*Start AtmIf/n [Vpt/m] Aini ServiceTrace*
This command starts a service trace session.

## VERB Stop AtmIf Vpt Aini SrvTrace

Impact: Service

Description:

*Stop AtmIf/n [Vpt/m] Uni ServiceTrace*
*Stop AtmIf/n [Vpt/m] Iisp ServiceTrace*
*Stop AtmIf/n [Vpt/m] Pnni ServiceTrace*
*Stop AtmIf/n [Vpt/m] Aini ServiceTrace*
This command stops a service trace session.

## GROUP AtmIf Vpt Aini SrvTrace Operational

Properties: Operational

Description: This group provides the operational attributes for the *SrvTrace* component.

### ATTRIBUTE AtmIf Vpt Aini SrvTrace receiverName (rcvr)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute should be set to the name of the desired trace receiver before starting a trace session. All available trace receivers are listed under the *SrvTrace Rcvr* component. This attribute cannot be set while the service trace is active. The receiver name is validated by the trace manager when the service *SrvTrace* is started. |
| Values | String (0..8, ASCII) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Aini SrvTrace duration

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the duration, in minutes, of a trace session. A value of ***0*** indicates unlimited duration in which case a trace session remains active until a *Stop* command is issued. This attribute cannot be set while a trace is active. |
| Values | Decimal (0..9999) |
| Units | minutes |
| Default | 60 |

### ATTRIBUTE AtmIf Vpt Aini SrvTrace queueLimit

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the total number of bytes of traced data which may be queued for transmission to the trace receiver. When this limit is exceeded, incoming traced frames are discarded. This attribute can be set while a trace is active and takes effect immediately. |
| Values | Decimal (1..100) |
| Units | Kbyte |
| Default | 20 |

## ATTRIBUTE AtmIf Vpt Aini SrvTrace session

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the *SrvTrace Session* component that is forwarding the trace data. This attribute is set automatically, and is empty unless the service trace is active. |
| Values | The name of the component |
| Default | No default |

## COMPONENT AtmIf Vpt Aini Reroute

| | |
|---|---|
| Groups | "GROUP AtmIf Vpt Aini Reroute LocalOperational (LOper)"<br>"GROUP AtmIf Vpt Aini Reroute GlobalOperational (GOper)"<br>"GROUP AtmIf Vpt Aini Reroute Statistics (Stats)" |
| Scope | Device |
| Description | *AtmIf/n Iisp Reroute*<br>*AtmIf/n Aini Reroute*<br>*AtmIf/n Uni Reroute*<br>*AtmIf/n Vpt/vpi Iisp Reroute*<br>*AtmIf/n Vpt/vpi Aini Reroute*<br>*AtmIf/n Vpt/vpi Uni Reroute*<br><br>This component represents the rerouting capabilities of the ATM Signaling interface. If this component is provisioned, the *Artg Pnni* component must already exist. The addition or deletion of this component, or changes to its provisionable attributes, does not affect existing connections. |
| Subcomponents | "COMPONENT AtmIf Vpt Aini Reroute Ov" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### VERB OPTIMIZE AtmIf Vpt Aini Reroute

| | |
|---|---|
| Impact | Service |
| Description | *Optimize [-all] AtmIf/n Uni outeouteouteouteouteoute*sBy default, only connection segsforation. The best known optimization metric value for the connection segment is indicated by the *localOptimalMetricValue* attribute under the *RerouteInfo* component for the connection.<br>The *-all* option causes all connection segments subscribed to path optimization to be considered.s |

### GROUP AtmIf Vpt Aini Reroute LocalOperational (LOper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes that indicate the local rerouting activities at the interface level. |

### ATTRIBUTE AtmIf Vpt Aini Reroute localSubscribedConnections (lsub)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the connection segments that are subscribed to one or more local rerouting capabilities. Note that a given connection segment is subscribed to either local rerouting capabilities capabilities, not both. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Aini Reroute localEligibleRecoveredCon (lerc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the connection segments that have been recovered using local rerouting and are eligible for local path optimization. The value decreases as counted connections are released. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Aini Reroute localIneligibleRecoveredCon (lirc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the connection segments that have been recovered by local rerouting but are not eligible for local path optimization. The value decreases as counted connections are released. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Aini Reroute localLastRrCauseCode (lrrcc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the value of the last local rerouting cause code received at this interface. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Aini Reroute localPathsOptimized (lPathsOpt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the paths that were successfully optimized by local rerouting or EBR during the last optimization pass at this interface. Successfully optimized paths are paths that switched to a better route. The value is reset to zero at the beginning of each optimization pass. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP AtmIf Vpt Aini Reroute GlobalOperational (GOper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes that indicate the global and EBR rerouting activities at the interface level. |

### ATTRIBUTE AtmIf Vpt Aini Reroute globalSubscribedConnections (gsub)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the connection segments that are subscribed to one or more global and EBR rerouting capabilities. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Aini Reroute globalEligibleRecoveredCon (gerc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the connections that have been recovered by global and EBR rerouting and are eligible for global or EBR path optimization. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Aini Reroute globalIneligibleRecoveredCon (girc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the connections that have been recovered by global and EBR rerouting but are not eligible for global or EBR path optimization. The value decreases as counted connections are released. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Aini Reroute globalLastRrCauseCode (grrcc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the value of the last global or EBR rerouting cause code received at this interface. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Aini Reroute globalPathsOptimized (gPathsOpt)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the paths that were successfully optimized by global and EBR rerouting during the last optimization pass at this interface. Successfully optimized paths are paths that switched to a better route. The value is reset to zero at the beginning of each optimization pass. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP AtmIf Vpt Aini Reroute Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the rerouting statistics for the interface. |

### ATTRIBUTE AtmIf Vpt Aini Reroute totalLocalConnectionRecoveries (tLConRec)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts successful local connection recovery attempts. The counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Aini Reroute totalLocalFailedRecoveries (lFailedRec)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts failed local connection recovery attempts. A connection recovery attempt fails if a rerouting connection segment can not be established. The counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Aini Reroute totalLocalPathOptimizations (tLPathOpt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts successful local path optimization attempts. A successful path optimization attempt results in a switch to a |

| | |
|---|---|
| | better route. The counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Aini Reroute totalGlobalConnectionRecoveries (tGConRec)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts successful global and EBR connection recovery attempts. The counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Aini Reroute totalGlobalFailedRecoveries (gFailedRec)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts failed global and EBR connection recovery attempts. A connection recovery attempt fails if a rerouting connection segment cannot be established. The counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Aini Reroute totalGlobalPathOptimizations (tGPathOpt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts successful global and EBR path optimization attempts. A successful path optimization attempt results in a switch to a better route. The counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Aini Reroute totalOptimizationPasses (optPass)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts optimization passes at the interface. Both module and interface optimization passes are counted. The counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT AtmIf Vpt Aini Reroute Ov

| | |
|---|---|
| Groups | "GROUP AtmIf Vpt Aini Reroute Ov Provisioned (Prov)"<br>"GROUP AtmIf Vpt Aini Reroute Ov LocalProvisioned (LProv)"<br>"GROUP AtmIf Vpt Aini Reroute Ov GlobalProvisioned (GProv)" |
| Scope | Device |
| Description | *AtmIf/n Iisp Reroute Ov*<br>*AtmIf/n Aini Reroute Ov*<br>*AtmIf/n Uni Reroute Ov*<br>*AtmIf/n Vpt/vpi Iisp Reroute Ov*<br>*AtmIf/n Vpt/vpi Aini Reroute Ov*<br>*AtmIf/n Vpt/vpi Uni Reroute Ov*<br><br>This component represents the provisioning capabilities of the rerouting functionality for the ATM Signaling interface. |
| Common Verbs | Help<br>List<br>Display |

### GROUP AtmIf Vpt Aini Reroute Ov Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the common provisionable attributes for rerouting capabilities at the ATM signaling interface. |

### ATTRIBUTE AtmIf Vpt Aini Reroute Ov protocol

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the rerouting protocols which are requested by connection segments on the interface, for which this node is the first rerouting node. This attribute has no effect on |

connection segments for which this node is not the first rerouting node. A subset of the requested protocols is granted by the last rendezvous node, according to its software level and provisioning.

One of the following values can be specified:
***sameAsARtgPnniReroute***: The requested rerouting protocols are specified by the *Artg Pnni Reroute protocol* attribute.
***localGlobal***: Local and global rerouting protocols are requested. Local and global rerouting are granted if the DTL terminator is provisioned with the Rerouting feature.
***localOnly***: Local rerouting is requested. This value guarantees interoperability with other vendors' equipment running the ATM Forum "Domain Based Rerouting" protocol. Local rerouting is granted if the DTL terminator is provisioned with the Rerouting feature.
***globalOnly***: Global rerouting is requested. Global rerouting is granted if the DTL terminator is provisioned with the Rerouting feature.
***localEbr*:** Local and EBR rerouting protocols are requested. Local rerouting is granted if the DTL terminator is provisioned with the Rerouting feature. Alternatively, EBR is granted if the DTL terminator is provisioned with the EBR feature.
***ebrOnly***: EBR is requested. EBR is granted if the DTL terminator is provisioned with the EBR feature.

Values
localGlobal
localOnly
globalOnly
localEbr
ebrOnly
sameAsARtgPnniReroute (sameAs)

Default
sameAsARtgPnniReroute

## ATTRIBUTE AtmIf Vpt Aini Reroute Ov numOptAttempts

Access
Read and write

Description
This attribute specifies the number of path optimizations attempted before declaring a recovered connection segment to be optimally routed. Following a connection recovery, each manual and automatic path optimization will attempt to optimize the

connection segment. When a path is found with a better optimization metric than the best known value, or the number of optimization attempts is exhausted, the current optimization metric is declared to be the new optimal metric for the connection segment. Subsequent path optimizations will not attempt to optimize the connection segment unless all subscribed connection segments are eligible for path optimization.

If the value is set to ***0***, the optimization metric of a connection segment following connection recovery is declared to be the new optimal metric, and no connection recovery alarm is issued. A subsequent path optimization will not attempt to optimize the connection segment unless all subscribed connection segments are eligible for path optimization.

If the value is set to ***sameAsARtgPnniReroute***, the value of the *ARtg Pnni Reroute numOptAttempts* attribute is used.

Values — Decimal (0..15)
sameAsARtgPnniReroute (sameAs)

Default — sameAs

## ATTRIBUTE AtmIf Vpt Aini Reroute Ov moduleOptimizationConnections

Access — Read and write

Description — This attribute specifies which connection segments on the interface will be considered by a module optimization pass as controlled by the *ARtg Pnni Reroute* component.

One of the following values can be specified:
***sameAsARtgPnniReroute***: The connection segments to be considered by a module optimization pass are specified by the *Artg Pnni Reroute moduleOptimization* attribute.
***none***: No connection segments are considered for path optimization.
***recoveredOnly***: Only connection segments which are foration. The best known optimization metric value for the connection segment is indicated by the *localOptimalMetricValue* attribute under the *RerouteInfo* component for the connection
***allSubscribed***: All connection segments subscribed to path optimization are considered.

| | |
|---|---|
| Values | none<br>recoveredOnly<br>allSubscribed<br>sameAsARtgPnniReroute (sameAs) |
| Default | sameAsARtgPnniReroute |

### ATTRIBUTE AtmIf Vpt Aini Reroute Ov switchoverMechanism

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the mechanism used for switchover of a rerouted connection segment.<br><br>One of the following values can be specified:<br>***sameAsARtgPnniReroute***: The switchover mechanism is specified by the *ARtg Pnni Reroute switchoverMechanism* attribute.<br>***standard***: The mechanism described in the ATM Forum "Domain based Rerouting" specification is used for switchover. This value ensures interoperability with other vendors' equipment running ATM Forum "Domain based Rerouting".<br>***rcl***: The Reduced Cell Loss mechanism is used for switchover. RCL is a value-added Passport extension to the standard mechanism that allows faster switchover time. |
| Values | standard<br>rcl<br>sameAsARtgPnniReroute (sameAs) |
| Default | sameAsARtgPnniReroute |

### GROUP AtmIf Vpt Aini Reroute Ov LocalProvisioned (LProv)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for EBR and local rerouting protocols. |

### ATTRIBUTE AtmIf Vpt Aini Reroute Ov localConnectionRecoverySubscr (lConRec)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies which connection segments on the interface request subscription to local connection recovery. This attribute only affects connection segments that request the local |

rerouting protocols. This attribute affects connection segments for a node that is either local domain rerouting node or a DTL originator.

Connection segments of the specified type(s) which request ***localGlobal*** or ***localOnly*** protocols request subscription to local connection recovery.

Connection segments of the specified type(s) which request ***localEbr*** request subscription to both local connection recovery and EBR connection recovery. Only one will be granted.

One or more of the following values can be specified:
***sameAsARtgPnniReroute:*** If this value is set, the local connection recovery subscription rule is determined by the *ARtg Pnni Reroute localConnectionRecoverySubscr* attribute. This value takes precedence over any other values.
***svcSvp***: If this value is set, all SVC and SVP connection segments request subscription to local connection recovery.
***sourceSpvcSpvp***: If this value is set, all source SPVC and SPVP connection segments request subscription to local connection recovery.
***transitSpvcSpvp***: If this value is set, all transit SPVC and SPVP connection segments request subscription to local connection recovery.

Set of — sameAsARtgPnniReroute (sameAs)
svc
sourceSpvcSpvp (source)
transitSpvcSpvp (transit)

Default — (sameAsARtgPnniReroute)

## ATTRIBUTE AtmIf Vpt Aini Reroute Ov localPathOptimizationSubscr (lPathOpt)

Access — Read and write

Description — This attribute specifies which connection segments on the interface request subscription to local path optimization. This attribute only affects connection segments that request the local rerouting protocols. This attribute affects connection segments for a node that is either local domain rerouting node or a DTL originator.

Connection segments of the specified type(s) which request ***localGlobal*** or ***localOnly*** protocols request subscription to local path optimization.

Connection segments of the specified type(s) which request ***localEbr*** request subscription to both local path optimization and EBR path optimization. Only one will be granted.

One or more of the following values can be specified:
***sameAsARtgPnniReroute***: If this value is set, the local path optimization subscription rule is determined by the *ARtg Pnni Reroute localPathOptimizationSubscr* attribute. This setting takes precedence over the any other values.
***svcSvp***: If this value is set, then all SVC and SVP connection segments request subscription to local path optimization.
***sourceSpvcSpvp***: If this value is set, then all source SPVC and SPVP connection segments request subscription to local path optimization.
***transitSpvcSpvp***: If this value is set, then all transit SPVC and SPVP connection segments request subscription to local path optimization.

Set of: sameAsARtgPnniReroute (sameAs)
svc
sourceSpvcSpvp (source)
transitSpvcSpvp (transit)

Default: (sameAsARtgPnniReroute)

## GROUP AtmIf Vpt Aini Reroute Ov GlobalProvisioned (GProv)

Properties: Provisioned

Description: This group contains the provisionable attributes for the global and EBR rerouting protocol.

## ATTRIBUTE AtmIf Vpt Aini Reroute Ov globalConnectionRecoverySubscr (gConRec)

Access: Read and write

Description: This attribute specifies which connection segments on the interface request subscription to global or EBR connection recovery. This attribute only affects connection segments that

request the global or EBR rerouting protocols. This attribute affects connection segments for a node that is a DTL originator.

Connection segments of the specified type(s) which request ***localGlobal*** or ***globalOnly*** protocols request subscription to global connection recovery.

Connection segments of the specified type(s) which request ***ebrOnly*** request subscription to EBR connection recovery.

Connection segments of the specified type(s) which request ***localEbr*** request subscription to both local connection recovery and EBR connection recovery. Only one will be granted.

One or more of the following values can be specified:
***sameAsARtgPnniReroute***: If this value is set, the global or EBR connection recovery subscription rule is determined by the *ARtg Pnni Reroute globalConnectionRecoverySubscr* attribute.This setting takes precedence over any other values.
***svcSvp***: If this value is set, then all SVC and SVP connection segments request subscription to global or EBR connection recovery.
***sourceSpvcSpvp***: If this value is set, then all source SPVC and SPVP connection segments request subscription to global or EBR connection recovery.
***transitSpvcSpvp***: If this value is set, then all transit SPVC and SPVP connection segments request subscription to global or EBR connection recovery.

Set of — sameAsARtgPnniReroute (sameAs)
svc
sourceSpvcSpvp (source)
transitSpvcSpvp (transit)

Default — (sameAsARtgPnniReroute)

## ATTRIBUTE AtmIf Vpt Aini Reroute Ov globalPathOptimizationSubscr (gPathOpt)

Access — Read and write

Description — This attribute specifies which connection segments on the interface request subscription to global or EBR path optimization. This attribute only affects connection segments that request the

global or EBR rerouting protocols. This attribute affects connection segments for a node that is a DTL originator.

Connection segments of the specified type(s) which request ***localGlobal*** or ***globalOnly*** protocols request subscription to global path optimization.

Connection segments of the specified type(s) which request ***ebrOnly*** request subscription to EBR path optimization.

Connection segments of the specified type(s) which request ***localEbr*** request subscription to both local path optimization and EBR path optimization. Only one will be granted.

One or more of the following values can be specified:
***sameAsARtgPnniReroute***: If this value is set, the global or EBR path optimization subscription rule is determined by the *ARtg Pnni Reroute globalPathOptimizationSubscr* attribute. This setting takes precedence over any other values.
***svcSvp***: If this value is set, then all SVC and SVP connection segments request subscription to global or EBR path optimization.
***sourceSpvcSpvp***: If this value is set, then all source SPVC and SPVP connection segments request subscription to global or EBR path optimization.
***transitSpvcSpvp***: If this value is set, then all transit SPVC and SPVP connection segments request subscription to global or EBR path optimization.

| | |
|---|---|
| Set of | sameAsARtgPnniReroute (sameAs)<br>svc<br>sourceSpvcSpvp (source)<br>transitSpvcSpvp (transit) |
| Default | (sameAsARtgPnniReroute) |

## COMPONENT AtmIf Vpt VirtualChannelConnection (Vcc)

| | |
|---|---|
| Instance | Decimal (0..65535) |
| Groups | "GROUP AtmIf Vpt Vcc OsiState (State)"<br>"GROUP AtmIf Vpt Vcc Operational (Oper)" |

"GROUP AtmIf Vpt Vcc ConnectionInfo (ConnInfo)"
"GROUP AtmIf Vpt Vcc Status"
"GROUP AtmIf Vpt Vcc Statistics (Stats)"

Scope

Device

Description

*AtmIf/n Vpt/vpi VirtualChannelConnection/vci*
This component represents a virtual channel connection terminated by a *Virtual Path Terminator (VPT)*.

For *Vccs* beneath *Vpts*, the instance value defines the VCI value for this connection—for example, Vpt/16 Vcc/32 would define a connection with a VPI of 16, and a VCI of 32. The VPI value of the *Vcc* is inherited from the parent *Vpt*.

The VPI can be in the range of 0 to 4095 and the VCI can be in the range of 0 to 65535. Note that a *Vcc* instance of 0.0 is invalid as defined in the ATM Forum. Thus, the combination of *Vpt/0 Vcc/0* is also invalid.

| | |
|---|---|
| Subcomponents | "COMPONENT AtmIf Vpt Vcc VirtualChannelDescriptor (Vcd)" |
| Opt. Subcomp. | "COMPONENT AtmIf Vpt Vcc Loop (Loop)"<br>"COMPONENT AtmIf Vpt Vcc NailedUpRelayPoint (Nrp)"<br>"COMPONENT AtmIf Vpt Vcc NailedUpEndPoint (Nep)"<br>"COMPONENT AtmIf Vpt Vcc Test (Test)"<br>"COMPONENT AtmIf Vpt Vcc SourcePvc (Src)"<br>"COMPONENT AtmIf Vpt Vcc MulticastNailedUpRelayPoint (Mnrp)" |
| Dyn. Subcomp. | "COMPONENT AtmIf Vpt Vcc TrafficManagement (Tm)"<br>"COMPONENT AtmIf Vpt Vcc EndPoint (Ep)"<br>"COMPONENT AtmIf Vpt Vcc RelayPoint (Rp)"<br>"COMPONENT AtmIf Vpt Vcc PathTraceRecord (PTRecord)"<br>"COMPONENT AtmIf Vpt Vcc RerouteInfo (RerInfo)" |
| Dyn. Subcomp. | "COMPONENT AtmIf Vpt Vcc DestinationPvc (Dst)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## VERB TRACE AtmIf Vpt Vcc

Impact: Service

Description: *TRACE AtmIf/n Vpt/vpi Vcc/vci*
*TRACE -s -v -a -e AtmIf/n Vpt/vpi Vcc/vci*

This command traces the path of an intra-network segment of a connection. It displays the names of interface and connection components along this segment of a connection.

The Trace response for a *Vcc* does not show any hops of a connection which are conveyed on a path connection (VPC). In this case the Trace command only shows the *Vcc* hop points. Note however, that if the connection traverses a *Vcc* which resides beneath a *Vpt*, the *Vpt/vpi Vcc/vci* hierarchy is displayed in the trace results.

The options for the signaling trace are as follows:

-*s*: Selects the PNNI signaling call trace instead of the Passport proprietary OAM-based trace procedure. Option -*s* must be present if any one of options -*v*, -*a*, and -*e* are present. Otherwise, it defaults to the OAM-based trace.

-*v*: Requests that the VPI.VCI values be collected along the trace. This option is only valid when the -*s* option is present.

-*a*: Requests that the call reference/end point reference values be collected along the trace. This option is only valid when the -*s* option is present.

-*e*: Used on point-to-multipoint connections to specify the end

point reference value indicating which party to trace. If no *-e* option is used for a point-to-multipoint connection, the default traces the path with endpoint reference 0, which is the first party. This option is only valid when the *-s* option is present.

Only one connection trace is supported at a time. An error message is returned if a response from the network is not received within 30 seconds.

If the verb is issued with the *-s* option for the *Vpt/vpi Vcc/vci* values that are not active or were not created by signaling (for example, control channels), the command is refused

### VERB CLEAR AtmIf Vpt Vcc

| | |
|---|---|
| Impact | Service |
| Description | *CLEAR AtmIf/n Vpt/vpi Vcc/vci*<br>This command is used to clear a switched connection which is under a *Vpt*. |

### GROUP AtmIf Vpt Vcc OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE AtmIf Vpt Vcc adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***. |

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE AtmIf Vpt Vcc operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE AtmIf Vpt Vcc usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

## GROUP AtmIf Vpt Vcc Operational (Oper)

Properties
Operational

Description
This group contains operational information for a *Vcc*, *Vpc*, or *Vpt* component.

## ATTRIBUTE AtmIf Vpt Vcc connectionPointType (cpt)

Access
Read only

Description
This attribute reflects the role of the connection component at this interface.

A value of ***connectionEndPoint*** indicates that user cells, end-to-end OAM cells, and segment OAM cells are processed by the connection component.

A value of ***segmentEndPoint*** indicates that user cells and end-to-end OAM cells are relayed by the connection component, while segment OAM cells are processed by the connection component.

A value of ***connectingPoint*** indicates that user cells, end-to-end OAM cells, and segment OAM cells are relayed by the connection component.

A value of ***unknown*** indicates that the connection component is inactive.

Values
connectionEndPoint
segmentEndPoint

| | |
|---|---|
| | connectingPoint<br>unknown |
| Default | No default |

### GROUP AtmIf Vpt Vcc ConnectionInfo (ConnInfo)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational connection characteristics information for a *Vcc* component. |

### ATTRIBUTE AtmIf Vpt Vcc distributionType (distrbt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the way data is distributed in the connection.<br><br>A value of ***pointToPoint*** indicates this connection point is part of a point-to-point connection.<br><br>A value of ***pointToMultipoint*** indicates this connection point is part of a point-to-multipoint connection. |
| Values | pointToPoint<br>pointToMultipoint |
| Default | pointToPoint |

### ATTRIBUTE AtmIf Vpt Vcc numLeaves (nlvs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of destination leaves of the connection. If the *distributionType* is ***pointToPoint*** the value of this attribute is 0. |
| Values | Decimal (0..2147483647) |
| Default | 0 |

### ATTRIBUTE AtmIf Vpt Vcc callDirection (cdir)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the direction of the call setup request for an SVC.<br><br>A value of ***fromLink*** means that the call setup originated from the link.<br><br>A value of ***toLink*** means that the call setup was directed to the link.<br><br>For PVC connections, the value of this attribute is ***notApplicable.***<br><br>For SPVC connections, the value of this attribute is ***notApplicable*** for *Vccs* with the *SourcePVC* and *DestinationPVC* subcomponents.<br><br>For Signaling channels, the value of this attribute is ***notApplicable***. |
| Values | fromLink<br>toLink<br>notApplicable |
| Default | notApplicable |

### GROUP AtmIf Vpt Vcc Status

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational status information for a *Vcc*, *Vpc* or *Vpt* component. |

### ATTRIBUTE AtmIf Vpt Vcc operStatus (opStat)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the present operational status of the *Vcc*, *Vpc* or *Vpt* component. Its value is dependent upon the current state of the *segLinkSideLoopbackState* and *endToEndLoopbackState* attributes.<br><br>The value is ***end2endUp*** when the *endToEndLoopbackState* is ***good*** and the *segLinkSideLoopbackState* is either ***good*** or ***unknown***. |

The value is ***end2endDown*** when the *endToEndLoopbackState* is ***bad*** and the *segLinkSideLoopbackState* is either ***good*** or ***unknown***.

The value is ***localUpEnd2endUnknown*** when the *endToEndLoopbackState* is ***unknown*** and the *segLinkSideLoopbackState* is ***good***.

The value is ***localDown*** when *segLinkSideLoopbackState* is ***bad***.

The value is ***localUpEnd2endUnknown*** when the *endToEndLoopbackState* is ***notApplicable*** and the *segLinkSideLoopbackState* is ***good***.

The value is ***unknown*** when the *endToEndLoopbackState* is either ***unknown*** or ***notApplicable*** and the *segLinkSideLoopbackState* is ***unknown***.

Values
unknown
end2endUp
end2endDown
localUpEnd2endUnknown
localDown

Default
No default

## ATTRIBUTE AtmIf Vpt Vcc localFailureCause

Access
Read only

Description
This attribute indicates the failure cause of the *Vcc*, *Vpc* or *Vpt* component. A value of ***noFailure*** indicates that there is currently no bandwidth related failure for this connection.

A value of ***portDown*** indicates that the interface corresponding to the parent *AtmIf* is down.

A value of ***localBwLoss*** indicates that the *AtmIf* has lost some, but not all bandwidth, and as a result, this connection has been released.

A value of ***notAdmitted*** indicates that this connection has failed to be admitted by the Connection Admission Control (CAC) algorithm.

A value of ***appNotRegistered*** indicates that there is no application registered to use this connection. This may be the case, for example when there is a *Vcc Test* application, but the test has not been started. Check the status of the application to determine why it is not functional.

A value of ***disabledByApp*** indicates that the application using this connection has requested that the connection be disabled. An example is a connection used by a trunk application where the trunk has timed out on an attempt to stage. Check the application to determine why it is not fully functional.

A value of ***bwReduced*** indicates that this connection is operating in a reduced bandwidth state. It is a bandwidth elastic connection which currently has been allocated less than the requested (equivalent) bandwidth.

A value of ***vpDown*** indicates that this connection has been notified of a fault detected at the associated VP-layer. A value of ***vpDown*** is applicable for *Vpt Vcc*s only.

Values

noFailure
localBwLoss
portDown
notAdmitted
appNotRegistered
disabledByApp
bwReduced
vpDown

Default

No default

## ATTRIBUTE AtmIf Vpt Vcc troubled

Access

Read only

Description

This attribute indicates whether or not the connection is in a troubled state. Connections become troubled because of OAM failures; when one of the attributes *segLinkSideLoopbackState*, *segSwitchSideLoopbackState*, *endToEndLoopbackState*, *aisState* (when receiving AIS cells only) or *rdiState* go bad, this attribute is set to ***yes***; otherwise it is set to ***no***.

Values

no
yes

Default

no

## ATTRIBUTE AtmIf Vpt Vcc segLinkSideLoopbackState (segLkLbkState)

Access

Read only

Description

This attribute contains the current state of the link-side segment loopback for this connection. Link-side segment loopback cells are transmitted (inserted) by a connection component in the direction of the link (port). The value of this attribute is dependent upon the current setting of the *segLinkSideLoopback* provisionable attribute, the connection point type as specified by the *connectionPointType* attribute, and the current loopback state (if applicable).

The value is ***notApplicable*** when the *connectionPointType* is a ***connectingPoint***.

The value is ***notApplicable*** when the *distributionType* is ***pointToMultipoint***.

The value is ***good*** when the *segLinkSideLoopback* is ***on***, the *connectionPointType* is a ***segmentEndPoint*** or a ***connectionEndPoint***, and the segment link side loopback is working.

The value is ***bad*** when the *segLinkSideLoopback* is ***on***, the *connectionPointType* is a ***segmentEndPoint*** or a ***connectionEndPoint***, and the link side segment loopback is not working.

The value is ***unknown*** when the *segLinkSideLoopback* is ***off***.

The value is ***unknown*** when the *segLinkSideLoopback* is ***on***, the *connectionPointType* is a ***segmentEndPoint*** and the segment switch side loopback has not yet been determined.

The state of this attribute determines, in part, the value of the *operStatus* attribute**.**

Values

good
bad
unknown
notApplicable

Default

No default

## ATTRIBUTE AtmIf Vpt Vcc segSwitchSideLoopbackState (segSwLbkState)

Access

Read only

Description

This attribute contains the current state of the switch-side segment loopback for this connection. Switch-side segment loopback cells are transmitted (inserted) by a connection component in the direction of the bus. The value of this attribute is dependent upon the current setting of the *segSwitchSideLoopback* provisionable attribute, the connection point type as specified by the *connectionPointType* attribute, and the current loopback state (if applicable).

The value is only applicable when the *connectionPointType* is a ***segmentEndPoint***. The value is ***notApplicable*** when the *connectionPointType* is a ***connectingPoint*** or ***connectionEndPoint***. The value is ***notApplicable*** when the *distributionType* is ***pointToMultipoint***.

The value is ***good*** when the *segSwitchSideLoopback* is ***on***, the *connectionPointType* is a ***segmentEndPoint*** and the segment switch side loopback is working.

The value is ***bad*** when the *segSwitchSideLoopback* is ***on***, the *connectionPointType* is a ***segmentEndPoint*** and the switch side segment loopback is not working.

The value is ***unknown*** when the *segSwitchSideLoopback* is ***off***.

The value is ***unknown*** when the *segSwitchSideLoopback* is ***on***, the *connectionPointType* is a ***segmentEndPoint*** and the segment switch side loopback has not been determined.

Values

good
bad
unknown
notApplicable

Default

No default

### ATTRIBUTE AtmIf Vpt Vcc endToEndLoopbackState (eeLbkState)

Access

Read only

Description

This attribute contains the current state of the end-to-end loopback for this connection. Its value is dependent upon the current setting of the *endToEndLoopback* provisionable attribute and the connection point type as specified by the *connectionPointType* attribute.

The value is only applicable when the *connectionPointType* is a ***connectionEndPoint***. The value is ***notApplicable*** when the *connectionPointType* is a ***connectingPoint*** or s***egmentEndPoint***. The value is ***notApplicable*** when the *distributionType* is a ***pointToMultipoint***.

The value is ***good*** when the *endToEndLoopback* is ***on***, the *connectionPointType* is a ***connectionEndPoint*** and the end-to-end loopback is working.

The value is ***bad*** when the *endToEndLoopback* is ***on***, the *connectionPointType* is a ***connectionEndPoint*** and the end-to-end loopback is not working.

The value is ***unknown*** when the *endToEndLoopback* is ***off***.

The value is ***unknown*** when the *endToEndLoopback* is ***on***, the *connectionPointType* is a ***connectionEndPoint*** and the end-to-end loopback status has not been determined.

The state of this attribute determines, in part, the value of the *operStatus* attribute.

Values

good
bad
unknown
notApplicable

Default

No default

## ATTRIBUTE AtmIf Vpt Vcc rxOamCellCongestionState (rxOamCongState)

Access

Read only

Description

This attribute contains the current state of the receive side OAM cell congestion for this connection. Its value reflects whether the rate of received OAM cells for this connection is below a specified threshold. The connection maintains a count of the number of OAM cells which are terminated per second. Once that count exceeds the specified threshold, extraction of all OAM cells for this connection is disabled for a period of one minute. This is a congestion management mechanism to prevent the processor from being overloaded with handling OAM cells for a particular connection. This mechanism ensures that tasks, such as trunks obtain enough processor cycles to remain in service, and are not adversely affected by excessive rate of OAM cells on a particular connection.

The value is ***good*** when the rate of received OAM cells is less than the allowed threshold.

The value is ***bad*** when the arrival rate has exceeded the allowed threshold. It remains ***bad*** for one minute, before returning to ***good*** again. During this timeout, extraction of all OAM cells is disabled for this connection. As a result, other loopback failure conditions may occur.

The value is ***unknown*** when the application has not yet begun to use this connection. An example is the *Test* component before a test has been started.

Each type of OAM cell is counted separately. The threshold for AIS cells is three cells per second. If more than three AIS cells are received within a one second interval, this attribute is set to ***bad***. The threshold for RDI cells and each loopback type is also three, but the threshold for trace cells is 250 per second.

The state of this attribute has no direct effect on the value of the *operStatus* attribute or on the number of troubled connections.

Values
good
bad
unknown
notApplicable

Default
No default

## ATTRIBUTE AtmIf Vpt Vcc aisState

Access
Read only

Description
This attribute contains the current state of the Alarm Indication Signal for this connection.

A value of ***good*** indicates that the connection's application is active and no alarm has occurred.

A value of ***bad*** indicates that the connection's application is active and an alarm has occurred.

A value of ***unknown*** indicates that the connection's application is inactive.

A value of ***notApplicable*** occurs when the *connectionPointType* is either a ***segmentEndPoint*** or a ***connectingPoint***.

Values
good
bad
unknown
notApplicable

Default
No default

## ATTRIBUTE AtmIf Vpt Vcc rdiState

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current state of the Remote Defect Indication for this connection.<br><br>A value of ***good*** indicates that the connection's application is active and no alarm has occurred.<br><br>A value of ***bad*** indicates that the connection's application is active and an alarm has occurred.<br><br>A value of ***unknown*** indicates that the connection's application is inactive.<br><br>A value of ***notApplicable*** occurs when the *connectionPointType* is either a ***segmentEndPoint*** or a ***connectingPoint***. |
| Values | good<br>bad<br>unknown<br>notApplicable |
| Default | No default |

## GROUP AtmIf Vpt Vcc Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains traffic statistics for a *Vcc*, *Vpc*, or *Vpt* component. |

## ATTRIBUTE AtmIf Vpt Vcc txCell

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of cells that have been transmitted from the interface on this connection.<br><br>The counter wraps to zero if it exceeds its maximum value of (2**64)-1. |

| | |
|---|---|
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Vcc txCellClp (txClp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of cells that have been transmitted from the interface on this connection with the CLP=1.<br><br>The counter wraps to zero if it exceeds its maximum value of (2**64)-1. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Vcc txCellDiscard (txcd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of cells received from the backplane on this connection that have been discarded.<br><br>Discarded cells are not counted in the *txCell* attribute.<br><br>Cells are discarded due to transmit congestion, Partial Packet Discard (PPD), Early Packet Discard (EPD), and Weighted Random Early Detection (W-RED) mechanisms, or when the connection's interface is disabled.<br><br>For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, this attribute is not applicable to connections that segment frames into cells (AAL5 adaptation). Such connections usually have a *connectionPointType* of ***connectionEndPoint***. AAL1 connections are an exception to this rule; although they have a *connectionPointType* of ***connectionEndPoint***, they do not do AAL5 adaptation at this point.<br><br>For *Vpt*s, this attribute provides an aggregated total of all *txCellDiscard* values for all connections associated with the *Vpt*. |

The counter wraps to zero if it exceeds its maximum value of (2**64)-1.

Values: Long Integer

Default: No default

### ATTRIBUTE AtmIf Vpt Vcc txCellDiscardClp (txcdClp)

Access: Read only

Description: This attribute counts the number of cells received from the backplane on this connection with CLP=1 that have been discarded.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, this attribute is not applicable and is not displayed.

This count is included in the *txCellDiscard* attribute. Discarded cells are not counted in the *txCellClp* attribute.

Cells are discarded due to transmit congestion, Partial Packet Discard (PPD), Early Packet Discard (EPD), and Weighted Random Early Detection (W-RED) mechanisms, or when the connection's interface is disabled.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, this attribute is not applicable to connections that segment frames into cells (AAL5 adaptation). Such connections usually have a *connectionPointType* of ***connectionEndPoint***. AAL1 connections are an exception to this rule; although they have a *connectionPointType* of ***connectionEndPoint***, they do not do AAL5 adaptation at this point.

For *Vpt*s, this attribute provides an aggregated total of all *txCellDiscardClp* values for all connections associated with the *Vpt*.

The counter wraps to zero if it exceeds its maximum value of (2**64)-1.

Values: Long Integer

Default — No default

### ATTRIBUTE AtmIf Vpt Vcc txFrameDiscard (txfd)

Access — Read only

Description — This attribute counts the number of frames received from the backplane on this connection that have been discarded.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, this attribute is not applicable and is not displayed.

Frames are discarded due to congestion, Partial Packet Discard (PPD), Early Packet Discard (EPD), and Weighted Random Early Detection (W-RED) mechanisms, or when the connection interface is disabled.

This count is independent of the *txCell* or *txCellDiscard* attribute.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, this attribute is applicable only to connections that segment frames into cells (AAL5 adaptation). Such connections usually have a *connectionPointType* of ***connectionEndPoint***. AAL1 connections are an exception to this rule; although they have a *connectionPointType* of ***connectionEndPoint***, they do not do AAL5 adaptation at this point.

For *Vpt*s, this attribute provides an aggregated total of all *txFrameDiscard* values for all connections associated with the *Vpt*.

Discards due to EPD, PPD, and W-RED for a standard *Vpt Vcc* are not included in this attribute. These discards are counted in the *Vcc*'s parent *Vpt txFrameDiscard* attribute.

The counter wraps to zero if it exceeds its maximum value of (2**64)-1.

Values — Long Integer

Default — No default

## ATTRIBUTE AtmIf Vpt Vcc txFrameDiscardClp (txfdClp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of discarded frames on this connection that were received from the backplane and composed of one or more CLP=1 cells.<br><br>For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, this attribute is not applicable and is not displayed.<br><br>Frames are discarded due to congestion, Partial Packet Discard (PPD), Early Packet Discard (EPD), and Weighted Random Early Detection (W-RED) mechanisms, or when the connection interface is disabled.<br><br>This count is included in the *txFrameDiscard* attribute.<br><br>For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, this attribute is applicable only to connections that segment frames into cells (AAL5 adaptation). Such connections usually have a *connectionPointType* of ***connectionEndPoint***. AAL1 connections are an exception to this rule; although they have a *connectionPointType* of ***connectionEndPoint***, they do not do AAL5 adaptation at this point.<br><br>For *Vpt*s, this attribute provides an aggregated total of all *txFrameDiscardClp* values for all connections associated with the *Vpt*.<br><br>Discards due to EPD, PPD, and W-RED for a standard *Vpt Vcc* are not included in this attribute. These discards are counted in the *Vcc*'s parent *Vpt txFrameDiscardClp* attribute.<br><br>The counter wraps to zero if it exceeds its maximum value of (2**64)-1. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Vcc rxCell

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of cells that have been received from the interface on this connection.<br><br>For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, this count does not include cells that have been discarded by the interface due to non-conformance with UPC.<br><br>The counter wraps to zero if it exceeds its maximum value of (2**64)-1. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Vcc rxCellClp (rxClp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of cells that have been received from the interface on this connection with the CLP=1.<br><br>For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, this attribute is not applicable and is not displayed.<br><br>The counter wraps to zero if it exceeds its maximum value of (2**64)-1. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Vcc rxCellDiscard (rxcd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of cells received from the interface on this connection that have been discarded. This count is included in the *rxCell* attribute.<br><br>This count includes cells discarded due to non-conformance with UPC, cells which are part of a frame which has been discarded |

due to an AAL5 frame reassembly error, cells which are discarded due to congestion, or cells which are received while the next hop connection to which the traffic is directed across the backplane is down. The next hop connection is the *Vcc* or *Vpc* identified by the *nextHop* attribute of the *Nrp* or *Rp* component.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, this attribute is not applicable to connections that reassemble cells into frames (AAL5 adaptation). Such connections usually have a *connectionPointType* of ***connectionEndPoint***. AAL1 connections are an exception to this rule; although they have a *connectionPointType* of ***connectionEndPoint***, they do not do AAL5 adaptation at this point.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, this count does not include cells discarded due to non-conformance with UPC.

For *Vpt*s, this attribute provides an aggregated total of all *rxCellDiscard* values for all connections associated with the *Vpt*. Discards due to non-conformance with UPC at the VP layer, for a standard *Vpt Vcc*, are not included in this attribute. These discards are counted in the *Vcc*'s parent *Vpt rxCellDiscard* attribute.

The counter wraps to zero if it exceeds its maximum value of (2**64)-1.

Values — Long Integer

Default — No default

## ATTRIBUTE AtmIf Vpt Vcc rxCellDiscardClp (rxcdClp)

Access — Read only

Description — This attribute counts the number of cells received from the interface on this connection with CLP=1 that have been discarded. This count is included in the *rxCell* and *rxCellDiscard* attributes.

This count includes cells discarded due to non-conformance with UPC, cells which are part of a frame which has been discarded due to an AAL5 frame reassembly error, cells which are discarded due to congestion, or cells which are received while the next hop connection to which the traffic is directed across the backplane is down. The next hop connection is the *Vcc* or *Vpc* identified by the *nextHop* attribute of the *Nrp* or *Rp* component.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, this attribute is not applicable and is not displayed.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, this attribute is not applicable to connections that reassemble cells into frames (AAL5 adaptation). Such connections usually have a *connectionPointType* of ***connectionEndPoint***. AAL1 connections are an exception to this rule; although they have a *connectionPointType* of ***connectionEndPoint***, they do not do AAL5 adaptation at this point.

For *Vpt*s, this attribute provides an aggregated total of all *rxCellDiscardClp* values for all connections associated with the *Vpt*. Discards due to non-conformance with UPC at the VP layer, for a standard *Vpt Vcc*, are not included in this attribute. These discards are counted in the *Vcc*'s parent *Vpt rxCellDiscardClp* attribute.

The counter wraps to zero if it exceeds its maximum value of (2**64)-1.

Values — Long Integer

Default — No default

## ATTRIBUTE AtmIf Vpt Vcc rxFrameDiscard (rxfd)

Access — Read only

Description — This attribute counts the number of frames received from the interface on this connection that have been discarded. This count

is independent of the *rxCellDiscard* attribute.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, this attribute is not applicable and is not displayed.

This count includes frames discarded due to an AAL5 frame reassembly error, frames discarded due to early packet discard (EPD), frames discarded due to processor (CPU) congestion, and frames discarded due to insufficient frame memory. The amount of available frame memory is determined by the *Lp Eng Arc Ov* component.

This attribute is applicable only to connections that reassemble incoming cells into frames. Such connections usually have a *connectionPointType* of ***connectionEndPoint***. AAL1 connections are an exception to this rule; although they have a *connectionPointType* of ***connectionEndPoint***, they do not do AAL5 adaptation at this point.

For *Vpt*s, this attribute provides an aggregated total of all *rxFrameDiscard* values for all connections associated with the *Vpt*.

The counter wraps to zero if it exceeds its maximum value of (2**64)-1.

Values — Long Integer

Default — No default

## ATTRIBUTE AtmIf Vpt Vcc rxFrameDiscardClp (rxfdClp)

Access — Read only

Description — This attribute counts the number of discarded frames on this connection that were received from the interface and composed of one or more CLP1 cells. This count is included in the *rxFrameDiscard* attribute. It is independent of the *rxCellDiscard* attribute.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, this attribute is not applicable and is not displayed.

This count includes frames discarded due to an AAL5 frame reassembly error, frames discarded due to early packet discard (EPD), frames discarded due to processor (CPU) congestion, and frames discarded due to insufficient frame memory. The amount of available frame memory is determined by the *Lp Eng Arc Ov* component.

This attribute is applicable only to connections that reassemble incoming cells into frames. Such connections usually have a *connectionPointType* of ***connectionEndPoint***. AAL1 connections are an exception to this rule; although they have a *connectionPointType* of ***connectionEndPoint***, they do not do AAL5 adaptation at this point.

For *Vpt*s, this attribute provides an aggregated total of all *rxFrameDiscardClp* values for all connections associated with the *Vpt*.

The counter wraps to zero if it exceeds its maximum value of (2**64)-1.

Values — Long Integer

Default — No default

## ATTRIBUTE AtmIf Vpt Vcc rxUpcViolationOnEnforcer1 (rxEnforcer1)

Access — Read only

Description — This attribute counts the number of UPC violations observed by the Generic Cell Rate Algorithm (GCRA) Enforcer 1. This attribute is only applicable if UPC is enforced or monitored on the connection.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm***, ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, ***16pOC3SmIrAtm***, ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, this attribute is not applicable and is not displayed.

When the value of the *rxTrafficDescType* attribute for this

connection is 3, 4, 5, 6, 7, 8, or 9 (for UBR with MDCR connections) Enforcer 1 enforces conformance of traffic received from the interface to PCR CLP0+1.

When the value of the *rxTrafficDescType* attribute for this connection is 9 (for ABR connections), Enforcer 1 performs the Dynamic Generic Cell Rate Algorithm (DGCRA) used for the Available Bit Rate (ABR) service category.

If UPC is enforced all non-conforming cells are discarded by this enforcer. These discarded cells are included in the *rxCellDiscard* attribute.

For basic *Vpt*s, this attribute provides an aggregated total of all *rxUpcViolationOnEnforcer1* values for all *Vcc*s associated with the *Vpt*. This attribute is not applicable for standard *Vpt Vcc*s.

The counter wraps to zero if it exceeds its maximum value of (2**64)-1.

Values: Long Integer

Units: cells

Default: No default

### ATTRIBUTE AtmIf Vpt Vcc rxUpcViolationOnEnforcer2 (rxEnforcer2)

Access: Read only

Description: This attribute counts the number of UPC violations observed by the Generic Cell Rate Algorithm (GCRA) Enforcer 2. This attribute is only applicable if UPC is enforced or monitored on the connection.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm***, ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, ***16pOC3SmIrAtm***, ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, this attribute is not applicable and is not displayed.

This attribute is only applicable if the value of the *rxTrafficDescType* attribute for this connection is 4, 5, 6, 7, or 8.

When the value of the *rxTrafficDescType* attribute is 4, or 5**,** Enforcer 2 enforces conformance of traffic received from the interface to PCR CLP0.

When the value of the *rxTrafficDescType* attribute is 6**,** Enforcer 2 enforces conformance of traffic received from the interface to SCR CLP0+1.

When the value of the *rxTrafficDescType* attribute is 7, or 8, Enforcer 2 enforces conformance of traffic received from the interface to SCR CLP0.

If UPC is enforced, Enforcer 2 discards non-conforming cells for *rxTrafficDescType* values of 4, 6, and 7. It tags non-conforming cells for *rxTrafficDescType* values of 5, and 8. Discarded cells are counted in the rxCellDiscard attribute.

For basic *Vpt*s, this attribute provides an aggregated total of all *rxUpcViolationOnEnforcer2* values for all *Vcc*s associated with the *Vpt*. This attribute is not applicable for standard *Vpt Vcc*s.

The counter wraps to zero if it exceeds its maximum value of (2**64)-1.

Values — Long Integer

Units — cells

Default — No default

## ATTRIBUTE AtmIf Vpt Vcc rxAal5FrameError (rxfer)

Access — Read only

Description — This attribute counts the number of frames received from the interface on this connection that have AAL5 length errors or AAL5 CRC errors.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, this attribute is not applicable and is not displayed.

AAL5 length or CRC errors typically occur because of cell discards due to congestion, UPC, or due to corruption of data between the AAL5 segmentation and reassembly end points.

This attribute is applicable only to connections that reassemble incoming cells into frames. Such connections usually have a *connectionPointType* of ***connectionEndPoint***. AAL1 connections are an exception to this rule; although they have a *connectionPointType* of ***connectionEndPoint***, they do not do AAL5 adaptation at this point.

For *Vpt*s, this attribute provides an aggregated total of all *rxAal5FrameError* values for all connections associated with the *Vpt*.

The counter wraps to zero if it exceeds its maximum value of (2**64)-1.

Values: Long Integer

Default: No default

## ATTRIBUTE AtmIf Vpt Vcc rxAal5FrameAbort (rxfa)

Access: Read only

Description: This attribute counts the number of frames received from the interface on this connection that have the AAL5 length field set to zero.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, this attribute is not applicable and is not displayed.

An AAL5 length of zero is an indication by the far end segmentation point, to this reassembly point, that the frame is to be discarded without reassembly. This mechanism is typically used by a segmentation point if it detects an error in a frame after some of the cells belonging to that frame have already been transmitted.

This attribute is applicable only to connections that reassemble

incoming cells into frames. Such connections usually have a *connectionPointType* of ***connectionEndPoint***. AAL1 connections are an exception to this rule; although they have a *connectionPointType* of ***connectionEndPoint***, they do not do AAL5 adaptation at this point.

For *Vpt*s, this attribute provides an aggregated total of all *rxAal5FrameAbort* values for all connections associated with the *Vpt*.

The counter wraps to zero if it exceeds its maximum value of (2**64)-1.

Values: Long Integer

Default: No default

## COMPONENT AtmIf Vpt Vcc VirtualChannelDescriptor (Vcd)

Groups: "GROUP AtmIf Vpt Vcc Vcd Loopback (Lbk)"
"GROUP AtmIf Vpt Vcc Vcd Accounting (Acct)"

Scope: Device

Description: *AtmIf/n Vcc/vpi.vci VirtualChannelDescriptor*,
*AtmIf/n Vpt/vpi Vcc/vci VirtualChannelDescriptor*
The *Vcd* component contains provisioning information about its parent *Vcc* component.

Subcomponents: "COMPONENT AtmIf Vpt Vcc Vcd TrafficManagement (Tm)"

Opt. Subcomp.: "COMPONENT AtmIf Vpt Vcc Vcd PerformanceMonitoring (Pm)"

Common Verbs:
- Help
- List
- Display

## GROUP AtmIf Vpt Vcc Vcd Loopback (Lbk)

Properties: Provisioned

Description: This group contains the provisionable loopback attributes for a *Vcc*, *Vpc*, or *Vpt* component.

Note that certain loopback requests may not be possible on a given connection. In such cases, the corresponding operational loopback attribute in the *Status* group of the *Vcc*, *Vpc*, or *Vpt* component indicates ***notApplicable*** and the requested loopback is not performed.

If loopbacks are provisioned to be on, and for any reason the segment or end-to-end OAM loopback cells are not relayed, the connection component becomes troubled, and user cell traffic may be discarded. If loopbacks are provisioned to be on, all of the nodes in the segment, and external networks which are in the end-to-end connection must relay the OAM loopback cells.

## ATTRIBUTE AtmIf Vpt Vcc Vcd segLinkSideLoopback (segLkLbk)

Access: Read and write

Description: This attribute specifies whether link-side segment loopback insertion should be performed on this connection.

A value of ***sameAsInterface*** means the link-side segment loopback insertion for the connection is based on the *segLinkSideLoopback* attribute of the connection's parent *AtmIf* component—if the ATM interface has link-side segment loopback insertion turned on, then link-side segment loopback insertion is also on for the connection.

A value of ***on***, or ***off*** means link-side segment loopback insertion is turned on or off respectively for the connection regardless of the provisioning of the parent *AtmIf* component.

Note that link-side segment loopback insertion is not possible if the value of the *connectionPointType* attribute of the *Vcc* or *Vpc* component is ***connectingPoint***. Link-side segment loopback insertion is also not possible if the value of the *distributionType* attribute of the *Vcc* is ***pointToMultipoint***. In such cases, the operational *segLinkSideLoopbackState* attribute indicates ***notApplicable*** and link-side segment loopback insertion is not performed.

Link-side segment loopback insertion is always possible on a *Vpt*.

Values
on
off
sameAsInterface

Default
sameAsInterface

### ATTRIBUTE AtmIf Vpt Vcc Vcd segSwitchSideLoopback (segSwLbk)

Access
Read and write

Description
This attribute specifies whether switch-side segment loopback insertion should be performed on this connection.

A value of ***sameAsInterface*** means the switch-side segment loopback insertion for the connection is based on the *segSwitchSideLoopback* attribute of the connection's parent *AtmIf* component—if the ATM interface has switch-side segment loopback insertion turned on, then switch-side segment loopback insertion is also on for the connection.

A value of ***on***, or ***off*** means switch-side segment loopback insertion is turned on or off respectively for the connection regardless of the provisioning of the parent *AtmIf* component.

Note that switch-side segment loopback insertion is not possible if the value of the *connectionPointType* attribute of the *Vcc* or *Vpc* component is ***connectingPoint*** or ***connectionEndPoint***. Switch-side segment loopback insertion is also not possible if the value of the *distributionType* attribute of the *Vcc* is ***pointToMultipoint*** In such cases, the operational *segSwitchSideLoopbackState* attribute indicates ***notApplicable*** and switch-side segment loopback insertion is not performed.

Switch-side segment loopback is never possible on a *Vpt*.

Values
on
off
sameAsInterface

Default
sameAsInterface

### ATTRIBUTE AtmIf Vpt Vcc Vcd endToEndLoopback (eeLbk)

Access
Read and write

Description

This attribute specifies whether end-to-end loopback insertion should be performed on this connection.

A value of ***sameAsInterface*** means the end-to-end loopback insertion for the connection is based on the *endToEndLoopback* attribute of the connection's parent *AtmIf* component—if the ATM interface has end-to-end loopback insertion turned on, then end-to-end loopback insertion is also on for the connection.

A value of ***on***, or ***off*** means end-to-end loopback insertion is turned on or off respectively for the connection regardless of the provisioning of the parent *AtmIf* component.

Note that end-to-end loopback insertion is not possible if the value of the *connectionPointType* attribute of the *Vcc* or *Vpc* component is ***connectingPoint***, or ***segmentEndPoint***. End-to-end loopback insertion is also not possible if the value of the *distributionType* attribute of the *Vcc* is ***pointToMultipoint***. In such cases, the operational *endToEndLoopbackState* attribute indicates ***notApplicable*** and end-to-end loopback insertion is not performed.

End-to-end loopback insertion is always possible on a *Vpt*.

Values

on
off
sameAsInterface

Default

sameAsInterface

## ATTRIBUTE AtmIf Vpt Vcc Vcd mCastConnectionType (connType)

Access

Read and write

Criticality

Component

Description

This attribute specifies if this *Vcc* or *Vpc* is part of point-to-point or point-to-multiPoint connection.

A value of ***pointToMultiPointRoot*** must be set when this *Vcc* has an *Msrc* or an *Mnrp* subcomponent, or this *Vpc* has an *Mnrp* subcomponent.

A value of ***pointToMultiPointLeaf*** must be set when this *Vcc* or *Vpc* has a *Nrp* subcomponent and its *nextHop* attribute is linked to a *Mnrp* component.

Otherwise a value of ***pointToPoint*** must be set.

Values: pointToPoint (ptp)
pointToMultipointRoot (pmpRoot)
pointToMultipointLeaf (pmpLeaf)

Default: pointToPoint

## GROUP AtmIf Vpt Vcc Vcd Accounting (Acct)

Properties: Provisioned

Description: This group contains the provisionable ATM accounting attributes for a *Vcc, Vpc,* or *Vpt* component.

## ATTRIBUTE AtmIf Vpt Vcc Vcd correlationTag (tag)

Access: Read and write

Description: This attribute specifies a unique identifier for each end of a PVC. It that may be used by downstream processing systems to correlate accounting records issued at different nodes in the network. The attribute can be up to 64 bytes long. If it is less than 64 bytes, it is zero filled on the right to create a 64 byte value. The resulting value is recorded in the attribute *callConnId* for this PVC's ATM accounting records.

If the value is a null string then this PVC does not have any accounting records generated for it.

Values: String (0..64, ASCII)

Default: ""

## COMPONENT AtmIf Vpt Vcc Vcd TrafficManagement (Tm)

Groups: "GROUP AtmIf Vpt Vcc Vcd Tm Provisioned (Prov)"

Scope: Device

Description: *AtmIf/n Vcc/vpi.vci Vcd TrafficManagement,*
*AtmIf/n Vpc/vci Vpd TrafficManagement,*

*AtmIf/n Vpt/vpi Vpd TrafficManagement,*
*AtmIf/n Vpt/vpi Vcc/vci Vcd TrafficManagement*
This component contains provisioned traffic management attributes of a connection. It is added automatically when a *Vcc, Vpc,* or *Vpt* is added in provisioning mode. It is a mandatory subcomponent of the *Vcd* or *Vpd* component.

Opt. Subcomp. "COMPONENT AtmIf Vpt Vcc Vcd Tm AvailableBitRate (Abr)"

Common Verbs
Help
List
Display

## GROUP AtmIf Vpt Vcc Vcd Tm Provisioned (Prov)

Properties Provisioned

Description This group contains traffic related provisionable attributes for the *Vcc, Vpc,* and *Vpt* components. Changing any of the attributes in this group causes a service interruption on the *Vcc, Vpc,* or *Vpt* component.

## ATTRIBUTE AtmIf Vpt Vcc Vcd Tm txTrafficDescType (txTdt)

Access Read and write

Criticality Component

Description This attribute specifies the type of traffic management which is applied to the transmit direction of this connection as defined in the ATM Forum. The *txTrafficDescType* determines the number and meaning of the parameters in the *txTrafficDescParm* attribute.

Values
1
2
3
4
5
6
7

| | |
|---|---|
| | 8<br>9 |
| Default | 1 |

### ATTRIBUTE AtmIf Vpt Vcc Vcd Tm fwdQosClass (fwdQos)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the quality of service for the forward direction for this connection. This attribute is only used for SPVC connections.<br><br>Class 1 supports a QOS that meets Service Class A performance requirements (circuit emulation, constant bit rate video).<br><br>Class 2 supports a QOS that meets Service Class B performance requirements (variable bit rate audio and video).<br><br>Class 3 supports a QOS that meets Service Class C performance requirements (Connection-Oriented Data Transfer).<br><br>Class 4 supports a QOS that meets Service Class D performance requirements (Connectionless Data Transfer).<br><br>Class 0 is the unspecified bit rate QOS class; no objective is specified for the performance parameters. |
| Values | 0<br>1<br>2<br>3<br>4 |
| Default | 0 |

### ATTRIBUTE AtmIf Vpt Vcc Vcd Tm txQueueLimit (txQlim)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |

| | |
|---|---|
| Description | This attribute specifies an override to the default transmit queue limit for this connection.<br><br>A value of ***sameAsCa*** means that the default common or per-VC transmit queue limit, as defined by the CA service category, is used for this connection. For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, the value ***sameAsCa*** must be specified.<br><br>A value from 5 to 512,000 means that the connection transmit queue limit differs from the default common or per-VC transmit queue limit, as defined by the CA service category. A value other than ***sameAsCa*** is ignored for connections where common queuing is specified for the service category.<br><br>For ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, this attribute is used to set the per-VC utilization limit of the service category common queue.<br><br>For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, the valid range for this attribute is from 5 to 512000 inclusive.<br><br>For ***16pOC3PosAtm*** cards, the valid range for this attribute is from ***32*** to ***261120*** inclusive.<br><br>On all other cards, the valid range for this attribute is from 5 to 63488 inclusive.<br><br>The actual transmit queue limit for a connection is visible in the *Vcc Tm*, *Vpc Tm* or *Vpt txQueueThresholds* attribute.<br><br>This attribute is not applicable for basic *Vpt*s. |
| Values | Decimal (5..512000)<br>sameAsCa |
| Units | cells |
| Default | sameAsCa |

### ATTRIBUTE AtmIf Vpt Vcc Vcd Tm holdingPriority (hpri)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the holding priority of this connection. In a situation where the link bandwidth fluctuates, such as over an IMA link, holding priority is used to determine which connections are held and which are released. Holding priority 4 connections are the first to be released. Holding priority 0 connections are the last to be released. The default holding priority for a provisioned connection is higher then default holding priorities for dynamic (SVC) connections.<br><br>The value of this attribute may be overridden by certain applications, for example *Vcc Test*, which use this connection.<br><br>This attribute is not applicable for *Vpt Vcc*s. |
| Values | 0<br>1<br>2<br>3<br>4 |
| Default | 2 |

### ATTRIBUTE AtmIf Vpt Vcc Vcd Tm rxTrafficDescType (rxTdt)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the type of traffic management which is applied to the receive direction of this connection as defined in the ATM Forum. The *rxTrafficDescType* determines the number and meaning of the parameters in the *rxTrafficDescParm* attribute.<br><br>The value ***sameAsTx*** means the *rxTrafficDescType* as well as the *rxTrafficDescParm* attribute values are taken from the values of the *txTrafficDescType* and *txTrafficDescParm* attributes. |

| | |
|---|---|
| Values | 1<br>2<br>3<br>4<br>5<br>6<br>7<br>8<br>9<br>sameAsTx |
| Default | sameAsTx |

### ATTRIBUTE AtmIf Vpt Vcc Vcd Tm bwdQosClass (bwdQos)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the quality of service for the backward direction for this connection. This attribute is only used for SPVC connections.<br><br>Class 1 supports a QOS that meets Service Class A performance requirements (Circuit emulation, constant bit rate video).<br><br>Class 2 supports a QOS that meets Service Class B performance requirements (Variable bit rate audio and video).<br><br>Class 3 supports a QOS that meets Service Class C performance requirements (Connection-Oriented Data Transfer).<br><br>Class 4 supports a QOS that meets Service Class D performance requirements (Connectionless Data Transfer).<br><br>Class 0 is the unspecified bit rate QOS class; no objective is specified for the performance parameters.<br><br>The ***sameAsFwd*** selection sets the backward quality of service to be the same as the forward quality of service. |
| Values | 0<br>1 |

2
3
4
sameAsFwd

Default sameAsFwd

### ATTRIBUTE AtmIf Vpt Vcc Vcd Tm atmServiceCategory (service)

Access Read and write

Criticality Component

Description This attribute specifies the ATM service category for both directions of the connection.

The value ***derivedFromBBC*** may only be used if the *Src* or *Dst* component is provisioned under this connection. Otherwise a specific ATM service category must be specified.

A value of ***derivedFromBBC*** means the Broadband Bearer Capability (BBC) and *bestEffort* attributes are used to determine the *atmServiceCategory* of this connection.

A value other than ***derivedFromBBC*** means the value of this attribute is used to override the provisioned BBC Information Element parameters. In this case, the BBC attributes are not used.

The ***constantBitRate*** service category is intended for real-time applications, that is those requiring tightly constrained delay and delay variation, as would be appropriate for voice and video applications. The consistent availability of a fixed quantity of bandwidth is considered appropriate for CBR service. Cells which are delayed beyond the value specified by Cell Transfer Delay are assumed to be of significantly reduced value to the application.

The ***rtVariableBitRate*** service category is intended for real-time applications, that is those requiring tightly constrained delay and delay variation, as would be appropriate for voice and video applications. Sources are expected to transmit at a rate which varies with time. Equivalently, the source can be described as “bursty”. Cells which are delayed beyond the value specified by

CTD are assumed to be of significantly reduced value to the application. Real-time VBR service may support statistical multiplexing of real-time sources.

The ***nrtVariableBitRate*** service category is intended for non-real time applications which have bursty traffic characteristics and which can be characterized in terms of a PCR, SCR, and MBS. For those cells which are transferred within the traffic contract, the application expects a low cell loss ratio. For all connections, it expects a bound on the mean cell transfer delay. Non real-time VBR service may support statistical multiplexing of connections.

The ***availableBitRate*** service is an ATM layer service category for which the limiting ATM layer transfer characteristics provided by the network may change subsequent to connection establishment. ABR service has a flow control mechanism which supports several types of feedback to control the source rate in response to changing ATM layer transfer characteristics. ABR service is not intended to support real-time applications.

The ***unspecifiedBitRate*** service is intended for non real-time applications; that is, those not requiring tightly constrained delay and delay variation. UBR sources are expected to be bursty. UBR service supports a high degree of statistical multiplexing among sources. UBR service does not specify traffic related service guarantees. No numerical commitments are made with respect to the cell loss ratio experienced by a UBR connection, or as to the cell transfer delay experienced by cells on the connection.

| | |
|---|---|
| Values | unspecifiedBitRate (ubr)<br>constantBitRate (cbr)<br>rtVariableBitRate (rtvbr)<br>nrtVariableBitRate (nrtvbr)<br>availableBitRate (abr)<br>derivedFromBBC (derived) |
| Default | unspecifiedBitRate |

### ATTRIBUTE AtmIf Vpt Vcc Vcd Tm trafficShaping (trShaping)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |

Description

This attribute specifies whether this connection uses traffic shaping when transmitting traffic to the ATM interface.

This attribute is ignored if the *atmServiceCategory* is ***availableBitRate***.

For ***1pOC12SmLrAtm***, ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, traffic shaping is not available, therefore this attribute is ignored.

A value of ***sameAsCa*** means traffic shaping for the connection is based on the value of the *trafficShaping* attribute of the connection's service category component under the *CA*. If the service category has *trafficShaping* set to ***enabled*** or ***inverseUpc***, then traffic shaping is enabled for the connection. Note that enabling traffic shaping may have no effect under certain cases. These cases are listed in the description of the *trafficShaping* operational attribute, which is under the *Vcc Tm*, *Vpc Tm*, or *Vpt Tm* components.

A value of ***disabled*** means traffic shaping for this connection is disabled regardless of the provisioning of the connection's service category component.

Values

disabled
sameAsCa

Default

sameAsCa

## ATTRIBUTE AtmIf Vpt Vcc Vcd Tm unshapedTransmitQueueing (unshap)

Access

Read and write

Criticality

Component

Description

This attribute specifies the transmit queuing method for this connection if it is unshaped. The two possible methods are per-VC queuing and common queuing. This attribute does not apply if the connection is shaped.

A value of ***sameAsCa*** means the transmit queuing method for the connection is based on the *unshapedTransmitQueueing* attribute of the connection's service category component under the *CA*.

A value of ***common*** means transmit traffic on this unshaped connection is destined for the common queue.

For ***2pOC3MmAtm2***, ***2pOC3SmAtm2***, ***2pSTM1eAtm***, ***2pSTM1eCh***, ***4pOC3MmAtm***, ***4pOC3SmIrAtm***, ***4pDS3ChAtm***, ***3pDS3Atm2***, ***3pE3Atm2***, ***12pDS3Atm***, ***12pE3Atm***, MSA32, ***1pOC12SmLrAtm***, ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, ***16pOC3SmIrAtm***, ***16pOC3PosAtm***, ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, this attribute must have the value ***sameAsCa***.

This attribute is ignored in the following situations:
- if the connection has *trafficShaping* ***enabled*** or ***inverseUpc***, or
- if the *atmServiceCategory* is ***availableBitRate***, or
- if the *atmServiceCategory* is ***constantBitRate***, or
- for basic *Vpt*s and standard *Vpt Vcc*s.

Values
common
sameAsCa

Default
sameAsCa

## ATTRIBUTE AtmIf Vpt Vcc Vcd Tm weight

Access
Read and write

Criticality
Component

Description
This attribute specifies an override for the weight of this unshaped connection. This attribute is ignored for shaped connections, for ABR connections, and basic *Vpt*s.

A value of ***sameAsCa*** means the weight is determined by the *weightPolicy* attribute under the *CA* service category component for all but standard *Vpt Vcc*s. For standard *Vpt Vcc*s, the weight is determined by the *Vcc*'s service category, when the value is set to ***sameAsCa***.

A value from 1 to 4095 means that value is used for the fairness weight of this connection relative to other connections. For all but standard *Vpt Vcc*s, fairness weight determines the proportion of transmit cell opportunities which are allocated to this connection,

compared to other connections in the same service category. For standard *Vpt Vcc*s, fairness weight determines the proportion of transmit cell opportunities which are allocated to this connection, compared to other connections associated with the *Vpt*.

A value of ***upToQueueLimit*** means the fairness weight is limited only by the *txQueueLimit*.

This attribute is not applicable and is ignored for ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm***, ***1pOC12SmLrAtm***, ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, ***16pOC3SmIrAtm***, and ***16pOC3PosAtm*** cards, the value ***upToQueueLimit*** is not permitted.

Values
Decimal (1..4095)
sameAsCa
upToQueueLimit

Default
sameAsCa

## ATTRIBUTE AtmIf Vpt Vcc Vcd Tm forceTagging (tagging)

Access
Read and write

Criticality
Component

Description
This attribute specifies whether force tagging of the CLP bit is enforced for cells of this connection.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm***, ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, and for *Vpt*s, this attribute is not applicable and is ignored.

A value of ***sameAsCa*** means the force tagging functionality is determined by the *forceTagging* attribute under the *CA* service category component.

A value of ***enabled*** means force tagging is enabled. When this option is selected, the CLP bit is set to 1 for all cells on the

connection.

A value of ***disabled*** means force tagging is disabled. When this option is selected, the CLP bit is unchanged for cells on the connection.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, force tagging applies to cells in the receive direction. For all other cards, force tagging applies to cells in the transmit direction. In this case, cells which are tagged are counted in the *txCellClp* attribute.

Values
sameAsCa
enabled
disabled

Default
sameAsCa

## ATTRIBUTE AtmIf Vpt Vcc Vcd Tm usageParameterControl (upc)

Access
Read and write

Criticality
Component

Description
This attribute specifies whether this connection enables usage parameter control (UPC) when receiving traffic from the ATM interface.

The value ***sameAsCa*** means UPC for the connection is based on the value of the *usageParameterControl* attribute of the service category component under the *AtmIf CA*. If the service category has UPC ***enforced*** or ***monitored***, then UPC is enabled on the connection.

The value ***disabled*** means UPC for this connection is disabled regardless of the provisioning of the service category.

The value ***enforced*** means UPC for this connection is enforced regardless of the provisioning of the service category. When UPC is enforced, non-conforming cells are either tagged or discarded depending on the *rxTrafficDescriptorType*.

The value ***monitored*** means UPC for this connection is

monitored regardless of the provisioning of the service category. When UPC is monitored, instead of the non-conforming cells being tagged or discarded, they are merely counted in the UPC violations counts and passed on unchanged.

Note that setting UPC to ***enforced*** or ***monitored*** may have no effect under certain cases. These cases are listed in the description of the *usageParameterControl* operational attribute, which is under the *Vcc, Vpc,* and *Vpt* components.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, the value ***monitored*** is not supported.

For ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, the values ***enforced***, and ***monitored***, are not supported.

Values
enforced
disabled
sameAsCa
monitored

Default
sameAsCa

## ATTRIBUTE AtmIf Vpt Vcc Vcd Tm bearerClassBbc (bcBbc)

Access
Read and write

Criticality
Component

Description
This attribute specifies the bearer capability. This attribute is only used for SPVC and SPVP connections. It is one of the Broadband Bearer Capability (BBC) attributes. The purpose of the BBC information element is to indicate a requested broadband connection-oriented bearer service to be provided by the network.

The value ***derivedFromServiceCategory*** specifies that the actual value which is used for this connection is derived from the value of the *atmServiceCategory.* Either, this attribute must be set to ***derivedFromServiceCategory***, or the *atmServiceCategory* attribute must be set to ***derivedFromBBC***, but not both.

Class ***a*** service is a connection-oriented, constant bit rate ATM

transport service. Class ***a*** service has end to end timing requirements and may require stringent cell loss, cell delay and cell delay variation performance.When ***a*** is set, the user is requesting more than an ATM only service. The network may look at the AAL to provide interworking based upon its contents.

Class ***c*** service is a connection-oriented, variable bit rate ATM transport service. Class ***c*** service has no end-to-end timing requirements. When ***c*** is set, the user is requesting more than an ATM only service. The network interworking function may look at the AAL and provide service based on it.

Class ***x*** service is a connection-oriented ATM transport service where the AAL, *trafficType* (***vbr*** or ***cbr***) and timing requirements are user defined (that is, transparent to the network).When ***x*** is set the user is requesting an ATM only service from the network. In this case, the network shall not process any higher layer protocol.

Class **vp** service is used to specify a transparent VP service. When the value of this attribute is vp, the user is requesting an ATM only service from the network. In this case, the network shall not process any higher layer protocol. This service differs from class x service in that with the class vp service both the VCI field (except or VCI values 0, 3, 4, and 6 through 15) and Payload Type field are transported transparently by the network. This attribute value is only applicable to SPVP connections.

Values
a
c
x
vp
derivedFromServiceCategory

Default
derivedFromServiceCategory

## ATTRIBUTE AtmIf Vpt Vcc Vcd Tm transferCapabilityBbc (tcBbc)

Access
Read and write

Criticality
Component

Description
This attribute specifies the transfer capability for this connection. Uni 3.0/3.1 traffic type and end-to-end timing parameters are

mapped into this parameter as follows:
<transferCapability: TrafficType, Timing>
0: NoIndication, NoIndication
1: NoIndication, yes
2: NoIndication, no
5: CBR, yes
8: VBR, NoIndication
9: VBR, yes
10: VBR, no

The value ***notApplicable*** specifies that the user does not want to specify the transfer capability.

The CBR traffic type refers to traffic offered on services such as a constant bit rate video service or a circuit emulation.
The VBR traffic type refers to traffic offered on services such as packetized audio and video, or data.

The value no indication for traffic type is used if the user has not set the traffic type; similarly for end-to-end timing.

The value yes for end-to-end timing indicates that end-to-end timing is required.

The value no for end-to-end timing indicates that end-to-end timing is not required.

The value ***derivedFromServiceCategory*** specifies that the actual value which is used for this connection is derived from the value of the *atmServiceCategory*. Either, this attribute must be set to ***derivedFromServiceCategory***, or the *atmServiceCategory* attribute must be set to ***derivedFromBBC***, but not both.

Values

0
1
2
5
8
9
10

| | |
|---|---|
| | notApplicable<br>derivedFromServiceCategory |
| Default | derivedFromServiceCategory |

### ATTRIBUTE AtmIf Vpt Vcc Vcd Tm txWredThreshold

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the threshold for weighted random early detection (WRED). This threshold is calculated as a percentage of the early packet discard (EPD) threshold, which is 85% of the transmit queue length. When the value is ***25%***, WRED starts as soon as the queue is 25% of the way to the EPD threshold. When the value is ***50%***, WRED starts later, after the queue is 50% of the way to the EPD threshold. When the value is ***75%***, WRED starts only when the queue is 75% of the way to the EPD threshold.<br><br>This attribute is ignored if the value of the *txWredMode* or *txPacketWiseDiscard* attributes is ***disabled.***<br><br>For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm***, and ***1pOC12SmLrAtm*** cards, this attribute is not applicable and is ignored. |
| Values | Decimal (25; 50; 75) |
| Units | % |
| Default | 25 |

### ATTRIBUTE AtmIf Vpt Vcc Vcd Tm clippingBbc (cBbc)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the value for the clipping susceptibility parameter in the BBC Information Element. This attribute is only used for SPVC connections. It is one of the Broadband Bearer |

Capability attributes.

Clipping is an impairment in which the first fraction of a second of information to be transferred is lost. It occurs after a call is answered and before an associated connection is switched through.

Values
no
yes

Default
no

### ATTRIBUTE AtmIf Vpt Vcc Vcd Tm bestEffort

Access
Read and write

Criticality
Component

Description
This attribute specifies the value of the best effort parameter in the ATM Traffic Descriptor Information Element. This attribute is only used for SPVC connections. It is one of the Broadband Bearer Capability attributes.

The value ***indicated*** implies that the quality of service for this connection is not guaranteed.

The value ***notIndicated*** implies that the quality of service for this connection is guaranteed.

The value ***derivedFromServiceCategory*** specifies that the actual value which is used for this connection is derived from the value of the *atmServiceCategory*. Either, this attribute must be set to ***derivedFromServiceCategory***, or the *atmServiceCategory* attribute must be set to ***derivedFromBBC***, but not both.

Values
indicated
notIndicated
derivedFromServiceCategory (derived)

Default
derivedFromServiceCategory

## ATTRIBUTE AtmIf Vpt Vcc Vcd Tm txPacketWiseDiscard (txpd)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies whether packet-wise discard functions are to be enabled or disabled in the transmit data direction for this connection. Packet-wise discard functions apply to AAL5 frame traffic. This attribute is not applicable for *Vpt*s.<br><br>For ***1pOC12SmLrAtm*** cards, this attribute is not applicable and is ignored.<br><br>Packet-wise functions increase the “goodput” of the link. The transmit packet-wise functions are Early Packet Discard (EPD) and Partial Packet Discard (PPD).<br><br>EPD allows the connection to discard an entire frame once the transmit queue has reached the EPD threshold. EPD increases the “goodput” of a link, since discarding an entire frame means that some queue capacity is guarded for some other frame which is already partially transmitted. All cells of the frame are discarded from the Beginning of Message (BOM) cell up to and including the End of Message (EOM) cell.<br><br>PPD allows the connection to discard the remainder of a cell-forwarded AAL5 frame if one cell of this frame has been discarded. All cells are discarded up to but not including the EOM cell. The PPD function increases the “goodput” of the link, since cells which are only going to be discarded at the AAL5 reassembly point are not transmitted.<br><br>For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, the packet-wise discard functions are PPD and EPD. PPD is applicable at cell-transfer points. PPD is not applicable at frame-to-cell conversion points, and is not applicable for *Vpc*s. PPD is configured by this attribute. Packet-wise discard should only be enabled for connections carrying AAL5 segmentation traffic. Setting this attribute to ***enabled*** for any other traffic type may result in all traffic being discarded. EPD is automatically |

***enabled*** at frame-to-cell conversion points, independent of the setting of this attribute.

For ***2pOC3MmAtm2***, ***2pOC3SmAtm2***, ***2pSTM1eAtm***, ***2pSTM1eCh***, ***4pOC3MmAtm***, ***4pOC3SmIrAtm***, ***4pDS3ChAtm***, ***3pDS3Atm2***, ***3pE3Atm2***, ***12pDS3Atm***, ***12pE3Atm***, MSA32, ***16pOC3PosAtm***, ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, packet-wise discard functions include EPD and PPD. PPD and EPD apply to individual VCCs and VCCs within VPCs at all connection points, including tandem VPC connections. Both PPD and EPD are controlled by this attribute. This attribute may safely be set to ***enabled*** for any connection (*Vcc* or *Vpc*) since these FPs have the ability to automatically detect AAL5-segmented traffic on a connection, and only enable packet-wise discards if AAL5-segmented traffic is detected.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, packet-wise discard functions include EPD and PPD. PPD and EPD apply to individual VCCs and VCCs within VPCs at all connection points, including tandem VPC connections. Packet-wise discard should only be enabled for connections carrying AAL5 segmentation traffic. Setting this attribute to ***enabled*** for any other traffic type may result in all traffic being discarded.

A value of ***enabled*** means packet-wise discard functions are applied to transmit traffic at this connection point. A value of ***disabled*** means packet-wise discard functions are not applied to transmit traffic at this connection point.

At a SPVC origin on a PNNI interface, a value of ***enabled*** specifies that frame discard is requested in the backward direction. When this attribute is set to ***disabled***, backward frame discard is not requested in the SPVC call setup.

The transmit packet-wise discard functions that are active are visible in the *Vcc/Vpc Tm txPacketWiseDiscard* operational attribute.

Values

disabled
enabled

Default disabled

### ATTRIBUTE AtmIf Vpt Vcc Vcd Tm rxPacketWiseDiscard (rxpd)

Access Read and write

Criticality Component

Description This attribute specifies whether packet-wise discard functions are to be enabled or disabled in the receive data direction for this connection. Packet-wise discard functions apply to AAL5 frame traffic. This attribute is not applicable for *Vpt*s.

For ***1pOC12SmLrAtm*** cards, this attribute is not applicable and is ignored.

Packet-wise functions increase the “goodput” of the link. The receive packet-wise function is Partial Packet Discard (PPD).

PPD allows the connection to discard the remainder of a cell-forwarded AAL5 frame if one cell of this frame has been discarded, for example due to UPC. All cells are discarded up to but not including the EOM cell. The PPD function increases the “goodput” of the link, since cells which are only going to be discarded at the AAL5 reassembly point are not transmitted.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, PPD is available at all VCC connection points where UPC may be activated. PPD is not applicable for *Vpcs*. Packet-wise discards should only be enabled for connections carrying AAL5 segmentation traffic. Setting the value to ***enabled*** for any other traffic type may result in traffic being discarded. PPD is automatically ***enabled*** at frame-to-cell conversion points, independent of the setting of this attribute.

For ***2pOC3MmAtm2***, ***2pOC3SmAtm2***, ***2pSTM1eAtm***, ***2pSTM1eCh***, ***4pOC3MmAtm***, ***4pOC3SmIrAtm***, ***4pDS3ChAtm***, ***3pDS3Atm2***, ***3pE3Atm2***, ***12pDS3Atm***, ***12pE3Atm***, MSA32, ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, this attribute may safely be set to ***enabled*** for any connection (*Vcc* or *Vpc*) since these FPs have the ability to automatically detect AAL5-

segmented traffic on a connection, and only enable packet-wise discards if AAL5-segmented traffic is detected.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, packet-wise discard functions include EPD and PPD. PPD and EPD apply to individual VCCs and VCCs within VPCs at all connection points, including tandem VPC connections. Packet-wise discard should only be enabled for connections carrying AAL5 segmentation traffic. Setting this attribute to ***enabled*** for any other traffic type may result in all traffic being discarded.

A value of ***enabled*** means packet-wise discard functions are applied to receive traffic at this connection point. A value of ***disabled*** means packet-wise discard functions are not applied to receive traffic at this connection point.

At a SPVC origin on a PNNI interface, a value of ***enabled*** specifies that frame discard is requested in the forward direction. When this attribute is set to ***disabled***, forward frame discard is not requested in the SPVC call setup.

For ***16pOC3PosAtm*** cards, the value of this attribute must be ***disabled***. PPD and EPD are enabled by default at a connection endpoint which is performing AAL5 segmentation and assembly.

The receive packet-wise discard functions that are active are visible in the *Vcc/Vpc Tm rxPacketWiseDiscard* operational attribute.

| | |
|---|---|
| Values | disabled<br>enabled |
| Default | disabled |

### ATTRIBUTE AtmIf Vpt Vcc Vcd Tm txWredMode

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the activation of weighted random early detection (WRED) functionality. WRED is considered a packet-wise discard function and as such applies only to AAL5 frame |

traffic.

WRED is applied in the transmit direction for this connection. WRED function should be enabled only for connections which are transferring TCP/IP traffic. WRED acts to prevent synchronization of multiple TCP/IP sources by randomly discarding a small percentage of frames when transmit queue congestion reaches the designated level. WRED may also be used to differentiate service on VCC's by preferentially discarding one VCC before another. Discards start at 0% of cells, when the queue is part-way to the Early Packet Discard (EPD) threshold, and rise to 100% of cells discarded at the EPD threshold. WRED discards all the cells in a frame.

A value of ***enabled*** means WRED is enabled for all applications linked to the given *Vcc*.

A value of ***perFlow*** means each TCP application has individual control over whether to enable or disable WRED.

If the value of the *txPacketWiseDiscard* attribute is ***disabled***, or if the value of this attribute is ***disabled***, WRED functionality is disabled.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm***, and ***1pOC12SmLrAtm*** cards, the value of this attribute must be ***disabled***.

If WRED is active, it is visible in the *Vcc/Vpc Tm txPacketWiseDiscard* operational attribute.

This attribute is not applicable for *Vpt*s or *Vpt Vcc*s.

Values

disabled
enabled
perFlow

Default

disabled

## ATTRIBUTE AtmIf Vpt Vcc Vcd Tm abrConnectionType (abrType)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the type of ABR behavior which is to be enforced at this connection. This attribute is only applicable if the value of the *atmServiceCategory* attribute is ***availableBitRate***. If the value of the *atmServicecategory* attribute is not ***availableBitRate***, this attribute is ignored.<br><br>The value ***sameAsCa*** is used to request the default behavior as specified in the *CA Abr* component for this *Vcc*. Otherwise, this attribute overrides the default behavior.<br><br>The value ***virtualSourceDest*** is used to request that this connection point function as a virtual source/virtual destination.<br><br>The value ***sourceDest*** requires that this connection point function as a S/D for RM cells. S/D mode is automatically invoked at this connection point either if this is a connection end point, or if the next hop connection point is configured as ***nonAbrInterworking***.<br><br>The value ***nonAbrInterworking*** is used to request that this connection point function as an interworking between ABR and non-ABR service categories. This means that there are no RM cells on the link side of this connection, and that the next hop connection point is performing as an ABR ***sourceDest***.<br><br>The value ***abrSwitch*** is used to request ABR switch behavior for this connection point. The ABR switch behavior is first, to conform to ***virtualSourceDest*** or ***nonAbrInterworking*** setting on the next hop, and otherwise to implement ABR ER switch behavior.<br><br>For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, the only allowable values are ***sameAsCa***, ***nonAbrInterworking*** or ***abrSwitch***. If ***abrSwitch*** is selected, EFCI marking behavior is implemented. |

For ***1pOC12SmLrAtm*** cards, the only allowable values are ***sameAsCa*** or ***abrSwitch.*** If ***abrSwitch*** is selected, EFCI marking behavior is implemented.

For ***16pOC3PosAtm*** cards, the only allowable value is ***sameAsCa***.

The actual ABR functionality which is in effect is visible in the *Vcc/Vpc/Vpt Tm abrConnectionType* operational attribute.

Values
abrSwitch
virtualSourceDest
sourceDest
nonAbrInterworking
sameAsCa

Default
sameAsCa

## ATTRIBUTE AtmIf Vpt Vcc Vcd Tm txTrafficDescParm (txTdp)

Access
Read and write

Criticality
Component

Description
This attribute is a vector of five traffic parameters whose meanings are defined by the *txTrafficDescType* attribute.

The values of peak cell rate (PCR), sustained cell rate (SCR), Minimum Cell Rate (MCR) and requested shaping rate are expressed in cell/s. Maximum burst size (MBS) is expressed in cells. CDVT is expressed in microseconds. The values of PCR, SCR, MCR, MBS and CDVT are used for connection admission control (CAC). The value of CDVT is only used for connections where the *atmServiceCategory* is ***constantBitRate***. For all other values of *atmServiceCategory*, CDVT is ignored. The values of PCR, SCR, MCR and requested shaping rate are used to determine the actual shaping rate where traffic shaping is enabled.

When *txTrafficDescType* is 1 or 2, all of the parameters must be set to zero.

When *txTrafficDescType* is 3, parameter 1 represents the PCR for

CLP equal to 0 and 1 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameter 1 must be non-zero. Parameters 2 and 3 must be zero.

When *txTrafficDescType* is 4, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic with cell discard; parameter 2 represents the PCR for CLP equal to 0 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameter 1 must be greater than or equal to parameter 2. Parameters 1 and 2 must be non-zero. Parameter 3 must be zero.

When *txTrafficDescType* is 5, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic with cell tagging; parameter 2 represents the PCR for CLP equal to 0 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameter 1 must be greater than or equal to parameter 2. Parameters 1 and 2 must be non-zero. Parameter 3 must be zero.

When *txTrafficDescType* is 6, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 and 1 traffic; parameter 3 represents the MBS for CLP equal to 0 and 1 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameters 1, 2 and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2. Parameter 5, must either be zero (unused) or greater than or equal to parameter 2.

When *txTrafficDescType* is 7, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 with cell discard; parameter 3 represents the MBS for CLP equal to 0 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This

result is used as the PCR. Parameters 1, 2 and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2. Parameter 5, must either be zero (unused) or greater than or equal to parameter 2.

When *txTrafficDescType* is 8, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 traffic with cell tagging; parameter 3 represents the MBS for CLP equal to 0 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameters 1, 2 and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2. Parameter 5, must either be zero (unused) or greater than or equal to parameter 2.

When *txTrafficDescType* is 9, parameter 1 represents the PCR; parameter 2 represents the CDVT; parameter 3 represents the MCR; parameter 4 and parameter 5 represent are not used and must be zero. Parameter 1 must be non-zero and must be greater than or equal to parameter 3. Parameter 3 may be optionally zero.

Whenever it is valid for PCR to be specified, parameter 5 may also be used to specify a requested shaping rate. A non-zero value in parameter 5 overrides the value in parameter 1 and is used as the peak cell rate in calculations of CAC and shaping rate. When the *atmServiceCategory* is ***availableBitRate*** (ABR), the shaping rate is dynamically chosen, based on the ABR flow control mechanism, as a value between the MCR and the PCR or the requested shaping rate if applicable.

For *txTrafficDescType* 3, 4 and 5, the transmit traffic is shaped at the next available shaping rate less than the PCR.

For *txTrafficDescType* 6, 7 and 8 if linear traffic shaping is selected, the transmit traffic is shaped at the highest available rate which is between PCR and SCR. However, if there is no available shaping rate between PCR and SCR, traffic is shaped at the next rate above the PCR.

For *txTrafficDescType* 6, 7 and 8 if inverse-UPC traffic shaping is

selected, the transmit traffic is shaped at a variable rate which conforms to the PCR, SCR and MBS of the connection traffic descriptor.

| | |
|---|---|
| Vector of | Decimal (0..2147483647) |
| Index | Decimal (1..5) |
| Default | ([5] 0) |

### ATTRIBUTE AtmIf Vpt Vcc Vcd Tm rxTrafficDescParm (rxTdp)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute is a vector of five traffic parameters whose meanings are defined by the *rxTrafficDescType* attribute. If the value of the *rxTrafficDescType* attribute is ***sameAsTx***, the values provisioned in this attribute are ignored. The traffic parameters for the receive direction are taken from the *txTrafficDescParm* attribute.<br><br>The values of peak cell rate (PCR), sustained cell rate (SCR), and Minimum Cell Rate (MCR) are expressed in cell/s. Maximum burst size (MBS) is expressed in cells. The value of CDVT is expressed in microseconds. The values of PCR, SCR, MCR, MBS and CDVT are used for usage parameter control (UPC).<br><br>When *rxTrafficDescType* is 1 or 2, all of the parameters must be set to zero (unused).<br><br>When *rxTrafficDescType* is 3, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; and parameter 4 represents the CDVT. Parameter 1 must be non-zero. Parameters 2 and 3 must be set to zero (unused).<br><br>When *rxTrafficDescType* is 4, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the PCR for CLP equal to 0 traffic with cell discard; and parameter 4 represents the CDVT. Parameters 1 and 2 must be non-zero. Parameter 3 must be set to zero (unused). Parameter 1 must be greater than or equal to parameter 2. |

When *rxTrafficDescType* is 5, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the PCR for CLP equal to 0 traffic with cell tagging; and parameter 4 represents the CDVT. Parameters 1 and 2 must be non-zero. Parameter 3 must be set to zero (unused). Parameter 1 must be greater than or equal to parameter 2.

When *rxTrafficDescType* is a 6, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 and 1 traffic; parameter 3 represents the MBS for CLP equal to 0 and 1 traffic; and parameter 4 represents the CDVT. Parameters 1, 2 and 3 must be non-zero. Parameter 1 must be greater than or equal to Parameter 2.

When *rxTrafficDescType* is 7, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 traffic with cell discard; parameter 3 represents the MBS for CLP equal to 0 traffic; and parameter 4 represents the CDVT. Parameters 1, 2 and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2.

When *rxTrafficDescType* is 8, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 traffic with cell tagging; parameter 3 represents the MBS for CLP equal to 0 traffic; and parameter 4 represents the CDVT. Parameter 1, 2 and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2.

When *rxTrafficDescType* is 9, parameter 1 represents the PCR; parameter 2 represents the CDVT; parameter 3 represents the MCR. Parameter 4 is not used and must be zero. Parameter 1 must be non-zero and must be greater than or equal to parameter 3. Parameter 3 may optionally be zero.

If the value of CDVT either in parameter 2 or in parameter 4 is zero, the CDVT is taken from the *CA* defaults for the particular *atmServiceCategory* of this connection.

Parameter 5 of the *rxTrafficDescParm* is always unused.

When *rxTrafficDescriptorType* is 3 through 8, there are certain extreme combinations of *rxTrafficDescParm* which are outside the capabilities of the UPC hardware. The *check prov* command detects such cases and generates an error message. If this happens, adjust the parameters until they fall within the supported limits.
To calculate the limits, use the following formulae:
I1 = 1,000,000,000 / PCR
L1 = CDVT * 1000
I2 = 1,000,000,000 / SCR
L2 = CDVT + (MBS - 1) * (I2 - I1)
Note that I2 and L2 only apply when the *rxTrafficDescriptorType* is 6 through 8.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, I1 and I2 must be less than or equal to 335,523,840. I1 + L1 must be less than or equal to 1,342,156,800. I2 + L2 must be less than or equal to 1,342,156,800. If the values of I1, L1, I2 or L2 are closer to the limits described above, a further restriction applies. Specifically, if either:
I1 > 41,940,480 or
I2 > 41,940,480 or
I1 + L1 > 167,769,600 or
I2 + L2 > 167,769,600
then both I1 and I2 must be greater than 20,480.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, L2 must be less than or equal to 2,674,011,406.

For ***16pOC3PosAtm*** cards, L2 must be less than or equal to 17,179,869,180.

| | |
|---|---|
| Vector of | Decimal (0..2147483647) |
| Index | Decimal (1..5) |
| Default | ([5] 0) |

## ATTRIBUTE AtmIf Vpt Vcc Vcd Tm fwdQosParameters (fqp)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute is a vector of three elements that specify the quality of service parameters for the forward direction for this connection. This attribute is used for SPVC connections.<br><br>The *cdv* element specifies the acceptable peak-to-peak Cell Delay Variation (CDV) of real-time connections (CBR and rt-VBR). It is signaled through the extended QoS information element. For nrt-VBR and UBR the CDV is irrelevant, and its value is forced to the default.<br><br>The *ctd* specifies the acceptable maximum Cell Transfer Delay (maxCtd) of real-time connections (CBR and rt-VBR).<br>It is signaled through the end to end transit delay information element. For nrt-VBR and UBR the CTD is irrelevant, and its value is forced to the default.<br><br>The *clr* specifies the acceptable Cell Loss Ratio (CLR) of CBR, rt-VBR, and nrt-VBR connections. It is signaled through the extended QoS information element. For UBR the CLR is irrelevant, and its value is forced to the default. |
| Vector of | Decimal (0..16777215) |
| Index | cdv<br>ctd<br>clr |
| Default | (cdv: 16777215, ctd: 16777215, clr: 255) |

## ATTRIBUTE AtmIf Vpt Vcc Vcd Tm bwdQosParameters (bqp)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute is a vector of two elements that specify the quality of service parameters for the backward direction for this connection. This attribute is used for SPVC connections. |

The *cdv* specifies the acceptable peak-to-peak Cell Delay Variation (CDV) of real-time connections (CBR and rt-VBR). It is signaled through the extended QoS information element. For nrt-VBR and UBR, the CDV is irrelevant, and its value is forced to the default.

The *clr* specifies the acceptable Cell Loss Ratio (CLR) of CBR, rt-VBR, and nrt-VBR connections. It is signaled through the extended QoS information element. For UBR the CLR is irrelevant, and its value is forced to the default.

Vector of: Decimal (0..16777215)

Index: cdv
clr

Default: (cdv: 16777215, clr: 255)

## COMPONENT AtmIf Vpt Vcc Vcd Tm AvailableBitRate (Abr)

Groups: "GROUP AtmIf Vpt Vcc Vcd Tm Abr Provisioned (Prov)"

Scope: Device

Description: *AtmIf/n Vcc/vpi.vci Vcd Tm AvailableBitRate,*
*AtmIf/n Vpc/vci Vpd Tm AvailableBitRate,*
*AtmIf/n Vpt/vpi Vpd Tm AvailableBitRate,*
*AtmIf/n Vpt/vpi Vcc/vci Vcd Tm AvailableBitRate*
This component contains provisioned ABR-related attributes of a connection. It is an optional subcomponent of the *Vcd Tm* and *Vpd Tm* component. It is used to override DGCRA-related defaults in the *CA Abr* component. It contains the specific configuration for the ABR connection at this connection point. If this is the source of an SPVC connection, this component also contains the ABR parameters required for the SPVC call request.

Common Verbs:
Help
List
Display
Add
DELete

## GROUP AtmIf Vpt Vcc Vcd Tm Abr Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisioned attributes for the ABR ATM connections configured on an ATM interface. |

## ATTRIBUTE AtmIf Vpt Vcc Vcd Tm Abr initialCellRate (icr)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the Initial Cell Rate (ICR) parameter for this connection. ICR is the rate at which a source should send initially and after an idle period.<br><br>The value ***sameAsCa*** means the initial cell rate is determined by the *AtmIf CA Abr*/0 *icr* attribute.<br><br>The value ***useMcr*** means ICR is set to the same value as the Minimum Cell Rate (MCR) for the connection.<br><br>The value ***usePcr*** means ICR is set to the same value as the Peak Cell Rate (PCR) for the connection.<br><br>If the value is less than the MCR of the connection, then the MCR is used as the ICR. If the value is more than PCR of the connection, then PCR is used as the ICR.<br><br>This attribute is ignored under all conditions where the operational attribute *abrConnectionType* indicates ***erSwitch*** or ***efciSwitch***. |
| Values | Decimal (0..16777215)<br>sameAsCa<br>useMcr<br>usePcr |
| Units | cell/s |
| Default | sameAsCa |

### ATTRIBUTE AtmIf Vpt Vcc Vcd Tm Abr transientBufferExposure (tbe)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the Transient Buffer Exposure (TBE) for this connection. TBE is the negotiated number of cells that the network would like to limit the source to send during start-up periods, before the first Resource Management (RM) cell returns.<br><br>TBE divided by *fixedRoundTripTime* determines an upper bound for the operational value of *initialCellRate*, the rate at which a source should send initially and after an idle period.<br><br>TBE divided by *maxCellsPerRmCell* specifies the operational value of *forwardRmCellLimit*, the limit of the number of forward Resource Management (RM) cells which may be sent in the absence of received backward RM cells.<br><br>This attribute is ignored under all conditions where the operational attribute *abrConnectionType* is set to ***erSwitch***. |
| Values | Decimal (0..16777215) |
| Units | cells |
| Default | 16777215 |

### ATTRIBUTE AtmIf Vpt Vcc Vcd Tm Abr fixedRoundTripTime (frtt)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the Fixed Round-Trip Time (FRTT) parameter for this connection. FRTT is the sum of the fixed and propagation delays from the source to a destination and back.<br><br>The value of *transientBufferExposure* divided by the value of FRTT (in seconds) determines an upper bound for the operational value of *initialCellRate*, the rate at which a source should send initially and after an idle period. |

This attribute is ignored under all conditions where the operational attribute *abrConnectionType* indicates ***erSwitch*** or ***efciSwitch***.

Values: Decimal (0..16700000)

Units: microsec

Default: 5000000

### ATTRIBUTE AtmIf Vpt Vcc Vcd Tm Abr rateDecreaseFactor (rdf)

Access: Read and write

Criticality: Component

Description: This attribute specifies the Rate Decrease Factor (RDF) for this connection. The RDF value is computed by using the provisioned value of this attribute, n, as 2 to the inverse power n. For example, if the value of this attribute is 8, RDF is 2E-8 = 1/256.

RDF controls the amount by which the cell transmission rate may decrease upon receipt of a backward Resource Management (RM) cell. For example, if a backward RM cell is received with the Congestion Indication (CI) field set to 1, the Allowed Cell Rate (ACR) value would be reduced by the amount (RDF*ACR). The ACR is not allowed to fall below the Minimum Cell Rate (MCR), in which case the ACR is set to MCR.

This attribute is ignored under all conditions where the operational attribute *abrConnectionType* has the value ***erSwitch***.

Values: Decimal (0..15)
sameAsCa

Default: sameAsCa

### ATTRIBUTE AtmIf Vpt Vcc Vcd Tm Abr rateIncreaseFactor (rif)

Access: Read and write

Criticality: Component

Description: This attribute specifies the Rate Increase Factor (RIF) for this connection. The RIF value is computed by using the provisioned

value of this attribute, n, as 2 to the inverse power n. For example, if the value of this attribute is 6, RIF is 2E-6 = 1/64.

RIF controls the amount by which the cell transmission rate may increase upon receipt of a backward Resource Management (RM) cell. For example, if a backward RM cell is received with the Congestion Indication (CI) and the No Increase (NI) fields both set to 0, the Allowed Cell Rate (ACR) value would be increased by the amount (RIF*ACR). The ACR is not allowed to exceed the Peak Cell Rate (PCR), in which case the ACR is set to PCR.

This attribute is ignored under all conditions where the operational attribute *abrConnectionType* has the value ***erSwitch***.

| | |
|---|---|
| Values | Decimal (0..15)<br>sameAsCa |
| Default | sameAsCa |

## ATTRIBUTE AtmIf Vpt Vcc Vcd Tm Abr maxCellPerRmCell (nrm)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the maximum number of cells an ABR source may transmit for each forward Resource Management (RM) cell. The count of the cells transmitted includes data cells, OAM cells, backward RM cells, and the forward RM cell.<br><br>A value of 2 is not recommended although it is permitted according to the ATM Forum standard. When this attribute is set to a value of 2, it is possible that only one forward and one backward RM cell are repeatedly transmitted, and all data traffic is queued up indefinitely.<br><br>This attribute is ignored under all conditions where the operational attribute *abrConnectionType* has the value ***erSwitch***. |
| Values | Decimal (2; 4; 8; 16; 32; 64; 128; 256)<br>sameAsCa |
| Units | cells |

Default sameAsCa

### ATTRIBUTE AtmIf Vpt Vcc Vcd Tm Abr maxTimeBetweenRmCells (trm)

Access Read and write

Criticality Component

Description This attribute specifies the TRM parameter for this connection.

TRM provides an lower bound on the time interval between forward Resource Management (RM) cells for an ABR source. Since the last forward RM cell was sent, if at least TRM time has elapsed since and at least two other cells have been sent, then the next cell to be transmitted would be a forward RM cell.

This attribute is ignored under all conditions where the operational attribute *abrConnectionType* has the value ***erSwitch***.

The provisioned value of 781 is signaled as TRM = 0, in the ABR Additional Parameters Information Element.
1563 is signaled as TRM = 1.
3125 is signaled as TRM = 2.
6250 is signaled as TRM = 3.
12500 is signaled as TRM = 4
25000 is signaled as TRM = 5.
50000 is signaled as TRM = 6.
100000 is signaled as TRM = 7.

Values Decimal (781; 1563; 3125; 6250; 12500; 25000; 50000; 100000)
sameAsCa

Units microsec

Default sameAsCa

### ATTRIBUTE AtmIf Vpt Vcc Vcd Tm Abr cutoffDecreaseFactor (cdf)

Access Read and write

Criticality Component

Description This attribute specifies the Cutoff Decrease Factor (CDF) parameter for this connection. When the value of this attribute is

non-zero, CDF is computed as the inverse of the value. For example, if the value is 32, the value of CDF is 1/32. When the value of this attribute is 0, CDF is also zero.

CDF controls the decrease in the Allowed Cell Rate (ACR) associated with the CRM parameter, the limit of the number of forward Resource Management (RM) cells which may be sent in the absence of received backward RM cells. When this limit is crossed, the ACR value would be decreased by the amount (CDF*ACR). The ACR is not allowed to fall below the Minimum Cell Rate (MCR), in which case the ACR is set to MCR.

The value of CRM is indicated by the *forwardRmCellLimit* attribute.

This attribute is ignored under all conditions where the operational attribute *abrConnectionType* indicates ***erSwitch*** or ***efciSwitch***.

Values — Decimal (0; 1; 2; 4; 8; 16; 32; 64)
sameAsCa

Default — sameAsCa

## ATTRIBUTE AtmIf Vpt Vcc Vcd Tm Abr acrDecreaseTimeFactor (adtf)

Access — Read and write

Criticality — Component

Description — This attribute specifies the Allowed Cell Rate Decrease Time Factor (ADTF) parameter for this connection.

ADTF is the maximum time interval permitted between sending forward Resource Management (RM) cells before the Allowed Cell Rate (ACR) is decreased to *initialCellRate*. In other words, if the source does not transit a forward RM cell for the period specified by *adtf*, it reduces its ACR to the value of its *initialCellRate*.

This attribute is ignored under all conditions where the operational attribute *abrConnectionType* indicates ***erSwitch*** or ***efciSwitch***.

| | |
|---|---|
| Values | Decimal (0..1023)<br>sameAsCa |
| Units | centiseconds |
| Default | sameAsCa |

### ATTRIBUTE AtmIf Vpt Vcc Vcd Tm Abr dgcraMaximumDelay (dgcraMaxDelay)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies an upper bound on the delay after which the rate change induced by a backward Resource Management (RM) cell departing from this connection point (in the backward direction) is expected to be observed at this connection point (in the forward direction).<br><br>This upper bound may be approximated as the sum of the round trip fixed and propagation delays and the maximum queuing delays between the ABR source and this interface.<br><br>The value of this attribute is used in policing an ABR connection using the Dynamic General Cell Rate Algorithm (DGCRA). A larger value for this attribute implies a more lenient policer. When there is a reduction in the Allowed Cell Rate (ACR), the policer waits for a correspondingly longer period of time before it enforces at the new cell rate.<br><br>The value of this attribute must not be less than the *dgcraMinimumDelay* attribute. |
| Values | Decimal (1..16700000)<br>sameAsCa |
| Units | microsec |
| Default | sameAsCa |

### ATTRIBUTE AtmIf Vpt Vcc Vcd Tm Abr dgcraMinimumDelay (dgcraMinDelay)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |

| | |
|---|---|
| Description | This attribute specifies a lower bound on the delay after which the rate change induced by a backward Resource Management (RM) cell departing from this connection point (in the backward direction) is expected to be observed at this connection point (in the forward connection).<br><br>This lower bound may be approximated as the sum of the round trip fixed and propagation delays between the ABR source and this interface.<br><br>The value of this attribute is used in policing an ABR connection using the Dynamic General Cell Rate Algorithm (DGCRA). A smaller value for this attribute implies a more lenient policer. When there is a increase in the Allowed Cell Rate (ACR), the policer waits for a correspondingly shorter period of time before it enforces at the new cell rate. |
| Values | Decimal (1..16700000)<br>sameAsCa |
| Units | microsec |
| Default | sameAsCa |

### ATTRIBUTE AtmIf Vpt Vcc Vcd Tm Abr farEndAcrDecreaseTimeFactor (feAdtf)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the Allowed Cell Rate Decrease Time Factor (ADTF) of the far end ABR source. The value specified should be the same as the ADTF parameter at the far end of this ABR connection.<br><br>The value of this attribute is used in policing an ABR connection using the Dynamic Generic Cell Rate Algorithm (DGCRA). A larger value for this attribute implies a more lenient policer. When the delay between two consecutive forward Resource Management (RM) cells received at this interface corresponds to a value greater than the value of this attribute, the policer begins to limit enforce the incoming traffic at the initial cell rate (ICR) of the far end, as specified by the *farEndInitialCellRate* attribute. |

| | |
|---|---|
| Values | Decimal (0..1023) |
| Units | centiseconds |
| Default | 50 |

### ATTRIBUTE AtmIf Vpt Vcc Vcd Tm Abr farEndInitialCellRate (feIcr)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the Initial Cell Rate (ICR) of the far end ABR source. The value specified should be the same as the ICR parameter at the far end of this ABR connection.<br><br>The value of this attribute is used in policing an ABR connection using the Dynamic Generic Cell Rate Algorithm (DGCRA). A larger value for this attribute implies a more lenient policer. When the delay between two consecutive forward Resource Management (RM) cells received at this interface corresponds to a value greater than the *farEndAcrDecreaseTimeFactor* attribute, the policer begins to enforce the incoming traffic at the value of this attribute.<br><br>If this attribute is specified less than the MCR of the connection, then the MCR is used as the *feIcr*. If this attribute is more than the PCR of the connection, then PCR is used as the *feIcr*. |
| Values | Decimal (0..16777215) |
| Units | cell/s |
| Default | 0 |

### COMPONENT AtmIf Vpt Vcc Vcd PerformanceMonitoring (Pm)

| | |
|---|---|
| Groups | "GROUP AtmIf Vpt Vcc Vcd Pm Provisioned (Prov)" |
| Scope | Device |
| Description | *AtmIf/n Vcc/x.y Vcd PerformanceMonitoring*<br>*AtmIf/n Vpc/x Vpd PerformanceMonitoring*<br>This component represents the Performance Monitoring (Pm) function on a provisioned connection. No Performance |

Monitoring is done unless this component is present. The attribute values override corresponding values in the *AtmIf Pm* component. There can be a maximum of 255 *Pm*s on one LP.

Common Verbs

Help
List
Display
Add
DELete

## GROUP AtmIf Vpt Vcc Vcd Pm Provisioned (Prov)

Properties: Provisioned

Description: This group contains provisioned attributes which specify Performance Monitoring (PM) measurements, namely, Availability Ratio (AR) and Cell Loss Ratio (CLR), and control modes for the connection. The values specified in this group override those specified by the *AtmIf Pm* component.

## ATTRIBUTE AtmIf Vpt Vcc Vcd Pm segSwitchSideMeasurement (segSwitchSide)

Access: Read and write

Description: This attribute specifies the set of Performance Monitoring (PM) measurements on the switch side configuration for the connection.

A value of ***sameAsInterface*** means that the measurements specified by the *segSwitchSideMeasurement* attribute of the *AtmIf Pm* component will be performed. No other values may be specified if ***sameAsInterface*** is selected. If the value is empty, no switch side PM measurements are done.

Set of:
availabilityRatio (ar)
cellLossRatio (clr)
sameAsInterface (sameAsIf)

Default: (sameAsInterface)

## ATTRIBUTE AtmIf Vpt Vcc Vcd Pm segLinkSideMeasurement (segLinkSide)

Access: Read and write

| | |
|---|---|
| Description | This attribute specifies the set of Performance Monitoring (PM) measurements on the link side configuration for the connection.<br><br>A value of ***sameAsInterface*** means that the measurements specified by the *segLinkSideMeasurement* attribute of the *AtmIf Pm* component will be performed. No other values may be specified if ***sameAsInterface*** is selected. If the value is empty, no link side PM measurements are done. |
| Set of | availabilityRatio (ar)<br>cellLossRatio (clr)<br>sameAsInterface (sameAsIf) |
| Default | (sameAsInterface) |

### ATTRIBUTE AtmIf Vpt Vcc Vcd Pm controlMode (mode)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the control mode of Performance Monitoring (PM) measurements for the connection.<br><br>A value of ***autoStart*** means that PM activation procedures will start when the provisioned data is activated.<br><br>A value of ***onDemand*** means that PM activation procedures will start when the operator issues the *Start* command. The PM measurements in this mode will continue until the operator issues the *Stop* command.<br><br>A value of ***sameAsInterface*** means that the behavior will be as specified by the *controlMode* attribute of the *AtmIf Pm* component. |
| Values | autoStart (auto)<br>onDemand (onDemand)<br>sameAsInterface (sameAsIf) |
| Default | sameAsInterface |

### ATTRIBUTE AtmIf Vpt Vcc Vcd Pm switchSideClrType (clrType)

| | |
|---|---|
| Access | Read and write |

Description

This attribute specifies how the Cell Loss Ratio (CLR) Performance Monitoring (PM) is measured on a switch-side configuration for the connection.

A value of ***complete*** indicates that egress discards at the segment end points are included in the CLR measurement as per ITU standards.

A value of ***partial*** indicates that egress discards do not contribute to the CLR measurement.

A value of ***sameAsInterface*** means that the behavior is as specified by the *switchSideClrType* attribute of the *AtmIf Pm* component.

Values

complete
partial
sameAsInterface (sameAsIf)

Default

sameAsInterface

## COMPONENT AtmIf Vpt Vcc Loop (Loop)

Scope

Device

Description

*AtmIf/n Vcc/vpi.vci Loop*
The *Loop* component configures an ATM connection so that cells received from the ATM interface are retransmitted back to the interface through that connection. The *Loop* component requires exclusive use of its parent *Vcc* or *Vpc* and cannot co-exist with other ATM service components (such as *Nep*, *Nrp*, and *Test*).

Common Verbs

Help
List
Display
Add
DELete

## COMPONENT AtmIf Vpt Vcc NailedUpRelayPoint (Nrp)

Groups

"GROUP AtmIf Vpt Vcc Nrp Provisioned (Prov)"

Scope

Device

Description

*AtmIf/n Vcc/vpi.vci Nrp*
This component is used to establish a single hop of a nailed-up ATM Bearer Service (ABS) connection. By linking together two *Nrp*s within a module, the associated connections are configured to relay ATM cells to one another. The *Nrp* component requires exclusive use of its parent *Vcc* or *Vpc* and cannot co-exist with other ATM service components (such as *Nep*, *Test*, and *Loop*).

Common Verbs

Help
List
Display
Add
DELete

## GROUP AtmIf Vpt Vcc Nrp Provisioned (Prov)

Properties: Provisioned

Description: This group contains the provisionable attributes for the *Nrp* component.

## ATTRIBUTE AtmIf Vpt Vcc Nrp nextHop (nextHop)

Access: Read and write

Criticality: Component

Description: This attribute specifies the *Nrp* component with which this *Nrp* is associated. A sample value is *AtmIf/31 Vcc/0.32 Nrp*.

Values: Link (Service, nextHop)

Default: No default

## ATTRIBUTE AtmIf Vpt Vcc Nrp oamSegmentBoundary (sb)

Access: Read and write

Criticality: Component

Description: This attribute specifies the OAM segment boundary desired for a *Nrp* component. It affects the connection point type value visible in the parent component's *connectionPointType* attribute.

The desired OAM segment boundary can be specified directly as

***yes***, ***no*** or ***sameAsInterface***. If ***sameAsInterface*** is specified, the OAM segment boundary is same as the *oamSegmentBoundary* attribute of the associated *AtmIf* and the switch will set the *connectionPointType*, choosing ***segmentEndPoint*** for a segment-boundary ATM interface and ***connectingPoint*** for a non-segment-boundary ATM interface.

Values
no
yes
sameAsInterface

Default
sameAsInterface

## ATTRIBUTE AtmIf Vpt Vcc Nrp bandwidthElastic (bwElastic)

Access
Read and write

Criticality
Component

Description
This attribute is only of importance for connections which are carried on a link with a variable bandwidth. For example, the bandwidth may be reduced in the event that one or more physical links in the IMA group fail, such that the originally requested bandwidth cannot be maintained. This attribute shows whether the application running on this connection can continue to operate if the bandwidth is reduced. If the bandwidth is reduced, the amount by which it is reduced will be displayed in the *bandwidthReduction* attribute.

A value of ***yes***, indicates that this connection is elastic, and the bandwidth may be reduced but the connection will not be released. Currently, this attribute should only be set to ***yes*** for situations where this *Nrp* is functioning as a loopback on one side of an IMA link. There are no other situations where this setting is valid.

A value of ***no*** indicates that the bandwidth for this connection will not be reduced in the event of link bandwidth reduction. However, this connection may be released based on its *holdingPriority.*

Values
no
yes

| | |
|---|---|
| Default | no |

### ATTRIBUTE AtmIf Vpt Vcc Nrp overrideHoldingPriority (ohpri)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the holding priority of this connection. Holding priority is used when there is an IMA group where some physical links have failed. Holding priority determines the order in which connections are released. 4 is the lowest holding priority and is released first. 0 is a higher priority and is released last. The value specified in this attribute will override whatever *holdingPriority* that has been provisioned at the *Vcd* (or *Vpd*). If the value is left at the default of ***noOverride***, the *holdingPriority* provisioned at the *Vcd* (or *Vpd*) will be used. |
| Values | 0<br>1<br>2<br>3<br>4<br>noOverride |
| Default | noOverride |

### COMPONENT AtmIf Vpt Vcc NailedUpEndPoint (Nep)

| | |
|---|---|
| Groups | "GROUP AtmIf Vpt Vcc Nep Provisioned (Prov)" |
| Scope | Device |
| Description | *AtmIf/n Vcc/vpi.vci Nep*<br>The *NailedUpEndPoint* component is used to link a VCC to an application that sends and receives frames using the connection. The *Nep* component requires exclusive use of its parent *Vcc* and |

cannot co-exist with other ATM service components (such as *Nrp*, *Test*, and *Loop*).

Common Verbs

Help
List
Display
Add
DELete

## GROUP AtmIf Vpt Vcc Nep Provisioned (Prov)

Properties: Provisioned

Description: This group contains provisionable attributes for the *Nep* component.

## ATTRIBUTE AtmIf Vpt Vcc Nep applicationName (appName)

Access: Read only

Description: This attribute specifies the application that sends and receives frames using the VCC. This attribute is set, for example, by provisioning the *Trunk AtmAccess AtmConnection* attribute. If it is properly configured, this attribute will show a value such as “Trk/22 AtmAccess”.

Values: Link (Service, atmConnection)

Default: No default

## COMPONENT AtmIf Vpt Vcc Test (Test)

Groups: "GROUP AtmIf Vpt Vcc Test OsiState (State)"
"GROUP AtmIf Vpt Vcc Test Setup (Setup)"
"GROUP AtmIf Vpt Vcc Test Results (Results)"

Scope: Device

Description: *AtmIf/n Vcc/vpi.vci Test*
The *Test* component allows test traffic to be sent over an ATM connection. It is used to verify the integrity of hardware carrying ATM traffic, and provides test capabilities similar to those provided by non-ATM port and line tests. The *Test* component requires exclusive use of its parent *Vcc* and cannot co-exist with

other ATM service components (such as *Nep*, *Nrp*, and *Loop*).

An ATM connection test circulates traffic through a VCC having a *Test* component at one end and the other end configured to loop back ATM cells. The *Test* component generates test frames, transforms them into ATM cells using AAL5 segmentation, and transmits them through the VCC; the returned cells are received by the *Test* component, reassembled back into frames, and the frames are consumed.

The test frames generated by the test are grouped into two independent streams.
1) The loading frame stream circulates a set of “loading frames” through the connection as rapidly as possible. The intent of this stream is to verify the operation of the connection under a controlled load.
2) The verification stream transmits a series of “verification frames” through the connection; as each frame is returned, the *Test* component verifies its contents and the next verification frame in the series is transmitted. The intent of this stream is to verify that frames are not being corrupted.
The test can be configured to send frames from either or both streams. The size and content of the test frames can also be controlled.

Common Verbs

Help
List
Display
Add
DELete

## VERB START AtmIf Vpt Vcc Test

Impact: Service

Description: *START AtmIf/n Vcc/vpi.vci Test*
This verb invokes an ATM connection test. It has no effect when the test is already running.

### VERB STOP AtmIf Vpt Vcc Test

| | |
|---|---|
| Impact | Service |
| Description | *STOP AtmIf/n Vcc/vpi.vci Test*<br>This verb stops an ATM connection test. It has no effect when the test is not running. |

### GROUP AtmIf Vpt Vcc Test OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE AtmIf Vpt Vcc Test adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |

| | |
|---|---|
| Default | unlocked |

### ATTRIBUTE AtmIf Vpt Vcc Test operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE AtmIf Vpt Vcc Test usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

## GROUP AtmIf Vpt Vcc Test Setup (Setup)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains attributes that govern the operation of an ATM connection test. These attributes cannot be changed while the test is running. |

## ATTRIBUTE AtmIf Vpt Vcc Test frmTypes (types)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the types of the test frames to be transmitted during the ATM connection test. It must contain at least one of the following:<br>***loading***: A set of “loading frames” is circulated over the link as rapidly as possible. This frame type should be selected when the test is intended to verify the operation of the connection under a specified load. These frames are not checked for bit errors.<br>***verification***: A single “verification frame” is transmitted over the link; when the frame is returned, its contents are verified and the next verification frame in the series is transmitted. This frame type should be selected when the test is intended to verify that frames are not being corrupted as they pass over the connection. |
| Set of | loading<br>verification |
| Default | (loading, verification) |

## ATTRIBUTE AtmIf Vpt Vcc Test frmSize (size)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the size of the test frames used in an ATM connection test. |
| Values | Decimal (4..4096) |
| Units | bytes |
| Default | 1024 |

## ATTRIBUTE AtmIf Vpt Vcc Test frmPatternType (fpt)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute specifies the bit sequence used to fill the frames used in the ATM connection test. It must contain one of the following values:<br>***ccitt32kBitPattern***: a pseudo-random sequence of 32 Kbit is used<br>***ccitt8MBitPattern***: a pseudo-random sequence of 8Mbit is used<br>***customizedPattern***: the pattern defined in the *customizedPattern* attribute is used |
| Values | ccitt32kBitPattern<br>ccitt8MBitPattern<br>customizedPattern |
| Default | ccitt32kBitPattern |

### ATTRIBUTE AtmIf Vpt Vcc Test customizedPattern (cp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies a 32 bit sequence to be used to fill frames when the *framePatternType* attribute is set to ***customizedPattern***. The default value gives a pattern of alternating 0 and 1 bits. |
| Values | Hex (H.0..H.ffffffff) |
| Units | Hex |
| Default | H.55555555 |

### ATTRIBUTE AtmIf Vpt Vcc Test duration

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum number of minutes that the ATM connection test is allowed to run. The maximum allowed value permits the test to be run for up to 21 days. |
| Values | Decimal (1..30240) |
| Units | minutes |
| Default | 1 |

### ATTRIBUTE AtmIf Vpt Vcc Test bandwidthElastic (bwElastic)

| | |
|---|---|
| Access | Read and write |

Description

This attribute specifies whether the connection (*VCC*) should be configured with elastic bandwidth or not. Elastic bandwidth is of importance in conjunction with IMA links, where some links fail and the resulting bandwidth is less than the requested bandwidth for all connections. In that case, some connections may be reduced in bandwidth based on the setting of the *bwElastic* attribute.

If this attribute is set to ***yes***, the Test application signals to the connection that the bandwidth for this connection is elastic, and may be reduced in the case of IMA link failures. If the bandwidth is reduced, the rate of test cells which can be handled by the connection will also be reduced.

If this attribute is set to ***no***, the Test application signals to the connection that the bandwidth for this connection must be maintained at the requested level. If the connection cannot maintain the full bandwidth, the connection may be released (cleared) based on the holding priority of the connection.

Values

no
yes

Default

no

## ATTRIBUTE AtmIf Vpt Vcc Test overrideHoldingPriority (ohpri)

Access

Read and write

Description

This attribute specifies the override holding priority which should be signaled to the *VCC* connection at the start of the test. Holding priority is of importance in conjunction with IMA links, where some links fail and the resulting bandwidth is less than the requested bandwidth for all connections. In that case, some connections may be released based on the connection's holding priority.

***Zero*** (0) is the highest holding priority, and ***four*** (4) is the lowest priority. A setting of ***zero*** to ***four*** overrides whatever holding priority that has been configured at the connection (*VCC*). A setting of ***noOverride*** means that the connection should use its internally configured holding priority.

| | |
|---|---|
| Values | 0<br>1<br>2<br>3<br>4<br>noOverride |
| Default | noOverride |

### GROUP AtmIf Vpt Vcc Test Results (Results)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains attributes that show the result of an ATM connection test; if no test is running, the attribute group contains the results of the most recently completed test. The attributes of the *Results* group are reset to their initial values whenever a test is started or any attribute of the *Setup* group is set. |

### ATTRIBUTE AtmIf Vpt Vcc Test elapsedTime

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of minutes that the test has been running. |
| Values | Decimal (0..30240) |
| Units | minutes |
| Default | 0 |

### ATTRIBUTE AtmIf Vpt Vcc Test timeRemaining

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of minutes that the test will continue to run before stopping automatically. |
| Values | Decimal (0..30240) |
| Units | minutes |
| Default | 0 |

### ATTRIBUTE AtmIf Vpt Vcc Test causeOfTermination

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the reason the test ended. It contains one of the following values.<br>***testTimeExpired***: the test ran for the specified duration<br>***stoppedByOperator***: a *STOP* command was issued<br>***neverStarted***: the test has not been started<br>***testRunning***: the test is currently running |
| Values | testTimeExpired<br>stoppedByOperator<br>neverStarted<br>testRunning |
| Default | neverStarted |

### ATTRIBUTE AtmIf Vpt Vcc Test bytesTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of bytes sent during the test. The counter wraps to zero if it exceeds its maximum value of (2**64)-1. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Vcc Test bytesRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of bytes received during the test. The counter wraps to zero if it exceeds its maximum value of (2**64)-1. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Vcc Test loadingFrmTx

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute displays the number of loading frames sent during the test. The counter wraps to zero if it exceeds its maximum value of (2**64)-1. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Vcc Test loadingFrmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of loading frames received during the test. The counter wraps to zero if it exceeds its maximum value of (2**64)-1. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Vcc Test loadingFrmLost

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of loading frames that were lost during the test. The counter wraps to zero if it exceeds its maximum value of (2**64)-1. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Vcc Test verificationFrmTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of verification frames sent during the test. The counter wraps to zero if it exceeds its maximum value of (2**64)-1. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Vcc Test verificationFrmRx

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute displays the number of verification frames received during the test (including errored verification frames). The counter wraps to zero if it exceeds its maximum value of (2**64)-1.<br><br>Note that the number of verification frames lost during the test can be computed by the expression *verificationFrmTx - verificationFrmRx*. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Vcc Test verificationFrmBad

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of errored verification frames received during the test. A verification frame is considered to be errored if it contains a recognizable verification frame header, but does not match the transmitted frame bit for bit. (Thus, a verification frame that returns after the succeeding verification frame has been transmitted is considered to be errored.) The counter wraps to zero if it exceeds its maximum value of (2**64)-1.<br><br>Note that the number of correct verification frames received during the test can be computed by the expression *verificationFrmRx - verificationFrmBad*. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Vcc Test unrecognizableFrmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of frames received during the test which do not contain a valid loading frame header or verification frame header. The counter wraps to zero if it exceeds its maximum value of (2**64)-1. |
| Values | Long Integer |

| | |
|---|---|
| Default | No default |

## COMPONENT AtmIf Vpt Vcc TrafficManagement (Tm)

| | |
|---|---|
| Groups | "GROUP AtmIf Vpt Vcc Tm Operational (Oper)" |
| Scope | Device |
| Description | *AtmIf/n Vpc/vpi TrafficManagement,*<br>*AtmIf/n Vcc/vpi.vci TrafficManagement,*<br>*AtmIf/n Vpt/vpi TrafficManagement,*<br>*AtmIf/n Vpt/vpi Vcc/vci TrafficManagement*<br>The *Tm* subcomponent contains the operational traffic management attributes of a connection. It is created dynamically for each activated *Vcc*, *Vpc*, or *Vpt* component. |
| Dyn. Subcomp. | "COMPONENT AtmIf Vpt Vcc Tm AvailableBitRate (Abr)" |
| Common Verbs | Help<br>List<br>Display |

## GROUP AtmIf Vpt Vcc Tm Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains attributes for the *Tm* component to reflect operational traffic attributes. |

## ATTRIBUTE AtmIf Vpt Vcc Tm txTrafficDescType (txTdt)

| | |
|---|---|
| Access | Read only |
| Description | T his attribute indicates the type of traffic management which is applied to the transmit direction of this connection as defined in the ATM Forum. The *txTrafficDescType* determines the number and meaning of the parameters in the *txTrafficDescParm* attribute. |
| Values | 1<br>2<br>3<br>4<br>5 |

6
7
8
9

Default No default

### ATTRIBUTE AtmIf Vpt Vcc Tm txQosClass (txQos)

Access Read only

Description This attribute indicates the quality of service for the calling to called direction for this connection. This is only applicable to Soft PVC and SVC connections.

Class 1 supports a QOS that meets Service Class A performance requirements (Circuit emulation, constant bit rate video).

Class 2 supports a QOS that meets Service Class B performance requirements (Variable bit rate audio and video).

Class ***3*** supports a QOS that meets Service Class C performance requirements (Connection-Oriented Data Transfer).

Class 4 supports a QOS that meets Service Class D performance requirements (Connectionless Data Transfer).

Class 0 is the unspecified QOS class; no objective is specified for the performance parameters.

A value of ***notApplicable*** is displayed in the case of nailed-up PVCs for which this attribute has no significance.

Values
0
1
2
3
4
notApplicable

Default No default

### ATTRIBUTE AtmIf Vpt Vcc Tm txQueueLength (txQLen)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current number of cells in the transmit queue for this connection.<br><br>If this connection has *unshapedTransmitQueueing* attribute displayed as ***common***, this attribute displays the length of the common queue which is used for this ATM service category.<br><br>If this connection has *unshapedTransmitQueueing* attribute displayed as ***fifo***, this attribute indicates the number of cells for this connection which are enqueued in a first-in-first-out queuing method for this ATM service category. This will only occur for connections on ATM IP cards with *atmServiceCategory* of ***nrtVbr*** or ***ubr***.<br><br>If this connection has *unshapedTransmitQueueing* attribute displayed as ***perVc*** or as ***notApplicable***, this attribute displays the length of the per-VC queue.<br><br>For ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, this attribute displays the current number of cells in the link class queue used by this connection to buffer its traffic.<br><br>This attribute does not apply to basic *Vpt*s. |
| Values | Decimal (0..512000) |
| Units | cells |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Vcc Tm txQueueCongestionState (txQCong)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the congestion state of the transmit queue for this connection.<br><br>If this connection has *unshapedTransmitQueueing* attribute displayed as ***common***, this attribute displays the congestion state of the common queue. If this connection has |

*unshapedTransmitQueueing* attribute displayed as ***perVc*** or as ***notApplicable***, this attribute displays the congestion state of the per-VC queue.

The congestion state of a queue is indicated by a numeric value ranging from 0 to 3. When a queue is in a congested state x, only traffic with discard priority (DP) 0 to x are enqueued. Traffic with DP > x is discarded.

For example, if the congestion state is 3, there is no congestion and all traffic is enqueued. Likewise, when the congestion state is 0, there is maximum congestion and only traffic with DP=0 is enqueued on that queue.

For ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, this attribute displays the current congestion state of the link class queue used by this connection to buffer its traffic.

This attribute does not apply to basic *Vpt*s.

Values — Decimal (0..3)

Default — No default

## ATTRIBUTE AtmIf Vpt Vcc Tm holdingPriority (hpri)

Access — Read only

Description — This attribute indicates the actual holding priority in effect for this connection. In a situation where the link bandwidth fluctuates, such as over an IMA link, holding priority is used to determine which connections are held and which are released. Holding priority 4 connections are the first to be released. Holding priority 0 connections are the last to be released. Some applications, for example *Vcc Test*, may override the provisioned holding priority.

A value of ***notApplicable*** is displayed when this is an elastic connection. Holding priority does not apply to bandwidth elastic connections.

Holding priority has no effect if the equivalent cell rate (ECR) for a connection is zero.

This attribute does not apply to *Vpt Vcc*s.

Values
0
1
2
3
4
notApplicable

Default
No default

## ATTRIBUTE AtmIf Vpt Vcc Tm rxTrafficDescType (rxTdt)

Access
Read only

Description
This attribute indicates the type of traffic management which is applied to the receive direction of this connection as defined in the ATM Forum. The *rxTrafficDescType* determines the number and meaning of the parameters in the *rxTrafficDescParm* attribute.

Values
1
2
3
4
5
6
7
8
9

Default
No default

## ATTRIBUTE AtmIf Vpt Vcc Tm rxQosClass (rxQos)

Access
Read only

Description
This attribute indicates the quality of service for the called to calling direction for this connection. This is only applicable to Soft PVC and SVC connections.

Class 1 supports a QOS that meets Service Class A performance requirements (circuit emulation, constant bit rate video).

Class 2 supports a QOS that meets Service Class B performance requirements (variable bit rate audio and video).

Class 3 supports a QOS that meets Service Class C performance requirements (Connection-Oriented Data Transfer).

Class 4 supports a QOS that meets Service Class D performance requirements (Connectionless Data Transfer).

Class 0 is the unspecified QOS class; no objective is specified for the performance parameters.

A value of ***notApplicable*** is displayed in the case of nailed-up PVCs for which this attribute has no significance.

Values

0
1
2
3
4
notApplicable
sameAsFwd

Default

No default

## ATTRIBUTE AtmIf Vpt Vcc Tm atmServiceCategory (service)

Access

Read only

Description

This attribute indicates the ATM service category used for traffic in both directions of the connection.

The ***constantBitRate*** service category is intended for real time applications, that is, those requiring tightly constrained delay and delay variation, as would be appropriate for voice and video applications. The consistent availability of a fixed quantity of bandwidth is considered appropriate for CBR service. Cells which are delayed beyond the value specified by Cell Transfer Delay are assumed to have significantly reduced value for the application.

The ***rtVariableBitRate*** service category is intended for real time

applications; that is those requiring tightly constrained delay and delay variation, as would be appropriate for voice and video applications. Sources are expected to transmit at a rate which varies with time. Equivalently, the source can be described as “bursty”. Cells which are delayed beyond the value specified by Cell Transfer Delay are assumed to be of significantly reduced value to the application. Real time VBR service may support statistical multiplexing of real time sources.

The ***nrtVariableBitRate*** service category is intended for non-real time applications which have bursty traffic characteristics and which can be characterized in terms of a PCR, SCR, and MBS. For those cells which are transferred within the traffic contract, the application expects a low cell loss ratio. For all connections, it expects a bound on the mean cell transfer delay. Non-real time VBR service may support statistical multiplexing of connections.

The ***availableBitRate*** service is an ATM layer service category for which the limiting ATM layer transfer characteristics provided by the network may change subsequent to connection establishment. ABR service has a flow control mechanism which supports several types of feedback to control the source rate in response to changing ATM layer transfer characteristics. ABR service is not intended to support real-time applications.

The ***unspecifiedBitRate*** service is intended for non-real time applications, that is those not requiring tightly constrained delay and delay variation. UBR sources are expected to be bursty. UBR service supports a high degree of statistical multiplexing among sources. UBR service does not specify traffic related service guarantees. No numerical commitments are made with respect to the cell loss ratio experienced by a UBR connection, or as to the cell transfer delay experienced by cells on the connection.

| | |
|---|---|
| Values | unspecifiedBitRate (ubr)<br>constantBitRate (cbr)<br>rtVariableBitRate (rtVbr)<br>nrtVariableBitRate (nrtVbr)<br>availableBitRate (abr) |
| Default | No default |

## ATTRIBUTE AtmIf Vpt Vcc Tm trafficShaping (trShaping)

Access: Read only

Description: This attribute indicates the traffic shaping state of the connection.

A value of ***notApplicable*** indicates that traffic shaping is not applicable or not supported for this connection. This is the case:
- when the *txTrafficDescType* is 1 or 2.
- for standard *Vpt Vcc*s and basic *Vpt*s.
- for ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm*** cards, when the *atmServiceCategory* is ***constantBitRate***.

In these cases, the value of ***notApplicable*** is indicated regardless of whether traffic shaping is enabled or disabled in the provisioning data.

A value of ***disabled*** indicates that traffic shaping is applicable and supported for the type of connection but has been turned off in the provisioning data.

A value of ***linear*** or ***inverseUpc*** indicates that traffic shaping is applicable and supported for the type of connection and has been turned on in the provisioning data. This is the only case that indicates that traffic shaping is performed on the connection. In this case, the actual shaping rate is reflected in the *txTrafficDescParm* attribute, parameter number 4. A value of ***linear*** indicates that traffic is being shaped at the constant rate indicated in *txTrafficDescParm* 4. A value of ***inverseUpc*** indicates that the shaper strictly conforms to the requirements of a dual leaky bucket UPC enforcer. This value is indicated if traffic shaping is enabled, and the *txTrafficDescType* for this connection is 6, 7 or 8.

For ***1pOC12SmLrAtm***, ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, traffic shaping is not available, therefore this attribute is always ***disabled***.

Traffic shaping for connections with *atmServiceCategory* as ***availableBitRate*** (*txTrafficDescType* 9) depends upon the *abrConnectionType* attribute. If *abrConnectionType* is

***sourceDest*** or ***virtualSourceDest***, the value of this attribute is ***linear***. If *abrConnectionType* is ***erSwitch*** or ***efciSwitch***, this attribute is ***notApplicable***.

Values

disabled
linear
inverseUpc
notApplicable

Default

No default

## ATTRIBUTE AtmIf Vpt Vcc Tm bearerClassBbc (bcBbc)

Access

Read only

Description

This attribute indicates the bearer capability for this connection.

Class ***a*** service is a connection-oriented, constant bit rate ATM transport service. Class ***a*** service has end to end timing requirements and may require stringent cell loss, cell delay and cell delay variation performance.When ***a*** is displayed, the user is requesting more than an ATM only service. The network may look at the AAL to provide interworking based upon its contents.

Class ***c*** service is a connection-oriented, variable bit rate ATM transport service. Class ***c*** service has no end-to-end timing requirements.When ***c*** is displayed, the user is requesting more than an ATM only service. The network interworking function may look at the AAL and provide service based on it.

Class ***x*** service is a connection-oriented ATM transport service where the AAL, *trafficType* (***cbr*** or ***vbr***), and timing requirements are user defined (that is, transparent to the network). When the value of this attribute is ***x***, the user is requesting an ATM only service from the network. In this case, the network shall not process any higher layer protocol.

Class vp service is used to indicate a transparent VP service when the user is requesting an ATM only service from the network. In this case, the network does not process any higher layer protocol. This service differs from class x service in that with the class vp service both the VCI field (except for VCI values 0, 3, 4, and 6 through 15) and Payload Type field are transported transparently

by the network. This attribute value is only applicable to SPVP and SVP connections.

A value of ***notApplicable*** is displayed in the case of nailed-up PVCs for which this attribute has no significance.

Values

a
c
x
vp
notApplicable

Default

No default

## ATTRIBUTE AtmIf Vpt Vcc Tm transferCapabilityBbc (tcBbc)

Access

Read only

Description

This attribute indicates the transfer capability for this connection. Uni 3.0/3.1 traffic type and end-to-end timing parameters are mapped into this parameter as follows:
<transferCapability: TrafficType, Timing>
0: NoIndication, NoIndication
1: NoIndication, yes
2: NoIndication, no
5: CBR, yes
8: VBR, NoIndication
9: VBR, yes
10: VBR, no

A value of ***notApplicable*** is displayed in the case of nailed-up PVCs for which this attribute has no significance, or in the case that the transfer capability in the call request was set to NoIndication.

The CBR traffic type refers to traffic offered on services such as a constant bit rate video service or a circuit emulation.

The VBR traffic type refers to traffic offered on services such as packetized audio and video, or data.

The value NoIndication for traffic type is used if the user has not set the traffic type; similarly for end-to-end timing.

The value yes for end-to-end timing indicates that end-to-end timing is required for the connection.

The value no for end-to-end timing indicates that end-to-end timing is not required for the connection.

Values
0
1
2
5
8
9
10
notApplicable

Default
No default

### ATTRIBUTE AtmIf Vpt Vcc Tm clippingBbc (cBbc)

Access
Read only

Description
This attribute indicates the value of the clipping susceptibility parameter in the broadband bearer capability (BBC) Information Element.

Clipping is an impairment in which the first fraction of a second of information to be transferred is lost. It occurs after a call is answered and before an associated connection is switched through.

A value of ***notApplicable*** is displayed in the case of nailed-up PVCs for which this attribute has no significance.

Values
no
yes
notApplicable

Default
No default

### ATTRIBUTE AtmIf Vpt Vcc Tm unshapedTransmitQueueing (unshap)

Access
Read only

Description

This attribute indicates the unshaped transmit queuing state of the connection.

A value of ***common*** indicates that transmit traffic is being enqueued onto the common transmit queue for this service category.
The *txQueueLength* attribute indicates the current length of the common transmit queue.

A value of ***fifo*** indicates that transmit traffic is being queued in a first-in-first-out basis for this service category. This is similar to ***common*** queuing, but the *txQueueLength* attribute indicates the number of cells in this connection queue. A value of ***fifo*** will only be indicated for connections on ***2pOC3MmAtm2***, ***2pOC3SmAtm2***, ***2pSTM1eAtm***, ***2pSTM1eCh***, ***4pOC3MmAtm***, ***4pOC3SmIrAtm***, ***4pDS3ChAtm***, ***3pDS3Atm2***, ***3pE3Atm2***, ***12pDS3Atm***, ***12pE3Atm***, and MSA32 cards with *atmServiceCategory* of ***nrtVbr*** or ***ubr***.

A value of ***perVc*** indicates that transmit traffic is being enqueued onto a per-VC queue for this connection.

A value of ***notApplicable*** indicates that transmit traffic is being shaped for this connection, or that unshaped transmit queuing is not applicable for this type of connection. Transmit traffic for a shaped connection is enqueued onto a per-VC queue, but this attribute is only applicable for unshaped connections. Unshaped transmit queuing is not applicable for basic *Vpt*s.

Values

perVc
common
notApplicable
fifo

Default

No default

## ATTRIBUTE AtmIf Vpt Vcc Tm bestEffort

Access

Read only

Description

This attribute indicates value of best effort parameter in the ATM Traffic Descriptor Information Element.

The value ***indicated*** implies that the quality of service for this connection is not guaranteed.

The value ***notIndicated*** implies that the quality of service for this connection is guaranteed.

A value of ***notApplicable*** is displayed in the case of nailed-up PVCs for which this attribute has no significance.

Values
indicated
notIndicated
notApplicable

Default
No default

### ATTRIBUTE AtmIf Vpt Vcc Tm forceTagging (tagging)

Access
Read only

Description
This attribute indicates the state of force tagging option for this connection. Force tagging refers to setting the CLP bit for all cells on a connection.

A value of ***enabled*** indicates that the CLP bit is being set to 1 for all cells in the transmit direction on this connection.

A value of ***disabled*** indicates that the CLP bit is unchanged for cells in the transmit direction on this connection. The value ***disabled*** is always displayed for *Vpt*s since forced tagging is applied on a per *Vpt Vcc* basis.

Values
disabled
enabled

Default
No default

### ATTRIBUTE AtmIf Vpt Vcc Tm weight

Access
Read only

Description
This attribute indicates the relative weight of this unshaped connection. Connections with a larger weight get a larger proportion of the link bandwidth or in the case of standard *Vpt Vcc*s, the *Vpt* bandwidth.

For all but standard *Vpt Vcc*s, the default connection weight is determined by the weight policy for a service category and the traffic descriptor for a connection. For standard *Vpt Vcc*s, the default connection weight is determined by the *Vcc*'s service category.

A value from 1 to 4095 indicates an actual weight. The value ***upToQueueLimit*** indicates that the weight of a connection is up to the transmit queue limit for this connection and is used for connections which have the value of the *unshapedTransmitQueueing* attribute displayed as ***fifo***.

This attribute has a displayed value of ***notApplicable*** in the following cases:
- This connection has the value of the *trafficShaping* attribute displayed as either ***linear*** or ***inverseUpc***.
- This connection has the value of the *trafficShaping* attribute displayed as ***disabled***, but the connection's service category has the *trafficShaping* attribute provisioned as either ***enabled*** or ***inverseUpc***.
- This connection has the value of the *unshapedTransmitQueueing* attribute displayed as ***common***.
- This is a basic *Vpt* connection.
- For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm*** cards, since per-connection weight is not supported.

Values: Decimal (1..4095)
upToQueueLimit
notApplicable

Default: No default

## ATTRIBUTE AtmIf Vpt Vcc Tm usageParameterControl (upc)

Access: Read only

Description: This attribute indicates the UPC state of the connection.

A value of ***notApplicable*** indicates that UPC is not applicable or not supported for the connection. This is the case:
- when the connection's *rxTrafficDescType* is 1 or 2.

- for standard *Vpt Vcc*s and basic *Vpt*s.

A value of ***notApplicable*** is set regardless of whether UPC is disabled or enabled in provisioning data.

A value of ***disabled*** indicates that UPC is applicable and supported for the type of connection but has been turned off in the provisioning data.

A value of ***enforced*** indicates that UPC is actively checking conformance for the connection and is discarding or tagging cells which do not conform to the connection traffic contract. The traffic descriptor parameters used for UPC conformance are reflected in the *rxTrafficDescParms* of the connection. On some ATM cards, the counts of UPC violations are visible in the *Vcc*, *Vpc* or *Vpt rxUpcViolationsOnEnforcer1* or *rxUpcViolationsOnEnforcer2* attributes.

A value of ***monitored*** indicates that UPC is actively checking conformance for the connection and counting the violations, but is not discarding or tagging cells which do not conform to the connection traffic contract. The traffic descriptor parameters used for UPC conformance are reflected in the *rxTrafficDescParms* of the connection. The counts of UPC violations are visible in the *Vcc*, *Vpc* or *Vpt. rxUpcViolationsOnEnforcer1* or *rxUpcViolationsOnEnforcer2* attributes.

If the *atmServiceCategory* for this connection is ***availableBitRate***, a value of ***enforced*** indicates that Dynamic Generic Cell Rate Algorithm (DGCRA) is active for the connection. The traffic descriptor parameters used for DGCRA enforcement are reflected in the *rxTrafficDescParm* of the connection.

Values

enforced
disabled
monitored
notApplicable

Default

No default

## ATTRIBUTE AtmIf Vpt Vcc Tm txPacketWiseDiscard (txpd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current set of packet-wise discard functions in effect in the transmit data direction at this connection point.<br><br>A value of ***ppd*** indicates that the Partial Packet Discard (PPD) function is in effect. PPD may be applied at an intermediate connecting point for a connection which is transporting frame traffic (AAL5 at the endpoint). PPD is controlled by provisioning for PVCs and SPVCs, and by call setup parameters in the AAL and Traffic Descriptor Information Elements.<br><br>A value of ***epd*** indicates that the Early Packet Discard (EPD) function is in effect at this connection point.<br><br>A value of ***wred*** indicates that Weighted Random Early Detection is in effect at this connection point. W-RED can be enabled by provisioning for PVCs and SPVCs.<br><br>For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, PPD and EPD are enabled by default at a connection endpoint which is performing AAL5 segmentation and assembly. Packet-wise functions are not applicable to virtual path connections (VPCs) on these cards.<br><br>On all other ATM cards, all packet-wise discard functions also apply to virtual path connections (VPCs).<br><br>This attribute is not applicable for *Vpt*s. |
| Set of | ppd<br>epd<br>wred |
| Default | No default |

## ATTRIBUTE AtmIf Vpt Vcc Tm rxPacketWiseDiscard (rxpd)

| | |
|---|---|
| Access | Read only |

Description

This attribute indicates the current set of packet-wise discard functions in effect in the receive data direction at this connection point.

A value of ***ppd*** indicates that the Partial Packet Discard (PPD) function is in effect. PPD may be applied at an intermediate connecting point for a connection which is transporting frame traffic (AAL5 at the endpoint). PPD is controlled by provisioning for PVCs and SPVCs, and by call setup parameters in the AAL and Traffic Descriptor Information Elements.

A value of ***epd*** indicates that the Early Packet Discard (EPD) function is in effect at this connection point. PPD and EPD are enabled by default at a connection endpoint which is performing AAL5 segmentation and assembly.

For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, and ***2pJ6MAtm*** cards, packet-wise functions are not applicable to virtual path connections (VPCs).

For ***16pOC3PosAtm*** cards, PPD and EPD are enabled by default at a connection endpoint which is performing AAL5 segmentation and assembly.

On all other ATM cards, all packet-wise discard functions also apply to virtual path connections (VPCs).

This attribute is not applicable for *Vpt*s.

Set of

ppd
epd

Default

No default

## ATTRIBUTE AtmIf Vpt Vcc Tm bandwidthElastic (bwElastic)

Access

Read only

Description

This attribute is only of importance for connections which are carried on a link with a variable bandwidth. For example, the bandwidth may be reduced in the event that one or more physical links in the IMA group fail, such that the originally requested

bandwidth cannot be maintained. This attribute shows whether the application (for example, *Trunk*) running on this connection can continue to operate if the bandwidth is reduced. If the bandwidth is reduced, the amount by which it is reduced is displayed in the *bandwidthReduction* attribute.

A value of ***yes***, indicates that this connection is elastic, and the bandwidth may be reduced but the connection is not released.

A value of ***no*** indicates that the bandwidth for this connection is not reduced in the event of link bandwidth reduction. However, this connection may be released based on its *holdingPriority.*

Bandwidth elasticity has no effect for connections which have an equivalent cell rate (ECR) of zero.

This attribute is not applicable for *Vpt*s and *Vpt Vcc*s.

Values
no
yes

Default
No default

## ATTRIBUTE AtmIf Vpt Vcc Tm bandwidthReduction (bwReduction)

Access
Read only

Description
This attribute shows the amount by which the bandwidth has been reduced for this connection. This value is non-zero only for connections which have *bandwidthElastic* displayed as ***yes***, and which are also operating in a reduced bandwidth mode. This is typically the case for selected connections running over an IMA link. This attribute takes a value from 0 (no reduction) up to the ECR. For all connections which are running at their full allocated bandwidth, *bwReduction* has the value 0. Connections which have been reduced in allocated bandwidth have a positive number for this attribute. The *bwReduction* may be subtracted from the ECR (which is displayed as *txTrafficDescParm* 5) to determine the actual bandwidth allocated to this connection.

Values
Decimal (0..2147483647)

Units
cell/s

Default No default

## ATTRIBUTE AtmIf Vpt Vcc Tm abrConnectionType (abrType)

Access Read only

Description This attribute indicates the type of ABR behavior which is in effect at this connection. This attribute is only applicable if the *atmServiceCategory* attribute is ***availableBitRate***. If the *atmServiceCategory* attribute is not ***availableBitRate***, this attribute value is set to ***notApplicable***.

For ATM cards which do not support ABR connections, the possible values for this attribute are ***notApplicable***, ***efciSwitch***, or ***nonAbrInterworking***. In EFCI marking mode, the Explicit Forward Congestion Indication (EFCI) field in the data cell headers is used to indicate transmit queue congestion.

For ATM cards which do support ABR connections, if the *connectionPointType* is ***connectionEndPoint***, the value of this attribute is ***sourceDest***. In this mode, the ABR Source and Destination behavior is in effect at this connection. This attribute is also ***sourceDest*** in the case where the next hop connection is specified as ***nonAbrInterworking***. The next hop connection is the *Vcc* or *Vpc* identified by the *nextHop* attribute of the *Nrp* or *Rp* component.

If the *connectionPointType* is not ***connectionEndPoint***, the value of this attribute depends upon the *abrConnectionType* provisioning and the card type to which the traffic is forwarded on the backplane. The default *abrConnectionType* is provisioned at the *CA Abr abrConnectionType* attribute, and may be overridden for a provisioned connection in the *Vcd Tm abrConnectionType* or *Vpd Tm abrConnectionType* attribute. If the *CA Abr abrConnectionType* attribute is ***virtualSourceDest*** at either one of the two connection points, and if both the connection points are defined on ATM cards which support ABR connections, virtual source and destination behavior is applied to the connection. In this instance, the attribute displays the value ***virtualSourceDest***.

This attribute has the value ***erSwitch*** if ABR explicit rate

functionality is in effect at this connection. In this mode, the switch may modify the Explicit Rate (ER) field of backward Resource Management (RM) cells to indicate the status of congestion at this connection point.

This attribute has the value ***nonAbrInterworking*** in the case where this connection point is functioning as an SPVC origin for an ABR connection where the link side of this connection is configured as a non-ABR ATM service category. This means that there are no RM cells on the link side of this connection, and that the next hop connection point is performing as an ABR ***sourceDest***.

Values

erSwitch
efciSwitch
virtualSourceDest
sourceDest
nonAbrInterworking
notApplicable

Default

No default

## ATTRIBUTE AtmIf Vpt Vcc Tm txTrafficDescParm (txTdp)

Access

Read only

Description

This attribute is a vector of five transmit traffic parameters whose mapping is defined by the *txTrafficDescType* attribute.

The values of peak cell rate (PCR), sustained cell rate (SCR), Minimum Cell Rate (MCR), actual cell rate (ACR), explicit rate (ER), equivalent cell rate (ECR), and actual shaping rate are expressed in cell/s. Maximum burst size (MBS) is expressed in cells. CDVT is expressed in microseconds.

When *txTrafficDescType* is 1 or 2, parameters 1 through 5 are unused.

In this description, PCR is the greater of either the PCR or the requested shaping rate (parameter 1 or parameter 5) specified in the *txTrafficDescParm* attribute under the *Vcd Tm* or *Vpd Tm* component.

When *txTrafficDescType* is 3, parameter 1 represents the PCR for CLP equal to 0 or 1 traffic; parameters 2 and 3 are unused.

When *txTrafficDescType* is 4, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the PCR for CLP equal to 0 traffic with cell discard.

When *txTrafficDescType* is 5, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the PCR for CLP equal to 0 traffic with cell tagging.

When *txTrafficDescType* is 6, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 and 1 traffic; parameter 3 represents the MBS for CLP equal to 0 and 1 traffic.

When *txTrafficDescType* is 7, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 traffic with cell discard; parameter 3 represents the MBS for CLP equal to 0 traffic.

When *txTrafficDescType* is 8, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 traffic with cell tagging; parameter 3 represents the MBS for CLP equal to 0 traffic.

When *txTrafficDescType* is 3, 4, 5, 6, 7, or 8, parameter 4 reflects the actual shaping rate in cell/s for this connection. For CQC-based ATM cards, the set of available shaping rates is based on the number of interfaces doing shaping (attribute *perVcQueueInterfaces*), and the *shapingScalingFactor* attribute of the *Arc Cqc Override* component. A rate of zero (0) indicates that shaping is not performed, or that the interface is down.

When *txTrafficDescType* is 9**,** parameter 1 represents the PCR; parameter 2 represents the Cell Delay Variation Toleration (CDVT); parameter 3 represents the Minimum Cell Rate (MCR); the meaning of parameter 4 depends upon the value of the *abrConnectionType* attribute. if *abrConnectionType* is ***sourceDest*** or ***virtualSourceDest***, parameter 4 represents the Allowed Cell Rate (ACR); If *abrConnectionType* is ***erSwitch***,

parameter 4 represents the Explicit Rate (ER); and if *abrConnectionType* is ***efciSwitch***, parameter 4 reflects the actual shaping rate in cell/s for this connection.

When *txTrafficDescType* is 3, 4, 5, 6, 7, 8, or 9, parameter 5 reflects the equivalent cell rate in cell/s for this connection as determined by the Connection Admission Control (CAC) algorithm. The equivalent cell rate is useful in determining the admission characteristics of this connection.

| | |
|---|---|
| Vector of | Decimal (0..2147483647) |
| Index | Decimal (1..5) |
| Default | No default |

## ATTRIBUTE AtmIf Vpt Vcc Tm txQueueThresholds (txQThresh)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the queue limit and the discard thresholds for the transmit queue of this connection.<br><br>If this connection has *unshapedTransmitQueueing* attribute displayed as ***common***, this attribute displays the thresholds of the common queue. If this connection has *unshapedTransmitQueueing* attribute displayed as ***perVc*** or as ***notApplicable***, this attribute displays the thresholds of the per-VC queue.<br><br>The first element indicates the queue limit. The provisioned value of the transmit queue limit is derived from the *txQueueLimit* attribute under the service category subcomponents of the *CA* component for the service category of this connection.<br><br>The second element is the threshold that marks the transition from congestion state 1 to congestion state 0. This is the threshold at which traffic with discard priority (DP) = 1 is discarded. This threshold is set at approximately 90 percent of the first parameter, the operational queue limit.<br><br>The third element is the threshold that marks the transition from congestion state 2 to congestion state 1. This is the threshold at |

which traffic with DP = 2 is discarded. This threshold is set at approximately 75 percent of the first parameter, the operational queue limit.

The fourth element is the threshold that marks the transition from congestion state 3 to congestion state 2. This is the threshold at which traffic with DP = 3 is discarded. This threshold is set at approximately 35 percent of the first parameter, the operational queue limit.

For ***1pOC48ChSmIrAtm***, and ***1pOC48SmSrPos*** cards, this attribute displays the thresholds of the link class queue used by this connection to buffer it traffic.

This attribute does not apply to basic *Vpt*s.

| | |
|---|---|
| Vector of | Decimal (0..512000) |
| Units | cells |
| Index | Decimal (0..3) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Vcc Tm rxTrafficDescParm (rxTdp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is a vector of four traffic parameters whose meanings are defined by the *rxTrafficDescType* attribute. The values of peak cell rate (PCR), sustained cell rate (SCR), minimum cell rate (MCR) are expressed in cell/s. Maximum burst size (MBS) is expressed in cells. Cell delay variation tolerance (CDVT) is expressed in microseconds.<br><br>When *rxTrafficDescType* is 1 or 2, none of the parameters are used.<br><br>When *rxTrafficDescType* is 3, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 4 represents the CDVT.<br><br>When *rxTrafficDescType* is 4, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the PCR for |

CLP equal to 0 traffic with cell discard; parameter 4 represents the CDVT.

When *rxTrafficDescType* is 5, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the PCR for CLP equal to 0 traffic with cell tagging; parameter 4 represents the CDVT.

When *rxTrafficDescType* is 6, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 and 1 traffic; parameter 3 represents the MBS for CLP equal to 0 and 1 traffic; parameter 4 represents the CDVT.

When *rxTrafficDescType* is 7, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 traffic with cell discard; parameter 3 represents the MBS for CLP equal to 0 traffic; parameter 4 represents the CDVT.

When *rxTrafficDescType* is 8, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 traffic with cell tagging; parameter 3 represents the MBS for CLP equal to 0 traffic; parameter 4 represents the CDVT.

When *rxTrafficDescType* is 9, parameter 1 represents the PCR; parameter 2 represents CDVT; parameter 3 represents the MCR; parameter 4 is not used.

If *upc* is ***disabled*** for this connection, the values of PCR, SCR, MBS and CDVT are the provisioned parameters.

If *upc* is ***enabled***, the values of PCR, SCR, MBS, and CDVT are exactly the values used by the usage parameter control hardware in policing the arriving traffic. These may vary slightly from the provisioned values due to granularity of the hardware. In the case where the PCR is equal to the SCR, the effective MBS is zero.

| | |
|---|---|
| Vector of | Decimal (0..2147483647) |
| Index | Decimal (1..4) |

Default No default

### ATTRIBUTE AtmIf Vpt Vcc Tm txQosParameters (tqp)

Access Read only

Description This attribute is a vector of three elements that indicate the quality of service parameters for the forward direction for this connection. This attribute is used for SPVC and SVC connections on a PNNI interface.

The ***cdv*** element indicates the acceptable peak-to-peak Cell Delay Variation (CDV) of real-time connections (CBR and rt-VBR).

The ***ctd*** element indicates the acceptable maximum Cell Transfer Delay (maxCtd) of real-time connections (CBR and rt-VBR).

The ***clr*** element indicates the acceptable Cell Loss Ratio (CLR) of CBR, rt-VBR, and nrt-VBR connections.

Vector of Decimal (0..2147483647)

Index cdv
ctd
clr

Default No default

### ATTRIBUTE AtmIf Vpt Vcc Tm rxQosParameters (rqp)

Access Read only

Description This attribute is a vector of three elements that indicate the quality of service parameters for the backward direction for this connection. This attribute is used for SPVC and SVC connections on a PNNI interface.

The ***cdv*** element indicates the acceptable peak-to-peak Cell Delay Variation (CDV) of real-time connections (CBR and rt-VBR).

The ***ctd*** element indicates the acceptable maximum Cell Transfer Delay (maxCtd) of real-time connections (CBR and rt-VBR).

The ***clr*** element indicates the acceptable Cell Loss Ratio (CLR)

of CBR, rt-VBR, and nrt-VBR connections.

| | |
|---|---|
| Vector of | Decimal (0..2147483647) |
| Index | cdv<br>ctd<br>clr |
| Default | No default |

## COMPONENT AtmIf Vpt Vcc Tm AvailableBitRate (Abr)

| | |
|---|---|
| Groups | "GROUP AtmIf Vpt Vcc Tm Abr Operational (Oper)" |
| Scope | Device |
| Description | *AtmIf/n Vpc/vpi Tm AvailableBitRate,*<br>*AtmIf/n Vcc/vpi.vci Tm AvailableBitRate,*<br>*AtmIf/n Vpt/vpi Tm AvailableBitRate,*<br>*AtmIf/n Vpt/vpi Vcc/vci Tm AvailableBitRate*<br>This component contains ABR-related operational attributes of a connection. It is dynamically created for connections where the value of the *atmServiceCategory* attribute is ***availableBitRate***, and where the value of the *abrConnectionType* attribute is ***sourceDest***, or ***virtualSourceDest***. |
| Common Verbs | Help<br>List<br>Display |

## GROUP AtmIf Vpt Vcc Tm Abr Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational attributes for connections using ABR service category. |

## ATTRIBUTE AtmIf Vpt Vcc Tm Abr initialCellRate (icr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Initial Cell Rate (ICR) parameter for this connection. ICR is the rate at which a source should send initially and after an idle period. |

For nailed-up connections, this attribute is determined by the provisioned value of the *initialCellRate* attribute. For signaled connections, it is indicated in the ABR Setup Parameters Information Element.

The ICR for a connection is a value between the MCR and the PCR. Furthermore, ICR has an upper bound determined by the *transientBufferExposure* divided by *fixedRoundTripTime*.

Values: Decimal (0..16777215)

Units: cell/s

Default: No default

### ATTRIBUTE AtmIf Vpt Vcc Tm Abr transientBufferExposure (tbe)

Access: Read only

Description: This attribute indicates the Transient Buffer Exposure (TBE) for this connection. TBE is the negotiated number of cells that the network would like to limit the resource to send during start-up periods, before the first Resource Management (RM) cell returns.

For nailed-up connections, this attribute is determined by the provisioned value of the *transientBufferExposure* attribute. For signaled connections, it is indicated in the ABR Setup Parameters Information Element.

Values: Decimal (0..16777215)

Units: cells

Default: No default

### ATTRIBUTE AtmIf Vpt Vcc Tm Abr fixedRoundTripTime (frtt)

Access: Read only

Description: This attribute indicates the Fixed Round-Trip Time (FRTT) parameter for this connection. FRTT is the sum of the fixed and propagation delays from the source to a destination and back.

For nailed-up connections, this attribute is determined by the

provisioned value of the *fixedRoundTripTime* attribute. For signaled connections, it is indicated in the ABR Setup Parameters Information Element.

Values: Decimal (0..16700000)

Units: microsec

Default: No default

### ATTRIBUTE AtmIf Vpt Vcc Tm Abr rateDecreaseFactor (rdf)

Access: Read only

Description: This attribute indicates the Rate Decrease Factor (RDF) for this connection. The RDF value is computed by using the operational value of this attribute, n, as 2 to the inverse power n. For example, if the value of this attribute is 8, RDF is 2E-8 = 1/256.

RDF controls the amount by which the cell transmission rate may decrease upon receipt of a backward Resource Management (RM) cell. For example, if a backward RM cell is received with the Congestion Indication (CI) field set to 1, the Allowed Cell Rate (ACR) value would be reduced by the amount (RDF*ACR). The ACR is not allowed to fall below the Minimum Cell Rate (MCR), in which case the ACR is set to MCR.

For nailed-up connections, this attribute is determined by the provisioned value of the *rateDecreaseFactor* attribute. For signaled connections, it is indicated in the ABR Setup Parameters Information Element.

Values: Decimal (0..15)

Default: No default

### ATTRIBUTE AtmIf Vpt Vcc Tm Abr rateIncreaseFactor (rif)

Access: Read only

Description: This attribute indicates the Rate Increase Factor (RIF) for this connection. The RIF value is computed by using the operational value of this attribute, n, as 2 to the inverse power n. For example, if the value of this attribute is 6, RIF is 2E-6 = 1/64.

RIF controls the amount by which the cell transmission rate may increase upon receipt of a backward Resource Management (RM) cell. For example, if a backward RM cell is received with the Congestion Indication (CI) and the No Increase (NI) fields both set to 0, the Allowed Cell Rate (ACR) value would be increased by the amount (RIF*ACR). The ACR is not allowed to exceed the Peak Cell Rate (PCR), in which case the ACR is set to PCR.

For nailed-up connections, this attribute is determined by the provisioned value of the *rateIncreaseFactor* attribute. For signaled connections, it is indicated in the ABR Setup Parameters Information Element.

Values: Decimal (0..15)

Default: No default

### ATTRIBUTE AtmIf Vpt Vcc Tm Abr maxCellPerRmCell (nrm)

Access: Read only

Description: This attribute indicates the maximum number of cells an ABR source may transmit for each forward Resource Management (RM) cell. The count of the cells transmitted includes data cells, OAM cells, backward RM cells, and the forward RM cell.

For nailed-up connections, this attribute is determined by the provisioned value of the *maxCellsPerRmCell* attribute. For signaled connections, it is indicated in the ABR Additional Parameters Information Element.

Values: Decimal (2; 4; 8; 16; 32; 64; 128; 256)

Units: cells

Default: No default

### ATTRIBUTE AtmIf Vpt Vcc Tm Abr maxTimeBetweenRmCell (trm)

Access: Read only

Description: This attribute indicates the TRM parameter for this connection.

TRM provides an upper bound on the time interval between forward Resource Management (RM) cells for an ABR source.

Since the last forward RM cell was sent, if at least TRM time has elapsed since and at least 2 other cells have been sent, the next cell to be transmitted would be a forward RM cell.

For nailed-up connections, this attribute is determined by the provisioned value of the *maxTimeBetweenRmCell* attribute. For signaled connections, it is indicated in the ABR Additional Parameters Information Element.

Values: Decimal (781; 1563; 3125; 6250; 12500; 25000; 50000; 100000)

Units: microsec

Default: No default

## ATTRIBUTE AtmIf Vpt Vcc Tm Abr cutoffDecreaseFactor (cdf)

Access: Read only

Description: This attribute indicates the Cutoff Decrease Factor (CDF) parameter for this connection. When the value of this attribute is non-zero, CDF is computed as the inverse of the value. For example, if the value is 32, the value of CDF is 1/32. When the value of this attribute is 0, CDF is also zero.

CDF controls the decrease in the Allowed Cell Rate (ACR) associated with the *forwardRmCellLimit* attribute, the limit of the number of forward Resource Management (RM) cells which may be sent in the absence of received backward RM cells. When this limit is crossed, the ACR value would be decreased by the amount (CDF*ACR). The ACR is not allowed to fall below the Minimum Cell Rate (MCR), in which case the ACR is set to MCR.

For nailed-up connections, this attribute is determined by the provisioned value of the *cutoffDecreaseFactor* attribute. For signaled connections, it is indicated in the ABR Additional Parameters Information Element.

Values: Decimal (0; 1; 2; 4; 8; 16; 32; 64)

Default: No default

### ATTRIBUTE AtmIf Vpt Vcc Tm Abr acrDecreaseTimeFactor (adtf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Allowed Cell Rate Decrease Time Factor (ADTF) parameter for this connection.<br><br>ADTF is the time interval permitted between sending forward Resource Management (RM) cells before the Allowed Cell Rate (ACR) is decreased to *initialCellRate*. In other words, if the source does not transit a forward RM cell for the period specified by *adtf*, it reduces its ACR to the value of its *initialCellRate*.<br><br>For nailed-up connections, this attribute is determined by the provisioned value of the *acrDecreaseTimeFactor* attribute. For signaled connections, it is indicated in the ABR Additional Parameters Information Element. |
| Values | Decimal (0..1023) |
| Units | centiseconds |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Vcc Tm Abr forwardRmCellLimit (crm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the CRM parameter for this connection.<br><br>CRM is the limit of the number of forward Resource Management (RM) cells which may be sent in the absence of received backward RM cells. When this limit is crossed, the Allowed Cell Rate (ACR) value would be decreased by the amount (CDF*ACR), where CDF is determined by the *cutoffDecreaseFactor*. The ACR is not allowed to fall below the Minimum Cell Rate (MCR), in which case the ACR is set to MCR.<br><br>The value of CRM is obtained as *transientBufferExposure* divided by *maxCellsPerRmCell*. |
| Values | Decimal (1; 3; 7; 15; 31; 63; 127; 255; 511; 1023; 2047; 4095) |
| Units | cells |

Default — No default

### ATTRIBUTE AtmIf Vpt Vcc Tm Abr txRateChangeInfo (txrci)

Access — Read only

Description — This attribute indicates the rate change information put into the last forward Resource Management (RM) cell turned around as a backward-RM cell. For connections configured as an ABR Source or Destination, the turned around backward-RM cell is sent over the interface. For connections configured as an ABR Virtual Source or Virtual Destination, the turned around backward-RM cell is sent over the backplane.

Values — congestionIndicated
noIncreaseIndicated
explicitRateIndicated

Default — No default

### ATTRIBUTE AtmIf Vpt Vcc Tm Abr acrRateChangeInfo (arci)

Access — Read only

Description — This attribute indicates the type of change in the Allowed Cell Rate (ACR) as a result of the information in the last backward Resource Management (B-RM) cell received from the interface.

This attribute value is only applicable when the *Vcc Tm* or *Vpc Tm abrConnectionType* attribute is ***sourceDest*** or ***VirtualSourceDest***. In all other cases, this attribute value is ***notApplicable***.

A value of ***noChange*** indicates that the rate did not change as a result of the last backward RM cell received.

A value of ***decreasedByRdf*** or ***increasedByRif*** indicates that the ACR was increased or decreased by the corresponding factor. This change is as a result of the CI or NI bit setting in the last backward RM cell, or an ADTF timeout.

A value of ***setToExplicitRate*** indicates that the ACR was set to the ER value in the last backward RM cell.

| | |
|---|---|
| Values | noChange<br>decreasedByRdf<br>increasedByRif<br>setToExplicitRate<br>notApplicable |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Vcc Tm Abr txFwdRmCells

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of forward Resource Management (RM) cells sent over the interface since the last backward RM-cell was received from the interface. If the value of this attribute is greater than or equal to the value of *forwardRmCellLimit*, the Allowed Cell Rate (ACR) value would be decreased by the amount (CDF*ACR), where CDF is determined by the *cutoffDecreaseFactor.*<br><br>This counter is reset to zero each time a backward-RM cell is received.<br><br>This counter does not wrap to zero if it reaches its maximum value of 4095 in order to indicate that no backward RM cell has been received. |
| Values | Decimal (0..4095) |
| Units | cells |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Vcc Tm Abr rxEfci

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the value of the Explicit Forward Congestion Indication (EFCI) bit of the last data cell received from the interface.<br><br>When a forward Resource Management (RM) cell is turned around as a backward-RM cell, the Congestion Indication (CI) field of the backward-RM cell is set to 1, if the value of this attribute is ***indicated***. |

This attribute is set to ***notIndicated*** each time a backward-RM cell is transmitted.

Values
notIndicated
indicated

Default
No default

## COMPONENT AtmIf Vpt Vcc SourcePvc (Src)

Groups
"GROUP AtmIf Vpt Vcc Src Provisioned (Prov)"
"GROUP AtmIf Vpt Vcc Src Operational (Oper)"
"GROUP AtmIf Vpt Vcc Src OsiState (State)"

Scope
Device

Description
*AtmIf/n Vcc/vpi.vci SrcPvc*
*AtmIf/n Vpt/vpi Vcc/vci SrcPvc*

This component represents the source end of a soft PVC.

Opt. Subcomp.
"COMPONENT AtmIf Vpt Vcc Src ManualDtl (Mdtl)"
"COMPONENT AtmIf Vpt Vcc Src RerouteOverride (RerOv)"

Common Verbs
Help
List
Display
Add
DELete
LOCK
Unlock

## GROUP AtmIf Vpt Vcc Src Provisioned (Prov)

Properties
Provisioned

Description
This attribute group contains the provisionable attributes of the *SourcePvc* component.

### ATTRIBUTE AtmIf Vpt Vcc Src callingAddress

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute represents the calling address of the soft PVC. If it is<br>a null string, then the calling address is the address of the current interface (that is, where the soft PVC originates). |
| Values | String (0..20, Hex) |
| Default | "" |

### ATTRIBUTE AtmIf Vpt Vcc Src calledAddress

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute represents the called (remote) address of the soft PVC. |
| Values | String (20, Hex) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Vcc Src calledVpiVci

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute represents the remote VPI and VCI of the soft PVC. |
| Values | Integer Sequence (0..4095; 1..65535) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Vcc Src adminControl

| | |
|---|---|
| Access | Read: All<br>Write: All |

| | |
|---|---|
| Description | This attribute specifies the initial state of the connection.<br><br>If this attribute is set to ***permLocked***, the connection initially remains down following activation.<br>Setting this attribute to ***unlocked*** causes the connection to be established when it is activated. |
| Values | permLocked<br>unlocked |
| Default | unlocked |

### ATTRIBUTE AtmIf Vpt Vcc Src aisGeneration (ais)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether OAM-AIS generation occurs on the connection towards this interface when the SPVC is down.<br><br>If this attribute is ***enabled***, OAM-AIS cells are generated for this SPVC when the SPVC is not up.<br><br>The only exception is that when the source SPVC attribute *adminControl* is set to ***permLocked***, OAM-AIS cells are not generated for the source SPVC.<br><br>If this attribute is set to ***disabled***, OAM-AIS cells are not generated. |
| Values | enabled<br>disabled |
| Default | disabled |

### GROUP AtmIf Vpt Vcc Src Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains the operational attributes associated with the *SrcPvp* or *SrcPvc* component. |

### ATTRIBUTE AtmIf Vpt Vcc Src retryCount

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute indicates the number of failed attempts to set up the soft PVP or soft PVC since the last time the connection failed. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE AtmIf Vpt Vcc Src lastFailureCauseCode

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute contains the cause code in the last transmitted signaling message that contains the CAUSE information element. The cause code is used to describe the reason for generating certain signaling messages.<br>The default value for this attribute is set to 0. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Vcc Src lastFailureDiagCode

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute contains the diagnostic code in the last transmitted signaling message. The diagnostic code is contained in the CAUSE information element and identifies an information element type or timer type. The diagnostic code is present only if a procedural error is detected by the signaling protocol. A diagnostic code is always accompanied by the cause code. If there is no failure, this attribute is set to NULL. |
| Values | String (0..8, ASCII) |
| Default | No default |

### GROUP AtmIf Vpt Vcc Src OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state |

combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE AtmIf Vpt Vcc Src adminState (osiAdmin)

Access: Read only

Description: This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values: locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default: unlocked

### ATTRIBUTE AtmIf Vpt Vcc Src operationalState (osiOper)

Access: Read only

Description: This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the

component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE AtmIf Vpt Vcc Src usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### COMPONENT AtmIf Vpt Vcc Src ManualDtl (Mdtl)

Groups
"GROUP AtmIf Vpt Vcc Src Mdtl Provisioned (Prov)"
"GROUP AtmIf Vpt Vcc Src Mdtl Operational (Oper)"

Scope
Device

Description
*AtmIf/n Vcc/vpi.vci SrcPvc ManualDtl*
*AtmIf/n Vpc/vpi SrcPvp ManualDtl*
*AtmIf/n Vpt/vpi Vcc/vci SrcPvc ManualDtl*

This component represents the ability to specify the PNNI path on a per connection basis for provisioned SPVC and SPVP connections.

The addition or deletion of this component is critical to the parent

SPVC or SPVP. Changes to the attributes contained under this component are not critical.

Common Verbs

Help
List
Display
Add
DELete

### VERB REConnect AtmIf Vpt Vcc Src Mdtl

Impact: Service

Description:

*REConnect AtmIf/n Vcc/vpi.vci Src Mdtl*
*REConnect -primary AtmIf/n Vcc/vpi.vci Src Mdtl*
*REConnect -alternate AtmIf/n Vcc/vpi.vci Src Mdtl*
*REConnect -automatic AtmIf/n Vcc/vp.vci Src Mdtl*

This command is used to trigger a connection to attempt to connect using the requested path. By default, the primary path is used. Using the *Reconnect* command will result in service disruptions when a connection is moved to a new path.

### GROUP AtmIf Vpt Vcc Src Mdtl Provisioned (Prov)

Properties: Provisioned

Description: This group contains the provisionable attributes for the Manual DTL selection paths for provisioned connections.

The normal sequence for connection retry is:
First try to establish the connection using the *primaryPath*. If the connection is not successful and if the *alternatePath* has been provisioned, try to connect using the *alternatePath*. If the connection is still unsuccessful, use the PNNI routing protocol to generate the path.

### ATTRIBUTE AtmIf Vpt Vcc Src Mdtl primaryPath (priPath)

Access: Read and write

Description: This attribute specifies the name of the primary MDTL path. The value must match the instance value of one of the *Mdtl* components under *Artg Pnni*.

| | |
|---|---|
| Values | String (1..32, ASCII) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Vcc Src Mdtl alternatePath (altPath)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the name of the alternate MDTL path. The value must match the instance value of one of the *Mdtl* components under *Artg Pnni*. An empty string disables the alternate path. |
| Values | String (0..32, ASCII) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Vcc Src Mdtl automaticFallback (auto)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether PNNI routing is to be used to establish a connection if connection attempts using the primary and alternate paths fail. If the value is ***enable***, PNNI routing will be attempted; if the value is ***disable***, it will not. |
| Values | disable<br>enable |
| Default | enable |

### GROUP AtmIf Vpt Vcc Src Mdtl Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains the operational attributes associated with the *atmSrcMdtl* component |

### ATTRIBUTE AtmIf Vpt Vcc Src Mdtl currentPath (curPath)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the current connection status of the MDTL connection.<br><br>A ***not connected*** status indicates that the connection is not established. The retry sequence did not succeed. The network |

operator can issue the *Reconnect* command to restart the retry sequence.
A ***primary*** status indicates that the connection is using the path specified by the *primaryPath* attribute.
An ***alternate*** status indicates that the connection is using the path specified by the *alternatePath* attribute.
An ***automatic*** status indicates that the connection is using the path generated by the PNNI routing protocol.
A ***waiting connection*** status indicates that the connection is in a retry phase.

Values
not connected
primary
alternate
automatic
waiting connection

Default
"not connected"

### ATTRIBUTE AtmIf Vpt Vcc Src Mdtl primaryPathFailCause (priPathFail)

Access
Read: All
Write: Illegal

Description
This attribute indicates the last failure cause code for the primary path. The value is reset to zero when trying to re-establish the connection.

Values
Decimal (0..255)

Default
No default

### ATTRIBUTE AtmIf Vpt Vcc Src Mdtl alternatePathFailCause (altPathFail)

Access
Read: All
Write: Illegal

Description
This attribute indicates the last failure cause code for the alternate path. The value is reset to zero when trying to re-establish the connection.

Values
Decimal (0..255)

Default
No default

## COMPONENT AtmIf Vpt Vcc Src RerouteOverride (RerOv)

| | |
|---|---|
| Groups | "GROUP AtmIf Vpt Vcc Src RerOv Provisioned (Prov)" |
| Scope | Device |
| Description | *AtmIf/n Vcc/vpi.vci SrcPvc RerouteOverride*<br>*AtmIf/n Vpc/vpi SrcPvp RerouteOverride*<br>*AtmIf/n Vpt/vpi Vcc/vci SrcPvc RerouteOverride*<br>*FrAtm/n Dlci/x Siwf RerouteOverride*<br><br>This component represents the ability to override rerouting capability subscription options on a per connection basis for provisioned SPVC and SPVP connections.<br><br>The addition of this component and changes to the attributes contained in this component are critical to the parent SPVC or SPVP. However, the deletion of this component is not a critical change for the connection. If this component is deleted, the connection remains active with the last provisioned subscription options. Subscription is lost when the connection goes down and re-establishes. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## VERB OPTIMIZE AtmIf Vpt Vcc Src RerOv

Impact: Service

Description:

*OPTimize AtmIf/n Vcc/<vpi.vci> Src RerOv*
*OPTimize AtmIf/n Vpc/<vpi> Src RerOv*
*OPTimize AtmIf/n Vpt/<vpi> Vcc/<vci> Src RerOv*
*OPTimize FrAtm/n Dlci/x Siwf RerOv*

This command triggers path optimization for the connection segment. If the interface is already processing a path optimization request, then the *Optimize* command is cancelled.

Using the *Optimize* command results in service disruptions when connection segments are moved to a better path. Care should be exercised when using this command. It is recommended that the command be used during maintenance windows.

## GROUP AtmIf Vpt Vcc Src RerOv Provisioned (Prov)

Properties: Provisioned

Description: This group contains the provisionable attributes related to rerouting subscription options for provisioned connections.

## ATTRIBUTE AtmIf Vpt Vcc Src RerOv protocol

Access: Read and write

Description: This attribute specifies the rerouting protocols which are requested by the connection segment. A subset of the requested protocols is granted by the last rendezvous node, according to its software level and provisioning.

One of the following values can be specified:
***sameAsInterface***: The requested rerouting protocols are specified by the *protocol* attribute under the *Reroute Ov* component for the interface.
***localGlobal***: Local and global rerouting protocols are requested. Local and global rerouting are granted if the DTL terminator is provisioned with the Rerouting feature.
***localOnly***: Local rerouting is requested. This value guarantees interoperability with other vendors' equipment running the ATM Forum "Domain Based Rerouting" protocol. Local rerouting is

granted if the DTL terminator is provisioned with the Rerouting feature.
***globalOnly***: Global rerouting is requested. Global rerouting is granted if the DTL terminator is provisioned with the Rerouting feature.
***localEbr*:** Local and EBR rerouting protocols are requested. Local rerouting is granted if the DTL terminator is provisioned with the Rerouting feature. Alternatively, EBR is granted if the DTL terminator is provisioned with the EBR feature.
***ebrOnly***: EBR is requested. EBR is granted if the DTL terminator is provisioned with the EBR feature.

Values
localGlobal
localOnly
globalOnly
localEbr
ebrOnly
sameAsInterface (sameAs)

Default
sameAsInterface

## ATTRIBUTE AtmIf Vpt Vcc Src RerOv localConnectionRecoverySubscr (lRecSub)

Access
Read and write

Description
This attribute specifies whether the connection segment requests subscription to local connection recovery. This attribute only affects connection segments that request the local rerouting protocols. This attribute affects connection segments for a node that is either local domain rerouting node or a DTL originator.

If the connection segment requests ***localGlobal*** or ***localOnly*** protocols, this attribute controls local connection recovery subscription.

If the connection segment requests ***localEbr***, this attribute controls the local connection recovery subscription. Only one will be granted.

One of the following values can be specified:
***sameAsInterface***: The subscription rule is determined by the *localConnectionRecoverySubscr* attribute under the *Reroute Ov* component for the interface. If the attribute specifies the

***sourceSpvcSpvp*** value, the connection segment requests subscription to local connection recovery, otherwise the connection segment does not request subscription.
***yes:*** The connection segment requests subscription to local connection recovery.
***no***: The connection segment does not request subscription to local connection recovery.

Values
no
yes
sameAsInterface (sameAs)

Default
sameAsInterface

## ATTRIBUTE AtmIf Vpt Vcc Src RerOv localPathOptimizationSubscr (lOptSub)

Access
Read and write

Description
This attribute specifies whether the connection segment requests subscription to local connection recovery. This attribute only affects connection segments that request the local rerouting protocols. This attribute affects connection segments for a node that is either local domain rerouting node or a DTL originator.

If the connection segment requests ***localGlobal*** or ***localOnly*** protocols, this attribute controls local path optimization subscription.

If the connection segment requests ***localEbr***, this attribute controls the local path optimization subscription. Only one will be granted.

One of the following values can be specified:
***sameAsInterface***: The subscription rule is determined by the *localPathOptimizationSubscr* attribute under the *Reroute Ov* component for the interface. If the attribute specifies the ***sourceSpvcSpvp*** value, the connection segment requests subscription to local path optimization, otherwise the connection segment does not request subscription.
***yes:*** The connection segment requests subscription to local path optimization.
***no***: The connection segment does not request subscription to local path optimization.

Values
no
yes
sameAsInterface (sameAs)

Default
sameAsInterface

### ATTRIBUTE AtmIf Vpt Vcc Src RerOv globalConnectionRecoverySubscr (gRecSub)

Access
Read and write

Description
This attribute specifies whether the connection segment requests subscription to global or EBR connection recovery. This attribute only affects connection segments that request the global or EBR rerouting protocols. This attribute affects connection segments for a node that is a DTL originator.

If the connection segment requests ***ebrOnly***, this attribute controls EBR connection recovery subscription.

If the connection segment requests ***localEbr***, this attribute controls the EBR connection recovery subscription. Only one will be granted.

One of the following values can be specified:
***sameAsInterface***: The subscription rule is determined by the *globalConnectionRecoverySubscr* attribute under the *Reroute Ov* component for the interface. If the attribute specifies the ***sourceSpvcSpvp*** value, the connection segment requests subscription to global or EBR connection recovery, otherwise the connection segment does not request subscription.
***yes:*** The connection segment requests subscription to global or EBR connection recovery.
***no***: The connection segment does not request subscription to global or EBR connection recovery.

Values
no
yes
sameAsInterface (sameAs)

Default
sameAsInterface

### ATTRIBUTE AtmIf Vpt Vcc Src RerOv globalPathOptimizationSubscr (gOptSub)

Access
Read and write

Description

This attribute specifies whether the connection segment requests subscription to global or EBR path optimization. This attribute only affects connection segments that request the global or EBR rerouting protocols. This attribute affects connection segments for a node that is a DTL originator.

If the connection segment requests ***ebrOnly***, this attribute controls EBR path optimization subscription.

If the connection segment requests ***localEbr***, this attribute controls the EBR path optimization subscription. Only one will be granted.

One of the following values can be specified:
***sameAsInterface***: The subscription rule is determined by the *globalPathOptimizationSubscr* attribute under the *Reroute Ov* component for the interface. If the attribute specifies the ***sourceSpvcSpvp*** value, the connection segment requests subscription to global or EBR path optimization, otherwise the connection segment does not request subscription.
***yes:*** The connection segment requests subscription to global or EBR path optimization.
***no***: The connection segment does not request subscription to global or EBR path optimization.

Values

no
yes
sameAsInterface (sameAs)

Default

sameAsInterface

## COMPONENT AtmIf Vpt Vcc EndPoint (Ep)

Groups

"GROUP AtmIf Vpt Vcc Ep Operational (Oper)"

Scope

Device

Description

*AtmIf/n Vcc/vpi.vci Ep*
*AtmIf/n Vpt/vpi Vcc/vci Ep*

The *EndPoint* component of the application associated with the

VCC is used to link a switched VCC to an application that sends and receives frames using the connection.

Common Verbs

Help
List
Display

## GROUP AtmIf Vpt Vcc Ep Operational (Oper)

Properties: Operational

Description: This attribute group contains the operational attributes for the AtmEndPoint component.

## ATTRIBUTE AtmIf Vpt Vcc Ep applicationName

Access: Read only

Description: This attribute indicates the component name associated with the application associated with the switched VCC.

Values: The name of the component

Default: No default

## COMPONENT AtmIf Vpt Vcc RelayPoint (Rp)

Groups: "GROUP AtmIf Vpt Vcc Rp Operational (Oper)"

Scope: Device

Description:

*AtmIf/n Vpc/vpi Rp*
*AtmIf/n Vcc/vpi.vci Rp*
*AtmIf/n Vpt/vpi Vcc/vci Rp*

The *RelayPoint* component is used to establish a single hop of a Switched connection. When linked together, two *Rp*s within a module, the associated connections are configured to relay ATM cells to one another.

Common Verbs

Help
List
Display

## GROUP AtmIf Vpt Vcc Rp Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains the operational attributes for the *AtmRelayPoint* component. |

## ATTRIBUTE AtmIf Vpt Vcc Rp nextHop

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the component name(s) of the *Rp* component(s) with which this *Rp* component is associated. This attribute can have more than one component name only when the Vcc *distributionType* is ***pointToMultipoint*** and the *callDirection* is ***fromLink***. |
| List of | The name of the component |
| Default | No default |

## COMPONENT AtmIf Vpt Vcc DestinationPvc (Dst)

| | |
|---|---|
| Groups | "GROUP AtmIf Vpt Vcc Dst Operational (Oper)"<br>"GROUP AtmIf Vpt Vcc Dst OsiState (State)" |
| Scope | Device |
| Description | *AtmIf/n Vcc/vpi.vci DstPvc*<br>*AtmIf/n Vpt/vpi Vcc/vci DstPvc*<br><br>This component represents the destination end of a soft PVC.<br><br>This component can be dynamically created or provisioned.<br><br>When this component is dynamically created, it implicitly indicates that a connection has been established. This dynamically created component does not exist when there is no connection.<br><br>When this component is provisioned, it does not imply that a connection has been established. The existence of a provisioned *destinationPVC* component allows the possibility of generating OAM-AIS cells when the SPVC is down. The attribute |

*aisGeneration* under component *Configuration* is used to specify AIS generation at the destination end of a soft PVC.

Subcomponents "COMPONENT AtmIf Vpt Vcc Dst Configuration (Config)"

Common Verbs
Help
List
Display
Add
DELete

## GROUP AtmIf Vpt Vcc Dst Operational (Oper)

Properties Operational

Description This attribute group contains the operational attributes for the *DestinationPvc* component.

## ATTRIBUTE AtmIf Vpt Vcc Dst calledAddress

Access Read: All
Write: Illegal

Description This attribute represents the called address of the soft PVC.

Values String (20, Hex)

Default No default

## ATTRIBUTE AtmIf Vpt Vcc Dst callingAddress

Access Read: All
Write: Illegal

Description This attribute represents the remote address of the soft PVC. If the address in not known, then the value of this address is ***Unknown***.

Values String (7..40, ASCII)

Default No default

### ATTRIBUTE AtmIf Vpt Vcc Dst callingVpiVci

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute represents the remote VPI and VCI of the soft PVC. If the VPI and VCI values are not known, this attribute is set to ***Unknown***. |
| Values | String (7..9, ASCII) |
| Default | No default |

### GROUP AtmIf Vpt Vcc Dst OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE AtmIf Vpt Vcc Dst adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is |

administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE AtmIf Vpt Vcc Dst operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE AtmIf Vpt Vcc Dst usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

| | |
|---|---|
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

## COMPONENT AtmIf Vpt Vcc Dst Configuration (Config)

| | |
|---|---|
| Groups | "GROUP AtmIf Vpt Vcc Dst Config DstProv" |
| Scope | Device |
| Description | *Atmif/n Vcc/x.y Dst Override*<br>This *Override* component contains provisioned attributes for this destination SPVC.<br><br>If this component does not exist, the destination SPVC behaves as if this component had been provisioned with default values for all its attributes. |
| Common Verbs | Help<br>List<br>Display |

## GROUP AtmIf Vpt Vcc Dst Config DstProv

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisionable attributes for destination SPVC/Ps. |

## ATTRIBUTE AtmIf Vpt Vcc Dst Config aisGeneration (ais)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether OAM-AIS generation occurs on the connection towards this interface when the SPVC or SPVP is down.<br><br>If this attribute is ***enabled***, OAM-AIS cells are generated for this SPVC or SPVP when the SPVC or SPVP is not up.<br><br>If this attribute is set to ***disabled***, OAM-AIS cells are not |

generated.

| | |
|---|---|
| Values | enabled<br>disabled |
| Default | disabled |

## COMPONENT AtmIf Vpt Vcc MulticastNailedUpRelayPoint (Mnrp)

| | |
|---|---|
| Groups | "GROUP AtmIf Vpt Vcc Mnrp Provisioned (Prov)" |
| Scope | Device |
| Description | *AtmIf/n Vcc/vpi.vci Mnrp*<br>This component is used to establish a root of a multicast nailed-up ATM Bearer Service (ABS) connection. By linking a *Mnrp* to a *Nrp*, the associated connections are configured to relay ATM cells from *Mnrp* to *Nrp*. The *Mnrp* component requires exclusive use of its parent *Vcc* or *Vpc* and cannot co-exist with other ATM service components (such as *Nep*, *Test*, *Nrp* and *Loop*). This component is supported only on 4pOC3SmIrAtm and 4pOC3MmAtm cards.This component is not supported under *Vpt Vcc* and *Vpt Vpc*. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP AtmIf Vpt Vcc Mnrp Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the *Mnrp* component. |

## ATTRIBUTE AtmIf Vpt Vcc Mnrp oamSegmentBoundary (sb)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |

Description

This attribute specifies the OAM segment boundary desired for a *Mnrp* component. It affects the connection point type value visible in the parent component's *connectionPointType* attribute. The desired OAM segment boundary can be specified directly as ***yes***, ***no*** or ***sameAsInterface***. If ***sameAsInterface*** is specified, the OAM segment boundary is same as the *oamSegmentBoundary* attribute of the associated *AtmIf* and the switch will set the *connectionPointType*, choosing ***segmentEndPoint*** for a segment-boundary ATM interface and ***connectingPoint*** for a non-segment-boundary ATM interface.

Values

no
yes
sameAsInterface

Default

sameAsInterface

## ATTRIBUTE AtmIf Vpt Vcc Mnrp bandwidthElastic (bwElastic)

Access

Read and write

Criticality

Component

Description

This attribute is only of importance for connections which are carried on a link with a variable bandwidth. For example, the bandwidth may be reduced in the event that one or more physical links in the IMA group fail, such that the originally requested bandwidth cannot be maintained. This attribute shows whether the application running on this connection can continue to operate if the bandwidth is reduced. If the bandwidth is reduced, the amount by which it is reduced will be displayed in the *bandwidthReduction* attribute.

A value of ***yes***, indicates that this connection is elastic, and the bandwidth may be reduced but the connection will not be released. Currently, this attribute should only be set to ***yes*** for situations where this *Mnrp* is functioning as a loopback on one side of an IMA link. There are no other situations where this setting is valid.

A value of ***no*** indicates that the bandwidth for this connection will not be reduced in the event of link bandwidth reduction. However, this connection may be released based on its *holdingPriority.*

| | |
|---|---|
| Values | no<br>yes |
| Default | no |

### ATTRIBUTE AtmIf Vpt Vcc Mnrp overrideHoldingPriority (ohpri)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the holding priority of this connection. Holding priority is used when there is an IMA group where some physical links have failed. Holding priority determines the order in which connections are released. 4 is the lowest holding priority and is released first. 0 is a higher priority and is released last. The value specified in this attribute will override whatever *holdingPriority* that has been provisioned at the *Vcd* (or *Vpd*). If the value is left at the default of ***noOverride***, the *holdingPriority* provisioned at the *Vcd* (or *Vpd*) will be used. |
| Values | 0<br>1<br>2<br>3<br>4<br>noOverride |
| Default | noOverride |

### ATTRIBUTE AtmIf Vpt Vcc Mnrp nextHop (nextHop)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the list of *Nrp* components with which this *Mnrp* is associated. A sample value is *AtmIf/31 Vcc/0.32 Nrp*. This attribute must be provisioned with at least one Nrp component under a compatible connection type. |
| List of | Link (Service, nextHop) |
| Default | No default |

### COMPONENT AtmIf Vpt Vcc PathTraceRecord (PTRecord)

| | |
|---|---|
| Groups | "GROUP AtmIf Vpt Vcc PTRecord Operational (Oper)" |

| | |
|---|---|
| Scope | Device |
| Description | *AtmIf/n Vcc/x.y PTRecord*<br>*AtmIf/n Vpc/n PTRecord*<br>*AtmIf/n Vpt/n Vcc/x.y PTRecord*<br><br>This component represents the path trace records for this connection. If the connection is deleted, this component is also deleted. |
| Dyn. Subcomp. | "COMPONENT AtmIf Vpt Vcc PTRecord Hop" |
| Common Verbs | Help<br>List<br>Display |

## GROUP AtmIf Vpt Vcc PTRecord Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for the path trace record component. |

## ATTRIBUTE AtmIf Vpt Vcc PTRecord status

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the status of the trace. The string is one of the following:<br><br>***Completed normally****:* The trace completed normally.<br><br>***Incomplete****:* Partial trace returned.<br><br>***Exceeded information element length limitations****:* The number of traced nodes exceeded the maximum number of hops.<br><br>***Exceeded message length limitations****:* The message length exceeded the maximum allowed size. |
| Values | Completed normally<br>Incomplete |

| | |
|---|---|
| | Exceeded information element length limitations<br>Exceeded message length limitations |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Vcc PTRecord timeStamp

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute records the date and time of when the trace is completed. |
| Values | Time (DHMS) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Vcc PTRecord srcPortId

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the trace's source port identifier used for this connection. This attribute only appears in the trace result for the trace source hop. |
| Values | Decimal (1..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Vcc PTRecord srcPortName

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the name of the source port used for this connection. This attribute only appears in the trace result for the trace source hop. |
| Values | String (40, ASCII) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Vcc PTRecord causeCode

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute contains the cause code in the transmitted signaling message that contains the CAUSE information element. The cause code is used to describe the reason for generating certain signaling messages. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Vcc PTRecord diagCode

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute contains the diagnostic code in the transmitted signaling message. The diagnostic code is contained in the CAUSE information element and identifies an information element type or timer type. The diagnostic code is present only if a procedural error is detected by the signaling protocol. A diagnostic code is always accompanied by the cause code. If there is no failure, this attribute is set to NULL. |
| Values | String (0..8, ASCII) |
| Default | No default |

### COMPONENT AtmIf Vpt Vcc PTRecord Hop

| | |
|---|---|
| Instance | Decimal (0..200) |
| Groups | "GROUP AtmIf Vpt Vcc PTRecord Hop Operational (Oper)" |
| Scope | Device |
| Description | *AtmIf/n Aini Ptf PTRecord Hop/n*<br>*AtmIf/n Iisp Ptf PTRecord Hop/n*<br>*AtmIf/n Uni Ptf PTRecord Hop/n* |

*AtmIf/n Pnni Ptf PTRecord Hop/n*
*AtmIf/n Vpt/n Aini Ptf PTRecord Hop/n*
*AtmIf/n Vpt/n Iisp Ptf PTRecord Hop/n*
*AtmIf/n Vpt/n Uni Ptf PTRecord Hop/n*
*AtmIf/n Vpt/n Pnni Ptf PTRecord Hop/n*
*AtmIf/n Vcc/x.y PTRecord Hop/n*
*AtmIf/n Vpc/n PTRecord Hop/n*
*AtmIf/n Vpt/n Vcc/x.y PTRecord Hop/n*

This component stores the result of a hop from a trace. An instance of this component is dynamically created for each hop in a trace record.

Depending on the hops, different attributes are present.

Dyn. Subcomp. "COMPONENT AtmIf Vpt Vcc PTRecord Hop VendorSpecificInfo (Vsi)"

Common Verbs
Help
List
Display

## GROUP AtmIf Vpt Vcc PTRecord Hop Operational (Oper)

Properties Operational

Description This group contains the operational attributes for the component *AtmPathTraceFilterRecordHop*.

## ATTRIBUTE AtmIf Vpt Vcc PTRecord Hop ingressVpiVci (vpiVci)

Access Read: All
Write: Illegal

Criticality Component

Description This attribute indicates the VPI.VCI values used for this hop on the ingress side. This is the ingress side with respect to the trace or setup messages. This attribute is displayed for ATM interfaces only.

The VPI.VCI values are included in the trace when the *traceInfo* attribute sets the ***connId*** value.

| | |
|---|---|
| Values | Integer Sequence (0..4095; 0..65535) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Vcc PTRecord Hop ingressDlci (dlci)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the DLCI value used for this hop on the ingress side. This is the ingress side with respect to the trace or setup message. This attribute is displayed for FrAtm interfaces only.<br><br>The DLCI is included in the trace when the *traceInfo* attribute sets the ***connId*** value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Vcc PTRecord Hop ingressCallReference (callref)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the call reference value used for this hop on the ingress side. This is the ingress side with respect to the trace or setup message.<br><br>The call reference is included in the trace when the *traceInfo* attribute sets the ***callRef*** value |
| Values | Hex (H.0..H.ffffff) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Vcc PTRecord Hop ingressEndPointReference (epref)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |

| | |
|---|---|
| Description | This attribute indicates the end point reference value used for this hop on the ingress side. This is the ingress side with respect to the trace or setup messages.<br><br>The end point reference is included in the trace when the *traceInfo* attribute sets the ***callRef*** value and the connection is point-to-multipoint. |
| Values | Hex (H.0..H.ffff) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Vcc PTRecord Hop nodeId

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the lowest level node ID traversed for this hop. |
| Values | String (22, Hex) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Vcc PTRecord Hop nodeName

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the *nodeName* under the *ModuleData* component for this hop. Only Passport nodes provide this information by including it in the Vendor Specific group. |
| Values | String (12, ASCII) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Vcc PTRecord Hop portId

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |

| | |
|---|---|
| Description | This attribute indicates the port identifier value for this hop on the egress side. This is the egress side with respect to the trace or setup messages. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Vcc PTRecord Hop portName

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the port name for this hop on the egress side. This is the egress side with respect to the trace or setup messages. Only Passport nodes provide this information by including it in the Vendor Specific group. |
| Values | String (55, ASCII) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Vcc PTRecord Hop pnniTraceContRefusalIndPresent (refusal)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates whether the “PNNI Trace Continuation Refusal” indicator is present. The “PNNI Trace Continuation Refusal” indicator indicates that this hop has refused to participate in the trace. |
| Values | absent<br>present |
| Default | absent |

### ATTRIBUTE AtmIf Vpt Vcc PTRecord Hop crankbackDestNodeIndPresent (dest)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |

| | |
|---|---|
| Description | This attribute indicates whether the “PNNI Crankback Received at the Trace Destination Node” indicator is present. The “PNNI Crankback Received at Trace Destination Node” indicator indicates that this hop is acting as a trace destination node, receiving a crankback for this call from a non-PNNI interface. |
| Values | absent<br>present |
| Default | absent |

### ATTRIBUTE AtmIf Vpt Vcc PTRecord Hop pnniCrankbackGapIndPresent (gap)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates whether the “PNNI Crankback Gap” indicator is present. The “PNNI Crankback Gap” indicator indicates that the call experienced a crankback, where no Trace Transit List IE was returned by the node initiating the crankback. |
| Values | absent<br>present |
| Default | absent |

### ATTRIBUTE AtmIf Vpt Vcc PTRecord Hop crankBackCause (cause)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the crankback cause. Please refer to Private-Network-to-Network-Interface Specification Version 1.0 for more information.<br><br>This attribute is present when the *traceInfo* attribute sets the ***crankBack*** value and the connection has initiated the crankback procedure. |
| Values | Decimal (0..1000) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Vcc PTRecord Hop blockedTransitType (type)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the blocked transit type.<br><br>This attribute is present when the *traceInfo* attribute sets the ***crankBack*** value and the connection has initiated the crankback procedure. |
| Values | Succeeding end blocked<br>Blocked node<br>Blocked link |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Vcc PTRecord Hop blockedNodeId (bNodeId)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the blocked node ID during the call setup request. The blocked node ID identifies the logical node where the connection or party has been blocked.<br><br>This attribute is present when the *blockedTransitType* attribute is ***Blocked node.*** |
| Values | String (22, Hex) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Vcc PTRecord Hop blockedLinkPrecedingNodeId (pNodeId)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the blocked link's preceding node ID during the call setup request. The blocked link's preceding node ID identifies the logical node preceding a link, where the |

connection or party has been blocked.

This attribute is present when the *blockedTransitType* attribute is ***Blocked link***.

Values: String (22, Hex)

Default: No default

### ATTRIBUTE AtmIf Vpt Vcc PTRecord Hop blockedLinkPortId (bPortId)

Access: Read: All
Write: Illegal

Criticality: Component

Description: This attribute indicates the blocked link's port identifier used for this connection during the call setup request. The blocked link's port identifier identifies a logical port of the blocked link's preceding node identifier.

This attribute is present when the *blockedTransitType* attribute is ***Blocked link.***

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE AtmIf Vpt Vcc PTRecord Hop blockedLinkSucceedingNodeId (sNodeId)

Access: Read: All
Write: Illegal

Criticality: Component

Description: This attribute indicates the blocked link's succeeding node ID during the call setup request. The blocked link's succeeding node ID identifies the logical node succeeding a link where the connection or party has been blocked.

This attribute is present when the *blockedTransitType* attribute is ***Blocked link.***

Values: String (22, Hex)

Default: No default

### ATTRIBUTE AtmIf Vpt Vcc PTRecord Hop dstVpiVci

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the VPI.VCI values on the destination side. This attribute only appears in the trace result for the trace destination node. This attribute is only displayed for ATM interfaces.<br><br>The VPI.VCI is included in the trace when the *traceInfo* attribute sets the ***connId*** value. |
| Values | Integer Sequence (0..4095; 0..65535) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Vcc PTRecord Hop dstDlci

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the DLCI value on the destination side. This attribute only appears in the trace result for the trace destination node. This attribute is only displayed for FrAtm interfaces.<br><br>The DLCI is included in the trace when the *traceInfo* attribute sets the ***connId*** value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Vcc PTRecord Hop dstCallReference (dcr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |

| | |
|---|---|
| Description | This attribute indicates the call reference value on the destination side. This attribute only appears in the trace result for the trace destination node.<br><br>The call reference value is included in the trace when the *traceInfo* attribute sets the ***callRef*** value. |
| Values | Hex (H.0..H.ffffff) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Vcc PTRecord Hop dstEndPointReference (depr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the end point call reference value on the destination side. This attribute only appears in the trace result for the trace destination node.<br><br>The call reference value is included in the trace when the *traceInfo* attribute sets the ***callRef*** value and the connection is point-to-multipoint. |
| Values | Hex (H.0..H.ffff) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Vcc PTRecord Hop specifiedPath

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates whether this hop is the originator of this manually configured path. Only Passport nodes provide this information by including it in the Vendor Specific group. |
| Values | no<br>yes |
| Default | no |

## COMPONENT AtmIf Vpt Vcc PTRecord Hop VendorSpecificInfo (Vsi)

| | |
|---|---|
| Instance | Decimal (0..10) |
| Groups | "GROUP AtmIf Vpt Vcc PTRecord Hop Vsi Operational (Oper)" |
| Scope | Device |
| Description | *AtmIf/n Aini Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Iisp Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Uni Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vpt/n Aini Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vpt/n Iisp Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vpt/n Uni Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vpt/n Pnni Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vcc/x.y PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vpc/n PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vpt/n Vcc/x.y PTRecord Hop/n VendorSpecificInfo/m*<br><br>This component stores the vendor specific information of a non-Passport node for a hop. An instance of this component is dynamically created for the vendor specific information group of a hop in a trace. Several instances of this component are created if the trace has several groups of vendor specific information.<br><br>All the trace information for a Passport node is stored in the *PTRecord Hop/** component. |
| Common Verbs | Help<br>List<br>Display |

## GROUP AtmIf Vpt Vcc PTRecord Hop Vsi Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for the component *AtmPathTraceFilterRecordHopVen*. |

## ATTRIBUTE AtmIf Vpt Vcc PTRecord Hop Vsi length

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute indicates the length of the vendor specific information group. |
| Values | Decimal (0..11) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Vcc PTRecord Hop Vsi organizationUniqueId (oui)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the Organization Unique Identifier (OUI) of a non-Passport node. |
| Values | String (3, Dashed Hex) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Vcc PTRecord Hop Vsi data

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the contents of the vendor specific information group. |
| Values | String (1..8, Hex) |
| Default | No default |

### COMPONENT AtmIf Vpt Vcc RerouteInfo (RerInfo)

| | |
|---|---|
| Groups | "GROUP AtmIf Vpt Vcc RerInfo Operational (Oper)"<br>"GROUP AtmIf Vpt Vcc RerInfo EbrOperational (EOper)"<br>"GROUP AtmIf Vpt Vcc RerInfo LocalOperational (LOper)"<br>"GROUP AtmIf Vpt Vcc RerInfo GlobalOperational (GOper)"<br>"GROUP AtmIf Vpt Vcc RerInfo EbrStatistics (EStats)"<br>"GROUP AtmIf Vpt Vcc RerInfo LocalStatistics (LStats)"<br>"GROUP AtmIf Vpt Vcc RerInfo GlobalStatistics (GStats)" |
| Scope | Device |
| Description | *AtmIf/n Vcc/vpi.vci RerouteInfo*<br>*AtmIf/n Vpc/vpi RerouteInfo*<br>*AtmIf/n Vpt/vpi Vcc/vci RerouteInfo* |

*Aal1Ces/n RerouteInfo*
*Fratm/n Dlci/n Siwf RerouteInfo*

This component represents the rerouting capabilities of a connection segment. The component is present at the DTL originator of the connection segment. It is also present at each local domain rerouting node, if the local rerouting protocol has been granted to the connection segment.

Common Verbs

Help
List
Display

## GROUP AtmIf Vpt Vcc RerInfo Operational (Oper)

Properties: Operational

Description: This group contains the common operational attributes that indicate rerouting activities at the connection level.

## ATTRIBUTE AtmIf Vpt Vcc RerInfo lastOptimizationMetric (lOptMet)

Access: Read only

Description: This attribute indicates which optimization metric was last used to select a path for the connection segment.

Values:
cdv
maxCtd
aw

Default: No default

## GROUP AtmIf Vpt Vcc RerInfo EbrOperational (EOper)

Properties: Operational

Description: This group contains attributes that indicate the EBR rerouting characteristics of a connection segment.

This group is only present if the connection segment has been granted the EBR rerouting protocol.

### ATTRIBUTE AtmIf Vpt Vcc RerInfo ebrRecoverySubscribed (eRecSub)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether the connection segment is subscribed to EBR connection recovery.<br><br>This attribute is only present if the connection segment has been granted the EBR protocol. |
| Values | no<br>yes |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Vcc RerInfo ebrOptimizationSubscribed (eOptSub)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether the connection segment is subscribed to EBR path optimization.<br><br>This attribute is only present if the connection segment has been granted the EBR protocol. |
| Values | no<br>yes |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Vcc RerInfo ebrOptimizationMetricValue (eOptVal)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the EBR optimization metric value that was collected for the call during the most recent call establishment. It represents the segment of the connection between the rerouting and rendezvous nodes.<br><br>This attribute is only present if the connection segment has been granted the EBR protocol. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Vcc RerInfo ebrOptimalMetricValue (eOptMetVal)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the EBR optimization metric value of the connection's best path. It is initialized to the value collected during initial call establishment. It is set to the ***localOptimizationValue*** whenever a connection is optimized onto a path which has a better optimization value or when the number of optimization attempts is exhausted. It represents the segment of the connection between the rerouting and rendezvous nodes.<br><br>This attribute is only present if the connection segment has been granted the EBR protocol. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Vcc RerInfo ebrOptimizationState (eOptSt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current EBR optimization state of the connection segment.<br><br>One of the following values is indicated:<br>***optimal:*** This is the initial value when the connection segment is first established. The connection segment is in optimal state whenever the optimization metric value of the connection segment is equal to the best known value.<br>***recovered:*** This value represents the state when the connection segment has been recovered to a path with an optimization metric value for the connection segment which is greater than the value specified by the optimal metric value.<br>***optimized:*** This value represents the state when the connection segment has moved to a path which is better than the recovered path but not as good as the optimal path.<br><br>This attribute is only present if the connection segment has been granted the EBR protocol. |

| | |
|---|---|
| Values | optimal<br>recovered<br>optimized |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Vcc RerInfo ebrTimeOfLastRecovery (eTime)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the date and time of the last EBR connection recovery.<br><br>This attribute is only present if the connection segment has been granted the EBR protocol. |
| Values | Time (DHMS) |
| Default | No default |

### GROUP AtmIf Vpt Vcc RerInfo LocalOperational (LOper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains attributes that indicate the local rerouting characteristics of a connection segment.<br><br>This group is only present if the connection segment has been granted the local rerouting protocol. |

### ATTRIBUTE AtmIf Vpt Vcc RerInfo localRecoverySubscribed (lRecSub)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether the connection segment is subscribed to local connection recovery.<br><br>This attribute is only present if the connection segment has been granted the local rerouting protocol. |
| Values | no<br>yes |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Vcc RerInfo localOptimizationSubscribed (lOptSub)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether the connection segment is subscribed to local path optimization.<br><br>This attribute is only present if the connection segment has been granted the local rerouting protocol. |
| Values | no<br>yes |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Vcc RerInfo localOptimizationMetricValue (lOptVal)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the local optimization metric value that was collected for the call during the most recent call establishment. It represents the segment of the connection between the rerouting and rendezvous nodes. A value of ***undefined*** indicates that the local optimization metric value is undetermined.<br><br>This attribute is only present if the connection segment has been granted the local rerouting protocol. |
| Values | Decimal (0..4294967294)<br>undefined |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Vcc RerInfo localOptimalMetricValue (lOptMetVal)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the local optimization metric value of the connection's best path. It is initialized to the value collected during initial call establishment. It is set to the ***localOptimizationValue*** whenever a connection is optimized onto a path which has a better optimization value or when the number of optimization attempts is exhausted. It represents the segment of the connection between the rerouting and rendezvous |

nodes.A value of ***undefined*** indicates that the local optimal optimization metric value is undetermined.

This attribute is only present if the connection segment has been granted the local rerouting protocol.

Values: Decimal (0..4294967294)
undefined

Default: No default

### ATTRIBUTE AtmIf Vpt Vcc RerInfo localOptimizationState (lOptSt)

Access: Read only

Description: This attribute indicates the current local optimization state of the connection segment.

One of the following values is indicated:
***optimal:*** This is the initial value when the connection segment is first established. The connection segment is in optimal state whenever the optimization metric value of the connection segment is equal to the best known value.
***recovered:*** This value represents the state when the connection segment has been recovered to a path with an optimization metric value for the connection segment which is greater than the value specified by the optimal metric value.
***optimized:*** This value represents the state when the connection segment has moved to a path which is better than the recovered path but not as good as the optimal path.

This attribute is only present if the connection segment has been granted the local rerouting protocol.

Values: optimal
recovered
optimized

Default: No default

### ATTRIBUTE AtmIf Vpt Vcc RerInfo localTimeOfLastRecovery (lTime)

Access: Read only

| | |
|---|---|
| Description | This attribute indicates the date and time of the last local connection recovery.<br><br>This attribute is only present if the connection segment has been granted the local rerouting protocol. |
| Values | Time (DHMS) |
| Default | No default |

### GROUP AtmIf Vpt Vcc RerInfo GlobalOperational (GOper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains attributes that indicate the global rerouting characteristics of a connection.<br><br>This group is only present if the connection segment has been granted the global rerouting protocol. |

### ATTRIBUTE AtmIf Vpt Vcc RerInfo globalRecoverySubscribed (gRecSub)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether the connection segment is subscribed to global connection recovery.<br><br>This attribute is only present if the connection segment has been granted the global rerouting protocol. |
| Values | no<br>yes |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Vcc RerInfo globalOptimizationSubscribed (gOptSub)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether the connection segment is subscribed to global path optimization.<br><br>This attribute is only present if the connection segment has been granted the global rerouting protocol. |

| | |
|---|---|
| Values | no<br>yes |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Vcc RerInfo globalOptimizationMetricValue (gOptVal)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the global optimization metric value that was collected for the call during the most recent call establishment. It represents the segment of the connection between the rerouting and rendezvous nodes. A value of ***undefined*** indicates that the global optimization metric value is undetermined.<br><br>This attribute is only present if the connection segment has been granted the global rerouting protocol. |
| Values | Decimal (0..4294967294)<br>undefined |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Vcc RerInfo globalOptimalMetricValue (gOptMetVal)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the global optimization metric value of the connection's best path. It is initialized to the value collected during initial call establishment. It is set to the ***globalOptimizationValue*** whenever a connection is optimized onto a path which has a better optimization value or when the number of optimization attempts is exhausted. It represents the segment of the connection between the rerouting and rendezvous nodes.A value of ***undefined*** indicates that the global optimal optimization metric value is undetermined.<br><br>This attribute is only present if the connection segment has been granted the global rerouting protocol. |

| | |
|---|---|
| Values | Decimal (0..4294967294)<br>undefined |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Vcc RerInfo globalOptimizationState (gOptSt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current global optimization state of the connection segment.<br><br>One of the following values is indicated:<br>***optimal:*** This is the initial value when the connection segment is first established. The connection segment is in optimal state whenever the optimization metric value of the connection segment is equal to the best known value.<br>***recovered:*** This value represents the state when the connection segment has been recovered to a path with an optimization metric value for the connection segment which is greater than the value specified by the optimal metric value.<br>***optimized:*** This value represents the state when the connection segment has moved to a path which is better than the recovered path but not as good as the optimal path.<br><br>This attribute is only present if the connection segment has been granted the global rerouting protocol. |
| Values | optimal<br>recovered<br>optimized |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Vcc RerInfo globalTimeOfLastRecovery (gTime)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the date and time of the last global connection recovery.<br><br>This attribute is only present if the connection segment has been granted the global rerouting protocol. |

| | |
|---|---|
| Values | Time (DHMS) |
| Default | No default |

### GROUP AtmIf Vpt Vcc RerInfo EbrStatistics (EStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistics related to Ebr rerouting for the connection segment. |

### ATTRIBUTE AtmIf Vpt Vcc RerInfo totalEbrConnectionRecoveries (eConnRec)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts successful EBR connection recovery attempts. The counter wraps to zero when the maximum value is exceeded.<br><br>This attribute is only present if the connection segment has been granted the EBR protocol. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Vcc RerInfo totalEbrPathOptimizations (ePathOpt)

| | |
|---|---|
| Access | Read only |
| Description | This attributes counts successful EBR path optimization attempts. The counter wraps to zero when the maximum value is exceeded.<br><br>This attribute is only present if the connection segment has been granted the EBR protocol. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Vcc RerInfo totalEbrOptimizationAttempts (eOptAtt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of EBR path optimization attempts. The counter wraps to zero when the maximum value is exceeded. |

| | |
|---|---|
| | This attribute is only present if the connection segment has been granted the EBR protocol. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP AtmIf Vpt Vcc RerInfo LocalStatistics (LStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistics related to local rerouting for the connection segment. |

### ATTRIBUTE AtmIf Vpt Vcc RerInfo totalLocalConnectionRecoveries (lConnRec)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts successful local connection recovery attempts. The counter wraps to zero when the maximum value is exceeded.<br><br>This attribute is only present if the connection segment has been granted the local rerouting protocol. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Vcc RerInfo totalLocalPathOptimizations (lPathOpt)

| | |
|---|---|
| Access | Read only |
| Description | This attributes counts successful local path optimization attempts. The counter wraps to zero when the maximum value is exceeded.<br><br>This attribute is only present if the connection segment has been granted the local rerouting protocol. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Vcc RerInfo totalLocalOptimizationAttempts (lOptAtt)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the total number of local path optimization attempts. The counter wraps to zero when the maximum value is exceeded.<br><br>This attribute is only present if the connection segment has been granted the local rerouting protocol. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP AtmIf Vpt Vcc RerInfo GlobalStatistics (GStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistics related to global rerouting for the connection segment. |

### ATTRIBUTE AtmIf Vpt Vcc RerInfo totalGlobalConnectionRecoveries (gConnRec)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts successful global connection recovery attempts. The counter wraps to zero when the maximum value is exceeded.<br><br>This attribute is only present if the connection segment has been granted the global rerouting protocol. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Vpt Vcc RerInfo totalGlobalPathOptimizations (gPathOpt)

| | |
|---|---|
| Access | Read only |
| Description | This attributes counts successful global path optimization attempts. The counter wraps to zero when the maximum value is exceeded.<br><br>This attribute is only present if the connection segment has been granted the global rerouting protocol. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE AtmIf Vpt Vcc RerInfo totalGlobalOptimizationAttempts (gOptAtt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of global path optimization attempts. The counter wraps to zero when the maximum value is exceeded.<br><br>This attribute is only present if the connection segment has been granted the global rerouting protocol. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT AtmIf EmissionPriority (Ep)

| | |
|---|---|
| Instance | Decimal (2..7) |
| Groups | "GROUP AtmIf Ep Provisioned (Prov)" |
| Scope | Device |
| Description | *AtmIf/n EmissionPriority/n*<br>This component controls the characteristics of an emission priority for an *AtmIf*. This component is optional for an *AtmIf*.<br><br>For ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE3Atm***, ***3pDS3Atm***, ***3pE1Atm***, ***3pDS1Atm***, ***8pE1Atm***, ***8pDS1Atm***, ***2pJ6MAtm***, and ***1pOC48ChSmIrAtm*** cards, this component is not permitted.<br><br>For ***1pOC48SmSrPos*** cards, this component can not be provisioned, however, minimum bandwidth guarantees are supported using hardcoded values.<br><br>There are eight emission priorities (EP). EP 0 is the highest priority and EP 7 is the lowest priority. Normally, link bandwidth is allocated in strict precedence of emission priority. All traffic at EP 0 is transmitted on the link first. Then, when there is an unused cell opportunity, a cell from EP 1 is transmitted. When EP 0 and 1 have nothing to send, then EP 2 gets the transmit cell opportunities. Each emission priority 2 through 7 has a |

corresponding *Ep* component with instance number 2 through 7. Emission priorities 0 and 1 do not have corresponding *Ep* components since there is no configuration which is relevant for those EPs.

Traffic is associated with an EP in the following way. Each *Vcc* or *Vpc* has an associated *atmServiceCategory*. Under the *AtmIf* component there is a service category component which provides default characteristics for that service category. For example, *AtmIf*/n *CA Cbr*/0 defines the default characteristics for connections of the CBR service category. Each service category has an *emissionPriority* (*ep*) attribute, for example *AtmIf*/n *CA Cbr*/0 *ep*. The value provisioned in that *ep* attribute maps to the corresponding *Ep* component. If the value of the *AtmIf*/n *CA Cbr*/0 *ep* attribute is ***2***, the CBR service category is associated with *AtmIf*/n *Ep*/2.

EP 0 and EP 1 are in the absolute priority range. Traffic in the absolute priority range always gets first choice for a transmit cell opportunity. EP 2 through EP 7 are in the guaranteed bandwidth range. Traffic at EP 3 through EP 7, in the guaranteed bandwidth range, may achieve a priority which is different from the strict hierarchical priority, if a minimum bandwidth guarantee is provisioned for the *Ep*.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, EPs 5 and 6 are not supported.

For ***16pOC3PosAtm*** cards, EP 0 and EP 1 are in the absolute priority range while EP 2 through EP 7 are allocated link bandwidth using a conventional Weighted Fair Queue (WFQ) discipline. EP 2 through EP 7 have their service preference over one another determined by their minimum bandwidth guarantee. Link bandwidth is first allocated to EP 0 and EP 1 in absolute priority fashion. Any remaining bandwidth is distributed to EP 2 through EP 7 in proportion to the minimum bandwidth guarantee provisioned for the *Ep*. The default values of the *minimumBandwidthGuarantee* attribute for the *Ep* components emulate the strict precedence of emission priority.

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP AtmIf Ep Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisioned attributes which specify the behavior of an emission priority for the ATM interface. |

## ATTRIBUTE AtmIf Ep minimumBandwidthGuarantee (minBw)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the minimum bandwidth guarantee associated with this *EmissionPriority.* A minimum bandwidth guarantee is designed to prevent starvation of traffic at this EP by traffic at higher EPs. Minimum bandwidth guarantees only operate for EPs within the guaranteed bandwidth range 2 through 7.<br><br>For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, EPs 5 and 6 are not supported.<br><br>For ***2pOC3MmAtm2***, ***2pOC3SmAtm2***, ***2pSTM1eAtm***, ***2pSTM1eCh***, ***4pOC3MmAtm***, ***4pOC3SmIrAtm***, ***4pDS3ChAtm***, ***3pDS3Atm2***, ***3pE3Atm2***, ***12pDS3Atm***, ***12pE3Atm***, MSA32, ***1pOC12SmLrAtm***, ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, and ***16pOC3SmIrAtm*** cards, the following description applies:<br><br>The minimum bandwidth guarantee specified is a percentage of the bandwidth which remains after all traffic at EP 0 and EP 1 is served. For example, if EP 0 and EP 1 traffic consumes 20% of the link bandwidth, the minimum bandwidth guarantee applies to |

the remaining 80% of the link bandwidth. A minimum bandwidth guarantee of 2% would actually result in this EP getting 2% of 80% for a total 1.6% of the link bandwidth. If this EP uses less than this link bandwidth, the extra opportunities are allocated to the other EPs in priority. Due to scheduling and cell arrival times, traffic at this EP may not necessarily achieve full utilization of its minimum bandwidth guarantee.

The value ***priority*** specifies that this *Ep* gets bandwidth based solely on the hierarchy of emission priorities. In this case, there is no minimum bandwidth guarantee.

For ***16pOC3PosAtm*** cards, the following description applies:

The minimum bandwidth guarantee specified is the proportion of the bandwidth which remains after all traffic at EP 0 and EP 1 is served. In other words, the bandwidth allocated to an EP is:
(bandwidth unused by EP 0 and 1) *
*minimumBandwidthGuarantee*
(the sum of the *minimumBandwidthGuarantee*s for all active EPs)

For example, if EP 0 and EP 1 traffic consumes 20% of the link bandwidth, the minimum bandwidth guarantee applies to the remaining 80% of the link bandwidth. Assume *Ep/2*, *Ep/3*, and *Ep/4* have a *minimumBandwidthGuarantee* of ***70***, ***20***, and ***10*** respectively.

If all EPs are actively sending traffic, then the bandwidth is allocated as follows:
- EP 2 = 80% * 70/(70+20+10) = 56% of the link bandwidth
- EP 3 = 80% * 20/(70+20+10) = 16% of the link bandwidth
- EP 4 = 80% * 10/(70+20+10) = 8% of the link bandwidth

If some time later EP 3 has no traffic to send, then its share of the bandwidth is allocated to EP 2 and EP 4 in proportion to their *minimumBandwidthGuarantee*s as follows:
- EP 2 = 80% * 70/(70+10) = 70% of the link bandwidth
- EP 4 = 80% * 10/(70+10) = 10% of the link bandwidth

If some time later only one out the EP 2, EP 3, and EP 4 has

traffic to send, then it would be allocated the entire 80% of the link bandwidth. Additionally, if both EP 0, and EP 1 have no traffic to send, the remaining active EP would be allocated 100% of the link bandwidth irrespective of the value of its *minimumBandwidthGuarantee* attribute.

The value ***priority*** emulates the strict precedence of emission priority by assigning default values to the *minimumBandwidthGuarantee* attribute. Depending on how many EPs are in use in the guaranteed bandwidth range 2 through 7, these default values change:
- For one EP, the value is ***100***.
- For two EPs, the values are ***99***, and ***1***.
- For three EPs, the values are ***90***, ***9***, and ***1***.
- For four EPs, the values are ***77***, ***18***, ***4***, and ***1***.

For all cards, when specifying a value for the *minimumBandwidthGuarantee* attribute, consider the effect on cell delay variation (CDV) of traffic which would normally be of higher priority. For example, if *RtVbr* service category traffic is assigned to *Ep*/2 and *Ubr* traffic is assigned on *Ep*/7 where *Ep*/7 has a *minimumBandwidthGuarantee* of ***25***, there can be a large impact on the CDV of the *RtVbr* traffic. Traffic of the *Cbr* or *RtVbr* service category which is sensitive to CDV, and is of known volume, can be assigned on EP 0 or EP 1 which are independent of the effects of minimum bandwidth guarantee.

For ***2pOC3MmAtm2***, ***2pOC3SmAtm2***, ***2pSTM1eAtm***, ***2pSTM1eCh***, ***4pOC3MmAtm***, ***4pOC3SmIrAtm***, ***4pDS3ChAtm***, ***3pDS3Atm2***, ***3pE3Atm2***, ***12pDS3Atm***, ***12pE3Atm***, MSA32, and ***1pOC12SmLrAtm*** cards, the allowed values of this attribute are ***priority***, or a numeric value between ***1*** and ***48***.

For ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, ***16pOC3SmIrAtm***, and ***16pOC3PosAtm*** cards, the allowed values of this attribute are ***priority***, or a numeric value between ***1*** and ***100***.

For all cards, the sum of the values of the *minimumBandwidthGuarantee* attribute for all *Ep*s under an *AtmIf* must not exceed 100%.

| | |
|---|---|
| Values | Decimal (1..100)<br>priority |
| Units | % |
| Default | priority |

## COMPONENT AtmIf PerformanceMonitoring (Pm)

| | |
|---|---|
| Groups | "GROUP AtmIf Pm Provisioned (Prov)" |
| Scope | Device |
| Description | *AtmIf/n PerformanceMonitoring*<br>This component provides the default Performance Monitoring (PM) measurements and control modes for all *AtmIf Vcc* and *AtmIf Vpc* connections on the ATM interface. For provisioned connections, PM is done only if a PM component is provisioned under the *Vcc Vcd* or *Vpc Vpd* component. For all switched connections, PM will be done as specified by this component subject to resource limits.<br><br>Only the following card types support Performance Monitoring: ***2pOC3SmAtm2, 2pOC3MmAtm2, 2pSTM1eAtm, 3pDS3Atm2, 3pE3Atm2, 32pDS1MsaMt, 32pDS1MsaSt, 32pE1MsaMt, 32pE1MsaSt, 32pDS1MsaMtp, 32pDS1MsaStp, 32pE1MsaMtp, 32pE1MsaStp, 32pDS1Msa, 32pE1Msa.*** |
| Common Verbs | Help<br>List<br>Display |

## GROUP AtmIf Pm Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisioned attributes which specify the default Performance Monitoring (PM) measurements, namely, Cell Loss Ratio (CLR) and Availability Ratio (AR), and control modes for all *AtmIf Vcc* and *AtmIf Vpc* connections on the ATM interface. |

### ATTRIBUTE AtmIf Pm segSwitchSideMeasurement (segSwitchSide)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the default Performance Monitoring (PM) measurements on the switch side configuration for all *AtmIf Vcc* and *AtmIf Vpc* connections on the ATM interface. |
| Set of | availabilityRatio (ar)<br>cellLossRatio (clr) |
| Default | No default |

### ATTRIBUTE AtmIf Pm segLinkSideMeasurement (segLinkSide)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the default Performance Monitoring (PM) measurements on the link side configuration for all *AtmIf Vcc* and *AtmIf Vpc* connections, on the ATM interface. |
| Set of | availabilityRatio (ar)<br>cellLossRatio (clr) |
| Default | No default |

### ATTRIBUTE AtmIf Pm controlMode (mode)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the default control mode of Performance Monitoring (PM) measurements for all *AtmIf Vcc* and *AtmIf Vpc* connections on the ATM interface.<br><br>***autoStart*** means Performance Monitoring (PM) measurements start when the provisioned data is activated.<br><br>***onDemand*** means PM measurements start when the operator issues the *Start* command. The PM measurements in this mode continue until the operator issues the *Stop* command. |
| Values | autoStart (auto)<br>onDemand (onDemand) |

Default autoStart

### ATTRIBUTE AtmIf Pm switchSideClrType (clrType)

Access Read and write

Description This attribute specifies how the Cell Loss Ratio (CLR) Performance Monitoring (PM) is measured on a switch side configuration for all *AtmIf Vcc* and *AtmIf Vpc* connections on the ATM interface.

***complete*** indicates that egress discards at the segment end points are included in the CLR measurement as per ITU standards.

***partial*** indicates that egress discards do not contribute to the CLR measurement.

Values complete
partial

Default complete

### COMPONENT AtmIf LinkTxUtilization (Ltu)

Groups "GROUP AtmIf Ltu Provisioned (Prov)"
"GROUP AtmIf Ltu Operational (Oper)"

Scope Device

Description *AtmIf/n LinkTxUtilization*
This component allows the users to specify whether alarms should be generated when the ATM link transmit utilization exceeds provisioned threshold *criticalTxUtilAlarmThreshold*.

The ATM link transmit utilization is calculated once per minute over the preceding one minute interval. The decision to set or clear an alarm is made at every sample period except the first 2 minutes right after the measurement starts.

When three consecutive measurements of the ATM link transmit utilization are above the provisioned threshold, a SET alarm is generated if there is no outstanding SET alarm.

When three consecutive measurements of the ATM link transmit

utilization are at or below the provisioned threshold, and there is an outstanding SET alarm, a CLEAR alarm is generated.

Common Verbs

Help
List
Display
Add
DELete

## GROUP AtmIf Ltu Provisioned (Prov)

Properties: Provisioned

Description: This group contains provisioned attributes to control ATM link transmit utilization alarms.

## ATTRIBUTE AtmIf Ltu criticalTxUtilAlarmThreshold (critThresh)

Access: Read and write

Description: This attribute specifies the critical alarm threshold for the ATM link transmit utilization.

A value of ***disabled*** means the ATM link transmit utilization is not measured and no alarms are generated.

A change from ***disabled*** to a numeric value resets the value of the *lastAlarmPeakTxUtilization* attribute to zero and starts the ATM link transmit utilization measurement.

When three consecutive samples of the ATM link transmit utilization, over the 3-minute sliding window, are above the provisioned threshold and there is no outstanding alarm, a critical alarm is generated. While the alarm is outstanding, the value of the *lastAlarmPeakTxUtilization* attribute indicates the peak sample of the ATM link transmit utilization.

When three consecutive samples of the ATM link transmit utilization, over the 3-minute sliding window, are at or below the provisioned threshold, any outstanding alarm is cleared. The value of the *lastAlarmPeakTxUtilization* attribute is not reset when the alarm is cleared.

A change from one numeric value to another restarts the ATM link transmit utilization measurement with a new 3-minute probation period. The value of the *lastAlarmPeakTxUtilization* attribute is not affected by this change.

A change from a numeric value to ***disabled*** causes any outstanding alarm to be cleared immediately. The value of the *lastAlarmPeakTxUtilization* attribute is not affected by this change.

Values: Decimal (1..99)
disabled

Units: %

Default: 80

## GROUP AtmIf Ltu Operational (Oper)

Properties: Operational

Description: This group of attributes contains statistics on the ATM link transmit utilization.

## ATTRIBUTE AtmIf Ltu lastAlarmPeakTxUtilization (lastAlarmPeakTxUtil)

Access: Read only

Description: This attribute indicates the peak value of the ATM link transmit utilization during the most recent (or current) period in which the transmit utilization alarm has been active. The value of this attribute is reset to zero when the ATM link transmit utilization measurement is initiated.

Values: Decimal (0..100)

Units: %

Default: No default

## COMPONENT AtmIf Aini

Groups: "GROUP AtmIf Aini Provisioned (Prov)"
"GROUP AtmIf Aini AccountingOptions (AcctOpt)"

| | |
|---|---|
| Scope | Device |
| Description | *AtmIf/n Aini*<br>This component represents an ATM Inter-Network Interface (AINI) signaling interface. If this component is provisioned, the *Uni*, *Iisp*, or *Pnni* component can not be provisioned under the same *AtmIf* component. If this component is deleted, then all associated *Vcc* components are deleted. |
| Subcomponents | "COMPONENT AtmIf Aini Signalling (Sig)" |
| Opt. Subcomp. | "COMPONENT AtmIf Aini CallingAddressScreening (CallingAScr)"<br>"COMPONENT AtmIf Aini CalledAddressScreening (CalledAScr)"<br>"COMPONENT AtmIf Aini PathTraceFilter (Ptf)"<br>"COMPONENT AtmIf Aini ServiceTrace (SrvTrace)"<br>"COMPONENT AtmIf Aini Reroute" |
| Dyn. Subcomp. | "COMPONENT AtmIf Aini PathTraceTestConnection (Ptt)" |
| Dyn. Subcomp. | "COMPONENT AtmIf Aini Address (Addr)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP AtmIf Aini Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the *Aini* component. |

## ATTRIBUTE AtmIf Aini side

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |

| | |
|---|---|
| Description | This attribute indicates which side the interface is, user or network. |
| Values | networkSide<br>userSide |
| Default | networkSide |

### ATTRIBUTE AtmIf Aini softPvpAndPvcRetryPeriod (sRetryPeriod)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the time to wait between soft PVP or soft PVC call setup retries. The resolution is to the nearest 10 seconds. |
| Values | Decimal (20..999999) |
| Units | seconds |
| Default | 60 |

### ATTRIBUTE AtmIf Aini softPvpAndPvcHoldOffTime (sHoldOffTime)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies how long to hold of retries following the release of a connection. Due to the way group timers are implemented, it can take from 100% to 150% of the provisioned timer to trigger the desired action. Since SPVC retries are paced, in cases where there are many connections, the entire process can take more than 150% of the provisioned timer value. |
| Values | Decimal (0; 50..20000) |
| Units | msec |
| Default | 0 |

### ATTRIBUTE AtmIf Aini passAlongRequest

| | |
|---|---|
| Access | Read: All<br>Write: All |

| | |
|---|---|
| Description | This attribute specifies whether unrecognized messages and information elements with the pass along request set are accepted when received at the interface. If they are not allowed, then they are discarded and the procedures specified by the message or information element's action indicator field are followed. |
| Values | allowed<br>discarded |
| Default | allowed |

## GROUP AtmIf Aini AccountingOptions (AcctOpt)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for accounting. |

## ATTRIBUTE AtmIf Aini accountCollection (aco)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute is used to turn accounting on or off for SVC and SPVC connections. It also specifies the reason(s) for which accounting data is collected: ***billing***, ***test***, ***study***, ***audit***, or ***force***.<br><br>If the set of reasons is not empty then accounting records will be generated by this interface in the following situations:<br>- on a TODA changeover if TODA is enabled;<br>- every 12 hours (per connection) if TODA is disabled;<br>- on every call clear (a call record with final cell counts).<br><br>If none of the reasons is present, then accounting will be suppressed.<br><br>The reason for collection is recorded in the accounting record, in the attribute *callingCollectReason* or *calledCollectReason* as appropriate. |
| Set of | bill<br>test<br>study<br>audit<br>force |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE AtmIf Aini accountConnectionType (act)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies whether accounting records generated by this interface should be marked as originating, terminating or intermediate. This attribute, in combination with the direction of the call, determines the value of attribute *connPointType* of the accounting record and may be used by downstream accounting processes to correlate the records.<br><br>If the value is ***origTerm*** then records generated for incoming calls will be marked as ***originating*** and records generated for outgoing calls will be marked as ***terminating***.<br><br>If the value is ***intermediate*** then records generated for all calls will be marked as ***intermediate***. |
| Values | origTerm<br>intermediate |
| Default | intermediate |

### ATTRIBUTE AtmIf Aini accountClass (acl)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the accounting class associated with the interface. Its meaning is determined by the network operator.<br><br>Its value is simply recorded in the accounting records generated by this interface, in the attribute *callingServiceType* or *calledServiceType* as appropriate. |
| Values | Decimal (0..255) |
| Default | 0 |

## ATTRIBUTE AtmIf Aini serviceExchange (sre)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the data service exchange associated with this interface. Its meaning is determined by the network operator.<br><br>Its value is simply recorded in the accounting records generated by this interface, in the attribute *callingDse* or *calledDse* as appropriate. |
| Values | Decimal (0..255) |
| Default | 0 |

## COMPONENT AtmIf Aini Signalling (Sig)

| | |
|---|---|
| Groups | "GROUP AtmIf Aini Sig Provisioned (Prov)"<br>"GROUP AtmIf Aini Sig OsiState (State)"<br>"GROUP AtmIf Aini Sig Operational (Oper)"<br>"GROUP AtmIf Aini Sig Statistics (Stats)" |
| Scope | Device |
| Description | *AtmIf/n Aini Signalling*<br>*AtmIf/n Iisp Signalling*<br>*AtmIf/n Uni Signalling*<br>*AtmIf/n Pnni Signalling*<br>*AtmIf/n Vpt/m Aini Signalling*<br>*AtmIf/n Vpt/m Iisp Signalling*<br>*AtmIf/n Vpt/m Uni Signalling*<br>*AtmIf/n Vpt/m Pnni Signalling*<br><br>This component represents the signaling entities for the interface. |
| Opt. Subcomp. | "COMPONENT AtmIf Aini Sig VirtualChannelDescriptor (Vcd)" |
| Common Verbs | Help<br>List<br>Display |

## GROUP AtmIf Aini Sig Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This attribute group contains the provisionable attributes for the *Signalling* component. |

## ATTRIBUTE AtmIf Aini Sig vci

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the signaling channel number. |
| Values | Decimal (0..65535) |
| Default | 5 |

## ATTRIBUTE AtmIf Aini Sig addressConversion

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the address conversion on the outgoing signaling PDUs. The options are ***none***, ***nativeE164***, or ***nsap***. The ***none*** option is the default and if this option is chosen then nothing is done to the address information element (IE) in the outgoing signaling message. If ***nativeE164*** option is chosen, then only NSAP encapsulated E.164 addresses with zeros in the ESI are converted to native E.164 format in the outgoing signaling message. If the NSAP address is not encapsulated E.164 or the ESI field is not zeros and the ***nativeE164*** option is chosen, then the call is cleared. If the ***nsap*** option is chosen, then native E.164 addresses are converted to NSAP E.164 with zeros in the ESI field; otherwise the address is in NSAP format and is not changed. |
| Values | none<br>nativeE164<br>nsap |
| Default | none |

### ATTRIBUTE AtmIf Aini Sig operatingMode

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the operating mode of the signaling channel ***provisionedOnly*** indicates that only SPVCs and SPVPs are supported on the interface and SVCs are not supported. This value is permitted only on UNI interfaces.<br>***normal*** indicates that SVCs, SPVCs, and SPVPs are supported on the interface. |
| Values | normal<br>provisionedOnly |
| Default | normal |

### GROUP AtmIf Aini Sig OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE AtmIf Aini Sig adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down. |

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE AtmIf Aini Sig operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE AtmIf Aini Sig usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

## GROUP AtmIf Aini Sig Operational (Oper)

Properties
Operational

Description
This attribute contains the operational attributes for the AtmSignalling component.

## ATTRIBUTE AtmIf Aini Sig lastTxCauseCode

Access
Read: All
Write: Illegal

Description
This attribute indicates the cause code in the last transmitted signaling message that contains the CAUSE information element. The cause code is used to describe the reason for generating certain signaling messages.

Values
Decimal (0..255)

Default
No default

## ATTRIBUTE AtmIf Aini Sig lastTxDiagCode

Access
Read: All
Write: Illegal

Description
This attribute contains the diagnostic code in the last transmitted signaling message. The diagnostic code is contained in the CAUSE information element and identifies an information element type or timer type. The diagnostic code is present only if a procedural error is detected by the signaling protocol. A diagnostic code is always accompanied by the cause code. If there is no failure, this attribute is set to 0.

Values
Hex (H.0..H.ff)

Default
No default

### ATTRIBUTE AtmIf Aini Sig lastRxCauseCode

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute contains the cause code in the last received signaling message that contains the CAUSE information element. The cause code is used to describe the reason for generating certain signaling messages. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE AtmIf Aini Sig lastRxDiagCode

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute contains the diagnostic code in the last received signaling message. The diagnostic code is contained in the CAUSE information element and identifies an information element type or timer type. The diagnostic code is present only if a procedural error is detected by the signaling protocol. A diagnostic code is always accompanied by the cause code. If there is no failure, this attribute is set to 0. |
| Values | Hex (H.0..H.ff) |
| Default | No default |

### GROUP AtmIf Aini Sig Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains the statistics associated with the AtmSignalling component. |

### ATTRIBUTE AtmIf Aini Sig peakConnections

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the high water mark of active point-to-point connections. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Aini Sig successfulConnections

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of switched point-to-point connections that were successfully established. The counter wraps to 0 when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Aini Sig failedConnections

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of unsuccessful attempts to establish switched point-to-point connections. The counter wraps to 0 when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Aini Sig txPdus

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of transmitted signaling PDUs.The counter wraps to 0 when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Aini Sig rxPdus

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the number of received signaling PDUs.The counter wraps to 0 when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Aini Sig currentPmpConnections

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of currently active point-to-multipoint connections. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Aini Sig peakPmpConnections

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the high water mark of active point-to-multipoint connections. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Aini Sig successfulPmpConnections

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of switched point-to-multipoint connections that were successfully established. The counter wraps to 0 when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Aini Sig failedPmpConnections

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of unsuccessful attempts to establish switched point-to-multipoint connections. The counter wraps to 0 when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Aini Sig currentConnections

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the total number of currently active point-to-<br>point connections. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT AtmIf Aini Sig VirtualChannelDescriptor (Vcd)

| | |
|---|---|
| Groups | "GROUP AtmIf Aini Sig Vcd Provisioned (Prov)" |
| Scope | Device |
| Description | *AtmIf/n Uni Sig VirtualChannelDescriptor*<br>*AtmIf/n Uni Ilmi VirtualChannelDescriptor*<br>*AtmIf/n Aini Sig VirtualChannelDescriptor*<br>*AtmIf/n Iisp Sig VirtualChannelDescriptor*<br>*AtmIf/n Pnni Sig VirtualChannelDescriptor*<br>*AtmIf/n Pnni Rcc VirtualChannelDescriptor*<br>*AtmIf/n Vpt/m Uni Sig VirtualChannelDescriptor*<br>*AtmIf/n Vpt/m Aini Sig VirtualChannelDescriptor*<br>*AtmIf/n Vpt/m Iisp Sig VirtualChannelDescriptor*<br>*AtmIf/n Vpt/m Pnni Sig VirtualChannelDescriptor*<br>*AtmIf/n Vpt/m Pnni Rcc VirtualChannelDescriptor* |

This component contains the provisionable traffic parameters for a control channel (Sig, *Ilmi* or *Rcc* component).

Common Verbs

Help
List
Display
Add
DELete

## GROUP AtmIf Aini Sig Vcd Provisioned (Prov)

Properties: Provisioned

Description: This group contains the provisionable traffic attributes for a control channel.

## ATTRIBUTE AtmIf Aini Sig Vcd trafficDescType (tdt)

Access: Read: All
Write: All

Criticality: Component

Description: This attribute specifies the type of traffic management which is applied to both the transmit and receive direction of this connection as defined in the ATM Forum. The *trafficDescType* determines the number and meaning of the parameters in the *trafficDescParm* attribute.

Values:
3
6
7
8

Default: 6

## ATTRIBUTE AtmIf Aini Sig Vcd atmServiceCategory (service)

Access: Read: All
Write: All

Criticality: Component

Description: This attribute specifies the ATM service category for both directions of the connection.

The ***constantBitRate*** service category is intended for real time applications, that is those requiring tightly constrained delay and delay variation, as would be appropriate for voice and video applications. The consistent availability of a fixed quantity of bandwidth is considered appropriate for CBR service. Cells which are delayed beyond the value specified by CellTransfer Delay are assumed to be of significantly reduce value to the application.

The ***rtVariableBitRate*** service category is intended for real time applications, that is those requiring tightly constrained delay and delay variation, as would be appropriate for voice and video applications. Sources are expected to transmit at a rate which varies with time. Equivalently, the source can be described as "bursty". Cells which are delayed beyond the value specified by CTD are assumed to be of significantly reduced value to the application. Real time VBR service may support statistical multiplexing of real time sources.

The ***nrtVariableBitRate*** service category is intended for non-real time applications which have bursty traffic characteristics and which can be characterized in terms of a PCR, SCR, and MBS. For those cells which are transferred within the traffic contract, the application expects a low cell loss ratio. For all connections, it expects a bound on the mean cell transfer delay. Non-real time VBR service may support statistical multiplexing of connections.

The ***unspecifiedBitRate*** service is intended for non-real time applications; that is, those not requiring tightly constrained delay and delay variation. UBR sources are expected to be bursty. UBR service supports a high degree of statistical multiplexing among sources. UBR service does not specify traffic related service guarantees. No numerical commitments are made with respect to the cell loss ratio experienced by a UBR connection, or as to the cell transfer delay experienced by cells on the connection.

Values

unspecifiedBitRate (ubr)
constantBitRate (cbr)
rtVariableBitRate (rtvbr)
nrtVariableBitRate (nrtvbr)

| | |
|---|---|
| Default | rtVariableBitRate |

### ATTRIBUTE AtmIf Aini Sig Vcd weight

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This VCD component has an attribute that is called atmServiceCategory. This attribute specifies the service category that is used by the sig, rcc or ilmi channel. The *weight* attribute is related to two other attributes which are *weightPolicy* and *txQueueLimit*, as mentioned in the following description. These attributes can be found under the atmif/n ca <atmServiceCategory>/ m.<br><br>This attribute specifies an override for the *weight* of this unshaped connection. This attribute is ignored for shaped connections, for ABR connections, for connections on a CQC-based ATM FPs and basic VPTs.<br><br>When the value is set to ***sameAsCa***, the *weight* is determined by the *weightPolicy* attribute under the CA service category component for all but standard VPT VCCs. For standard VPT VCCs, the *weight* is determined by the VCC's service category, when the value is set to ***sameAsCa***.<br><br>When this attribute is set to a value from ***1*** to ***4095***, that value is used for the *weightPolicy* of this connection relative to other connections. For all but standard VPT VCCs, *weightPolicy* determines the proportion of transit cell opportunities which are allocated to this connection, compared to other connections in the same service category. For standard VPT VCCs, *weightPolicy* determines the proportion of transmit cell opportunities which are allocated to this connection, compared to other connections associated with the VPT.<br><br>When the value is set to ***upToQueueLimit***, the *weightPolicy* is limited only by the *txQueueLimit*. |
| Values | Decimal (1..4095)<br>sameAsCa<br>upToQueueLimit |

Default sameAsCa

### ATTRIBUTE AtmIf Aini Sig Vcd qosClass (qos)

Access Read and write

Criticality Component

Description This attribute specifies the quality of service for both the forward and backward direction for this connection.

Class ***1*** supports a QOS that meets Service Class A performance requirements (Circuit emulation, constant bit rate video).

Class ***2*** supports a QOS that meets Service Class B performance requirements (Variable bit rate audio and video).

Class ***3*** supports a QOS that meets Service Class C performance requirements (Connection-Oriented Data Transfer).

Class ***4*** supports a QOS that meets Service Class D performance requirements (Connectionless Data Transfer).

Class ***0*** is the unspecified bit rate QOS class; no objective is specified for the performance parameters.

Values
0
1
2
3
4

Default 2

### ATTRIBUTE AtmIf Aini Sig Vcd trafficShaping (trShaping)

Access Read and write

Criticality Component

Description This attribute specifies whether this connection uses traffic shaping when transmitting traffic to the ATM interface.

When ***sameAsCa*** is selected, traffic shaping for this connection is

based on the *trafficShaping* attribute of the connection's service category component under the *AtmIf CA*. If the service category has traffic shaping enabled, then traffic shaping is enabled for the connection. Note that enabling traffic shaping may have no effect under certain cases. These cases are listed in the description of the *trafficShaping* operational attribute, which is under the *Vcc Tm* and *Vpc Tm* components.

When ***disabled*** is selected, traffic shaping for this connection is disabled.

Values
disabled
sameAsCa

Default
disabled

## ATTRIBUTE AtmIf Aini Sig Vcd unshapedTransmitQueueing (unshap)

Access
Read and write

Criticality
Component

Description
This attribute only applies when this connection is unshaped. This attribute specifies the transmit queuing method for this connection if it is unshaped. Refer to the *unshapedTransmitQueueing* attribute under the *AtmIf CA* service category subcomponent for more details on the meaning of this attribute.

When this attribute is set to ***sameAsCa***, the transmit queuing method for the connection is based on the *unshapedTransmitQueueing* attribute of the connection's service category component under the *ConnectionAdministrator.*

When this attribute is set to ***common***, transmit traffic on this unshaped connection is destined for the common queue.

The value ***sameAsInterface*** is for migration from previous software releases, but should no longer be used

Values
common
sameAsCa

| | |
|---|---|
| Default | sameAsCa |

### ATTRIBUTE AtmIf Aini Sig Vcd usageParameterControl (upc)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies whether this connection enforces usage parameter control when receiving traffic from the ATM interface.<br><br>When ***sameAsCa*** is selected, UPC for the connection is based on the *usageParameterControl* attribute of the connection's service category component under the *ConnectionAdministrator.* If the service category has UPC enabled, then UPC is enabled for the connection. Note that enabling UPC may have no effect under certain cases. These cases are listed in the description of the *usageParameterControl* operational attribute, which is under the *Vcc Tm* or *Vpc Tm* component.<br><br>When ***disabled*** is selected, UPC for this connection is disabled.<br><br>The value ***sameAsInterface*** is for migration from previous software releases, but should no longer be used |
| Values | disabled<br>sameAsCa |
| Default | disabled |

### ATTRIBUTE AtmIf Aini Sig Vcd trafficDescParm (tdp)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute is a vector of five traffic parameters whose meanings are defined by the *trafficDescType* attribute. The values of peak cell rate (PCR), sustained cell rate (SCR) and requested shaping rate are expressed in cell/s. Maximum burst size (MBS) is expressed in cells. CDVT is expressed in microseconds. The values of PCR, SCR, MBS and CDVT are used for connection admission control (CAC). The value of CDVT is only used for |

connections where the *atmServiceCategory* is ***constantBitRate***. For all other values of *atmServiceCategory*, CDVT is ignored. The values of PCR, SCR and requested shaping rate are used to determine the actual shaping rate where traffic shaping is enabled.

When *trafficDescType* is ***3***, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameter 1 must be non-zero. Parameters 2 and 3 must be zero.

When *trafficDescType* is ***6***, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 and 1 traffic; parameter 3 represents the MBS for CLP equal to 0 and 1 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameters 1, 2, and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2. Parameter 5 must either be zero (unused) or greater than or equal to parameter 2.

When *trafficDescType* is ***7***, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 with cell discard; parameter 3 represents the MBS for CLP equal to 0 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameters 1, 2, and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2. Parameter 5 must either be zero (unused) or greater than or equal to parameter 2.

When *trafficDescType* is ***8***, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 traffic with cell tagging; parameter 3 represents the MBS for CLP equal to 0 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1.

This result is used as the PCR. Parameters 1, 2, and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2. Parameter 5 must either be zero (unused) or greater than or equal to parameter 2.

Whenever it is valid for PCR to be specified, parameter 5 may also be used to specify a requested shaping rate. A non-zero value in parameter 5 overrides the value in parameter 1 and is used as the peak cell rate in calculations of CAC and shaping rate.

For *trafficDescType* ***3*** the traffic is shaped at the next rate less than the PCR.

For *trafficDescType* ***6***, ***7***, and ***8***, the traffic is shaped at the highest available rate which is between PCR and SCR. However, if there is no available shaping rate between PCR and SCR, traffic is shaped at the next rate above the PCR.

| | |
|---|---|
| Vector of | Decimal (0..2147483647) |
| Index | Decimal (1..5) |
| Default | (250, 160, 5, 0, 0) |

## COMPONENT AtmIf Aini Address (Addr)

| | |
|---|---|
| Instance | address [String (1..40, ASCII)]<br>addressType [primary<br>alternate<br>default] |
| Groups | "GROUP AtmIf Aini Addr Operational (Oper)" |
| Scope | Device |
| Description | *AtmIf/n Aini Address/address,type*<br>*AtmIf/n Iisp Address/address,type*<br>*AtmIf/n Uni Address/address,type*<br>*AtmIf/n Pnni Address/address,type*<br>*AtmIf/n Vpt/m Aini Address/address,type*<br>*AtmIf/n Vpt/m Iisp Address/address,type*<br>*AtmIf/n Vpt/m Uni Address/address,type*<br>*AtmIf/n Vpt/m Pnni Address/address,type* |

This component represents an address (dynamic or static) associated with the interface. The index is a string of 1 to 40 hex digits or a single wildcard (‘?’), and a type. The type identifies whether the *Address* component is for a ***primary***, ***alternate***, ***registered***, or ***default*** address.

The types ***primary*** and ***alternate*** are used for provisioned addresses. The type ***registered*** is used for dynamic addresses registered through ILMI. The type ***default*** is used for Soft PVP and Soft PVC addresses.Virtual interfaces do not have addresses of
type ***default***.

The wildcard is only valid for provisioned addresses. If the address is a single wildcard, then that indicates that the interface supports all addresses. If there is no better match, then this interface may be chosen in the routing. If there is more than one interface with a single wildcard static address, then the choice is driven through a round robin algorithm.

The round robin algorithm tries the primary routes and then the alternate routes if none of the primary routes succeed.
If this node participates in a PNNI hierarchy, then a *PnniInfo* subcomponent can be provisioned under the *AtmAddress* component to specify the level to which this address will be advertised.

Opt. Subcomp. "COMPONENT AtmIf Aini Addr TerminateSPvpAndSPvc (TermSP)"
"COMPONENT AtmIf Aini Addr PnniInfo"

Common Verbs
- Help
- List
- Display
- Add
- DELete

## GROUP AtmIf Aini Addr Operational (Oper)

Properties Operational

| | |
|---|---|
| Description | This attribute group contains the operational attributes for the *Address* component. |

### ATTRIBUTE AtmIf Aini Addr scope

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the scope of the ATM address, which is the highest level to which this address will be advertised in the PNNI hierarchy. If no *PnniInfo* subcomponent has been provisioned, then the scope will default to the level of this node in the PNNI hierarchy. If this node does not participate in a PNNI hierarchy, then this attribute will have the value of -1. |
| Values | Signed (-1..104) |
| Default | No default |

### ATTRIBUTE AtmIf Aini Addr reachability (reach)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates whether the address is internal or exterior. An internal reachable address is an address of a destination that is directly attached to the logical node advertising the address. An exterior reachable address is an address that can be reached through a PNNI routing domain, but which is not located in that PNNI routing domain. |
| Values | internal<br>exterior |
| Default | No default |

### COMPONENT AtmIf Aini Addr TerminateSPvpAndSPvc (TermSP)

| | |
|---|---|
| Scope | Device |
| Description | *AtmIf/n Aini Address/address,type TerminateSPvpAndSPvc*<br>*AtmIf/n Iisp Address/address,type TerminateSPvpAndSPvc*<br>*AtmIf/n Uni Address/address,type TerminateSPvpAndSPvc*<br>*AtmIf/n Pnni Address/address,type TerminateSPvpAndSPvc*<br>*AtmIf/n Vpt/m Aini Address/address,type TerminateSPvpAndSPvc* |

*AtmIf/n Vpt/m Iisp Address/address,type TerminateSPvpAndSPvc*
*AtmIf/n Vpt/m Uni Address/address,type TerminateSPvpAndSPvc*
*AtmIf/n Vpt/m Pnni Address/address,type TerminateSPvpAndSPvc*

The presence of this subcomponent indicates that SPvp and SPvc call setups terminate at this node if the destination address of the SPVP or SPVC matches the *Address* instance.

Common Verbs

Help
List
Display
Add
DELete

## COMPONENT AtmIf Aini Addr PnniInfo

Groups "GROUP AtmIf Aini Addr PnniInfo Provisioned (Prov)"

Scope Device

Description

*AtmIf/n Aini Addr/address,type PnniInfo*
*AtmIf/n Iisp Addr/address,type PnniInfo*
*AtmIf/n Uni Addr/address,type PnniInfo*
*AtmIf/n Pnni Addr/address,type PnniInfo*
*AtmIf/n Vpt/m Aini Addr/address,type PnniInfo*
*AtmIf/n Vpt/m Iisp Addr/address,type PnniInfo*
*AtmIf/n Vpt/m Uni Addr/address,type PnniInfo*
*AtmIf/n Vpt/m Pnni Addr/address,type PnniInfo*

This component contains provisioned information associated with the ATM address related to PNNI. This component appears only under provisioned *Address* components.

Common Verbs

Help
List
Display
Add
DELete

## GROUP AtmIf Aini Addr PnniInfo Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This attribute group contains the provisioned attributes relating to PNNI for a *PnniInfo* component. |

## ATTRIBUTE AtmIf Aini Addr PnniInfo scope

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the scope of the ATM address, which is the highest level up to which this address will be advertised in the PNNI hierarchy. The scope must be set to a value numerically less than or equal to the level of the lowest level peer group containing this node. Setting the scope to 0 will cause the address to be advertised globally within this PNNI routing domain. |
| Values | Signed (-1..104) |
| Default | -1 |

## ATTRIBUTE AtmIf Aini Addr PnniInfo reachability (reach)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute indicates whether the address is internal or exterior. An internal reachable address is an address of a destination that is directly attached to the logical node advertising the address. An exterior reachable address is an address that can be reached through a PNNI routing domain, but which is not located in that PNNI routing domain. |
| Values | internal<br>exterior |
| Default | internal |

## COMPONENT AtmIf Aini CallingAddressScreening (CallingAScr)

| | |
|---|---|
| Groups | "GROUP AtmIf Aini CallingAScr Provisioned (Prov)"<br>"GROUP AtmIf Aini CallingAScr Statistics (Stat)" |
| Scope | Device |
| Description | *AtmIf/n Aini CallingAddressScreening*<br>*AtmIf/n Uni CallingAddressScreening*<br>*AtmIf/n Iisp CallingAddressScreening*<br>This component represents the screening of incoming ATM SVC call requests against provisioned ATM calling addresses (that is, screening SVC calls coming from specific addresses). If this component is not provisioned, all call requests are accepted and no calling address screening takes place. |
| Opt. Subcomp. | "COMPONENT AtmIf Aini CallingAScr Address (Addr)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP AtmIf Aini CallingAScr Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This attribute group contains the provisionable attributes for the *CallingAScr* component. |

## ATTRIBUTE AtmIf Aini CallingAScr adminStatus

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies whether the calling address screening feature is ***enabled*** or ***disabled***.<br><br>If ***enabled***, incoming SVC calls are screened against provisioned addresses. If ***enabled*** and the calling address in the ATM SVC call request is provisioned to be accepted, the call is accepted or rejected according to the action specified for that address. If the |

value is ***enabled***, and the calling address in the address request is not provisioned, the call is rejected

If the value is ***disabled***, no calling address screening is performed.

Values: enabled
disabled

Default: disabled

### ATTRIBUTE AtmIf Aini CallingAScr defaultInsertionAddress (defInsAddr)

Access: Read: All
Write: All

Description: This attribute specifies the address to be inserted into the SVC connection request if *adminStatus* is ***enabled*** and the connection request does not contain a calling address. If the *adminStatus* attribute is ***enabled*** and this attribute is empty, all incoming SVC calls which do not contain a calling address are rejected.

Values: String (0..20, Hex)

Default: ""

### GROUP AtmIf Aini CallingAScr Statistics (Stat)

Properties: Operational

Description: This attribute group contains statistics related to the incoming SVC call requests received while the *adminStatus* attribute is set to ***enabled***.

### ATTRIBUTE AtmIf Aini CallingAScr acceptedCalls

Access: Read: All
Write: Illegal

Description: This attribute counts the incoming SVC calls which were accepted because the address specified in the call request matched a provisioned ATM address and the associated action was ***accept***.
When the counter exceeds the maximum, it wraps to 0.

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE AtmIf Aini CallingAScr rejectedCalls

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the incoming SVC calls which were rejected because the address specified in the call request matched a provisioned ATM address, but the associated action was ***reject***. When the counter exceeds the maximum, it wraps to 0. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE AtmIf Aini CallingAScr unmatchedCalls

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the incoming SVC calls which were rejected because none of the provisioned ATM addresses matched the applicable address in the incoming SVC call request.<br>When the counter exceeds the maximum, it wraps to 0. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT AtmIf Aini CallingAScr Address (Addr)

| | |
|---|---|
| Instance | address [String (1..40, ASCII)]<br>addressAction [accept<br>reject] |
| Scope | Device |
| Description | *AtmIf/n Aini CallingAScr Address/addr,action*<br>*AtmIf/n Uni CallingAScr Address/addr,action*<br>*AtmIf/n Iisp CallingAScr Address/addr,action*<br>*AtmIf/n Aini CalledAScr Address/addr,action*<br>*AtmIf/n Uni CalledAScr Address/addr,action*<br>*AtmIf/n Iisp CalledAScr Address/addr,action* |

This component specifies a calling (or called) address with an action to accept or reject a connection request which contains a matching calling (or called) address.
For the Calling Address Screening feature, if the specified action is ***accept***, any call whose calling address matches that address is accepted. If the specified action is ***reject***, any call whose calling address matches that address is rejected.
For the Called Address Screening feature, if the specified action is ***accept***, any call whose called address matches that address, is accepted. If the specified action is ***reject***, any call whose called address matches that address is rejected.
For both features, the incoming SVC call request is rejected if the address is not provisioned and the feature is ***enabled***.

Common Verbs

Help
List
Display
Add
DELete

## COMPONENT AtmIf Aini CalledAddressScreening (CalledAScr)

Groups

"GROUP AtmIf Aini CalledAScr Provisioned (Prov)"
"GROUP AtmIf Aini CalledAScr Statistics (Stat)"

Scope

Device

Description

*AtmIf/n Aini CalledAddressScreening*
*AtmIf/n Uni CalledAddressScreening*
*AtmIf/n Iisp CalledAddressScreening*
This component represents the screening of incoming ATM SVC call requests against provisioned ATM called addresses (that is, going to specific destinations). If this component is not provisioned, all call requests are accepted and no called address screening takes place.

| | |
|---|---|
| Opt. Subcomp. | "COMPONENT AtmIf Aini CalledAScr Address (Addr)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP AtmIf Aini CalledAScr Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This attribute group contains the provisionable attributes for the *CalledAScr* component. |

## ATTRIBUTE AtmIf Aini CalledAScr adminStatus

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies whether the called address screening feature is ***enabled*** or ***disabled***.<br>If the value is ***enabled***, incoming SVC calls will be screened against provisioned called addresses. If the value is ***enabled*** and the called address in the ATM SVC call request has been provisioned, the call is accepted or rejected according to the action specified for that address. If the value is ***enabled*** and the called address in the call request is not provisioned, the call is rejected.<br>If the value is ***disabled***, no called address screening is performed. |
| Values | enabled<br>disabled |
| Default | disabled |

## GROUP AtmIf Aini CalledAScr Statistics (Stat)

| | |
|---|---|
| Properties | Operational |

Description — This attribute group contains statistics related to the incoming SVC call requests received while the *adminStatus* attribute is set to ***enabled***.

### ATTRIBUTE AtmIf Aini CalledAScr acceptedCalls

Access — Read: All
Write: Illegal

Description — This attribute counts the incoming SVC calls which were accepted because the address specified in the call request matched a provisioned ATM address and the associated action was ***accept***.
When the counter exceeds the maximum, it wraps to 0.

Values — Decimal (0..4294967295)

Default — 0

### ATTRIBUTE AtmIf Aini CalledAScr rejectedCalls

Access — Read: All
Write: Illegal

Description — This attribute counts the incoming SVC calls which were rejected because the address specified in the call request matched a provisioned ATM address, but the associated action was ***reject***.
When the counter exceeds the maximum, it wraps to 0.

Values — Decimal (0..4294967295)

Default — 0

### ATTRIBUTE AtmIf Aini CalledAScr unmatchedCalls

Access — Read: All
Write: Illegal

Description — This attribute counts the incoming SVC calls which were rejected because none of the provisioned ATM addresses matched the applicable address in the incoming SVC call request.
When the counter exceeds the maximum, it wraps to 0.

Values — Decimal (0..4294967295)

Default — 0

## COMPONENT AtmIf Aini CalledAScr Address (Addr)

Instance
address [String (1..40, ASCII)]
addressAction [accept
reject]

Scope
Device

Description
*AtmIf/n Aini CallingAScr Address/addr,action*
*AtmIf/n Uni CallingAScr Address/addr,action*
*AtmIf/n Iisp CallingAScr Address/addr,action*
*AtmIf/n Aini CalledAScr Address/addr,action*
*AtmIf/n Uni CalledAScr Address/addr,action*
*AtmIf/n Iisp CalledAScr Address/addr,action*
This component specifies a calling (or called) address with an action to accept or reject a connection request which contains a matching calling (or called) address.
For the Calling Address Screening feature, if the specified action is ***accept***, any call whose calling address matches that address is accepted. If the specified action is ***reject***, any call whose calling address matches that address is rejected.
For the Called Address Screening feature, if the specified action is ***accept***, any call whose called address matches that address, is accepted. If the specified action is ***reject***, any call whose called address matches that address is rejected.
For both features, the incoming SVC call request is rejected if the address is not provisioned and the feature is ***enabled***.

Common Verbs
Help
List
Display
Add
DELete

## COMPONENT AtmIf Aini PathTraceFilter (Ptf)

Groups
"GROUP AtmIf Aini Ptf Criteria"
"GROUP AtmIf Aini Ptf Operational (Oper)"
"GROUP AtmIf Aini Ptf RecordControl (Record)"

Scope
Device

Description

*AtmIf/n Aini PathTraceFilter*
*AtmIf/n Iisp PathTraceFilter*
*AtmIf/n Uni PathTraceFilter*
*AtmIf/n Pnni PathTraceFilter*
*AtmIf/n Vpt/vpi Aini PathTraceFilter*
*AtmIf/n Vpt/vpi Iisp PathTraceFilter*
*AtmIf/n Vpt/vpi Uni PathTraceFilter*
*AtmIf/n Vpt/vpi Pnni PathTraceFilter*

This component represents the path trace filtering capability on the ATM signaling interface. This capability allows the user to trace connections during the call setup phase against the criteria associated with this component. Only the connections that match all the criteria are traced.

When this component is provisioned, the network operator can control tracing activities by using the *Start*, *Stop*, and *Clear* verbs. When the *Start* verb is issued, the *traceTimeout* timer restarts. Once the timer times out, filtering stops and records are not removed. When the *Stop* verb is issued, the filter stops and the trace records are kept until the user clears them. When the *Clear* verb is issued, the trace records are cleared. When *AtmPathTraceFilter* component is deleted, all records are cleared.

Once the maximum specified by *maxTraceRecords* attribute under the *PathTraceFilter* component or *maxTraceRecords* attribute under the *Lp/n Eng PTrace* component has been reached, the oldest record is deleted.

The *AtmPathTraceFilter* component is not permitted to be added when the *Lp/n Eng PTrace Ov maxTraceRecords* attribute is set to zero.

| | |
|---|---|
| Dyn. Subcomp. | "COMPONENT AtmIf Aini Ptf PathTraceRecord (PTRecord)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## VERB START AtmIf Aini Ptf

| | |
|---|---|
| Impact | Service |
| Description | *START AtmIf/n Aini PathTraceFilter*<br>*START AtmIf/n Iisp PathTraceFilter*<br>*START AtmIf/n Uni PathTraceFilter*<br>*START AtmIf/n Pnni PathTraceFilter*<br>*START AtmIf/n Vpt/vpi Aini PathTraceFilter*<br>*START AtmIf/n Vpt/vpi Iisp PathTraceFilter*<br>*START AtmIf/n Vpt/vpi Uni PathTraceFilter*<br>*START AtmIf/n Vpt/vpi Pnni PathTraceFilter*<br><br>This command starts the path tracing based on the specified filtering criteria.<br><br>When the command is issued, the *traceTimeout* timer is reset. |

### VERB STOP AtmIf Aini Ptf

| | |
|---|---|
| Impact | Service |
| Description | *STOP AtmIf/n Aini PathTraceFilter*<br>*STOP AtmIf/n Iisp PathTraceFilter*<br>*STOP AtmIf/n Uni PathTraceFilter*<br>*STOP AtmIf/n Pnni PathTraceFilter*<br>*STOP AtmIf/n Vpt/vpi Aini PathTraceFilter*<br>*STOP AtmIf/n Vpt/vpi Iisp PathTraceFilter*<br>*STOP AtmIf/n Vpt/vpi Uni PathTraceFilter*<br>*STOP AtmIf/n Vpt/vpi Pnni PathTraceFilter*<br><br>This command causes the filter to stop, but keeps the trace records. |

### VERB CLEAR AtmIf Aini Ptf

| | |
|---|---|
| Impact | Service |
| Description | *CLEAR AtmIf/n Aini PathTraceFilter*<br>*CLEAR AtmIf/n Iisp PathTraceFilter*<br>*CLEAR AtmIf/n Uni PathTraceFilter*<br>*CLEAR AtmIf/n Pnni PathTraceFilter*<br>*CLEAR AtmIf/n Vpt/vpi Aini PathTraceFilter*<br>*CLEAR AtmIf/n Vpt/vpi Iisp PathTraceFilter*<br>*CLEAR AtmIf/n Vpt/vpi Uni PathTraceFilter*<br>*CLEAR AtmIf/n Vpt/vpi Pnni PathTraceFilter*<br><br>This command clears the path trace records associated with this filter. This command is rejected on an active filter. |

### GROUP AtmIf Aini Ptf Criteria

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational criteria for the *PathTraceFilter* component. |

### ATTRIBUTE AtmIf Aini Ptf traceInfo (tInfo)

| | |
|---|---|
| Access | Read: All<br>Write: All |

| | |
|---|---|
| Description | This attribute specifies the trace information that is included in the trace records.<br><br>***crankBack***: Crankback information is included if the connection is cranked back during the connection setup phase. If the option is turned on, all attempted paths including the final one are recorded. If the option is turned off, only the information of the final path is recorded. If the connection fails to reach the destination, no path information is returned.<br><br>***connId***: Connection Identifier information is included.<br><br>***callRef***: For point-to-point connections, the call reference is included. For point-to-multipoint connections, the call reference and end point reference are both included.<br><br>Basic trace information, such as node and port identifiers, are always included. |
| Set of | crankBack<br>connId<br>callRef |
| Default | (crankBack, connId, callRef) |

### ATTRIBUTE AtmIf Aini Ptf calledPartyPrefix (cldPref)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies an NSAP address prefix, which is compared with the called party IE in the connection setup request. When all the criteria in the filter match successfully, the call is traced.<br><br>An empty string matches any address. |
| Values | String (0..20, Hex) |
| Default | No default |

### ATTRIBUTE AtmIf Aini Ptf callingPartyPrefix (clgPref)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies an NSAP address prefix, which is compared with the calling party IE in the connection setup request. When all the criteria in the filter match successfully, the call is traced.<br><br>An empty string matches any address. |
| Values | String (0..20, Hex) |
| Default | No default |

### ATTRIBUTE AtmIf Aini Ptf connectionType (type)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies a connection type (SVC, SPVC, SVP, SPVP), which is compared against the connection setup request. When all the criteria in the filter match successfully, the call is traced. |
| Set of | svc<br>spvc<br>svp<br>spvp |
| Default | (svc, spvc, svp, spvp) |

### ATTRIBUTE AtmIf Aini Ptf connectionConfiguration (config)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies a type of topology (point-to-point or point-to-multipoint), which is compared against the connection setup request. When all the criteria in the filter match successfully, the call is traced. |

| | |
|---|---|
| Set of | ptp<br>ptmp |
| Default | (ptp, ptmp) |

### ATTRIBUTE AtmIf Aini Ptf serviceCategory (svcCat)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the service categories, which is compared against the connection setup request. When the all criteria in the filter match successfully, the call is traced. |
| Set of | cbr<br>rtVbr<br>nrtVbr<br>ubr |
| Default | (cbr, rtVbr, nrtVbr, ubr) |

### GROUP AtmIf Aini Ptf Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for the *PathTraceFilter* component. |

### ATTRIBUTE AtmIf Aini Ptf state

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the current state of the filter.<br><br>***active***: Indicates the filter is active.<br><br>***inactive:*** Indicates the filter is inactive. The records are available if the filter is stopped by the user using the *Stop* verb or if the filter has timed out. |

| | |
|---|---|
| Values | active<br>inactive |
| Default | inactive |

### ATTRIBUTE AtmIf Aini Ptf recordCount

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of records that have been acquired so far for this filter. The maximum number of records that can be stored is specified by *Lp/n Eng PathTrace maxTraceRecords* or *AtmPathTraceFilter maxTraceRecords*, which ever is less. |
| Values | Decimal (0..200) |
| Default | No default |

### ATTRIBUTE AtmIf Aini Ptf matchedConnections

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of connections that match the criteria of this filter. |
| Values | Decimal (0..2147483647) |
| Default | No default |

### ATTRIBUTE AtmIf Aini Ptf elapsedTime

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of minutes that have elapsed since the start of the filter. |
| Values | Decimal (0..70560) |
| Units | minutes |
| Default | No default |

### ATTRIBUTE AtmIf Aini Ptf timeRemaining

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of minutes remaining before the filter terminates itself. |
| Values | Decimal (0..70560) |
| Units | minutes |
| Default | No default |

### GROUP AtmIf Aini Ptf RecordControl (Record)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for the record control of the *PathTraceFilter* component. |

### ATTRIBUTE AtmIf Aini Ptf traceTimeout

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies how long this filter remains active. At the end of this time, the filter is stopped and all trace records associated with this filter are available. |
| Values | Decimal (1..70560) |
| Units | minutes |
| Default | 60 |

### ATTRIBUTE AtmIf Aini Ptf maxTraceRecords (mRecords)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the maximum number of records allowed to be stored with the filter.<br><br>Once the maximum has been reached, the oldest record is removed. |

| | |
|---|---|
| Values | Decimal (1..200) |
| Default | 2 |

## COMPONENT AtmIf Aini Ptf PathTraceRecord (PTRecord)

| | |
|---|---|
| Groups | "GROUP AtmIf Aini Ptf PTRecord Operational (Oper)" |
| Scope | Device |
| Description | *AtmIf/n Aini Ptf PTRecord*<br>*AtmIf/n Iisp Ptf PTRecord*<br>*AtmIf/n Uni Ptf PTRecord*<br>*AtmIf/n Pnni Ptf PTRecord*<br>*AtmIf/n Vpt/n Aini Ptf PTRecord*<br>*AtmIf/n Vpt/n Iisp Ptf PTRecord*<br>*AtmIf/n Vpt/n Uni Ptf PTRecord*<br>*AtmIf/n Vpt/n Pnni Ptf PTRecord*<br><br>This component represents the path trace record for the last failed connection against this filter. |
| Dyn. Subcomp. | "COMPONENT AtmIf Aini Ptf PTRecord Hop" |
| Common Verbs | Help<br>List<br>Display |

## GROUP AtmIf Aini Ptf PTRecord Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for the path trace record component. |

## ATTRIBUTE AtmIf Aini Ptf PTRecord status

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the status of the trace. The string is one of the following:<br><br>***Completed normally****:* The trace completed normally. |

***Incomplete**:* Partial trace returned.

***Exceeded information element length limitations**:* The number of traced nodes exceeded the maximum number of hops.

***Exceeded message length limitations**:* The message length exceeded the maximum allowed size.

Values
Completed normally
Incomplete
Exceeded information element length limitations
Exceeded message length limitations

Default
No default

### ATTRIBUTE AtmIf Aini Ptf PTRecord timeStamp

Access
Read: All
Write: Illegal

Description
This attribute records the date and time of when the trace is completed.

Values
Time (DHMS)

Default
No default

### ATTRIBUTE AtmIf Aini Ptf PTRecord srcPortId

Access
Read: All
Write: Illegal

Description
This attribute indicates the trace's source port identifier used for this connection. This attribute only appears in the trace result for the trace source hop.

Values
Decimal (1..4294967295)

Default
No default

### ATTRIBUTE AtmIf Aini Ptf PTRecord srcPortName

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the name of the source port used for this connection. This attribute only appears in the trace result for the trace source hop. |
| Values | String (40, ASCII) |
| Default | No default |

### ATTRIBUTE AtmIf Aini Ptf PTRecord causeCode

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute contains the cause code in the transmitted signaling message that contains the CAUSE information element. The cause code is used to describe the reason for generating certain signaling messages. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE AtmIf Aini Ptf PTRecord diagCode

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute contains the diagnostic code in the transmitted signaling message. The diagnostic code is contained in the CAUSE information element and identifies an information element type or timer type. The diagnostic code is present only if a procedural error is detected by the signaling protocol. A diagnostic code is always accompanied by the cause code. If there is no failure, this attribute is set to NULL. |
| Values | String (0..8, ASCII) |

| | |
|---|---|
| Default | No default |

## COMPONENT AtmIf Aini Ptf PTRecord Hop

| | |
|---|---|
| Instance | Decimal (0..200) |
| Groups | "GROUP AtmIf Aini Ptf PTRecord Hop Operational (Oper)" |
| Scope | Device |
| Description | *AtmIf/n Aini Ptf PTRecord Hop/n*<br>*AtmIf/n Iisp Ptf PTRecord Hop/n*<br>*AtmIf/n Uni Ptf PTRecord Hop/n*<br>*AtmIf/n Pnni Ptf PTRecord Hop/n*<br>*AtmIf/n Vpt/n Aini Ptf PTRecord Hop/n*<br>*AtmIf/n Vpt/n Iisp Ptf PTRecord Hop/n*<br>*AtmIf/n Vpt/n Uni Ptf PTRecord Hop/n*<br>*AtmIf/n Vpt/n Pnni Ptf PTRecord Hop/n*<br>*AtmIf/n Vcc/x.y PTRecord Hop/n*<br>*AtmIf/n Vpc/n PTRecord Hop/n*<br>*AtmIf/n Vpt/n Vcc/x.y PTRecord Hop/n*<br><br>This component stores the result of a hop from a trace. An instance of this component is dynamically created for each hop in a trace record.<br><br>Depending on the hops, different attributes are present. |
| Dyn. Subcomp. | "COMPONENT AtmIf Aini Ptf PTRecord Hop VendorSpecificInfo (Vsi)" |
| Common Verbs | Help<br>List<br>Display |

## GROUP AtmIf Aini Ptf PTRecord Hop Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for the component *AtmPathTraceFilterRecordHop*. |

### ATTRIBUTE AtmIf Aini Ptf PTRecord Hop ingressVpiVci (vpiVci)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the VPI.VCI values used for this hop on the ingress side. This is the ingress side with respect to the trace or setup messages. This attribute is displayed for ATM interfaces only.<br><br>The VPI.VCI values are included in the trace when the *traceInfo* attribute sets the ***connId*** value. |
| Values | Integer Sequence (0..4095; 0..65535) |
| Default | No default |

### ATTRIBUTE AtmIf Aini Ptf PTRecord Hop ingressDlci (dlci)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the DLCI value used for this hop on the ingress side. This is the ingress side with respect to the trace or setup message. This attribute is displayed for FrAtm interfaces only.<br><br>The DLCI is included in the trace when the *traceInfo* attribute sets the ***connId*** value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Aini Ptf PTRecord Hop ingressCallReference (callref)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the call reference value used for this hop on the ingress side. This is the ingress side with respect to the |

| | |
|---|---|
| | trace or setup message.<br><br>The call reference is included in the trace when the *traceInfo* attribute sets the ***callRef*** value |
| Values | Hex (H.0..H.ffffff) |
| Default | No default |

### ATTRIBUTE AtmIf Aini Ptf PTRecord Hop ingressEndPointReference (epref)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the end point reference value used for this hop on the ingress side. This is the ingress side with respect to the trace or setup messages.<br><br>The end point reference is included in the trace when the *traceInfo* attribute sets the ***callRef*** value and the connection is point-to-multipoint. |
| Values | Hex (H.0..H.ffff) |
| Default | No default |

### ATTRIBUTE AtmIf Aini Ptf PTRecord Hop nodeId

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the lowest level node ID traversed for this hop. |
| Values | String (22, Hex) |
| Default | No default |

### ATTRIBUTE AtmIf Aini Ptf PTRecord Hop nodeName

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the *nodeName* under the *ModuleData* component for this hop. Only Passport nodes provide this information by including it in the Vendor Specific group. |
| Values | String (12, ASCII) |
| Default | No default |

### ATTRIBUTE AtmIf Aini Ptf PTRecord Hop portId

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the port identifier value for this hop on the egress side. This is the egress side with respect to the trace or setup messages. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Aini Ptf PTRecord Hop portName

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the port name for this hop on the egress side. This is the egress side with respect to the trace or setup messages. Only Passport nodes provide this information by including it in the Vendor Specific group. |
| Values | String (55, ASCII) |
| Default | No default |

### ATTRIBUTE AtmIf Aini Ptf PTRecord Hop pnniTraceContRefusalIndPresent (refusal)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates whether the “PNNI Trace Continuation Refusal” indicator is present. The “PNNI Trace Continuation Refusal” indicator indicates that this hop has refused to participate in the trace. |
| Values | absent<br>present |
| Default | absent |

### ATTRIBUTE AtmIf Aini Ptf PTRecord Hop crankbackDestNodeIndPresent (dest)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates whether the “PNNI Crankback Received at the Trace Destination Node” indicator is present. The “PNNI Crankback Received at Trace Destination Node” indicator indicates that this hop is acting as a trace destination node, receiving a crankback for this call from a non-PNNI interface. |
| Values | absent<br>present |
| Default | absent |

### ATTRIBUTE AtmIf Aini Ptf PTRecord Hop pnniCrankbackGapIndPresent (gap)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates whether the “PNNI Crankback Gap” indicator is present. The “PNNI Crankback Gap” indicator indicates that the call experienced a crankback, where no Trace Transit List IE was returned by the node initiating the crankback. |

| | |
|---|---|
| Values | absent<br>present |
| Default | absent |

### ATTRIBUTE AtmIf Aini Ptf PTRecord Hop crankBackCause (cause)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the crankback cause. Please refer to Private-Network-to-Network-Interface Specification Version 1.0 for more information.<br><br>This attribute is present when the *traceInfo* attribute sets the ***crankBack*** value and the connection has initiated the crankback procedure. |
| Values | Decimal (0..1000) |
| Default | No default |

### ATTRIBUTE AtmIf Aini Ptf PTRecord Hop blockedTransitType (type)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the blocked transit type.<br><br>This attribute is present when the *traceInfo* attribute sets the ***crankBack*** value and the connection has initiated the crankback procedure. |
| Values | Succeeding end blocked<br>Blocked node<br>Blocked link |
| Default | No default |

### ATTRIBUTE AtmIf Aini Ptf PTRecord Hop blockedNodeId (bNodeId)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the blocked node ID during the call setup request. The blocked node ID identifies the logical node where the connection or party has been blocked.<br><br>This attribute is present when the *blockedTransitType* attribute is ***Blocked node.*** |
| Values | String (22, Hex) |
| Default | No default |

### ATTRIBUTE AtmIf Aini Ptf PTRecord Hop blockedLinkPrecedingNodeId (pNodeId)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the blocked link's preceding node ID during the call setup request. The blocked link's preceding node ID identifies the logical node preceding a link, where the connection or party has been blocked.<br><br>This attribute is present when the *blockedTransitType* attribute is ***Blocked link***. |
| Values | String (22, Hex) |
| Default | No default |

### ATTRIBUTE AtmIf Aini Ptf PTRecord Hop blockedLinkPortId (bPortId)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the blocked link's port identifier used for this connection during the call setup request. The blocked link's port identifier identifies a logical port of the blocked link's |

preceding node identifier.

This attribute is present when the *blockedTransitType* attribute is ***Blocked link.***

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE AtmIf Aini Ptf PTRecord Hop blockedLinkSucceedingNodeId (sNodeId)

Access: Read: All
Write: Illegal

Criticality: Component

Description: This attribute indicates the blocked link's succeeding node ID during the call setup request. The blocked link's succeeding node ID identifies the logical node succeeding a link where the connection or party has been blocked.

This attribute is present when the *blockedTransitType* attribute is ***Blocked link.***

Values: String (22, Hex)

Default: No default

### ATTRIBUTE AtmIf Aini Ptf PTRecord Hop dstVpiVci

Access: Read: All
Write: Illegal

Criticality: Component

Description: This attribute indicates the VPI.VCI values on the destination side. This attribute only appears in the trace result for the trace destination node. This attribute is only displayed for ATM interfaces.

The VPI.VCI is included in the trace when the *traceInfo* attribute sets the ***connId*** value.

Values: Integer Sequence (0..4095; 0..65535)

| | |
|---|---|
| Default | No default |

### ATTRIBUTE AtmIf Aini Ptf PTRecord Hop dstDlci

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the DLCI value on the destination side. This attribute only appears in the trace result for the trace destination node. This attribute is only displayed for FrAtm interfaces.<br><br>The DLCI is included in the trace when the *traceInfo* attribute sets the ***connId*** value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Aini Ptf PTRecord Hop dstCallReference (dcr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the call reference value on the destination side. This attribute only appears in the trace result for the trace destination node.<br><br>The call reference value is included in the trace when the *traceInfo* attribute sets the ***callRef*** value. |
| Values | Hex (H.0..H.ffffff) |
| Default | No default |

### ATTRIBUTE AtmIf Aini Ptf PTRecord Hop dstEndPointReference (depr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |

| | |
|---|---|
| Description | This attribute indicates the end point call reference value on the destination side. This attribute only appears in the trace result for the trace destination node.<br><br>The call reference value is included in the trace when the *traceInfo* attribute sets the ***callRef*** value and the connection is point-to-multipoint. |
| Values | Hex (H.0..H.ffff) |
| Default | No default |

### ATTRIBUTE AtmIf Aini Ptf PTRecord Hop specifiedPath

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates whether this hop is the originator of this manually configured path. Only Passport nodes provide this information by including it in the Vendor Specific group. |
| Values | no<br>yes |
| Default | no |

### COMPONENT AtmIf Aini Ptf PTRecord Hop VendorSpecificInfo (Vsi)

| | |
|---|---|
| Instance | Decimal (0..10) |
| Groups | "GROUP AtmIf Aini Ptf PTRecord Hop Vsi Operational (Oper)" |
| Scope | Device |
| Description | *AtmIf/n Aini Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Iisp Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Uni Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vpt/n Aini Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vpt/n Iisp Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vpt/n Uni Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vpt/n Pnni Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vcc/x.y PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vpc/n PTRecord Hop/n VendorSpecificInfo/m* |

*AtmIf/n Vpt/n Vcc/x.y PTRecord Hop/n VendorSpecificInfo/m*

This component stores the vendor specific information of a non-Passport node for a hop. An instance of this component is dynamically created for the vendor specific information group of a hop in a trace. Several instances of this component are created if the trace has several groups of vendor specific information.

All the trace information for a Passport node is stored in the *PTRecord Hop/** component.

Common Verbs

Help
List
Display

## GROUP AtmIf Aini Ptf PTRecord Hop Vsi Operational (Oper)

Properties: Operational

Description: This group contains the operational attributes for the component *AtmPathTraceFilterRecordHopVen*.

## ATTRIBUTE AtmIf Aini Ptf PTRecord Hop Vsi length

Access: Read: All
Write: Illegal

Description: This attribute indicates the length of the vendor specific information group.

Values: Decimal (0..11)

Default: No default

## ATTRIBUTE AtmIf Aini Ptf PTRecord Hop Vsi organizationUniqueId (oui)

Access: Read: All
Write: Illegal

Description: This attribute indicates the Organization Unique Identifier (OUI) of a non-Passport node.

Values: String (3, Dashed Hex)

Default: No default

## ATTRIBUTE AtmIf Aini Ptf PTRecord Hop Vsi data

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the contents of the vendor specific information group. |
| Values | String (1..8, Hex) |
| Default | No default |

## COMPONENT AtmIf Aini PathTraceTestConnection (Ptt)

| | |
|---|---|
| Groups | "GROUP AtmIf Aini Ptt Operational (Oper)" |
| Scope | Device |
| Description | *AtmIf/n Aini PathTraceTestConnection*<br>*AtmIf/n Iisp PathTraceTestConnection*<br>*AtmIf/n Uni PathTraceTestConnection*<br>*AtmIf/n Pnni PathTraceTestConnection*<br>*AtmIf/n Vpt/vpi Aini PathTraceTestConnection*<br>*AtmIf/n Vpt/vpi Iisp PathTraceTestConnection*<br>*AtmIf/n Vpt/vpi Uni PathTraceTestConnection*<br>*AtmIf/n Vpt/vpi Pnni PathTraceTestConnection*<br><br>This component provides the capability to control the Path Trace Test Connection. A test connection is one way to find the logical nodes and ports that a connection traverses to a destination interface.<br><br>The *Trace* verb is used to initiate the test connection. The test connection is always released once it reaches the trace destination. The test connection responds with the trace results collected during a complete or partial trace. |
| Common Verbs | Help<br>List<br>Display |

## VERB TRACE Atmlf Aini Ptt

| | |
|---|---|
| Impact | Passive |
| Description | *TRACE AtmIf/n Aini AtmPathTraceTest*<br>*TRACE AtmIf/n Iisp AtmPathTraceTest*<br>*TRACE AtmIf/n Uni AtmPathTraceTest*<br>*TRACE AtmIf/n Pnni AtmPathTraceTest*<br>*TRACE AtmIf/n Vpt/vpi Aini AtmPathTraceTest*<br>*TRACE AtmIf/n Vpt/vpi Iisp AtmPathTraceTest*<br>*TRACE AtmIf/n Vpt/vpi Uni AtmPathTraceTest*<br>*TRACE AtmIf/n Vpt/vpi Pnni AtmPathTraceTest*<br><br>This command is used to initiate a Path Trace Test Connection and then responds with a list of logical nodes and ports from the trace source node to the trace destination node.<br><br>Only one *Trace* command is allowed at a time per signaling interface. If the test connection times out, the command fails. |

## GROUP Atmlf Aini Ptt Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for the *AtmPathTraceTest* component. |

## ATTRIBUTE Atmlf Aini Ptt traceCrankback

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute controls what trace information the trace records include. If the option is turned on, all attempted paths are recorded including the final one. If the option is turned off, only the information of the final path is recorded. If the connection fails to reached the destination, no path information is returned. |
| Values | no<br>yes |
| Default | no |

## ATTRIBUTE AtmIf Aini Ptt txTrafficDescType (txTdt)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the type of traffic management applied to the transmit direction, as defined by the ATM Forum. The *txTrafficDescType* determines the number and meaning of the parameters in the *txTrafficDescParm* attribute. |
| Values | 1<br>2<br>3<br>4<br>5<br>6<br>7<br>8<br>9 |
| Default | 1 |

## ATTRIBUTE AtmIf Aini Ptt rxTrafficDescType (rxTdt)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the type of traffic management, which is applied to the receive direction of this connection, as defined in the ATM Forum. The *rxTrafficDescType* determines the number and meaning of the parameters in the *rxTrafficDescParm* attribute<br><br>When ***sameAsTx*** is selected, the *rxTrafficDescType* and the *rxTrafficDescParm* are taken from the transmit values. |
| Values | 1<br>2<br>3<br>4<br>5<br>6<br>7 |

| | |
|---|---|
| | 8<br>9<br>sameAsTx |
| Default | sameAsTx |

### ATTRIBUTE AtmIf Aini Ptt atmServiceCategory (service)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the ATM service category for both directions of the connection.<br><br>If this attribute is set to ***derivedFromBBC***, the Broadband Bearer Capability (BBC) and *bestEffort* attributes are used to determine the *atmServiceCategory* of this connection.<br><br>If this attribute is set to a possible attribute other than ***derivedFromBBC***, the value of this attribute is used to override the provisioned BBC IE parameters. In those cases, the BBC attributes are not used.<br><br>The ***constantBitRate*** service category is intended for real time applications, that is, those requiring tightly constrained delay and delay variation such as for voice and video applications.<br><br>The ***rtVariableBitRate*** service category is intended for real time applications, that is, those requiring tightly constrained delay and delay variation, such as for voice and video applications. Sources are expected to transmit at a rate which varies with time. Equivalently, the source can be described as “bursty”. Cells, which are delayed beyond the value specified by CTD, are assumed to be of significantly reduced value to the application. The VBR real time service may support statistical multiplexing of real time sources.<br><br>The ***nrtVariableBitRate*** service category is intended for non-real time applications which have bursty traffic characteristics and can be characterized in terms of a PCR, SCR, and MBS. |

The ***unspecifiedBitRate*** service is intended for non-real time applications, that is, those not requiring tightly constrained delay and delay variation. UBR sources are expected to be bursty. The UBR service supports a high degree of statistical multiplexing among sources.

Values
unspecifiedBitRate (ubr)
constantBitRate (cbr)
rtVariableBitRate (rtvbr)
nrtVariableBitRate (nrtvbr)
derivedFromBBC (derived)

Default
unspecifiedBitRate

## ATTRIBUTE AtmIf Aini Ptt fwdQosClass (fwdQos)

Access
Read: All
Write: All

Criticality
Component

Description
This attribute specifies the quality of service for the forward direction for this connection.

Class ***1*** supports a QOS that will meet Service Class A performance requirements (circuit emulation, constant bit rate video).

Class ***2*** supports a QOS that will meet Service Class B performance requirements (variable bit rate audio and video).

Class ***3*** supports a QOS that will meet Service Class C performance requirements (connection-oriented data transfer).

Class ***4*** supports a QOS that will meet Service Class D performance requirements (connectionless data transfer).

Class ***0*** is the unspecified bit rate QOS class; no objective is specified for the performance parameters.

Values
0
1

| | |
|---|---|
| | 2<br>3<br>4 |
| Default | 0 |

### ATTRIBUTE AtmIf Aini Ptt bwdQosClass (bwdQos)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the quality of service for the backward direction for this connection.<br><br>Class ***1*** supports a QOS that will meet Service Class A performance requirements (circuit emulation, constant bit rate video).<br><br>Class ***2*** supports a QOS that will meet Service Class B performance requirements (variable bit rate audio and video).<br><br>Class ***3*** supports a QOS that will meet Service Class C performance requirements (connection-oriented data transfer).<br><br>Class ***4*** supports a QOS that will meet Service Class D performance requirements (connectionless data transfer).<br><br>Class ***0*** is the unspecified bit rate QOS class; no objective is specified for the performance parameters.<br><br>The ***sameAsFwd*** selection sets the backward quality of service to be the same as the forward quality of service. |
| Values | 0<br>1<br>2<br>3<br>4<br>sameAsFwd |
| Default | sameAsFwd |

## ATTRIBUTE AtmIf Aini Ptt bearerClassBbc (bcBbc)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the bearer capability. It is one of the Broadband Bearer Capability (BBC) attributes. The purpose of the BBC information element is to indicate a requested broadband connection-oriented bearer service to be provided by the network.<br><br>The value ***derivedFromServiceCategory*** specifies that the actual value, which is used for this connection and is derived from the value of the *atmServiceCategory*. Either this attribute must be set to ***derivedFromServiceCategory***, or the *atmServiceCategory* attribute must be set to ***derivedFromBBC***, but not both.<br><br>Class ***a*** service is a connection-oriented, constant bit rate ATM transport service. Class ***a*** service has end-to-end timing requirements and may require stringent cell loss, cell delay and cell delay variation performance.When ***a*** is set, the user is requesting more than an ATM only service. The network may look at the AAL to provide inter-working based on its contents.<br><br>Class ***c*** service is a connection-oriented, variable bit rate ATM transport service. Class ***c*** service has no end-to-end timing requirements. When ***c*** is set, the user is requesting more than an ATM only service. The network inter-working function may look at the AAL and provide service based on it.<br><br>Class ***x*** service is a connection-oriented ATM transport service where the AAL, *trafficType* (***vbr*** or ***cbr***), and timing requirements are user defined (that is, transparent to the network).When ***x*** is set, the user is requesting an ATM only service from the network. In this case, the network shall not process any higher layer protocols. |
| Values | a<br>c |

| | |
|---|---|
| | x<br>derivedFromServiceCategory |
| Default | derivedFromServiceCategory |

### ATTRIBUTE AtmIf Aini Ptt transferCapabilityBbc (tcBbc)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the transfer capability for this connection. UNI 3.0/3.1 traffic type and end-to-end timing parameters are mapped into this parameter as follows:<br><transferCapability: TrafficType, Timing><br>***0***: NoIndication, NoIndication<br>***1***: NoIndication, yes<br>***2***: NoIndication, no<br>***5***: CBR, yes<br>***8***: VBR, NoIndication<br>***9***: VBR, yes<br>***10***: VBR, no<br><br>***NotApplicable*** specifies that the user does not want to specify the transfer capability.<br><br>The CBR traffic type refers to the traffic offered on services such as a constant bit rate video service or a circuit emulation.<br><br>The VBR traffic type refers to the traffic offered on services such as packetized audio and video, or data.<br><br>The value ***NoIndication*** for traffic type is used if the user has not set the traffic type. This is also the case for end-to-end timing.<br><br>The value ***yes*** for end-to-end timing indicates that end-to-end timing is required.<br><br>The value ***no*** for end-to-end timing indicates that end-to-end timing is not required. |

The value ***derivedFromServiceCategory*** specifies that the actual value which is used for this connection and is derived from the value of the *atmServiceCategory.* Either, this attribute must be set to ***derivedFromServiceCategory*** or the *atmServiceCategory* attribute must be set to ***derivedFromBBC***, but not both.

Values
0
1
2
5
8
9
10
notApplicable
derivedFromServiceCategory

Default
derivedFromServiceCategory

## ATTRIBUTE AtmIf Aini Ptt clippingBbc (cBbc)

Access
Read: All
Write: All

Criticality
Component

Description
This attribute specifies the value for the clipping susceptibility parameter in the BBC IE. This attribute is only used for SPVC connections. It is one of the Broadband Bearer Capability attributes.

Clipping is an impairment where the first fraction of a second of information to be transferred is lost. It occurs after a call is answered and before an associated connection is switched through.

Values
no
yes

Default
no

## ATTRIBUTE AtmIf Aini Ptt bestEffort

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the value of the best effort parameter in the ATM Traffic Descriptor IE. It is one of the Broadband Bearer Capability attributes.<br><br>The value ***indicated*** implies that the quality of service for this connection is not guaranteed.<br><br>The value ***notIndicated*** implies that the quality of service for this connection is guaranteed.<br><br>The value ***derivedFromServiceCategory*** specifies that the actual value, which is used for this connection, is derived from the value of the *atmServiceCategory.* Either this attribute must be set to ***derivedFromServiceCategory*** or the *atmServiceCategory* attribute must be set to ***derivedFromBBC***, but not both. |
| Values | indicated<br>notIndicated<br>derivedFromServiceCategory (derived) |
| Default | derivedFromServiceCategory |

## ATTRIBUTE AtmIf Aini Ptt testCalledAddress

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the destination address of this test connection. |
| Values | String (20, Hex) |
| Default | No default |

### ATTRIBUTE AtmIf Aini Ptt testCalledVpiVci

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the called VPI.VCI values for this test connection on the destination interface. |
| Values | Integer Sequence (0..4095; 0..65535) |
| Default | No default |

### ATTRIBUTE AtmIf Aini Ptt testSpecifiedPath

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the path that will be used to get to the destination of this test connection. |
| Values | String (0..32, ASCII) |
| Default | No default |

### ATTRIBUTE AtmIf Aini Ptt bwdQosParameters (bqp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is a vector of three elements that specify the quality of service parameters for the backward direction for this connection. This attribute is used for SPVC connections.<br><br>The ***cdv*** element specifies the acceptable peak-to-peak cell delay variation (CDV) of real-time connections (CBR and rt-VBR).<br><br>It is signaled through the extended QoS information element.<br><br>The ***ctd*** specifies the acceptable maximum cell transfer delay (maxCtd) of real-time connections (CBR and rt-VBR). It is signaled through the end-to-end transit delay information element. |

The ***clr*** specifies the acceptable cell loss ratio (CLR) of CBR, rt-VBR, and nrt-VBR connections. It is signaled through the extended QoS information element.

Vector of: Decimal (0..2147483647)

Index:
cdv
ctd
clr

Default: (cdv: 16777215, ctd: 16777215, clr: 255)

## ATTRIBUTE AtmIf Aini Ptt fwdQosParameters (fqp)

Access: Read and write

Description: This attribute is a vector of three elements that specify the quality of service parameters for the forward direction for this connection. This attribute is used for SPVC connections.

The ***cdv*** element specifies the acceptable peak-to-peak cell delay variation (CDV) of the real-time connections (CBR and rt-VBR). It is signaled through the extended QoS information element.

The ***ctd*** specifies the acceptable maximum cell transfer delay (maxCtd) of the real-time connections (CBR and rt-VBR). It is signaled through the end-to-end transit delay information element.

The ***clr*** specifies the acceptable cell loss ratio (CLR) of CBR, rt-VBR, and nrt-VBR connections. It is signaled through the extended QoS information element.

Vector of: Decimal (0..2147483647)

Index:
cdv
ctd
clr

Default: (cdv: 16777215, ctd: 16777215, clr: 255)

## ATTRIBUTE AtmIf Aini Ptt txTrafficDescParm (txTdp)

Access
Read: All
Write: All

Description

This attribute is a vector of five traffic parameters whose meanings are defined by the *txTrafficDescType* attribute. The values of peak cell rate (PCR), sustained cell rate (SCR), minimum cell rate (MCR) and requested shaping rate are expressed in cells/second. THe maximum burst size (MBS) is expressed in cells. The cell delay variance tolerance (CDVT) is expressed in microseconds. The values of PCR, SCR, MBS, MCR and CDVT are used for the connection admission control (CAC). The value of the CDVT is only used for connections where the *atmServiceCategory* is ***constantBitRate***. For all other values of *atmServiceCategory*, the CDVT is ignored. The values of PCR, SCR, and the requested shaping rate are used to determine the actual shaping rate, where traffic shaping is enabled.

When *txTrafficDescType* is ***1*** or ***2***, all of the parameters must be set to zero.

When *txTrafficDescType* is ***3***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameter 1 must be non-zero. Parameters 2 and 3 must be zero.

When *txTrafficDescType* is ***4***, parameter 1 represents the PCR for CLP0+1 traffic with cell discard; parameter 2 represents the PCR for CLP equal to 0 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameter 1 must be greater than or equal to parameter 2. Parameters 1 and 2 must be non-zero. Parameter 3 must be zero.

When *txTrafficDescType* is ***5***, parameter 1 represents the PCR for CLP0+1 traffic with cell tagging; parameter 2 represents the PCR

for CLP equal to 0 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameter 1 must be greater than or equal to parameter 2. Parameters 1 and 2 must be non-zero. Parameter 3 must be zero.

When *txTrafficDescType* is ***6***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the SCR for CLP0+1 traffic; parameter 3 represents the MBS for CLP0+1 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameters 1, 2, and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2. Parameter 5 must either be zero (unused) or greater than or equal to parameter 2.

When *txTrafficDescType* is ***7***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the SCR for CLP equal to 0 with cell discard; parameter 3 represents the MBS for CLP equal to 0 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameters 1, 2, and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2. Parameter 5 must either be zero (unused) or greater than or equal to parameter 2.

When *txTrafficDescType* is ***8***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the SCR for CLP equal to 0 traffic with cell tagging; parameter 3 represents the MBS for CLP equal to 0 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameters 1, 2 and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2. Parameter 5 must either be zero (unused) or greater than or equal to parameter 2.

When *txTrafficDescType* is ***9***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the CDVT; parameter 3

represents the MCR; parameter 5 represents the requested shaping rate; and parameter 4 is not used and must be zero. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameter 1 must either be zero or be greater than or equal to parameter 3. Parameter 3 may be optionally zero. Parameter 5 must either be zero (unused) or greater than or equal to parameter 3.

Whenever it is valid for PCR to be specified, parameter 5 may also be used to specify a requested shaping rate. A non-zero value in parameter 5 overrides the value in parameter 1 and is used as the peak cell rate in the calculations of CAC and the shaping rate.

For *txTrafficDescType* ***3***, ***4***, ***5*** and ***9***, the transmit traffic should be shaped at the next rate less than the PCR.

For *txTrafficDescType* ***6***, ***7,*** and ***8***, the transmit traffic should be shaped at the highest available rate which is between PCR and SCR. However, if there is no available shaping rate between PCR and SCR, traffic should be shaped at the next rate above the PCR.

| | |
|---|---|
| Vector of | Decimal (0..2147483647) |
| Index | Decimal (1..5) |
| Default | ([5] 0) |

## ATTRIBUTE AtmIf Aini Ptt rxTrafficDescParm (rxTdp)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute is a vector of four traffic parameters whose meanings are defined by the *rxTrafficDescType* attribute. The values of the peak cell rate (PCR) and sustained cell rate (SCR) are expressed in<br>cells/second. The maximum burst size (MBS) is expressed in cells. The value of the cell delay variance tolerance (CDVT) is expressed in microseconds. The values of PCR, SCR, MBS and CDVT are used for the usage parameter control (UPC).<br><br>When *rxTrafficDescType* is ***1*** or ***2***, all of the parameters must be set to zero (unused). |

When *rxTrafficDescType* is ***3***, parameter 1 represents the PCR for CLP0+1 traffic. Parameter 1 must be non-zero. Parameters 2 and 3 must be set to zero (unused).

When *rxTrafficDescType* is ***4***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the PCR for CLP equal to 0 traffic with cell discard. Parameters 1 and 2 must be non-zero. Parameter 3 must be set to zero (unused). Parameter 1 must be greater than or equal to parameter 2.

When *rxTrafficDescType* is ***5***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the PCR for CLP equal to 0 traffic with cell tagging. Parameters 1 and 2 must be non-zero. Parameter 3 must be set to zero (unused). Parameter 1 must be greater than or equal to parameter 2.

When *rxTrafficDescType* is a ***6***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the SCR for CLP0+1 traffic; parameter 3 represents the MBS for CLP0+1 traffic. Parameters 1, 2, and 3 must be non-zero. Parameter 1 must be greater than or equal to Parameter 2.

When *rxTrafficDescType* is ***7***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the SCR for CLP equal to 0 traffic with cell discard; parameter 3 represents the MBS for CLP equal to 0 traffic. Parameters 1, 2 and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2.

When *rxTrafficDescType* is ***8***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the SCR for CLP equal to 0 traffic with cell tagging; parameter 3 represents the MBS for CLP equal to 0 traffic. Parameter 1, 2, and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2.

When *rxTrafficDescType* is ***9***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the CDVT; parameter 3 represents the MCR. Parameter 4 is not used and must be zero. Parameter 1 must either be zero or be greater than or equal to parameter 3. Parameter 3 may optionally be zero.

When *rxTrafficDescType* is any value from ***3*** through ***8***, parameter 4 represents the CDVT. If this value is zero, the CDVT is taken from the *ConnectionAdministrator* defaults for the particular *atmServiceCategory* of this connection.

When *rxTrafficDescriptorType* is ***3*** through ***9***, there are certain extreme combinations of *rxTrafficDescParm* which are outside the capabilities of the UPC hardware.

To calculate the limits, use the following formulae:
I1 = 1 000 000 000 / PCR
L1 = CDVT * 1000
I2 = 1 000 000 000 / SCR
L2 = CDVT + (MBS - 1) * (I2 - I1)
I1 and I2 must be less than or equal to 335 523 840. I1 + L1 must be less than or equal to 1 342 156 800. I2 + L2 must be less than or equal to 1 342 156 800. Note that I2 and L2 only apply when the *rxTrafficDescriptorType* is ***6*** through ***8***.

If the values of I1, L1, I2, or L2 are closer to the limits described above, a further restriction applies. Specifically, if either:
I1 > 41 940 480 or
I2 > 41 940 480 or
I1 + L1 > 167 769 600 or
I2 + L2 > 167 769 600
then both I1 and I2 must be greater than 20 480.

Parameter 5 of the *rxTrafficDescParm* is always unused.

If the *rxTrafficDescType* is ***sameAsTx***, the values in this attribute are taken from the *txTrafficDescParm*.

| | |
|---|---|
| Vector of | Decimal (0..2147483647) |
| Index | Decimal (1..5) |
| Default | ([5] 0) |

## COMPONENT AtmIf Aini ServiceTrace (SrvTrace)

| | |
|---|---|
| Groups | "GROUP AtmIf Aini SrvTrace Operational" |
| Scope | Application |

Description

*AtmIf/n [Vpt/m] Uni ServiceTrace*
*AtmIf/n [Vpt/m] Iisp ServiceTrace*
*AtmIf/n [Vpt/m] Pnni ServiceTrace*
*AtmIf/n [Vpt/m] Aini ServiceTrace*
The *ServiceTrace* component of the ATM service determines if the trace capability is allowed on this service. If it is not provisioned, then a service trace session cannot be started on this service.

Currently, the ATM Trace features only support ***frAtmTraceRcvr*** and ***atmTraceRcvr*** features, if the name of a X25 or FR receiver is set to the *receiver* attribute of this component, the *Start* command responses with a “Receiver Not Supported” message.

Common Verbs

Help
List
Display
Add
DELete

## VERB Start AtmIf Aini SrvTrace

Impact

Service

Description

*Start AtmIf/n [Vpt/m] Uni ServiceTrace*
*Start AtmIf/n [Vpt/m] Iisp ServiceTrace*
*Start AtmIf/n [Vpt/m] Pnni ServiceTrace*
*Start AtmIf/n [Vpt/m] Aini ServiceTrace*
This command starts a service trace session.

## VERB Stop AtmIf Aini SrvTrace

Impact

Service

Description

*Stop AtmIf/n [Vpt/m] Uni ServiceTrace*
*Stop AtmIf/n [Vpt/m] Iisp ServiceTrace*
*Stop AtmIf/n [Vpt/m] Pnni ServiceTrace*
*Stop AtmIf/n [Vpt/m] Aini ServiceTrace*
This command stops a service trace session.

## GROUP AtmIf Aini SrvTrace Operational

Properties

Operational

| | |
|---|---|
| Description | This group provides the operational attributes for the *SrvTrace* component. |

### ATTRIBUTE AtmIf Aini SrvTrace receiverName (rcvr)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute should be set to the name of the desired trace receiver before starting a trace session. All available trace receivers are listed under the *SrvTrace Rcvr* component. This attribute cannot be set while the service trace is active. The receiver name is validated by the trace manager when the service *SrvTrace* is started. |
| Values | String (0..8, ASCII) |
| Default | No default |

### ATTRIBUTE AtmIf Aini SrvTrace duration

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the duration, in minutes, of a trace session. A value of ***0*** indicates unlimited duration in which case a trace session remains active until a *Stop* command is issued. This attribute cannot be set while a trace is active. |
| Values | Decimal (0..9999) |
| Units | minutes |
| Default | 60 |

### ATTRIBUTE AtmIf Aini SrvTrace queueLimit

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the total number of bytes of traced data which may be queued for transmission to the trace receiver. When this limit is exceeded, incoming traced frames are discarded. This attribute can be set while a trace is active and takes effect immediately. |
| Values | Decimal (1..100) |
| Units | Kbyte |

| | |
|---|---|
| Default | 20 |

### ATTRIBUTE AtmIf Aini SrvTrace session

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the *SrvTrace Session* component that is forwarding the trace data. This attribute is set automatically, and is empty unless the service trace is active. |
| Values | The name of the component |
| Default | No default |

### COMPONENT AtmIf Aini Reroute

| | |
|---|---|
| Groups | "GROUP AtmIf Aini Reroute LocalOperational (LOper)"<br>"GROUP AtmIf Aini Reroute GlobalOperational (GOper)"<br>"GROUP AtmIf Aini Reroute Statistics (Stats)" |
| Scope | Device |
| Description | *AtmIf/n Iisp Reroute*<br>*AtmIf/n Aini Reroute*<br>*AtmIf/n Uni Reroute*<br>*AtmIf/n Vpt/vpi Iisp Reroute*<br>*AtmIf/n Vpt/vpi Aini Reroute*<br>*AtmIf/n Vpt/vpi Uni Reroute*<br><br>This component represents the rerouting capabilities of the ATM Signaling interface. If this component is provisioned, the *Artg Pnni* component must already exist. The addition or deletion of this component, or changes to its provisionable attributes, does not affect existing connections. |
| Subcomponents | "COMPONENT AtmIf Aini Reroute Ov" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## VERB OPTIMIZE AtmIf Aini Reroute

| | |
|---|---|
| Impact | Service |
| Description | *Optimize [-all] AtmIf/n Uni outeouteouteouteouteoute*sBy default, only connection segsforation. The best known optimization metric value for the connection segment is indicated by the *localOptimalMetricValue* attribute under the *RerouteInfo* component for the connection.<br>The *-all* option causes all connection segments subscribed to path optimization to be considered.s |

## GROUP AtmIf Aini Reroute LocalOperational (LOper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes that indicate the local rerouting activities at the interface level. |

## ATTRIBUTE AtmIf Aini Reroute localSubscribedConnections (lsub)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the connection segments that are subscribed to one or more local rerouting capabilities. Note that a given connection segment is subscribed to either local rerouting capabilities capabilities, not both. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## ATTRIBUTE AtmIf Aini Reroute localEligibleRecoveredCon (lerc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the connection segments that have been recovered using local rerouting and are eligible for local path optimization. The value decreases as counted connections are released. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Aini Reroute localIneligibleRecoveredCon (lirc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the connection segments that have been recovered by local rerouting but are not eligible for local path optimization. The value decreases as counted connections are released. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Aini Reroute localLastRrCauseCode (lrrcc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the value of the last local rerouting cause code received at this interface. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE AtmIf Aini Reroute localPathsOptimized (lPathsOpt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the paths that were successfully optimized by local rerouting or EBR during the last optimization pass at this interface. Successfully optimized paths are paths that switched to a better route. The value is reset to zero at the beginning of each optimization pass. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP AtmIf Aini Reroute GlobalOperational (GOper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes that indicate the global and EBR rerouting activities at the interface level. |

### ATTRIBUTE AtmIf Aini Reroute globalSubscribedConnections (gsub)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the connection segments that are subscribed to one or more global and EBR rerouting capabilities. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Aini Reroute globalEligibleRecoveredCon (gerc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the connections that have been recovered by global and EBR rerouting and are eligible for global or EBR path optimization. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Aini Reroute globalIneligibleRecoveredCon (girc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the connections that have been recovered by global and EBR rerouting but are not eligible for global or EBR path optimization. The value decreases as counted connections are released. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Aini Reroute globalLastRrCauseCode (grrcc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the value of the last global or EBR rerouting cause code received at this interface. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE AtmIf Aini Reroute globalPathsOptimized (gPathsOpt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the paths that were successfully optimized by global and EBR rerouting during the last optimization pass at this interface. Successfully optimized paths are paths that switched to a better route. The value is reset to zero at the beginning of each optimization pass. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP AtmIf Aini Reroute Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the rerouting statistics for the interface. |

### ATTRIBUTE AtmIf Aini Reroute totalLocalConnectionRecoveries (tLConRec)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts successful local connection recovery attempts. The counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Aini Reroute totalLocalFailedRecoveries (lFailedRec)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts failed local connection recovery attempts. A connection recovery attempt fails if a rerouting connection segment can not be established. The counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Aini Reroute totalLocalPathOptimizations (tLPathOpt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts successful local path optimization attempts. A successful path optimization attempt results in a switch to a better route. The counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Aini Reroute totalGlobalConnectionRecoveries (tGConRec)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts successful global and EBR connection recovery attempts. The counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Aini Reroute totalGlobalFailedRecoveries (gFailedRec)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts failed global and EBR connection recovery attempts. A connection recovery attempt fails if a rerouting connection segment cannot be established. The counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Aini Reroute totalGlobalPathOptimizations (tGPathOpt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts successful global and EBR path optimization attempts. A successful path optimization attempt results in a switch to a better route. The counter wraps to zero when the maximum value is exceeded. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Aini Reroute totalOptimizationPasses (optPass)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts optimization passes at the interface. Both module and interface optimization passes are counted. The counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT AtmIf Aini Reroute Ov

| | |
|---|---|
| Groups | "GROUP AtmIf Aini Reroute Ov Provisioned (Prov)"<br>"GROUP AtmIf Aini Reroute Ov LocalProvisioned (LProv)"<br>"GROUP AtmIf Aini Reroute Ov GlobalProvisioned (GProv)" |
| Scope | Device |
| Description | *AtmIf/n Iisp Reroute Ov*<br>*AtmIf/n Aini Reroute Ov*<br>*AtmIf/n Uni Reroute Ov*<br>*AtmIf/n Vpt/vpi Iisp Reroute Ov*<br>*AtmIf/n Vpt/vpi Aini Reroute Ov*<br>*AtmIf/n Vpt/vpi Uni Reroute Ov*<br><br>This component represents the provisioning capabilities of the rerouting functionality for the ATM Signaling interface. |
| Common Verbs | Help<br>List<br>Display |

### GROUP AtmIf Aini Reroute Ov Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the common provisionable attributes for rerouting capabilities at the ATM signaling interface. |

## ATTRIBUTE AtmIf Aini Reroute Ov protocol

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the rerouting protocols which are requested by connection segments on the interface, for which this node is the first rerouting node. This attribute has no effect on connection segments for which this node is not the first rerouting node. A subset of the requested protocols is granted by the last rendezvous node, according to its software level and provisioning.<br><br>One of the following values can be specified:<br>***sameAsARtgPnniReroute***: The requested rerouting protocols are specified by the *Artg Pnni Reroute protocol* attribute.<br>***localGlobal***: Local and global rerouting protocols are requested. Local and global rerouting are granted if the DTL terminator is provisioned with the Rerouting feature.<br>***localOnly***: Local rerouting is requested. This value guarantees interoperability with other vendors' equipment running the ATM Forum "Domain Based Rerouting" protocol. Local rerouting is granted if the DTL terminator is provisioned with the Rerouting feature.<br>***globalOnly***: Global rerouting is requested. Global rerouting is granted if the DTL terminator is provisioned with the Rerouting feature.<br>***localEbr*:** Local and EBR rerouting protocols are requested. Local rerouting is granted if the DTL terminator is provisioned with the Rerouting feature. Alternatively, EBR is granted if the DTL terminator is provisioned with the EBR feature.<br>***ebrOnly***: EBR is requested. EBR is granted if the DTL terminator is provisioned with the EBR feature. |
| Values | localGlobal<br>localOnly<br>globalOnly<br>localEbr<br>ebrOnly<br>sameAsARtgPnniReroute (sameAs) |
| Default | sameAsARtgPnniReroute |

## ATTRIBUTE AtmIf Aini Reroute Ov numOptAttempts

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the number of path optimizations attempted before declaring a recovered connection segment to be optimally routed. Following a connection recovery, each manual and automatic path optimization will attempt to optimize the connection segment. When a path is found with a better optimization metric than the best known value, or the number of optimization attempts is exhausted, the current optimization metric is declared to be the new optimal metric for the connection segment. Subsequent path optimizations will not attempt to optimize the connection segment unless all subscribed connection segments are eligible for path optimization.<br><br>If the value is set to ***0***, the optimization metric of a connection segment following connection recovery is declared to be the new optimal metric, and no connection recovery alarm is issued. A subsequent path optimization will not attempt to optimize the connection segment unless all subscribed connection segments are eligible for path optimization.<br><br>If the value is set to ***sameAsARtgPnniReroute***, the value of the *ARtg Pnni Reroute numOptAttempts* attribute is used. |
| Values | Decimal (0..15)<br>sameAsARtgPnniReroute (sameAs) |
| Default | sameAs |

## ATTRIBUTE AtmIf Aini Reroute Ov moduleOptimizationConnections

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies which connection segments on the interface will be considered by a module optimization pass as controlled by the *ARtg Pnni Reroute* component.<br><br>One of the following values can be specified:<br>***sameAsARtgPnniReroute***: The connection segments to be considered by a module optimization pass are specified by the *Artg Pnni Reroute moduleOptimization* attribute. |

***none***: No connection segments are considered for path optimization.
***recoveredOnly***: Only connection segments which are foration. The best known optimization metric value for the connection segment is indicated by the *localOptimalMetricValue* attribute under the *RerouteInfo* component for the connection
***allSubscribed***: All connection segments subscribed to path optimization are considered.

Values
none
recoveredOnly
allSubscribed
sameAsARtgPnniReroute (sameAs)

Default
sameAsARtgPnniReroute

## ATTRIBUTE AtmIf Aini Reroute Ov switchoverMechanism

Access
Read and write

Description
This attribute specifies the mechanism used for switchover of a rerouted connection segment.

One of the following values can be specified:
***sameAsARtgPnniReroute***: The switchover mechanism is specified by the *ARtg Pnni Reroute switchoverMechanism* attribute.
***standard***: The mechanism described in the ATM Forum “Domain based Rerouting” specification is used for switchover. This value ensures interoperability with other vendors’ equipment running ATM Forum “Domain based Rerouting”.
***rcl***: The Reduced Cell Loss mechanism is used for switchover. RCL is a value-added Passport extension to the standard mechanism that allows faster switchover time.

Values
standard
rcl
sameAsARtgPnniReroute (sameAs)

Default
sameAsARtgPnniReroute

## GROUP AtmIf Aini Reroute Ov LocalProvisioned (LProv)

Properties
Provisioned

Description — This group contains the provisionable attributes for EBR and local rerouting protocols.

## ATTRIBUTE AtmIf Aini Reroute Ov localConnectionRecoverySubscr (lConRec)

Access — Read and write

Description — This attribute specifies which connection segments on the interface request subscription to local connection recovery. This attribute only affects connection segments that request the local rerouting protocols. This attribute affects connection segments for a node that is either local domain rerouting node or a DTL originator.

Connection segments of the specified type(s) which request ***localGlobal*** or ***localOnly*** protocols request subscription to local connection recovery.

Connection segments of the specified type(s) which request ***localEbr*** request subscription to both local connection recovery and EBR connection recovery. Only one will be granted.

One or more of the following values can be specified:
***sameAsARtgPnniReroute:*** If this value is set, the local connection recovery subscription rule is determined by the *ARtg Pnni Reroute localConnectionRecoverySubscr* attribute. This value takes precedence over any other values.
***svcSvp***: If this value is set, all SVC and SVP connection segments request subscription to local connection recovery.
***sourceSpvcSpvp***: If this value is set, all source SPVC and SPVP connection segments request subscription to local connection recovery.
***transitSpvcSpvp***: If this value is set, all transit SPVC and SPVP connection segments request subscription to local connection recovery.

Set of — sameAsARtgPnniReroute (sameAs)
svc
sourceSpvcSpvp (source)
transitSpvcSpvp (transit)

Default — (sameAsARtgPnniReroute)

## ATTRIBUTE AtmIf Aini Reroute Ov localPathOptimizationSubscr (lPathOpt)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies which connection segments on the interface request subscription to local path optimization. This attribute only affects connection segments that request the local rerouting protocols. This attribute affects connection segments for a node that is either local domain rerouting node or a DTL originator.<br><br>Connection segments of the specified type(s) which request ***localGlobal*** or ***localOnly*** protocols request subscription to local path optimization.<br><br>Connection segments of the specified type(s) which request ***localEbr*** request subscription to both local path optimization and EBR path optimization. Only one will be granted.<br><br>One or more of the following values can be specified:<br>***sameAsARtgPnniReroute***: If this value is set, the local path optimization subscription rule is determined by the *ARtg Pnni Reroute localPathOptimizationSubscr* attribute. This setting takes precedence over the any other values.<br>***svcSvp***: If this value is set, then all SVC and SVP connection segments request subscription to local path optimization.<br>***sourceSpvcSpvp***: If this value is set, then all source SPVC and SPVP connection segments request subscription to local path optimization.<br>***transitSpvcSpvp***: If this value is set, then all transit SPVC and SPVP connection segments request subscription to local path optimization. |
| Set of | sameAsARtgPnniReroute (sameAs)<br>svc<br>sourceSpvcSpvp (source)<br>transitSpvcSpvp (transit) |
| Default | (sameAsARtgPnniReroute) |

## GROUP AtmIf Aini Reroute Ov GlobalProvisioned (GProv)

| | |
|---|---|
| Properties | Provisioned |

Description This group contains the provisionable attributes for the global and EBR rerouting protocol.

## ATTRIBUTE AtmIf Aini Reroute Ov globalConnectionRecoverySubscr (gConRec)

Access Read and write

Description This attribute specifies which connection segments on the interface request subscription to global or EBR connection recovery. This attribute only affects connection segments that request the global or EBR rerouting protocols. This attribute affects connection segments for a node that is a DTL originator.

Connection segments of the specified type(s) which request ***localGlobal*** or ***globalOnly*** protocols request subscription to global connection recovery.

Connection segments of the specified type(s) which request ***ebrOnly*** request subscription to EBR connection recovery.

Connection segments of the specified type(s) which request ***localEbr*** request subscription to both local connection recovery and EBR connection recovery. Only one will be granted.

One or more of the following values can be specified:
***sameAsARtgPnniReroute***: If this value is set, the global or EBR connection recovery subscription rule is determined by the *ARtg Pnni Reroute globalConnectionRecoverySubscr* attribute.This setting takes precedence over any other values.
***svcSvp***: If this value is set, then all SVC and SVP connection segments request subscription to global or EBR connection recovery.
***sourceSpvcSpvp***: If this value is set, then all source SPVC and SPVP connection segments request subscription to global or EBR connection recovery.
***transitSpvcSpvp***: If this value is set, then all transit SPVC and SPVP connection segments request subscription to global or EBR connection recovery.

| | |
|---|---|
| Set of | sameAsARtgPnniReroute (sameAs)<br>svc<br>sourceSpvcSpvp (source)<br>transitSpvcSpvp (transit) |
| Default | (sameAsARtgPnniReroute) |

### ATTRIBUTE AtmIf Aini Reroute Ov globalPathOptimizationSubscr (gPathOpt)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies which connection segments on the interface request subscription to global or EBR path optimization. This attribute only affects connection segments that request the global or EBR rerouting protocols. This attribute affects connection segments for a node that is a DTL originator.<br><br>Connection segments of the specified type(s) which request ***localGlobal*** or ***globalOnly*** protocols request subscription to global path optimization.<br><br>Connection segments of the specified type(s) which request ***ebrOnly*** request subscription to EBR path optimization.<br><br>Connection segments of the specified type(s) which request ***localEbr*** request subscription to both local path optimization and EBR path optimization. Only one will be granted.<br><br>One or more of the following values can be specified:<br>***sameAsARtgPnniReroute***: If this value is set, the global or EBR path optimization subscription rule is determined by the *ARtg Pnni Reroute globalPathOptimizationSubscr* attribute. This setting takes precedence over any other values.<br>***svcSvp***: If this value is set, then all SVC and SVP connection segments request subscription to global or EBR path optimization.<br>***sourceSpvcSpvp***: If this value is set, then all source SPVC and SPVP connection segments request subscription to global or EBR path optimization.<br>***transitSpvcSpvp***: If this value is set, then all transit SPVC and |

| | |
|---|---|
| | SPVP connection segments request subscription to global or EBR path optimization. |
| Set of | sameAsARtgPnniReroute (sameAs)<br>svc<br>sourceSpvcSpvp (source)<br>transitSpvcSpvp (transit) |
| Default | (sameAsARtgPnniReroute) |

## COMPONENT AtmIf Pnni

| | |
|---|---|
| Groups | "GROUP AtmIf Pnni Provisioned (Prov)"<br>"GROUP AtmIf Pnni AdminWeights"<br>"GROUP AtmIf Pnni AccountingOptions (AcctOpt)"<br>"GROUP AtmIf Pnni Operational"<br>"GROUP AtmIf Pnni Threshold"<br>"GROUP AtmIf Pnni TraceProv (Trace)" |
| Scope | Device |
| Description | *AtmIf/n Pnni*<br>This component represents an ATM Private Network-Network Interface (PNNI) interface. If this component is provisioned, the *Uni*, *Aini*, or *Iisp c*omponent cannot be provisioned under the same *AtmIf* component. Also, the *Artg Pnni* component and the *ConfiguredNode* component corresponding to the participation of the this node in a lowest level peer group must already exist before provisioning *Pnni* under an *AtmIf* component. If this component is deleted, then all associated Vcc components are deleted. |

| | |
|---|---|
| Subcomponents | "COMPONENT AtmIf Pnni Signalling (Sig)"<br>"COMPONENT AtmIf Pnni RoutingControlChannel (Rcc)" |
| Opt. Subcomp. | "COMPONENT AtmIf Pnni PathTraceFilter (Ptf)"<br>"COMPONENT AtmIf Pnni ServiceTrace (SrvTrace)" |
| Dyn. Subcomp. | "COMPONENT AtmIf Pnni PathTraceTestConnection (Ptt)" |
| Dyn. Subcomp. | "COMPONENT AtmIf Pnni Address (Addr)"<br>"COMPONENT AtmIf Pnni Reroute" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP AtmIf Pnni Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the Pnni component. |

## ATTRIBUTE AtmIf Pnni softPvpAndPvcRetryPeriod

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute represents the time in seconds to wait between soft PVP or soft PVC call setup retries. The resolution is to the nearest 10 seconds. |
| Values | Decimal (20..999999) |
| Units | seconds |
| Default | 60 |

### ATTRIBUTE AtmIf Pnni softPvpAndPvcHoldOffTime (sHoldOffTime)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies how long to hold off retries following the release of a connection. Due to the way group timers are implemented, it can take from 100% to 150% of the provisioned timer to trigger the desired action. Since SPVC retries are paced, in cases where there are many connections, the entire process can take more than 150% of the provisioned timer value. |
| Values | Decimal (0; 50..20000) |
| Units | msec |
| Default | 0 |

### GROUP AtmIf Pnni AdminWeights

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable administrative weights for the *Pnni* component. These weights will be used by Generic Connection Admission Control (GCAC) if administrative weight is the selected optimization criterion. |

### ATTRIBUTE AtmIf Pnni cbrWeight (cbrWt)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the administrative weight assigned for setting up switched calls with a service category of Constant Bit Rate (CBR) for this PNNI interface. The value specified will be used by Generic Connection Admission Control (GCAC) if administrative weight is the selected optimization criterion; the higher the value, the less desirable the link will be in path selection. |
| Values | Decimal (1..16777215) |
| Default | 5040 |

### ATTRIBUTE AtmIf Pnni rtVbrWeight (rtVbrWt)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the administrative weight assigned for setting up switched calls with a service category of Real-Time Variable Bit Rate (RT-VBR) for this PNNI interface. The value specified will be used by Generic Connection Admission Control (GCAC) if administrative weight is the selected optimization criterion; the higher the value, the less desirable the link will be in path selection. |
| Values | Decimal (1..16777215) |
| Default | 5040 |

### ATTRIBUTE AtmIf Pnni nrtVbrWeight (nrtVbrWt)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the administrative weight assigned for setting up switched calls with a service category of Non Real-Time Variable Bit Rate (NRT-VBR) for this PNNI interface. The value specified will be used by Generic Connection Admission Control (GCAC) if administrative weight is the selected optimization criterion; the higher the value, the less desirable the link will be in path selection. |
| Values | Decimal (1..16777215) |
| Default | 5040 |

### ATTRIBUTE AtmIf Pnni ubrWeight (ubrWt)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the administrative weight assigned for setting up switched calls with a service category of Unspecified Bit Rate (UBR) for this PNNI interface. The value specified will be used by Generic Connection Admission Control (GCAC) if administrative weight is the selected optimization criterion; the |

| | |
|---|---|
| | higher the value, the less desirable the link will be in path selection. |
| Values | Decimal (1..16777215) |
| Default | 5040 |

### GROUP AtmIf Pnni AccountingOptions (AcctOpt)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for accounting. |

### ATTRIBUTE AtmIf Pnni accountCollection (aco)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute is used to turn accounting on or off for SVC and SPVC connections. It also specifies the reason(s) for which accounting data is collected: ***billing***, ***test***, ***study***, ***audit***, or ***force***.<br><br>If the set of reasons is not empty then accounting records will be generated by this interface in the following situations:<br>- on a TODA changeover if TODA is enabled;<br>- every 12 hours (per connection) if TODA is disabled;<br>- on every call clear (a call record with final cell counts).<br><br>If none of the reasons is present, then accounting will be suppressed.<br><br>The reason for collection is recorded in the accounting record, in the attribute *callingCollectReason* or *calledCollectReason* as appropriate. |
| Set of | bill<br>test<br>study<br>audit<br>force |
| Default | No default |

### ATTRIBUTE AtmIf Pnni accountConnectionType (act)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies whether accounting records generated by this interface should be marked as originating, terminating or intermediate. This attribute, in combination with the direction of the call, determines the value of attribute *connPointType* of the accounting record and may be used by downstream accounting processes to correlate the records.<br><br>If the value is ***origTerm*** then records generated for incoming calls will be marked as ***originating*** and records generated for outgoing calls will be marked as ***terminating***.<br><br>If the value is ***intermediate*** then records generated for all calls will be marked as ***intermediate***. |
| Values | origTerm<br>intermediate |
| Default | intermediate |

### ATTRIBUTE AtmIf Pnni accountClass (acl)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the accounting class associated with the interface. Its meaning is determined by the network operator.<br><br>Its value is simply recorded in the accounting records generated by this interface, in the attribute *callingServiceType* or *calledServiceType* as appropriate. |
| Values | Decimal (0..255) |
| Default | 0 |

### ATTRIBUTE AtmIf Pnni serviceExchange (sre)

| | |
|---|---|
| Access | Read: All<br>Write: All |

| | |
|---|---|
| Description | This attribute specifies the data service exchange associated with this interface. Its meaning is determined by the network operator.<br><br>Its value is simply recorded in the accounting records generated by this interface, in the attribute *callingDse* or *calledDse* as appropriate. |
| Values | Decimal (0..255) |
| Default | 0 |

### GROUP AtmIf Pnni Operational

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for a *Pnni* component. |

### ATTRIBUTE AtmIf Pnni portId

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the port id of the PNNI interface, which is the parent *AtmIf*'s instance number. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP AtmIf Pnni Threshold

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the change threshold for the *Atmif Pnni* component. |

### ATTRIBUTE AtmIf Pnni avcrMt

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute, multiplied by the Maximum Cell Rate, specifies the minimum threshold used in the algorithms that determine significant change for average cell rate parameters for this |

interface. If the value of this attribute is ***sameAsPnni***, then the actual value is taken from *ARtg Pnni avcrMt*.

Values
Decimal (1..99)
sameAsPnni

Units
%

Default
sameAsPnni

### ATTRIBUTE AtmIf Pnni avcrPm

Access
Read: All
Write: All

Description
This attribute multiplied by the current Available Cell Rate (AvCr) specifies the threshold used in the algorithms that determine significant change for AvCR parameters for this interface. If the resulting threshold is lower than the AvCr, the minimum threshold (*Atmif pnni avcrMt*) is used.

Increasing the value of the attribute increases the range of insignificance and reduces the amount of PTSP flooding due to changes in resource availability. If the value of this attribute is ***sameAsPnni***, then the actual value is taken from *ARtg Pnni avcrPm*.

Values
Decimal (1..99)
sameAsPnni

Units
%

Default
sameAsPnni

### GROUP AtmIf Pnni TraceProv (Trace)

Properties
Provisioned

Description
This group contains the provisionable trace attributes for the Pnni component.

### ATTRIBUTE AtmIf Pnni traceDestination (tDst)

Access
Read: All
Write: All

| | |
|---|---|
| Description | This attribute specifies if this node is a trace destination. A PNNI interface may be a trace destination interface. By default, it's not. If an operator wants to trace only until this PNNI interface, this interface can be set to trace destination by setting this attribute. |
| Values | no<br>yes |
| Default | no |

## COMPONENT AtmIf Pnni Signalling (Sig)

| | |
|---|---|
| Groups | "GROUP AtmIf Pnni Sig Provisioned (Prov)"<br>"GROUP AtmIf Pnni Sig OsiState (State)"<br>"GROUP AtmIf Pnni Sig Operational (Oper)"<br>"GROUP AtmIf Pnni Sig Statistics (Stats)" |
| Scope | Device |
| Description | *AtmIf/n Aini Signalling*<br>*AtmIf/n Iisp Signalling*<br>*AtmIf/n Uni Signalling*<br>*AtmIf/n Pnni Signalling*<br>*AtmIf/n Vpt/m Aini Signalling*<br>*AtmIf/n Vpt/m Iisp Signalling*<br>*AtmIf/n Vpt/m Uni Signalling*<br>*AtmIf/n Vpt/m Pnni Signalling*<br><br>This component represents the signaling entities for the interface. |
| Opt. Subcomp. | "COMPONENT AtmIf Pnni Sig VirtualChannelDescriptor (Vcd)" |
| Common Verbs | Help<br>List<br>Display |

## GROUP AtmIf Pnni Sig Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This attribute group contains the provisionable attributes for the *Signalling* component. |

### ATTRIBUTE AtmIf Pnni Sig vci

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the signaling channel number. |
| Values | Decimal (0..65535) |
| Default | 5 |

### ATTRIBUTE AtmIf Pnni Sig addressConversion

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the address conversion on the outgoing signaling PDUs. The options are ***none***, ***nativeE164***, or ***nsap***. The ***none*** option is the default and if this option is chosen then nothing is done to the address information element (IE) in the outgoing signaling message. If ***nativeE164*** option is chosen, then only NSAP encapsulated E.164 addresses with zeros in the ESI are converted to native E.164 format in the outgoing signaling message. If the NSAP address is not encapsulated E.164 or the ESI field is not zeros and the ***nativeE164*** option is chosen, then the call is cleared. If the ***nsap*** option is chosen, then native E.164 addresses are converted to NSAP E.164 with zeros in the ESI field; otherwise the address is in NSAP format and is not changed. |
| Values | none<br>nativeE164<br>nsap |
| Default | none |

### ATTRIBUTE AtmIf Pnni Sig operatingMode

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the operating mode of the signaling channel ***provisionedOnly*** indicates that only SPVCs and SPVPs |

are supported on the interface and SVCs are not supported. This value is permitted only on UNI interfaces.
***normal*** indicates that SVCs, SPVCs, and SPVPs are supported on the interface.

Values: normal
provisionedOnly

Default: normal

## GROUP AtmIf Pnni Sig OsiState (State)

Properties: Operational

Description: This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

## ATTRIBUTE AtmIf Pnni Sig adminState (osiAdmin)

Access: Read only

Description: This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

| | |
|---|---|
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE AtmIf Pnni Sig operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE AtmIf Pnni Sig usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |

| | |
|---|---|
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

## GROUP AtmIf Pnni Sig Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute contains the operational attributes for the AtmSignalling component. |

## ATTRIBUTE AtmIf Pnni Sig lastTxCauseCode

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the cause code in the last transmitted signaling message that contains the CAUSE information element. The cause code is used to describe the reason for generating certain signaling messages. |
| Values | Decimal (0..255) |
| Default | No default |

## ATTRIBUTE AtmIf Pnni Sig lastTxDiagCode

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute contains the diagnostic code in the last transmitted signaling message. The diagnostic code is contained in the CAUSE information element and identifies an information element type or timer type. The diagnostic code is present only if a procedural error is detected by the signaling protocol. A diagnostic code is always accompanied by the cause code. If there is no failure, this attribute is set to 0. |
| Values | Hex (H.0..H.ff) |
| Default | No default |

### ATTRIBUTE AtmIf Pnni Sig lastRxCauseCode

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute contains the cause code in the last received signaling message that contains the CAUSE information element. The cause code is used to describe the reason for generating certain signaling messages. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE AtmIf Pnni Sig lastRxDiagCode

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute contains the diagnostic code in the last received signaling message. The diagnostic code is contained in the CAUSE information element and identifies an information element type or timer type. The diagnostic code is present only if a procedural error is detected by the signaling protocol. A diagnostic code is always accompanied by the cause code. If there is no failure, this attribute is set to 0. |
| Values | Hex (H.0..H.ff) |
| Default | No default |

### GROUP AtmIf Pnni Sig Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains the statistics associated with the AtmSignalling component. |

### ATTRIBUTE AtmIf Pnni Sig peakConnections

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the high water mark of active point-to-point connections. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Pnni Sig successfulConnections

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of switched point-to-point connections that were successfully established. The counter wraps to 0 when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Pnni Sig failedConnections

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of unsuccessful attempts to establish switched point-to-point connections. The counter wraps to 0 when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Pnni Sig txPdus

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of transmitted signaling PDUs.The counter wraps to 0 when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Pnni Sig rxPdus

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the number of received signaling PDUs.The counter wraps to 0 when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Pnni Sig currentPmpConnections

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of currently active point-to-multipoint connections. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Pnni Sig peakPmpConnections

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the high water mark of active point-to-multipoint connections. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Pnni Sig successfulPmpConnections

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of switched point-to-multipoint connections that were successfully established. The counter wraps to 0 when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## ATTRIBUTE AtmIf Pnni Sig failedPmpConnections

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of unsuccessful attempts to establish switched point-to-multipoint connections. The counter wraps to 0 when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## ATTRIBUTE AtmIf Pnni Sig currentConnections

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the total number of currently active point-to-<br>point connections. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## COMPONENT AtmIf Pnni Sig VirtualChannelDescriptor (Vcd)

| | |
|---|---|
| Groups | "GROUP AtmIf Pnni Sig Vcd Provisioned (Prov)" |
| Scope | Device |
| Description | *AtmIf/n Uni Sig VirtualChannelDescriptor*<br>*AtmIf/n Uni Ilmi VirtualChannelDescriptor*<br>*AtmIf/n Aini Sig VirtualChannelDescriptor*<br>*AtmIf/n Iisp Sig VirtualChannelDescriptor*<br>*AtmIf/n Pnni Sig VirtualChannelDescriptor*<br>*AtmIf/n Pnni Rcc VirtualChannelDescriptor*<br>*AtmIf/n Vpt/m Uni Sig VirtualChannelDescriptor*<br>*AtmIf/n Vpt/m Aini Sig VirtualChannelDescriptor*<br>*AtmIf/n Vpt/m Iisp Sig VirtualChannelDescriptor*<br>*AtmIf/n Vpt/m Pnni Sig VirtualChannelDescriptor*<br>*AtmIf/n Vpt/m Pnni Rcc VirtualChannelDescriptor*<br><br>This component contains the provisionable traffic parameters for |

a control channel (Sig, *Ilmi* or *Rcc* component).

Common Verbs

Help
List
Display
Add
DELete

## GROUP Atmlf Pnni Sig Vcd Provisioned (Prov)

Properties: Provisioned

Description: This group contains the provisionable traffic attributes for a control channel.

## ATTRIBUTE Atmlf Pnni Sig Vcd trafficDescType (tdt)

Access: Read: All
Write: All

Criticality: Component

Description: This attribute specifies the type of traffic management which is applied to both the transmit and receive direction of this connection as defined in the ATM Forum. The *trafficDescType* determines the number and meaning of the parameters in the *trafficDescParm* attribute.

Values:
3
6
7
8

Default: 6

## ATTRIBUTE Atmlf Pnni Sig Vcd atmServiceCategory (service)

Access: Read: All
Write: All

Criticality: Component

Description: This attribute specifies the ATM service category for both directions of the connection.

The ***constantBitRate*** service category is intended for real time applications, that is those requiring tightly constrained delay and delay variation, as would be appropriate for voice and video applications. The consistent availability of a fixed quantity of bandwidth is considered appropriate for CBR service. Cells which are delayed beyond the value specified by CellTransfer Delay are assumed to be of significantly reduce value to the application.

The ***rtVariableBitRate*** service category is intended for real time applications, that is those requiring tightly constrained delay and delay variation, as would be appropriate for voice and video applications. Sources are expected to transmit at a rate which varies with time. Equivalently, the source can be described as “bursty”. Cells which are delayed beyond the value specified by CTD are assumed to be of significantly reduced value to the application. Real time VBR service may support statistical multiplexing of real time sources.

The ***nrtVariableBitRate*** service category is intended for non-real time applications which have bursty traffic characteristics and which can be characterized in terms of a PCR, SCR, and MBS. For those cells which are transferred within the traffic contract, the application expects a low cell loss ratio. For all connections, it expects a bound on the mean cell transfer delay. Non-real time VBR service may support statistical multiplexing of connections.

The ***unspecifiedBitRate*** service is intended for non-real time applications; that is, those not requiring tightly constrained delay and delay variation. UBR sources are expected to be bursty. UBR service supports a high degree of statistical multiplexing among sources. UBR service does not specify traffic related service guarantees. No numerical commitments are made with respect to the cell loss ratio experienced by a UBR connection, or as to the cell transfer delay experienced by cells on the connection.

Values

unspecifiedBitRate (ubr)
constantBitRate (cbr)
rtVariableBitRate (rtvbr)
nrtVariableBitRate (nrtvbr)

| | |
|---|---|
| Default | rtVariableBitRate |

### ATTRIBUTE AtmIf Pnni Sig Vcd weight

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This VCD component has an attribute that is called atmServiceCategory. This attribute specifies the service category that is used by the sig, rcc or ilmi channel. The *weight* attribute is related to two other attributes which are *weightPolicy* and *txQueueLimit*, as mentioned in the following description. These attributes can be found under the atmif/n ca <atmServiceCategory>/ m.<br><br>This attribute specifies an override for the *weight* of this unshaped connection. This attribute is ignored for shaped connections, for ABR connections, for connections on a CQC-based ATM FPs and basic VPTs.<br><br>When the value is set to ***sameAsCa***, the *weight* is determined by the *weightPolicy* attribute under the CA service category component for all but standard VPT VCCs. For standard VPT VCCs, the *weight* is determined by the VCC's service category, when the value is set to ***sameAsCa***.<br><br>When this attribute is set to a value from ***1*** to ***4095***, that value is used for the *weightPolicy* of this connection relative to other connections. For all but standard VPT VCCs, *weightPolicy* determines the proportion of transit cell opportunities which are allocated to this connection, compared to other connections in the same service category. For standard VPT VCCs, *weightPolicy* determines the proportion of transmit cell opportunities which are allocated to this connection, compared to other connections associated with the VPT.<br><br>When the value is set to ***upToQueueLimit***, the *weightPolicy* is limited only by the *txQueueLimit*. |
| Values | Decimal (1..4095)<br>sameAsCa<br>upToQueueLimit |

Default sameAsCa

### ATTRIBUTE AtmIf Pnni Sig Vcd qosClass (qos)

Access Read and write

Criticality Component

Description This attribute specifies the quality of service for both the forward and backward direction for this connection.

Class ***1*** supports a QOS that meets Service Class A performance requirements (Circuit emulation, constant bit rate video).

Class ***2*** supports a QOS that meets Service Class B performance requirements (Variable bit rate audio and video).

Class ***3*** supports a QOS that meets Service Class C performance requirements (Connection-Oriented Data Transfer).

Class ***4*** supports a QOS that meets Service Class D performance requirements (Connectionless Data Transfer).

Class ***0*** is the unspecified bit rate QOS class; no objective is specified for the performance parameters.

Values
0
1
2
3
4

Default 2

### ATTRIBUTE AtmIf Pnni Sig Vcd trafficShaping (trShaping)

Access Read and write

Criticality Component

Description This attribute specifies whether this connection uses traffic shaping when transmitting traffic to the ATM interface.

When ***sameAsCa*** is selected, traffic shaping for this connection is

based on the *trafficShaping* attribute of the connection's service category component under the *AtmIf CA*. If the service category has traffic shaping enabled, then traffic shaping is enabled for the connection. Note that enabling traffic shaping may have no effect under certain cases. These cases are listed in the description of the *trafficShaping* operational attribute, which is under the *Vcc Tm* and *Vpc Tm* components.

When ***disabled*** is selected, traffic shaping for this connection is disabled.

Values
disabled
sameAsCa

Default
disabled

## ATTRIBUTE AtmIf Pnni Sig Vcd unshapedTransmitQueueing (unshap)

Access
Read and write

Criticality
Component

Description
This attribute only applies when this connection is unshaped. This attribute specifies the transmit queuing method for this connection if it is unshaped. Refer to the *unshapedTransmitQueueing* attribute under the *AtmIf CA* service category subcomponent for more details on the meaning of this attribute.

When this attribute is set to ***sameAsCa***, the transmit queuing method for the connection is based on the *unshapedTransmitQueueing* attribute of the connection's service category component under the *ConnectionAdministrator.*

When this attribute is set to ***common***, transmit traffic on this unshaped connection is destined for the common queue.

The value ***sameAsInterface*** is for migration from previous software releases, but should no longer be used

Values
common
sameAsCa

| | |
|---|---|
| Default | sameAsCa |

### ATTRIBUTE AtmIf Pnni Sig Vcd usageParameterControl (upc)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies whether this connection enforces usage parameter control when receiving traffic from the ATM interface.<br><br>When ***sameAsCa*** is selected, UPC for the connection is based on the *usageParameterControl* attribute of the connection's service category component under the *ConnectionAdministrator.* If the service category has UPC enabled, then UPC is enabled for the connection. Note that enabling UPC may have no effect under certain cases. These cases are listed in the description of the *usageParameterControl* operational attribute, which is under the *Vcc Tm* or *Vpc Tm* component.<br><br>When ***disabled*** is selected, UPC for this connection is disabled.<br><br>The value ***sameAsInterface*** is for migration from previous software releases, but should no longer be used |
| Values | disabled<br>sameAsCa |
| Default | disabled |

### ATTRIBUTE AtmIf Pnni Sig Vcd trafficDescParm (tdp)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute is a vector of five traffic parameters whose meanings are defined by the *trafficDescType* attribute. The values of peak cell rate (PCR), sustained cell rate (SCR) and requested shaping rate are expressed in cell/s. Maximum burst size (MBS) is expressed in cells. CDVT is expressed in microseconds. The values of PCR, SCR, MBS and CDVT are used for connection admission control (CAC). The value of CDVT is only used for |

connections where the *atmServiceCategory* is ***constantBitRate***. For all other values of *atmServiceCategory*, CDVT is ignored. The values of PCR, SCR and requested shaping rate are used to determine the actual shaping rate where traffic shaping is enabled.

When *trafficDescType* is ***3***, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameter 1 must be non-zero. Parameters 2 and 3 must be zero.

When *trafficDescType* is ***6***, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 and 1 traffic; parameter 3 represents the MBS for CLP equal to 0 and 1 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameters 1, 2, and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2. Parameter 5 must either be zero (unused) or greater than or equal to parameter 2.

When *trafficDescType* is ***7***, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 with cell discard; parameter 3 represents the MBS for CLP equal to 0 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameters 1, 2, and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2. Parameter 5 must either be zero (unused) or greater than or equal to parameter 2.

When *trafficDescType* is ***8***, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 traffic with cell tagging; parameter 3 represents the MBS for CLP equal to 0 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1.

This result is used as the PCR. Parameters 1, 2, and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2. Parameter 5 must either be zero (unused) or greater than or equal to parameter 2.

Whenever it is valid for PCR to be specified, parameter 5 may also be used to specify a requested shaping rate. A non-zero value in parameter 5 overrides the value in parameter 1 and is used as the peak cell rate in calculations of CAC and shaping rate.

For *trafficDescType* ***3*** the traffic is shaped at the next rate less than the PCR.

For *trafficDescType* ***6***, ***7***, and ***8***, the traffic is shaped at the highest available rate which is between PCR and SCR. However, if there is no available shaping rate between PCR and SCR, traffic is shaped at the next rate above the PCR.

| | |
|---|---|
| Vector of | Decimal (0..2147483647) |
| Index | Decimal (1..5) |
| Default | (250, 160, 5, 0, 0) |

## COMPONENT AtmIf Pnni RoutingControlChannel (Rcc)

| | |
|---|---|
| Groups | "GROUP AtmIf Pnni Rcc Provisioned (Prov)"<br>"GROUP AtmIf Pnni Rcc HelloParms (HlParms)"<br>"GROUP AtmIf Pnni Rcc OsiState (State)"<br>"GROUP AtmIf Pnni Rcc Operational (Oper)"<br>"GROUP AtmIf Pnni Rcc Statistics (Stats)" |
| Scope | Device |
| Description | *AtmIf/n Pnni RoutingControlChannel*<br>*AtmIf/n Vpt/m Pnni RoutingControlChannel*<br><br>This component represents the Routing Control Channel (RCC) |

associated with a PNNI interface. The RCC is used to exchange routing information between nodes in a peer group.

Opt. Subcomp. "COMPONENT AtmIf Pnni Rcc VirtualChannelDescriptor (Vcd)"

Common Verbs
Help
List
Display

## GROUP AtmIf Pnni Rcc Provisioned (Prov)

Properties Provisioned

Description This group contains the generic provisionable attributes of an *Rcc* component.

## ATTRIBUTE AtmIf Pnni Rcc vci

Access Read: All
Write: All

Criticality Component

Description This attribute specifies the VCI for the Routing Control Channel (RCC). The value should not be changed from the default of 18 unless absolutely necessary. If a different VCI is specified, ensure that the RCC at the far end is provisioned to use the same VCI, otherwise the RCC will not come up.

Values Decimal (0..65535)

Default 18

## ATTRIBUTE AtmIf Pnni Rcc aggregationToken

Access Read: All
Write: All

Description This attribute specifies the aggregation token for this interface at the local end of the link. The aggregation tokens at both ends are use to form the *derivedAggregationToken* for the link. The aggregation token controls how links are aggregated together. Except for the lowest level nodes, links between two logical

| | |
|---|---|
| | nodes are aggregated together if they have the same aggregation token. Link aggregation is not done at the lowest level node, except in the degenerate node situation, where the lowest level node is a neighbor to an LGN. The value is ignored for links having a type value of ***unknown*** or ***lowestLevelHorizLink***. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### GROUP AtmIf Pnni Rcc HelloParms (HlParms)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable Hello protocol parameters for an *Rcc* component. |

### ATTRIBUTE AtmIf Pnni Rcc helloHoldDown (hhd)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the rate at which this node sends out Hello packets. It specifies the default minimum length of time between successive Hellos used by routing control channels on this node. A provisioning check is made to ensure that this value cannot be greater than *helloInterval*.<br><br>A value of 0 specifies that the value provisioned for the *helloHoldDown* attribute of the *ARtg Pnni* component should be used. |
| Values | Decimal (0.0..65535.0) |
| Units | seconds |
| Default | 0.0 |

### ATTRIBUTE AtmIf Pnni Rcc helloInterval (hli)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |

| | |
|---|---|
| Description | This attribute specifies the default duration of the Hello Timer for routing control channels on this node. Every *helloInterval* seconds, this node sends out a Hello packet to the neighbor node, subject to the *helloHoldDown* timer having expired at least once since the last Hello packet was sent.<br>A provisioning check is made to ensure that this value cannot be less than *helloHoldDown*.<br><br>A value of 0 specifies that the value provisioned for the *helloInterval* attribute of the *ARtg Pnni* component should be used. |
| Values | Decimal (0..65535) |
| Units | seconds |
| Default | 0 |

### ATTRIBUTE AtmIf Pnni Rcc helloInactivityFactor (hif)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the number of Hello intervals allowed to pass without receiving a Hello from a neighbor, before an attempt is made to stage the RCC to that neighbor. The hello inactivity timer is enabled when the *helloState* is one of ***oneWayInside***, ***twoWayInside***, ***oneWayOutside***, ***twoWayOutside*** or ***commonOutside***.<br><br>A value of 0 specifies that the value provisioned for the *helloInactivityFactor* attribute of the *ARtg Pnni* component should be used. |
| Values | Decimal (0..65535) |
| Default | 0 |

### GROUP AtmIf Pnni Rcc OsiState (State)

| | |
|---|---|
| Properties | Operational |

Description — This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

## ATTRIBUTE AtmIf Pnni Rcc adminState (osiAdmin)

Access — Read only

Description — This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values — locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default — unlocked

## ATTRIBUTE AtmIf Pnni Rcc operationalState (osiOper)

Access — Read only

Description — This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be

providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values: enabled (ena)
disabled (dis)

Default: disabled

### ATTRIBUTE AtmIf Pnni Rcc usageState (osiUsage)

Access: Read only

Description: This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values: idle
active (activ)
busy

Default: idle

### GROUP AtmIf Pnni Rcc Operational (Oper)

Properties: Operational

Description: This group contains the operational attributes for an *Rcc* component.

### ATTRIBUTE AtmIf Pnni Rcc type

Access: Read: All
Write: Illegal

Description

This attribute indicates the role of this link in the PNNI hierarchy. The following values are possible:

***unknown***: the Hello protocol has not yet determined the role of the link.

***lowestLevelHorizLink***: the link is a horizontal link between two lowest level nodes.

***lowestLevelOutsideLink***: the link is an outside link between two border nodes.

***horizontalLinkToLgn***: the link is a horizontal link to a Logical Group Node (LGN).

***uplink***: the link is a uplink to a higher level LGN.

Values

unknown
lowestLevelHorizLink
lowestLevelOutsideLink
horizontalLinkToLGN
uplink

Default

No default

## ATTRIBUTE AtmIf Pnni Rcc negotiatedVersion

Access

Read: All
Write: Illegal

Description

This attribute indicates the PNNI version negotiated with the neighbor node.

Values

unsupported
version1point0

Default

No default

## ATTRIBUTE AtmIf Pnni Rcc helloState

Access

Read: All
Write: Illegal

Description

This attribute indicates the state of the Hello protocol exchange over this link. The following are the possible values for this attribute:

***down***: the link is down. No PNNI routing packets are sent or received over such a link. This is the initial state of the Hello Finite State Machine, and can also be reached when lower-level protocols have indicated that the link is not usable.

***attempt***: no Hello packets or Hello packets, with mismatched information, have been received recently from the neighbor. Attempts are made to contact the neighbor node by sending out Hello packets every *helloInterval* seconds.

***oneWayInside***: Hello packets have been recently received from the neighbor and it has been established that both nodes are members of the same peer group, but the remote node ID and remote port ID in the neighbor's Hello packets were set to zero. A Hello packet is sent to the neighbor and the Hello timer is restarted.

***twoWayInsid***e: Bidirectional communication over this link between this node and the neighbor node has been achieved.

***oneWayOutside***: Hello packets have been recently received from the neighbor and it has been established that both nodes are members of a different peer group, but the remote node ID and remote port ID in the neighbor's Hello packets were set to zero.

***twoWayOutside***: Hello packetss have recently been received from the neighbor indicating that the neighbor node belongs to a different peer group. The correct remote node ID and remote port ID fields were included in the Hello packet, but the nodal hierarchy list did not include any common peer group. This state can also be reached if a hierarchy mismatch occurs while in the ***commonOutside*** state.

***commonOutside***: A common level of the routing hierarchy has been found, in addition to achieving full bi-directional communication between the two nodes.

| | |
|---|---|
| Values | notApplicable<br>down<br>attempt<br>oneWayInside<br>twoWayInside<br>oneWayOutside<br>twoWayOutside<br>commonOutside |
| Default | No default |

### ATTRIBUTE AtmIf Pnni Rcc remoteNodeId

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the node id at the far end of the link. |
| Values | String (22, Hex) |
| Default | No default |

### ATTRIBUTE AtmIf Pnni Rcc remotePortId

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the PortID of the neighboring node, which is an unsigned integer of 32 bits. When the remote end of a PNNI physical link is terminated by a Passport, the first 16 bits of the hex encoded format represent the *AtmIf* instance of the PNNI link of the remote node, the next 12 bits correspond to the VPI of the PNNI link and the last 4 bits are unspecified(that is, it provide no value for physical interpretation). |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Pnni Rcc derivedAggregationToken

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute indicates the derived aggregation token value used on this link.<br>The algorithm for computing the value of the derived aggregation token is:<br>1. If neighbors exchange identical values of the configured aggregation token, that value is the derived aggregation token value.<br>2. If the configured aggregation token value of one neighbor is zero (default), and that of the other neighbor is non-zero, the non-zero value is the derived aggregation token value.<br>3. If the configured aggregation token values of the neighbors are different and both non-zero, the derived aggregation token value is zero.<br>The attribute is not displayed for links having a type value of ***unknown*** or ***lowestLevelHorizLink***. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Pnni Rcc remoteNodeName

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the node name and the hierarchy level for the node at the far end of the link.<br><br>A typical value for this attribute has the following form: ***OBELIX@96***.<br><br>Here, ***OBELIX*** is the node name and ***96*** is the hierarchy level for the upnode. The **@** symbol is used to separate the node name from the hierarchy level in the display.<br><br>This attribute is left blank if the far end is a non-Passport node. |
| Values | String (1..16, ASCII) |
| Default | No default |

## ATTRIBUTE AtmIf Pnni Rcc remoteInterfaceName

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the interface name of the node at the far end of the link.<br><br>When the far end of the link is a Passport node, this attribute's value can take one of the following forms:<br>(a) ***AtmIf/<1-4095>*** - If the far end is an Atm Interface.<br>(b) ***AtmIf/<1-4095> Vpt/<1-4095>*** - If the far end is a VPT interface.<br>(c) Values ***0-4294967295*** - If the link is a logical link.<br><br>This attribute will remain blank if the far end is a non-Passport node. |
| Values | String (0..19, ASCII) |
| Default | No default |

## GROUP AtmIf Pnni Rcc Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the statistical attributes for an *Rcc* component. |

## ATTRIBUTE AtmIf Pnni Rcc helloPacketsRx

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of Hello packets received across this RCC, including bad and mismatched Hello packets. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Pnni Rcc helloPacketsTx

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of Hello packets transmitted across this RCC. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Pnni Rcc mismatchedHelloPacketsRx

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of mismatched Hello packets received over this RCC. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Pnni Rcc badHelloPacketsRx

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of bad Hello packets received over this RCC. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT AtmIf Pnni Rcc VirtualChannelDescriptor (Vcd)

| | |
|---|---|
| Groups | "GROUP AtmIf Pnni Rcc Vcd Provisioned (Prov)" |
| Scope | Device |
| Description | *AtmIf/n Uni Sig VirtualChannelDescriptor*<br>*AtmIf/n Uni Ilmi VirtualChannelDescriptor* |

*AtmIf/n Aini Sig VirtualChannelDescriptor*
*AtmIf/n Iisp Sig VirtualChannelDescriptor*
*AtmIf/n Pnni Sig VirtualChannelDescriptor*
*AtmIf/n Pnni Rcc VirtualChannelDescriptor*
*AtmIf/n Vpt/m Uni Sig VirtualChannelDescriptor*
*AtmIf/n Vpt/m Aini Sig VirtualChannelDescriptor*
*AtmIf/n Vpt/m Iisp Sig VirtualChannelDescriptor*
*AtmIf/n Vpt/m Pnni Sig VirtualChannelDescriptor*
*AtmIf/n Vpt/m Pnni Rcc VirtualChannelDescriptor*

This component contains the provisionable traffic parameters for a control channel (Sig, *Ilmi* or *Rcc* component).

Common Verbs

Help
List
Display
Add
DELete

## GROUP AtmIf Pnni Rcc Vcd Provisioned (Prov)

Properties: Provisioned

Description: This group contains the provisionable traffic attributes for a control channel.

## ATTRIBUTE AtmIf Pnni Rcc Vcd trafficDescType (tdt)

Access: Read: All
Write: All

Criticality: Component

Description: This attribute specifies the type of traffic management which is applied to both the transmit and receive direction of this connection as defined in the ATM Forum. The *trafficDescType* determines the number and meaning of the parameters in the *trafficDescParm* attribute.

Values:
3
6
7
8

Default 6

## ATTRIBUTE AtmIf Pnni Rcc Vcd atmServiceCategory (service)

Access Read: All
Write: All

Criticality Component

Description This attribute specifies the ATM service category for both directions of the connection.

The ***constantBitRate*** service category is intended for real time applications, that is those requiring tightly constrained delay and delay variation, as would be appropriate for voice and video applications. The consistent availability of a fixed quantity of bandwidth is considered appropriate for CBR service. Cells which are delayed beyond the value specified by CellTransfer Delay are assumed to be of significantly reduce value to the application.

The ***rtVariableBitRate*** service category is intended for real time applications, that is those requiring tightly constrained delay and delay variation, as would be appropriate for voice and video applications. Sources are expected to transmit at a rate which varies with time. Equivalently, the source can be described as “bursty”. Cells which are delayed beyond the value specified by CTD are assumed to be of significantly reduced value to the application. Real time VBR service may support statistical multiplexing of real time sources.

The ***nrtVariableBitRate*** service category is intended for non-real time applications which have bursty traffic characteristics and which can be characterized in terms of a PCR, SCR, and MBS. For those cells which are transferred within the traffic contract, the application expects a low cell loss ratio. For all connections, it expects a bound on the mean cell transfer delay. Non-real time VBR service may support statistical multiplexing of connections.

The ***unspecifiedBitRate*** service is intended for non-real time applications; that is, those not requiring tightly constrained delay and delay variation. UBR sources are expected to be bursty. UBR

service supports a high degree of statistical multiplexing among sources. UBR service does not specify traffic related service guarantees. No numerical commitments are made with respect to the cell loss ratio experienced by a UBR connection, or as to the cell transfer delay experienced by cells on the connection.

Values
unspecifiedBitRate (ubr)
constantBitRate (cbr)
rtVariableBitRate (rtvbr)
nrtVariableBitRate (nrtvbr)

Default
rtVariableBitRate

## ATTRIBUTE AtmIf Pnni Rcc Vcd weight

Access
Read and write

Criticality
Component

Description
This VCD component has an attribute that is called atmServiceCategory. This attribute specifies the service category that is used by the sig, rcc or ilmi channel. The *weight* attribute is related to two other attributes which are *weightPolicy* and *txQueueLimit*, as mentioned in the following description. These attributes can be found under the atmif/n ca <atmServiceCategory>/ m.

This attribute specifies an override for the *weight* of this unshaped connection. This attribute is ignored for shaped connections, for ABR connections, for connections on a CQC-based ATM FPs and basic VPTs.

When the value is set to ***sameAsCa***, the *weight* is determined by the *weightPolicy* attribute under the CA service category component for all but standard VPT VCCs. For standard VPT VCCs, the *weight* is determined by the VCC's service category, when the value is set to ***sameAsCa***.

When this attribute is set to a value from ***1*** to ***4095***, that value is used for the *weightPolicy* of this connection relative to other connections. For all but standard VPT VCCs, *weightPolicy* determines the proportion of transit cell opportunities which are allocated to this connection, compared to other connections in the

same service category. For standard VPT VCCs, *weightPolicy* determines the proportion of transmit cell opportunities which are allocated to this connection, compared to other connections associated with the VPT.

When the value is set to ***upToQueueLimit***, the *weightPolicy* is limited only by the *txQueueLimit*.

Values
Decimal (1..4095)
sameAsCa
upToQueueLimit

Default
sameAsCa

## ATTRIBUTE AtmIf Pnni Rcc Vcd qosClass (qos)

Access
Read and write

Criticality
Component

Description
This attribute specifies the quality of service for both the forward and backward direction for this connection.

Class ***1*** supports a QOS that meets Service Class A performance requirements (Circuit emulation, constant bit rate video).

Class ***2*** supports a QOS that meets Service Class B performance requirements (Variable bit rate audio and video).

Class ***3*** supports a QOS that meets Service Class C performance requirements (Connection-Oriented Data Transfer).

Class ***4*** supports a QOS that meets Service Class D performance requirements (Connectionless Data Transfer).

Class ***0*** is the unspecified bit rate QOS class; no objective is specified for the performance parameters.

Values
0
1
2
3
4

Default 2

### ATTRIBUTE AtmIf Pnni Rcc Vcd trafficShaping (trShaping)

Access Read and write

Criticality Component

Description This attribute specifies whether this connection uses traffic shaping when transmitting traffic to the ATM interface.

When ***sameAsCa*** is selected, traffic shaping for this connection is based on the *trafficShaping* attribute of the connection's service category component under the *AtmIf CA*. If the service category has traffic shaping enabled, then traffic shaping is enabled for the connection. Note that enabling traffic shaping may have no effect under certain cases. These cases are listed in the description of the *trafficShaping* operational attribute, which is under the *Vcc Tm* and *Vpc Tm* components.

When ***disabled*** is selected, traffic shaping for this connection is disabled.

Values disabled
sameAsCa

Default disabled

### ATTRIBUTE AtmIf Pnni Rcc Vcd unshapedTransmitQueueing (unshap)

Access Read and write

Criticality Component

Description This attribute only applies when this connection is unshaped. This attribute specifies the transmit queuing method for this connection if it is unshaped. Refer to the *unshapedTransmitQueueing* attribute under the *AtmIf CA* service category subcomponent for more details on the meaning of this attribute.

When this attribute is set to ***sameAsCa***, the transmit queuing method for the connection is based on the *unshapedTransmitQueueing* attribute of the connection's service

category component under the *ConnectionAdministrator.*

When this attribute is set to ***common***, transmit traffic on this unshaped connection is destined for the common queue.

The value ***sameAsInterface*** is for migration from previous software releases, but should no longer be used

Values
common
sameAsCa

Default
sameAsCa

## ATTRIBUTE AtmIf Pnni Rcc Vcd usageParameterControl (upc)

Access
Read and write

Criticality
Component

Description
This attribute specifies whether this connection enforces usage parameter control when receiving traffic from the ATM interface.

When ***sameAsCa*** is selected, UPC for the connection is based on the *usageParameterControl* attribute of the connection's service category component under the *ConnectionAdministrator.* If the service category has UPC enabled, then UPC is enabled for the connection. Note that enabling UPC may have no effect under certain cases. These cases are listed in the description of the *usageParameterControl* operational attribute, which is under the *Vcc Tm* or *Vpc Tm* component.

When ***disabled*** is selected, UPC for this connection is disabled.

The value ***sameAsInterface*** is for migration from previous software releases, but should no longer be used

Values
disabled
sameAsCa

Default
disabled

## ATTRIBUTE AtmIf Pnni Rcc Vcd trafficDescParm (tdp)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute is a vector of five traffic parameters whose meanings are defined by the *trafficDescType* attribute. The values of peak cell rate (PCR), sustained cell rate (SCR) and requested shaping rate are expressed in cell/s. Maximum burst size (MBS) is expressed in cells. CDVT is expressed in microseconds. The values of PCR, SCR, MBS and CDVT are used for connection admission control (CAC). The value of CDVT is only used for connections where the *atmServiceCategory* is ***constantBitRate***. For all other values of *atmServiceCategory*, CDVT is ignored. The values of PCR, SCR and requested shaping rate are used to determine the actual shaping rate where traffic shaping is enabled.<br><br>When *trafficDescType* is ***3***, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameter 1 must be non-zero. Parameters 2 and 3 must be zero.<br><br>When *trafficDescType* is ***6***, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 and 1 traffic; parameter 3 represents the MBS for CLP equal to 0 and 1 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameters 1, 2, and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2. Parameter 5 must either be zero (unused) or greater than or equal to parameter 2.<br><br>When *trafficDescType* is ***7***, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 with cell discard; parameter 3 represents the MBS for CLP equal to 0 traffic; parameter 4 represents the CDVT; and |

parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameters 1, 2, and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2. Parameter 5 must either be zero (unused) or greater than or equal to parameter 2.

When *trafficDescType* is ***8***, parameter 1 represents the PCR for CLP equal to 0 and 1 traffic; parameter 2 represents the SCR for CLP equal to 0 traffic with cell tagging; parameter 3 represents the MBS for CLP equal to 0 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameters 1, 2, and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2. Parameter 5 must either be zero (unused) or greater than or equal to parameter 2.

Whenever it is valid for PCR to be specified, parameter 5 may also be used to specify a requested shaping rate. A non-zero value in parameter 5 overrides the value in parameter 1 and is used as the peak cell rate in calculations of CAC and shaping rate.

For *trafficDescType* ***3*** the traffic is shaped at the next rate less than the PCR.

For *trafficDescType* ***6***, ***7***, and ***8***, the traffic is shaped at the highest available rate which is between PCR and SCR. However, if there is no available shaping rate between PCR and SCR, traffic is shaped at the next rate above the PCR.

| | |
|---|---|
| Vector of | Decimal (0..2147483647) |
| Index | Decimal (1..5) |
| Default | (250, 160, 5, 0, 0) |

## COMPONENT AtmIf Pnni Address (Addr)

| | |
|---|---|
| Instance | address [String (1..40, ASCII)]<br>addressType [primary<br>alternate<br>registered<br>default] |
| Groups | "GROUP AtmIf Pnni Addr Operational (Oper)" |
| Scope | Device |
| Description | *AtmIf/n Aini Address/address,type*<br>*AtmIf/n Iisp Address/address,type*<br>*AtmIf/n Uni Address/address,type*<br>*AtmIf/n Pnni Address/address,type*<br>*AtmIf/n Vpt/m Aini Address/address,type*<br>*AtmIf/n Vpt/m Iisp Address/address,type*<br>*AtmIf/n Vpt/m Uni Address/address,type*<br>*AtmIf/n Vpt/m Pnni Address/address,type*<br><br>This component represents an address (dynamic or static) associated with the interface. The index is a string of 1 to 40 hex digits or a single wildcard (‘?’), and a type. The type identifies whether the *Address* component is for a ***primary***, ***alternate, registered***, or ***default*** address.<br><br>The types ***primary*** and ***alternate*** are used for provisioned addresses. The type ***registered*** is used for dynamic addresses registered through ILMI. The type ***default*** is used for Soft PVP and Soft PVC addresses.Virtual interfaces do not have addresses of<br>type ***default***.<br><br>The wildcard is only valid for provisioned addresses. If the address is a single wildcard, then that indicates that the interface supports all addresses. If there is no better match, then this interface may be chosen in the routing. If there is more than one interface with a single wildcard static address, then the choice is driven through a round robin algorithm.<br><br>The round robin algorithm tries the primary routes and then the |

alternate routes if none of the primary routes succeed.
If this node participates in a PNNI hierarchy, then a *PnniInfo* subcomponent can be provisioned under the *AtmAddress* component to specify the level to which this address will be advertised.

Opt. Subcomp. "COMPONENT AtmIf Pnni Addr TerminateSPvpAndSPvc (TermSP)"
"COMPONENT AtmIf Pnni Addr PnniInfo"

Common Verbs
Help
List
Display
Add
DELete

## GROUP AtmIf Pnni Addr Operational (Oper)

Properties Operational

Description This attribute group contains the operational attributes for the *Address* component.

## ATTRIBUTE AtmIf Pnni Addr scope

Access Read: All
Write: Illegal

Description This attribute indicates the scope of the ATM address, which is the highest level to which this address will be advertised in the PNNI hierarchy. If no *PnniInfo* subcomponent has been provisioned, then the scope will default to the level of this node in the PNNI hierarchy. If this node does not participate in a PNNI hierarchy, then this attribute will have the value of -1.

Values Signed (-1..104)

Default No default

## ATTRIBUTE AtmIf Pnni Addr reachability (reach)

Access Read: All
Write: Illegal

Description — This attribute indicates whether the address is internal or exterior. An internal reachable address is an address of a destination that is directly attached to the logical node advertising the address. An exterior reachable address is an address that can be reached through a PNNI routing domain, but which is not located in that PNNI routing domain.

Values — internal
exterior

Default — No default

## COMPONENT AtmIf Pnni Addr TerminateSPvpAndSPvc (TermSP)

Scope — Device

Description — *AtmIf/n Aini Address/address,type TerminateSPvpAndSPvc*
*AtmIf/n Iisp Address/address,type TerminateSPvpAndSPvc*
*AtmIf/n Uni Address/address,type TerminateSPvpAndSPvc*
*AtmIf/n Pnni Address/address,type TerminateSPvpAndSPvc*
*AtmIf/n Vpt/m Aini Address/address,type TerminateSPvpAndSPvc*
*AtmIf/n Vpt/m Iisp Address/address,type TerminateSPvpAndSPvc*
*AtmIf/n Vpt/m Uni Address/address,type TerminateSPvpAndSPvc*
*AtmIf/n Vpt/m Pnni Address/address,type TerminateSPvpAndSPvc*

The presence of this subcomponent indicates that SPvp and SPvc call setups terminate at this node if the destination address of the SPVP or SPVC matches the *Address* instance.

Common Verbs — Help
List
Display
Add
DELete

## COMPONENT AtmIf Pnni Addr PnniInfo

Groups — "GROUP AtmIf Pnni Addr PnniInfo Provisioned (Prov)"

Scope — Device

Description

*AtmIf/n Aini Addr/address,type PnniInfo*
*AtmIf/n Iisp Addr/address,type PnniInfo*
*AtmIf/n Uni Addr/address,type PnniInfo*
*AtmIf/n Pnni Addr/address,type PnniInfo*
*AtmIf/n Vpt/m Aini Addr/address,type PnniInfo*
*AtmIf/n Vpt/m Iisp Addr/address,type PnniInfo*
*AtmIf/n Vpt/m Uni Addr/address,type PnniInfo*
*AtmIf/n Vpt/m Pnni Addr/address,type PnniInfo*

This component contains provisioned information associated with the ATM address related to PNNI. This component appears only under provisioned *Address* components.

Common Verbs

Help
List
Display
Add
DELete

## GROUP AtmIf Pnni Addr PnniInfo Provisioned (Prov)

Properties

Provisioned

Description

This attribute group contains the provisioned attributes relating to PNNI for a *PnniInfo* component.

## ATTRIBUTE AtmIf Pnni Addr PnniInfo scope

Access

Read: All
Write: All

Criticality

Component

Description

This attribute specifies the scope of the ATM address, which is the highest level up to which this address will be advertised in the PNNI hierarchy. The scope must be set to a value numerically less than or equal to the level of the lowest level peer group containing this node. Setting the scope to 0 will cause the address to be advertised globally within this PNNI routing domain.

Values

Signed (-1..104)

Default

-1

## ATTRIBUTE AtmIf Pnni Addr PnniInfo reachability (reach)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute indicates whether the address is internal or exterior. An internal reachable address is an address of a destination that is directly attached to the logical node advertising the address. An exterior reachable address is an address that can be reached through a PNNI routing domain, but which is not located in that PNNI routing domain. |
| Values | internal<br>exterior |
| Default | internal |

## COMPONENT AtmIf Pnni PathTraceFilter (Ptf)

| | |
|---|---|
| Groups | "GROUP AtmIf Pnni Ptf Criteria"<br>"GROUP AtmIf Pnni Ptf Operational (Oper)"<br>"GROUP AtmIf Pnni Ptf RecordControl (Record)" |
| Scope | Device |
| Description | *AtmIf/n Aini PathTraceFilter*<br>*AtmIf/n Iisp PathTraceFilter*<br>*AtmIf/n Uni PathTraceFilter*<br>*AtmIf/n Pnni PathTraceFilter*<br>*AtmIf/n Vpt/vpi Aini PathTraceFilter*<br>*AtmIf/n Vpt/vpi Iisp PathTraceFilter*<br>*AtmIf/n Vpt/vpi Uni PathTraceFilter*<br>*AtmIf/n Vpt/vpi Pnni PathTraceFilter*<br><br>This component represents the path trace filtering capability on the ATM signaling interface. This capability allows the user to trace connections during the call setup phase against the criteria associated with this component. Only the connections that match all the criteria are traced.<br><br>When this component is provisioned, the network operator can control tracing activities by using the *Start*, *Stop*, and *Clear* |

verbs. When the *Start* verb is issued, the *traceTimeout* timer restarts. Once the timer times out, filtering stops and records are not removed. When the *Stop* verb is issued, the filter stops and the trace records are kept until the user clears them. When the *Clear* verb is issued, the trace records are cleared. When *AtmPathTraceFilter* component is deleted, all records are cleared.

Once the maximum specified by *maxTraceRecords* attribute under the *PathTraceFilter* component or *maxTraceRecords* attribute under the *Lp/n Eng PTrace* component has been reached, the oldest record is deleted.

The *AtmPathTraceFilter* component is not permitted to be added when the *Lp/n Eng PTrace Ov maxTraceRecords* attribute is set to zero.

Dyn. Subcomp. "COMPONENT AtmIf Pnni Ptf PathTraceRecord (PTRecord)"

Common Verbs

Help
List
Display
Add
DELete

## VERB START AtmIf Pnni Ptf

Impact: Service

Description:

*START AtmIf/n Aini PathTraceFilter*
*START AtmIf/n Iisp PathTraceFilter*
*START AtmIf/n Uni PathTraceFilter*
*START AtmIf/n Pnni PathTraceFilter*
*START AtmIf/n Vpt/vpi Aini PathTraceFilter*
*START AtmIf/n Vpt/vpi Iisp PathTraceFilter*
*START AtmIf/n Vpt/vpi Uni PathTraceFilter*
*START AtmIf/n Vpt/vpi Pnni PathTraceFilter*

This command starts the path tracing based on the specified filtering criteria.

When the command is issued, the *traceTimeout* timer is reset.

## VERB STOP AtmIf Pnni Ptf

Impact: Service

Description:

*STOP AtmIf/n Aini PathTraceFilter*
*STOP AtmIf/n Iisp PathTraceFilter*
*STOP AtmIf/n Uni PathTraceFilter*
*STOP AtmIf/n Pnni PathTraceFilter*
*STOP AtmIf/n Vpt/vpi Aini PathTraceFilter*
*STOP AtmIf/n Vpt/vpi Iisp PathTraceFilter*
*STOP AtmIf/n Vpt/vpi Uni PathTraceFilter*
*STOP AtmIf/n Vpt/vpi Pnni PathTraceFilter*

This command causes the filter to stop, but keeps the trace records.

## VERB CLEAR AtmIf Pnni Ptf

| | |
|---|---|
| Impact | Service |
| Description | *CLEAR AtmIf/n Aini PathTraceFilter*<br>*CLEAR AtmIf/n Iisp PathTraceFilter*<br>*CLEAR AtmIf/n Uni PathTraceFilter*<br>*CLEAR AtmIf/n Pnni PathTraceFilter*<br>*CLEAR AtmIf/n Vpt/vpi Aini PathTraceFilter*<br>*CLEAR AtmIf/n Vpt/vpi Iisp PathTraceFilter*<br>*CLEAR AtmIf/n Vpt/vpi Uni PathTraceFilter*<br>*CLEAR AtmIf/n Vpt/vpi Pnni PathTraceFilter*<br><br>This command clears the path trace records associated with this filter. This command is rejected on an active filter. |

## GROUP AtmIf Pnni Ptf Criteria

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational criteria for the *PathTraceFilter* component. |

## ATTRIBUTE AtmIf Pnni Ptf traceInfo (tInfo)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the trace information that is included in the trace records.<br><br>***crankBack***: Crankback information is included if the connection is cranked back during the connection setup phase. If the option is turned on, all attempted paths including the final one are recorded. If the option is turned off, only the information of the final path is recorded. If the connection fails to reach the destination, no path information is returned.<br><br>***connId***: Connection Identifier information is included.<br><br>***callRef***: For point-to-point connections, the call reference is included. For point-to-multipoint connections, the call reference and end point reference are both included. |

| | |
|---|---|
| | Basic trace information, such as node and port identifiers, are always included. |
| Set of | crankBack<br>connId<br>callRef |
| Default | (crankBack, connId, callRef) |

### ATTRIBUTE AtmIf Pnni Ptf calledPartyPrefix (cldPref)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies an NSAP address prefix, which is compared with the called party IE in the connection setup request. When all the criteria in the filter match successfully, the call is traced.<br><br>An empty string matches any address. |
| Values | String (0..20, Hex) |
| Default | No default |

### ATTRIBUTE AtmIf Pnni Ptf callingPartyPrefix (clgPref)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies an NSAP address prefix, which is compared with the calling party IE in the connection setup request. When all the criteria in the filter match successfully, the call is traced.<br><br>An empty string matches any address. |
| Values | String (0..20, Hex) |
| Default | No default |

### ATTRIBUTE AtmIf Pnni Ptf connectionType (type)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies a connection type (SVC, SPVC, SVP, SPVP), which is compared against the connection setup request. When all the criteria in the filter match successfully, the call is traced. |
| Set of | svc<br>spvc<br>svp<br>spvp |
| Default | (svc, spvc, svp, spvp) |

### ATTRIBUTE AtmIf Pnni Ptf connectionConfiguration (config)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies a type of topology (point-to-point or point-to-multipoint), which is compared against the connection setup request. When all the criteria in the filter match successfully, the call is traced. |
| Set of | ptp<br>ptmp |
| Default | (ptp, ptmp) |

### ATTRIBUTE AtmIf Pnni Ptf serviceCategory (svcCat)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the service categories, which is compared against the connection setup request. When the all criteria in the filter match successfully, the call is traced. |

| | |
|---|---|
| Set of | cbr<br>rtVbr<br>nrtVbr<br>ubr |
| Default | (cbr, rtVbr, nrtVbr, ubr) |

### GROUP AtmIf Pnni Ptf Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for the *PathTraceFilter* component. |

### ATTRIBUTE AtmIf Pnni Ptf state

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the current state of the filter.<br><br>***active***: Indicates the filter is active.<br><br>***inactive:*** Indicates the filter is inactive. The records are available if the filter is stopped by the user using the *Stop* verb or if the filter has timed out. |
| Values | active<br>inactive |
| Default | inactive |

### ATTRIBUTE AtmIf Pnni Ptf recordCount

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of records that have been acquired so far for this filter. The maximum number of records that can be stored is specified by *Lp/n Eng PathTrace maxTraceRecords* or *AtmPathTraceFilter maxTraceRecords*, which ever is less. |

| | |
|---|---|
| Values | Decimal (0..200) |
| Default | No default |

### ATTRIBUTE AtmIf Pnni Ptf matchedConnections

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of connections that match the criteria of this filter. |
| Values | Decimal (0..2147483647) |
| Default | No default |

### ATTRIBUTE AtmIf Pnni Ptf elapsedTime

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of minutes that have elapsed since the start of the filter. |
| Values | Decimal (0..70560) |
| Units | minutes |
| Default | No default |

### ATTRIBUTE AtmIf Pnni Ptf timeRemaining

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of minutes remaining before the filter terminates itself. |
| Values | Decimal (0..70560) |
| Units | minutes |
| Default | No default |

### GROUP AtmIf Pnni Ptf RecordControl (Record)

| | |
|---|---|
| Properties | Operational |

| | |
|---|---|
| Description | This group contains the operational attributes for the record control of the *PathTraceFilter* component. |

### ATTRIBUTE AtmIf Pnni Ptf traceTimeout

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies how long this filter remains active. At the end of this time, the filter is stopped and all trace records associated with this filter are available. |
| Values | Decimal (1..70560) |
| Units | minutes |
| Default | 60 |

### ATTRIBUTE AtmIf Pnni Ptf maxTraceRecords (mRecords)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the maximum number of records allowed to be stored with the filter.<br><br>Once the maximum has been reached, the oldest record is removed. |
| Values | Decimal (1..200) |
| Default | 2 |

### COMPONENT AtmIf Pnni Ptf PathTraceRecord (PTRecord)

| | |
|---|---|
| Groups | "GROUP AtmIf Pnni Ptf PTRecord Operational (Oper)" |
| Scope | Device |
| Description | *AtmIf/n Aini Ptf PTRecord*<br>*AtmIf/n Iisp Ptf PTRecord*<br>*AtmIf/n Uni Ptf PTRecord*<br>*AtmIf/n Pnni Ptf PTRecord*<br>*AtmIf/n Vpt/n Aini Ptf PTRecord*<br>*AtmIf/n Vpt/n Iisp Ptf PTRecord*<br>*AtmIf/n Vpt/n Uni Ptf PTRecord* |

*AtmIf/n Vpt/n Pnni Ptf PTRecord*

This component represents the path trace record for the last failed connection against this filter.

Dyn. Subcomp. "COMPONENT AtmIf Pnni Ptf PTRecord Hop"

Common Verbs
Help
List
Display

## GROUP AtmIf Pnni Ptf PTRecord Operational (Oper)

Properties Operational

Description This group contains the operational attributes for the path trace record component.

## ATTRIBUTE AtmIf Pnni Ptf PTRecord status

Access
Read: All
Write: Illegal

Description This attribute indicates the status of the trace. The string is one of the following:

***Completed normally****:* The trace completed normally.

***Incomplete****:* Partial trace returned.

***Exceeded information element length limitations****:* The number of traced nodes exceeded the maximum number of hops.

***Exceeded message length limitations****:* The message length exceeded the maximum allowed size.

Values
Completed normally
Incomplete
Exceeded information element length limitations
Exceeded message length limitations

Default No default

### ATTRIBUTE AtmIf Pnni Ptf PTRecord timeStamp

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute records the date and time of when the trace is completed. |
| Values | Time (DHMS) |
| Default | No default |

### ATTRIBUTE AtmIf Pnni Ptf PTRecord srcPortId

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the trace's source port identifier used for this connection. This attribute only appears in the trace result for the trace source hop. |
| Values | Decimal (1..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Pnni Ptf PTRecord srcPortName

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the name of the source port used for this connection. This attribute only appears in the trace result for the trace source hop. |
| Values | String (40, ASCII) |
| Default | No default |

### ATTRIBUTE AtmIf Pnni Ptf PTRecord causeCode

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |

| | |
|---|---|
| Description | This attribute contains the cause code in the transmitted signaling message that contains the CAUSE information element. The cause code is used to describe the reason for generating certain signaling messages. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE AtmIf Pnni Ptf PTRecord diagCode

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute contains the diagnostic code in the transmitted signaling message. The diagnostic code is contained in the CAUSE information element and identifies an information element type or timer type. The diagnostic code is present only if a procedural error is detected by the signaling protocol. A diagnostic code is always accompanied by the cause code. If there is no failure, this attribute is set to NULL. |
| Values | String (0..8, ASCII) |
| Default | No default |

### COMPONENT AtmIf Pnni Ptf PTRecord Hop

| | |
|---|---|
| Instance | Decimal (0..200) |
| Groups | "GROUP AtmIf Pnni Ptf PTRecord Hop Operational (Oper)" |
| Scope | Device |
| Description | *AtmIf/n Aini Ptf PTRecord Hop/n*<br>*AtmIf/n Iisp Ptf PTRecord Hop/n*<br>*AtmIf/n Uni Ptf PTRecord Hop/n*<br>*AtmIf/n Pnni Ptf PTRecord Hop/n*<br>*AtmIf/n Vpt/n Aini Ptf PTRecord Hop/n*<br>*AtmIf/n Vpt/n Iisp Ptf PTRecord Hop/n*<br>*AtmIf/n Vpt/n Uni Ptf PTRecord Hop/n*<br>*AtmIf/n Vpt/n Pnni Ptf PTRecord Hop/n*<br>*AtmIf/n Vcc/x.y PTRecord Hop/n* |

*AtmIf/n Vpc/n PTRecord Hop/n*
*AtmIf/n Vpt/n Vcc/x.y PTRecord Hop/n*

This component stores the result of a hop from a trace. An instance of this component is dynamically created for each hop in a trace record.

Depending on the hops, different attributes are present.

Dyn. Subcomp. "COMPONENT AtmIf Pnni Ptf PTRecord Hop VendorSpecificInfo (Vsi)"

Common Verbs
Help
List
Display

## GROUP AtmIf Pnni Ptf PTRecord Hop Operational (Oper)

Properties Operational

Description This group contains the operational attributes for the component *AtmPathTraceFilterRecordHop*.

## ATTRIBUTE AtmIf Pnni Ptf PTRecord Hop ingressVpiVci (vpiVci)

Access
Read: All
Write: Illegal

Criticality Component

Description This attribute indicates the VPI.VCI values used for this hop on the ingress side. This is the ingress side with respect to the trace or setup messages. This attribute is displayed for ATM interfaces only.

The VPI.VCI values are included in the trace when the *traceInfo* attribute sets the ***connId*** value.

Values Integer Sequence (0..4095; 0..65535)

Default No default

### ATTRIBUTE AtmIf Pnni Ptf PTRecord Hop ingressDlci (dlci)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the DLCI value used for this hop on the ingress side. This is the ingress side with respect to the trace or setup message. This attribute is displayed for FrAtm interfaces only.<br><br>The DLCI is included in the trace when the *traceInfo* attribute sets the ***connId*** value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Pnni Ptf PTRecord Hop ingressCallReference (callref)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the call reference value used for this hop on the ingress side. This is the ingress side with respect to the trace or setup message.<br><br>The call reference is included in the trace when the *traceInfo* attribute sets the ***callRef*** value |
| Values | Hex (H.0..H.ffffff) |
| Default | No default |

### ATTRIBUTE AtmIf Pnni Ptf PTRecord Hop ingressEndPointReference (epref)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the end point reference value used for this hop on the ingress side. This is the ingress side with respect to the trace or setup messages. |

| | |
|---|---|
| | The end point reference is included in the trace when the *traceInfo* attribute sets the ***callRef*** value and the connection is point-to-multipoint. |
| Values | Hex (H.0..H.ffff) |
| Default | No default |

### ATTRIBUTE AtmIf Pnni Ptf PTRecord Hop nodeId

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the lowest level node ID traversed for this hop. |
| Values | String (22, Hex) |
| Default | No default |

### ATTRIBUTE AtmIf Pnni Ptf PTRecord Hop nodeName

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the *nodeName* under the *ModuleData* component for this hop. Only Passport nodes provide this information by including it in the Vendor Specific group. |
| Values | String (12, ASCII) |
| Default | No default |

### ATTRIBUTE AtmIf Pnni Ptf PTRecord Hop portId

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the port identifier value for this hop on the egress side. This is the egress side with respect to the trace or setup messages. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Pnni Ptf PTRecord Hop portName

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the port name for this hop on the egress side. This is the egress side with respect to the trace or setup messages. Only Passport nodes provide this information by including it in the Vendor Specific group. |
| Values | String (55, ASCII) |
| Default | No default |

### ATTRIBUTE AtmIf Pnni Ptf PTRecord Hop pnniTraceContRefusalIndPresent (refusal)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates whether the “PNNI Trace Continuation Refusal” indicator is present. The “PNNI Trace Continuation Refusal” indicator indicates that this hop has refused to participate in the trace. |
| Values | absent<br>present |
| Default | absent |

### ATTRIBUTE AtmIf Pnni Ptf PTRecord Hop crankbackDestNodeIndPresent (dest)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates whether the “PNNI Crankback Received at the Trace Destination Node” indicator is present. The “PNNI Crankback Received at Trace Destination Node” indicator |

| | |
|---|---|
| | indicates that this hop is acting as a trace destination node, receiving a crankback for this call from a non-PNNI interface. |
| Values | absent<br>present |
| Default | absent |

### ATTRIBUTE AtmIf Pnni Ptf PTRecord Hop pnniCrankbackGapIndPresent (gap)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates whether the “PNNI Crankback Gap” indicator is present. The “PNNI Crankback Gap” indicator indicates that the call experienced a crankback, where no Trace Transit List IE was returned by the node initiating the crankback. |
| Values | absent<br>present |
| Default | absent |

### ATTRIBUTE AtmIf Pnni Ptf PTRecord Hop crankBackCause (cause)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the crankback cause. Please refer to Private-Network-to-Network-Interface Specification Version 1.0 for more information.<br><br>This attribute is present when the *traceInfo* attribute sets the ***crankBack*** value and the connection has initiated the crankback procedure. |
| Values | Decimal (0..1000) |
| Default | No default |

### ATTRIBUTE AtmIf Pnni Ptf PTRecord Hop blockedTransitType (type)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the blocked transit type.<br><br>This attribute is present when the *traceInfo* attribute sets the ***crankBack*** value and the connection has initiated the crankback procedure. |
| Values | Succeeding end blocked<br>Blocked node<br>Blocked link |
| Default | No default |

### ATTRIBUTE AtmIf Pnni Ptf PTRecord Hop blockedNodeId (bNodeId)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the blocked node ID during the call setup request. The blocked node ID identifies the logical node where the connection or party has been blocked.<br><br>This attribute is present when the *blockedTransitType* attribute is ***Blocked node.*** |
| Values | String (22, Hex) |
| Default | No default |

### ATTRIBUTE AtmIf Pnni Ptf PTRecord Hop blockedLinkPrecedingNodeId (pNodeId)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the blocked link's preceding node ID during the call setup request. The blocked link's preceding node ID identifies the logical node preceding a link, where the |

connection or party has been blocked.

This attribute is present when the *blockedTransitType* attribute is ***Blocked link***.

Values: String (22, Hex)

Default: No default

### ATTRIBUTE AtmIf Pnni Ptf PTRecord Hop blockedLinkPortId (bPortId)

Access: Read: All
Write: Illegal

Criticality: Component

Description: This attribute indicates the blocked link's port identifier used for this connection during the call setup request. The blocked link's port identifier identifies a logical port of the blocked link's preceding node identifier.

This attribute is present when the *blockedTransitType* attribute is ***Blocked link.***

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE AtmIf Pnni Ptf PTRecord Hop blockedLinkSucceedingNodeId (sNodeId)

Access: Read: All
Write: Illegal

Criticality: Component

Description: This attribute indicates the blocked link's succeeding node ID during the call setup request. The blocked link's succeeding node ID identifies the logical node succeeding a link where the connection or party has been blocked.

This attribute is present when the *blockedTransitType* attribute is ***Blocked link.***

Values: String (22, Hex)

Default: No default

### ATTRIBUTE AtmIf Pnni Ptf PTRecord Hop dstVpiVci

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the VPI.VCI values on the destination side. This attribute only appears in the trace result for the trace destination node. This attribute is only displayed for ATM interfaces.<br><br>The VPI.VCI is included in the trace when the *traceInfo* attribute sets the ***connId*** value. |
| Values | Integer Sequence (0..4095; 0..65535) |
| Default | No default |

### ATTRIBUTE AtmIf Pnni Ptf PTRecord Hop dstDlci

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the DLCI value on the destination side. This attribute only appears in the trace result for the trace destination node. This attribute is only displayed for FrAtm interfaces.<br><br>The DLCI is included in the trace when the *traceInfo* attribute sets the ***connId*** value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Pnni Ptf PTRecord Hop dstCallReference (dcr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |

| | |
|---|---|
| Description | This attribute indicates the call reference value on the destination side. This attribute only appears in the trace result for the trace destination node.<br><br>The call reference value is included in the trace when the *traceInfo* attribute sets the ***callRef*** value. |
| Values | Hex (H.0..H.ffffff) |
| Default | No default |

### ATTRIBUTE AtmIf Pnni Ptf PTRecord Hop dstEndPointReference (depr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates the end point call reference value on the destination side. This attribute only appears in the trace result for the trace destination node.<br><br>The call reference value is included in the trace when the *traceInfo* attribute sets the ***callRef*** value and the connection is point-to-multipoint. |
| Values | Hex (H.0..H.ffff) |
| Default | No default |

### ATTRIBUTE AtmIf Pnni Ptf PTRecord Hop specifiedPath

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Component |
| Description | This attribute indicates whether this hop is the originator of this manually configured path. Only Passport nodes provide this information by including it in the Vendor Specific group. |
| Values | no<br>yes |
| Default | no |

## COMPONENT AtmIf Pnni Ptf PTRecord Hop VendorSpecificInfo (Vsi)

| | |
|---|---|
| Instance | Decimal (0..10) |
| Groups | "GROUP AtmIf Pnni Ptf PTRecord Hop Vsi Operational (Oper)" |
| Scope | Device |
| Description | *AtmIf/n Aini Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Iisp Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Uni Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vpt/n Aini Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vpt/n Iisp Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vpt/n Uni Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vpt/n Pnni Ptf PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vcc/x.y PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vpc/n PTRecord Hop/n VendorSpecificInfo/m*<br>*AtmIf/n Vpt/n Vcc/x.y PTRecord Hop/n VendorSpecificInfo/m*<br><br>This component stores the vendor specific information of a non-Passport node for a hop. An instance of this component is dynamically created for the vendor specific information group of a hop in a trace. Several instances of this component are created if the trace has several groups of vendor specific information.<br><br>All the trace information for a Passport node is stored in the *PTRecord Hop/** component. |
| Common Verbs | Help<br>List<br>Display |

## GROUP AtmIf Pnni Ptf PTRecord Hop Vsi Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for the component *AtmPathTraceFilterRecordHopVen*. |

## ATTRIBUTE AtmIf Pnni Ptf PTRecord Hop Vsi length

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute indicates the length of the vendor specific information group. |
| Values | Decimal (0..11) |
| Default | No default |

### ATTRIBUTE AtmIf Pnni Ptf PTRecord Hop Vsi organizationUniqueId (oui)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the Organization Unique Identifier (OUI) of a non-Passport node. |
| Values | String (3, Dashed Hex) |
| Default | No default |

### ATTRIBUTE AtmIf Pnni Ptf PTRecord Hop Vsi data

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the contents of the vendor specific information group. |
| Values | String (1..8, Hex) |
| Default | No default |

### COMPONENT AtmIf Pnni PathTraceTestConnection (Ptt)

| | |
|---|---|
| Groups | "GROUP AtmIf Pnni Ptt Operational (Oper)" |
| Scope | Device |
| Description | *AtmIf/n Aini PathTraceTestConnection*<br>*AtmIf/n Iisp PathTraceTestConnection*<br>*AtmIf/n Uni PathTraceTestConnection*<br>*AtmIf/n Pnni PathTraceTestConnection*<br>*AtmIf/n Vpt/vpi Aini PathTraceTestConnection*<br>*AtmIf/n Vpt/vpi Iisp PathTraceTestConnection*<br>*AtmIf/n Vpt/vpi Uni PathTraceTestConnection*<br>*AtmIf/n Vpt/vpi Pnni PathTraceTestConnection* |

This component provides the capability to control the Path Trace Test Connection. A test connection is one way to find the logical nodes and ports that a connection traverses to a destination interface.

The *Trace* verb is used to initiate the test connection. The test connection is always released once it reaches the trace destination. The test connection responds with the trace results collected during a complete or partial trace.

Common Verbs

Help
List
Display

## VERB TRACE AtmIf Pnni Ptt

Impact: Passive

Description:

*TRACE AtmIf/n Aini AtmPathTraceTest*
*TRACE AtmIf/n Iisp AtmPathTraceTest*
*TRACE AtmIf/n Uni AtmPathTraceTest*
*TRACE AtmIf/n Pnni AtmPathTraceTest*
*TRACE AtmIf/n Vpt/vpi Aini AtmPathTraceTest*
*TRACE AtmIf/n Vpt/vpi Iisp AtmPathTraceTest*
*TRACE AtmIf/n Vpt/vpi Uni AtmPathTraceTest*
*TRACE AtmIf/n Vpt/vpi Pnni AtmPathTraceTest*

This command is used to initiate a Path Trace Test Connection and then responds with a list of logical nodes and ports from the trace source node to the trace destination node.

Only one *Trace* command is allowed at a time per signaling interface. If the test connection times out, the command fails.

## GROUP AtmIf Pnni Ptt Operational (Oper)

Properties: Operational

Description: This group contains the operational attributes for the *AtmPathTraceTest* component.

## ATTRIBUTE AtmIf Pnni Ptt traceCrankback

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute controls what trace information the trace records include. If the option is turned on, all attempted paths are recorded including the final one. If the option is turned off, only the information of the final path is recorded. If the connection fails to reached the destination, no path information is returned. |
| Values | no<br>yes |
| Default | no |

## ATTRIBUTE AtmIf Pnni Ptt txTrafficDescType (txTdt)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the type of traffic management applied to the transmit direction, as defined by the ATM Forum. The *txTrafficDescType* determines the number and meaning of the parameters in the *txTrafficDescParm* attribute. |
| Values | 1<br>2<br>3<br>4<br>5<br>6<br>7<br>8<br>9 |
| Default | 1 |

## ATTRIBUTE AtmIf Pnni Ptt rxTrafficDescType (rxTdt)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the type of traffic management, which is applied to the receive direction of this connection, as defined in |

the ATM Forum. The *rxTrafficDescType* determines the number and meaning of the parameters in the *rxTrafficDescParm* attribute

When ***sameAsTx*** is selected, the *rxTrafficDescType* and the *rxTrafficDescParm* are taken from the transmit values.

Values
1
2
3
4
5
6
7
8
9
sameAsTx

Default
sameAsTx

## ATTRIBUTE AtmIf Pnni Ptt atmServiceCategory (service)

Access
Read: All
Write: All

Criticality
Component

Description
This attribute specifies the ATM service category for both directions of the connection.

If this attribute is set to ***derivedFromBBC***, the Broadband Bearer Capability (BBC) and *bestEffort* attributes are used to determine the *atmServiceCategory* of this connection.

If this attribute is set to a possible attribute other than ***derivedFromBBC***, the value of this attribute is used to override the provisioned BBC IE parameters. In those cases, the BBC attributes are not used.

The ***constantBitRate*** service category is intended for real time applications, that is, those requiring tightly constrained delay and delay variation such as for voice and video applications.

The ***rtVariableBitRate*** service category is intended for real time applications, that is, those requiring tightly constrained delay and delay variation, such as for voice and video applications. Sources are expected to transmit at a rate which varies with time. Equivalently, the source can be described as “bursty”. Cells, which are delayed beyond the value specified by CTD, are assumed to be of significantly reduced value to the application. The VBR real time service may support statistical multiplexing of real time sources.

The ***nrtVariableBitRate*** service category is intended for non-real time applications which have bursty traffic characteristics and can be characterized in terms of a PCR, SCR, and MBS.

The ***unspecifiedBitRate*** service is intended for non-real time applications, that is, those not requiring tightly constrained delay and delay variation. UBR sources are expected to be bursty. The UBR service supports a high degree of statistical multiplexing among sources.

Values
unspecifiedBitRate (ubr)
constantBitRate (cbr)
rtVariableBitRate (rtvbr)
nrtVariableBitRate (nrtvbr)
derivedFromBBC (derived)

Default
unspecifiedBitRate

## ATTRIBUTE AtmIf Pnni Ptt fwdQosClass (fwdQos)

Access
Read: All
Write: All

Criticality
Component

Description
This attribute specifies the quality of service for the forward direction for this connection.

Class ***1*** supports a QOS that will meet Service Class A performance requirements (circuit emulation, constant bit rate video).

Class ***2*** supports a QOS that will meet Service Class B

performance requirements (variable bit rate audio and video).

Class ***3*** supports a QOS that will meet Service Class C performance requirements (connection-oriented data transfer).

Class ***4*** supports a QOS that will meet Service Class D performance requirements (connectionless data transfer).

Class ***0*** is the unspecified bit rate QOS class; no objective is specified for the performance parameters.

Values
0
1
2
3
4

Default
0

## ATTRIBUTE AtmIf Pnni Ptt bwdQosClass (bwdQos)

Access
Read: All
Write: All

Criticality
Component

Description
This attribute specifies the quality of service for the backward direction for this connection.

Class ***1*** supports a QOS that will meet Service Class A performance requirements (circuit emulation, constant bit rate video).

Class ***2*** supports a QOS that will meet Service Class B performance requirements (variable bit rate audio and video).

Class ***3*** supports a QOS that will meet Service Class C performance requirements (connection-oriented data transfer).

Class ***4*** supports a QOS that will meet Service Class D performance requirements (connectionless data transfer).

Class ***0*** is the unspecified bit rate QOS class; no objective is

specified for the performance parameters.

The ***sameAsFwd*** selection sets the backward quality of service to be the same as the forward quality of service.

Values
0
1
2
3
4
sameAsFwd

Default
sameAsFwd

## ATTRIBUTE AtmIf Pnni Ptt bearerClassBbc (bcBbc)

Access
Read: All
Write: All

Criticality
Component

Description
This attribute specifies the bearer capability. It is one of the Broadband Bearer Capability (BBC) attributes. The purpose of the BBC information element is to indicate a requested broadband connection-oriented bearer service to be provided by the network.

The value ***derivedFromServiceCategory*** specifies that the actual value, which is used for this connection and is derived from the value of the *atmServiceCategory*. Either this attribute must be set to ***derivedFromServiceCategory***, or the *atmServiceCategory* attribute must be set to ***derivedFromBBC***, but not both.

Class ***a*** service is a connection-oriented, constant bit rate ATM transport service. Class ***a*** service has end-to-end timing requirements and may require stringent cell loss, cell delay and cell delay variation performance.When ***a*** is set, the user is requesting more than an ATM only service. The network may look at the AAL to provide inter-working based on its contents.

Class ***c*** service is a connection-oriented, variable bit rate ATM transport service. Class ***c*** service has no end-to-end timing requirements. When ***c*** is set, the user is requesting more than an

ATM only service. The network inter-working function may look at the AAL and provide service based on it.

Class ***x*** service is a connection-oriented ATM transport service where the AAL, *trafficType* (***vbr*** or ***cbr***), and timing requirements are user defined (that is, transparent to the network).When ***x*** is set, the user is requesting an ATM only service from the network. In this case, the network shall not process any higher layer protocols.

Values
a
c
x
derivedFromServiceCategory

Default
derivedFromServiceCategory

### ATTRIBUTE AtmIf Pnni Ptt transferCapabilityBbc (tcBbc)

Access
Read: All
Write: All

Criticality
Component

Description
This attribute specifies the transfer capability for this connection. UNI 3.0/3.1 traffic type and end-to-end timing parameters are mapped into this parameter as follows:
<transferCapability: TrafficType, Timing>
***0***: NoIndication, NoIndication
***1***: NoIndication, yes
***2***: NoIndication, no
***5***: CBR, yes
***8***: VBR, NoIndication
***9***: VBR, yes
***10***: VBR, no

***NotApplicable*** specifies that the user does not want to specify the transfer capability.

The CBR traffic type refers to the traffic offered on services such as a constant bit rate video service or a circuit emulation.

The VBR traffic type refers to the traffic offered on services such

as packetized audio and video, or data.

The value ***NoIndication*** for traffic type is used if the user has not set the traffic type. This is also the case for end-to-end timing.

The value ***yes*** for end-to-end timing indicates that end-to-end timing is required.

The value ***no*** for end-to-end timing indicates that end-to-end timing is not required.

The value ***derivedFromServiceCategory*** specifies that the actual value which is used for this connection and is derived from the value of the *atmServiceCategory.* Either, this attribute must be set to ***derivedFromServiceCategory*** or the *atmServiceCategory* attribute must be set to ***derivedFromBBC***, but not both.

Values
0
1
2
5
8
9
10
notApplicable
derivedFromServiceCategory

Default
derivedFromServiceCategory

## ATTRIBUTE AtmIf Pnni Ptt clippingBbc (cBbc)

Access
Read: All
Write: All

Criticality
Component

Description
This attribute specifies the value for the clipping susceptibility parameter in the BBC IE. This attribute is only used for SPVC connections. It is one of the Broadband Bearer Capability attributes.

Clipping is an impairment where the first fraction of a second of information to be transferred is lost. It occurs after a call is

answered and before an associated connection is switched through.

Values
no
yes

Default
no

## ATTRIBUTE AtmIf Pnni Ptt bestEffort

Access
Read: All
Write: All

Criticality
Component

Description
This attribute specifies the value of the best effort parameter in the ATM Traffic Descriptor IE. It is one of the Broadband Bearer Capability attributes.

The value ***indicated*** implies that the quality of service for this connection is not guaranteed.

The value ***notIndicated*** implies that the quality of service for this connection is guaranteed.

The value ***derivedFromServiceCategory*** specifies that the actual value, which is used for this connection, is derived from the value of the *atmServiceCategory.* Either this attribute must be set to ***derivedFromServiceCategory*** or the *atmServiceCategory* attribute must be set to ***derivedFromBBC***, but not both.

Values
indicated
notIndicated
derivedFromServiceCategory (derived)

Default
derivedFromServiceCategory

## ATTRIBUTE AtmIf Pnni Ptt testCalledAddress

Access
Read: All
Write: All

Criticality
Component

| | |
|---|---|
| Description | This attribute specifies the destination address of this test connection. |
| Values | String (20, Hex) |
| Default | No default |

### ATTRIBUTE AtmIf Pnni Ptt testCalledVpiVci

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the called VPI.VCI values for this test connection on the destination interface. |
| Values | Integer Sequence (0..4095; 0..65535) |
| Default | No default |

### ATTRIBUTE AtmIf Pnni Ptt testSpecifiedPath

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the path that will be used to get to the destination of this test connection. |
| Values | String (0..32, ASCII) |
| Default | No default |

### ATTRIBUTE AtmIf Pnni Ptt bwdQosParameters (bqp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is a vector of three elements that specify the quality of service parameters for the backward direction for this connection. This attribute is used for SPVC connections.<br><br>The ***cdv*** element specifies the acceptable peak-to-peak cell delay variation (CDV) of real-time connections (CBR and rt-VBR). |

It is signaled through the extended QoS information element.

The ***ctd*** specifies the acceptable maximum cell transfer delay (maxCtd) of real-time connections (CBR and rt-VBR). It is signaled through the end-to-end transit delay information element.

The ***clr*** specifies the acceptable cell loss ratio (CLR) of CBR, rt-VBR, and nrt-VBR connections. It is signaled through the extended QoS information element.

Vector of: Decimal (0..2147483647)

Index:
cdv
ctd
clr

Default: (cdv: 16777215, ctd: 16777215, clr: 255)

## ATTRIBUTE AtmIf Pnni Ptt fwdQosParameters (fqp)

Access: Read and write

Description: This attribute is a vector of three elements that specify the quality of service parameters for the forward direction for this connection. This attribute is used for SPVC connections.

The ***cdv*** element specifies the acceptable peak-to-peak cell delay variation (CDV) of the real-time connections (CBR and rt-VBR). It is signaled through the extended QoS information element.

The ***ctd*** specifies the acceptable maximum cell transfer delay (maxCtd) of the real-time connections (CBR and rt-VBR). It is signaled through the end-to-end transit delay information element.

The ***clr*** specifies the acceptable cell loss ratio (CLR) of CBR, rt-VBR, and nrt-VBR connections. It is signaled through the extended QoS information element.

| | |
|---|---|
| Vector of | Decimal (0..2147483647) |
| Index | cdv<br>ctd<br>clr |
| Default | (cdv: 16777215, ctd: 16777215, clr: 255) |

### ATTRIBUTE AtmIf Pnni Ptt txTrafficDescParm (txTdp)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute is a vector of five traffic parameters whose meanings are defined by the *txTrafficDescType* attribute. The values of peak cell rate (PCR), sustained cell rate (SCR), minimum cell rate (MCR) and requested shaping rate are expressed in cells/second. THe maximum burst size (MBS) is expressed in cells. The cell delay variance tolerance (CDVT) is expressed in microseconds. The values of PCR, SCR, MBS, MCR and CDVT are used for the connection admission control (CAC). The value of the CDVT is only used for connections where the *atmServiceCategory* is ***constantBitRate***. For all other values of *atmServiceCategory*, the CDVT is ignored. The values of PCR, SCR, and the requested shaping rate are used to determine the actual shaping rate, where traffic shaping is enabled.<br><br>When *txTrafficDescType* is ***1*** or ***2***, all of the parameters must be set to zero.<br><br>When *txTrafficDescType* is ***3***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameter 1 must be non-zero. Parameters 2 and 3 must be zero.<br><br>When *txTrafficDescType* is ***4***, parameter 1 represents the PCR for CLP0+1 traffic with cell discard; parameter 2 represents the PCR |

for CLP equal to 0 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameter 1 must be greater than or equal to parameter 2. Parameters 1 and 2 must be non-zero. Parameter 3 must be zero.

When *txTrafficDescType* is ***5***, parameter 1 represents the PCR for CLP0+1 traffic with cell tagging; parameter 2 represents the PCR for CLP equal to 0 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameter 1 must be greater than or equal to parameter 2. Parameters 1 and 2 must be non-zero. Parameter 3 must be zero.

When *txTrafficDescType* is ***6***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the SCR for CLP0+1 traffic; parameter 3 represents the MBS for CLP0+1 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameters 1, 2, and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2. Parameter 5 must either be zero (unused) or greater than or equal to parameter 2.

When *txTrafficDescType* is ***7***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the SCR for CLP equal to 0 with cell discard; parameter 3 represents the MBS for CLP equal to 0 traffic; parameter 4 represents the CDVT; and parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameters 1, 2, and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2. Parameter 5 must either be zero (unused) or greater than or equal to parameter 2.

When *txTrafficDescType* is ***8***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the SCR for CLP equal to 0 traffic with cell tagging; parameter 3 represents the MBS for CLP equal to 0 traffic; parameter 4 represents the CDVT; and

parameter 5 represents the requested shaping rate. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameters 1, 2 and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2. Parameter 5 must either be zero (unused) or greater than or equal to parameter 2.

When *txTrafficDescType* is ***9***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the CDVT; parameter 3 represents the MCR; parameter 5 represents the requested shaping rate; and parameter 4 is not used and must be zero. A non-zero value in parameter 5 overrides any value in parameter 1. This result is used as the PCR. Parameter 1 must either be zero or be greater than or equal to parameter 3. Parameter 3 may be optionally zero. Parameter 5 must either be zero (unused) or greater than or equal to parameter 3.

Whenever it is valid for PCR to be specified, parameter 5 may also be used to specify a requested shaping rate. A non-zero value in parameter 5 overrides the value in parameter 1 and is used as the peak cell rate in the calculations of CAC and the shaping rate.

For *txTrafficDescType* ***3***, ***4***, ***5*** and ***9***, the transmit traffic should be shaped at the next rate less than the PCR.

For *txTrafficDescType* ***6***, ***7,*** and ***8***, the transmit traffic should be shaped at the highest available rate which is between PCR and SCR. However, if there is no available shaping rate between PCR and SCR, traffic should be shaped at the next rate above the PCR.

Vector of: Decimal (0..2147483647)

Index: Decimal (1..5)

Default: ([5] 0)

## ATTRIBUTE AtmIf Pnni Ptt rxTrafficDescParm (rxTdp)

Access: Read: All
Write: All

Description: This attribute is a vector of four traffic parameters whose meanings are defined by the *rxTrafficDescType* attribute. The

values of the peak cell rate (PCR) and sustained cell rate (SCR) are expressed in
cells/second. The maximum burst size (MBS) is expressed in cells. The value of the cell delay variance tolerance (CDVT) is expressed in microseconds. The values of PCR, SCR, MBS and CDVT are used for the usage parameter control (UPC).

When *rxTrafficDescType* is ***1*** or ***2***, all of the parameters must be set to zero (unused).

When *rxTrafficDescType* is ***3***, parameter 1 represents the PCR for CLP0+1 traffic. Parameter 1 must be non-zero. Parameters 2 and 3 must be set to zero (unused).

When *rxTrafficDescType* is ***4***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the PCR for CLP equal to 0 traffic with cell discard. Parameters 1 and 2 must be non-zero. Parameter 3 must be set to zero (unused). Parameter 1 must be greater than or equal to parameter 2.

When *rxTrafficDescType* is ***5***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the PCR for CLP equal to 0 traffic with cell tagging. Parameters 1 and 2 must be non-zero. Parameter 3 must be set to zero (unused). Parameter 1 must be greater than or equal to parameter 2.

When *rxTrafficDescType* is a ***6***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the SCR for CLP0+1 traffic; parameter 3 represents the MBS for CLP0+1 traffic. Parameters 1, 2, and 3 must be non-zero. Parameter 1 must be greater than or equal to Parameter 2.

When *rxTrafficDescType* is ***7***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the SCR for CLP equal to 0 traffic with cell discard; parameter 3 represents the MBS for CLP equal to 0 traffic. Parameters 1, 2 and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2.

When *rxTrafficDescType* is ***8***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the SCR for CLP equal to 0 traffic with cell tagging; parameter 3 represents the MBS for

CLP equal to 0 traffic. Parameter 1, 2, and 3 must be non-zero. Parameter 1 must be greater than or equal to parameter 2.

When *rxTrafficDescType* is ***9***, parameter 1 represents the PCR for CLP0+1 traffic; parameter 2 represents the CDVT; parameter 3 represents the MCR. Parameter 4 is not used and must be zero. Parameter 1 must either be zero or be greater than or equal to parameter 3. Parameter 3 may optionally be zero.

When *rxTrafficDescType* is any value from ***3*** through ***8***, parameter 4 represents the CDVT. If this value is zero, the CDVT is taken from the *ConnectionAdministrator* defaults for the particular *atmServiceCategory* of this connection.

When *rxTrafficDescriptorType* is ***3*** through ***9***, there are certain extreme combinations of *rxTrafficDescParm* which are outside the capabilities of the UPC hardware.

To calculate the limits, use the following formulae:
I1 = 1 000 000 000 / PCR
L1 = CDVT * 1000
I2 = 1 000 000 000 / SCR
L2 = CDVT + (MBS - 1) * (I2 - I1)
I1 and I2 must be less than or equal to 335 523 840. I1 + L1 must be less than or equal to 1 342 156 800. I2 + L2 must be less than or equal to 1 342 156 800. Note that I2 and L2 only apply when the *rxTrafficDescriptorType* is ***6*** through ***8***.

If the values of I1, L1, I2, or L2 are closer to the limits described above, a further restriction applies. Specifically, if either:
I1 > 41 940 480 or
I2 > 41 940 480 or
I1 + L1 > 167 769 600 or
I2 + L2 > 167 769 600
then both I1 and I2 must be greater than 20 480.

Parameter 5 of the *rxTrafficDescParm* is always unused.

If the *rxTrafficDescType* is ***sameAsTx***, the values in this attribute are taken from the *txTrafficDescParm*.

Vector of: Decimal (0..2147483647)

Index: Decimal (1..5)

Default: ([5] 0)

## COMPONENT AtmIf Pnni Reroute

Groups:
"GROUP AtmIf Pnni Reroute DomainOperational (DOper)"
"GROUP AtmIf Pnni Reroute LocalOperational (LOper)"
"GROUP AtmIf Pnni Reroute GlobalOperational (GOper)"
"GROUP AtmIf Pnni Reroute Statistics (Stats)"

Scope: Device

Description:
*AtmIf/n Pnni Reroute*
*AtmIf/n Vpt/vpi Pnni Reroute*

This component represents the rerouting capabilities of the ATM Signaling interface. If this component is provisioned, the *Artg Pnni* component must already exist. The addition or deletion of this component, or changes to its provisionable attributes, does not affect existing connections.

Subcomponents: "COMPONENT AtmIf Pnni Reroute Ov"

Common Verbs:
Help
List
Display
Add
DELete

## VERB OPTIMIZE AtmIf Pnni Reroute

| | |
|---|---|
| Impact | Service |
| Description | *Optimize [-all] AtmIf/n Pnni Reroute*<br>*Optimize [-all] AtmIf/n Vpt/vpi Pnni Reroute*<br><br>This command triggers path optimization for the connection segments managed by the *Reroute* component.<br><br>By default, only connection segsforation. The best known optimization metric value for the connection segment is indicated by the *localOptimalMetricValue* attribute under the *RerouteInfo* component for the connection.<br>The *-all* option causes all connection segments subscribed to path optimization to be considered.<br><br>Using the *Optimize* command results in service disruptions when connection segments are moved to a better path. Care should be exercised when using this command. It is recommended that the command be used during maintenance windows. |

## GROUP AtmIf Pnni Reroute DomainOperational (DOper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes specific to rerouting activities on a PNNI interface. |

## ATTRIBUTE AtmIf Pnni Reroute localDomainLink (domain)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the local PNNI domain link type.<br><br>One of the following values is indicated:<br>***intraDomainLink***: The PNNI interface is not a local domain edge node.<br>***interDomainLink***: The PNNI interface acts as a local domain edge node. |
| Values | intraDomainLink<br>interDomainLink |

| | |
|---|---|
| Default | No default |

### GROUP AtmIf Pnni Reroute LocalOperational (LOper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes that indicate the local rerouting activities at the interface level. |

### ATTRIBUTE AtmIf Pnni Reroute localSubscribedConnections (lsub)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the connection segments that are subscribed to one or more local rerouting capabilities. Note that a given connection segment is subscribed to either local rerouting capabilities capabilities, not both. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Pnni Reroute localEligibleRecoveredCon (lerc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the connection segments that have been recovered using local rerouting and are eligible for local path optimization. The value decreases as counted connections are released. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Pnni Reroute localIneligibleRecoveredCon (lirc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the connection segments that have been recovered by local rerouting but are not eligible for local path optimization. The value decreases as counted connections are released. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Pnni Reroute localLastRrCauseCode (lrrcc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the value of the last local rerouting cause code received at this interface. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE AtmIf Pnni Reroute localPathsOptimized (lPathsOpt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the paths that were successfully optimized by local rerouting or EBR during the last optimization pass at this interface. Successfully optimized paths are paths that switched to a better route. The value is reset to zero at the beginning of each optimization pass. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP AtmIf Pnni Reroute GlobalOperational (GOper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes that indicate the global and EBR rerouting activities at the interface level. |

### ATTRIBUTE AtmIf Pnni Reroute globalSubscribedConnections (gsub)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the connection segments that are subscribed to one or more global and EBR rerouting capabilities. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Pnni Reroute globalEligibleRecoveredCon (gerc)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the connections that have been recovered by global and EBR rerouting and are eligible for global or EBR path optimization. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Pnni Reroute globalIneligibleRecoveredCon (girc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the connections that have been recovered by global and EBR rerouting but are not eligible for global or EBR path optimization. The value decreases as counted connections are released. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Pnni Reroute globalLastRrCauseCode (grrcc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the value of the last global or EBR rerouting cause code received at this interface. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE AtmIf Pnni Reroute globalPathsOptimized (gPathsOpt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the paths that were successfully optimized by global and EBR rerouting during the last optimization pass at this interface. Successfully optimized paths are paths that switched to a better route. The value is reset to zero at the beginning of each optimization pass. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## GROUP AtmIf Pnni Reroute Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the rerouting statistics for the interface. |

## ATTRIBUTE AtmIf Pnni Reroute totalLocalConnectionRecoveries (tLConRec)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts successful local connection recovery attempts. The counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## ATTRIBUTE AtmIf Pnni Reroute totalLocalFailedRecoveries (lFailedRec)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts failed local connection recovery attempts. A connection recovery attempt fails if a rerouting connection segment can not be established. The counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## ATTRIBUTE AtmIf Pnni Reroute totalLocalPathOptimizations (tLPathOpt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts successful local path optimization attempts. A successful path optimization attempt results in a switch to a better route. The counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## ATTRIBUTE AtmIf Pnni Reroute totalGlobalConnectionRecoveries (tGConRec)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts successful global and EBR connection recovery attempts. The counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Pnni Reroute totalGlobalFailedRecoveries (gFailedRec)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts failed global and EBR connection recovery attempts. A connection recovery attempt fails if a rerouting connection segment cannot be established. The counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Pnni Reroute totalGlobalPathOptimizations (tGPathOpt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts successful global and EBR path optimization attempts. A successful path optimization attempt results in a switch to a better route. The counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmIf Pnni Reroute totalOptimizationPasses (optPass)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts optimization passes at the interface. Both module and interface optimization passes are counted. The counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## COMPONENT AtmIf Pnni Reroute Ov

| | |
|---|---|
| Groups | "GROUP AtmIf Pnni Reroute Ov DomainProvisioned (DProv)"<br>"GROUP AtmIf Pnni Reroute Ov Provisioned (Prov)"<br>"GROUP AtmIf Pnni Reroute Ov LocalProvisioned (LProv)"<br>"GROUP AtmIf Pnni Reroute Ov GlobalProvisioned (GProv)" |
| Scope | Device |
| Description | *AtmIf/n Pnni Reroute Ov*<br>*AtmIf/n Vpt/vpi Pnni Reroute Ov*<br><br>This component represents the provisioning capabilities of the rerouting functionality for the ATM Signaling interface. |
| Common Verbs | Help<br>List<br>Display |

## GROUP AtmIf Pnni Reroute Ov DomainProvisioned (DProv)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes specific to rerouting on a PNNI interface. |

## ATTRIBUTE AtmIf Pnni Reroute Ov localDomainLink (domain)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the method used to identify the type of local domain link.<br><br>One of the following values can be specified:<br>***sameAsARtgPnniReroute***: The type of the local domain link is determined by the exchange of the *ARtg Pnni Reroute localDomain* value with the PNNI neighbor.<br>***intraDomainLink***: The result of the exchange of the *localDomain* is ignored. The local domain link type is set to intra-domain link.<br>***interDomainLink***: The result of the exchange of the *localDomain* is ignored. The local domain link type is set to inter-domain link. |

| | |
|---|---|
| Values | sameAsARtgPnniReroute (sameAs)<br>intraDomainLink (intra)<br>interDomainLink (inter) |
| Default | sameAsARtgPnniReroute |

## GROUP AtmIf Pnni Reroute Ov Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the common provisionable attributes for rerouting capabilities at the ATM signaling interface. |

## ATTRIBUTE AtmIf Pnni Reroute Ov protocol

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the rerouting protocols which are requested by connection segments on the interface, for which this node is the first rerouting node. This attribute has no effect on connection segments for which this node is not the first rerouting node. A subset of the requested protocols is granted by the last rendezvous node, according to its software level and provisioning.<br><br>One of the following values can be specified:<br>***sameAsARtgPnniReroute***: The requested rerouting protocols are specified by the *Artg Pnni Reroute protocol* attribute.<br>***localGlobal***: Local and global rerouting protocols are requested. Local and global rerouting are granted if the DTL terminator is provisioned with the Rerouting feature.<br>***localOnly***: Local rerouting is requested. This value guarantees interoperability with other vendors' equipment running the ATM Forum "Domain Based Rerouting" protocol. Local rerouting is granted if the DTL terminator is provisioned with the Rerouting feature.<br>***globalOnly***: Global rerouting is requested. Global rerouting is granted if the DTL terminator is provisioned with the Rerouting feature.<br>***localEbr*:** Local and EBR rerouting protocols are requested. Local rerouting is granted if the DTL terminator is provisioned with the Rerouting feature. Alternatively, EBR is granted if the DTL terminator is provisioned with the EBR feature. |

***ebrOnly***: EBR is requested. EBR is granted if the DTL terminator is provisioned with the EBR feature.

Values
localGlobal
localOnly
globalOnly
localEbr
ebrOnly
sameAsARtgPnniReroute (sameAs)

Default
sameAsARtgPnniReroute

## ATTRIBUTE AtmIf Pnni Reroute Ov numOptAttempts

Access
Read and write

Description
This attribute specifies the number of path optimizations attempted before declaring a recovered connection segment to be optimally routed. Following a connection recovery, each manual and automatic path optimization will attempt to optimize the connection segment. When a path is found with a better optimization metric than the best known value, or the number of optimization attempts is exhausted, the current optimization metric is declared to be the new optimal metric for the connection segment. Subsequent path optimizations will not attempt to optimize the connection segment unless all subscribed connection segments are eligible for path optimization.

If the value is set to ***0***, the optimization metric of a connection segment following connection recovery is declared to be the new optimal metric, and no connection recovery alarm is issued. A subsequent path optimization will not attempt to optimize the connection segment unless all subscribed connection segments are eligible for path optimization.

If the value is set to ***sameAsARtgPnniReroute***, the value of the *ARtg Pnni Reroute numOptAttempts* attribute is used.

Values
Decimal (0..15)
sameAsARtgPnniReroute (sameAs)

Default
sameAs

## ATTRIBUTE AtmIf Pnni Reroute Ov moduleOptimizationConnections

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies which connection segments on the interface will be considered by a module optimization pass as controlled by the *ARtg Pnni Reroute* component.<br><br>One of the following values can be specified:<br>***sameAsARtgPnniReroute***: The connection segments to be considered by a module optimization pass are specified by the *Artg Pnni Reroute moduleOptimization* attribute.<br>***none***: No connection segments are considered for path optimization.<br>***recoveredOnly***: Only connection segments which are foration. The best known optimization metric value for the connection segment is indicated by the *localOptimalMetricValue* attribute under the *RerouteInfo* component for the connection<br>***allSubscribed***: All connection segments subscribed to path optimization are considered. |
| Values | none<br>recoveredOnly<br>allSubscribed<br>sameAsARtgPnniReroute (sameAs) |
| Default | sameAsARtgPnniReroute |

## ATTRIBUTE AtmIf Pnni Reroute Ov switchoverMechanism

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the mechanism used for switchover of a rerouted connection segment.<br><br>One of the following values can be specified:<br>***sameAsARtgPnniReroute***: The switchover mechanism is specified by the *ARtg Pnni Reroute switchoverMechanism* attribute.<br>***standard***: The mechanism described in the ATM Forum “Domain based Rerouting” specification is used for switchover. This value ensures interoperability with other vendors’ equipment running ATM Forum “Domain based Rerouting”. |

***rcl***: The Reduced Cell Loss mechanism is used for switchover. RCL is a value-added Passport extension to the standard mechanism that allows faster switchover time.

Values
standard
rcl
sameAsARtgPnniReroute (sameAs)

Default
sameAsARtgPnniReroute

## GROUP AtmIf Pnni Reroute Ov LocalProvisioned (LProv)

Properties
Provisioned

Description
This group contains the provisionable attributes for EBR and local rerouting protocols.

## ATTRIBUTE AtmIf Pnni Reroute Ov localConnectionRecoverySubscr (lConRec)

Access
Read and write

Description
This attribute specifies which connection segments on the interface request subscription to local connection recovery. This attribute only affects connection segments that request the local rerouting protocols. This attribute affects connection segments for a node that is either local domain rerouting node or a DTL originator.

Connection segments of the specified type(s) which request ***localGlobal*** or ***localOnly*** protocols request subscription to local connection recovery.

Connection segments of the specified type(s) which request ***localEbr*** request subscription to both local connection recovery and EBR connection recovery. Only one will be granted.

One or more of the following values can be specified:
***sameAsARtgPnniReroute:*** If this value is set, the local connection recovery subscription rule is determined by the *ARtg Pnni Reroute localConnectionRecoverySubscr* attribute. This value takes precedence over any other values.
***svcSvp***: If this value is set, all SVC and SVP connection segments request subscription to local connection recovery.
***sourceSpvcSpvp***: If this value is set, all source SPVC and SPVP

connection segments request subscription to local connection recovery.
***transitSpvcSpvp***: If this value is set, all transit SPVC and SPVP connection segments request subscription to local connection recovery.

Set of: sameAsARtgPnniReroute (sameAs)
svc
sourceSpvcSpvp (source)
transitSpvcSpvp (transit)

Default: (sameAsARtgPnniReroute)

## ATTRIBUTE AtmIf Pnni Reroute Ov localPathOptimizationSubscr (lPathOpt)

Access: Read and write

Description: This attribute specifies which connection segments on the interface request subscription to local path optimization. This attribute only affects connection segments that request the local rerouting protocols. This attribute affects connection segments for a node that is either local domain rerouting node or a DTL originator.

Connection segments of the specified type(s) which request ***localGlobal*** or ***localOnly*** protocols request subscription to local path optimization.

Connection segments of the specified type(s) which request ***localEbr*** request subscription to both local path optimization and EBR path optimization. Only one will be granted.

One or more of the following values can be specified:
***sameAsARtgPnniReroute***: If this value is set, the local path optimization subscription rule is determined by the *ARtg Pnni Reroute localPathOptimizationSubscr* attribute. This setting takes precedence over the any other values.
***svcSvp***: If this value is set, then all SVC and SVP connection segments request subscription to local path optimization.
***sourceSpvcSpvp***: If this value is set, then all source SPVC and SPVP connection segments request subscription to local path optimization.
***transitSpvcSpvp***: If this value is set, then all transit SPVC and

SPVP connection segments request subscription to local path optimization.

Set of
sameAsARtgPnniReroute (sameAs)
svc
sourceSpvcSpvp (source)
transitSpvcSpvp (transit)

Default (sameAsARtgPnniReroute)

## GROUP AtmIf Pnni Reroute Ov GlobalProvisioned (GProv)

Properties Provisioned

Description This group contains the provisionable attributes for the global and EBR rerouting protocol.

## ATTRIBUTE AtmIf Pnni Reroute Ov globalConnectionRecoverySubscr (gConRec)

Access Read and write

Description This attribute specifies which connection segments on the interface request subscription to global or EBR connection recovery. This attribute only affects connection segments that request the global or EBR rerouting protocols. This attribute affects connection segments for a node that is a DTL originator.

Connection segments of the specified type(s) which request ***localGlobal*** or ***globalOnly*** protocols request subscription to global connection recovery.

Connection segments of the specified type(s) which request ***ebrOnly*** request subscription to EBR connection recovery.

Connection segments of the specified type(s) which request ***localEbr*** request subscription to both local connection recovery and EBR connection recovery. Only one will be granted.

One or more of the following values can be specified:
***sameAsARtgPnniReroute***: If this value is set, the global or EBR connection recovery subscription rule is determined by the *ARtg Pnni Reroute globalConnectionRecoverySubscr* attribute.This setting takes precedence over any other values.
***svcSvp***: If this value is set, then all SVC and SVP connection

segments request subscription to global or EBR connection recovery.
***sourceSpvcSpvp***: If this value is set, then all source SPVC and SPVP connection segments request subscription to global or EBR connection recovery.
***transitSpvcSpvp***: If this value is set, then all transit SPVC and SPVP connection segments request subscription to global or EBR connection recovery.

Set of — sameAsARtgPnniReroute (sameAs)
svc
sourceSpvcSpvp (source)
transitSpvcSpvp (transit)

Default — (sameAsARtgPnniReroute)

## ATTRIBUTE AtmIf Pnni Reroute Ov globalPathOptimizationSubscr (gPathOpt)

Access — Read and write

Description — This attribute specifies which connection segments on the interface request subscription to global or EBR path optimization. This attribute only affects connection segments that request the global or EBR rerouting protocols. This attribute affects connection segments for a node that is a DTL originator.

Connection segments of the specified type(s) which request ***localGlobal*** or ***globalOnly*** protocols request subscription to global path optimization.

Connection segments of the specified type(s) which request ***ebrOnly*** request subscription to EBR path optimization.

Connection segments of the specified type(s) which request ***localEbr*** request subscription to both local path optimization and EBR path optimization. Only one will be granted.

One or more of the following values can be specified:
***sameAsARtgPnniReroute***: If this value is set, the global or EBR path optimization subscription rule is determined by the *ARtg Pnni Reroute globalPathOptimizationSubscr* attribute. This setting takes precedence over any other values.
***svcSvp***: If this value is set, then all SVC and SVP connection

segments request subscription to global or EBR path optimization.
***sourceSpvcSpvp***: If this value is set, then all source SPVC and SPVP connection segments request subscription to global or EBR path optimization.
***transitSpvcSpvp***: If this value is set, then all transit SPVC and SPVP connection segments request subscription to global or EBR path optimization.

Set of
sameAsARtgPnniReroute (sameAs)
svc
sourceSpvcSpvp (source)
transitSpvcSpvp (transit)

Default
(sameAsARtgPnniReroute)

## COMPONENT AtmIf Pnni ServiceTrace (SrvTrace)

Groups
"GROUP AtmIf Pnni SrvTrace Operational"

Scope
Application

Description
*AtmIf/n [Vpt/m] Uni ServiceTrace*
*AtmIf/n [Vpt/m] Iisp ServiceTrace*
*AtmIf/n [Vpt/m] Pnni ServiceTrace*
*AtmIf/n [Vpt/m] Aini ServiceTrace*
The *ServiceTrace* component of the ATM service determines if the trace capability is allowed on this service. If it is not provisioned, then a service trace session cannot be started on this service.

Currently, the ATM Trace features only support ***frAtmTraceRcvr*** and ***atmTraceRcvr*** features, if the name of a X25 or FR receiver is set to the *receiver* attribute of this component, the *Start* command responses with a “Receiver Not Supported” message.

Common Verbs
Help
List
Display
Add
DELete

### VERB Start AtmIf Pnni SrvTrace

| | |
|---|---|
| Impact | Service |
| Description | *Start AtmIf/n [Vpt/m] Uni ServiceTrace*<br>*Start AtmIf/n [Vpt/m] Iisp ServiceTrace*<br>*Start AtmIf/n [Vpt/m] Pnni ServiceTrace*<br>*Start AtmIf/n [Vpt/m] Aini ServiceTrace*<br>This command starts a service trace session. |

### VERB Stop AtmIf Pnni SrvTrace

| | |
|---|---|
| Impact | Service |
| Description | *Stop AtmIf/n [Vpt/m] Uni ServiceTrace*<br>*Stop AtmIf/n [Vpt/m] Iisp ServiceTrace*<br>*Stop AtmIf/n [Vpt/m] Pnni ServiceTrace*<br>*Stop AtmIf/n [Vpt/m] Aini ServiceTrace*<br>This command stops a service trace session. |

### GROUP AtmIf Pnni SrvTrace Operational

| | |
|---|---|
| Properties | Operational |
| Description | This group provides the operational attributes for the *SrvTrace* component. |

### ATTRIBUTE AtmIf Pnni SrvTrace receiverName (rcvr)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute should be set to the name of the desired trace receiver before starting a trace session. All available trace receivers are listed under the *SrvTrace Rcvr* component. This attribute cannot be set while the service trace is active. The receiver name is validated by the trace manager when the service *SrvTrace* is started. |
| Values | String (0..8, ASCII) |
| Default | No default |

### ATTRIBUTE AtmIf Pnni SrvTrace duration

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute specifies the duration, in minutes, of a trace session. A value of ***0*** indicates unlimited duration in which case a trace session remains active until a *Stop* command is issued. This attribute cannot be set while a trace is active. |
| Values | Decimal (0..9999) |
| Units | minutes |
| Default | 60 |

### ATTRIBUTE AtmIf Pnni SrvTrace queueLimit

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the total number of bytes of traced data which may be queued for transmission to the trace receiver. When this limit is exceeded, incoming traced frames are discarded. This attribute can be set while a trace is active and takes effect immediately. |
| Values | Decimal (1..100) |
| Units | Kbyte |
| Default | 20 |

### ATTRIBUTE AtmIf Pnni SrvTrace session

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the *SrvTrace Session* component that is forwarding the trace data. This attribute is set automatically, and is empty unless the service trace is active. |
| Values | The name of the component |
| Default | No default |

Passport 7400, 15000, 20000

# Component AtmIf

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component AtmMpe

241-5701-060

Passport 7400, 15000, 20000

# Component AtmMpe

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT AtmMultiprotocolEncapsulation (AtmMpe)

| | |
|---|---|
| Instance | Decimal (0..2047) |
| Groups | "GROUP AtmMpe CustomerIdentifierData (CidData)"<br>"GROUP AtmMpe IfEntryProv (IfEntry)"<br>"GROUP AtmMpe Provisioned (Prov)"<br>"GROUP AtmMpe MediaProvisioned (MediaProv)"<br>"GROUP AtmMpe OsiState (State)"<br>"GROUP AtmMpe OperationalStatus (OperStatus)" |
| Scope | Application |
| Description | *AtmMpe/n*<br>This component represents a logical interface between the Virtual Router and an ATM media (*AtmIf*). Multiprotocol Encapsulation as specified in RFC1483 is used to transfer higher-layer protocol data across virtual channels in an ATM network. *AtmMpe*s provide a means to associate multiple ATM virtual channel connections with a single *VirtualRouter ProtocolPort*. The *AtmMpe* component is associated with a *ProtocolPort* via a linkage attribute and virtual channel connections via a linkage attribute in each *AtmConnection* subcomponent. |

| | |
|---|---|
| Subcomponents | "COMPONENT AtmMpe AtmConnection (Ac)" |
| Opt. Subcomp. | "COMPONENT AtmMpe SpvcTerminationPoint (Stp)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

### GROUP AtmMpe CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

### ATTRIBUTE AtmMpe customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.<br><br>Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.<br><br>An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of |

| | |
|---|---|
| | any component. Values 1 to 8191 inclusive (equivalent to “basic CIDs” in DPN) may be assigned to specific customers. |
| Values | Decimal (0; 1..8191) |
| Default | 0 |

### GROUP AtmMpe IfEntryProv (IfEntry)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the ifEntry. |

### ATTRIBUTE AtmMpe ifAdminStatus (ifState)

| | |
|---|---|
| Access | Read and write |
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE AtmMpe ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP AtmMpe Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |

| | |
|---|---|
| Description | This group contains the provisioned attributes for the *AtmMpe* component. |

### ATTRIBUTE AtmMpe maxTransmissionUnit (mtu)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute sets the size of the largest datagram which can be sent on the interface. This includes the size of the Logical Link Control header (if applicable) as well as the protocol data unit. |
| Values | Decimal (256..9188) |
| Units | octets |
| Default | 9188 |

### ATTRIBUTE AtmMpe encapType (etype)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the RFC-1483 encapsulation type to be used for the *AtmConnections* under this *AtmMpe*.<br><br>Specifying ***llcEncap*** allows multiplexing of multiple protocols over the *VCCs*. The protocol of the carried PDU will be identified by an IEEE 802.2 Logical Link Control header. If Inverse ARP is to be carried over a VCC, ***llcEncap*** must be used. If the *Stp* component exists under the *AtmMpe*, ***llcEncap*** must be used.<br><br>Specifying ***ipVcEncap*** indicates that all the VCCs (that is, *AtmConnection*s) under an *AtmMpe* component will use VC-based multiplexing and will carry IP PDUs only.<br><br>Specifying ***llcBridgeEncap*** indicates that the VCC (that is, the *AtmConnection*) under an *AtmMpe* component will use the bridged Ethernet encapsulation format specified in RFC-1483. Note that when setting the *encapType* attribute to ***llcBridgeEncap***, the *maxTransmissionUnit* must be set within the ***[256 .. 1524]*** range. |

| | |
|---|---|
| Values | llcEncap<br>ipVcEncap<br>llcBridgeEncap |
| Default | llcEncap |

### ATTRIBUTE AtmMpe ilsForwarder

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the *IlsForwarder* component this *AtmMpe* component is using. |
| Values | Link (Service, linkToTrafficSource) |
| Default | No default |

### GROUP AtmMpe MediaProvisioned (MediaProv)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the base provisioning data for the *AtmMpe* component.<br>// This group is excluded from the InwRtrAtmMpe component. |

### ATTRIBUTE AtmMpe linkToProtocolPort

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute contains a protocol port component name. The attribute associates an *AtmMpe* application with a protocol port. |
| Values | Link (Service, linkToMedia) |
| Default | No default |

### GROUP AtmMpe OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state |

combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE AtmMpe adminState (osiAdmin)

Access: Read only

Description: This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values: locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default: unlocked

### ATTRIBUTE AtmMpe operationalState (osiOper)

Access: Read only

Description: This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available

for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE AtmMpe usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP AtmMpe OperationalStatus (OperStatus)

Properties
Operational

Description
This group includes the Operational Status attribute. This attribute defines the current operational state of this component.

### ATTRIBUTE AtmMpe snmpOperStatus

Access
Read only

Description
The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable

to forward packets. ***testing*** state indicates that no operational packets can be passed.

Values
up
down
testing

Default
up

## COMPONENT AtmMpe AtmConnection (Ac)

Instance
Decimal (1..255)

Groups
"GROUP AtmMpe Ac Provisioned (Prov)"
"GROUP AtmMpe Ac OsiState (State)"
"GROUP AtmMpe Ac Operational (Oper)"
"GROUP AtmMpe Ac Statistics (Stats)"
"GROUP AtmMpe Ac IpIfLink"

Scope
Application

Description
*AtmMpe/n AtmConnection/n*
*Rtr/<string> Interface/<ipaddr> AtmMpe AtmConnection/n*
This component represents a virtual channel through which internetworking frames will be transported using rfc1483 encapsulation. The *AtmConnection* component contains OSI state information, frame based statistics, and the linkage to an ATM virtual channel connection. This component's instance value is used by higher-layer protocols when referring to a specific ATM connection.

Opt. Subcomp.
"COMPONENT AtmMpe Ac SourcePvc (SrcPvc)"
"COMPONENT AtmMpe Ac DestinationPvc (DstPvc)"

Dyn. Subcomp.
"COMPONENT AtmMpe Ac AtmConnection (AtmCon)"

Common Verbs
Help
List
Display
Add
DELete
LOCK
Unlock

## GROUP AtmMpe Ac Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioned attributes for the *AtmConnection* component. |

## ATTRIBUTE AtmMpe Ac atmConnection (link)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the ATM nailed up endpoint, *AtmIf/n Vcc/vpi.vci Nep*, that this connection is associated with. It must not be provisioned for an SPVC connection. |
| Values | Link (Service, applicationName) |
| Default | No default |

## ATTRIBUTE AtmMpe Ac ipCos

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the IP connection class of the *AtmConnection*. This value is used to distinguish the connection from others for the purpose of IP forwarding and IP accounting. IP connection class values vary in range from ***0*** to ***3*** allowing up to four connections to be distinguished on each next hop between IP routers.<br><br>If an IP packet is forwarded to a *ProtocolPort* or *Interface* configured to use more than one *AtmConnection*, then one of the connections is selected for transmitting the packet. The selection is made according to the connection class assigned to the packet.<br><br>An explanation of how an IP packet is assigned a connection class is found in the description of the *connectionClass* operational attribute of the *DifferentiatedServicesDomain PerHopBehavior* component, and in the description of *Vr Ip CosPolicyGroup* component. |

Modifying this attribute will reset the *AtmConnection*.

The remainder of this description applies only to an *AtmConnection* used by a *VirtualRouter ProtocolPort* and not to an *AtmConnection* used by a *Router Interface* or *VpnRouteForwarder Interface* component.

If the d*iffServAssignment* attribute of either the *Ip* or *IpPort* is set, then *ipCos* and *ipDscp* are codependent. The *ipCos* value must be equal to the *connectionClass* value of the *Virtual Router DiffServDomain PerHopBehavior* subcomponent whose instance value is equal to the *ipDscp* value. See the description of the *ipDscp* attribute for more information.

If the *VirtualRouter* does not have a *DifferentiatedServicesDomain* subcomponent, then *ipCos* also specifies the initial CoS value assigned to an IP packet received on the *AtmConnection*. See the description of *Vr Ip CosPolicyGroup* for more information.

Values: Decimal (0..3)

Default: 0

## ATTRIBUTE AtmMpe Ac ipDscp

Access: Read and write

Criticality: Component

Description: This attribute specifies the value marked into the Differentiated Services Code Point (DSCP) field of an IP packet received at an *IpPort* over the *AtmConnection*. This DSCP marking is applied only if one of the following conditions is true:

1) the *IpPort* is linked by its *diffServAssignment* attribute to a *Vr Ip DifferentiatedServices* interface configuration where the *baMode* attribute of the *IngressServices* subcomponent is set to ***link***, or

2) the *Ip* is linked by its *diffServAssignment* attribute to a *Vr Ip DifferentiatedServices* interface configuration where the *baMode*

attribute of the *IngressServices* subcomponent is set to ***link***, and the *IpPort* does not have the *diffServAssignment* attribute set.

If one of theseconditions is true, then the *ipDscp* value must match a *Virtual Router DifferentiatedServicesDomain PerHopBehavior* subcomponent instance value. See the description of *Vr Ip DifferentiatedServices* interface configuration for more information.

If the *VirtualRouter* does not have a *DifferentiatedServicesDomain* subcomponent, then *ipDscp* must be set to ***na***.

This attribute is not applicable to an *AtmConnection* associated with a *Router Interface* or *VpnRouteForwarder Interface* component.

Modifying this attribute will reset the *AtmConnection*.

Values

Decimal (0..63)
df
ef
af11
af12
af13
af21
af22
af23
af31
af32
af33
af41
af42
af43
cs0
cs1
cs2
cs3
cs4
cs5

| | |
|---|---|
| | cs6<br>cs7<br>na |
| Default | na |

### ATTRIBUTE AtmMpe Ac mplsSignaling (mplsSig)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies whether this AtmMpe Ac is dedicated for MPLS signaling (LDP or CR-LDP), or shared between MPLS and IP.<br>If the value is ***dedicated***, the *Ac* is dedicated for MPLS signaling; the route is not found in IP ARP. If the value is ***shared***, the *Ac* is accessible by IP.<br>The checking of this provisionable attribute is done through semantic checking. The attribute takes on the value ***shared*** by default, and can only be ***dedicated*** if there are more than one *Ac* under the *AtmMpe*. |
| Values | shared<br>dedicated |
| Default | shared |

### GROUP AtmMpe Ac OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE AtmMpe Ac adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component. |

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE AtmMpe Ac operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

## ATTRIBUTE AtmMpe Ac usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

## GROUP AtmMpe Ac Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for the *AtmConnection* component. |

## ATTRIBUTE AtmMpe Ac speed

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the approximate bit rate for the connection. The bit rate is determined from the cell rate provisioned for the *Vcc* linked to this connection. The cell rate is multiplied by 53 bytes per cell and 8 bits per byte to obtain the bit rate. The *ifSpeed* of the entry in the ifTable corresponding to the *AtmMpe* component is the lowest speed of all the connections associated with the *AtmMpe* component.<br><br>This attribute is always equal to 0 for an SPVC. |
| Values | Decimal (0..4294967295) |
| Units | bit/s |

| | |
|---|---|
| Default | No default |

### GROUP AtmMpe Ac Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the frame based statistics maintained for the *AtmConnection* component. For cell based statistics, see the *Vcc* component. |

### ATTRIBUTE AtmMpe Ac outPackets

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of packets sent on this connection. This counter will wrap around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmMpe Ac outOctets

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of octets sent on this connection. This counter will wrap around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmMpe Ac outDiscards

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of packets which were supposed to be sent on this connection but were discarded due to congestion or the connection being down. This counter will wrap around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmMpe Ac inPackets

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of packets received on this connection. This counter will wrap around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmMpe Ac inOctets

| | |
|---|---|
| Access | Read only |
| Description | The attribute counts the total number of octets received on this connection. This counter will wrap around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmMpe Ac inUnknownProtos

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of packets received on this connection which were discarded because they contained an unknown or unsupported protocol (includes packets received for protocols not currently bound to the associated *ProtocolPort* component). This counter will wrap around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE AtmMpe Ac inErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of packets received on the connection which contained errors preventing them from being delivered to a higher-layer protocol (includes short frames). This |

counter will wrap around to 0 when it exceeds its maximum count.

Values: Decimal (0..4294967295)

Default: No default

### GROUP AtmMpe Ac IpIfLink

Properties: Provisioned

Description: This group contains the link between this component and an *IpLogicalInterface*.

### ATTRIBUTE AtmMpe Ac linkToIpLogicalInterface (ipIf)

Access: Read and write

Description:

// Description to be changed... This attribute is check for Rtr and // Vrf to ensure it is blank.
This attribute specifies the IP logical interface, *Vr/m Pp/n IpPort LogicalIf/ipAddress*, that this connection is associated with.

When set, the value of this attribute must be consistent with the *linkToPrototocolPort* attribute value of the parent *AtmMpe* component. That is, they must both point to the same *PrototocolPort* component.

Values: Link (Service, linkToMediaConnection)

Default: No default

### COMPONENT AtmMpe Ac SourcePvc (SrcPvc)

Groups: "GROUP AtmMpe Ac SrcPvc Provisioned (Prov)"
"GROUP AtmMpe Ac SrcPvc Operational (Oper)"

Scope: Application

Description: *AtmMpe/n AtmConnection/m SrcPvc*
This component contains addressing and control information used by the calling SPVC endpoint to set up an SPVC connection

to a remote called SPVC endpoint. An *Stp* component must exist under the *Ac* component if a *SrcPvc* component exists.

Subcomponents "COMPONENT AtmMpe Ac SrcPvc TrafficManagement (Tm)"

Common Verbs

Help
List
Display
Add
DELete

### VERB Clear (Clr) AtmMpe Ac SrcPvc

Impact Service

Description *Clear AtmMpe/n Ac/m SrcPvc*
This command tears down the active SPVC connection under the *Ac* component. Each '*softPvcRetryPeriod*' the SPVC will attempt to re-establish.

If there is no active SPVC, the clear command has no effect.

### GROUP AtmMpe Ac SrcPvc Provisioned (Prov)

Properties Provisioned

Description This attribute group contains the provisionable attributes of the *SourcePvc* component.

### ATTRIBUTE AtmMpe Ac SrcPvc remoteAddress (raddr)

Access Read: All
Write: All

Criticality Component

Description This attribute specifies the NSAP address of the called SPVC endpoint (this must be a remote *AtmMpe* component).

Values String (20, Hex)

Default No default

### ATTRIBUTE AtmMpe Ac SrcPvc remoteConnectionIdentifier (rci)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the remote connection identifier of the SPVC. It is provisioned with the *Ac* instance of the *AtmMpe Ac* component at the called SPVC endpoint. |
| Values | Decimal (1..255) |
| Default | 1 |

### GROUP AtmMpe Ac SrcPvc Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains the operational attributes associated with the *SrvPvc* component. |

### ATTRIBUTE AtmMpe Ac SrcPvc state

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the status of the connection. |
| Values | active<br>inactive |
| Default | No default |

### ATTRIBUTE AtmMpe Ac SrcPvc retryCount (retry)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of failed connection attempts. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## ATTRIBUTE AtmMpe Ac SrcPvc lastClearCause (cause)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the last clear cause signalled by the connection due to a release. It is updated only if the clear request comes from the subnet or the call is rejected locally by the VC.<br><br>The set of possible values and their meaning can be found in the ATM Forum Private Network-Network Interface Specification Version 1.0, Section 6.4.5.19. |
| Values | Decimal (0..255) |
| Default | No default |

## COMPONENT AtmMpe Ac SrcPvc TrafficManagement (Tm)

| | |
|---|---|
| Groups | "GROUP AtmMpe Ac SrcPvc Tm Provisioned (Prov)" |
| Scope | Application |
| Description | *AtmMpe/n AtmConnection/m SrcPvc Tm*<br>This component contains ATM QoS information used by the calling endpoint of an SPVC connection to request a particular QoS from ATM. |
| Common Verbs | Help<br>List<br>Display<br>LOCK<br>Unlock |

## GROUP AtmMpe Ac SrcPvc Tm Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This attribute group contains the provisionable attributes of the *TrafficManagement* component. |

### ATTRIBUTE AtmMpe Ac SrcPvc Tm atmServiceCategory (service)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the desired ATM service category for this connection. |
| Values | unspecifiedBitRate (ubr)<br>rtVariableBitRate (rtvbr)<br>nrtVariableBitRate (nrtvbr)<br>constantBitRate (cbr) |
| Default | unspecifiedBitRate |

### ATTRIBUTE AtmMpe Ac SrcPvc Tm peakCellRate (pcr)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the desired peak cell rate (PCR) in both directions for this connection. Refer to NTP 241-5701-705 for more information on ATM Traffic Management. |
| Values | Decimal (0..2147483647) |
| Default | 0 |

### COMPONENT AtmMpe Ac DestinationPvc (DstPvc)

| | |
|---|---|
| Groups | "GROUP AtmMpe Ac DstPvc Operational (Oper)" |
| Scope | Application |
| Description | *AtmMpe/n AtmConnection/m DstPvc*<br>The *DestinationPvc* component represents the called endpoint of an SPVC connection. |

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### VERB Clear (Clr) AtmMpe Ac DstPvc

| | |
|---|---|
| Impact | Service |
| Description | *Clear AtmMpe/n Ac/m DstPvc*<br>This command tears down the active SPVC connection under the *Ac* component. Each '*softPvcRetryPeriod*' the SPVC will attempt to re-establish.<br><br>If there is no active SPVC, the clear command has no effect. |

### GROUP AtmMpe Ac DstPvc Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains the operational attributes for the *DstPvc* component. |

### ATTRIBUTE AtmMpe Ac DstPvc state

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the status of the connection. |
| Values | active<br>inactive |
| Default | No default |

### ATTRIBUTE AtmMpe Ac DstPvc remoteAddress (raddr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute indicates the NSAP address of the remote (calling) endpoint. If a connection is not established, *remoteAddress* is an ***empty string***. |
| Values | String (0..20, Hex) |
| Default | "" |

### ATTRIBUTE AtmMpe Ac DstPvc remoteConnectionIdentifier (rci)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the remote connection idenditifier of the remote (calling) SPVC endpoint (that is, the *Ac* instance of the remote *AtmMpe Ac* component). If the connection is not established, the *remoteConnectionIdentifier* is an ***empty string***. |
| Values | Decimal (1..255) |
| Default | No default |

### ATTRIBUTE AtmMpe Ac DstPvc lastClearCause (cause)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the last clear cause signalled by the connection due to a release. It is updated only if the clear request comes from the subnet or the call is rejected locally by the VC.<br><br>The set of possible values and their meaning can be found in the ATM Forum Private Network-Network Interface Specification Version 1.0, Section 6.4.5.19. |
| Values | Decimal (0..255) |
| Default | No default |

### COMPONENT AtmMpe Ac AtmConnection (AtmCon)

| | |
|---|---|
| Groups | "GROUP AtmMpe Ac AtmCon Operational (Oper)" |
| Scope | Device |

| | |
|---|---|
| Description | An AtmConnection component is created for each ATM connection established by an application. It shows where the data traffic for this connection is directed. |
| Common Verbs | Help<br>List<br>Display |

### GROUP AtmMpe Ac AtmCon Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains the operational attributes for the *NapAtmConnection* component. |

### ATTRIBUTE AtmMpe Ac AtmCon nextHop

| | |
|---|---|
| Access | Read only |
| Description | This attribute shows the component name of the *AtmIf Vcc Ep* or *AtmCon* component to which this switched connection is established. |
| Values | The name of the component |
| Default | No default |

### COMPONENT AtmMpe SpvcTerminationPoint (Stp)

| | |
|---|---|
| Groups | "GROUP AtmMpe Stp Provisioned (Prov)"<br>"GROUP AtmMpe Stp Operational (Oper)" |
| Scope | Application |
| Description | *AtmMpe/n SpvcTerminationPoint*<br>This component specifies the local NSAP address and the *softPvcRetryPeriod* for this application. Its presence identifies an *AtmMpe* component that contains one or more SPVC connections. |

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP AtmMpe Stp Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This attribute group contains the provisionable attributes of the *SpvcTerminationPoint* component. |

## ATTRIBUTE AtmMpe Stp localAddress (laddr)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the NSAP address of this *AtmMpe* component. The default is an empty string. If no NSAP address is provisioned, a default NSAP address is provided. To view the generated default address refer to the *opLocalAddress* attribute under this component after the *act prov* command is excuted. |
| Values | String (0..20, Hex) |
| Default | No default |

## ATTRIBUTE AtmMpe Stp softPvcRetryPeriod (retry)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the interval at which an SPVC connection attempts re-establishment after a failure. The *softPvcRetryPeriod* applies to all connections managed by the parent *AtmMpe* component. |
| Values | Decimal (10..3600) |

| | |
|---|---|
| Units | seconds |
| Default | 20 |

## GROUP AtmMpe Stp Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains the operational attributes associated with the *SpvcTerminationPoint* component. |

## ATTRIBUTE AtmMpe Stp opLocalAddress (addr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the NSAP address of this *AtmMpe* component. The value is the same as the provisioned *laddr*. If the *laddr* is not provisioned, the value of *addr* is automatically generated by the software. |
| Values | String (0..20, Hex) |
| Default | "" |

Passport 7400, 15000, 20000

# Component AtmMpe

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component Btds

241-5701-060

Passport 7400, 15000, 20000

# Component Btds

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT BitTransparentDataService (Btds)

| | |
|---|---|
| Instance | Decimal (1..65535) |
| Groups | "GROUP Btds CustomerIdentifierData (CidData)"<br>"GROUP Btds IfEntryProv (IfEntry)"<br>"GROUP Btds OperationalStatus (OperStatus)"<br>"GROUP Btds OsiState (State)"<br>"GROUP Btds Operational" |
| Scope | Application |
| Description | *BitTransparentDataService/n*<br>The Bit Transparent Data Service (BTDS) component defines an instance of the Bit transparent data service offered by Magellan Passport.<br>One instance of this component is required by each DS1, E1, V35 or V11 channel which is offering bit transparent traffic.<br>The instance number is arbitrary. |

| | |
|---|---|
| Subcomponents | "COMPONENT Btds Framer (Framer)"<br>"COMPONENT Btds PermanentLogicalConnection (Plc)" |
| Opt. Subcomp. | "COMPONENT Btds Dpnss1"<br>"COMPONENT Btds Mcdn" |
| Dyn. Subcomp. | "COMPONENT Btds LogicalConnection (LCo)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP Btds CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

## ATTRIBUTE Btds customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.<br><br>Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID. |

| | |
|---|---|
| | An operator CID of 0 is used to identify the Network Manager (referred to as “NetMan” in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to “basic CIDs” in DPN) may be assigned to specific customers. |
| Values | Decimal (0; 1..8191) |
| Default | 0 |

### GROUP Btds IfEntryProv (IfEntry)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the ifEntry. |

### ATTRIBUTE Btds ifAdminStatus (ifState)

| | |
|---|---|
| Access | Read and write |
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE Btds ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP Btds OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

### ATTRIBUTE Btds snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### GROUP Btds OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Btds adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. |

When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Btds operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
enabled (ena)
disabled (dis)

Default
disabled

## ATTRIBUTE Btds usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

## ATTRIBUTE Btds availabilityStatus (osiAvail)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present. |

The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.

The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.

The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.

The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

| | |
|---|---|
| Set of | inTest<br>failed<br>dependency (depend)<br>powerOff (pwrOff)<br>offLine<br>offDuty<br>degraded (degrad)<br>notInstalled (notIn)<br>logFull<br>migrating |
| Default | No default |

### ATTRIBUTE Btds proceduralStatus (osiProc)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.<br><br>The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.<br><br>The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***. |

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

### ATTRIBUTE Btds controlStatus (osiCntrl)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

| | |
|---|---|
| | The value ***suspended*** indicates that the service has been administratively suspended. |
| Set of | subjectToTest (subTst)<br>partOfServicesLocked (partLk)<br>reservedForTest (rsrvd)<br>suspended (suspnd) |
| Default | No default |

### ATTRIBUTE Btds alarmStatus (osiAlarm)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.<br><br>The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.<br><br>The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.<br><br>The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***. |

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE Btds standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values

hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

| | |
|---|---|
| Default | notSet |

### ATTRIBUTE Btds unknownStatus (osiUnknw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Unknown status of the component.<br><br>The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.<br><br>The value ***true*** indicates that the actual state of the component is not known for sure. |
| Values | false<br>true |
| Default | false |

### GROUP Btds Operational

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational attributes related to a *Btds*. |

### ATTRIBUTE Btds serviceFailureReason

| | |
|---|---|
| Access | Read: Passive<br>Write: Illegal |
| Description | This attribute indicates the result of end to end negotiation with the remote end across the subnet.<br><br>If *serviceFailureReason* is ***undetermined***, this *Btds* has not performed end to end negotiation with the remote end, and may or may not be up. *serviceFailureReason* is ***undetermined*** if this *Btds* just became enabled, if there is not enough available bandwidth to perform negotiation or if the remote end cannot perform negotiation with this *Btds*.<br>If *serviceFailureReason* is ***none***, end to end negotiation passed.<br>If *serviceFailureReason* is ***mismatchedService***, end to end negotiation failed because the remote end service is not a *Btds*.<br>If *serviceFailureReason* is ***mismatchedTimeSlotAlignment***, end |

to end negotiation failed because the local *Btds Framer timeSlotAlignment* does not match the remote *Btds Framer timeSlotAlignment*.
If *serviceFailureReason* is ***mismatchedCallDiscriminator***, the local *Btds* call discrimination subcomponents (*Btds Mcdn* and *Btds Dpnss1*) do not match the remote *Btds* call discrimination subcomponents.
If *serviceFailureReason* is ***compDecodeFailed***, end to end negotiation failed because the information received from the remote end was not recognized as valid data.

Set of
none
undetermined
logicalConnection
mismatchedService
mismatchedTimeSlotAlignment
mismatchedCallDiscriminator
compDecodeFailed

Default
No default

## COMPONENT Btds Framer (Framer)

Groups
"GROUP Btds Framer Provisioned (Prov)"
"GROUP Btds Framer ChannelOptions (Channel)"
"GROUP Btds Framer OsiState (State)"
"GROUP Btds Framer Statistics (Stats)"

"COLLECTED STATS BitTransparentDataService Framer"

Scope
Application

Description
*Btds/n Framer*
The Framer component controls link layer framing for application components sending and receiving data on a link interface. It is also through Framer, that an application component is associated with a specific hardware link interface.

The Framer component provides provisionable attributes related to datapath aspects of the hardware interface rather than interface specific attributes which are associated with specific hardware components (such as V35/n or DS1/n). The Framer component also provides a provisionable attribute which binds the

application component to a specific hardware component. The Framer component contains operational attributes for link interface datapath statistics (such as frame counts).

Common Verbs

Help
List
Display

## GROUP Btds Framer Provisioned (Prov)

Properties: Provisioned

Description

This group contains the base provisioning data for the *Framer* component. Application or hardware interface specific provisioning data is contained in other provisionable *Framer* groups.

## ATTRIBUTE Btds Framer interfaceName

Access: Read and write

Criticality: Process

Description

This attribute contains a hardware component name.

The attribute associates the application with a specific link. This defines the module processor on which *Framer*'s parent component (as well as *Framer* itself) will run.

Values: Link (Hardware, applicationFramerName)

Default: No default

## GROUP Btds Framer ChannelOptions (Channel)

Properties: Provisioned

Description: This group contains attributes defining the framing of data on the link interface or n*64kbps channel.

### ATTRIBUTE Btds Framer protocol

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the ingress frames suppressed by this *Btds*.<br>If *protocol* is ***none***, this *Btds* does not suppress any ingress frames.<br>If *protocol* is ***hdlc***, this *Btds* suppresses ingress frames where each byte is an identical non-inverted hdlc idle pattern, but only after two or more consecutive frames meet this description.<br>If *protocol* is ***nrziHdlc***, this *Btds* suppresses ingress frames where each byte is an identical NRZI encoded hdlc idle pattern, but only after two or more consecutive frames meet this description.<br>If *protocol* is ***universal***, this *Btds* suppresses ingress frames where each 16-bit word is identical, but only after a provisionable number of consecutive frames meet this description. The number of consecutive frames is determined by *numOfIdleBytesToMonitor*.<br>Note that the number of idle bytes suppressed at the ingress side does not necessarily equal the number of idle bytes generated at the egress side.<br><br>It is a semantic check warning if *protocol* is ***hdlc***, ***nrziHdlc*** or ***universal*** and this *Btds* is running on a ***1pE1Mvp***, ***1pDS1Mvp*** or ***1pTTC2mMvp*** card. |
| Values | none<br>hdlc<br>nrziHdlc<br>universal |
| Default | none |

### ATTRIBUTE Btds Framer numOfIdleBytesToMonitor

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the number of consecutive repeated ingress 16-bit words this *Btds* must encounter before suppressing |

| | |
|---|---|
| | universal ingress idle frames. This attribute is only used if *protocol* is ***universal***. *numOfIdleBytesToMonitor* should be larger than the largest frame size that can be sent into this *Btds*. |
| Values | Decimal (0..32000) |
| Default | 0 |

### ATTRIBUTE Btds Framer idlePattern

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies how to fill a local egress frame when the remote *Btds* suppressed an ingress frame. |
| Values | Hex (H.0..H.ff) |
| Units | Hex |
| Default | H.ff |

### ATTRIBUTE Btds Framer timeSlotAlignment (tsa)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the time slot alignment of this *Btds*. With time slot alignment, data sent out on a particular time slot to a link is received on the same time slot. A value of unaligned specifies the regular Btds application. A value of frameAligned enables frame aligned Btds. When framed aligned Btds is specified, only one channel may be provisioned since only one fraction of N x 64 kbit/s is presently available.<br><br>timeSlotAlignment can not be set to frameAligned unless this Btds is running on a ***DS1V***, ***E1V***, ***1pDS1V*** or ***1pE1V*** card *timeSlotAlignment* must have the same value at both ends of a *Btds*. If *timeSlotAlignment* does not have the same value at both ends of a *Btds*, the *Btds* will be out of service. In this case, *Btds serviceFailureReason* is ***mismatchedTimeSlotAlignment***. |

| | |
|---|---|
| Values | unaligned<br>frameAligned |
| Default | unaligned |

### ATTRIBUTE Btds Framer insertedOutputDelay

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute defines the amount of added output delay to compensate for cross network delay variations. Cross network delay variations is a function of the network topology. Setting this attribute will allow the Btds service to deal with cross network delay variations.<br>This attribute provides for delay in addition to the elastic buffer. Total egress delay is approximately the insertedOutputDelay plus the elastic buffer. The elastic buffer is the packetization timex5 cells in the buffer. Packetization time per cell is calculated by taking the inverse of [linespeed(kbits/sec) x (byte/8bits) x (1/cellsize (bytes))]. This value is msec.The value for insertedOutputDelay should be increased if the frmUnderRuns is increasing and frmLostInNetwork is not increasing. |
| Values | Decimal (0..50) |
| Units | msec |
| Default | 12 |

### ATTRIBUTE Btds Framer btdsCellSize

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute allows selection of larger BTDS cell sizes. Larger BTDS cell sizes improve efficiency but increase the minimum egress queue delay. If the associated channel is using less than 5 *timeslots* (320 kbits/sec), the default *btdsCellSize* will be used. Setting *btdsCellSize* to **84** is only allowed on DS1 and E1 FPs. |
| Values | 44<br>84 |

| | |
|---|---|
| Units | bytes |
| Default | 44 |

### GROUP Btds Framer OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Btds Framer adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Btds Framer operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Btds Framer usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

## GROUP Btds Framer Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational statistics data for a Framer component. |

## ATTRIBUTE Btds Framer frmFromIf

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames received from the link interface by Framer.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## ATTRIBUTE Btds Framer suppressedFrames

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames dropped at the interface due to the idle pattern being detected.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## ATTRIBUTE Btds Framer frmToIf

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames transmitted to the link interface by Framer.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## ATTRIBUTE Btds Framer lrcErrors

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the number of frames received from the network with LRC errors.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Btds Framer frmLostInNetwork

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames which the service knows it did not receive from the network although they were sent in to the network from the far end.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Btds Framer frmUnderRuns

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times that a frame was needed but was not available because it had been delayed too long in the network.<br>This error may occur repeatedly if the interface clocks at the two access points to the network are operating at different rates.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Btds Framer frmDumped

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames which have been dumped because the local interface output queue grew too large. This can occur if the clock rate on the local interface is faster than the clock rate on the remote interface and there are no silence periods to absorb the difference.<br>This count wraps to zero after reaching its maximum value. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

## COLLECTED STATS BitTransparentDataService Framer

| | |
|---|---|
| Description | The statistics record generated by the BitTransparentDataService Framer component. |

### ATTRIBUTE Btds Framer rxBytes

| | |
|---|---|
| Description | This attribute provides the number of bytes received on the link by the Framer in the last collection interval. |
| Values | Long Integer |

### ATTRIBUTE Btds Framer rxFrames

| | |
|---|---|
| Description | This attribute provides the number of frames received on the link interface by the Framer in the last collection interval. |
| Values | Long Integer |

### ATTRIBUTE Btds Framer txBytes

| | |
|---|---|
| Description | This attribute provides the number of bytes transmitted to the link by the Framer in the last collection interval. This value could be zero if the application sends the frames directly to the link. |
| Values | Long Integer |

### ATTRIBUTE Btds Framer txFrames

| | |
|---|---|
| Description | This attribute provides the number of frames transmitted to the link interface by the Framer in the last collection interval. This value could be zero if the application sends the frames directly to the link. |
| Values | Long Integer |

### ATTRIBUTE Btds Framer rxTotalLinkUtil

| | |
|---|---|
| Description | This attribute provides the average total link utilization computed based on the total number of bytes received on the link in the last collection interval. |

| | |
|---|---|
| Values | Decimal (0..100) |

### COMPONENT Btds PermanentLogicalConnection (Plc)

| | |
|---|---|
| Groups | "GROUP Btds Plc Provisioning (Prov)" |
| Scope | Application |
| Description | *Btds/n PLC*<br>This is the description of the PLC Component for the Btds service.. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Btds Plc Provisioning (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all provisionable attributes for a permanent logical connection. Note that all of the attributes are valid and provisionable on both ends of a connection. However with the exception of *remoteName*, all operational attributes are derived from the originating end provisioning, which may be either end unless *remoteName* is not provisioned on one end. |

### ATTRIBUTE Btds Plc remoteName (rName)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute is the *PLC*'s remote end point's address in the format of a Passport component name. The syntax of a component is:<br>"em/node type/instance". For an alternative representation of end point's addresses, see *addressToCall* and l*ocalAddress PLC* attributes. When using Passport component name representation, end points are identified using a node name and a service name. As an example, the end point component for a third Btds service on node MoonBase is: "*EM/MoonBase BTDS/3*". If the *remoteName* is provisioned, it must match the name of the remote end or the connection will not be established even if the remote |

| | |
|---|---|
| | end is provisioned correctly. If no *remoteName* is provisioned, then this *LC* will accept connections from any other remote *LC* and it will not originate calls. Connections establish faster and are unique if both ends are provisioned with *remoteName*. *RemoteName* should be used when the remote end of the connection resides within the same topology region. If it resides in a different topology region, then *addressToCall* and *localAddress PLC* attributes should be used. When both *remoteName* and *addressToCall* are provisioned, *addressToCall* takes precedence. That is, connection will be established to the service specified by *addressToCall*.<br>These strings are case insensitive, but the complete component name must be input. |
| Values | String (0..40, ASCII) |
| Default | "" |

### ATTRIBUTE Btds Plc setupPriority (spri)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute gives the priority at which a path is established. Zero is the highest priority and four is the lowest. When PORS establishes a path through the network, it uses the *setupPriority* attribute to determine its potential for bumping established paths to acquire their bandwidth. The *holdingPriority*, a complementary attribute of this attribute, indicates the priority a path maintains once it is established. A new path can bump an existing path if the new path's *setupPriority* is higher (numerically less) than the existing path's *holdingPriority.* |
| Values | Decimal (0..4) |
| Default | 2 |

### ATTRIBUTE Btds Plc holdingPriority (hpri)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |

| | |
|---|---|
| Description | This attribute gives the priority that a path holds once it is established. Zero(0) is the highest priority and four(4) is the lowest. A path's *holdingPriority* determines its likelihood of being bumped by a new path to acquire its bandwidth. The *setupPriority*, a complementary attribute, indicates the priority of a path at establishment time. A new path can bump an existing path if the new path's *setupPriority* is higher (numerically less) than the existing path's *holdingPriority.* |
| Values | Decimal (0..4) |
| Default | 2 |

### ATTRIBUTE Btds Plc requiredTxBandwidth (tbw)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute gives the bandwidth (in bits per second) reserved by a path on each of the trunks of its route. This attribute represents the bandwidth for traffic outgoing to the remote end point. This value should be chosen to achieve the amount of statistical bandwidth sharing that is desired by the network administration. This reservation is not enforced and is used to determine how many paths can be supported on a trunk. Both ends should be provisioned with the correct values allowing for the fact that Transmit at this end represents Receive at the remote end. Note that when the values do not correspond the originating end of the connection determines the value. |
| Values | Decimal (0..4294967295) |
| Units | bit/s |
| Default | 64000 |

### ATTRIBUTE Btds Plc requiredRxBandwidth (rbw)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute gives the bandwidth (in bits per second) reserved by a path on each of trunks of its route. This attribute represents |

| | |
|---|---|
| | the bandwidth for traffic incoming from the remote end point. This value should be chosen to achieve the amount of statistical bandwidth sharing that is desired by the network administration. This reservation is not enforced and is used to determine how many paths can be supported on a trunk. Both ends should be provisioned with the correct values allowing for the fact that transmit at this end represents receive at the remote end. Note that when the values do not correspond, the originating end of the connection determines the value. |
| Values | Decimal (0..4294967295) |
| Units | bit/s |
| Default | 64000 |

### ATTRIBUTE Btds Plc requiredTrafficType (rttyp)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute indicates the type of traffic transmitted over the path. There are eight(8) possible traffic types, and the path can transmit only one of them. The originating end of the connection determines the type. These are arbitrary designations for traffic type. The ***voice***, ***data*** and ***video*** traffic types are defined, and five(5) other arbitrary traffic types can be defined by the network administration. This attribute is used in the route selection process to restrict the route to trunks that support this traffic type. The *supportedTrafficType* trunk attribute lists all the types of traffic allowed on the trunk. For example, if *requiredTrafficType* is specified as ***trafficType1,*** then only trunks that include ***trafficType1*** in *supportedTrafficType****,*** will be candidates for this connection. |
| Values | voice<br>data<br>video<br>trafficType1 (tt1)<br>trafficType2 (tt2)<br>trafficType3 (tt3) |

| | |
|---|---|
| | trafficType4 (tt4)<br>trafficType5 (tt5) |
| Default | video |

### ATTRIBUTE Btds Plc permittedTrunkTypes (pttyp)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute lists up to eight(8) types of trunk that can be used on the route. The ***terrestrial*** and ***satellite*** trunk types have been defined, leaving six(6) remaining arbitrary types that can be defined by the network administration. The trunk's type is indicated in the *trunkType* attribute of the Trunk component. When selecting a route, PORS only chooses trunks whose *trunkType* are in the *permittedTrunkTypes* for the path. |
| Set of | terrestrial<br>satellite<br>trunkType1 (tt1)<br>trunkType2 (tt2)<br>trunkType3 (tt3)<br>trunkType4 (tt4)<br>trunkType5 (tt5)<br>trunkType6 (tt6) |
| Default | (terrestrial, satellite, trunkType1, trunkType2, trunkType3) |

### ATTRIBUTE Btds Plc requiredSecurity (rsec)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute indicates the required minimum level of security of the trunks on the route. Zero represents the most secure and seven represents the least secure. The trunk's security is indicated by the *trunkSecurity* attribute of the Trunk component, and has values identical in range and meaning to the *requiredSecurity* attribute. PORS ensures that any route selected does not contain a trunk whose *trunkSecurity* attribute is numerically greater than the *requiredSecurity.* |

| | |
|---|---|
| Values | Decimal (0..7) |
| Default | 4 |

### ATTRIBUTE Btds Plc requiredCustomerParm (rcparm)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute indicates the allowed customer defined parameter of the trunks on the route. Its value, a number from zero to seven, is chosen by network administration to have a meaning specific to their network, thus allowing them to customize the use of their trunks. A complementary trunk attribute, *customerParameter*, also has a value from zero to seven. The route selection process does not consider trunks whose *customerParameter* is greater than the *requiredCustomerParameter* of the path. |
| Values | Decimal (0..7) |
| Default | 4 |

### ATTRIBUTE Btds Plc pathAttributeToMinimize (pamin)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute indicates whether a route is selected on the basis of minimizing the cost or the delay. Each trunk has a cost and a delay metric associated with it. The cost of a selected route is the sum of the trunk cost metrics for all trunks included in the route. The delay of a selected route is the sum of the trunk delay metric for all trunks included in the route. |
| Values | cost<br>delay |
| Default | cost |

### ATTRIBUTE Btds Plc maximumAcceptableCost (maxCost)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |

| | |
|---|---|
| Description | This attribute indicates an upper bound on the cost metric of a route, which is the sum of the cost metrics of all trunks on the route. The cost metric is the *trunkCost* attribute of the Trunk component. If for any trunk the *trunkCost* is larger than the *maximumAcceptableCost*, then that trunk is not considered during the route selection. While a shortest route is being selected, the route cost is being compared with the *maximumAcceptableCost* attribute, and this is done for any minimization criterion. No route is selected if the cost metric of the shortest route is larger than the *maximumAcceptableCost*. |
| Values | Decimal (0..65535) |
| Default | 1280 |

### ATTRIBUTE Btds Plc maximumAcceptableDelay (maxDelay)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute indicates an upper bound on the delay of a route, which is the sum of the delay of all trunks on the route. It should be provisioned with a reasonable maximum acceptable delay for the end to end one way delay of a 512-byte packet. Remember, that the trunk during its staging measures a *measuredRoundTripDelay.* This delay is divided by two and truncated to an integer number of milliseconds to provide a one way delay which is used to populate the delay in this trunk object in the topological database. The value includes emission, propagation, and queuing delays. A 512-byte packet is used to perform the measurement.<br>If for any trunk the half of the trunk's *measuredRoundTripDelay* is larger than the *maximumAcceptableDelay*, then that trunk is not considered during the route selection.<br>While a shortest route is being selected, the route delay is being compared with the *maximumAcceptableDelay* attribute, and this is done for any minimization criterion. No route is selected if the delay metric of the shortest route is larger than the *maximumAcceptableDelay.* |
| Values | Decimal (0..100000) |

| | |
|---|---|
| Units | msec |
| Default | 100000 |

### ATTRIBUTE Btds Plc emissionPriority (epri)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute indicates the urgency with which packets on the path are emitted by the trunks on the route. *EmissionPriority* of Zero(0) indicates the highest emission priority, while two (2) indicates the lowest emission priority. Packets with a higher *emissionPriority* (or numerically less) are serviced and sent out before the packets of lower *emissionPriority* (or numerically higher). |
| Values | Decimal (0..2) |
| Default | 0 |

### ATTRIBUTE Btds Plc discardPriority (dpri)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute indicates the importance of the packets on the path. One is used for paths carrying the most important traffic, and three is used for paths carrying the least important traffic. Packets with lower *discardPriority* (numerically) are discarded after packets with a higher *discardPriority* (numerically). |
| Values | Decimal (1..3) |
| Default | 1 |

### ATTRIBUTE Btds Plc pathType (pType)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies if the path for this PLC is determined automatically or by static provisioning. The default (***normal***) is to |

automatically choose a route with Route Selection. ***Normal*** *pathTypes* require less provisioning and can dynamically handle path failures. The other *pathTypes* are both manual *pathTypes* where the operator must specify, through provisioning, a static route termed the *manualPath*. A manual *pathType* connection is nearly identical to a normal path type connection with the exception that the route is pre-provisioned. For a manual *pathType*, bandwidth reservations are respected along the path exactly as in a normal path. The last type, the ***forced*** *pathType*, is also a manual path but regardless of the bandwidth available the route is granted provided the trunks are operational and there are sufficient Logical Channels (LChs).
The ***forced*** *pathType* could result in over committing the reserved bandwidth allowed on a trunk. A better way to achieve the effects of a ***forced*** *pathType* is to use a ***manual*** *pathType* with *setupPriority* = ***0*** and *holdingPriority* = ***0***. In this manner the path will reserve correct bandwidth and it will bump other paths if required while not being bumped itself.

Values
normal
manual
forced

Default
normal

## ATTRIBUTE Btds Plc pathFailureAction (pfa)

Access
Read and write

Criticality
Process

Description
This attribute is used to specify whether the application can tolerate momentary interruption of a path while a new path is selected. If ***disconnectConnection*** is chosen, the application is informed as soon as possible about a failure by disconnection. If the attribute is set to ***reRoutePath***, the path may attempt an immediate reroute, provided the failure is a recoverable failure. If rerouting fails the application is informed of the failure.
With this option set to ***reRoutePath*** the LCo may wait up to 30 seconds before informing the service of complete disconnection in order to allow both ends to attempt to reconnect. Note that if PLC components are different at both ends only the calling end is allowed to reconnect.

| | |
|---|---|
| | All *pathTypes* respect this attribute. Also on a *manualPath* with both ends provisioned with independent paths (at least with respect to the failure) this option will have the desired effect that the path is rerouted without complete disconnection at both ends. |
| Values | reRoutePath<br>disconnectConnection |
| Default | reRoutePath |

### ATTRIBUTE Btds Plc bumpPreference (bpref)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute controls when bumping occurs in the route selection process. A connection with higher (numerically less) *setupPriority* may bump a connection with lower (numerically higher) *holdingPriority* in order to acquire its bandwidth and be established. By default, bumping occurs only when it is necessary. That is, a connection will bump another connection only if there is no other way for the connection to be established. A connection may be set to always bump in order to find the best route it may have. |
| Values | bumpWhenNecessary<br>bumpToObtainBestRoute |
| Default | bumpWhenNecessary |

### ATTRIBUTE Btds Plc optimization (opt)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute is used to specify whether this connection should attempt to optimize its path when requested by the routing PORS component. Every path is as optimal as it can be when it is established, but as network traffic patterns and configurations change this path may no longer be as optimal as it could be. The PORS connection manager on a module requests circuits to optimize at the optimization interval. |

| | |
|---|---|
| Values | disabled<br>enabled |
| Default | enabled |

### ATTRIBUTE Btds Plc addressToCall (addrToCall)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute is the *PLC*'s remote end point's address in the format of a NSAP address. As such it must consist of a string of hex digits although not all 40 digits must be specified. For an alternative representation of end point's addresses, see *remoteName* attribute. If the *addressToCall* is provisioned, it must match *localAddress* provisioned on the remote end or the connection will not be established. Connections establish faster and are unique if both ends are provisioned with *addressToCall*. *AddressToCall* must be used when the remote end of the connection resides in different topology region. If it resides in the same topology region, then *remoteName* may be used. When both *remoteName* and *addressToCall* are provisioned, *addressToCall* takes precedence. That is, connection will be established to the service specified by *addressToCall*. |
| Values | String (0..40, ASCII) |
| Default | "" |

### ATTRIBUTE Btds Plc localAddress (localAddr)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute is the *PLC*'s end point address in the format of an NSAP address. As such it must consist of a string of hex digits although not all 40 digits must be specified. *LocalAddress* must share a prefix with MOD nodePrefix or one of MOD alternatePorsPrefixes for this node, otherwise PORS will not be able to route calls to this service. *LocalAddress* is used in conjunction with *addressToCall*. That is, the end responsible for originating calls must have *addressToCall* provisioned, while the |

| | |
|---|---|
| | end responsible for terminating calls must have *localAddress* provisioned. In such a case, *addressToCall* on the originating end must match exactly the *localAddress* of the terminating end. Note that both ends may be originating and terminating at the same time. That is, both ends may have *addressToCall* and *localAddress* provisioned as long as *addressToCall* and *localAddress* on different ends are identical. |
| Values | String (0..40, ASCII) |
| Default | "" |

### ATTRIBUTE Btds Plc maximumAcceptableGatewayCost (maxGateCost)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute indicates an upper bound on the gateway cost metric of a route, which is the sum of the gateway cost metrics of all gateway links on the route. It has the same semantics as the *maximumAcceptableCost* except that gateway cost metrics are used instead of trunk cost metrics. Gateway cost metrics are provisioned under *Trunk Address* component of a gateway link specifying a gateway costs of reaching an address through the link. |
| Values | Decimal (0..65535) |
| Default | 2048 |

### ATTRIBUTE Btds Plc manualPath (mpath)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute is optional and specifies the sequence of trunks to be used as the route for the path, thus bypassing PORS' automatic route selection. If the path fails the validation, no other path can be selected[1]. This attribute should only be used in special cases since the route selection algorithm is able to find and maintain the best routes. A related path attribute, the *pathType*, determines if this route will be used as a manual or forced path type. |

As an example, the trunk component name for the third trunk on node MoonBase is "*EM/MoonBase Trk/3*". Note that only the first end of the trunk that the packet would encounter is provisioned. These strings are case insensitive but the complete component name must be input.

Note 1: the trunk designation must be a 3-letter form, e.g., 'trk'. Note 2: only the outbound trunks component names are used to provision the ***manualPath***.

Note 3: It is recommended to have two independent routes specified for a manual path by specifying a different ***manualPath*** (non-symmetric) for each end. In this case, there is no way to select which route will be used (first up wins) but if one path is torn down due to a failure then the other ***manualPath*** may be used to reroute the path.

| | |
|---|---|
| Vector of | String (0..40, ASCII) |
| Index | Decimal (0..9) |
| Default | ([10] "") |

## COMPONENT Btds LogicalConnection (LCo)

| | |
|---|---|
| Groups | "GROUP Btds LCo PathData"<br>"GROUP Btds LCo Statisitics (Stats)" |
| Scope | Application |
| Description | ...*Lc*<br>This component contains all of the operation attributes for a Path Oriented Logical Connection. |
| Common Verbs | Help<br>List<br>Display |

### VERB RERoute Btds LCo

| | |
|---|---|
| Impact | Service |
| Description | RERoute ..Lc<br>This command is used to request a *LogicalConnection (LCo)* to attempt a reroute. A new path will be established if it is better than the current path. The current path will not be interrupted if the *RERoute* command is not completely successful. The connection must not be attempting rerouting at present. This command is only valid on components with the *PLC remoteName* specified.<br>This command is intended to be used on the calling end of a connection. For a single region call, it may be used on the called end of a connection if all the *PLC* parameters match. Note that the calling end or the called end of a connection means the *end* attribute of an *LCo* is equal to the value of ***calling*** or ***called*** respectively.<br><br>When used on an *LCo* with *pathType* attribute set to ***manual*** or ***forced,*** this command can be used to re-setup the path.<br><br>If this command is attempted on a connection that is not up but its *state* attribute is equal to ***pathDownRetrying,*** an immediate route request is sent. |

### GROUP Btds LCo PathData

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all operational attributes for the path oriented LCo. |

### ATTRIBUTE Btds LCo state

| | |
|---|---|
| Access | Read only |
| Description | This attribute reflects the current state of the connection. The ***pathDown*** state indicates a connection that has no remote end provisioned or the application has not yet signaled for a path. The ***selectingRoute*** state occurs when a request has been sent to route selector and it has not yet responded. The ***connectingState*** occurs while a path is being established. The ***pathUp*** state is the normal |

operational state of a path. The ***pathDownRetrying*** state indicates a path that attempted route selection but received no route and is now waiting to retry route selection again.

Values
pathDown
selectingRoute
connecting
pathUp
pathDownRetrying

Default
No default

### ATTRIBUTE Btds LCo overrideRemoteName (orn)

Access
Read: All
Write: All

Description
If set ***and*** the current PLC remoteName is blank this remoteName will override the blank PLC remoteName. Usually you would set this attribute and then lock/unlock the service component which will result in this new overrideRemoteName being used as if it had been provisioned into the PLC remoteName. The advantage of this attribute is that the connection's remoteName can be changed immediately without having to "activate prov" but the disadvantage is that the overrideRemoteName is not permanent and if the card or switch is reset the override will be lost.

Values
String (0..40, ASCII)

Default
""

### ATTRIBUTE Btds LCo end

Access
Read only

Description
This attribute identifies whether this is the calling or called end of the path.

Values
calling
called

Default
No default

### ATTRIBUTE Btds LCo costMetric (cost)

| | |
|---|---|
| Access | Read only |
| Description | This attribute gives the route's total cost metric. It is calculated as the sum of the cost metric of all trunks in the path at the time the connection was established. The cost metric of a trunk is defined by the *trunkCost* attribute of the Trunk component. The *costMetric* for an LCo that is originated and terminated on the same module is 0. |
| Values | Decimal (0..65535) |
| Default | No default |

### ATTRIBUTE Btds LCo delayMetric (delay)

| | |
|---|---|
| Access | Read only |
| Description | This attribute gives the total delay of the route as the one way delay for a 512 byte packet. It is calculated as the sum of the delays of all trunks in the path stored in topology at the time the connection was established. The delay for an LCo that is originated and terminated on the same module is 0. |
| Values | Decimal (0..100000) |
| Units | msec |
| Default | No default |

### ATTRIBUTE Btds LCo roundTripDelay (rtd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the time taken for a packet (cell) of 44 bytes to be transmitted inband to the remote *LCo* and return to this LCo. The value reported is rounded to the nearest millisecond.<br>For Unack PORS trunks and AAL5 MUX PORS trunks, the test packet is sent inband and receives the same treatment as regular data packets, giving a round trip delay which corresponds to regular data traffic.<br>For SPO MUX PORS trunks and MAP PORS trunks, the test packet is sent along the parent trunk's VCC, giving a round trip |

| | |
|---|---|
| | delay which corresponds to the parent trunk's round trip delay. The round trip delay does not directly reflect the round trip delay of data packets travelling on the non-parent VCC.<br>When the *LCo* is originated and terminated on the same module, a value of 1 millisecond is reported. The value of 1 millisecond is the minimum reported time even though the delay may be less than 1 millisecond. |
| Values | Decimal (0..200000) |
| Units | msec |
| Default | No default |

### ATTRIBUTE Btds LCo setupPriority (spri)

| | |
|---|---|
| Access | Read only |
| Description | This attribute gives the priority at which the current path is established. Zero is the highest priority and four is the lowest. The *holdingPriority*, a complementary attribute of this component, indicates the priority a path maintains once it is established. |
| Values | Decimal (0..4) |
| Default | No default |

### ATTRIBUTE Btds LCo holdingPriority (hpri)

| | |
|---|---|
| Access | Read only |
| Description | This attribute gives the priority at which a path holds its current path once the path is established. Zero is the highest priority and four is the lowest. The *setupPriority*, a complementary attribute, indicates the priority of a path at establishment time. |
| Values | Decimal (0..4) |
| Default | No default |

### ATTRIBUTE Btds LCo requiredTxBandwidth (tbw)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute gives the actual bandwidth (in bits per second) reserved by this path on each of the trunks of its route. This attribute represents the bandwidth for traffic outgoing to the remote end point. The originating end of the connection determines this value. |
| Values | Decimal (0..4294967295) |
| Units | bit/s |
| Default | No default |

### ATTRIBUTE Btds LCo requiredRxBandwidth (rbw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute gives the actual bandwidth (in bits per second) reserved by this path on each of trunks of its route. This attribute represents the bandwidth for traffic incoming from the remote end point. The originating end of the connection determines this value |
| Values | Decimal (0..4294967295) |
| Units | bit/s |
| Default | No default |

### ATTRIBUTE Btds LCo requiredTrafficType (rttyp)

| | |
|---|---|
| Access | Read only |
| Description | This operational attribute indicates the type of traffic transmitted over the path. There are eight possible traffic types, and the path can transmit only one of them. The originating end of the connection determines the type. These are arbitrary designations for traffic type. The ***voice***, ***data*** and ***video*** traffic types are defined, and five other arbitrary traffic types can be defined by the network administration. This attribute is used in the route selection process to restrict the route to trunks that support this traffic type. The *supportedTrafficType* trunk attribute lists all the types of traffic allowed on the trunk. For example, if *requiredTrafficType* is specified as ***trafficType1*** then only trunks that include ***trafficType1*** in *supportedTrafficType***,** will be candidates for this connection. |

| | |
|---|---|
| Values | voice<br>data<br>video<br>trafficType1 (tt1)<br>trafficType2 (tt2)<br>trafficType3 (tt3)<br>trafficType4 (tt4)<br>trafficType5 (tt5) |
| Default | No default |

### ATTRIBUTE Btds LCo permittedTrunkTypes (pttyp)

| | |
|---|---|
| Access | Read only |
| Description | This operational attribute lists up to eight types of trunk that can be used on the route. The originating end of the connection determines the types. The ***terrestrial*** and ***satellite*** trunk types have been defined, leaving six remaining arbitrary types that can be defined by the network administration. The trunk's type is indicated in the *trunkType* attribute of the Trunk component. When selecting a route, PORS only chooses trunks whose *trunkType* are in the *permittedTrunkTypes* for the path. |
| Set of | terrestrial<br>satellite<br>trunkType1 (tt1)<br>trunkType2 (tt2)<br>trunkType3 (tt3)<br>trunkType4 (tt4)<br>trunkType5 (tt5)<br>trunkType6 (tt6) |
| Default | No default |

### ATTRIBUTE Btds LCo requiredSecurity (rsec)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the required minimum level of security of the trunks on the route. Zero represents the most secure and seven represents the least secure. The trunk's security is indicated by the *trunkSecurity* attribute of the Trunk component, and has values identical in range and meaning to the *requiredSecurity* |

attribute. PORS ensures that any route selected does not contain a trunk whose *trunkSecurity* attribute is numerically greater than the *requiredSecurity.*

Values Decimal (0..7)

Default No default

### ATTRIBUTE Btds LCo requiredCustomerParameter (rcparm)

Access Read only

Description This attribute indicates the allowed customer defined parameter of the trunks on the route.The originating end of the connection determines the customer defined parameter. Its value, a number from zero to seven, is chosen by a network administration to have a meaning specific to their network, thus allowing them to customize the use of their trunks. A complementary trunk attribute, *customerParameter*, also has a value from zero to seven. The route selection process does not consider trunks whose *customerParameter* is greater than the *requiredCustomerParameter* of the path.

Values Decimal (0..7)

Default No default

### ATTRIBUTE Btds LCo emissionPriority (epri)

Access Read only

Description This attribute indicates the urgency with which packets on the path are emitted by the trunks on the route. The originating end of the connection selects the *emissionPriority. EmissionPriority* of zero indicates the highest emission priority, while two indicates the lowest emission priority. Packets with a higher *emissionPriority* (or numerically less) are serviced and sent out before the packets of lower *emissionPriority* (or numerically higher).

Values Decimal (0..2)

Default No default

### ATTRIBUTE Btds LCo discardPriority (dpri)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the importance of the packets on the path. The originating end of the connection sets *discardPriority.* One is used for paths carrying the most important traffic, and three is used for paths carrying the least important traffic. Packets with lower *discardPriority*(numerically) are discarded after packets with a higher *discardPriority*(numerically). |
| Values | Decimal (1..3) |
| Default | No default |

### ATTRIBUTE Btds LCo pathType (pType)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether the path for this PLC was determined automatically or by static provisioning. ***Normal*** *pathTypes* are selected automatically by Route Selector.The other *pathTypes* are both manual *pathTypes* where the operator must specify, through provisioning, a static route termed the *manualPath*. A manual *pathType* connection is nearly identical to a normal path type connection with the exception that the route is pre-provisioned. For a manual *pathType*, bandwidth reservations are respected along the path exactly as in a normal path. The last type, the ***forced*** *pathType*, is also a manual path but regardless of the bandwidth available the route is granted provided the trunks are operational and there are sufficient Logical Channels (LChs).<br><br>The ***forced*** *pathType* could result in over committing the reserved bandwidth allowed on a trunk. A better way to achieve the effects of a ***forced*** *pathType* is to use a ***manual*** *pathType* with *setupPriority* = ***0*** and *holdingPriority* = ***0***. In this manner the path will reserve correct bandwidth and it will bump other paths if required while not being bumped itself. |
| Values | normal<br>manual<br>forced |
| Default | No default |

### ATTRIBUTE Btds LCo retryCount (rcount)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the count of the number of times the path chosen during route selection could not be instantiated. This count should be three or below if the network is performing adequately. A high value indicates that the route selection is often performed using an out-of-date view of available network bandwidth and/or topology.<br>This attribute will only increase at the calling end of an un-segmented connection. The attribute should be ignored for segmented connections.This attribute is reset each time a path reconnects and stops counting when it reaches its maximum value. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE Btds LCo pathFailureCount (pfcount)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the count of the number of times the path has successfully connected. It is set to zero the first time the path is up. If a path fails anytime after connecting this count will be incremented when the path is up again. Failed route requests do not count in this statistic. See *retryCount* above. This attribute stops counting at its maximum value. |
| Values | Decimal (0..65535) |
| Default | No default |

### ATTRIBUTE Btds LCo reasonForNoRoute (rnr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the route selection's *reasonForNoRoute* and provides a brief reason for which a route was not selected. The reasons are essentially self-explanatory. Perhaps two reasons for no route require some explanation. The reason ***unknownRemoteNodeName*** is issued when the remote node name is not in the topological database. The reason |

***plcAttributesNotMet*** is issued when there is no network connectivity at a level specified by the PLC attributes. This reason is also issued when there is no physical connectivity between two end nodes.

Values

none
destinationNameTooLong
destinationNotSpecified
unknownDestinationName
incorrectDestination
incorrectDestinationEndPoint
unknownSource
unknownDestination
sameNode
routeCostTooMuch
routesDelayTooLong
attributesNotMet
anError
attributeProfileProblem
manualPathIndexProblem

Default

none

### ATTRIBUTE Btds LCo lastTearDownReason

Access

Read only

Description

This attribute reflects the last tear down reason for a connection (LCo). In many cases this displays the reason for a momentary service interruption. This attribute applies to the last path failure only. If a path is no longer up, this may give an indication to the reason that the path has failed. In many cases an alarm will also be generated with more specific information. The following is a brief description of the reasons:
***none*** - This path has no information for the teardown this is typical of a path provisioned with no *remoteName* that has not been up.
***normalShutDown*** - This path has gone down due to normal call termination.
***insufficientTxLcOrBandwidth*** - At present there is either no available bandwidth or logical channel numbers available on one or more of the trunks for this path in the transmit direction.

***insufficientRxLcOrBandwidth*** - At present there is either no available bandwidth or logical channel numbers available on one or more of the trunks for this path in the receive direction.
***trunkFailure***- A trunk on the path has failed or has gone down due to a provisioning change of a critical attribute.
***trunkCardFailure***- A trunk FP card has failed along the path.
***accessCardFailure***- The FP on which the peer access service was running has failed.
***operatorForced***- The path has terminated due to the operator locking a trunk along the path.
***lostLcnClash***- The path has terminated because the PA's at both ends of an intermediate trunk have allocated the same LC to different calls. When this happens both calls must go down and then try to come up again a fraction of a second later (effectively ensuring that they will now be assigned different LC's). It is normal to get the odd clash especially when the PA's usedLC is approaching the PA's maxLC.
***networkCongestion*** - The path has failed due to control information being lost and not recoverable.
***trunkNotFound*** - Occurs on a ***manual*** path usually. Check for trunks not up or names provisioned incorrectly.
***farEndNotFound*** - The far end is not provisioned or is not up. Check remote Name.
***wrongModuleReached*** - This may occur on a ***manual*** path. Check provisioning for correct trunk and service names. For a ***normal*** path, the network Topology may be changing check *remoteName*.
***farEndBusy*** - The far end has been reached but it is busy. Check *remoteName* and remote end provisioning.
***callLoopedBack*** - This LCo is provisioned to call itself. Re-provision since this is invalid.
***unknownReason*** - The failure was not resolved.
***farEndNotReady*** - The remote end was reached but the connection was refused due to the remote end not being enabled.
***remoteNameMismatch*** - The remote end has alarmed and rejected this setup due to remoteName provisioning.
***serviceTypeMismatch*** - The remote Service Type does not match this service type. Check provisioning.
***reconnectFromFarEnd*** - The remote end re-established this connection. Check the remote end *lastTearDownReason* to determine the real reason.

***bumped*** - Another call bumped this path from a trunk to get bandwidth (or an LC) which it required to come up. This other path had a higher *setupPriority* than this path's *holdingPriority* hence it was allowed to steal the bandwidth (or LC) from this path.
***optimized*** - This call has been rerouted due to the optimization feature. The call is still active this just indicates why the path changed.
***trunkOrFarEndDidNotSupportMode*** - This call was unable to complete because a mode required by the service was not supported by one of the trunks the route went through or by the far end service it connected to. Currently the only mode that this applies to is the map/mux mode on TRUNK PA ATM component. Map mode was required by the application (CES/FrAtm etc.) but was not available on the TRUNK PA ATM component through which the call was routed or the far end CES/FrAtm component did not specify the same mode.

Values

none
normalShutDown
insufficientTxLcOrBandwidth
insufficientRxLcOrBandwidth
trunkFailure
trunkCardFailure
operatorForced
lostLcnClash
networkCongestion
trunkNotFound
farEndNotFound
wrongModuleReached
farEndBusy
callLoopedBack
unknownReason
farEndNotReady
remoteNameMismatch
serviceTypeMismatch
reconnectFromFarEnd
bumped
accessCardFailure
optimized

| | |
|---|---|
| | overrideRemoteName<br>trunkOrFarEndDidNotSupportMode |
| Default | none |

### ATTRIBUTE Btds LCo pathFailureAction

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays whether the application is set to tolerate momentary interruption of a path while a new path is selected. If ***disconnectConnection*** is displayed, the application is informed as soon as possible about a failure by disconnection. If the attribute displays ***reRoutePath***, the path may attempt an immediate reroute, provided the failure is a recoverable failure. If rerouting fails the application is informed of the failure.<br>With this option set to ***reRoutePath*** the LCo may wait up to 30 seconds before informing the service of complete disconnection in order to allow both ends to attempt to reconnect. Note that if PLC components are different at both ends only the calling end is allowed to reconnect.<br><br>All *pathTypes* respect this attribute. Also on a *manualPath* with both ends provisioned with independent paths (at least with respect to the failure) this option will have the desired effect that the path is rerouted without complete disconnection at both ends |
| Values | reRoutePath<br>disconnectConnection |
| Default | No default |

### ATTRIBUTE Btds LCo bumpPreference (bpref)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies when bumping will occur during route selection process. Bumping may occur when necessary or always. It will be necessary for a connection to bump if there is not enough resources for the connection to be established and these resources are occupied by a connection whose *setupPriority* is lower (numerically higher) than the connection's *setupPriority*. A connection may also always bump in order to obtain the best route. |

| | |
|---|---|
| Values | bumpWhenNecessary<br>bumpToObtainBestRoute |
| Default | No default |

### ATTRIBUTE Btds LCo optimization (opt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is used to specify whether this connection should attempt to optimize its path when requested by the routing PORS component. Every path is as optimal as it can be when it is established, but as network traffic patterns and configurations change this path may no longer be as optimal as it could be. The PORS connection manager on a module requests circuits to optimize at the optimization interval. |
| Values | disabled<br>enabled |
| Default | No default |

### ATTRIBUTE Btds LCo pathUpDateTime

| | |
|---|---|
| Access | Read: Service<br>Write: Illegal |
| Description | This is the time stamp when the current path was established or reestablished. |
| Values | Time (DHMS) |
| Default | No default |

### ATTRIBUTE Btds LCo path

| | |
|---|---|
| Access | Read only |
| Description | This attribute contains the trunk component names over which the path has been instantiated and the remote end point name terminating the path. |
| List of | String (0..40, ASCII) |
| List Size | 21 |

| | |
|---|---|
| Default | No default |

### GROUP Btds LCo Statisitics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational statistics attributes for the path oriented LCo. |

### ATTRIBUTE Btds LCo pktsToNetwork

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of packets transmitted to the network over this Logical Connection. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Btds LCo bytesToNetwork

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of bytes sent to the network over this Logical Connection. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Btds LCo pktsFromNetwork

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of packets received from the remote LCo via the network. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Btds LCo bytesFromNetwork

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of bytes received from the remote LCo via the network. |

| | |
|---|---|
| Values | Long Integer |
| Default | No default |

## COMPONENT Btds Dpnss1

| | |
|---|---|
| Groups | "GROUP Btds Dpnss1 Provisioned (Prov)"<br>"GROUP Btds Dpnss1 PriTimeSlotOpModes (Pri)"<br>"GROUP Btds Dpnss1 VdcdStatistics (Vdcd)"<br>"GROUP Btds Dpnss1 FrameStatistics (Frames)"<br>"GROUP Btds Dpnss1 HdlcStatistics (Hdlc)" |
| Scope | Application |
| Description | *Btds/n Dpnss1*<br>The *Dpnss1* component handles Digital Private Network Signaling System No1 (DPNSS 1) messages for the purpose of voice/data call discrimination. Discrimination between a voice call and a data call causes adjustment of the *VoiceService* operational mode.<br>A single instance of *Dpnss1* component can be provisioned under a *Btds/*n component.<br><br>The operational mode of any *VoiceService* provisioned within one Primary Rate Interface (PRI) is controlled by the same *Dpnss1* component.<br><br>To perform call discrimination, both ends of a *Btds* connection require the same call discrimination subcomponent (*Mcdn* or *Dpnss1*). *Btds serviceFailureReason* is ***mismatchedCallDiscriminator*** if the ends of a *Btds* connection have different call discrimination subcomponents. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Btds Dpnss1 Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |

| | |
|---|---|
| Description | This group contains the provisionable attribute for the *Dpnss1* component to handle DPNSS 1 messages. |

### ATTRIBUTE Btds Dpnss1 timeslotsX (x)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute contains the list of timeslots that are provisioned X for call collision resolution. A timeslot not provisioned as X is assumed to be Y. |
| Set of | Decimal (1..31) |
| Default | No default |

### GROUP Btds Dpnss1 PriTimeSlotOpModes (Pri)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains replicated attribute which displays operational mode of time slots. |

### ATTRIBUTE Btds Dpnss1 timeSlotOpMode (tSlot)

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the operational mode of every time slot which is serviced by a voice service.<br>The value ***idle*** means that the time slot is not used to service a call, hence the concerned voice service's bandwidth in the Passport subnet is available for other uses.<br>The value ***voice*** means that a phone call is in progress. All provisioned voice service's value added features have been activated (features such as voice compression, silence suppression, echo cancellation).<br>The value ***data*** means that a data call is in progress. All provisioned voice service's value added features have been de-activated, so that a clear 64 kbit/sec data connection is provided across the Passport subnet. |
| Values | idle<br>voice<br>data |
| Replication | Decimal (1..31) |

| | |
|---|---|
| Default | No default |

### GROUP Btds Dpnss1 VdcdStatistics (Vdcd)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains attributes which count the protocol messages indicating changes to operational modes of *VoiceServices*. |

### ATTRIBUTE Btds Dpnss1 newVoiceCalls

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of messages indicating beginning of establishment of a voice call.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Btds Dpnss1 newDataCalls

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of messages indicating beginning of establishment of a data call.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Btds Dpnss1 voiceToData

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of messages indicating a change of a call operational mode from voice transmission to data transmission.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Btds Dpnss1 dataToVoice

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of messages indicating a change of a call operational mode from data transmission to voice transmission.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Btds Dpnss1 callClears

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of CCS messages indicating the end of a call.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### GROUP Btds Dpnss1 FrameStatistics (Frames)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains attributes which count layer 2 frames potentially significant for voice/data call discrimination. See also the description of *HdlcStatistics* group. |

### ATTRIBUTE Btds Dpnss1 frmProcessed

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of valid layer 2 frames containing an Information Field with a protocol message. Changes to operational mode of a *VoiceService* are triggered only by a subset of processed frames. Many frames refer to the call progress and are ignored from the standpoint of voice/data call discrimination.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE Btds Dpnss1 frmInvalid

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of invalid layer 2 frames<br>For DPNSS 1, a frames is counted as invalid if<br>- it is shorter than 3 octets or longer than 48 octets (excluding two octets of Cyclic Redundancy Check), or<br>- it has an invalid bit combination in the Address Field, or<br>- the Control Field is inconsistent with the Address Field, or<br>- the type of data is invalid, or<br>- it relates to time slot 0.<br>For MCDN, a frame is counted as invalid if<br>- it is shorter than 4 or longer than 264 octets (excluding two octets of Cyclic Redundancy Check), or<br>- it has an invalid bit combination in the Address Field, or<br>- it has missing or incorrect mandatory information elements.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### GROUP Btds Dpnss1 HdlcStatistics (Hdlc)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains attributes which count the signaling frame events. |

### ATTRIBUTE Btds Dpnss1 frmFromIf

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of all hdlc frames, correct or not, received from the PRI.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Btds Dpnss1 aborts

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frame receptions aborted before completion, due to incoming frame format errors.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Btds Dpnss1 crcErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames received with CRC errors.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Btds Dpnss1 nonOctetErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames received that were non octet aligned.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Btds Dpnss1 overruns

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames received for which overruns occurred.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## ATTRIBUTE Btds Dpnss1 largeFrmErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of received frames which were longer than 1024 octets.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## COMPONENT Btds Mcdn

| | |
|---|---|
| Groups | "GROUP Btds Mcdn Provisioned (Prov)"<br>"GROUP Btds Mcdn PriTimeSlotOpModes (Pri)"<br>"GROUP Btds Mcdn VdcdStatistics (Vdcd)"<br>"GROUP Btds Mcdn FrameStatistics (Frames)"<br>"GROUP Btds Mcdn HdlcStatistics (Hdlc)" |
| Scope | Application |
| Description | *Btds/n Mcdn*<br>The *Mcdn* component handles MCDN protocol, or Meridian 1 ISDN Primary Rate Interface, messages for the purpose of voice/data call discrimination. Discrimination between a voice call and a data call causes adjustment of the *VoiceService* operational mode.<br>A single instance of *Mcdn* component can be provisioned under a *Btds/*n component.<br>The operational mode of any *VoiceService* provisioned within one Primary Rate Interface (PRI) is controlled by the same *Mcdn* component.<br><br>To perform call discrimination, both ends of a *Btds* connection require the same call discrimination subcomponent (*Mcdn* or *Dpnss1*). *Btds serviceFailureReason* is ***mismatchedCallDiscriminator*** if the ends of a *Btds* connection have different call discrimination subcomponents. |

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Btds Mcdn Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attribute for the *Mcdn* component. |

### ATTRIBUTE Btds Mcdn adjPbxSide

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the provisioning related to call collision resolution. Its value must be that same as in the adjacent PBX, at the other end of the PRI. To provision the call collision resolution in Nortel's SL1 and Meridian 1 PBXs, the network operator responds to the prompt SIDE by entering either MAS or SLAV. So if the SLAV was entered, then the *adjPbxSide* has to be provisioned ***slave***. |
| Values | slave<br>master |
| Default | slave |

### GROUP Btds Mcdn PriTimeSlotOpModes (Pri)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains replicated attribute which displays operational mode of time slots. |

### ATTRIBUTE Btds Mcdn timeSlotOpMode (tSlot)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute displays the operational mode of every time slot which is serviced by a voice service.<br>The value ***idle*** means that the time slot is not used to service a call, hence the concerned voice service's bandwidth in the Passport subnet is available for other uses.<br>The value ***voice*** means that a phone call is in progress. All provisioned voice service's value added features have been activated (features such as voice compression, silence suppression, echo cancellation).<br>The value ***data*** means that a data call is in progress. All provisioned voice service's value added features have been de-activated, so that a clear 64 kbit/sec data connection is provided across the Passport subnet. |
| Values | idle<br>voice<br>data |
| Replication | Decimal (1..31) |
| Default | No default |

## GROUP Btds Mcdn VdcdStatistics (Vdcd)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains attributes which count the protocol messages indicating changes to operational modes of *VoiceServices*. |

## ATTRIBUTE Btds Mcdn newVoiceCalls

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of messages indicating beginning of establishment of a voice call.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## ATTRIBUTE Btds Mcdn newDataCalls

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the number of messages indicating beginning of establishment of a data call.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Btds Mcdn voiceToData

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of messages indicating a change of a call operational mode from voice transmission to data transmission.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Btds Mcdn dataToVoice

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of messages indicating a change of a call operational mode from data transmission to voice transmission.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Btds Mcdn callClears

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of CCS messages indicating the end of a call.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## GROUP Btds Mcdn FrameStatistics (Frames)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains attributes which count layer 2 frames potentially significant for voice/data call discrimination. See also the description of *HdlcStatistics* group. |

## ATTRIBUTE Btds Mcdn frmProcessed

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of valid layer 2 frames containing an Information Field with a protocol message. Changes to operational mode of a *VoiceService* are triggered only by a subset of processed frames. Many frames refer to the call progress and are ignored from the standpoint of voice/data call discrimination.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## ATTRIBUTE Btds Mcdn frmInvalid

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of invalid layer 2 frames<br>For DPNSS 1, a frames is counted as invalid if<br>- it is shorter than 3 octets or longer than 48 octets (excluding two octets of Cyclic Redundancy Check), or<br>- it has an invalid bit combination in the Address Field, or<br>- the Control Field is inconsistent with the Address Field, or<br>- the type of data is invalid, or<br>- it relates to time slot 0.<br>For MCDN, a frame is counted as invalid if<br>- it is shorter than 4 or longer than 264 octets (excluding two octets of Cyclic Redundancy Check), or<br>- it has an invalid bit combination in the Address Field, or<br>- it has missing or incorrect mandatory information elements.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | 0 |

### GROUP Btds Mcdn HdlcStatistics (Hdlc)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains attributes which count the signaling frame events. |

### ATTRIBUTE Btds Mcdn frmFromIf

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of all hdlc frames, correct or not, received from the PRI.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Btds Mcdn aborts

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frame receptions aborted before completion, due to incoming frame format errors.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Btds Mcdn crcErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames received with CRC errors.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Btds Mcdn nonOctetErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames received that were non octet aligned.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Btds Mcdn overruns

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames received for which overruns occurred.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Btds Mcdn largeFrmErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of received frames which were longer than 1024 octets.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

Passport 7400, 15000, 20000

# Component Btds

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component CB

241-5701-060

Passport 7400, 15000, 20000

# Component CB

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT ClusterBridge (CB)

| | |
|---|---|
| Groups | "GROUP CB IfEntryProv (IfEntry)"<br>"GROUP CB MediaProv (Mp)"<br>"GROUP CB Operational (Oper)"<br>"GROUP CB OsiState (State)"<br>"GROUP CB OperationalStatus (OperStatus)" |
| Scope | Application |
| Description | *ClusterBridge*<br>The ClusterBridge component represents one ClusterBridge application. It allows a set of bridged ports to be treated as one routed port. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP CB IfEntryProv (IfEntry)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the ifEntry. |

## ATTRIBUTE CB ifAdminStatus (ifState)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE CB ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP CB MediaProv (Mp)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the base provisioning data for the media base component. |

### ATTRIBUTE CB linkToProtocolPort (pp)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the *ProtocolPort* to which this interface is linked to. The protocol port is the logical interface to the network. The protocol port component describes the logical characteristics of this interface. |
| Values | Link (Service, linkToMedia) |
| Default | No default |

### GROUP CB Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the operational attibutes which are specific to the ClusterBridge component. |

### ATTRIBUTE CB macAddress (addr)

| | |
|---|---|
| Access | Read only |
| Description | The medium access controller (MAC) address is an address that is only recognized by one station on the attached bus. This address is automatically assigned by the system. |
| Values | String (6, Hex) |
| Default | No default |

### GROUP CB OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE CB adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it |

is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE CB operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE CB usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

| | |
|---|---|
| | The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP CB OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

### ATTRIBUTE CB snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

Passport 7400, 15000, 20000

# Component CB

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component Col

241-5701-060

Passport 7400, 15000, 20000

# Component Col

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT Collector (Col)

| | |
|---|---|
| Instance | accounting (acc)<br>alarm (ala)<br>log<br>debug (deb)<br>scn<br>trap<br>stats<br>rtStats (rts)<br>applicationSpecific (appl) |
| Groups | "GROUP Col Provisioned (Prov)"<br>"GROUP Col Statistics (Stats)" |

"COLLECTED STATS Collector"

| | |
|---|---|
| Scope | Device |
| Description | *Collector/<dataType>*<br>There is a *Collector* for each data stream. It is a permanent component that resides on the active CP. Its main function is to coordinate the collection of data from all its *Agent* subcomponents and distribute that data to the downstream applications which have requested it (for example, one or more *Session*s or its *Spooler* subcomponent). It also coordinates the time-of-day accounting (TODA) schedules and spooled statistics probes. |

| | |
|---|---|
| Subcomponents | "COMPONENT Col Spooler (Sp)" |
| Dyn. Subcomp. | "COMPONENT Col Agent (Ag)" |
| Common Verbs | Help<br>List<br>Display<br>Add |

### GROUP Col Provisioned (Prov)

Properties: Provisioned

Description

This group specifies all of the provisioning data for a DCS *Collector.*

### ATTRIBUTE Col collectionTimes (times)

Access: Read and write

Description

This attribute specifies the scheduled times at which data should be collected. Only accounting applications need the capability to generate data in this way. Setting this attribute for other streams has no effect.

The user can enter the times in any order and duplicates are prevented at data entry. There is a limit of 24 entries, which is imposed at semantic check time. The collection times are triggered in chronological order. A semantic check error is issued if any 2 entries are less than 1 hour apart or if any 2 entries are more than 12 hours apart (which implies that if any entries are provided, there must be at least 2 entries).

Note that by default (that is, in the absence of a provisioned schedule), a Virtual Circuit (VC) starts its own 12-hour accounting timer. If any collection times are provisioned here, then the Time-Of-Day-Accounting (TODA) method is used in

| | |
|---|---|
| | place of 12-hour accounting. This is applicable to both Switched VCs and Permanent VCs. |
| List of | Time (HM) |
| List Size | 24 |
| Default | No default |

### ATTRIBUTE Col peakWaterMarkInterval (peak)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the length of the accounting peak water mark interval. It is at least one minute and at most 15 minutes long. An accounting peak water mark within a given accounting interval is the accounting count which occurred during a peak water mark interval with the highest traffic. Peak water marks are used to determine traffic bursts. If no value is provisioned for this attribute, a value of 5 minutes is assumed. Peak water mark is only measured if the attribute *collectionTimes* in *Collector/ account* is provisioned. |
| List of | Decimal (1..15) |
| Units | minutes |
| List Size | 1 |
| Default | No default |

### GROUP Col Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group specifies the statistics operational attributes of the DCS *Collector, Agent* and *Spooler* components. |

### ATTRIBUTE Col currentQueueSize

| | |
|---|---|
| Access | Read only |
| Description | This gauge contains the current number of records held by this DCS component. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Col recordsRx

| | |
|---|---|
| Access | Read only |
| Description | This counter contains the cumulative number of records received by a DCS component, from applications that send data to it, since the processor last restarted.<br><br>This counter wraps to 0 when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Col recordsDiscarded

| | |
|---|---|
| Access | Read only |
| Description | This is the cumulative number of records discarded by this DCS component since the processor last restarted.<br><br>This counter wraps to 0 when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## COLLECTED STATS Collector

| | |
|---|---|
| Description | The statistics record generated by the Collector component. |

### ATTRIBUTE Col oldDateTime

| | |
|---|---|
| Description | This attribute shows the old date/time immediately prior to the time change. |
| Values | Time (DHMS) |

### ATTRIBUTE Col newDateTime

| | |
|---|---|
| Description | This attribute shows the new date/time immediately after the time change. |
| Values | Time (DHMS) |

## COMPONENT Col Spooler (Sp)

| | |
|---|---|
| Groups | "GROUP Col Sp Provisioned (Prov)"<br>"GROUP Col Sp OsiState (State)"<br>"GROUP Col Sp Operational (Oper)"<br>"GROUP Col Sp Statistics (Stats)" |
| Scope | Device |
| Description | *Col/<dataType> Spooler*<br>A *Spooler* is a required subcomponent of the *Collector* and also resides on the active CP, managing all the spooling of a particular type of data.<br>*Spooler* for the applicationSpecific stream manages multiple files. |
| Common Verbs | Help<br>List<br>Display<br>LOCK<br>Unlock |

## VERB Newfile Col Sp

| | |
|---|---|
| Impact | Service |
| Description | *Newfile Col/<datatype> Sp*<br>This command causes the *Spooler* to open a new file to continue spooling. Typically, this is done because the user wants to retrieve the latest set of records for this type of data. If the new file can be opened, the existing spooling file is closed and moved into the standard “closed” disk directory; otherwise, the existing file is not closed and it remains in the directory containing the open spooling files.<br><br>This command operates on all opened files being used in the applicationSpecific stream.<br><br>The command succeeds if the new file can be opened; otherwise, the command fails. As long as the file system is available, spooling can continue in the existing open file. Of course, any time the file system is unavailable, spooling stops. |

## GROUP Col Sp Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group specifies all of the provisioning data for a DCS *Spooler.* |

## ATTRIBUTE Col Sp spooling (spool)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether or not this type of data is spooled to the disk. If set to ***off***, it is roughly equivalent to Locking the *Spooler* (except this will survive processor restarts).<br><br>The following defaults are used:<br>- alarm: on<br>- accounting: on<br>- log: on<br>- debug: off<br>- scn: on<br>- trap: off (see Note below)<br>- stats: on<br>- rtStats: off (see Note below)<br>- applicationSpecific: on<br><br>Note that SNMP Traps and rtStats cannot be spooled. A semantic check prevents the user from setting the value to ***on*** for the trap stream. |
| Values | on<br>off |
| Default | No default |

## ATTRIBUTE Col Sp maximumNumberOfFiles (maxFile)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum number of files that should be kept on the disk in the directory containing the closed files of this type. The value 0 is defined to mean “unlimited”.<br><br>A different default for each type of *Spooler* is defined as follows: |

- alarm: 30
- accounting: 200
- debug: 2
- log: 10
- scn: 10
- trap: 2 (this value is meaningless and is ignored)
- stats: 200
- rtStats: 2 (this value is meaningless and is ignored)
- applicationSpecific: 200

Values: Decimal (0..200)

Default: No default

### GROUP Col Sp OsiState (State)

Properties: Operational

Description: This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Col Sp adminState (osiAdmin)

Access: Read only

Description: This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Col Sp operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Col Sp usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in

use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
idle
active (activ)
busy

Default
idle

### ATTRIBUTE Col Sp availabilityStatus (osiAvail)

Access
Read only

Description
If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.

The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.

The value ***dependency*** indicates that the component cannot

operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.

The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.

The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

| | |
|---|---|
| Set of | inTest<br>failed<br>dependency (depend)<br>powerOff (pwrOff)<br>offLine<br>offDuty<br>degraded (degrad)<br>notInstalled (notIn)<br>logFull<br>migrating |
| Default | No default |

### ATTRIBUTE Col Sp proceduralStatus (osiProc)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.<br><br>The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.<br><br>The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***. |

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

### ATTRIBUTE Col Sp controlStatus (osiCntrl)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

Set of

subjectToTest (subTst)
partOfServicesLocked (partLk)
reservedForTest (rsrvd)
suspended (suspnd)

Default

No default

### ATTRIBUTE Col Sp alarmStatus (osiAlarm)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE Col Sp standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values

hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

| | |
|---|---|
| Default | notSet |

### ATTRIBUTE Col Sp unknownStatus (osiUnknw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Unknown status of the component.<br><br>The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.<br><br>The value ***true*** indicates that the actual state of the component is not known for sure. |
| Values | false<br>true |
| Default | false |

### GROUP Col Sp Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes specific to a DCS *Spooler.* |

### ATTRIBUTE Col Sp spoolingFileNames

| | |
|---|---|
| Access | Read only |
| Description | When *spooling* is ***on***, this attribute contains the names of the open files into which data is currently being spooled. When *spooling* is ***off***, the value of this attribute is the empty list. |
| List of | String (0..128, ASCII) |
| Default | No default |

### GROUP Col Sp Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group specifies the statistics operational attributes of the DCS *Collector, Agent* and *Spooler* components. |

### ATTRIBUTE Col Sp currentQueueSize

| | |
|---|---|
| Access | Read only |
| Description | This gauge contains the current number of records held by this DCS component. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Col Sp recordsRx

| | |
|---|---|
| Access | Read only |
| Description | This counter contains the cumulative number of records received by a DCS component, from applications that send data to it, since the processor last restarted.<br><br>This counter wraps to 0 when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Col Sp recordsDiscarded

| | |
|---|---|
| Access | Read only |
| Description | This is the cumulative number of records discarded by this DCS component since the processor last restarted.<br><br>This counter wraps to 0 when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT Col Agent (Ag)

| | |
|---|---|
| Instance | Decimal (0..15) |
| Groups | "GROUP Col Ag Statistics (Stats)"<br>"GROUP Col Ag AgentStatistics (AgentStats)" |
| Scope | Device |

| | |
|---|---|
| Description | *Col/<dataType> Agent/<cardNumber>*<br>A DCS *Agent* is an operational subcomponent of a *Collector*. One *Agent* instance exists for each *Card* that is running as active or standby. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Col Ag Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group specifies the statistics operational attributes of the DCS *Collector, Agent* and *Spooler* components. |

### ATTRIBUTE Col Ag currentQueueSize

| | |
|---|---|
| Access | Read only |
| Description | This gauge contains the current number of records held by this DCS component. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Col Ag recordsRx

| | |
|---|---|
| Access | Read only |
| Description | This counter contains the cumulative number of records received by a DCS component, from applications that send data to it, since the processor last restarted.<br><br>This counter wraps to 0 when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Col Ag recordsDiscarded

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This is the cumulative number of records discarded by this DCS component since the processor last restarted.<br><br>This counter wraps to 0 when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Col Ag AgentStatistics (AgentStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the statistical attributes specific to the DCS *Agent* components. |

### ATTRIBUTE Col Ag recordsNotGenerated

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the records of a particular event type on this *Card* that could not be generated by some application due to some problem such as insufficient resources. One cannot tell exactly which event could not be generated, nor which application instance tried to generate it, but when this count increases, it is an indicator that some re-engineering may be required and will provide some idea as to why a record is missing.<br><br>This counter wraps to 0 when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

Passport 7400, 15000, 20000

# Component Col

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component Cpds

241-5701-060

Passport 7400, 15000, 20000

# Component Cpds

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT CpdsNode (Cpds)

| | |
|---|---|
| Scope | Network |
| Description | *CpdsNode*<br>This component represents system level information related to a Passport configured as a Cpds. |
| Common Verbs | Help<br>List<br>Display |

Passport 7400, 15000, 20000

# Component Cpds

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component Crs

241-5701-060

Passport 7400, 15000, 20000

# Component Crs

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT CallRedirectionServer (Crs)

| | |
|---|---|
| Groups | "GROUP Crs Provisioned (Prov)"<br>"GROUP Crs OsiState (State)"<br>"GROUP Crs Statistics (Stat)" |
| Scope | Network |
| Description | *CallRedirectionServer*<br>The *CallRedirectionServer* component provides a set of alternate destinations for an original address. The alternate destination could be DPRS routing information (that is, RID/MID) or up to seven addresses. |
| Opt. Subcomp. | "COMPONENT Crs PrimaryAddress (PAddr)"<br>"COMPONENT Crs AlternateRid (AltRid)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP Crs Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | The *Provisioned* group contains provisionable attributes of the *CallRedirectionServer* component. |

### ATTRIBUTE Crs logicalProcessor (lp)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the logical processor on which the call redirection server process is to run. |
| Values | Link (Hardware, linkToApplications) |
| Default | No default |

### GROUP Crs OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Crs adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |

| | |
|---|---|
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Crs operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Crs usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |

| | |
|---|---|
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Crs Statistics (Stat)

| | |
|---|---|
| Properties | Operational |
| Description | The *Statistics* operational group defines the statistics associated with the *CallRedirectionServer* component. |

### ATTRIBUTE Crs totalAddresses

| | |
|---|---|
| Access | Read only |
| Description | The *totalAddresses* attribute indicates the number of *PrimaryAddress* components associated with the *CallRedirectionServer* component. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Crs requestsReceived (reqRx)

| | |
|---|---|
| Access | Read only |
| Description | The *requestsReceived* attribute counts the number of redirection requests received by the *CallRedirectionServer* component. This counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Crs primaryMatches (pMatch)

| | |
|---|---|
| Access | Read only |
| Description | The *primaryMatches* attribute counts the Call Redirection Server attempts to find a matching *PrimaryAddress* where the lookup attempt was successful. This counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE Crs secAddressListExhausted (sAddrEx)

| | |
|---|---|
| Access | Read only |
| Description | The *secAddressListExhausted* attribute counts the Call Redirection Server attempts to find a *SecondaryAddress* component given a *PrimaryAddress* component where the lookup attempt resulted in the exhaustion of the secondary redirection list. This counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Crs maxAddrLenExceeded (maxAddrExc)

| | |
|---|---|
| Access | Read only |
| Description | The *maxAddrLenExceeded* attribute counts how often the concatenation of the secondary address and the suffix digits from the original called address have exceeded the maximum of 15 digits.<br>The suffix digits can be determined by removing the primary address digits from the front of the original called address.<br>If appending the suffix digits to a secondary address causes the resulting address to exceed 15 digits, this secondary member is skipped and the next secondary member is tried. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Crs secRidMidUnsuccessful (sRidMidUnsuc)

| | |
|---|---|
| Access | Read only |
| Description | The *secRidMidUnsuccessful* attribute counts the number of RID/MID redirections resulting in the destination address not being reached. This situation could occur when the destination address does not exist on the specified module or the specified module could not be reached. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Crs secAddrUnsuccessful (sAddrUnsuc)

| | |
|---|---|
| Access | Read only |
| Description | The *secAddrUnsuccessful* attribute counts the number of Address redirections resulting in the destination user not being reached. This situation could occur when the destination user line is disabled, the destination address does not exist on the specified module, or the specified module could not be reached. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Crs ridRedirected (ridRed)

| | |
|---|---|
| Access | Read only |
| Description | The *ridRedirected* attribute counts requests received by the Call Redirection Server resulting in the request being redirected to another RID specified by the *AlternateRid* component. This counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Crs ridMidRedirected (ridMidRed)

| | |
|---|---|
| Access | Read only |
| Description | The *ridMidRedirected* attribute counts requests received by the Call Redirection Server resulting in the request being redirected to another RID/MID specified by the *SecondaryRidMid* component. This counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Crs addressRedirected (addrRed)

| | |
|---|---|
| Access | Read only |
| Description | The *addressRedirected* attribute counts requests received by the Call Redirection Server resulting in the request being redirected to another Address specified by the *SecondaryAddress* component. This counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Crs altRidUnsuccessful (aRidUnsuc)

| | |
|---|---|
| Access | Read only |
| Description | The *altRidUnsuccessful* attribute counts the number of RID redirections resulting in the destination address not being reached. This situation could occur when the alternate RID cannot be reached, the module hosting the destination address is isolated, or the port associated with the secondary address is unavailable at the alternate RID. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT Crs PrimaryAddress (PAddr)

| | |
|---|---|
| Instance | String (1..17, NativeAddressWith15DigitX121) |
| Scope | Network |
| Description | *Crs PrimaryAddress*/<address><br>The *PrimaryAddress* component defines a primary address for which a list of alternate destinations are specified. This primary address has either a secondary RID/MID destination or up to seven secondary addresses associated with it.<br>A primary address matches the original destination address if, beginning with the most significant digit, all digits are identical and the primary address is less than or equal to the original destination address in length. The “best match” is the longest such primary address. |

The PrimaryAddress component instance value takes the form: x.<X.121 address> or e.<E.164 address>

Opt. Subcomp. "COMPONENT Crs PAddr SecondaryRidMid (SRidMid)"
"COMPONENT Crs PAddr SecondaryAddress (SAddr)"

Common Verbs
Help
List
Display
Add
DELete

## COMPONENT Crs PAddr SecondaryRidMid (SRidMid)

Groups "GROUP Crs PAddr SRidMid RidMidProv"

Scope Network

Description *Crs Paddr/<address> SecondaryRidMid*
The *SecondaryRidMid* component identifies an alternate destination module on which the primary address is also supported. RID/MID redirection allows the call redirection server to effectively override the original destination identified by the call routing system and forward the call to a different module.

Common Verbs
Help
List
Display
Add
DELete

## GROUP Crs PAddr SRidMid RidMidProv

Properties Provisioned

Description The *SecRidMidProv* group defines the secondary RID/MID pair associated with a specific primary address.

## ATTRIBUTE Crs PAddr SRidMid routingId (rid)

Access Read and write

| | |
|---|---|
| Description | This attribute specifies a group of one or more interconnected nodes (called a subnet) to which the primary address is redirected. |
| Values | Decimal (1..126) |
| Default | No default |

### ATTRIBUTE Crs PAddr SRidMid moduleId (mid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies a Passport node to which the primary address is redirected. |
| Values | Decimal (1..1909) |
| Default | No default |

### COMPONENT Crs PAddr SecondaryAddress (SAddr)

| | |
|---|---|
| Instance | Decimal (1..7) |
| Groups | "GROUP Crs PAddr SAddr SecAddrProv" |
| Scope | Network |
| Description | Crs Paddr/<address> SecondaryAddress/n<br>The SecondaryAddress component identifies an alternate destination address. Address redirection allows the call redirection server to effectively override the original destination address and forward the call to a different destination within the Passport network. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Crs PAddr SAddr SecAddrProv

| | |
|---|---|
| Properties | Provisioned |

| | |
|---|---|
| Description | The *SecAddrProv* group defines one of the secondary addresses associated with a specific primary address. |

### ATTRIBUTE Crs PAddr SAddr address (addr)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies a secondary address to which the primary address is redirected.<br>The *address* attribute includes the Numbering Plan Indicator (NPI) and the digits which form a unique identifier of the customer interface. The address may belong to the X.121 or E.164 addressing plan. Address digits are selected and assigned by network operators.<br>The *address* attribute takes the form:<br>x.<X.121 address> or e.<E.164 address> |
| Values | String (1..17, NativeAddressWith15DigitX121) |
| Default | No default |

### COMPONENT Crs AlternateRid (AltRid)

| | |
|---|---|
| Groups | "GROUP Crs AltRid AltRidProv" |
| Scope | Network |
| Description | *Crs AlternateRid*<br>The *AlternateRid* component defines the routing identifier value that is used as the alternate DPRS routing information when routing to the RID specified by the Call Router (CR) is unsuccessful. This component should only be provisioned as a temporary measure.When activated the RID redirection feature as significant impact on the normal redirection operation, since RID redirection is always attempted first.<br>One of the possible application of this feature being RID splitting, the *AlternateRid* component should be deleted as soon as all module have been migrated from their original RID and the Call Router (CR) throughout the network have been updated with the new RID information. |

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Crs AltRid AltRidProv

| | |
|---|---|
| Properties | Provisioned |
| Description | The *AltRidProv* group defines the alternate RID associated with the *Crs* component. |

### ATTRIBUTE Crs AltRid routingId (rid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies a group of one or more interconnected nodes (called a subnet) to which the request is redirected. |
| Values | Decimal (1..126) |
| Default | No default |

Passport 7400, 15000, 20000

# Component Crs

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component CR

241-5701-060

Passport 7400, 15000, 20000

# Component CR

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT CallRouter (CR)

| | |
|---|---|
| Scope | Network |
| Description | CallRouter<br>This component performs the call routing function. It is a database containing prefix-DNAs. Unlike the DNAs under the NumberingPlanIndicator component which are only local DNAs, the DNAs under this component can refer to local DNAs and DNAs resident on other Passport modules. This component represents a database that is used to translate a DNA in a call setup packet into a ModuleId or a RoutingId so that the call setup packet can be routed to the correct Passport module within the subnet or to the correct Passport subnet. This call router can only be used for a Passport only network. This call router only provides service when there is no CSRM attached to the Passport subnet. If a CSRM is connected to the subnet, the CSRM will provide the call routing service. |
| Opt. Subcomp. | "COMPONENT CR NumberingPlanId (Npi)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## COMPONENT CR NumberingPlanId (Npi)

| | |
|---|---|
| Instance | x121<br>e164 |
| Groups | "GROUP CR Npi Statistics (Stats)" |

| | |
|---|---|
| Scope | Network |
| Description | CallRouter NumberingPlanId/<x121,e164><br>This component collects all the prefix DNAs provisioned for a particular numbering plan indicator. There are two numbering plans allowed, E.164 and X.121. |
| Opt. Subcomp. | "COMPONENT CR Npi DataNetworkAddress (Dna)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP CR Npi Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group of attributes contains the statistics kept for a particular numbering plan indicator. |

## ATTRIBUTE CR Npi totalDnas

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute contains the total number of prefix-DNAs provisioned. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## ATTRIBUTE CR Npi callsRouted

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute contains the total number of call setup packets routed. When the counter reaches the maximum, it wraps back to zero. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE CR Npi callsFailed

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute contains the total number of call setup packets that failed to route. This could be caused by the MID or RID being unreachable or by the DNA failing to translate to a MID or RID. Check the prefix-DNA provisioning data and the DNAs associated to the endpoints of the connection. When the counter reaches the maximum, it wraps back to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT CR Npi DataNetworkAddress (Dna)

| | |
|---|---|
| Instance | BCD (1..15, Wildcarded) |
| Groups | "GROUP CR Npi Dna Provisioned (Prov)" |
| Scope | Network |
| Description | Cr Npi/<x121,e164> Dna/<BCD(1..15, WILDCARDED)><br>This subcomponent represents a prefix-DNA in the numbering plan. The instance value must be 1 to 15 digits each of value 0 through 9 or wildcard.Wild digits may be used so that the digit position specified by the wild digit is ignored when making a routing decision. This will reduce the number of prefix-DNAs needed to properly route the calls. The wild digit is represented by “?”. Wildcarding inconsistencies can not exist. If a prefix-DNA already exists in the database with a specific digit in position 3, new prefix-DNAs may not be added with a wildcard in position 3. Similarly, if the prefix-DNA already exists with a wildcard in a particular position, a similar prefix-DNA cannot be added with a specific digit in the same position. |

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP CR Npi Dna Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group of attributes represents what the prefix-DNA maps to. |

## ATTRIBUTE CR Npi Dna routingId

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute identifies the routingId that the prefix-DNA maps to. If the value is set to zero, then the routingId is not used. Note that at least one and only one of the attributes in this group must be set to a non-zero value. |
| Values | Decimal (0..126) |
| Default | 0 |

## ATTRIBUTE CR Npi Dna moduleId

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute contains the module identifier value that the DNA maps to. If the value is set to zero, then the moduleId is not used. Note that at least one and only one of the attributes in this group must be set to a non-zero value. |
| Values | Decimal (0..1909) |
| Default | 0 |

Passport 7400, 15000, 20000

# Component CR

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component DataSigChan

241-5701-060

Passport 7400, 15000, 20000

# Component DataSigChan

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT DataSignallingChannel (DataSigChan)

| | |
|---|---|
| Instance | Decimal (1..255) |
| Groups | "GROUP DataSigChan Provisioned (Prov)"<br>"GROUP DataSigChan CustomerIdentifierData (CidData)"<br>"GROUP DataSigChan IfEntryProv (IfEntry)"<br>"GROUP DataSigChan OsiState (State)"<br>"GROUP DataSigChan OperationalStatus (OperStatus)" |
| Scope | Application |
| Description | *DataSignallingChannel/n*<br>The *DataSignallingChannel* component defines the operational characteristics of the connection to the external ISDN PRI equipment. A *DataSignallingChannel* must be provisioned for each D-Channel. |

| | |
|---|---|
| Subcomponents | "COMPONENT DataSigChan CallControl (Cc)" |
| Opt. Subcomp. | "COMPONENT DataSigChan TS014 (TS014)"<br>"COMPONENT DataSigChan Etsi (Etsi)"<br>"COMPONENT DataSigChan JapanIns (Ins)"<br>"COMPONENT DataSigChan NationalIsdn2 (Ni2)"<br>"COMPONENT DataSigChan Nis (Nis)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP DataSigChan Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group represents the provisionable attributes of a *DataSigChan*. |

## ATTRIBUTE DataSigChan commentText

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the name of the customer that is using this *DataSigChan*. Typical use of this attribute is to store customer name. |
| Values | String (0..40, ASCII) |
| Default | No default |

## GROUP DataSigChan CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |

| | |
|---|---|
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

### ATTRIBUTE DataSigChan customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.<br><br>Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.<br><br>An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to "basic CIDs" in DPN) may be assigned to specific customers. |
| Values | Decimal (0; 1..8191) |
| Default | 0 |

### GROUP DataSigChan IfEntryProv (IfEntry)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the ifEntry. |

### ATTRIBUTE DataSigChan ifAdminStatus (ifState)

| | |
|---|---|
| Access | Read and write |
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed. |

| | |
|---|---|
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE DataSigChan ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP DataSigChan OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE DataSigChan adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users |

only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE DataSigChan operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE DataSigChan usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has

spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP DataSigChan OperationalStatus (OperStatus)

Properties
Operational

Description
This group includes the Operational Status attribute. This attribute defines the current operational state of this component.

### ATTRIBUTE DataSigChan snmpOperStatus

Access
Read only

Description
The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed.

Values
up
down
testing

Default
up

### COMPONENT DataSigChan CallControl (Cc)

Groups
"GROUP DataSigChan Cc Statistics (Stats)"

Scope
Application

| | |
|---|---|
| Description | *DataSigChan/n CallControl*<br>*This component defines the Call Control parameters and displays the statistics of the D-channel.* |
| Subcomponents | "COMPONENT DataSigChan Cc ChannelGroup (Cg)" |
| Opt. Subcomp. | "COMPONENT DataSigChan Cc Trace (Tr)" |
| Dyn. Subcomp. | "COMPONENT DataSigChan Cc Bchannel (Bch)" |
| Common Verbs | Help<br>List<br>Display |

## GROUP DataSigChan Cc Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the statistics of the CallControl |

## ATTRIBUTE DataSigChan Cc totalValidInCalls (ic)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of incoming calls (with valid mandatory IE contents and received in a valid ISDN state) from the interface. This counter wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## ATTRIBUTE DataSigChan Cc successfullInCalls (isc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of successfull valid incoming calls from the interface. Unsuccessful calls include those that have disallowed Capability (BC, LLC), screening indicator, or calling party number, and calls that are rejected due to requested channel busy. This counter wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE DataSigChan Cc inInvalidCapability (iicap)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of valid incoming calls rejected due to an unsupported service capability, such as Information Transfer Rate, Class of Service, Protocol Standard. This counter wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE DataSigChan Cc inInvalidScreen (iis)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of valid incoming calls rejected due to a screening indicator value not provisioned in the channel group's screeningIndicator attribute. This counter wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE DataSigChan Cc inInvalidCgpn (iicgpn)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of valid incoming calls rejected due to the calling party number not beeing provisioned in any *channelGroup component of this call control. This counter wraps to zero after reaching its maximum value.* |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE DataSigChan Cc inChannelBusy (icb)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the number of valid incoming calls rejected due to no available B-Channels. This counter wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE DataSigChan Cc lastClearCause (lcc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Q931 clear cause of the last valid call that is rejected or cleared. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE DataSigChan Cc lastClearedCallingPartyNumber (lccgpn)

| | |
|---|---|
| Access | Read only |
| Description | This attribute shows the calling party number of the last valid call that is rejected or cleared. |
| Values | BCD (1..14) |
| Default | No default |

### COMPONENT DataSigChan Cc ChannelGroup (Cg)

| | |
|---|---|
| Instance | Decimal (1..31) |
| Groups | "GROUP DataSigChan Cc Cg CustomerIdentifierData (CidData)"<br>"GROUP DataSigChan Cc Cg Provisioned (Prov)"<br>"GROUP DataSigChan Cc Cg Statistics (Stats)" |
| Scope | Application |
| Description | *DataSigChan/n Cc ChannelGroup/n*<br>A ChannelGroup defines the call allocation parameters and the channel list for a subgroup of users. |

| | |
|---|---|
| Opt. Subcomp. | "COMPONENT DataSigChan Cc Cg CallingPartyNumber (Cgpn)" |
| Dyn. Subcomp. | "COMPONENT DataSigChan Cc Cg Bchannel (Bch)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP DataSigChan Cc Cg CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

## ATTRIBUTE DataSigChan Cc Cg customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.<br><br>Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.<br><br>An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to "basic CIDs" in DPN) may be assigned to specific customers. |

| | |
|---|---|
| Values | Decimal (0; 1..8191) |
| Default | 0 |

### GROUP DataSigChan Cc Cg Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group defines the call admission parameters applied to the group of B-Channels. |

### ATTRIBUTE DataSigChan Cc Cg commentText

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the name of the customer that is using this *ChannelGroup. Typical use of this attribute is to store customer name.* |
| Values | String (0..40, ASCII) |
| Default | No default |

### ATTRIBUTE DataSigChan Cc Cg screeningIndicator (si)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the acceptable set of screening modes. The screening mode is carried by the Calling Party Number information element (IE) of the B-Channel request packet. There are four types of mode:<br>upns - User provided, not screened<br>upvp - User provided, verified and passed<br>upvf - User provided, verified and failed<br>np - Network provided<br>When a call is received with a screening indicator not provisioned in the list, the call is cleared. |
| Set of | upns<br>upvp<br>upvf<br>np |
| Default | (upvp, np) |

### ATTRIBUTE DataSigChan Cc Cg channelAssignmentOrder (cao)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the order (ascending or descending) in which the B-Channels are allocated. This attribute is used only when it is not signalled in the call setup message. |
| Values | ascending<br>descending |
| Default | ascending |

### ATTRIBUTE DataSigChan Cc Cg channelList (cl)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute contains the list of B-Channel numbers forming the channel group. At least one channel must be specified. |
| Set of | Decimal (1..31) |
| Default | No default |

### GROUP DataSigChan Cc Cg Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the statistics for a *ChannelGroup* |

### ATTRIBUTE DataSigChan Cc Cg totalInCalls (tic)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of incoming calls (with valid mandatory IE contents and received in a valid ISDN state) from the interface for this *channelGroup. This counter wraps to zero after reaching its maximum value.* |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE DataSigChan Cc Cg successfullInCalls (sic)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the number of valid incoming calls for this *channelGroup. This counter wraps to zero after reaching its maximum value.* |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE DataSigChan Cc Cg rejectedNoChanAvail (rnca)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of rejected call because no channel were available under the selected channel group. This counter wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE DataSigChan Cc Cg idleChannelCount (icc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute shows the number of B-channels in the channel group that are in idle state. |
| Values | Decimal (0..255) |
| Default | 0 |

### ATTRIBUTE DataSigChan Cc Cg busyChannelCount (bcc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute shows the number of B-Channels in this channel group that are in busy state. |
| Values | Decimal (0..255) |
| Default | 0 |

### COMPONENT DataSigChan Cc Cg CallingPartyNumber (Cgpn)

| | |
|---|---|
| Instance | BCD (1..14) |
| Scope | Application |

| | |
|---|---|
| Description | *DataIsdn/n Cc Cg/n Cgpn/n*<br>*This component identifies the acceptable calling party number by its instance number, which can consist up to a maximum of 14 decimal digits. These are the numbers that are allowed to use the channels of this ChannelGroup.* |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## COMPONENT DataSigChan Cc Cg Bchannel (Bch)

| | |
|---|---|
| Instance | Decimal (1..31) |
| Groups | "GROUP DataSigChan Cc Cg Bch BchannelOpData (BchanOpData)" |
| Scope | Application |
| Description | *DataSigChan/n Cc Bchannel/n*<br>*DataSigChan/n Cc Cg/n Bchannel/n*<br>*This component identifies the B-channels associated with a CallControl or a ChannelGroup.* |
| Common Verbs | Help<br>List<br>Display |

## GROUP DataSigChan Cc Cg Bch BchannelOpData (BchanOpData)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data of a B-Channel. |

## ATTRIBUTE DataSigChan Cc Cg Bch state

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the state of the B-channel. A B-channel is in idle state when it is available for a call. The busy state indicate that the B-channel is presently in use. The disabled state means |

| | |
|---|---|
| | that the access service is not enabled because it is locked or the port is down. The state noProtocolProvisioned means that the call control did not yet received the registration for this B-channel. |
| Values | idle<br>busy<br>disabled<br>noProtocolProvisioned |
| Default | No default |

### ATTRIBUTE DataSigChan Cc Cg Bch callingPartyNumber (cgpn)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the calling party number of the last valid call request for this channel. |
| Values | BCD (1..14) |
| Default | No default |

### ATTRIBUTE DataSigChan Cc Cg Bch lastQ931ClearCause (cause)

| | |
|---|---|
| Access | Read only |
| Description | The clear cause of the last call on this B-channel. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE DataSigChan Cc Cg Bch runningApplication (app)

| | |
|---|---|
| Access | Read only |
| Description | The name of the application running on this B-channel. |
| Values | String (0..20, ASCII) |
| Default | "" |

### ATTRIBUTE DataSigChan Cc Cg Bch callRefNumber (cref)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the call reference number for this B-channel. The call reference value is assigned by the originating |

side of the call and remains fixed for the lifetime of a call (except in the case of call suspension).

Values: Decimal (0..65535)

Default: No default

## COMPONENT DataSigChan Cc Trace (Tr)

Scope: Application

Description: *DataIsdn/n CallControl Trace*
*This component defines the Call Control trace component for the dataIsdn. It consists of the Pri/n subcomponent.*

Dyn. Subcomp.: "COMPONENT DataSigChan Cc Tr Pri"

Common Verbs:
- Help
- List
- Display
- Add
- DELete

## COMPONENT DataSigChan Cc Tr Pri

Instance: Decimal (0..3)

Scope: Application

Description: *DataIsdn/n CallControl Trace Pri/n*
*The component displays the class data members of the isdn Pri/n class.*

Dyn. Subcomp.: "COMPONENT DataSigChan Cc Tr Pri Bch"

Common Verbs:
- Help
- List
- Display

## COMPONENT DataSigChan Cc Tr Pri Bch

Instance: Decimal (1..31)

Scope: Application

| | |
|---|---|
| Description | *DataIsdn/n CallControl Trace Pri/n Bch/m*<br>The component displays the class data members of the isdn Pri/n Bch/m class. |
| Common Verbs | Help<br>List<br>Display |

## COMPONENT DataSigChan Cc Bchannel (Bch)

| | |
|---|---|
| Instance | Decimal (1..31) |
| Groups | "GROUP DataSigChan Cc Bch BchannelOpData (BchanOpData)" |
| Scope | Application |
| Description | *DataSigChan/n Cc Bchannel/n*<br>*DataSigChan/n Cc Cg/n Bchannel/n*<br>*This component identifies the B-channels associated with a CallControl or a ChannelGroup.* |
| Common Verbs | Help<br>List<br>Display |

## GROUP DataSigChan Cc Bch BchannelOpData (BchanOpData)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data of a B-Channel. |

## ATTRIBUTE DataSigChan Cc Bch state

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the state of the B-channel. A B-channel is in idle state when it is available for a call. The busy state indicate that the B-channel is presently in use. The disabled state means that the access service is not enabled because it is locked or the port is down. The state noProtocolProvisioned means that the call control did not yet received the registration for this B-channel. |

| | |
|---|---|
| Values | idle<br>busy<br>disabled<br>noProtocolProvisioned |
| Default | No default |

### ATTRIBUTE DataSigChan Cc Bch callingPartyNumber (cgpn)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the calling party number of the last valid call request for this channel. |
| Values | BCD (1..14) |
| Default | No default |

### ATTRIBUTE DataSigChan Cc Bch lastQ931ClearCause (cause)

| | |
|---|---|
| Access | Read only |
| Description | The clear cause of the last call on this B-channel. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE DataSigChan Cc Bch runningApplication (app)

| | |
|---|---|
| Access | Read only |
| Description | The name of the application running on this B-channel. |
| Values | String (0..20, ASCII) |
| Default | "" |

### ATTRIBUTE DataSigChan Cc Bch callRefNumber (cref)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the call reference number for this B-channel. The call reference value is assigned by the originating side of the call and remains fixed for the lifetime of a call (except in the case of call suspension). |

| | |
|---|---|
| Values | Decimal (0..65535) |
| Default | No default |

## COMPONENT DataSigChan TS014 (TS014)

| | |
|---|---|
| Groups | "GROUP DataSigChan TS014 Layer2Options (L2)"<br>"GROUP DataSigChan TS014 Provisioned (Prov)"<br>"GROUP DataSigChan TS014 Operational (Oper)"<br>"GROUP DataSigChan TS014 Tools" |
| Scope | Device |
| Description | *DataSigChan/n TS014*<br>The *TS014* component defines the operational characteristics of the signalling channel's connection to the external equipment. |
| Subcomponents | "COMPONENT DataSigChan TS014 Framer (Framer)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP DataSigChan TS014 Layer2Options (L2)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group represents the provisionable Layer 2 attributes of the Q931 CCITT protocol. |

## ATTRIBUTE DataSigChan TS014 t23

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the layer2 enable request timer. |
| Values | Decimal (1..15) |
| Units | seconds |

| | |
|---|---|
| Default | 10 |

### ATTRIBUTE DataSigChan TS014 t200

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the maximum time between a layer 2 frame and its acknowledgement |
| Values | Decimal (1..20) |
| Units | seconds |
| Default | 2 |

### ATTRIBUTE DataSigChan TS014 n200

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the maximum number of re-transmissions of a layer2 frame. |
| Values | Decimal (1..8) |
| Default | 3 |

### ATTRIBUTE DataSigChan TS014 t203

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the maximum time that a no layer 2 traffic situation can last. Expiry triggers a check on whether the far end is a live. |
| Values | Decimal (2..40) |
| Units | seconds |

| | |
|---|---|
| Default | 10 |

### ATTRIBUTE DataSigChan TS014 n201

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the maximum number of octets in an information field. |
| Values | Decimal (4..260) |
| Units | octets |
| Default | 260 |

### ATTRIBUTE DataSigChan TS014 circuitSwitchedK

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the maximum number of frames for B channel use. |
| Values | Decimal (1..632) |
| Default | 7 |

### GROUP DataSigChan TS014 Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group defines the general options of the d-channel signalling link. |

### ATTRIBUTE DataSigChan TS014 layer2HdlcMode

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |

| | |
|---|---|
| Description | This attribute specifies whether the layer 2 HDLC interface is the network or user side of the connection. |
| Values | network<br>user |
| Default | user |

### GROUP DataSigChan TS014 Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group provides the operational attributes for the signalling protocol. |

### ATTRIBUTE DataSigChan TS014 activeChannels

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of currently active channels. This includes data and voice channels. |
| Values | Decimal (0..128) |
| Default | 0 |

### ATTRIBUTE DataSigChan TS014 peakActiveChannels

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the maximum number of channels that have been active on this signalling channel during the last polling period. |
| Values | Decimal (0..128) |
| Default | 0 |

### ATTRIBUTE DataSigChan TS014 dChanStatus (dCh)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the state of the D-channel. ***outOfService*** means that there is no layer 2 or layer 3 |

connectivity to the PBX.
***establishing*** means that the signalling channel is attempting to stage the layer 2.
***established*** means that the layer 2 is enabled. If the signalling channel stays in the ***established*** state, then it is waiting for a restart from the PBX.
***enabling*** means that the resources for processing calls are being initialized. If the signalling channel stays in the ***enabling*** state then it is waiting for a restart acknowledgement from the PBX.
***inService*** means that the resources for processing calls are available.
***restarting*** means that the resources for call processing are being rei-initialized.

Values
outOfService
establishing
established
enabling
inService
restarting

Default
No default

## GROUP DataSigChan TS014 Tools

Properties
Operational

Description
This group contains a series of operational attributes which turn on and off several kinds of tracing.

## ATTRIBUTE DataSigChan TS014 tracing

Access
Read: All
Write: All

Description
This attribute defines which types of tracing are active for this signalling channel. The tracing messages are sent to the debug stream. To see the messages the agentQueue attribute in Col/debug must be greater than 0 and a Telnet NMIS session must list the debug stream in in its data streams (ex. set nmis telnet session/1 dataStreams debug). Different types of tracing can be enabled simultaneously.
Note that tracing consumes additional CPU resources and will

slow down call processing on a heavily loaded card. If there is message block exhaustion tracing will be suspended for a period and then automatically reenabled. An alarm is generated on tracing suspension and resumption. This mechanism protects the function processor against excessive numbers of tracing messages.

Types of tracing include:
***protocolErrors*** - get details of any protocol errors which are occuring. Protocol errors are also reported in summary form as alarms.
***q931Summary*** - Summary of the Q.931 messages on the signalling link, including certain call details (calling number, called number, release codes).
***q931Hex*** - Q.931 messages displayed in hex format. Useful to determine protocol compliance in case of errors reported on local or remote ends.
***q931Symbolic*** - Q.931 messages parsed to give maximum detail. Useful for understanding content of messages flowing on the link.
***portHex*** - Messages in hex format being sent and received on the link.

Set of
protocolErrors
q931Summary
q931Hex
q931Symbolic
portHex

Default
No default

## COMPONENT DataSigChan TS014 Framer (Framer)

Groups
"GROUP DataSigChan TS014 Framer Provisioned (Prov)"
"GROUP DataSigChan TS014 Framer OsiState (State)"
"GROUP DataSigChan TS014 Framer Statistics (Stats)"

"COLLECTED STATS DataSignallingChannel TS014 Framer"

Scope
Application

Description
*DataSigChan/n ts014 Framer*

The *Framer* component controls link layer framing for

application components sending and receiving data on a link interface. It is also through *Framer*, that an application component is associated with a specific hardware link interface.

The *Framer* component provides provisionable attributes related to datapath aspects of the hardware interface (such as crc and frame length). The *Framer* component also provides a provisionable attribute which binds the application component to a specific hardware component.

The *Framer* component contains operational attributes for link interface datapath statistics (such as frame counts and aborts).

The e1/ds1 port number of the physical channel linked to the *Framer* component is restricted to 0-3 for all FP including MSA32.

Common Verbs

Help
List
Display

## GROUP DataSigChan TS014 Framer Provisioned (Prov)

Properties: Provisioned

Description: This group contains the base provisioning data for the *Framer* component. Application or hardware interface specific provisioning data is contained in other provisionable *Framer* groups.

## ATTRIBUTE DataSigChan TS014 Framer interfaceName

Access: Read and write

Criticality: Process

Description: This attribute contains a hardware component name.

The attribute associates the application with a specific link. This

defines the module processor on which *Framer*'s parent component (as well as *Framer* itself) will run.

Values: Link (Hardware, applicationFramerName)

Default: No default

## GROUP DataSigChan TS014 Framer OsiState (State)

Properties: Operational

Description: This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

## ATTRIBUTE DataSigChan TS014 Framer adminState (osiAdmin)

Access: Read only

Description: This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values:
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default: unlocked

### ATTRIBUTE DataSigChan TS014 Framer operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE DataSigChan TS014 Framer usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP DataSigChan TS014 Framer Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational statistics data for a Framer component. |

### ATTRIBUTE DataSigChan TS014 Framer aborts

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of aborts received.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE DataSigChan TS014 Framer crcErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames with CRC errors.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE DataSigChan TS014 Framer lrcErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames with LRC errors.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE DataSigChan TS014 Framer nonOctetErrors

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the total number of frames that were non octet aligned.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE DataSigChan TS014 Framer overruns

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames received from the link for which overruns occurred.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE DataSigChan TS014 Framer underruns

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames transmitted to the link for which underruns occurred.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE DataSigChan TS014 Framer largeFrmErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames received which were too large. The frame was longer than 500 bytes.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE DataSigChan TS014 Framer frmToIf

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | The number of frames transmitted to the link interface by Framer.<br><br>Note: This does not include the number of frames transmitted directly to the hardware queue, thus bypassing the Framer |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE DataSigChan TS014 Framer frmFromIf

| | |
|---|---|
| Access | Read only |
| Description | The number of frames received from the link interface by Framer. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE DataSigChan TS014 Framer octetFromIf

| | |
|---|---|
| Access | Read only |
| Description | The number of bytes received from the link interface by Framer. |
| Values | Long Integer |
| Default | No default |

## COLLECTED STATS DataSignallingChannel TS014 Framer

| | |
|---|---|
| Description | The statistics record generated by the DataSignallingChannel TS014 Framer component. |

### ATTRIBUTE DataSigChan TS014 Framer rxBytes

| | |
|---|---|
| Description | This attribute provides the number of bytes received on the link by the Framer in the last collection interval. |
| Values | Long Integer |

### ATTRIBUTE DataSigChan TS014 Framer rxFrames

| | |
|---|---|
| Description | This attribute provides the number of frames received on the link interface by the Framer in the last collection interval. |
| Values | Long Integer |

### ATTRIBUTE DataSigChan TS014 Framer txBytes

| | |
|---|---|
| Description | This attribute provides the number of bytes transmitted to the link by the Framer in the last collection interval. This value could be zero if the application sends the frames directly to the link. |
| Values | Long Integer |

### ATTRIBUTE DataSigChan TS014 Framer txFrames

| | |
|---|---|
| Description | This attribute provides the number of frames transmitted to the link interface by the Framer in the last collection interval. This value could be zero if the application sends the frames directly to the link. |
| Values | Long Integer |

### ATTRIBUTE DataSigChan TS014 Framer rxTotalLinkUtil

| | |
|---|---|
| Description | This attribute provides the average total link utilization computed based on the total number of bytes received on the link in the last collection interval. |
| Values | Decimal (0..100) |

### COMPONENT DataSigChan Etsi (Etsi)

| | |
|---|---|
| Groups | "GROUP DataSigChan Etsi Layer2Options (L2)"<br>"GROUP DataSigChan Etsi Provisioned (Prov)"<br>"GROUP DataSigChan Etsi Operational (Oper)"<br>"GROUP DataSigChan Etsi Tools" |
| Scope | Device |
| Description | *DataSigChan/n ETSI*<br>The *ETSI* component defines the operational characteristics of the signalling channel's connection to the external equipment. |

| | |
|---|---|
| Subcomponents | "COMPONENT DataSigChan Etsi Framer (Framer)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP DataSigChan Etsi Layer2Options (L2)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group represents the provisionable Layer 2 attributes of the Q931 CCITT protocol. |

## ATTRIBUTE DataSigChan Etsi t23

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the layer2 enable request timer. |
| Values | Decimal (1..15) |
| Units | seconds |
| Default | 10 |

## ATTRIBUTE DataSigChan Etsi t200

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the maximum time between a layer 2 frame and its acknowledgement |
| Values | Decimal (1..20) |
| Units | seconds |

| | |
|---|---|
| Default | 2 |

### ATTRIBUTE DataSigChan Etsi n200

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the maximum number of re-transmissions of a layer2 frame. |
| Values | Decimal (1..8) |
| Default | 3 |

### ATTRIBUTE DataSigChan Etsi t203

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the maximum time that a no layer 2 traffic situation can last. Expiry triggers a check on whether the far end is a live. |
| Values | Decimal (2..40) |
| Units | seconds |
| Default | 10 |

### ATTRIBUTE DataSigChan Etsi n201

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the maximum number of octets in an information field. |
| Values | Decimal (4..260) |
| Units | octets |

| | |
|---|---|
| Default | 260 |

### ATTRIBUTE DataSigChan Etsi circuitSwitchedK

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the maximum number of frames for B channel use. |
| Values | Decimal (1..632) |
| Default | 7 |

### GROUP DataSigChan Etsi Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group defines the general options of the d-channel signalling link. |

### ATTRIBUTE DataSigChan Etsi layer2HdlcMode

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies whether the layer 2 HDLC interface is the network or user side of the connection. |
| Values | network<br>user |
| Default | user |

### GROUP DataSigChan Etsi Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group provides the operational attributes for the signalling protocol. |

### ATTRIBUTE DataSigChan Etsi activeChannels

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of currently active channels. This includes data and voice channels. |
| Values | Decimal (0..128) |
| Default | 0 |

### ATTRIBUTE DataSigChan Etsi peakActiveChannels

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the maximum number of channels that have been active on this signalling channel during the last polling period. |
| Values | Decimal (0..128) |
| Default | 0 |

### ATTRIBUTE DataSigChan Etsi dChanStatus (dCh)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the state of the D-channel.<br>***outOfService*** means that there is no layer 2 or layer 3 connectivity to the PBX.<br>***establishing*** means that the signalling channel is attempting to stage the layer 2.<br>***established*** means that the layer 2 is enabled. If the signalling channel stays in the ***established*** state, then it is waiting for a restart from the PBX.<br>***enabling*** means that the resources for processing calls are being initialized. If the signalling channel stays in the ***enabling*** state then it is waiting for a restart acknowledgement from the PBX.<br>***inService*** means that the resources for processing calls are available.<br>***restarting*** means that the resources for call processing are being rei-initialized. |

| | |
|---|---|
| Values | outOfService<br>establishing<br>established<br>enabling<br>inService<br>restarting |
| Default | No default |

## GROUP DataSigChan Etsi Tools

| | |
|---|---|
| Properties | Operational |
| Description | This group contains a series of operational attributes which turn on and off several kinds of tracing. |

## ATTRIBUTE DataSigChan Etsi tracing

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute defines which types of tracing are active for this signalling channel. The tracing messages are sent to the debug stream. To see the messages the agentQueue attribute in Col/debug must be greater than 0 and a Telnet NMIS session must list the debug stream in in its data streams (ex. set nmis telnet session/1 dataStreams debug). Different types of tracing can be enabled simultaneously.<br>Note that tracing consumes additional CPU resources and will slow down call processing on a heavily loaded card. If there is message block exhaustion tracing will be suspended for a period and then automatically reenabled. An alarm is generated on tracing suspension and resumption. This mechanism protects the function processor against excessive numbers of tracing messages.<br><br>Types of tracing include:<br>***protocolErrors*** - get details of any protocol errors which are occuring. Protocol errors are also reported in summary form as alarms.<br>***q931Summary*** - Summary of the Q.931 messages on the signalling link, including certain call details (calling number, called number, release codes). |

***q931Hex*** - Q.931 messages displayed in hex format. Useful to determine protocol compliance in case of errors reported on local or remote ends.
***q931Symbolic*** - Q.931 messages parsed to give maximum detail. Useful for understanding content of messages flowing on the link.
***portHex*** - Messages in hex format being sent and received on the link.

Set of

protocolErrors
q931Summary
q931Hex
q931Symbolic
portHex

Default

No default

## COMPONENT DataSigChan Etsi Framer (Framer)

Groups

"GROUP DataSigChan Etsi Framer Provisioned (Prov)"
"GROUP DataSigChan Etsi Framer OsiState (State)"
"GROUP DataSigChan Etsi Framer Statistics (Stats)"

"COLLECTED STATS DataSignallingChannel Etsi Framer"

Scope

Application

Description

*DataSigChan/n ts014 Framer*

The *Framer* component controls link layer framing for application components sending and receiving data on a link interface. It is also through *Framer*, that an application component is associated with a specific hardware link interface.

The *Framer* component provides provisionable attributes related to datapath aspects of the hardware interface (such as crc and frame length). The *Framer* component also provides a provisionable attribute which binds the application component to a specific hardware component.

The *Framer* component contains operational attributes for link interface datapath statistics (such as frame counts and aborts).

The e1/ds1 port number of the physical channel linked to the *Framer* component is restricted to 0-3 for all FP including MSA32.

Common Verbs

Help
List
Display

## GROUP DataSigChan Etsi Framer Provisioned (Prov)

Properties: Provisioned

Description

This group contains the base provisioning data for the *Framer* component. Application or hardware interface specific provisioning data is contained in other provisionable *Framer* groups.

## ATTRIBUTE DataSigChan Etsi Framer interfaceName

Access: Read and write

Criticality: Process

Description

This attribute contains a hardware component name.

The attribute associates the application with a specific link. This defines the module processor on which *Framer*'s parent component (as well as *Framer* itself) will run.

Values: Link (Hardware, applicationFramerName)

Default: No default

## GROUP DataSigChan Etsi Framer OsiState (State)

Properties: Operational

Description: This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state

combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE DataSigChan Etsi Framer adminState (osiAdmin)

Access: Read only

Description: This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values:
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default: unlocked

### ATTRIBUTE DataSigChan Etsi Framer operationalState (osiOper)

Access: Read only

Description: This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available

for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE DataSigChan Etsi Framer usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP DataSigChan Etsi Framer Statistics (Stats)

Properties
Operational

Description
This group contains the operational statistics data for a Framer component.

### ATTRIBUTE DataSigChan Etsi Framer aborts

Access
Read only

Description
This attribute counts the total number of aborts received.
This count wraps to zero after reaching its maximum value.

Values
Decimal (0..4294967295)

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE DataSigChan Etsi Framer crcErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames with CRC errors. This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE DataSigChan Etsi Framer lrcErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames with LRC errors. This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE DataSigChan Etsi Framer nonOctetErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames that were non octet aligned.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE DataSigChan Etsi Framer overruns

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames received from the link for which overruns occurred.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE DataSigChan Etsi Framer underruns

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames transmitted to the link for which underruns occurred.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE DataSigChan Etsi Framer largeFrmErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames received which were too large. The frame was longer than 500 bytes.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE DataSigChan Etsi Framer frmToIf

| | |
|---|---|
| Access | Read only |
| Description | The number of frames transmitted to the link interface by Framer.<br><br>Note: This does not include the number of frames transmitted directly to the hardware queue, thus bypassing the Framer |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE DataSigChan Etsi Framer frmFromIf

| | |
|---|---|
| Access | Read only |
| Description | The number of frames received from the link interface by Framer. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE DataSigChan Etsi Framer octetFromIf

| | |
|---|---|
| Access | Read only |
| Description | The number of bytes received from the link interface by Framer. |
| Values | Long Integer |
| Default | No default |

## COLLECTED STATS DataSignallingChannel Etsi Framer

| | |
|---|---|
| Description | The statistics record generated by the DataSignallingChannel Etsi Framer component. |

### ATTRIBUTE DataSigChan Etsi Framer rxBytes

| | |
|---|---|
| Description | This attribute provides the number of bytes received on the link by the Framer in the last collection interval. |
| Values | Long Integer |

### ATTRIBUTE DataSigChan Etsi Framer rxFrames

| | |
|---|---|
| Description | This attribute provides the number of frames received on the link interface by the Framer in the last collection interval. |
| Values | Long Integer |

### ATTRIBUTE DataSigChan Etsi Framer txBytes

| | |
|---|---|
| Description | This attribute provides the number of bytes transmitted to the link by the Framer in the last collection interval. This value could be zero if the application sends the frames directly to the link. |
| Values | Long Integer |

### ATTRIBUTE DataSigChan Etsi Framer txFrames

| | |
|---|---|
| Description | This attribute provides the number of frames transmitted to the link interface by the Framer in the last collection interval. This value could be zero if the application sends the frames directly to the link. |
| Values | Long Integer |

### ATTRIBUTE DataSigChan Etsi Framer rxTotalLinkUtil

| | |
|---|---|
| Description | This attribute provides the average total link utilization computed based on the total number of bytes received on the link in the last collection interval. |
| Values | Decimal (0..100) |

### COMPONENT DataSigChan JapanIns (Ins)

| | |
|---|---|
| Groups | "GROUP DataSigChan Ins Layer2Options (L2)"<br>"GROUP DataSigChan Ins Provisioned (Prov)"<br>"GROUP DataSigChan Ins Operational (Oper)"<br>"GROUP DataSigChan Ins Tools" |
| Scope | Device |
| Description | *DataSigChan/n JapanIns*<br>The *JapanIns* component defines the operational characteristics of the signalling channel's connection to the external equipment. |
| Subcomponents | "COMPONENT DataSigChan Ins Framer (Framer)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP DataSigChan Ins Layer2Options (L2)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group represents the provisionable Layer 2 attributes of the Q931 CCITT protocol. |

### ATTRIBUTE DataSigChan Ins t23

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the layer2 enable request timer. |

| | |
|---|---|
| Values | Decimal (1..15) |
| Units | seconds |
| Default | 10 |

### ATTRIBUTE DataSigChan Ins t200

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the maximum time between a layer 2 frame and its acknowledgement |
| Values | Decimal (1..20) |
| Units | seconds |
| Default | 2 |

### ATTRIBUTE DataSigChan Ins n200

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the maximum number of re-transmissions of a layer2 frame. |
| Values | Decimal (1..8) |
| Default | 3 |

### ATTRIBUTE DataSigChan Ins t203

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the maximum time that a no layer 2 traffic situation can last. Expiry triggers a check on whether the far end is a live. |

| | |
|---|---|
| Values | Decimal (2..40) |
| Units | seconds |
| Default | 10 |

### ATTRIBUTE DataSigChan Ins n201

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the maximum number of octets in an information field. |
| Values | Decimal (4..260) |
| Units | octets |
| Default | 260 |

### ATTRIBUTE DataSigChan Ins circuitSwitchedK

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the maximum number of frames for B channel use. |
| Values | Decimal (1..632) |
| Default | 7 |

### GROUP DataSigChan Ins Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group defines the general options of the d-channel signalling link. |

### ATTRIBUTE DataSigChan Ins layer2HdlcMode

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies whether the layer 2 HDLC interface is the network or user side of the connection. |
| Values | network<br>user |
| Default | user |

### GROUP DataSigChan Ins Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group provides the operational attributes for the signalling protocol. |

### ATTRIBUTE DataSigChan Ins activeChannels

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of currently active channels. This includes data and voice channels. |
| Values | Decimal (0..128) |
| Default | 0 |

### ATTRIBUTE DataSigChan Ins peakActiveChannels

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the maximum number of channels that have been active on this signalling channel during the last polling period. |
| Values | Decimal (0..128) |
| Default | 0 |

### ATTRIBUTE DataSigChan Ins dChanStatus (dCh)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the state of the D-channel.<br>***outOfService*** means that there is no layer 2 or layer 3 connectivity to the PBX.<br>***establishing*** means that the signalling channel is attempting to stage the layer 2.<br>***established*** means that the layer 2 is enabled. If the signalling channel stays in the ***established*** state, then it is waiting for a restart from the PBX.<br>***enabling*** means that the resources for processing calls are being initialized. If the signalling channel stays in the ***enabling*** state then it is waiting for a restart acknowledgement from the PBX.<br>***inService*** means that the resources for processing calls are available.<br>***restarting*** means that the resources for call processing are being rei-initialized. |
| Values | outOfService<br>establishing<br>established<br>enabling<br>inService<br>restarting |
| Default | No default |

### GROUP DataSigChan Ins Tools

| | |
|---|---|
| Properties | Operational |
| Description | This group contains a series of operational attributes which turn on and off several kinds of tracing. |

### ATTRIBUTE DataSigChan Ins tracing

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute defines which types of tracing are active for this signalling channel. The tracing messages are sent to the debug |

stream. To see the messages the agentQueue attribute in Col/debug must be greater than 0 and a Telnet NMIS session must list the debug stream in in its data streams (ex. set nmis telnet session/1 dataStreams debug). Different types of tracing can be enabled simultaneously.
Note that tracing consumes additional CPU resources and will slow down call processing on a heavily loaded card. If there is message block exhaustion tracing will be suspended for a period and then automatically reenabled. An alarm is generated on tracing suspension and resumption. This mechanism protects the function processor against excessive numbers of tracing messages.

Types of tracing include:
***protocolErrors*** - get details of any protocol errors which are occuring. Protocol errors are also reported in summary form as alarms.
***q931Summary*** - Summary of the Q.931 messages on the signalling link, including certain call details (calling number, called number, release codes).
***q931Hex*** - Q.931 messages displayed in hex format. Useful to determine protocol compliance in case of errors reported on local or remote ends.
***q931Symbolic*** - Q.931 messages parsed to give maximum detail. Useful for understanding content of messages flowing on the link.
***portHex*** - Messages in hex format being sent and received on the link.

Set of

protocolErrors
q931Summary
q931Hex
q931Symbolic
portHex

Default

No default

## COMPONENT DataSigChan Ins Framer (Framer)

Groups
"GROUP DataSigChan Ins Framer Provisioned (Prov)"
"GROUP DataSigChan Ins Framer OsiState (State)"
"GROUP DataSigChan Ins Framer Statistics (Stats)"

"COLLECTED STATS DataSignallingChannel JapanIns Framer"

Scope
Application

Description

*DataSigChan/n ts014 Framer*

The *Framer* component controls link layer framing for application components sending and receiving data on a link interface. It is also through *Framer*, that an application component is associated with a specific hardware link interface.

The *Framer* component provides provisionable attributes related to datapath aspects of the hardware interface (such as crc and frame length). The *Framer* component also provides a provisionable attribute which binds the application component to a specific hardware component.

The *Framer* component contains operational attributes for link interface datapath statistics (such as frame counts and aborts).

The e1/ds1 port number of the physical channel linked to the *Framer* component is restricted to 0-3 for all FP including MSA32.

Common Verbs
Help
List
Display

## GROUP DataSigChan Ins Framer Provisioned (Prov)

Properties
Provisioned

| | |
|---|---|
| Description | This group contains the base provisioning data for the *Framer* component. Application or hardware interface specific provisioning data is contained in other provisionable *Framer* groups. |

### ATTRIBUTE DataSigChan Ins Framer interfaceName

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute contains a hardware component name.<br><br>The attribute associates the application with a specific link. This defines the module processor on which *Framer*'s parent component (as well as *Framer* itself) will run. |
| Values | Link (Hardware, applicationFramerName) |
| Default | No default |

### GROUP DataSigChan Ins Framer OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE DataSigChan Ins Framer adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is |

administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE DataSigChan Ins Framer operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE DataSigChan Ins Framer usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

## GROUP DataSigChan Ins Framer Statistics (Stats)

Properties
Operational

Description
This group contains the operational statistics data for a Framer component.

## ATTRIBUTE DataSigChan Ins Framer aborts

Access
Read only

Description
This attribute counts the total number of aborts received.
This count wraps to zero after reaching its maximum value.

Values
Decimal (0..4294967295)

Default
0

## ATTRIBUTE DataSigChan Ins Framer crcErrors

Access
Read only

Description
This attribute counts the total number of frames with CRC errors.
This count wraps to zero after reaching its maximum value.

Values
Decimal (0..4294967295)

Default
0

## ATTRIBUTE DataSigChan Ins Framer lrcErrors

Access
Read only

Description
This attribute counts the total number of frames with LRC errors.
This count wraps to zero after reaching its maximum value.

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE DataSigChan Ins Framer nonOctetErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames that were non octet aligned.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE DataSigChan Ins Framer overruns

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames received from the link for which overruns occurred.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE DataSigChan Ins Framer underruns

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames transmitted to the link for which underruns occurred.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE DataSigChan Ins Framer largeFrmErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames received which were too large. The frame was longer than 500 bytes.<br>This count wraps to zero after reaching its maximum value. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE DataSigChan Ins Framer frmToIf

| | |
|---|---|
| Access | Read only |
| Description | The number of frames transmitted to the link interface by Framer.<br><br>Note: This does not include the number of frames transmitted directly to the hardware queue, thus bypassing the Framer |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE DataSigChan Ins Framer frmFromIf

| | |
|---|---|
| Access | Read only |
| Description | The number of frames received from the link interface by Framer. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE DataSigChan Ins Framer octetFromIf

| | |
|---|---|
| Access | Read only |
| Description | The number of bytes received from the link interface by Framer. |
| Values | Long Integer |
| Default | No default |

## COLLECTED STATS DataSignallingChannel JapanIns Framer

| | |
|---|---|
| Description | The statistics record generated by the DataSignallingChannel JapanIns Framer component. |

### ATTRIBUTE DataSigChan Ins Framer rxBytes

| | |
|---|---|
| Description | This attribute provides the number of bytes received on the link by the Framer in the last collection interval. |
| Values | Long Integer |

### ATTRIBUTE DataSigChan Ins Framer rxFrames

| | |
|---|---|
| Description | This attribute provides the number of frames received on the link interface by the Framer in the last collection interval. |
| Values | Long Integer |

### ATTRIBUTE DataSigChan Ins Framer txBytes

| | |
|---|---|
| Description | This attribute provides the number of bytes transmitted to the link by the Framer in the last collection interval. This value could be zero if the application sends the frames directly to the link. |
| Values | Long Integer |

### ATTRIBUTE DataSigChan Ins Framer txFrames

| | |
|---|---|
| Description | This attribute provides the number of frames transmitted to the link interface by the Framer in the last collection interval. This value could be zero if the application sends the frames directly to the link. |
| Values | Long Integer |

### ATTRIBUTE DataSigChan Ins Framer rxTotalLinkUtil

| | |
|---|---|
| Description | This attribute provides the average total link utilization computed based on the total number of bytes received on the link in the last collection interval. |
| Values | Decimal (0..100) |

## COMPONENT DataSigChan NationalIsdn2 (Ni2)

| | |
|---|---|
| Groups | "GROUP DataSigChan Ni2 Layer2Options (L2)"<br>"GROUP DataSigChan Ni2 Provisioned (Prov)"<br>"GROUP DataSigChan Ni2 Operational (Oper)"<br>"GROUP DataSigChan Ni2 Tools" |
| Scope | Device |

| | |
|---|---|
| Description | *DataSigChan/n NationalIsdn2*<br>The *Ni2* component defines the operational characteristics of the signalling channel's connection to the external equipment. |
| Subcomponents | "COMPONENT DataSigChan Ni2 Framer (Framer)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP DataSigChan Ni2 Layer2Options (L2)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group represents the provisionable Layer 2 attributes of the Q931 CCITT protocol. |

## ATTRIBUTE DataSigChan Ni2 t23

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the layer2 enable request timer. |
| Values | Decimal (1..15) |
| Units | seconds |
| Default | 10 |

## ATTRIBUTE DataSigChan Ni2 t200

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the maximum time between a layer 2 frame and its acknowledgement |
| Values | Decimal (1..20) |

| | |
|---|---|
| Units | seconds |
| Default | 2 |

### ATTRIBUTE DataSigChan Ni2 n200

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the maximum number of re-transmissions of a layer2 frame. |
| Values | Decimal (1..8) |
| Default | 3 |

### ATTRIBUTE DataSigChan Ni2 t203

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the maximum time that a no layer 2 traffic situation can last. Expiry triggers a check on whether the far end is a live. |
| Values | Decimal (2..40) |
| Units | seconds |
| Default | 10 |

### ATTRIBUTE DataSigChan Ni2 n201

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the maximum number of octets in an information field. |
| Values | Decimal (4..260) |

| | |
|---|---|
| Units | octets |
| Default | 260 |

### ATTRIBUTE DataSigChan Ni2 circuitSwitchedK

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the maximum number of frames for B channel use. |
| Values | Decimal (1..632) |
| Default | 7 |

### GROUP DataSigChan Ni2 Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group defines the general options of the d-channel signalling link. |

### ATTRIBUTE DataSigChan Ni2 layer2HdlcMode

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies whether the layer 2 HDLC interface is the network or user side of the connection. |
| Values | network<br>user |
| Default | user |

### GROUP DataSigChan Ni2 Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group provides the operational attributes for the signalling protocol. |

### ATTRIBUTE DataSigChan Ni2 activeChannels

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of currently active channels. This includes data and voice channels. |
| Values | Decimal (0..128) |
| Default | 0 |

### ATTRIBUTE DataSigChan Ni2 peakActiveChannels

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the maximum number of channels that have been active on this signalling channel during the last polling period. |
| Values | Decimal (0..128) |
| Default | 0 |

### ATTRIBUTE DataSigChan Ni2 dChanStatus (dCh)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the state of the D-channel.<br>***outOfService*** means that there is no layer 2 or layer 3 connectivity to the PBX.<br>***establishing*** means that the signalling channel is attempting to stage the layer 2.<br>***established*** means that the layer 2 is enabled. If the signalling channel stays in the ***established*** state, then it is waiting for a restart from the PBX.<br>***enabling*** means that the resources for processing calls are being initialized. If the signalling channel stays in the ***enabling*** state then it is waiting for a restart acknowledgement from the PBX.<br>***inService*** means that the resources for processing calls are available.<br>***restarting*** means that the resources for call processing are being rei-initialized. |

| | |
|---|---|
| Values | outOfService<br>establishing<br>established<br>enabling<br>inService<br>restarting |
| Default | No default |

### GROUP DataSigChan Ni2 Tools

| | |
|---|---|
| Properties | Operational |
| Description | This group contains a series of operational attributes which turn on and off several kinds of tracing. |

### ATTRIBUTE DataSigChan Ni2 tracing

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute defines which types of tracing are active for this signalling channel. The tracing messages are sent to the debug stream. To see the messages the agentQueue attribute in Col/debug must be greater than 0 and a Telnet NMIS session must list the debug stream in in its data streams (ex. set nmis telnet session/1 dataStreams debug). Different types of tracing can be enabled simultaneously.<br>Note that tracing consumes additional CPU resources and will slow down call processing on a heavily loaded card. If there is message block exhaustion tracing will be suspended for a period and then automatically reenabled. An alarm is generated on tracing suspension and resumption. This mechanism protects the function processor against excessive numbers of tracing messages.<br><br>Types of tracing include:<br>***protocolErrors*** - get details of any protocol errors which are occuring. Protocol errors are also reported in summary form as alarms.<br>***q931Summary*** - Summary of the Q.931 messages on the signalling link, including certain call details (calling number, called number, release codes). |

***q931Hex*** - Q.931 messages displayed in hex format. Useful to determine protocol compliance in case of errors reported on local or remote ends.
***q931Symbolic*** - Q.931 messages parsed to give maximum detail. Useful for understanding content of messages flowing on the link.
***portHex*** - Messages in hex format being sent and received on the link.

Set of
protocolErrors
q931Summary
q931Hex
q931Symbolic
portHex

Default
No default

## COMPONENT DataSigChan Ni2 Framer (Framer)

Groups
"GROUP DataSigChan Ni2 Framer Provisioned (Prov)"
"GROUP DataSigChan Ni2 Framer OsiState (State)"
"GROUP DataSigChan Ni2 Framer Statistics (Stats)"

"COLLECTED STATS DataSignallingChannel NationalIsdn2 Framer"

Scope
Application

Description
*DataSigChan/n ts014 Framer*

The *Framer* component controls link layer framing for application components sending and receiving data on a link interface. It is also through *Framer*, that an application component is associated with a specific hardware link interface.

The *Framer* component provides provisionable attributes related to datapath aspects of the hardware interface (such as crc and frame length). The *Framer* component also provides a provisionable attribute which binds the application component to a specific hardware component.

The *Framer* component contains operational attributes for link interface datapath statistics (such as frame counts and aborts).

The e1/ds1 port number of the physical channel linked to the

*Framer* component is restricted to 0-3 for all FP including MSA32.

Common Verbs

Help
List
Display

## GROUP DataSigChan Ni2 Framer Provisioned (Prov)

Properties: Provisioned

Description: This group contains the base provisioning data for the *Framer* component. Application or hardware interface specific provisioning data is contained in other provisionable *Framer* groups.

## ATTRIBUTE DataSigChan Ni2 Framer interfaceName

Access: Read and write

Criticality: Process

Description: This attribute contains a hardware component name.

The attribute associates the application with a specific link. This defines the module processor on which *Framer*'s parent component (as well as *Framer* itself) will run.

Values: Link (Hardware, applicationFramerName)

Default: No default

## GROUP DataSigChan Ni2 Framer OsiState (State)

Properties: Operational

Description: This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE DataSigChan Ni2 Framer adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE DataSigChan Ni2 Framer operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |

| | |
|---|---|
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE DataSigChan Ni2 Framer usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP DataSigChan Ni2 Framer Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational statistics data for a Framer component. |

### ATTRIBUTE DataSigChan Ni2 Framer aborts

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of aborts received.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE DataSigChan Ni2 Framer crcErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames with CRC errors. This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE DataSigChan Ni2 Framer lrcErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames with LRC errors. This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE DataSigChan Ni2 Framer nonOctetErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames that were non octet aligned.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE DataSigChan Ni2 Framer overruns

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames received from the link for which overruns occurred.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE DataSigChan Ni2 Framer underruns

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames transmitted to the link for which underruns occurred.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE DataSigChan Ni2 Framer largeFrmErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames received which were too large. The frame was longer than 500 bytes.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE DataSigChan Ni2 Framer frmToIf

| | |
|---|---|
| Access | Read only |
| Description | The number of frames transmitted to the link interface by Framer.<br><br>Note: This does not include the number of frames transmitted directly to the hardware queue, thus bypassing the Framer |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE DataSigChan Ni2 Framer frmFromIf

| | |
|---|---|
| Access | Read only |
| Description | The number of frames received from the link interface by Framer. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE DataSigChan Ni2 Framer octetFromIf

| | |
|---|---|
| Access | Read only |
| Description | The number of bytes received from the link interface by Framer. |
| Values | Long Integer |
| Default | No default |

## COLLECTED STATS DataSignallingChannel NationalIsdn2 Framer

| | |
|---|---|
| Description | The statistics record generated by the DataSignallingChannel NationalIsdn2 Framer component. |

### ATTRIBUTE DataSigChan Ni2 Framer rxBytes

| | |
|---|---|
| Description | This attribute provides the number of bytes received on the link by the Framer in the last collection interval. |
| Values | Long Integer |

### ATTRIBUTE DataSigChan Ni2 Framer rxFrames

| | |
|---|---|
| Description | This attribute provides the number of frames received on the link interface by the Framer in the last collection interval. |
| Values | Long Integer |

### ATTRIBUTE DataSigChan Ni2 Framer txBytes

| | |
|---|---|
| Description | This attribute provides the number of bytes transmitted to the link by the Framer in the last collection interval. This value could be zero if the application sends the frames directly to the link. |
| Values | Long Integer |

### ATTRIBUTE DataSigChan Ni2 Framer txFrames

| | |
|---|---|
| Description | This attribute provides the number of frames transmitted to the link interface by the Framer in the last collection interval. This value could be zero if the application sends the frames directly to the link. |
| Values | Long Integer |

### ATTRIBUTE DataSigChan Ni2 Framer rxTotalLinkUtil

| | |
|---|---|
| Description | This attribute provides the average total link utilization computed based on the total number of bytes received on the link in the last collection interval. |
| Values | Decimal (0..100) |

### COMPONENT DataSigChan Nis (Nis)

| | |
|---|---|
| Groups | "GROUP DataSigChan Nis Layer2Options (L2)"<br>"GROUP DataSigChan Nis Provisioned (Prov)"<br>"GROUP DataSigChan Nis Operational (Oper)"<br>"GROUP DataSigChan Nis Tools" |
| Scope | Device |
| Description | *DataSigChan/n Nis*<br>The *Nis* component defines the operational characteristics of the signalling channel's connection to the external equipment. |
| Subcomponents | "COMPONENT DataSigChan Nis Framer (Framer)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP DataSigChan Nis Layer2Options (L2)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group represents the provisionable Layer 2 attributes of the Q931 CCITT protocol. |

### ATTRIBUTE DataSigChan Nis t23

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the layer2 enable request timer. |

| | |
|---|---|
| Values | Decimal (1..15) |
| Units | seconds |
| Default | 10 |

### ATTRIBUTE DataSigChan Nis t200

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the maximum time between a layer 2 frame and its acknowledgement |
| Values | Decimal (1..20) |
| Units | seconds |
| Default | 2 |

### ATTRIBUTE DataSigChan Nis n200

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the maximum number of re-transmissions of a layer2 frame. |
| Values | Decimal (1..8) |
| Default | 3 |

### ATTRIBUTE DataSigChan Nis t203

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the maximum time that a no layer 2 traffic situation can last. Expiry triggers a check on whether the far end is a live. |

| | |
|---|---|
| Values | Decimal (2..40) |
| Units | seconds |
| Default | 10 |

### ATTRIBUTE DataSigChan Nis n201

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the maximum number of octets in an information field. |
| Values | Decimal (4..260) |
| Units | octets |
| Default | 260 |

### ATTRIBUTE DataSigChan Nis circuitSwitchedK

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the maximum number of frames for B channel use. |
| Values | Decimal (1..632) |
| Default | 7 |

### GROUP DataSigChan Nis Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group defines the general options of the d-channel signalling link. |

### ATTRIBUTE DataSigChan Nis layer2HdlcMode

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies whether the layer 2 HDLC interface is the network or user side of the connection. |
| Values | network<br>user |
| Default | user |

### GROUP DataSigChan Nis Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group provides the operational attributes for the signalling protocol. |

### ATTRIBUTE DataSigChan Nis activeChannels

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of currently active channels. This includes data and voice channels. |
| Values | Decimal (0..128) |
| Default | 0 |

### ATTRIBUTE DataSigChan Nis peakActiveChannels

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the maximum number of channels that have been active on this signalling channel during the last polling period. |
| Values | Decimal (0..128) |
| Default | 0 |

### ATTRIBUTE DataSigChan Nis dChanStatus (dCh)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the state of the D-channel.<br>***outOfService*** means that there is no layer 2 or layer 3 connectivity to the PBX.<br>***establishing*** means that the signalling channel is attempting to stage the layer 2.<br>***established*** means that the layer 2 is enabled. If the signalling channel stays in the ***established*** state, then it is waiting for a restart from the PBX.<br>***enabling*** means that the resources for processing calls are being initialized. If the signalling channel stays in the ***enabling*** state then it is waiting for a restart acknowledgement from the PBX.<br>***inService*** means that the resources for processing calls are available.<br>***restarting*** means that the resources for call processing are being rei-initialized. |
| Values | outOfService<br>establishing<br>established<br>enabling<br>inService<br>restarting |
| Default | No default |

### GROUP DataSigChan Nis Tools

| | |
|---|---|
| Properties | Operational |
| Description | This group contains a series of operational attributes which turn on and off several kinds of tracing. |

### ATTRIBUTE DataSigChan Nis tracing

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute defines which types of tracing are active for this signalling channel. The tracing messages are sent to the debug |

stream. To see the messages the agentQueue attribute in Col/debug must be greater than 0 and a Telnet NMIS session must list the debug stream in in its data streams (ex. set nmis telnet session/1 dataStreams debug). Different types of tracing can be enabled simultaneously.
Note that tracing consumes additional CPU resources and will slow down call processing on a heavily loaded card. If there is message block exhaustion tracing will be suspended for a period and then automatically reenabled. An alarm is generated on tracing suspension and resumption. This mechanism protects the function processor against excessive numbers of tracing messages.

Types of tracing include:
***protocolErrors*** - get details of any protocol errors which are occuring. Protocol errors are also reported in summary form as alarms.
***q931Summary*** - Summary of the Q.931 messages on the signalling link, including certain call details (calling number, called number, release codes).
***q931Hex*** - Q.931 messages displayed in hex format. Useful to determine protocol compliance in case of errors reported on local or remote ends.
***q931Symbolic*** - Q.931 messages parsed to give maximum detail. Useful for understanding content of messages flowing on the link.
***portHex*** - Messages in hex format being sent and received on the link.

Set of

protocolErrors
q931Summary
q931Hex
q931Symbolic
portHex

Default

No default

## COMPONENT DataSigChan Nis Framer (Framer)

Groups "GROUP DataSigChan Nis Framer Provisioned (Prov)"
"GROUP DataSigChan Nis Framer OsiState (State)"
"GROUP DataSigChan Nis Framer Statistics (Stats)"

"COLLECTED STATS DataSignallingChannel Nis Framer"

Scope Application

Description

*DataSigChan/n ts014 Framer*

The *Framer* component controls link layer framing for application components sending and receiving data on a link interface. It is also through *Framer*, that an application component is associated with a specific hardware link interface.

The *Framer* component provides provisionable attributes related to datapath aspects of the hardware interface (such as crc and frame length). The *Framer* component also provides a provisionable attribute which binds the application component to a specific hardware component.

The *Framer* component contains operational attributes for link interface datapath statistics (such as frame counts and aborts).

The e1/ds1 port number of the physical channel linked to the *Framer* component is restricted to 0-3 for all FP including MSA32.

Common Verbs
Help
List
Display

## GROUP DataSigChan Nis Framer Provisioned (Prov)

Properties Provisioned

| | |
|---|---|
| Description | This group contains the base provisioning data for the *Framer* component. Application or hardware interface specific provisioning data is contained in other provisionable *Framer* groups. |

### ATTRIBUTE DataSigChan Nis Framer interfaceName

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute contains a hardware component name.<br><br>The attribute associates the application with a specific link. This defines the module processor on which *Framer*'s parent component (as well as *Framer* itself) will run. |
| Values | Link (Hardware, applicationFramerName) |
| Default | No default |

### GROUP DataSigChan Nis Framer OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE DataSigChan Nis Framer adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is |

administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE DataSigChan Nis Framer operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE DataSigChan Nis Framer usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values: idle
active (activ)
busy

Default: idle

### GROUP DataSigChan Nis Framer Statistics (Stats)

Properties: Operational

Description: This group contains the operational statistics data for a Framer component.

### ATTRIBUTE DataSigChan Nis Framer aborts

Access: Read only

Description: This attribute counts the total number of aborts received. This count wraps to zero after reaching its maximum value.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE DataSigChan Nis Framer crcErrors

Access: Read only

Description: This attribute counts the total number of frames with CRC errors. This count wraps to zero after reaching its maximum value.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE DataSigChan Nis Framer lrcErrors

Access: Read only

Description: This attribute counts the total number of frames with LRC errors. This count wraps to zero after reaching its maximum value.

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE DataSigChan Nis Framer nonOctetErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames that were non octet aligned.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE DataSigChan Nis Framer overruns

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames received from the link for which overruns occurred.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE DataSigChan Nis Framer underruns

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames transmitted to the link for which underruns occurred.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE DataSigChan Nis Framer largeFrmErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames received which were too large. The frame was longer than 500 bytes.<br>This count wraps to zero after reaching its maximum value. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE DataSigChan Nis Framer frmToIf

| | |
|---|---|
| Access | Read only |
| Description | The number of frames transmitted to the link interface by Framer.<br><br>Note: This does not include the number of frames transmitted directly to the hardware queue, thus bypassing the Framer |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE DataSigChan Nis Framer frmFromIf

| | |
|---|---|
| Access | Read only |
| Description | The number of frames received from the link interface by Framer. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE DataSigChan Nis Framer octetFromIf

| | |
|---|---|
| Access | Read only |
| Description | The number of bytes received from the link interface by Framer. |
| Values | Long Integer |
| Default | No default |

## COLLECTED STATS DataSignallingChannel Nis Framer

| | |
|---|---|
| Description | The statistics record generated by the DataSignallingChannel Nis Framer component. |

### ATTRIBUTE DataSigChan Nis Framer rxBytes

| | |
|---|---|
| Description | This attribute provides the number of bytes received on the link by the Framer in the last collection interval. |
| Values | Long Integer |

### ATTRIBUTE DataSigChan Nis Framer rxFrames

| | |
|---|---|
| Description | This attribute provides the number of frames received on the link interface by the Framer in the last collection interval. |
| Values | Long Integer |

### ATTRIBUTE DataSigChan Nis Framer txBytes

| | |
|---|---|
| Description | This attribute provides the number of bytes transmitted to the link by the Framer in the last collection interval. This value could be zero if the application sends the frames directly to the link. |
| Values | Long Integer |

### ATTRIBUTE DataSigChan Nis Framer txFrames

| | |
|---|---|
| Description | This attribute provides the number of frames transmitted to the link interface by the Framer in the last collection interval. This value could be zero if the application sends the frames directly to the link. |
| Values | Long Integer |

### ATTRIBUTE DataSigChan Nis Framer rxTotalLinkUtil

| | |
|---|---|
| Description | This attribute provides the average total link utilization computed based on the total number of bytes received on the link in the last collection interval. |
| Values | Decimal (0..100) |

Passport 7400, 15000, 20000

# Component DataSigChan

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component Dcl

241-5701-060

Passport 7400, 15000, 20000

# Component Dcl

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT DcmeLink (Dcl)

| | |
|---|---|
| Instance | Decimal (1..14) |
| Groups | "GROUP Dcl Provisioned (Prov)"<br>"GROUP Dcl OsiState (State)"<br>"GROUP Dcl Operational (Oper)"<br>"GROUP Dcl Statistics (Stats)" |
| Scope | Application |
| Description | *DcmeLink/n*<br>This component defines the characteristics of a connection to an International Switching Centre (ISC). A *DcmeLink* is a collection of 64 kbit/s channels on the same physical E1 interface. There is one *DcmeLink* per physical link. |
| Subcomponents | "COMPONENT Dcl DataNetworkAddress (Dna)"<br>"COMPONENT Dcl Framer (Framer)" |
| Opt. Subcomp. | "COMPONENT Dcl VoiceService (Vs)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP Dcl Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |

| | |
|---|---|
| Description | This group contains the provisionable attributes of a *DcmeLink*. |

### ATTRIBUTE Dcl commentText (cTxt)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | Use of this attribute is at the discretion of the system administrator. Typically, it specifies the name of the customer that is using this *DcmeLink*. |
| Values | String (0..40, ASCII) |
| Default | "" |

### ATTRIBUTE Dcl remoteNpi (rnpi)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the Numbering Plan Indicator used for the *remoteDna* attribute of this *DcmeLink*. |
| Values | x121<br>e164 |
| Default | e164 |

### ATTRIBUTE Dcl remoteDna (rdna)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the Data Network Address (DNA) of the remote *DcmeLink*. This is the DNA of the peer *DcmeLink* to which the *DcmeLink* component establishes its Logical Connection (LC). |
| Values | BCD (1..15) |
| Default | No default |

### ATTRIBUTE Dcl dcme

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the *Dcme* component that this *DcmeLink* belongs to. |
| Values | Link (Service, dcmeLinks) |
| Default | No default |

### ATTRIBUTE Dcl idlePattern

| | |
|---|---|
| Access | Read: Passive<br>Write: Service |
| Criticality | Process |
| Description | This attribute specifies an *idlePattern* in the channel received from the E1 interface, which is required to determine if the channel is active or not.<br>When the end of the *idlePattern* is detected it indicates the start of a new speech call.<br>When this *idlePattern* is detected it indicates the end of a speech call.<br>When changing this attribute make sure that the *alternateIdlePattern* signal is set correctly. |
| Values | Hex (H.0..H.ff) |
| Units | Hex |
| Default | H.d5 |

### ATTRIBUTE Dcl alternateIdlePattern

| | |
|---|---|
| Access | Read: Passive<br>Write: Service |
| Criticality | Process |
| Description | This attribute specifies an *alternateIdlePattern* in the channel received from the E1 interface, after the end of a 64kbit/s call. |

The value of this attribute should be different than the value of the *idlePattern* attribute only if the ISC is programmed for Even/Odd Bit Inversion (EBI/OBI). This is only the case when the ISC is performing A to Mu or Mu to A Law conversion.
When the end of the *alternateIdlePattern* is detected it indicates the start of a new speech call.

Values: Hex (H.0..H.ff)

Units: Hex

Default: H.d5

### GROUP Dcl OsiState (State)

Properties: Operational

Description: This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Dcl adminState (osiAdmin)

Access: Read only

Description: This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

| | |
|---|---|
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Dcl operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Dcl usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |

| | |
|---|---|
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Dcl Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group provides the operational attributes for the *DcmeLink* component. |

### ATTRIBUTE Dcl activeSpeechCalls

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of speech calls that are currently in progress on this *DcmeLink*. |
| Values | Decimal (0..30) |
| Default | 0 |

### ATTRIBUTE Dcl active3kHzCalls

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of audio 3.1 kHz calls that are currently in progress on this *DcmeLink*. |
| Values | Decimal (0..30) |
| Default | 0 |

### ATTRIBUTE Dcl active64kCalls

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of unrestricted 64 kbit/s calls that are currently in progress on this *DcmeLink*. |
| Values | Decimal (0..30) |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE Dcl receivedTrmSignal

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the last TRM signal received from the ISC.<br>The received TRM signal can be one of:<br>***Invalid (xxx)***: this signal should never be received,<br>***Switching Centre normal (101)***: this signal is always transmitted by the ISC when there is no other signal to be sent,<br>***Maintenance release ack(110)***: this signal is transmitted by the ISC if it accepts the maintenance release request,<br>***Dcme clear of traffic***: this signal is transmitted by the ISC if it has accepted the maintenance release request signal and now informs the DCME when all circuits are idle, |
| Values | None(000)<br>Invalid (001)<br>Invalid (010)<br>Invalid (011)<br>Invalid (100)<br>Switching Centre normal (101)<br>Maintenance release ack (110)<br>Dcme clear of traffic (111) |
| Default | No default |

### ATTRIBUTE Dcl transmittedTrmSignal

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the last TRM signal transmitted to the ISC.<br>The transmitted TRM signal can be one of:<br>***Dcme normal (100)***: , this signal is always transmitted by the DCME when there is no other signal to be sent,<br>***No 64 kbit/s capacity (101)***: this signal is transmitted by the DCME when it is not able to handle new 64 kbit/s call requests,<br>***Maintenance release request(110)***: this signal is transmitted by the DCME when the DCME is to be removed from the service for maintenance, |

***No capacity available (111)*** this signal is transmitted by the DCME when there is bearer capacity available to set up new 3.1 kHz audio or speech calls,

Values
None(000)
Dcme normal(100)
No 64 kbit/s capacity (101)
Maintenance release request (110)
No capacity available (111)

Default
No default

## GROUP Dcl Statistics (Stats)

Properties
Operational

Description
This group contains statistics for the *DcmeLink* component.

## ATTRIBUTE Dcl totalSpeechCalls

Access
Read: All
Write: Illegal

Description
This attribute counts the total number of speech calls that have been handled by this *DcmeLink*, including rejected calls.
This counter wraps to zero when it exceeds its maximum.

Values
Decimal (0..4294967295)

Default
0

## ATTRIBUTE Dcl total3kHzCalls

Access
Read: All
Write: Illegal

Description
This attribute counts the total number of audio 3.1 kHz calls that have been handled by this *DcmeLink*, including rejected calls.
This counter wraps to zero when it exceeds its maximum.

Values
Decimal (0..4294967295)

Default
0

### ATTRIBUTE Dcl total64kCalls

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of unrestricted 64 kbit/s calls that have been handled by this *DcmeLink*, including rejected calls.<br>This counter wraps to zero when it exceeds its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Dcl rejectedSpeechCalls

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of speech calls that have been rejected by this *DcmeLink* because there was no preestablished LC available.<br>This counter wraps to zero when it exceeds its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Dcl rejected3kHzCalls

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of audio 3.1 KHz calls that have been rejected by this *DcmeLink* because there was no preestablished LC available.<br>This counter wraps to zero when it exceeds its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Dcl rejected64kCalls

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the total number of unrestricted 64 kbit/s calls that have been rejected by this *DcmeLink*.<br>This counter wraps to zero when it reaches its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Dcl invalidTrmSignals

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of invalid TRM/Maintenance signals received from the ISC by this *DcmeLink*. The most probable cause of an invalid TRM/Maintenance signal is an invalid ISC provisioning or a transmission error.<br>The invalid bit settings are 000, 001, 010, 011, 100.<br>This counter wraps to zero when it exceeds its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT Dcl DataNetworkAddress (Dna)

| | |
|---|---|
| Groups | "GROUP Dcl Dna Address" |
| Scope | Network |
| Description | *DcmeLink/n DataNetworkAddress*<br>This is the description of the DCME link *Dna* component. It includes the attributes which apply to all connections established between *DcmeLink* and its peer *DcmeLink*. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Dcl Dna Address

| | |
|---|---|
| Properties | Provisioned |
| Description | The *Address* group contains attributes common to all *Dna's*. Every *Dna* used in the network is defined with this group of 2 |

attributes. The string of address digits is complemented by the type of address or Npi. These attributes are used to interpret the format of the address digits.

### ATTRIBUTE Dcl Dna numberingPlanIndicator (npi)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute indicates the Numbering Plan Indicator (NPI) of the *Dna* that is entered. An address may belong to the X.121 or E.164 numbering plans. X.121 is used in packet switched data networks. |
| Values | x121<br>e164 |
| Default | e164 |

### ATTRIBUTE Dcl Dna dataNetworkAddress (dna)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | The *Dna* attribute contains digits which form a unique identifier of the customer interface. It can be compared (approximation only) to a telephone number where each phone number identifies a unique telephone set. *Dna* digits are selected and assigned by network operators. |
| Values | BCD (1..15) |
| Default | No default |

### COMPONENT Dcl Framer (Framer)

| | |
|---|---|
| Groups | "GROUP Dcl Framer Provisioned (Prov)"<br>"GROUP Dcl Framer OsiState (State)" |
| Scope | Application |
| Description | *DcmeLink/n Framer*<br>The *Framer* component controls link layer framing for application components sending and receiving data on the link interface to the ISC. It is also through the *Framer* that an |

application component is associated with a specific hardware link interface.

The *Framer* component provides provisionable attributes related to datapath aspects of the hardware interface (such as CRC and frame length). The *Framer* component also provides a provisionable attribute which binds the application component to a specific hardware component.

The *Framer* component contains operational attributes for link interface datapath statistics (such as frame counts and aborts).

Common Verbs

Help
List
Display

## GROUP Dcl Framer Provisioned (Prov)

Properties: Provisioned

Description: This group contains the base provisioning data for the *Framer* component. Application or hardware interface specific provisioning data is contained in other provisionable *Framer* groups.

## ATTRIBUTE Dcl Framer interfaceName

Access: Read and write

Criticality: Process

Description: This attribute contains a hardware component name.

The attribute associates the application with a specific link. This defines the module processor on which *Framer*'s parent component (as well as *Framer* itself) will run.

Values: Link (Hardware, applicationFramerName)

Default: No default

## GROUP Dcl Framer OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

## ATTRIBUTE Dcl Framer adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

## ATTRIBUTE Dcl Framer operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component. |

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Dcl Framer usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### COMPONENT Dcl VoiceService (Vs)

Instance
Decimal (1..31)

Groups
"GROUP Dcl Vs Provisioned (Prov)"
"GROUP Dcl Vs Operational (Oper)"
"GROUP Dcl Vs Statistics (Stats)"
"GROUP Dcl Vs OsiState (State)"

| | |
|---|---|
| Scope | Application |
| Description | *DcmeLink/n DcmeVoiceService/n*<br>The *DcmeVoiceService* component defines the operational characteristics of the connection to a International Switching Centre (ISC). One instance of this component is required for each channel (that is, timeslot) which is part of the *DcmeLink*. |
| Subcomponents | "COMPONENT Dcl Vs Framer (Framer)" |
| Dyn. Subcomp. | "COMPONENT Dcl Vs LogicalConnection (LCo)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP Dcl Vs Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes of a *DcmeVs* component. |

## ATTRIBUTE Dcl Vs vsType

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the type of calls offered by this *DcmeVs*. If the value ***permanent64kVs*** is selected the 64 kbit/s call is established on the channel associated with this *DcmeVs* upon system activation. If this call is cleared due to the subnet failure it is reestablished again by the DcmeLink. If the value ***dynamicVs*** is selected this channel can be used to establish user selected calls. |
| Values | dynamicVs<br>permanent64kVs |

| | |
|---|---|
| Default | dynamicVs |

### GROUP Dcl Vs Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group provides the operational attributes for the *DcmeVoiceService* component. |

### ATTRIBUTE Dcl Vs status

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the current status of the channel.<br>***idle*** means that there is no call currently active on this channel.<br>***seized*** means that the channel has currently an active call. |
| Values | idle<br>seized |
| Default | No default |

### ATTRIBUTE Dcl Vs callType (ct)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the type of call that this channel is currently carrying. If no call is active, then it displays the value for the last call. |
| Values | none<br>speech<br>3.1 kHz<br>64 kbit/s |
| Default | No default |

### ATTRIBUTE Dcl Vs receivedAbBits

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the most recently received AB bits. |

| | |
|---|---|
| Values | None (00)<br>Normal service available (01)<br>3.1 kHz request (10)<br>64 kbit/s request (11) |
| Default | No default |

### ATTRIBUTE Dcl Vs transmittedAbBits

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the AB bits currently being transmitted. |
| Values | None(00)<br>Normal service available (01)<br>Special service ack (10)<br>Channel out of service (11) |
| Default | No default |

### GROUP Dcl Vs Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group provides the operational attributes for the *DcmeVoiceService* component. |

### ATTRIBUTE Dcl Vs totalCalls (tc)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the call attempts processed on this channel (in both directions). This count includes both successful and unsuccessful calls.<br>The value wraps when it exceeds its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Dcl Vs totalCallSeconds (tcs)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the total number of seconds that this channel is handling a call. This is regardless of whether the call is successful or not. In other words, this is the amount of time that the channel is not in the idle state.<br>The value wraps when it reaches its maximum. |
| Values | Decimal (0..4294967295) |
| Units | seconds |
| Default | 0 |

### ATTRIBUTE Dcl Vs invalidAbBits

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of invalid AB bits signals received from the ISC on this channel. The invalid bit setting is 00.<br>This counter wraps to zero when it reaches its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### GROUP Dcl Vs OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Dcl Vs adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively |

prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values: locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default: unlocked

### ATTRIBUTE Dcl Vs operationalState (osiOper)

Access: Read only

Description: This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values: enabled (ena)
disabled (dis)

Default: disabled

### ATTRIBUTE Dcl Vs usageState (osiUsage)

Access: Read only

| | |
|---|---|
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

## COMPONENT Dcl Vs Framer (Framer)

| | |
|---|---|
| Groups | "GROUP Dcl Vs Framer Provisioned (Prov)"<br>"GROUP Dcl Vs Framer OsiState (State)"<br>"GROUP Dcl Vs Framer Statistics (Stats)"<br>"GROUP Dcl Vs Framer Operational (Oper)"<br>"GROUP Dcl Vs Framer Negotiation (Neg)" |
| Scope | Device |
| Description | *Vsr/n Svs/n Framer*<br>The *Framer* component controls link layer framing for application components sending and receiving data on a link interface. It is also through *Framer*, that an application component is associated with a specific hardware link interface. The *Framer* component provides provisionable attributes related to datapath aspects of the hardware interface rather than interface specific attributes (such as modem leads and clocking) which are associated with specific hardware components (such as *E1* or *DS1*).<br>The *Framer* component also provides a provisionable attribute which binds the application component to a specific hardware component. |

The *Framer* component contains operational attributes for link interface datapath statistics (such as frame counts).

Dyn. Subcomp.

"COMPONENT Dcl Vs Framer VfpDebug"
"COMPONENT Dcl Vs Framer MvpDebug"
"COMPONENT Dcl Vs Framer PcmCapture (PcmCapture)"

Common Verbs

Help
List
Display

## GROUP Dcl Vs Framer Provisioned (Prov)

Properties: Provisioned

Description: This group contains the base provisioning data for the *Framer* component. Application or hardware interface specific provisioning data is contained in other provisionable *Framer* groups.

## ATTRIBUTE Dcl Vs Framer interfaceName

Access: Read and write

Criticality: Process

Description: This attribute contains a hardware component name.

The attribute associates the application with a specific link. This defines the module processor on which *Framer*'s parent component (as well as *Framer* itself) will run.

Values: Link (Hardware, applicationFramerName)

Default: No default

## GROUP Dcl Vs Framer OsiState (State)

Properties: Operational

Description: This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component

which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Dcl Vs Framer adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Dcl Vs Framer operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the |

component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Dcl Vs Framer usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Dcl Vs Framer Statistics (Stats)

Properties
Operational

Description
This group contains the operational statistics data for a Framer component.

### ATTRIBUTE Dcl Vs Framer totalCells

Access
Read only

Description
This attribute counts the total number of cells received from the interface.
Each cell contains 44 bytes of data from the DS0 channel. Since a DS0 provides data at 64 kbit/s, each cell contains 5.5 ms of audio data.

| | |
|---|---|
| | This data flow is measured before compression is performed on the channel.<br>This counter wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Dcl Vs Framer audioCells

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of cells containing audio data received from the interface while the channel was seized. A CCS channel is always considered to be seized. Audio data includes cells containing voice as well modem audio, but not silence.<br>A cell contains 44 bytes of data from the DS0 channel(5.5 ms).<br>This flow is measured before compression is performed on the channel.<br>This counter wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Dcl Vs Framer silenceCells

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of cells containing silence data received from the interface which was not forwarded into the network, thus saving bandwidth. A channel may go into silence due to the operation of the silence suppression feature or for CAS channels when the ABCD signalling bits go idle.<br>A cell contains 44 bytes of data from the DS0 channel(5.5 ms).<br>This flow is measured before compression is performed on the channel.<br>This counter wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Dcl Vs Framer lrcErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames received from the network with LRC errors. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Dcl Vs Framer frmLostInNetwork

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames which the service knows it did not receive from the network although they were sent in to the network from the far end. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Dcl Vs Framer frmUnderRuns

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times that a frame was needed but was not available because it had been delayed too long in the network.<br>This error may occur repeatedly if the interface clocks at the two access points to the network are operating at different rates. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Dcl Vs Framer frmDumped

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames which have been dumped because the output queue grew too large. This can occur if the clock rate on the incoming interface is faster than the clock rate on the outgoing interface and there are no silence periods to |

| | |
|---|---|
| | absorb the difference, or when a compression rate change occurs. This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Dcl Vs Framer faxRelayCells

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of fax relay cells sent to the network.<br><br>This counter wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Dcl Vs Framer modemFaxCells

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of cells containing modem data received from the interface while the channel was seized. A CCS channel is always considered to be seized. Cells are considered to be modem data if a constant energy level above -25 dBmO is detected for more than 900 ms. An energy level below -36 dBmO for more than 650 ms is required to detect that the modem is no longer present.<br>A cell contains 44 bytes of data from the DS0 channel (5.5 ms). This flow is measured before compression is performed on the channel.<br>This counter wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Dcl Vs Framer faxIdleCells

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of cells containing silent fax data received from the interface which were not forwarded |

into the network, thus saving bandwidth. A channel may go into silence due to the silence Suppression feature or for CAS channels when the ABCD signalling bits go idle.

A cell contains 44 bytes of data from the DS0 channel (5.5 ms). This flow is measured before compression is performed on the channel.

This counter wraps to zero after reaching its maximum value.

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Dcl Vs Framer frmToNetwork

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames sent to the network at each encoding rate. Fax relay cells are not included. |
| Vector of | Decimal (0..4294967295) |
| Index | 64 kbit/s<br>32 kbit/s<br>24 kbit/s<br>16 kbit/s<br>8 kbit/s |
| Default | No default |

### ATTRIBUTE Dcl Vs Framer frmFromNetwork

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames received from the network at each encoding rate. |
| Vector of | Decimal (0..4294967295) |
| Index | 64 kbit/s<br>32 kbit/s<br>24 kbit/s<br>16 kbit/s<br>8 kbit/s |

Default No default

## GROUP Dcl Vs Framer Operational (Oper)

Properties Operational

Description This group contains the operational data for a *Svs Framer.*

## ATTRIBUTE Dcl Vs Framer currentEncoding

Access Read only

Description This attribute indicates the encoding currently being performed on this channel. ***g711*** indicates that pulse code modulation (PCM) defined by ITU-T G.711 is being performed. ***g726*** indicates that adaptive differential pulse code modulation (ADPCM) defined by ITU-T G.726 is being performed. ***g728*** indicates that the Low Delay Coded Excited Linear Predictive Coder (LD-CELP) algorithm defined by ITU-T G.728 is being performed. ***g729*** indicates that the Conjunctive Structure Algebraic Code Excited Linear Predictive Coder (CS-ACELP) algorithm defined by ITU-T G.729 is being performed. ***v27*** indicates that the algorithm defined by ITU-T V.27 is being performed. ***v29*** indicates that the algorithm defined by ITU-T V.29 is being performed.

Values
none
g729
g728
g723
g726
g711
v22
v22bis
faxRelay
v27
v29
v17

Default No default

## ATTRIBUTE Dcl Vs Framer currentRate

Access Read only

| | |
|---|---|
| Description | This attribute indicates the current encoding rate for frames being sent to the network. |
| Values | 0<br>0.3<br>1.2<br>2.4<br>4.8<br>5.3<br>6.3<br>7.2<br>8.0<br>9.6<br>12.0<br>14.4<br>16.0<br>24.0<br>32.0<br>64.0 |
| Units | kbit/s |
| Default | No default |

### ATTRIBUTE Dcl Vs Framer tptStatus

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current status of the tandem pass through algorithm. If *tptStatus* is ***operating,*** the tandem pass through algorithm is cutting through a voice switch. If *tptStatus* is ***monitoring***, *negotiatedTandemPassThrough* is ***enabled***, but the tandem pass through algorithm is not cutting through a voice switch. If *tptStatus* is ***disabled***, *negotiatedTandemPassThrough* is ***disabled***. |
| Values | operating<br>monitoring<br>disabled |
| Default | No default |

## GROUP Dcl Vs Framer Negotiation (Neg)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the attributes indicating the results of voice networking end to end negotiation. |

## ATTRIBUTE Dcl Vs Framer negotiatedSilenceSuppression (nSilenceSuppression)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates the result of negotiating silence suppression with the remote end across the subnet. The parameter used for negotiating with the remote end is provisioned in *Vncs Vp silenceSuppression*.<br><br>If *negotiatedSilenceSuppression* is ***off***, silence suppression is never performed.<br>If *negotiatedSilenceSuppression* is ***on***, silence suppression is always performed.<br>If *negotiatedSilenceSuppression* is ***congested***, silence suppression is performed only when the network is congested.<br>If *negotiatedSilenceSuppression* is ***slow***, silence suppression begins after 10 to 20 seconds without any speech or audio being detected.<br>If *negotiatedSilenceSuppression* is ***slowAndCongested***, both the ***slow*** and ***congested*** options are applied. |
| Values | off<br>on<br>congested<br>slow<br>slowAndCongested |
| Default | No default |

## ATTRIBUTE Dcl Vs Framer negotiatedFisG711G726 (nFisG711G726)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates the result of negotiating G.711/G.726 fax idle suppression with the remote end across the subnet. The parameter used for negotiating with the remote end is provisioned in *Vncs Vp faxIdleSuppressionG711G726*. |

| | |
|---|---|
| Values | off<br>on |
| Default | No default |

### ATTRIBUTE Dcl Vs Framer negotiatedDtmfRegeneration (nDtmfRegeneration)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates the result of negotiating DTMF regeneration with the remote end across the subnet. The parameter used for negotiating with the remote end is provisioned in *Vncs Vp dtmfRegeneration*.<br><br>If *negotiatedDtmfRegeneration* is ***on***, DTMF tones received from the link are first converted to digits before being sent to the subnet. When a digit is received from the subnet, its respective DTMF tone is generated before being sent to the link.<br><br>If *negotiatedDtmfRegeneration* is ***off***, DTMF tones are transported transparently. |
| Values | off<br>on |
| Default | No default |

### ATTRIBUTE Dcl Vs Framer negotiatedV17AsG711G726 (nV17AsG711G726)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates how this *SwitchedVoiceService* negotiates with V.17 fax machines, as determined by negotiation with the remote end across the subnet. The parameter used for negotiating with the remote end is provisioned in *Vncs Vp v17EncodedAsG711G726*.<br><br>If *negotiatedV17AsG711G726* is ***no,*** V.17 fax machines are instructed to use V.29, and V.29 fax traffic sent by fax machines is demodulated and encoded using fax relay.<br><br>If *negotiatedV17AsG711G726* is ***yes***, V.17 fax machines are permitted to use V.17 and V.17 fax traffic sent by fax machines is |

encoded using G.711 or G.726, at the rates given in *negotiatedRates*.

Values
yes
no

Default
No default

### ATTRIBUTE Dcl Vs Framer negotiatedTandemPassThrough (nTpt)

Access
Read only

Description
This attribute indicates the result of negotiating tandem pass through with the remote end across the subnet. The parameter used for negotiating with the remote end is provisioned in *Vncs Vp tandemPassThrough*.

Values
enabled
disabled

Default
No default

### ATTRIBUTE Dcl Vs Framer negotiatedEncoding (nEncoding)

Access
Read and write

Description
This attribute indicates the results of negotiating audio call encodings for ***voice***, ***modemFax*** and ***fax*** traffic with the remote end across the subnet. The parameters used for negotiating with the remote end are provisioned in *Vncs Vp voiceEncodingChoice* and *Vncs Vp modemFaxEncodingChoice*.

***voice*** traffic is all traffic from the start of a call or speech until a 2100 Hz tone or call release. ***modemFax*** traffic is all traffic after a 2100 Hz tone but before a fax preamble, speech or call release. ***fax*** traffic is all traffic after a fax preamble but before speech or call release.

***g711*** indicates that pulse code modulation (PCM) defined by ITU-T G.711 is the negotiated encoding.
***g726*** indicates that Adaptive Differential Pulse Code Modulation (ADPCM) defined by ITU-T G.726 is the negotiated encoding.
***g711G726*** indicates that pulse code modulation (PCM) defined by ITU-T G.711 and Adaptive Differential Pulse Code

Modulation (ADPCM) defined by ITU-T G.726 are both negotiated encodings. If *negotiatedEncoding* is ***g711G726***, the actual encoding performed can be either G.711 or G.726, depending on network congestion.
***g728*** indicates that Low Delay Coded Excited Linear Predictive Coder (CS-ACELP) defined by ITU-T G.728 is the negotiated encoding.
***g729*** indicates that Conjunctive Structure Algebraic Code Excited Linear Predictive Coder (CS-ACELP) defined by ITU-T G.729 is the negotiated encoding.
***v29V27Relay*** indicates that fax relay using ITU-T V.29 or ITU-T V.27 is the negotiated encoding.
***v17V29V27Relay*** indicates that fax relay using ITU-T V.17, ITU-T V.29, or ITU-T V.27 is the negotiated encoding.

If all negotiated encodings are ***none***, the negotiation of audio call encodings is not complete.

Vector of

g711
g726
g711G726
g728
g729
v29V27Relay
v17V29V27Relay
none

Index

voice
modemFax
fax

Default

No default

## ATTRIBUTE Dcl Vs Framer negotiatedRates (nRates)

Access

Read and write

Description

This attribute indicates the results of negotiating minimum and maximum rates for ***voice***, ***modemFax*** and ***fax*** traffic with the remote end across the subnet. The parameters used for

negotiating with the remote end are provisioned in *Vncs Vp voiceRates* and *Vncs Vp modemFaxRates*.

Array of
8.0
16.0
24.0
32.0
64.0
0.0
0.3
1.2
2.4
4.8
7.2
9.6
12.0
14.4

Units kbit/s

Row traffic [voice modemFax fax]

Column rate [min max]

Default No default

## COMPONENT Dcl Vs Framer VfpDebug

Scope Application

Description *Vsr/m Svs/n Framer VfpDebug*
This component contains debugging attributes for a voice service running on a ***DS1V***, ***E1V***, ***1pDS1V***, ***1pE1V*** or ***J2MV*** functional processor.

Common Verbs
Help
List
Display

## COMPONENT Dcl Vs Framer MvpDebug

Scope: Application

Description: *Vsr/m Svs/n Framer MvpDebug*
This component contains debugging attributes on a voice service's framer running on a ***1pE1Mvp***, ***1pDS1Mvp*** or ***1pTTC2mMvp*** functional processor.

Common Verbs:
Help
List
Display

## COMPONENT Dcl Vs Framer PcmCapture (PcmCapture)

Scope: Application

Description: *Vsr/n Svs/m Framer PcmCapture*
This component contains attributes for PCM data capture.

Common Verbs:
Help
List
Display

## COMPONENT Dcl Vs LogicalConnection (LCo)

Groups: "GROUP Dcl Vs LCo PathData"
"GROUP Dcl Vs LCo Statisitics (Stats)"

Scope: Application

Description: ...*Lc*
This component contains all of the operation attributes for a Path Oriented Logical Connection.

Common Verbs:
Help
List
Display

### VERB RERoute Dcl Vs LCo

| | |
|---|---|
| Impact | Service |
| Description | RERoute ..Lc<br>This command is used to request a *LogicalConnection (LCo)* to attempt a reroute. A new path will be established if it is better than the current path. The current path will not be interrupted if the *RERoute* command is not completely successful. The connection must not be attempting rerouting at present. This command is only valid on components with the *PLC remoteName* specified.<br>This command is intended to be used on the calling end of a connection. For a single region call, it may be used on the called end of a connection if all the *PLC* parameters match. Note that the calling end or the called end of a connection means the *end* attribute of an *LCo* is equal to the value of ***calling*** or ***called*** respectively.<br><br>When used on an *LCo* with *pathType* attribute set to ***manual*** or ***forced,*** this command can be used to re-setup the path.<br><br>If this command is attempted on a connection that is not up but its *state* attribute is equal to ***pathDownRetrying,*** an immediate route request is sent. |

### GROUP Dcl Vs LCo PathData

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all operational attributes for the path oriented LCo. |

### ATTRIBUTE Dcl Vs LCo state

| | |
|---|---|
| Access | Read only |
| Description | This attribute reflects the current state of the connection. The ***pathDown*** state indicates a connection that has no remote end provisioned or the application has not yet signaled for a path. The ***selectingRoute*** state occurs when a request has been sent to route selector and it has not yet responded. The ***connectingState*** occurs while a path is being established. The ***pathUp*** state is the normal |

operational state of a path. The ***pathDownRetrying*** state indicates a path that attempted route selection but received no route and is now waiting to retry route selection again.

Values
pathDown
selectingRoute
connecting
pathUp
pathDownRetrying

Default
No default

### ATTRIBUTE Dcl Vs LCo overrideRemoteName (orn)

Access
Read: All
Write: All

Description
If set ***and*** the current PLC remoteName is blank this remoteName will override the blank PLC remoteName. Usually you would set this attribute and then lock/unlock the service component which will result in this new overrideRemoteName being used as if it had been provisioned into the PLC remoteName. The advantage of this attribute is that the connection's remoteName can be changed immediately without having to "activate prov" but the disadvantage is that the overrideRemoteName is not permanent and if the card or switch is reset the override will be lost.

Values
String (0..40, ASCII)

Default
""

### ATTRIBUTE Dcl Vs LCo end

Access
Read only

Description
This attribute identifies whether this is the calling or called end of the path.

Values
calling
called

Default
No default

### ATTRIBUTE Dcl Vs LCo costMetric (cost)

| | |
|---|---|
| Access | Read only |
| Description | This attribute gives the route's total cost metric. It is calculated as the sum of the cost metric of all trunks in the path at the time the connection was established. The cost metric of a trunk is defined by the *trunkCost* attribute of the Trunk component. The *costMetric* for an LCo that is originated and terminated on the same module is 0. |
| Values | Decimal (0..65535) |
| Default | No default |

### ATTRIBUTE Dcl Vs LCo delayMetric (delay)

| | |
|---|---|
| Access | Read only |
| Description | This attribute gives the total delay of the route as the one way delay for a 512 byte packet. It is calculated as the sum of the delays of all trunks in the path stored in topology at the time the connection was established. The delay for an LCo that is originated and terminated on the same module is 0. |
| Values | Decimal (0..100000) |
| Units | msec |
| Default | No default |

### ATTRIBUTE Dcl Vs LCo roundTripDelay (rtd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the time taken for a packet (cell) of 44 bytes to be transmitted inband to the remote *LCo* and return to this LCo. The value reported is rounded to the nearest millisecond.<br>For Unack PORS trunks and AAL5 MUX PORS trunks, the test packet is sent inband and receives the same treatment as regular data packets, giving a round trip delay which corresponds to regular data traffic.<br>For SPO MUX PORS trunks and MAP PORS trunks, the test packet is sent along the parent trunk's VCC, giving a round trip |

| | |
|---|---|
| | delay which corresponds to the parent trunk's round trip delay. The round trip delay does not directly reflect the round trip delay of data packets travelling on the non-parent VCC.<br>When the *LCo* is originated and terminated on the same module, a value of 1 millisecond is reported. The value of 1 millisecond is the minimum reported time even though the delay may be less than 1 millisecond. |
| Values | Decimal (0..200000) |
| Units | msec |
| Default | No default |

### ATTRIBUTE Dcl Vs LCo setupPriority (spri)

| | |
|---|---|
| Access | Read only |
| Description | This attribute gives the priority at which the current path is established. Zero is the highest priority and four is the lowest. The *holdingPriority*, a complementary attribute of this component, indicates the priority a path maintains once it is established. |
| Values | Decimal (0..4) |
| Default | No default |

### ATTRIBUTE Dcl Vs LCo holdingPriority (hpri)

| | |
|---|---|
| Access | Read only |
| Description | This attribute gives the priority at which a path holds its current path once the path is established. Zero is the highest priority and four is the lowest. The *setupPriority*, a complementary attribute, indicates the priority of a path at establishment time. |
| Values | Decimal (0..4) |
| Default | No default |

### ATTRIBUTE Dcl Vs LCo requiredTxBandwidth (tbw)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute gives the actual bandwidth (in bits per second) reserved by this path on each of the trunks of its route. This attribute represents the bandwidth for traffic outgoing to the remote end point. The originating end of the connection determines this value. |
| Values | Decimal (0..4294967295) |
| Units | bit/s |
| Default | No default |

### ATTRIBUTE Dcl Vs LCo requiredRxBandwidth (rbw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute gives the actual bandwidth (in bits per second) reserved by this path on each of trunks of its route. This attribute represents the bandwidth for traffic incoming from the remote end point. The originating end of the connection determines this value |
| Values | Decimal (0..4294967295) |
| Units | bit/s |
| Default | No default |

### ATTRIBUTE Dcl Vs LCo requiredTrafficType (rttyp)

| | |
|---|---|
| Access | Read only |
| Description | This operational attribute indicates the type of traffic transmitted over the path. There are eight possible traffic types, and the path can transmit only one of them. The originating end of the connection determines the type. These are arbitrary designations for traffic type. The ***voice***, ***data*** and ***video*** traffic types are defined, and five other arbitrary traffic types can be defined by the network administration. This attribute is used in the route selection process to restrict the route to trunks that support this traffic type. The *supportedTrafficType* trunk attribute lists all the types of traffic allowed on the trunk. For example, if *requiredTrafficType* is specified as ***trafficType1*** then only trunks that include ***trafficType1*** in *supportedTrafficType***,** will be candidates for this connection. |

| | |
|---|---|
| Values | voice<br>data<br>video<br>trafficType1 (tt1)<br>trafficType2 (tt2)<br>trafficType3 (tt3)<br>trafficType4 (tt4)<br>trafficType5 (tt5) |
| Default | No default |

### ATTRIBUTE Dcl Vs LCo permittedTrunkTypes (pttyp)

| | |
|---|---|
| Access | Read only |
| Description | This operational attribute lists up to eight types of trunk that can be used on the route. The originating end of the connection determines the types. The ***terrestrial*** and ***satellite*** trunk types have been defined, leaving six remaining arbitrary types that can be defined by the network administration. The trunk's type is indicated in the *trunkType* attribute of the Trunk component. When selecting a route, PORS only chooses trunks whose *trunkType* are in the *permittedTrunkTypes* for the path. |
| Set of | terrestrial<br>satellite<br>trunkType1 (tt1)<br>trunkType2 (tt2)<br>trunkType3 (tt3)<br>trunkType4 (tt4)<br>trunkType5 (tt5)<br>trunkType6 (tt6) |
| Default | No default |

### ATTRIBUTE Dcl Vs LCo requiredSecurity (rsec)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the required minimum level of security of the trunks on the route. Zero represents the most secure and seven represents the least secure. The trunk's security is indicated by the *trunkSecurity* attribute of the Trunk component, and has values identical in range and meaning to the *requiredSecurity* |

attribute. PORS ensures that any route selected does not contain a trunk whose *trunkSecurity* attribute is numerically greater than the *requiredSecurity.*

Values: Decimal (0..7)

Default: No default

### ATTRIBUTE Dcl Vs LCo requiredCustomerParameter (rcparm)

Access: Read only

Description: This attribute indicates the allowed customer defined parameter of the trunks on the route.The originating end of the connection determines the customer defined parameter. Its value, a number from zero to seven, is chosen by a network administration to have a meaning specific to their network, thus allowing them to customize the use of their trunks. A complementary trunk attribute, *customerParameter*, also has a value from zero to seven. The route selection process does not consider trunks whose *customerParameter* is greater than the *requiredCustomerParameter* of the path.

Values: Decimal (0..7)

Default: No default

### ATTRIBUTE Dcl Vs LCo emissionPriority (epri)

Access: Read only

Description: This attribute indicates the urgency with which packets on the path are emitted by the trunks on the route. The originating end of the connection selects the *emissionPriority. EmissionPriority* of zero indicates the highest emission priority, while two indicates the lowest emission priority. Packets with a higher *emissionPriority* (or numerically less) are serviced and sent out before the packets of lower *emissionPriority* (or numerically higher).

Values: Decimal (0..2)

Default: No default

### ATTRIBUTE Dcl Vs LCo discardPriority (dpri)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the importance of the packets on the path. The originating end of the connection sets *discardPriority.* One is used for paths carrying the most important traffic, and three is used for paths carrying the least important traffic. Packets with lower *discardPriority*(numerically) are discarded after packets with a higher *discardPriority*(numerically). |
| Values | Decimal (1..3) |
| Default | No default |

### ATTRIBUTE Dcl Vs LCo pathType (pType)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether the path for this PLC was determined automatically or by static provisioning. ***Normal*** *pathTypes* are selected automatically by Route Selector.The other *pathTypes* are both manual *pathTypes* where the operator must specify, through provisioning, a static route termed the *manualPath*. A manual *pathType* connection is nearly identical to a normal path type connection with the exception that the route is pre-provisioned. For a manual *pathType*, bandwidth reservations are respected along the path exactly as in a normal path. The last type, the ***forced*** *pathType*, is also a manual path but regardless of the bandwidth available the route is granted provided the trunks are operational and there are sufficient Logical Channels (LChs).<br><br>The ***forced*** *pathType* could result in over committing the reserved bandwidth allowed on a trunk. A better way to achieve the effects of a ***forced*** *pathType* is to use a ***manual*** *pathType* with *setupPriority* = ***0*** and *holdingPriority* = ***0***. In this manner the path will reserve correct bandwidth and it will bump other paths if required while not being bumped itself. |
| Values | normal<br>manual<br>forced |
| Default | No default |

### ATTRIBUTE Dcl Vs LCo retryCount (rcount)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the count of the number of times the path chosen during route selection could not be instantiated. This count should be three or below if the network is performing adequately. A high value indicates that the route selection is often performed using an out-of-date view of available network bandwidth and/or topology.<br>This attribute will only increase at the calling end of an un-segmented connection. The attribute should be ignored for segmented connections.This attribute is reset each time a path reconnects and stops counting when it reaches its maximum value. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE Dcl Vs LCo pathFailureCount (pfcount)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the count of the number of times the path has successfully connected. It is set to zero the first time the path is up. If a path fails anytime after connecting this count will be incremented when the path is up again. Failed route requests do not count in this statistic. See *retryCount* above. This attribute stops counting at its maximum value. |
| Values | Decimal (0..65535) |
| Default | No default |

### ATTRIBUTE Dcl Vs LCo reasonForNoRoute (rnr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the route selection's *reasonForNoRoute* and provides a brief reason for which a route was not selected. The reasons are essentially self-explanatory. Perhaps two reasons for no route require some explanation. The reason ***unknownRemoteNodeName*** is issued when the remote node name is not in the topological database. The reason |

***plcAttributesNotMet*** is issued when there is no network connectivity at a level specified by the PLC attributes. This reason is also issued when there is no physical connectivity between two end nodes.

Values

none
destinationNameTooLong
destinationNotSpecified
unknownDestinationName
incorrectDestination
incorrectDestinationEndPoint
unknownSource
unknownDestination
sameNode
routeCostTooMuch
routesDelayTooLong
attributesNotMet
anError
attributeProfileProblem
manualPathIndexProblem

Default

none

### ATTRIBUTE Dcl Vs LCo lastTearDownReason

Access

Read only

Description

This attribute reflects the last tear down reason for a connection (LCo). In many cases this displays the reason for a momentary service interruption. This attribute applies to the last path failure only. If a path is no longer up, this may give an indication to the reason that the path has failed. In many cases an alarm will also be generated with more specific information. The following is a brief description of the reasons:
***none*** - This path has no information for the teardown this is typical of a path provisioned with no *remoteName* that has not been up.
***normalShutDown*** - This path has gone down due to normal call termination.
***insufficientTxLcOrBandwidth*** - At present there is either no available bandwidth or logical channel numbers available on one or more of the trunks for this path in the transmit direction.

***insufficientRxLcOrBandwidth*** - At present there is either no available bandwidth or logical channel numbers available on one or more of the trunks for this path in the receive direction.
***trunkFailure***- A trunk on the path has failed or has gone down due to a provisioning change of a critical attribute.
***trunkCardFailure***- A trunk FP card has failed along the path.
***accessCardFailure***- The FP on which the peer access service was running has failed.
***operatorForced***- The path has terminated due to the operator locking a trunk along the path.
***lostLcnClash***- The path has terminated because the PA's at both ends of an intermediate trunk have allocated the same LC to different calls. When this happens both calls must go down and then try to come up again a fraction of a second later (effectively ensuring that they will now be assigned different LC's). It is normal to get the odd clash especially when the PA's usedLC is approaching the PA's maxLC.
***networkCongestion*** - The path has failed due to control information being lost and not recoverable.
***trunkNotFound*** - Occurs on a ***manual*** path usually. Check for trunks not up or names provisioned incorrectly.
***farEndNotFound*** - The far end is not provisioned or is not up. Check remote Name.
***wrongModuleReached*** - This may occur on a ***manual*** path. Check provisioning for correct trunk and service names. For a ***normal*** path, the network Topology may be changing check *remoteName*.
***farEndBusy*** - The far end has been reached but it is busy. Check *remoteName* and remote end provisioning.
***callLoopedBack*** - This LCo is provisioned to call itself. Re-provision since this is invalid.
***unknownReason*** - The failure was not resolved.
***farEndNotReady*** - The remote end was reached but the connection was refused due to the remote end not being enabled.
***remoteNameMismatch*** - The remote end has alarmed and rejected this setup due to remoteName provisioning.
***serviceTypeMismatch*** - The remote Service Type does not match this service type. Check provisioning.
***reconnectFromFarEnd*** - The remote end re-established this connection. Check the remote end *lastTearDownReason* to determine the real reason.

***bumped*** - Another call bumped this path from a trunk to get bandwidth (or an LC) which it required to come up. This other path had a higher *setupPriority* than this path's *holdingPriority* hence it was allowed to steal the bandwidth (or LC) from this path.
***optimized*** - This call has been rerouted due to the optimization feature. The call is still active this just indicates why the path changed.
***trunkOrFarEndDidNotSupportMode*** - This call was unable to complete because a mode required by the service was not supported by one of the trunks the route went through or by the far end service it connected to. Currently the only mode that this applies to is the map/mux mode on TRUNK PA ATM component. Map mode was required by the application (CES/FrAtm etc.) but was not available on the TRUNK PA ATM component through which the call was routed or the far end CES/FrAtm component did not specify the same mode.

Values

none
normalShutDown
insufficientTxLcOrBandwidth
insufficientRxLcOrBandwidth
trunkFailure
trunkCardFailure
operatorForced
lostLcnClash
networkCongestion
trunkNotFound
farEndNotFound
wrongModuleReached
farEndBusy
callLoopedBack
unknownReason
farEndNotReady
remoteNameMismatch
serviceTypeMismatch
reconnectFromFarEnd
bumped
accessCardFailure
optimized

| | |
|---|---|
| | overrideRemoteName<br>trunkOrFarEndDidNotSupportMode |
| Default | none |

### ATTRIBUTE Dcl Vs LCo pathFailureAction

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays whether the application is set to tolerate momentary interruption of a path while a new path is selected. If ***disconnectConnection*** is displayed, the application is informed as soon as possible about a failure by disconnection. If the attribute displays ***reRoutePath***, the path may attempt an immediate reroute, provided the failure is a recoverable failure. If rerouting fails the application is informed of the failure.<br>With this option set to ***reRoutePath*** the LCo may wait up to 30 seconds before informing the service of complete disconnection in order to allow both ends to attempt to reconnect. Note that if PLC components are different at both ends only the calling end is allowed to reconnect.<br><br>All *pathTypes* respect this attribute. Also on a *manualPath* with both ends provisioned with independent paths (at least with respect to the failure) this option will have the desired effect that the path is rerouted without complete disconnection at both ends |
| Values | reRoutePath<br>disconnectConnection |
| Default | No default |

### ATTRIBUTE Dcl Vs LCo bumpPreference (bpref)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies when bumping will occur during route selection process. Bumping may occur when necessary or always. It will be necessary for a connection to bump if there is not enough resources for the connection to be established and these resources are occupied by a connection whose *setupPriority* is lower (numerically higher) than the connection's *setupPriority*. A connection may also always bump in order to obtain the best route. |

| | |
|---|---|
| Values | bumpWhenNecessary<br>bumpToObtainBestRoute |
| Default | No default |

### ATTRIBUTE Dcl Vs LCo optimization (opt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is used to specify whether this connection should attempt to optimize its path when requested by the routing PORS component. Every path is as optimal as it can be when it is established, but as network traffic patterns and configurations change this path may no longer be as optimal as it could be. The PORS connection manager on a module requests circuits to optimize at the optimization interval. |
| Values | disabled<br>enabled |
| Default | No default |

### ATTRIBUTE Dcl Vs LCo pathUpDateTime

| | |
|---|---|
| Access | Read: Service<br>Write: Illegal |
| Description | This is the time stamp when the current path was established or reestablished. |
| Values | Time (DHMS) |
| Default | No default |

### ATTRIBUTE Dcl Vs LCo path

| | |
|---|---|
| Access | Read only |
| Description | This attribute contains the trunk component names over which the path has been instantiated and the remote end point name terminating the path. |
| List of | String (0..40, ASCII) |
| List Size | 21 |

| | |
|---|---|
| Default | No default |

### GROUP Dcl Vs LCo Statisitics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational statistics attributes for the path oriented LCo. |

### ATTRIBUTE Dcl Vs LCo pktsToNetwork

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of packets transmitted to the network over this Logical Connection. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Dcl Vs LCo bytesToNetwork

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of bytes sent to the network over this Logical Connection. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Dcl Vs LCo pktsFromNetwork

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of packets received from the remote LCo via the network. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Dcl Vs LCo bytesFromNetwork

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of bytes received from the remote LCo via the network. |

| | |
|---|---|
| Values | Long Integer |
| Default | No default |

Passport 7400, 15000, 20000

# Component Dcl

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component Dcme

241-5701-060

Passport 7400, 15000, 20000

# Component Dcme

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT Dcme

| | |
|---|---|
| Instance | Decimal (1..16) |
| Groups | "GROUP Dcme Provisioned (Prov)"<br>"GROUP Dcme OsiState (State)"<br>"GROUP Dcme Operational (Oper)"<br>"GROUP Dcme Statistics (Stats)" |
| Scope | Application |
| Description | *Dcme/n*<br>This component defines the common characteristics of a set of connections to an International Switching Centre (ISC) equipment. |
| Subcomponents | "COMPONENT Dcme Profile" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP Dcme Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes of a *Dcme* component. |

## ATTRIBUTE Dcme commentText (cTxt)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | Use of this attribute is at the discretion of the system administrator. Typically, it specifies the name of the customer that is using this *Dcme*. |
| Values | String (0..40, ASCII) |
| Default | "" |

## ATTRIBUTE Dcme preestablishedConnections (pCon)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the number of Logical Connections (LC) preestablished between each *DcmeLink* associated with this *Dcme* and its remote peer, that are established beyond those that are required to carry established connections. Those are the standby LCs to be used for the subsequent user speech or audio 3.1 kHz calls. This attribute should be set to the number of speech and audio 3.1 kHz calls expected in a typical burst of calls received from the ISC on one *DcmeLink*. |
| Values | Decimal (1..30) |
| Default | 5 |

## ATTRIBUTE Dcme trmThreshold (tThresh)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute is used to determine when the *DcmeLink* may be unable to handle incoming calls from the ISC. If the Dcme fails to replenish the number of preestablished connections the “No trunk(s) available for 3.1 kHz audio or speech” TRM signal is sent to the ISC. |
| Values | Decimal (0..30) |
| Default | 1 |

### ATTRIBUTE Dcme trmSignalChangeInterval (tScl)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies a minimum time interval between TRM signal change from “No trunk(s) available for 3.1 kHz audio or speech” or “No 64 kbit/s capacity available” to “DCME normal” signal. |
| Values | Decimal (10..300) |
| Units | seconds |
| Default | 20 |

### ATTRIBUTE Dcme speechAlarmThreshold (sat)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies how many normal speech calls can be rejected by one *dcmeLink* within the *alarmTimeInterval* time before a SET alarm is generated. This alarm is cleared when the number of rejected speech calls is less than *speechAlarmThreshold* in a subsequent interval.<br>If the value is 0 the rejected speech calls are not monitored. |
| Values | Decimal (0..1000) |
| Default | 0 |

### ATTRIBUTE Dcme audio3kHzAlarmThreshold (aat)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies how many audio 3.1 kHz calls can be rejected by one *dcmeLink* within the *alarmTimeInterval* time before a SET alarm is generated. This alarm is cleared when the number of rejected audio 3.1 kHz calls is less than *audio3kHzAlarmThreshold* in a subsequent interval.<br>If the value is 0 the rejected audio 3.1 kHz calls are not monitored. |

| | |
|---|---|
| Values | Decimal (0..1000) |
| Default | 0 |

### ATTRIBUTE Dcme unrestricted64kAlarmThreshold (uat)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies how many unrestricted 64 kbit/s calls can be rejected by one *dcmeLink* within the *alarmTimeInterval* time before a SET alarm is generated. This alarm is cleared when the number of rejected unrestricted 64 kbit/s calls is less than *unrestricted64kAlarmThreshold* in a subsequent interval.<br>If the value is 0 the rejected unrestricted 64 kbit/s calls are not monitored. |
| Values | Decimal (0..1000) |
| Default | 0 |

### ATTRIBUTE Dcme alarmTimeInterval (ati)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the time interval within which the rejected speech calls, audio 3.1 kHz calls, and unrestricted 64 kbit/s calls are monitored. It is used in the conjunction with the *speechAlarmThreshold*, *audio3kHzAlarmThreshold*, and *unrestricted64kAlarmThreshold* attributes. |
| Values | Decimal (0..120) |
| Units | minutes |
| Default | 5 |

### ATTRIBUTE Dcme maxUnrestricted64kCalls (umax)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |

| | |
|---|---|
| Description | This attribute specifies the maximum number of simultaneous dynamic unrestricted 64 kbit/s calls that can be established. A value of 0 means that no dynamic unrestricted 64 kbit/s calls can be established. |
| Values | Decimal (0..420) |
| Default | 420 |

### ATTRIBUTE Dcme dcmeLinks (dLinks)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies all of the *DcmeLink*s which are associated with this *Dcme*. There can be up to 14 *DcmeLinks* associated with one *Dcme*. |
| List of | Link (Service, dcme) |
| List Size | 14 |
| Default | No default |

### GROUP Dcme OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Dcme adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. |

When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Dcme operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Dcme usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

| | |
|---|---|
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Dcme Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for the *Dcme* component. |

### ATTRIBUTE Dcme activeDcmeLinks

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates all of the *DcmeLink* components that are currently active and have registered with this *Dcme*. |
| List of | The name of the component |
| List Size | 14 |
| Default | No default |

### GROUP Dcme Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the statistics maintained by this *Dcme*. |

### ATTRIBUTE Dcme trm64kNotAvailable

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the total number of times the TRM signal was changed to the “No 64 kbit/s capacity available” signal. This counter wraps to zero when it exceeds its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Dcme trmSpeechNotAvailable

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of times the TRM signal was<br>changed to the “No trunk(s) available for 3.1 kHz audio or speech” signal.<br>This counter wraps to zero when it exceeds its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT Dcme Profile

| | |
|---|---|
| Groups | "GROUP Dcme Profile LogicalConnectionOptions (LCOps)"<br>"GROUP Dcme Profile FramerOptions (FrOps)" |
| Scope | Application |
| Description | *Dcme/n DcmeProfile*<br>This component defines the ISC interface characteristics of the *Dcme* component. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Dcme Profile LogicalConnectionOptions (LCOps)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains attributes used in setting up Switched Logical Connections (SLC) over the network using the Path |

Oriented Routing System (PORS) between two peer *DcmeLink* components.

### ATTRIBUTE Dcme Profile setupPriority (spri)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the priority at which a path is established. Zero is the highest priority and four is the lowest. When PORS establishes a path through the network, it uses the *setupPriority* attribute to determine its potential for bumping established paths to acquire their bandwidth. The *holdingPriority*, a complementary attribute of this attribute, indicates the priority a path maintains once it is established. A new path can bump an existing path if the new path's *setupPriority* is higher (numerically less) than the existing path's *holdingPriority.* |
| Values | Decimal (0..4) |
| Default | 2 |

### ATTRIBUTE Dcme Profile holdingPriority (hpri)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the priority that a path holds once it is established. Zero is the highest priority and four is the lowest. A path's *holdingPriority* determines its likelihood of being bumped by a new path to acquire its bandwidth. The *setupPriority*, a complementary attribute, indicates the priority of a path at establishment time. A new path can bump an existing path if the new path's *setupPriority* is higher (numerically less) than the existing path's *holdingPriority.* |
| Values | Decimal (0..4) |
| Default | 2 |

## ATTRIBUTE Dcme Profile bumpPreference (bpref)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies when bumping occurs in the route selection process. A connection with higher (numerically less) *setupPriority* may bump a connection with lower (numerically higher) *setupPriority* in order to acquire its bandwidth and be established. If *bumpPreference* is ***bumpWhenNecessary***, bumping occurs only when it is necessary. That is, a connection will bump another connection only if there is no other way for the connection to be established. If *bumpPreference* is ***bumpToObtainBestRoute,*** bumping occurs in order to use the best available route it may have. |
| Values | bumpWhenNecessary<br>bumpToObtainBestRoute |
| Default | bumpWhenNecessary |

## ATTRIBUTE Dcme Profile requiredTrafficType (rttyp)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the type of traffic transmitted over the path. There are eight possible traffic types, and the path can transmit only one of them. The originating end of the connection determines the type. The ***voice***, ***data*** and ***video*** traffic types are defined, and five other arbitrary traffic types can be defined by the network administration. This attribute is used in the route selection process to restrict the route to trunks that support this traffic type. The *supportedTrafficType* trunk attribute lists all the types of traffic allowed on the trunk. For example, if *requiredTrafficType* is specified as ***trafficType1,*** then only trunks that include ***trafficType1*** in *supportedTrafficType* will be candidates for this connection. |

| | |
|---|---|
| Values | voice<br>data<br>video<br>trafficType1 (tt1)<br>trafficType2 (tt2)<br>trafficType3 (tt3)<br>trafficType4 (tt4)<br>trafficType5 (tt5) |
| Default | voice |

### ATTRIBUTE Dcme Profile permittedTrunkTypes (pttyp)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies up to eight types of trunks that can be used on the route. The ***terrestrial*** and ***satellite*** trunk types are defined, leaving six remaining arbitrary types that can be defined by the network administration. The trunk's type is indicated in the *trunkType* attribute of the Trunk component. When selecting a route, PORS chooses only trunks whose *trunkType*s are in the *permittedTrunkTypes* for the path. |
| Set of | terrestrial<br>satellite<br>trunkType1 (tt1)<br>trunkType2 (tt2)<br>trunkType3 (tt3)<br>trunkType4 (tt4)<br>trunkType5 (tt5)<br>trunkType6 (tt6) |
| Default | (terrestrial, satellite, trunkType1, trunkType2, trunkType3) |

### ATTRIBUTE Dcme Profile requiredSecurity (rsec)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |

| | |
|---|---|
| Description | This attribute specifies the required minimum level of security of the trunks on the route. Zero represents the most secure and seven represents the least secure. The trunk's security is indicated by the *trunkSecurity* attribute of the Trunk component, and has values identical in range and meaning to the *requiredSecurity* attribute. PORS ensures that any route selected does not contain a trunk whose *trunkSecurity* attribute is numerically greater than the *requiredSecurity.* |
| Values | Decimal (0..7) |
| Default | 4 |

### ATTRIBUTE Dcme Profile requiredCustomerParm (rcparm)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the allowed customer defined parameter of the trunks on the route. The value of *requiredCustomerParm* ranges from 0 to 7. The meaning of each value is specific to a particular network, thus allowing them to customize the use of their trunks. A complementary trunk attribute, *customerParameter*, also has a value from zero to seven. The route selection process does not consider trunks whose *customerParameter* is greater than the *requiredCustomerParameter* of the path. |
| Values | Decimal (0..7) |
| Default | 4 |

### ATTRIBUTE Dcme Profile pathAttributeToMinimize (pamin)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies whether a route is selected on the basis of minimizing the cost or the delay. Each trunk has a cost and a delay metric associated with it. The cost of a selected route is the sum of the trunk cost metrics for all trunks included in the route. |

The delay of a selected route is the sum of the trunk delay metrics for all trunks included in the route.

Values
cost
delay

Default
cost

### ATTRIBUTE Dcme Profile maximumAcceptableCost (maxCost)

Access
Read: All
Write: All

Criticality
Process

Description
This attribute specifies an upper bound on the cost metric of a route, which is the sum of the cost metrics of all trunks on the route. The cost metric is the *trunkCost* attribute of the Trunk component. If for any trunk the *trunkCost* is larger than the *maximumAcceptableCost*, then that trunk is not considered during the route selection. While a shortest route is being selected, the route cost is being compared with the *maximumAcceptableCost* attribute, and this is done for any minimization criterion. No route is selected if the cost metric of the shortest route is larger than the *maximumAcceptableCost*.

Values
Decimal (0..65535)

Default
1280

### ATTRIBUTE Dcme Profile maximumAcceptableDelay (maxDelay)

Access
Read: All
Write: All

Criticality
Process

Description
This attribute specifies an upper bound on the delay of a route, which is the sum of the delays of all trunks on the route. It should be provisioned with a reasonable maximum acceptable delay for the end to end one way delay of a 512-byte packet. During its staging, a trunk measures a *measuredRoundTripDelay*. This delay is divided by two and truncated to an integer number of milliseconds to provide a one way delay which is used to populate the delay in this trunk object in the topological database.

| | |
|---|---|
| | The value includes emission, propagation, and queuing delays. A 512-byte packet is used to perform the measurement.<br>If for any trunk the half of the trunk's *measuredRoundTripDelay* is larger than the *maximumAcceptableDelay*, then that trunk is not considered during the route selection.<br>While a shortest route is being selected, the route delay is being compared with the *maximumAcceptableDelay* attribute, and this is done for any minimization criterion. No route is selected if the delay metric of the shortest route is larger than the *maximumAcceptableDelay.* |
| Values | Decimal (0..100000) |
| Units | msec |
| Default | 100000 |

### ATTRIBUTE Dcme Profile emissionPriority (epri)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the urgency with which packets on the path are emitted by the trunks on the route. An *emissionPriority* of 0 indicates the highest emission priority, while 2 indicates the lowest emission priority. Packets with a higher *emissionPriority* (or numerically less) are serviced and sent out before the packets with a lower *emissionPriority* (or numerically higher). |
| Values | Decimal (0..2) |
| Default | 0 |

### ATTRIBUTE Dcme Profile discardPriority (dpri)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the importance of the packets on the path. A *discardPriority* of 1 is used for paths carrying the most important traffic, and three is used for paths carrying the least |

important traffic. Packets with lower *discardPriority*(numerically) are discarded after packets with a higher *discardPriority*(numerically).

Values: Decimal (1..3)

Default: 1

### ATTRIBUTE Dcme Profile pathFailureAction (pfa)

Access: Read: All
Write: All

Criticality: Process

Description: This attribute specifies whether the application can tolerate momentary interruption of a path while a new path is selected. If *pathFailureAction* is ***disconnectConnection***, the application is informed as soon as possible about a failure by disconnection. If *pathFailureAction* is ***reRoutePath***, the path may attempt an immediate reroute, provided the failure is a recoverable failure. If rerouting fails, the application is informed of the failure.
If *pathFailureAction* is ***reRoutePath***, the *LCo* may wait up to 30 seconds before informing the service of complete disconnection in order to allow both ends to attempt to reconnect. Note that if PLC components are different at both ends only the calling end is allowed to reconnect.
All *pathTypes* respect this attribute. Also on a *manualPath* with both ends provisioned with independent paths (at least with respect to the failure) this option has the desired effect that the path is rerouted without complete disconnection at both ends.

Values: reRoutePath
disconnectConnection

Default: reRoutePath

### ATTRIBUTE Dcme Profile optimization (opt)

Access: Read: All
Write: All

Criticality: Process

| | |
|---|---|
| Description | This attribute specifies whether this connection should attempt to optimize its path when requested by the *Rtg Pors* component. Every path is optimal when it is established, but as network traffic patterns and configurations change this path may no longer be optimal. The PORS connection manager on a module requests circuits to optimize at the *optimizationInterval*. |
| Values | disabled<br>enabled |
| Default | enabled |

## GROUP Dcme Profile FramerOptions (FrOps)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains attributes which define how audio data will be carried across the Passport network. |

## ATTRIBUTE Dcme Profile voiceEncoding

| | |
|---|---|
| Access | Read: Passive<br>Write: Service |
| Criticality | Process |
| Description | This attribute specifies the encoding of voice traffic.<br><br>A *voiceEncoding* setting of ***g711G726*** specifies that either pulse code modulation (PCM) defined by ITU-T G.711 or adaptive differential pulse code modulation (ADPCM) defined by ITU-T G.726 is used to encode voice traffic. The actual encoding performed depends on congestion in the network and the settings of *minVoiceG711G726Rate* and *maxVoiceG711G726Rate*. If *voiceEncoding* is ***g711G726***, the bit rate of voice traffic can change during a call due to congestion in the network. In this case, the minimum and maximum rates that can occur during a call are specified by *minVoiceG711G726Rate* and *maxVoiceG711G726Rate* respectively. If *voiceEncoding* is ***g711G726***, *minVoiceG711G726Rate* is ***64*** and *maxVoiceG711G726Rate* is ***64***, G.711 (PCM) encoding is always performed on voice traffic on this channel and all voice traffic is carried uncompressed at 64 kbit/s. |

A *voiceEncoding* setting of ***g728at16*** specifies that the Low Delay Coded Excited Linear Predictive Coder (LD-CELP) algorithm defined by ITU-T G.728 is always performed on voice traffic. If *voiceEncoding* is ***g728at16***, the bit rate of all voice traffic is fixed at 16 kbit/s. The *minVoiceG711G726Rate* and *maxVoiceG711G726Rate* attributes do not apply if *voiceEncoding* is ***g728at16***.

A *voiceEncoding* setting of ***g729at8*** indicates that the Conjugated Structure Algebraic Code Excited Linear Predictive Coder (CS-ACELP) algorithm defined by ITU-T G.729 is always performed on voice traffic. If *voiceEncoding* is ***g729at8***, the bit rate of all voice traffic is fixed at 8 kbit/s. The *minVoiceG711G726Rate* and *maxVoiceG711G726Rate* attributes do not apply if *voiceEncoding* is ***g729at8***.

Values
g711G726
g728at16
g729at8

Default
g728at16

### ATTRIBUTE Dcme Profile maxVoiceG711G726Rate (maxVoiceBitRate)

Access
Read and write

Criticality
Process

Description
This attribute specifies the maximum possible bit rate (minimum possible compression rate) during a voice call on this channel when *voiceEncoding* is ***g711G726***. It applies only to voice traffic, not modem or fax traffic. It also applies only if *voiceEncoding* is ***g711G726***.

If *voiceEncoding* is ***g711G726***, the bit rate of voice traffic can change during a call due to congestion in the network. In this case, the minimum and maximum rates that can occur during a call are specified by *minVoiceG711G726Rate* and *maxVoiceG711G726Rate* respectively. If *voiceEncoding* is ***g711G726***, *minVoiceG711G726Rate* is ***64*** and *maxVoiceG711G726Rate* is ***64***, the G.711 (PCM) algorithm is always performed on voice traffic on this channel and all voice traffic is carried uncompressed at 64 kbit/s.

| | |
|---|---|
| Values | 64<br>32<br>24 |
| Units | kbit/s |
| Default | 64 |

### ATTRIBUTE Dcme Profile minVoiceG711G726Rate (minVoiceBitRate)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the minimum possible bit rate (maximum possible compression rate) during a voice call on this channel when *voiceEncoding* is ***g711G726***. It applies only to voice traffic, not modem or fax traffic. It also applies only if *voiceEncoding* is ***g711G726***.<br><br>If *voiceEncoding* is ***g711G726***, the bit rate of voice traffic can change during a call due to congestion in the network. In this case, the minimum and maximum rates that can occur during a call are specified by *minVoiceG711G726Rate* and *maxVoiceG711G726Rate* respectively. If *voiceEncoding* is ***g711G726***, *minVoiceG711G726Rate* is ***64*** and *maxVoiceG711G726Rate* is ***64***, the G.711 (PCM) algorithm is always performed on voice traffic on this channel and all voice traffic is carried uncompressed at 64 kbit/s. |
| Values | 64<br>32<br>24 |
| Units | kbit/s |
| Default | 64 |

### ATTRIBUTE Dcme Profile voiceTrafficOptimization

| | |
|---|---|
| Access | Read: Passive<br>Write: Service |
| Criticality | Process |

| | |
|---|---|
| Description | This attribute specifies how to optimize voice traffic. If *voiceTrafficOptimization* is ***bandwidth***, voice traffic is optimized to preserve bandwidth. If *voiceTrafficOptimization* is ***delay***, voice traffic is optimized to minimize delay. |
| Values | bandwidth<br>delay |
| Default | bandwidth |

### ATTRIBUTE Dcme Profile silenceSuppression

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies when silence suppression is performed. It applies to both voice and modem calls.<br>If *silenceSuppression* is ***off***, silence suppression is never performed.<br>If *silenceSuppression* is ***on***, silence suppression is always performed.<br>If *silenceSuppression* is ***congested***, silence suppression is performed only when the network is congested.<br>If *silenceSuppression* is ***slow***, silence suppression begins after 10 to 20 seconds without any detected speech or modem traffic.<br>If *silenceSuppression* is ***slowAndCongested***, both the ***slow*** and ***congested*** options are applied. |
| Values | off<br>on<br>congested<br>slow<br>slowAndCongested |
| Default | on |

### ATTRIBUTE Dcme Profile silenceSuppressionFactor

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |

| | |
|---|---|
| Description | This attribute specifies the expected savings (percent reduction) in required bandwidth if silence suppression is used. If silence suppression is used, the bandwidth required for the connection will be lower than if silence suppression is not used. However, the routing system will not be aware of the unused bandwidth unless that bandwidth is specified by this attribute.<br>If the value specified for the expected savings is too low, then some bandwidth made available by the use of silence suppression will be wasted. If the value specified for the expected savings is too high, then some connections may fail to set up because the routing system will over-calculate the amount of bandwidth available.<br>The effectiveness of silence suppression can be influenced by language related speech patterns. |
| Values | Decimal (0..60) |
| Units | % |
| Default | 40 |

### ATTRIBUTE Dcme Profile echoCancellation

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies whether echo cancellation is performed on calls using this profile as specified by ITU-T G.165. It applies mainly to voice traffic. Echo cancellation is usually (but not always) disabled during modem and fax calls. If *echoCancellation* is ***on***, the traffic that is echo cancelled is determined by ITU-T G.165. |
| Values | off<br>on |
| Default | off |

## ATTRIBUTE Dcme Profile modemFaxEncoding (faxEncoding)

| | |
|---|---|
| Access | Read: Passive<br>Write: Service |
| Criticality | Process |
| Description | This attribute specifies how modem and fax traffic is encoded. Modem and fax traffic are identified by an inband 2100 Hz tone. Prior to the detection of a 2100 Hz tone, all traffic is handled according to *voiceEncoding*.<br><br>If *modemFaxEncoding* is ***useVoiceEncoding***, 2100 Hz tones are not detected on the channel. In this case, the channel does not differentiate between modem and fax traffic and voice traffic. All traffic is handled according to *voiceEncoding*. If *voiceEncoding* is ***g728at16*** or ***g729at8***, modem and fax calls will not work.<br><br>If a 2100 Hz tone is detected and *modemFaxEncoding* is ***g711G726***, all subsequent traffic during a call is encoded using pulse code modulation (PCM) defined by ITU-T G.711 or adaptive differential pulse code modulation (ADPCM) defined by ITU-T G.726. When the 2100 Hz tone is detected, traffic is initially encoded at the rate specified by *maxModemFaxG711G726Rate*. For the duration of the call, the bit rate can change due to network congestion. In this case, the minimum and maximum rates that can occur during the call are specified by *minModemFaxG711G726Rate* and *maxModemFaxG711G726Rate* respectively.<br><br>If a 2100 Hz tone is detected and *modemFaxEncoding* is ***faxRelayG711G726***, encoding switches to G.711 or G.726 at the rate specified in *maxModemFaxG711G726Rate*, exactly as it does if *modemFaxEncoding* is ***g711G726***. Until a fax preamble is detected, the rate may fluctuate between *maxModemFaxG711G726Rate* and *minModemFaxG711G726Rate* due to network congestion, exactly as it does if *modemFaxEncoding* is ***g711G726***. If a fax preamble is detected, all subsequent traffic during a call is demodulated and sent through the network as cells at the base rate of the sending machine. Supported demodulation methods are V.29 (up to 9.6 kbit/s) and V.27 (up to 4.8 kbit/s). The |

modulation and demodulation of fax traffic is called “fax relay”.

If a 2100 Hz tone is detected and *modemFaxEncoding* is ***faxRelayOnly***, this channel does not wait for a fax preamble to switch to “fax relay”. Instead, “fax relay” is entered immediately. If *modemFaxEncoding* is ***faxRelayOnly***, modem calls do not work on this *Dcme*. Therefore, this setting is only appropriate if modem calls are not made on the channel.

The ***faxRelay*** feature is required to set *modemFaxEncoding* to ***faxRelayG711G726*** or ***faxRelayOnly***.

*modemFaxEncoding* must have the same value at both ends of a *Dcme*. If *modemFaxEncoding* is not provisioned with the same values at both ends of a *Dcme*, the *Dcme* will not be able to carry the modem and fax traffic successfully.

Values
g711G726
faxRelayOnly
faxRelayG711G726
useVoiceEncoding

Default
faxRelayOnly

### ATTRIBUTE Dcme Profile maxModemFaxG711G726Rate (maxModemBitRate)

Access
Read: Passive
Write: Service

Criticality
Process

Description
This attribute specifies the maximum possible bit rate (minimum possible compression rate) during a modem call on this channel. It also specifies the maximum possible bit rate (minimum possible compression rate) during a fax call on this channel, but only if *faxEncoding* is ***g711G726***. *maxModemFaxG711G726Rate* always applies to modem traffic, and never applies to voice traffic. If *faxEncoding* is ***g711G726***, maxModemFaxG711G726Rate also applies to fax traffic. If *faxEncoding* is ***faxRelay***, *maxModemFaxG711G726Rate* does not apply to fax traffic.
Rates can change during a call due to congestion in the network.

| | |
|---|---|
| Values | 64<br>32 |
| Units | kbit/s |
| Default | 64 |

### ATTRIBUTE Dcme Profile minModemFaxG711G726Rate (minModemBitRate)

| | |
|---|---|
| Access | Read: Passive<br>Write: Service |
| Criticality | Process |
| Description | This attribute specifies the minimum possible bit rate (maximum possible compression rate) during a modem call on this channel. It also specifies the minimum possible bit rate (maximum possible compression rate) during a fax call on this channel, but only if *faxEncoding* is ***g711G726***. *minModemFaxG711G726Rate* always applies to modem traffic, and never applies to voice traffic. If *faxEncoding* is ***g711G726***, *minModemFaxG711G726Rate* also applies to fax traffic. If *faxEncoding* is ***faxRelay***, *minModemFaxG711G726Rate* does not apply to fax traffic.<br>Rates can change during a call due to congestion in the network. |
| Values | 64<br>32 |
| Units | kbit/s |
| Default | 64 |

### ATTRIBUTE Dcme Profile faxIdleSuppressionG711G726

| | |
|---|---|
| Access | Read: Passive<br>Write: Service |
| Criticality | Process |
| Description | This attribute specifies whether fax idle suppression is performed on fax traffic on calls using this profile. It only applies to fax traffic, not voice or modem traffic. It also only applies if fax traffic is carried using G.711 or G.726. |

| | |
|---|---|
| Values | off<br>on |
| Default | off |

### ATTRIBUTE Dcme Profile insertedOutputDelay

| | |
|---|---|
| Access | Read: Passive<br>Write: Service |
| Criticality | Process |
| Description | This attribute specifies the amount of added output delay used to compensate for cross network delay variations. It applies to voice, modem and fax traffic. It is required to add output delay so that the statistical variation in the transit time of cells crossing the network does not cause gaps in speech. Backbone networks where high priority traffic consumes a high percentage of trunk bandwidth will require a higher *insertedOutputDelay* to compensate for the greater cell delay variation (CDV). |
| Values | 5<br>15<br>22<br>30<br>35<br>40<br>45<br>50<br>75<br>100<br>125<br>150 |
| Units | msec |
| Default | 22 |

### ATTRIBUTE Dcme Profile ingressAudioGain

| | |
|---|---|
| Access | Read: Passive<br>Write: Service |
| Criticality | Process |

| | |
|---|---|
| Description | This attribute specifies the gain in dB that is applied to data coming from outside the network before it is transferred across the network. It applies to voice, modem and fax traffic. For example, ingress gain is applied to audio data coming from a PBX. If *ingressAudioGain* is negative, a loss is applied.<br><br>*ingressAudioGain* and *egressAudioGain* are used in loss planning, which is the configuration of the devices in a network to ensure that the signal level from any point in the network to any other point is correct. |
| Values | Signed (-12..12) |
| Units | dB |
| Default | 0 |

### ATTRIBUTE Dcme Profile egressAudioGain

| | |
|---|---|
| Access | Read: Passive<br>Write: Service |
| Criticality | Process |
| Description | This attribute specifies the gain in dB that is applied to data leaving the network on this route. It applies to voice, modem and fax traffic. For example, egress gain is applied to audio data going to a PBX. If *egressAudioGain* is negative, a loss is applied.<br><br>*ingressAudioGain* and *egressAudioGain* are used in loss planning, which is the configuration of the devices in the network to ensure that the signal level from any point in the network to any other point is correct. |
| Values | Signed (-12..12) |
| Units | dB |
| Default | 0 |

## ATTRIBUTE Dcme Profile speechHangoverTime

| | |
|---|---|
| Access | Read: Passive<br>Write: Service |
| Criticality | Process |
| Description | This attribute specifies the time after the end of speech before silence suppression starts. It applies only to voice traffic.<br><br>Higher values of *speechHangoverTime* reduce undesirable clipping but increase bandwidth usage. |
| Values | Decimal (10..500) |
| Units | msec |
| Default | 150 |

## ATTRIBUTE Dcme Profile comfortNoiseCap

| | |
|---|---|
| Access | Read: Passive<br>Write: Service |
| Criticality | Process |
| Description | This attribute specifies the maximum level at which comfort noise is generated. The comfort noise is limited by *comfortNoiseCap* before *egressAudioGain* is applied. The default value of ***-40*** dBm0 equates to the maximum level of comfort noise available and effectively disables the *comfortNoiseCap*. |
| Values | Signed (-78; -65; -60; -54; -52; -50; -48; -46; -44; -42; -40) |
| Units | dBm0 |
| Default | -40 |

## ATTRIBUTE Dcme Profile modemFaxSpeechDiscrim (fsd)

| | |
|---|---|
| Access | Read: Passive<br>Write: Service |
| Criticality | Process |

| | |
|---|---|
| Description | This attribute specifies whether this *Dcme* differentiates between modemFax traffic and speech. If *modemFaxSpeechDiscrim* is ***on*** and a false 2100 Hz tone is detected, any *Vs* under this *Dcme* reverts to speech mode when speech is detected. |
| Values | on<br>off |
| Default | on |

### ATTRIBUTE Dcme Profile v17EncodedAsG711G726

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies how services using this *Profile* negotiate with V.17 fax machines. This attribute is not used unless the ***modemFaxEncoding***, defined in this *Profile*, is ***faxRelayG711G726***<br><br>If *v17EncodedAsG711G726* is ***no,*** V.17 fax machines are instructed to use V.29 and V.29 fax traffic sent by fax machines is demodulated and encoded using fax relay.<br><br>If *v17EncodedAsG711G726* is ***yes***, V.17 fax machines are permitted to use V.17 and V.17 fax traffic sent by fax machines is encoded using G.711 or G.726. The actual encoding performed depends on the *minModemFaxG711G726Rate* and *maxModemFaxG711G726Rate*, available in this *Profile*. |
| Values | no<br>yes |
| Default | no |

### ATTRIBUTE Dcme Profile dtmfRegeneration (detGen)

| | |
|---|---|
| Access | Read: Passive<br>Write: Service |
| Criticality | Process |
| Description | This attribute specifies the DTMF regeneration parameter used during negotiation with the remote end across the subnet. |

| | |
|---|---|
| | If *dtmfRegeneration* is ***on***, it is desired that DTMF tones received from the link are first converted to digits before being sent to the subnet. When a digit is received from the subnet, its respective DTMF tone is desired to be generated before being sent to the link.<br><br>If *dtmfRegeneration* is ***off***, it is desired that DTMF tones are transported transparently as audio. |
| Values | off<br>on |
| Default | off |

### ATTRIBUTE Dcme Profile maxFaxRelayRate

| | |
|---|---|
| Access | Read: Passive<br>Write: Service |
| Criticality | Process |
| Description | This attribute specifies the maximum desired fax relay rate. This attribute only applies if *modemFaxEncoding* is ***faxRelayOnly*** or ***faxRelayG711G726***. |
| Values | Decimal (2.4; 4.8; 7.2; 9.6; 12.0; 14.4) |
| Units | kbit/s |
| Default | 14.4 |

Passport 7400, 15000, 20000

# Component Dcme

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component Dlep

241-5701-060

Passport 7400, 15000, 20000

# Component Dlep

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT DualLpEquipmentProtection (Dlep)

| | |
|---|---|
| Instance | Decimal (0..7) |
| Groups | "GROUP Dlep CustomerIdentifierData (CidData)"<br>"GROUP Dlep Provisioned (Prov)"<br>"GROUP Dlep OsiState (State)"<br>"GROUP Dlep Operational (Op)" |
| Scope | Device |
| Description | *DualLpEquipmentProtection/n*<br><br>This component provides the sparing capabilities for electrical ports and server-type applications when using a dual *LP* sparing model. An example of when you would use this component is when you have electrical and optical ports on the same FP. In this situation, *Dlep* is used as the parent component for the spared electrical ports, rather than the *LP/#*. |
| Opt. Subcomp. | "COMPONENT Dlep DS1"<br>"COMPONENT Dlep VoiceServicesProcessor (Vsp)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Dlep CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |

| | |
|---|---|
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

### ATTRIBUTE Dlep customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.<br><br>Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.<br><br>An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to "basic CIDs" in DPN) may be assigned to specific customers. |
| Values | Decimal (0; 1..8191) |
| Default | 0 |

### GROUP Dlep Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioned attributes for the *DualLpEquipmentProtection* component. |

### ATTRIBUTE Dlep mainLp

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies one of the *Lp*s of an *Lp* pair. A value must be provided for this attribute, and an *Lp* may only be associated |

| | |
|---|---|
| | with one *Dlep* component. Each of the *Lp*s must link to only one card, that is, *spareCard* is not allowed to be set on either *Lp*. Each *Lp* must have the same *LogicalProcessorType*. The *cardType* attribute must be identical for both cards. |
| Values | Link (Hardware, linkToApplications) |
| Default | No default |

### ATTRIBUTE Dlep spareLp

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies one of the *Lp*s of an *Lp* pair. A value must be provided for this attribute, and an *Lp* may only be associated with one *Dlep* component. Each of the *Lp*s must link to only one card, that is, *spareCard* is not allowed to be set on either *Lp*. Each *Lp* must have the same *LogicalProcessorType*. The *cardType* attribute must be identical for both cards. |
| Values | Link (Hardware, linkToApplications) |
| Default | No default |

### ATTRIBUTE Dlep linkToApplications

| | |
|---|---|
| Access | Read only |
| Description | This attribute allows server-type applications to link themselves to the *Dlep* component, and be spared between the *mainLp* attribute and the *spareLp attribute*. |
| List of | Link |
| List Size | 256 |
| Default | No default |

### GROUP Dlep OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each |

attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Dlep adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Dlep operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component. |

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Dlep usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
idle
active (activ)
busy

Default
idle

### ATTRIBUTE Dlep availabilityStatus (osiAvail)

Access
Read only

Description

If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.

The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.

The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.

The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.

The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is

one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

### ATTRIBUTE Dlep proceduralStatus (osiProc)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***initializationRequired*** indicates (for a resource which doesn’t initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has

not been initiated. The *operationalState* is ***disabled***.

The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

### ATTRIBUTE Dlep controlStatus (osiCntrl)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but

tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

Set of

subjectToTest (subTst)
partOfServicesLocked (partLk)
reservedForTest (rsrvd)
suspended (suspnd)

Default

No default

### ATTRIBUTE Dlep alarmStatus (osiAlarm)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE Dlep standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the

role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values
hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

Default
notSet

### ATTRIBUTE Dlep unknownStatus (osiUnknw)

Access
Read only

Description
This attribute indicates the OSI Unknown status of the component.

The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.

The value ***true*** indicates that the actual state of the component is not known for sure.

Values
false
true

Default
false

### GROUP Dlep Operational (Op)

Properties
Operational

Description
This group contains the operational attribute for the *DualLpEquipmentProtection* component.

### ATTRIBUTE Dlep activeLp

Access
Read only

Description
This attribute identifies which *Lp* is currently providing service..

Values
The name of the component

| | |
|---|---|
| Default | No default |

## COMPONENT Dlep DS1

| | |
|---|---|
| Instance | Decimal (0..7) |
| Groups | "GROUP Dlep DS1 Provisioned (Prov)"<br>"GROUP Dlep DS1 CustomerIdentifierData (CidData)"<br>"GROUP Dlep DS1 AdminInfo (AdminInfo)"<br>"GROUP Dlep DS1 IfEntryProv (IfEntry)"<br>"GROUP Dlep DS1 OperationalStatus (OperStatus)"<br>"GROUP Dlep DS1 OsiState (State)"<br>"GROUP Dlep DS1 Operational (Oper)"<br>"GROUP Dlep DS1 Statistics (Stats)" |
| Scope | Application |
| Description | *Lp/n DS1/n*<br>The *DS1* component controls and monitors a DS1 port on a Function Processor. The number of ports supported depends on the type of card, and is usually encoded in the *Shelf Card/n cardType*, for example 4pDS1Aal1: 4 port. The lowest instance value is always ***0***.<br><br>Multi-Service cards have an instance range 0..31, except that instance values 30 and 31 are not available for an “ATM UNI port”. (A DS1 “ATM UNI port” is a *DS1* component with a single *Chan* whose *applicationFramerName* attribute is linked to an *AtmIf* component.)<br><br>The instance number of a *DS1* “ATM UNI port” must not be the same as the instance number of an *IMA* group under the same *Lp*. |

| | |
|---|---|
| Subcomponents | "COMPONENT Dlep DS1 Channel (Chan)" |
| Dyn. Subcomp. | "COMPONENT Dlep DS1 Test (Test)"<br>"COMPONENT Dlep DS1 Dsp"<br>"COMPONENT Dlep DS1 Audio" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP Dlep DS1 Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all of the provisioning data for a DS1 component. |

## ATTRIBUTE Dlep DS1 lineType (lineType)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the framing of the DS1 line.<br>***d4*** defines a framing pattern of 12 frames per multiframe.<br>***esf*** defines a framing pattern of 24 frames per multiframe.<br>***d4Cas*** defines a framing pattern of 12 frames per multiframe with channel associated signalling.<br>***esfCas*** defines a framing pattern of 24 frames per multiframe with channel associated signalling.<br>***unframed*** defines an unknown framing pattern for clear channels.<br><br>For cell-based cards only the default option ***esf*** is permitted. |
| Values | d4<br>esf<br>d4Cas |

| | |
|---|---|
| | esfCas<br>unframed |
| Default | esf |

### ATTRIBUTE Dlep DS1 zeroCoding (zeroCoding)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute defines the zero encoding on the DS1 line.<br>***bit7Stuffing*** sets bit 7 of every timeslot to a one to guarantee ones's density. This reduces the available bandwidth of the channel by 1/8.<br>***b8zs*** substitutes a pattern of bipolar violations if more than 7 zeros in a row are to be transported.<br>***ami*** specifies Alternate Mark Inversion, in which successive marks (ones) alternate between positive and negative polarity voltage signals, and spaces (zeros) are sent as a zero amplitude signal.<br>When *zeroCoding* is set to ***ami*** and l*ineType* is set to ***d4***, it is recommended that *raiAlarmType* be set to ***SBit*** in order to avoid possible mimic RAI alarm.<br><br>For cell-based cards, only the default value ***b8zs*** is permitted.<br><br>The value *ami* should be used with caution. If the ones density of the traffic is not sufficiently high, the DS1 will lose clock synchronization. |
| Values | bit7Stuffing<br>b8zs<br>ami |
| Default | b8zs |

### ATTRIBUTE Dlep DS1 clockingSource (clockingSource)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the source of the transmit clock for the DS1 line. |

When ***local*** is selected, the crystal on the port generates the clocking for the line.

When ***line*** is selected, the port synchronizes to the clock from the facility.

When ***module*** is selected, the ports clock synchronizes to the clock provided by the oscillator on the active CP.

When ***otherPort*** is selected, the port synchronizes to the port with a clocking source of ***line***.

When ***srtsMode*** is selected, the port transmit frequency depends on the SRTS (Synchronous Residual Time-Stamp) received over the ATM network. SRTS information is also generated sent over the ATM network.

When ***adaptiveMode*** is selected, the port transmit frequency continually adapts to match the egress data received from the ATM network.

A port with ***srtsMode*** or ***adaptiveMode*** must have a single *Chan* which may be linked only to an *Aal1Ces*.service with serviceType ***unstructured***

If the *NetworkSynchronization* component is present, the default value of this attribute is ***module***, otherwise it defaults to ***line***, except for the ***3pDS1Atm*** card, which it defaults to ***local***.

On a ***3pDS1Atm*** card all ports must have the same value, and be either ***local*** or ***module***.

***otherPort*** is valid only on AAL1 cards. ***srtsMode*** is valid only on AAL1 and Multi-Service Access cards. ***adaptiveMode*** is valid only on Multi-Service Access cards.
On ***4DS1Aal1*** cards either:

all four ports' *clockingSource* values must be ***local*** OR
all four ports' *clockingSource* values must be ***module*** OR
one port's *clockingSource* value must be ***line*** and the other three

must be ***otherPort***. A port can only have ***srtsMode*** selected if the other ports are ***module*** or ***srtsMode***.

Values
local
line
module
otherPort
srtsMode
adaptiveMode

Default
No default

### ATTRIBUTE Dlep DS1 raiAlarmType (raiType)

Access
Read and write

Description
This attribute defines the method of sending a RAI (Remote Alarm Indication) alarm on a DS1 line.
When ***SBit*** is selected, RAI alarm is sent by setting the S bit in frame 12.
When ***Bit2*** is selected, RAI alarm is sent by setting bit 2 in all timeslots to 0.
When ***fdl*** is selected, RAI alarm is sent by a repeating pattern of 00 hex and FF hex on the FDL link.
Note that for *lineType* of ***d4***, only the SBit and the Bit2 methods are applicable. Whereas for *lineType* of ***esf***, only the Bit2 and the ***fdl*** methods are applicable.
***SBit*** method is recommended if *lineType* is set to ***d4*** and *zeroCoding* is set to ***ami***. This will help to avoid potential mimic RAI alarm when 1's density is too low in the data transmitted.
For cell-based cards, only the default value ***fdl*** is permitted.

Values
sBit
bit2
fdl

Default
fdl

### ATTRIBUTE Dlep DS1 lineLength (lineLength)

Access
Read and write

Description
This attribute defines the line length (in feet) for equalization calculations for the DS1 line. The value ranges between 0-655.

For ***8pDS1Atm*** cards the actual value used for equalization is rounded up to the nearest 110 feet; for all other card types the actual value used is rounded to the nearest 50 feet.

Values: Decimal (0..655)

Default: 0

### GROUP Dlep DS1 CustomerIdentifierData (CidData)

Properties: Provisioned

Description: This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs.

### ATTRIBUTE Dlep DS1 customerIdentifier (cid)

Access: Read and write

Description: This attribute holds the Customer Identifier (CID).

Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.

Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.

An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to "basic CIDs" in DPN) may be assigned to specific customers.

Values: Decimal (0; 1..8191)

Default: 0

### GROUP Dlep DS1 AdminInfo (AdminInfo)

Properties: Provisioned

| | |
|---|---|
| Description | This group contains the attributes pertaining to the vendor of the equipment. |

### ATTRIBUTE Dlep DS1 vendor

| | |
|---|---|
| Access | Read and write |
| Description | This is the name of the vendor supplying the facility. |
| Values | String (0..20, ASCII) |
| Default | No default |

### ATTRIBUTE Dlep DS1 commentText

| | |
|---|---|
| Access | Read and write |
| Description | Any miscellaneous text about the facility. |
| Values | String (0..60, ASCII) |
| Default | No default |

### GROUP Dlep DS1 IfEntryProv (IfEntry)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the ifEntry. |

### ATTRIBUTE Dlep DS1 ifAdminStatus (ifState)

| | |
|---|---|
| Access | Read and write |
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE Dlep DS1 ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP Dlep DS1 OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

### ATTRIBUTE Dlep DS1 snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### GROUP Dlep DS1 OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific |

information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Dlep DS1 adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Dlep DS1 operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service. |

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Dlep DS1 usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
idle
active (activ)
busy

Default
idle

### ATTRIBUTE Dlep DS1 availabilityStatus (osiAvail)

Access
Read only

Description
If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is

defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.

The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.

The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.

The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.

The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a

rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

### ATTRIBUTE Dlep DS1 proceduralStatus (osiProc)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.

The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

## ATTRIBUTE Dlep DS1 controlStatus (osiCntrl)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

Set of

subjectToTest (subTst)
partOfServicesLocked (partLk)
reservedForTest (rsrvd)
suspended (suspnd)

Default

No default

### ATTRIBUTE Dlep DS1 alarmStatus (osiAlarm)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms

may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE Dlep DS1 standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values
hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

Default
notSet

### ATTRIBUTE Dlep DS1 unknownStatus (osiUnknw)

Access
Read only

Description
This attribute indicates the OSI Unknown status of the component.

The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.

The value ***true*** indicates that the actual state of the component is not known for sure.

Values
false
true

Default
false

### GROUP Dlep DS1 Operational (Oper)

Properties
Operational

Description
This group contains the common operational data for a component in a digital hierarchy interface.

### ATTRIBUTE Dlep DS1 losAlarm (losAlarm)

Access
Read only

Description
This attribute displays whether a LOS (Loss of Signal) alarm state has been entered. A LOS alarm is declared after LOS defects have been observed and accumulated for a period of 2 seconds +/- 0.5 seconds (for **3pDS1Atm**, **3pE1Atm**, **8pDS1Atm**, and **8pE1Atm** cards: 2.5 seconds +/- 0.5 seconds). A LOS defect

is detected upon observing all zeros for 150 ms (for **3pDS1Atm**, **3pE1Atm**, **8pDS1Atm**, and **8pE1Atm** cards: upon observing 175 +/- 75 pulse positions with no pulses of either positive or negative polarity). If the LOS defects are intermittently occurring, the LOS defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.
The port goes into an operational state of ***disabled*** until the LOS alarm state is cleared. Also, an RAI alarm is transmitted to the far end for the duration of the LOS alarm state.
The LOS alarm state is cleared when LOS defects are absent for 10 seconds +/- 0.5 seconds.

Values
on
off

Default
off

### ATTRIBUTE Dlep DS1 rxAisAlarm (rxAisAlarm)

Access
Read only

Description
This attribute displays whether an AIS (Alarm Indication Signal) alarm state has been entered. The AIS Alarm state is entered when AIS defects have been observed and accumulated for 2.5 seconds +/- 0.5 seconds. An AIS defect is detected after having received less than 3 zeros in a 2048 bit period (for **8pDS1Atm** cards: when both an Out Of Frame condition exists and a 1's density of at least 99.9% is present for a time T, where 3 ms ≤ T ≤ 75 ms; for **8pE1Atm** cards: when both an Out Of Frame condition exists and fewer than three 0's have been received in 512 bit periods). If the AIS defects are intermittently occurring, the AIS defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.
The port goes into an operational state of ***disabled*** for the duration of an AIS alarm state.
The AIS alarm state is cleared when AIS defects are absent for 10 seconds +/- 0.5 seconds.

Values
on
off

Default off

### ATTRIBUTE Dlep DS1 lofAlarm (lofAlarm)

Access Read only

Description This attribute displays whether a LOF (Loss of Frame) alarm state has been entered. The LOF alarm state is entered when LOF defects (for DS1: 2 out of 5 framing bits in error; for E1: 3 consecutive frame alignment patterns in error) have been detected for 3 seconds +/- 0.5 seconds (for **3pDS1Atm**, **3pE1Atm**, **8pDS1Atm**, and **8pE1Atm** cards: 2.5 seconds +/- 0.5 seconds). If the LOF defects are intermittently occurring, the LOF defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.
The port goes into an operational state of ***disabled*** until the LOF alarm state is cleared. Also, an RAI alarm is transmitted to the far end for the duration of the LOF alarm state
The condition is cleared when framing has been achieved for 10 seconds +/- 0.5 seconds.

Values on
off

Default off

### ATTRIBUTE Dlep DS1 rxRaiAlarm (rxRaiAlarm)

Access Read only

Description This attribute displays whether an RAI (Remote Alarm Indication) alarm state has been entered. An RAI alarm state is entered when the RAI defect indicator has been observed and accumulated for 3.5 seconds +/- 0.5 seconds. For **3pDS1Atm**, and **8pDS1Atm** cards: alarm is declared immediately upon observing the defect is present, with no integration time. For **3pE1Atm**, and **8pE1Atm** cards: alarm state is entered when the RAI defect indicator has been observed and accumulated for 2.5 seconds +/- 0.5 seconds. If the RAI defects are intermittently occurring, the RAI defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.

The RAI alarm state is cleared when the RAI defect indicator has been absent for 10 seconds +/- 0.5 seconds (for **3pDS1Atm**, and **8pDS1Atm** cards: alarm is cleared immediately upon observing the defect is absent, with no integration time).
The RAI alarm is usually an indication that the far end facility is unable to gain synchronization.

Values
on
off

Default
off

### ATTRIBUTE Dlep DS1 txAisAlarm (txAisAlarm)

Access
Read only

Description
This attribute displays whether an AIS (Alarm Indication Signal) alarm is being transmitted on the line. An AIS alarm is transmitted when the port is in a locked state.

Values
on
off

Default
off

### ATTRIBUTE Dlep DS1 txRaiAlarm (txRaiAlarm)

Access
Read only

Description
This attribute displays whether a RAI signal is being sent on the outgoing line. The RAI signal is transmitted when the port detects a LOF alarm condition (for **3pDS1Atm**, **3pE1Atm**, **8pDS1Atm**, and **8pE1Atm** cards: RAI is transmitted when the port detects a LOS, LOF, or AIS condition).

Values
on
off

Default
off

### GROUP Dlep DS1 Statistics (Stats)

Properties
Operational

Description
This group contains the common statistical data for a component in a digital hierarchy interface.

### ATTRIBUTE Dlep DS1 runningTime (runningTime)

| | |
|---|---|
| Access | Read only |
| Description | The number of seconds since the port component was activated. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Dlep DS1 errorFreeSec (efs)

| | |
|---|---|
| Access | Read only |
| Description | The number of seconds that the port has been in an error free state. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Dlep DS1 erroredSec (es)

| | |
|---|---|
| Access | Read only |
| Description | An errored second is declared when a second with one or more Code Violation Error events, or one or more Out Of Frame events occurs. A code violation error may be a CRC error or a BPV error. An Out Of Frame event occurs when 2 out of 5 framing bits are in error. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Dlep DS1 sevErroredSec (ses)

| | |
|---|---|
| Access | Read only |
| Description | A severely errored second occurs when a second with 320 or more Code Violation Error events or one or more Out Of Frame events occurs. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Dlep DS1 sevErroredFrmSec (sefs)

| | |
|---|---|
| Access | Read only |
| Description | A severely errored framing second occurs when a second with one or more Out Of Frame events occurs. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Dlep DS1 unavailSec

| | |
|---|---|
| Access | Read only |
| Description | The total number of seconds that the interface is in an unavailable signal state. An unavailable signal state occurs at the onset of 10 consecutive Severely Errored Seconds. The state is cleared at the onset of 10 seconds with no Severely Errored Seconds. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Dlep DS1 bpvErrors (bpvErrors)

| | |
|---|---|
| Access | Read only |
| Description | The current count of Bipolar Violations. A bipolar violation is an error in the alternate mark inversion pattern (AMI) on the line. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Dlep DS1 crcErrors (crcErrors)

| | |
|---|---|
| Access | Read only |
| Description | If the interface is a DS1 line, it is the current count of CRC-6 errors. These will only be counted when the lineType is ESF. If the interface is an E1 line, it is the total number of CRC-4 errors. These will only be counted when crc4Mode is on. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Dlep DS1 frmErrors (frmErrors)

| | |
|---|---|
| Access | Read only |
| Description | The current count of frame errors. A frame error is an error in the framing bits |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Dlep DS1 losStateChanges (losChanges)

| | |
|---|---|
| Access | Read only |
| Description | The total number of times that the line lost signal. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Dlep DS1 slipErrors (slipErrors)

| | |
|---|---|
| Access | Read only |
| Description | The total number of times that the line experienced a controlled frame slip. This attribute is incremented for ports on the voice cards (for example the 1pDS1V and the 1pE1V function processors) only. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT Dlep DS1 Channel (Chan)

| | |
|---|---|
| Instance | Decimal (0..24) |
| Groups | "GROUP Dlep DS1 Chan Provisioned (Prov)"<br>"GROUP Dlep DS1 Chan CustomerIdentifierData (CidData)"<br>"GROUP Dlep DS1 Chan IfEntryProv (IfEntry)"<br>"GROUP Dlep DS1 Chan OperationalStatus (OperStatus)"<br>"GROUP Dlep DS1 Chan OsiState (State)"<br>"GROUP Dlep DS1 Chan Operational (Oper)"<br>"GROUP Dlep DS1 Chan AdminInfo (AdminInfo)" |
| Scope | Application |

| | |
|---|---|
| Description | *Channel*<br>The *Channel* component is configured to control a group of timeslots that form a fractional group on a DS1 or E1 port. Cell-based cards allow only one channel per port, and this is automatically provisioned with all available timeslots. Similarly, the ***1pDS3C*** card type only allows one channel per port, and this is automatically provisioned with all available timeslots. |
| Opt. Subcomp. | "COMPONENT Dlep DS1 Chan AtmCell (Cell)"<br>"COMPONENT Dlep DS1 Chan TrunkConditioning (Tc)" |
| Dyn. Subcomp. | "COMPONENT Dlep DS1 Chan Test (Test)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP Dlep DS1 Chan Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all of the provisional data for a *Channel* component. |

## ATTRIBUTE Dlep DS1 Chan timeslots (ts)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute contains the list of timeslots that are used by the *Channel* component. Valid numbers are 1-24 for a *Channel* used by a *DS1* component, and 1-31 for a *Channel* used by an *E1* component.<br><br>For the ***4pDS3Ch*** card, a timeslot value of ***none*** cannot be combined with other valid timeslot values. When ***none*** is selected, no timeslots are assigned and any service linked to the *Channel* does not function. |

| | |
|---|---|
| Set of | none<br>1<br>2<br>3<br>4<br>5<br>6<br>7<br>8<br>9<br>10<br>11<br>12<br>13<br>14<br>15<br>16<br>17<br>18<br>19<br>20<br>21<br>22<br>23<br>24<br>25<br>26<br>27<br>28<br>29<br>30<br>31 |
| Default | No default |

### ATTRIBUTE Dlep DS1 Chan timeslotDataRate (dataRate)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute selects the data rate of the timeslots in a channel of a DS1 component. For E1, the data rate of the timeslots will always be 64kbit/s regardless of this attribute.<br><br>When ***doNotOverride*** is selected for a channel on a DS1, the data rate of the channel's timeslots are dependant on the *zeroCoding* selection of the DS1 component. If the *zeroCoding* is ***B8ZS*** (where supported on the FP) or ***none***, the timeslot's data rate will be 64kbit/s. If the *zeroCoding* option is ***bit7Stuffing,*** the data rate of a timeslot will be 56kbit/s.<br><br>When ***56k*** is selected for a channel on a DS1, the least significant bit of each timeslot of this *Channel* will always be set to 1 and not used for data. The data rate for the timeslots of this channel is therefore restricted to 56kbit/s.<br><br>On the ***4pDS3Ch*** cards, the *zeroCoding* attribute is restricted to the value *none*, and so when the *timeslotDataRate* is set to ***doNotOverride***, the timeslot's data rate will be 64kbit/s. Timeslot data rate of ***56k*** is also available on this card.<br><br>On the ***4pDS3ChAal1*** card, the only allowed value for this attribute is ***doNotOverride***.<br><br>One application of this attribute is to allow a DS1 line to support mixing channels that originate from lines that use different *zeroCoding* schemes. |
| Values | 56k<br>doNotOverride |
| Default | doNotOverride |

### ATTRIBUTE Dlep DS1 Chan applicationFramerName

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute defines the link to the software stack. It defines which application is running on top of this hardware component. |
| Values | Link (Service, interfaceName) |
| Default | No default |

### GROUP Dlep DS1 Chan CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

### ATTRIBUTE Dlep DS1 Chan customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.<br><br>Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.<br><br>An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to "basic CIDs" in DPN) may be assigned to specific customers. |
| Values | Decimal (0; 1..8191) |
| Default | 0 |

### GROUP Dlep DS1 Chan IfEntryProv (IfEntry)

| | |
|---|---|
| Properties | Provisioned |

| | |
|---|---|
| Description | This group contains the provisionable attributes for the ifEntry. |

### ATTRIBUTE Dlep DS1 Chan ifAdminStatus (ifState)

| | |
|---|---|
| Access | Read and write |
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE Dlep DS1 Chan ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP Dlep DS1 Chan OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

### ATTRIBUTE Dlep DS1 Chan snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational |

packets can be passed.

Values
up
down
testing

Default
up

### GROUP Dlep DS1 Chan OsiState (State)

Properties
Operational

Description
This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Dlep DS1 Chan adminState (osiAdmin)

Access
Read only

Description
This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Dlep DS1 Chan operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Dlep DS1 Chan usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values

idle
active (activ)
busy

Default

idle

### ATTRIBUTE Dlep DS1 Chan availabilityStatus (osiAvail)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.

The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.

The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.

The value ***powerOff*** indicates the resource requires power to be

applied and it is not powered on. The *operationalState* is ***disabled***.

The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

## ATTRIBUTE Dlep DS1 Chan proceduralStatus (osiProc)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.<br><br>The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.<br><br>The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.<br><br>The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.<br><br>The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***. |
| Set of | initializationRequired (initRq)<br>notInitialized (notInit)<br>initializing (init)<br>reporting (report)<br>terminating (term) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Dlep DS1 Chan controlStatus (osiCntrl)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.<br><br>The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.<br><br>The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.<br><br>The value ***suspended*** indicates that the service has been administratively suspended. |
| Set of | subjectToTest (subTst)<br>partOfServicesLocked (partLk)<br>reservedForTest (rsrvd)<br>suspended (suspnd) |
| Default | No default |

### ATTRIBUTE Dlep DS1 Chan alarmStatus (osiAlarm)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is |

defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

## ATTRIBUTE Dlep DS1 Chan standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values
hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

Default
notSet

## ATTRIBUTE Dlep DS1 Chan unknownStatus (osiUnknw)

Access
Read only

Description
This attribute indicates the OSI Unknown status of the component.

The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.

The value ***true*** indicates that the actual state of the component is not known for sure.

Values
false
true

| | |
|---|---|
| Default | false |

### GROUP Dlep DS1 Chan Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all of the operational data for a *Channel* component. |

### ATTRIBUTE Dlep DS1 Chan actualChannelSpeed

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the measured link speed of the *Channel* component. |
| Values | Decimal (0..4294967295) |
| Units | bit/s |
| Default | 0 |

### GROUP Dlep DS1 Chan AdminInfo (AdminInfo)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attributes pertaining to the vendor of the equipment. |

### ATTRIBUTE Dlep DS1 Chan vendor

| | |
|---|---|
| Access | Read and write |
| Description | This is the name of the vendor supplying the facility. |
| Values | String (0..20, ASCII) |
| Default | No default |

### ATTRIBUTE Dlep DS1 Chan commentText

| | |
|---|---|
| Access | Read and write |
| Description | Any miscellaneous text about the facility. |
| Values | String (0..60, ASCII) |
| Default | No default |

## COMPONENT Dlep DS1 Chan Test (Test)

| | |
|---|---|
| Groups | "GROUP Dlep DS1 Chan Test OsiState (State)"<br>"GROUP Dlep DS1 Chan Test Setup (Setup)"<br>"GROUP Dlep DS1 Chan Test Results (Results)" |
| Scope | Application |
| Description | The *Test* component is configured to control a hardware facility test on a physical (*V35*, *X21*, *DS1*, *E1*, *DS3*, *E3* etc.) or a logical port. |
| Common Verbs | Help<br>List<br>Display |

## VERB START Dlep DS1 Chan Test

| | |
|---|---|
| Impact | Service |
| Description | This command invokes a test on the hardware component. Note that some test types requires the parent component (the hardware component) to be locked (using the *Lock* command) before a test can be started. |

## VERB STOP Dlep DS1 Chan Test

| | |
|---|---|
| Impact | Service |
| Description | This command stops a test running on the hardware component. |

## GROUP Dlep DS1 Chan Test OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

## ATTRIBUTE Dlep DS1 Chan Test adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |

Description

This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values

locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default

unlocked

### ATTRIBUTE Dlep DS1 Chan Test operationalState (osiOper)

Access

Read only

Description

This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values

enabled (ena)
disabled (dis)

Default

disabled

### ATTRIBUTE Dlep DS1 Chan Test usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Dlep DS1 Chan Test Setup (Setup)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all of the operational data for a *Test* component. |

### ATTRIBUTE Dlep DS1 Chan Test purpose (purpose)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute records the purpose of the test so that the test results can be associated and properly analyzed. |
| Values | String (0..40, ASCII) |
| Default | No default |

### ATTRIBUTE Dlep DS1 Chan Test type (type)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the type of test to be run. The available test types include the following:<br>***card*** test sets up an internal loop on the board and runs a bit error |

rate test.
***manual*** test assumes the line is looped back externally and a bit error rate test is performed.
***localLoop*** test loops back the local modem and performs a bit error rate test.
***remoteLoop*** test loops back the remote modem (or CSU) and performs a bit error rate test.
***externalLoop*** test loops back the line to the far end.
***payloadLoop*** test only loops back the payload data received from the incoming line.
***remoteLoopThisTrib*** loops this particular tributary back at the far end, using services provided by the parent.
***v54RemoteLoop*** initiates a V.54 Remote Loopback test.
***pn127RemoteLoop*** initiates a PN127 Remote Loopback test.
***lineBIP8Error*** tests line BIP 8 error generation and detection (B2 byte inverted).
***sectionBIP8Error*** tests section BIP 8 error generation and detection (B1 byte inverted).
***pathBIP8Error*** tests path BIP 8 error generation and detection (B3 byte inverted).
***pathBIP2Error*** tests path BIP 2 error generation and detection (bit 1-2 of V5 byte inverted).
Note that not all test types are not supported by all function processors.

Values

card
manual
localLoop
remoteLoop
externalLoop
payloadLoop
remoteLoopThisTrib
v54RemoteLoop
pn127RemoteLoop
lineBIP8Error
sectionBIP8Error
pathBIP8Error
pathBIP2Error

Default

card

### ATTRIBUTE Dlep DS1 Chan Test frmSize (size)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the size of the test data frames in number of bytes.<br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |
| Values | Decimal (4..4096) |
| Units | bytes |
| Default | 1024 |

### ATTRIBUTE Dlep DS1 Chan Test frmPatternType (fpt)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the type of data pattern generation to use. The following lists the available pattern types:<br>***ccitt32kBitPattern*** is a pseudo-random sequence of 32 kbit.<br>***ccitt8MBitPattern*** is a pseudo-random sequence of 8Mbit.<br>***customizedPattern*** is the pattern defined in the ***customizedPattern*** attribute. |
| Values | ccitt32kBitPattern<br>ccitt8MBitPattern<br>customizedPattern |
| Default | ccitt32kBitPattern |

### ATTRIBUTE Dlep DS1 Chan Test customizedPattern (cp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute allows a customized 32 bit pattern to be defined for use in the test data frames. This attribute is used when the attribute *frmPatternType* is set to ***CustomizedPattern***. Note that a 55 hex pattern is an alternating 1 and 0 pattern. |
| Values | Hex (H.0..H.ffffffff) |
| Units | Hex |
| Default | H.55555555 |

### ATTRIBUTE Dlep DS1 Chan Test dataStartDelay (dsd)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time delay (in seconds) between when the test expects the loop to have been set up, to when the test data actually starts to be transmitted. This attribute is to accommodate some non-standard equipment that requires extra time for setting up a requested loop.<br>This attribute is ignored when the test *type* is set to ***externalLoop***. |
| Values | Decimal (0..1814400) |
| Units | seconds |
| Default | 0 |

### ATTRIBUTE Dlep DS1 Chan Test displayInterval (di)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the interval (in minutes) between which interim test results are to be displayed. Results are displayed at the operator console at which the test was started. When the test *type* is set to ***externalLoop***, this attribute is ignored. There will be no display of results if *displayInterval* is set to 0. This attribute can be changed anytime. |
| Values | Decimal (0..30240) |
| Units | minutes |
| Default | 5 |

### ATTRIBUTE Dlep DS1 Chan Test duration

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the duration for which the test data will be transmitted. In the case of an ***externalLoop***, this is the time that the loop is in effect. Note that *dataStartDelay* does not apply to the ***externalLoop*** test type. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |

Default 1.00

## GROUP Dlep DS1 Chan Test Results (Results)

Properties Operational

Description This group contains all the statistics related attributes of the *Test* component.

## ATTRIBUTE Dlep DS1 Chan Test causeOfTermination

Access Read only

Description This attribute indicates either the status of the test or the cause of the test's termination:

a value of ***neverStarted*** indicates that the test has not yet been started.

a value of ***testRunning*** indicates that the test has been started.

a value of ***stoppedByOperator*** indicates that the operator issued a stop command on a test that was running.

a value of ***testTimeExpired*** indicates that the test ran for the time specified by the test's *duration*.

a value of ***loopCodeSyncFailed*** indicates that the local end failed to synchronize to the loopCode pattern. The local end transmits the loopCode pattern to cause the remote end to apply a loopback, after which the local end should receive the loopCode pattern. The exact pattern used to request loopCode depends on the test *type*. This failure indicates a high rate of transmission errors, or that the remote end has failed to apply the loopback.

a value of ***patternSyncFailed*** indicates that the local end failed to synchronize to the *frmPatternType* test pattern, that should have been looped back at the remote end. This failure indicates a high rate of transmission errors or the absence of a loopback.

a value of ***patternSyncLost*** indicates that the local end gained and then lost synchronization to the returned *frmPatternType* test pattern. This failure indicates a sudden increase in transmission

errors, frame slippage, or the removal of an existing loopback.

a value of ***unknown*** is set when a reason to terminate other than those listed here is encountered.

Note: The *causeOfTermination* attribute values of ***loopCodeSyncFailed***, ***patternSyncFailed*** and ***patternSyncLost*** are supported only on MSA cards. *Test* components located on other cards or under an *Ima* component on an MSA card will never terminate the test under the conditions described by these values.

| | |
|---|---|
| Values | testTimeExpired<br>stoppedByOperator<br>unknown<br>neverStarted<br>testRunning<br>hardwareReconfigured<br>loopCodeSyncFailed<br>patternSyncFailed<br>patternSyncLost |
| Default | neverStarted |

### ATTRIBUTE Dlep DS1 Chan Test bitsTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bits sent during the test period. As long as the line speed of the hardware interface is less than 70 Mbit/s, this counter is not expected to reach the maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Dlep DS1 Chan Test bytesTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes sent during the test period. This counter is not expected to reach its maximum value. |
| Values | Long Integer |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Dlep DS1 Chan Test frmTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames sent during the test period. This counter is not expected to reach its maximum value.<br><br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Dlep DS1 Chan Test bitsRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bits received during the test period. The counter wraps to zero when it exceeds the maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Dlep DS1 Chan Test bytesRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes received during the test period. The counter wraps to zero when it exceeds its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Dlep DS1 Chan Test frmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received during the test period. The counter wraps to zero when it exceeds its maximum value.<br><br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |

| | |
|---|---|
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Dlep DS1 Chan Test erroredFrmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute is not displayed for ATM and MSA32 cards. For ATM cards, the physical layer drops all errored frames at the controller interface. For MSA32 cards, the test does not generate any frame.<br><br>For all other card types, this attribute counts the errored frames received during the test period. The counter wraps to zero when it exceeds its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Dlep DS1 Chan Test bitErrorRate

| | |
|---|---|
| Access | Read only |
| Description | This attribute is not displayed for ATM cards because the physical layer drops all errored frames at the controller interface. For MSA32 cards, this attribute indicates the link bit error rate, regardless of the *frameSize*, which is not supported<br><br>For all other card types, this attribute is the calculated bit error rate on the link. Test data are generated and sent in frames of a preset size (*frameSize*). The *Test* component will try to estimate the number of bit errors in any errored frame which is identifiable. The statistics will be updated accordingly. A lost frame (may be due to an error on the flag sequence) will be discarded for the bit error rate calculation. The result is presented in the form of xEsyy, where x is the mantissa, syy is the exponent, for example 0E+00, 2E-09.<br>Note that the *bitErrorRate* is an estimate only. For more reliable test results, the test should be done over a long period. Multiple tests would also improve the confidence level of the test results. |
| Values | String (5, ASCII) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Dlep DS1 Chan Test elapsedTime

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the time elapsed since the test started for an ***externalLoop*** test. For a data test, it indicates time since test data was first transmitted. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 0.00 |

### ATTRIBUTE Dlep DS1 Chan Test timeRemaining

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the length of time remaining before the test stops according to the *duration* attribute. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 0.00 |

### COMPONENT Dlep DS1 Chan AtmCell (Cell)

| | |
|---|---|
| Groups | "GROUP Dlep DS1 Chan Cell Provisioned (Prov)"<br>"GROUP Dlep DS1 Chan Cell Operational (Oper)"<br>"GROUP Dlep DS1 Chan Cell Statistics (Stats)" |
| Scope | Device |
| Description | The *AtmCell* component contains provisioning and operational attributes. The provisioning attributes are used to set the Loss of Cell Delineation (LCD) alarm activation delay and to turn cell payload scrambling on or off. The operational attributes are used to report about the quality of the ATM cells received by the interface and the cell capacity utilization. The *AtmCell* component appears under all port components running on ATM cards. |

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Dlep DS1 Chan Cell Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioning attributes for the *AtmCell* component. |

## ATTRIBUTE Dlep DS1 Chan Cell alarmActDelay (act)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time during which a Loss of Cell Delineation (LCD) defect should be observed before declaring an LCD alarm (alarm 70115501). When the *Cell* component is provisioned under the *Sonet* or *Sdh* component, this attribute defaults to 500 milliseconds. When it is provisioned under the *Laps* component, the default is 2000 milliseconds. This is necessary to ensure that the services bound to the *Sts* or *Vc4* component are not disrupted during short lived LCD defects caused by a line switchover. Setting this attribute to a lower value when the *Laps* component is provisioned may result in a temporary service outage when a line switchover occurs. |
| Values | Decimal (0..2000) |
| Units | msec |
| Default | No default |

## ATTRIBUTE Dlep DS1 Chan Cell scrambleCellPayload (scramble)

| | |
|---|---|
| Access | Read and write |
| Description | Cell scrambling, as defined by ITU-T Recommendation I.432., can provide a solution to the problem of transmission equipment |

which is sensitive to certain bit patterns in the ATM cell payload. This attribute controls whether or not the cell payload is scrambled.
It defaults to ***off*** for *DS1* interfaces, and ***on*** for all other interfaces.
Note that this setting must be the same at both ends of the link.

Values
off
on

Default
No default

### ATTRIBUTE Dlep DS1 Chan Cell correctSingleBitHeaderErrors

Access
Read and write

Description
This attribute specifies whether the port corrects single bit errors detected in the headers of received cells. If single bit errors are corrected, the affected cells are passed up to the ATM layer according to normal operation. If single bit errors are not corrected, these errored cells are discarded by the physical layer. Note that cells containing multiple bit errors in their headers are always discarded.

Single bit HEC error correction must remain ***off*** for the following card types: 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 2pJ6MAtm, 3pDS3Atm, and 3pE3Atm.

Values
off
on

Default
off

### ATTRIBUTE Dlep DS1 Chan Cell clearDelay (clear)

Access
Read and write

Description
This attribute specifies the minimum elapsed time between the clearing of the Loss of Cell Delineation (LCD) defect and the port returning to service. The LCD defect should be absent for the entire period of elapsed time. This attribute value is specified in minutes. If the value of the *clearDelay* attribute is initially 0 (default), the time is actually about 10 seconds.

This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm.

Values: Decimal (0..60)

Units: minutes

Default: 0

### ATTRIBUTE Dlep DS1 Chan Cell hecSampleInterval (hSample)

Access: Read and write

Description: This attribute specifies the sampling interval (in seconds) for errors associated with the *uncorrectableHeaderErrors* attribute. When the sum of errors counted by the *uncorrectableHeaderErrors* attribute over the interval time is greater than or equal to the provisioned *hecErrorLimit* attribute, the sample interval is considered errored. If the number of consecutive errored intervals reaches the limit established in the *hecErrorIntervalLimit* attribute, an LCD alarm is declared and the port is disabled. If the attribute *hecSampleInterval* is set to the default, 0, then the attribute *uncorrectableHeaderErrors* cannot be used to bring down the port.
This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm.

Values: Decimal (0..25)

Units: seconds

Default: 0

### ATTRIBUTE Dlep DS1 Chan Cell hecErrorLimit (hLimit)

Access: Read and write

Description: This attribute specifies the error threshold for a HEC error sampling interval beyond which a port is brought down. When the value of the *uncorrectableHeaderErrors* attribute accumulated over the provisioned value of the *hecSampleInterval* attribute is greater than or equal to the provisioned value of the *hecErrorLimit* attribute, the sample interval is considered errored. If the number of consecutive errored intervals reaches the limit established in the *hecErrorIntervalLimit* attribute, an LCD alarm

is declared and the port is disabled. (Please note that a *hecErrorInterval* attribute value of 0 (default) disables the mechanism of using the value of the *uncorrectableHeaderErrors* attribute to disable a port.)
This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm.

Values: Decimal (1..250000)

Default: No default

### ATTRIBUTE Dlep DS1 Chan Cell lcdStateDelay (delay)

Access: Read and write

Description: This attribute specifies the time during which an Out of Cell Delineation (OCD) defect should be observed before moving to the Loss of Cell Delineation (LCD) defect state. The time is specified in milliseconds. The valid values are 1 to 50 milliseconds if the *AtmCell c*omponent is located under the *Ds1* or *E1* component, and 1 to 5 milliseconds if under a *Ds3* or *E3* component.
This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm.

Values: Decimal (1..50)

Units: msec

Default: No default

### ATTRIBUTE Dlep DS1 Chan Cell hecErrorIntervalLimit (hIntLimit)

Access: Read and write

Description: This attribute counts the instances of the *hecSamplingInterval* attribute for all HEC errors (specified by the *uncorrectableHeaderError* attribute) before an LCD alarm is generated. The alarm is only generated if the value of the *uncorrectableHeaderErrors* attribute in a given interval is greater than the value of the *hecErrorLimit* attribute. For example, if there are 20 HEC errors in 5 seconds, for three times in a row (the number of times in a row is represented by this attribute), an alarm is raised. If there are 24 HEC errors in the 5 seconds, and 14 in the next 5 seconds no alarm is generated because the

number of HEC errors should also be more than 20 in the next instances.
This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm.

Values: Decimal (1..25)

Default: 1

## GROUP Dlep DS1 Chan Cell Operational (Oper)

Properties: Operational

Description: This group contains the common operational attributes for the *AtmCell* component.

## ATTRIBUTE Dlep DS1 Chan Cell lcdAlarm (lcd)

Access: Read only

Description: This attribute displays whether the Loss of Cell Delineation (LCD) failure alarm state has been entered. This state is entered when LCD defects have been observed and accumulated for a period of time specified through the *alarmActDelay* attribute.
In ATM cell direct mapping mode, an LCD defect occurs when Out of Cell Delineation (OCD) anomaly persists for *x* milliseconds, and disappears when the Out of Cell Delineation (OCD) is absent for *x* msec. An OCD anomaly occurs when 7 consecutive incorrect HECs have been detected. An OCD anomaly terminates when 6 consecutive correct HECs have been detected.
For an *AtmCell* component located under a *DS3* or *E3* component with *mapping* = ***PLCP***, the LCD defect is directly derived from the PLCP LOF defect.
If LCD defects are intermittently occurring, the LCD defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle
The component under which is located the *AtmCell* component goes into an operational state of ***disabled*** until the LCD alarm condition is cleared. The condition is cleared after the LCD defect has not been reported for a period of 10 seconds +/- 0.5 seconds.
The *lcdAlarm* attribute is always set to off when the parent of the

*AtmCell* component has been *locked* and left *offline*. This can also happen when the *Path* or *Channel* component has been suspended since its parent has been locked.

Values
on
off

Default
off

## GROUP Dlep DS1 Chan Cell Statistics (Stats)

Properties
Operational

Description
This group contains the statistics attribute for the *AtmCell* component. Each attribute type is a non-negative integer which monotonically increases until it reaches a maximum value, at which point it wraps around and starts increasing again from zero.

## ATTRIBUTE Dlep DS1 Chan Cell uncorrectableHeaderErrors (ucErr)

Access
Read only

Description
This attribute indicates the number of uncorrectable ATM cell header errors that have been detected. Counting of *uncorrectableHeaderErrors* is inhibited when an Out of Cell Delineation (OCD) defect is present. An OCD defect occurs when seven consecutive incorrect HECs have been detected. An OCD defect terminates when six consecutive correct HECs have been detected.

Values
Decimal (0..4294967295)

Default
0

## ATTRIBUTE Dlep DS1 Chan Cell sevErroredSec (ses)

Access
Read only

Description
This attribute indicates the total number of ATM Cell Severely Errored Seconds (SESs) that have been counted.

In direct mapping mode, an ATM Cell SES is declared for second intervals containing one or more Out of Cell Delineation (OCD) defects. An OCD defect occurs when seven consecutive incorrect

HECs have been detected. An OCD defect terminates when six consecutive correct HECs have been detected.

If the *AtmCell* component is located under a *Ds3* or *E3* component where the *mapping* attribute is set to ***plcp***, an ATM Cell SES is declared for second intervals containing one or more PLCP LOF defects.

Counting of *uncorrectableHeaderErrors* (*ucErr*) and *correctableHeaderErrors* (*cErr*) is inhibited when the OCD defect is present.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE Dlep DS1 Chan Cell receiveCellUtilization (rxutil)

Access: Read only

Description: This attribute is the ratio of the number of valid, assigned cells received on the link to the nominal link capacity. The utilization is calculated over a period of one minute.
This attribute is always set to ***0*** when the parent of the *AtmCell* component has been *locked* and left *offline.* This can also happen when the *Path* or *Channel* component has been *suspended* since its parent has been *locked*.

Values: Decimal (0..100)

Units: %

Default: 0

### ATTRIBUTE Dlep DS1 Chan Cell transmitCellUtilization (txutil)

Access: Read only

Description: This attribute is the ratio of the number of valid, assigned cells transmitted on the link to the nominal link capacity. The utilization is calculated over a period of one minute.
This attribute is always set to ***0*** when the parent of the *AtmCell* component has been *locked* and left *offline*. This can also happen when the *Path* or *Channel* component has been *suspended* since its parent has been *locked*.

| | |
|---|---|
| Values | Decimal (0..100) |
| Units | % |
| Default | 0 |

### ATTRIBUTE Dlep DS1 Chan Cell correctableHeaderErrors (cErr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of correctable ATM cell header errors that have been detected and corrected. Counting of *correctableHeaderErrors* is inhibited when an Out of Cell Delineation (OCD) defect is present. An OCD defect occurs when seven consecutive incorrect HECs have been detected. An OCD defect terminates when six consecutive correct HECs have been detected |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT Dlep DS1 Chan TrunkConditioning (Tc)

| | |
|---|---|
| Groups | "GROUP Dlep DS1 Chan Tc Provisioned (Prov)"<br>"GROUP Dlep DS1 Chan Tc Operational (Op)" |
| Scope | Device |
| Description | *Lp/n Ds1/n Chan/n Tc*<br>*Lp/n E1/n Chan/n Tc*<br>*Lp/n Ds3/n Ds1/n Chan/n Tc*<br>*Lp/n Sdh/n Vc4/n Vc12/k,l,m E1 Chan/n Tc*<br>*Lp/n Sonet/n Sts/n Vt1dot5/l,m Ds1 Chan/n Tc*<br>*Laps/n* Vc4/n Vc12/k,l,m E1 Chan/n T*c*<br>*Laps/n* Sts/n Vt1dot5/l,m Ds1 Chan/n T*c*<br><br>The *Tc* component is used to provision and monitor trunk conditioning options. A separate instance of this component is required for each *Chan* on a Port which is offering a structured constant bit rate service.<br><br>Under certain failure alarm conditions, trunk conditioning *replacementData* is substituted into the *timeslots* as defined by the *Chan* component. Trunk conditioning signaling is also |

substituted into the appropriate Channel Associated Signaling (CAS) bits when a *lineType* that uses CAS has been defined.

When used with AAL1 Circuit Emulation Service, trunk conditioning is transmitted towards the ATM network under the following conditions:
lossOfSignal (LOS)
lossOfFrame (LOF)
remoteAlarmIndication (RAI)
alarmIndicationSignal (AIS)
bufferUnderflow (BU)
and in addition for E1:
lossOfMultiframe (LOMF)
receiveMultiframeRemoteAlarmIndication (RMRAI)

When used with AAL1 Circuit Emulation Service, trunk conditioning is transmitted towards the PDH network under the following conditions:
bufferUnderflow (BU)
AAL1 protocol errors.

This component needs to be provisioned on 2pDs3cAal and 32pE1Aal FPs.

Common Verbs

Help
List
Display
Add
DELete

## GROUP Dlep DS1 Chan Tc Provisioned (Prov)

Properties: Provisioned

Description: This group contains all specific provisioning data for a *Tc* component.

## ATTRIBUTE Dlep DS1 Chan Tc replacementData (data)

Access: Read and write

| | |
|---|---|
| Description | This attribute specifies the trunk conditioning data byte to be substituted into the *timeslots* defined by the *Chan* component under fault conditions.<br><br>The attribute *replacementData* can be set to any two digit hexadecimal number. The following are recommended values:<br>DS1 MUX Out Of Service Code = 0x1A<br>E1 MUX Out Of Service Code = 0xFF<br><br>On the ***4pDS3ChAal1*** card, the only allowed value for this attribute is ***0xFF***.<br><br>On the ***4pOC3ChSmIr*** and ***2pOC3ChSmIrVsp3*** cards, the default value for this attribute is ***0x1A*** for DS1 and ***0xFF*** for E1. On all other cards the default value is ***0xFF***. |
| Values | Hex (H.0..H.ff) |
| Units | Hex |
| Default | No default |

### ATTRIBUTE Dlep DS1 Chan Tc signalOneDuration (duration)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time duration in seconds for which *signalOne* is substituted into the appropriate signaling bits, when a *lineType* that uses CAS has been defined. When *signalOneDuration* has expired *signalTwo* is substituted into the appropriate signaling bits.<br><br>If *signalOneDuration* is set to zero then only *signalTwo* is substituted into the appropriate signaling bits during error conditions.<br><br>The *signalOneDuration* attribute can be set to any integer value from 0 to 60 seconds. |
| Values | Decimal (0..60) |
| Units | seconds |
| Default | 0 |

## ATTRIBUTE Dlep DS1 Chan Tc noServiceResponse (resp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the Channel's egress response when it has no service provisioned, or the service provisioned is unavailable due to a near end failure. The following responses are available:<br><br>***autoConfigure*** - automatically configure the channels response.<br>***tc*** - transmit trunk conditioning on all timeslots provisioned in the egress direction.<br>***ais*** - transmit AIS in the egress direction.<br>***noResponse*** - no response is sent in the egress direction.<br><br>A value of ***autoConfigure*** will result in TC being transmitted for all card types. |
| Values | autoConfigure<br>tc<br>ais<br>noResponse |
| Default | autoConfigure |

## ATTRIBUTE Dlep DS1 Chan Tc signalOne (sigOne)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the value to be substituted into the ABCD signaling bits for the *timeslots* defined by the *Chan* component under fault conditions. The value will be substituted for the duration provisioned in *signalOneDuration* when a *lineType* that uses CAS has been defined.<br><br>For a *lineType* of ***d4Cas*** (Super Frame), signaling bits C and D are required to equal bits A and B respectively. |
| Vector of | Decimal (0..1) |
| Index | D<br>C<br>B<br>A |

| | |
|---|---|
| Default | (1, 1, 1, 1) |

### ATTRIBUTE Dlep DS1 Chan Tc signalTwo (sigTwo)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the value to be substituted into the ABCD signaling bits for the *timeslots* defined by the *Chan* component under fault conditions. The value will be substituted after the duration provisioned in *signalOneDuration* has expired and when a *lineType* that uses CAS has been defined.<br><br>For a *lineType* of ***d4Cas*** (Super Frame), signaling bits C and D are required to equal bits A and B respectively. |
| Vector of | Decimal (0..1) |
| Index | D<br>C<br>B<br>A |
| Default | (1, 1, 1, 1) |

### GROUP Dlep DS1 Chan Tc Operational (Op)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all specific operational data for a *Tc* component. |

### ATTRIBUTE Dlep DS1 Chan Tc ingressConditioning (inCon)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the status of locally generated trunk conditioning towards the ATM network.<br><br>When trunk conditioning is being locally generated towards the ATM network, *ingressConditioning* is set to ***on.***<br><br>When trunk conditioning is not being locally generated towards the ATM network, *ingressConditioning* is set to ***off***.<br><br>Trunk conditioning is transmitted towards the ATM network |

under the following conditions:
lossOfSignal (LOS)
lossOfFrame (LOF)
remoteAlarmIndication (RAI)
alarmIndicationSignal (AIS)
bufferUnderflow (BU)
and in addition for E1:
lossOfMultiframe (LOMF)
receiveMultiframeRemoteAlarmIndication (RMRAI)

Values
off
on

Default
off

### ATTRIBUTE Dlep DS1 Chan Tc egressConditioning (egCon)

Access
Read only

Description
This attribute indicates the status of locally generated trunk conditioning towards the PDH line.

When trunk conditioning is being locally generated towards the PDH line, *egressConditioning* is set to ***on.***

When trunk conditioning is not being locally generated towards the PDH line, *egressConditioning* is set to ***off***.

Trunk conditioning is transmitted towards the PDH line under the following conditions:
bufferUnderflow (BU)
AAL1 protocol errors.

Values
off
on

Default
off

### COMPONENT Dlep DS1 Test (Test)

Groups
"GROUP Dlep DS1 Test OsiState (State)"
"GROUP Dlep DS1 Test Setup (Setup)"
"GROUP Dlep DS1 Test Results (Results)"

| | |
|---|---|
| Scope | Application |
| Description | The *Test* component is configured to control a hardware facility test on a physical (*V35*, *X21*, *DS1*, *E1*, *DS3*, *E3* etc.) or a logical port. |
| Common Verbs | Help<br>List<br>Display |

### VERB START Dlep DS1 Test

| | |
|---|---|
| Impact | Service |
| Description | This command invokes a test on the hardware component. Note that some test types requires the parent component (the hardware component) to be locked (using the *Lock* command) before a test can be started. |

### VERB STOP Dlep DS1 Test

| | |
|---|---|
| Impact | Service |
| Description | This command stops a test running on the hardware component. |

### GROUP Dlep DS1 Test OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Dlep DS1 Test adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively |

prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Dlep DS1 Test operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Dlep DS1 Test usageState (osiUsage)

Access
Read only

| | |
|---|---|
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Dlep DS1 Test Setup (Setup)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all of the operational data for a *Test* component. |

### ATTRIBUTE Dlep DS1 Test purpose (purpose)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute records the purpose of the test so that the test results can be associated and properly analyzed. |
| Values | String (0..40, ASCII) |
| Default | No default |

### ATTRIBUTE Dlep DS1 Test type (type)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the type of test to be run. The available test types include the following:<br>***card*** test sets up an internal loop on the board and runs a bit error rate test.<br>***manual*** test assumes the line is looped back externally and a bit error rate test is performed. |

***localLoop*** test loops back the local modem and performs a bit error rate test.
***remoteLoop*** test loops back the remote modem (or CSU) and performs a bit error rate test.
***externalLoop*** test loops back the line to the far end.
***payloadLoop*** test only loops back the payload data received from the incoming line.
***remoteLoopThisTrib*** loops this particular tributary back at the far end, using services provided by the parent.
***v54RemoteLoop*** initiates a V.54 Remote Loopback test.
***pn127RemoteLoop*** initiates a PN127 Remote Loopback test.
***lineBIP8Error*** tests line BIP 8 error generation and detection (B2 byte inverted).
***sectionBIP8Error*** tests section BIP 8 error generation and detection (B1 byte inverted).
***pathBIP8Error*** tests path BIP 8 error generation and detection (B3 byte inverted).
***pathBIP2Error*** tests path BIP 2 error generation and detection (bit 1-2 of V5 byte inverted).
Note that not all test types are not supported by all function processors.

Values

card
manual
localLoop
remoteLoop
externalLoop
payloadLoop
remoteLoopThisTrib
v54RemoteLoop
pn127RemoteLoop
lineBIP8Error
sectionBIP8Error
pathBIP8Error
pathBIP2Error

Default

card

### ATTRIBUTE Dlep DS1 Test frmSize (size)

Access

Read and write

| | |
|---|---|
| Description | This attribute defines the size of the test data frames in number of bytes.<br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |
| Values | Decimal (4..4096) |
| Units | bytes |
| Default | 1024 |

### ATTRIBUTE Dlep DS1 Test frmPatternType (fpt)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the type of data pattern generation to use. The following lists the available pattern types:<br>***ccitt32kBitPattern*** is a pseudo-random sequence of 32 kbit.<br>***ccitt8MBitPattern*** is a pseudo-random sequence of 8Mbit.<br>***customizedPattern*** is the pattern defined in the ***customizedPattern*** attribute. |
| Values | ccitt32kBitPattern<br>ccitt8MBitPattern<br>customizedPattern |
| Default | ccitt32kBitPattern |

### ATTRIBUTE Dlep DS1 Test customizedPattern (cp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute allows a customized 32 bit pattern to be defined for use in the test data frames. This attribute is used when the attribute *frmPatternType* is set to ***CustomizedPattern***. Note that a 55 hex pattern is an alternating 1 and 0 pattern. |
| Values | Hex (H.0..H.ffffffff) |
| Units | Hex |
| Default | H.55555555 |

### ATTRIBUTE Dlep DS1 Test dataStartDelay (dsd)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute specifies the time delay (in seconds) between when the test expects the loop to have been set up, to when the test data actually starts to be transmitted. This attribute is to accommodate some non-standard equipment that requires extra time for setting up a requested loop.<br>This attribute is ignored when the test *type* is set to ***externalLoop***. |
| Values | Decimal (0..1814400) |
| Units | seconds |
| Default | 0 |

### ATTRIBUTE Dlep DS1 Test displayInterval (di)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the interval (in minutes) between which interim test results are to be displayed. Results are displayed at the operator console at which the test was started. When the test *type* is set to ***externalLoop***, this attribute is ignored. There will be no display of results if *displayInterval* is set to 0. This attribute can be changed anytime. |
| Values | Decimal (0..30240) |
| Units | minutes |
| Default | 5 |

### ATTRIBUTE Dlep DS1 Test duration

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the duration for which the test data will be transmitted. In the case of an ***externalLoop***, this is the time that the loop is in effect. Note that *dataStartDelay* does not apply to the ***externalLoop*** test type. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 1.00 |

## GROUP Dlep DS1 Test Results (Results)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all the statistics related attributes of the *Test* component. |

## ATTRIBUTE Dlep DS1 Test causeOfTermination

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates either the status of the test or the cause of the test's termination:<br><br>a value of ***neverStarted*** indicates that the test has not yet been started.<br><br>a value of ***testRunning*** indicates that the test has been started.<br><br>a value of ***stoppedByOperator*** indicates that the operator issued a stop command on a test that was running.<br><br>a value of ***testTimeExpired*** indicates that the test ran for the time specified by the test's *duration*.<br><br>a value of ***loopCodeSyncFailed*** indicates that the local end failed to synchronize to the loopCode pattern. The local end transmits the loopCode pattern to cause the remote end to apply a loopback, after which the local end should receive the loopCode pattern. The exact pattern used to request loopCode depends on the test *type*. This failure indicates a high rate of transmission errors, or that the remote end has failed to apply the loopback.<br><br>a value of ***patternSyncFailed*** indicates that the local end failed to synchronize to the *frmPatternType* test pattern, that should have been looped back at the remote end. This failure indicates a high rate of transmission errors or the absence of a loopback.<br><br>a value of ***patternSyncLost*** indicates that the local end gained and then lost synchronization to the returned *frmPatternType* test pattern. This failure indicates a sudden increase in transmission errors, frame slippage, or the removal of an existing loopback. |

a value of ***unknown*** is set when a reason to terminate other than those listed here is encountered.

Note: The *causeOfTermination* attribute values of ***loopCodeSyncFailed***, ***patternSyncFailed*** and ***patternSyncLost*** are supported only on MSA cards. *Test* components located on other cards or under an *Ima* component on an MSA card will never terminate the test under the conditions described by these values.

Values
testTimeExpired
stoppedByOperator
unknown
neverStarted
testRunning
hardwareReconfigured
loopCodeSyncFailed
patternSyncFailed
patternSyncLost

Default
neverStarted

### ATTRIBUTE Dlep DS1 Test bitsTx

Access
Read only

Description
This attribute counts the bits sent during the test period. As long as the line speed of the hardware interface is less than 70 Mbit/s, this counter is not expected to reach the maximum value.

Values
Long Integer

Default
No default

### ATTRIBUTE Dlep DS1 Test bytesTx

Access
Read only

Description
This attribute counts the bytes sent during the test period. This counter is not expected to reach its maximum value.

Values
Long Integer

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Dlep DS1 Test frmTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames sent during the test period. This counter is not expected to reach its maximum value.<br><br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Dlep DS1 Test bitsRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bits received during the test period. The counter wraps to zero when it exceeds the maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Dlep DS1 Test bytesRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes received during the test period. The counter wraps to zero when it exceeds its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Dlep DS1 Test frmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received during the test period. The counter wraps to zero when it exceeds its maximum value.<br><br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |

| | |
|---|---|
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Dlep DS1 Test erroredFrmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute is not displayed for ATM and MSA32 cards. For ATM cards, the physical layer drops all errored frames at the controller interface. For MSA32 cards, the test does not generate any frame.<br><br>For all other card types, this attribute counts the errored frames received during the test period. The counter wraps to zero when it exceeds its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Dlep DS1 Test bitErrorRate

| | |
|---|---|
| Access | Read only |
| Description | This attribute is not displayed for ATM cards because the physical layer drops all errored frames at the controller interface. For MSA32 cards, this attribute indicates the link bit error rate, regardless of the *frameSize*, which is not supported<br><br>For all other card types, this attribute is the calculated bit error rate on the link. Test data are generated and sent in frames of a preset size (*frameSize*). The *Test* component will try to estimate the number of bit errors in any errored frame which is identifiable. The statistics will be updated accordingly. A lost frame (may be due to an error on the flag sequence) will be discarded for the bit error rate calculation. The result is presented in the form of xEsyy, where x is the mantissa, syy is the exponent, for example 0E+00, 2E-09.<br>Note that the *bitErrorRate* is an estimate only. For more reliable test results, the test should be done over a long period. Multiple tests would also improve the confidence level of the test results. |
| Values | String (5, ASCII) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Dlep DS1 Test elapsedTime

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the time elapsed since the test started for an ***externalLoop*** test. For a data test, it indicates time since test data was first transmitted. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 0.00 |

### ATTRIBUTE Dlep DS1 Test timeRemaining

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the length of time remaining before the test stops according to the *duration* attribute. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 0.00 |

### COMPONENT Dlep DS1 Dsp

| | |
|---|---|
| Scope | Device |
| Description | *LogicalProcessor/n Ds1/0 Dsp*<br>The *Dsp* component presents the status of the Digital Signal Processors (DSPs) present on a voice card.<br>A voice card's *Dsp* component is created automatically whenever the parent DS1 component becomes active, and remains in existence as long as the card remains operational. *Dsp* components cannot be added or deleted. |
| Common Verbs | Help<br>List<br>Display |

## COMPONENT Dlep DS1 Audio

| | |
|---|---|
| Scope | Device |
| Description | *LogicalProcessor/n Ds1/0 Audio*<br>The Audio component presents the audio status of all timeslots on a given DS1.<br>A voice card's *Audio* component is created automatically whenever the parent DS1 component becomes active, and remains in existence as long as the card remains operational.<br>*Audio* components cannot be added or deleted. |
| Common Verbs | Help<br>List<br>Display |

## COMPONENT Dlep VoiceServicesProcessor (Vsp)

| | |
|---|---|
| Groups | "GROUP Dlep Vsp Provisioned (Op)"<br>"GROUP Dlep Vsp OsiState (State)" |
| Scope | Device |
| Description | *Lp/n VoiceServicesProcessor*<br>*Dlep/n VoiceServicesProcessor*<br><br>This component represents a Voice Services Processor FP.<br><br>When added, *PModule* subcomponents are added automatically.<br>For the ***12mVspAal*** and ***Vsp2*** cards, 12 *PModule* instances are added.<br>For the ***2pGeMmSrVsp3*** card, 24 *PModule* instances are added.<br>For the ***2pOc3ChSmIrVsp3*** card, 23 *PModule* instances are added. |

| | |
|---|---|
| Subcomponents | "COMPONENT Dlep Vsp ProcessingModule (PModule)" |
| Opt. Subcomp. | "COMPONENT Dlep Vsp Ethernet1000BaseSX (GigE)" |
| Dyn. Subcomp. | "COMPONENT Dlep Vsp Test (Test)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

### GROUP Dlep Vsp Provisioned (Op)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisioning data for the *Vsp* Component. |

### ATTRIBUTE Dlep Vsp linkToApplication (lta)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies a service link to an *Nsta* component that defines the application services available in the VSP card. |
| Values | Link (Service, linkToServer) |
| Default | No default |

### GROUP Dlep Vsp OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component |

which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Dlep Vsp adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Dlep Vsp operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the |

component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Dlep Vsp usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### COMPONENT Dlep Vsp ProcessingModule (PModule)

Instance
Decimal (1..24)

Groups
"GROUP Dlep Vsp PModule Provisioned (Prov)"
"GROUP Dlep Vsp PModule OsiState (State)"
"GROUP Dlep Vsp PModule Operational (Oper)"

Scope
Device

Description
*Lp/n Vsp ProcessingModule/n*
*Dlep/n Vsp ProcessingModule/n*

A *ProcessingModule* (*PModule*) component instance represents a distinct physical processing module on a Voice Services Processor (VSP) FP.

Each *PModule* instance is uniquely identified by a number that corresponds to a specific physical location on the VSP FP.

Dyn. Subcomp. "COMPONENT Dlep Vsp PModule ProcessingBlock (PBlock)"

Common Verbs

Help
List
Display
Add
DELete

## GROUP Dlep Vsp PModule Provisioned (Prov)

Properties Provisioned

Description This group contains provisioning data for a *ProcessingModule*.

## ATTRIBUTE Dlep Vsp PModule moduleType (modType)

Access Read and write

Criticality Process

Description This attribute specifies the type of processing module expected for this *ProcessingModule* instance.

A value of ***vpm*** refers to a processing module instance that is capable of processing voice, voiceband data, and data.
A value of ***spm*** refers to a processing module instance that is capable of processing signaling, and hosting a media or signaling gateway.
A value of ***none*** refers to a processing module instance that is unavailable for use.

Values

none
vpm
spm

Default none

## GROUP Dlep Vsp PModule OsiState (State)

Properties Operational

Description

This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

## ATTRIBUTE Dlep Vsp PModule adminState (osiAdmin)

Access

Read only

Description

This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values

locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default

unlocked

## ATTRIBUTE Dlep Vsp PModule operationalState (osiOper)

Access

Read only

Description

This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be

providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Dlep Vsp PModule usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Dlep Vsp PModule Operational (Oper)

Properties
Operational

Description
This group indicates operational information for a *ProcessingModule*.

### ATTRIBUTE Dlep Vsp PModule insertedModuleType (insModType)

Access
Read only

| | |
|---|---|
| Description | This attribute indicates the type of processing module currently present in the physical position on a Voice Services Processor FP.<br><br>A value of ***vpm*** indicates the presence of a processing module capable of processing voice, voiceband data, and data.<br>A value of ***spm*** indicates the presence of a processing module capable of processing signaling, and hosting a media or signaling gateway.<br>A value of ***none*** indicates that no processing module is present.<br>A value of ***unknown*** indicates the presence of a processing module with capabilities not known by the software. |
| Values | none<br>unknown<br>vpm<br>spm |
| Default | No default |

### ATTRIBUTE Dlep Vsp PModule productCode (prc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the product engineering code and release of the *ProcessingModule*. |
| Values | String (0..12, ASCII) |
| Default | No default |

### ATTRIBUTE Dlep Vsp PModule failureCause (failCause)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the reason why the physical processing module has failed.<br>The various failure causes are:<br>***none*** - There is no failure.<br>***cannotLoadFirmware*** - A module has been detected, but the firmware load operation failed.<br>***failedDiagnostics*** - The diagnostics cycle has completed and an error has been detected within the module.<br>***mismatched*** - The *insertedModuleType* of the *PModule* does not match its provisioned *moduleType*. |

***connectivityFailed*** - The test cycle has run and an error has been detected on one of the *PBlock*s within the *PModule*.
***notResponding*** - One of the *PBlock*s within the *PModule* is not responding.

Values
none
cannotLoadFirmware
failedDiagnostics
mismatched
connectivityFailed
notResponding

Default
none

## COMPONENT Dlep Vsp PModule ProcessingBlock (PBlock)

Instance
Decimal (1..2)

Groups
"GROUP Dlep Vsp PModule PBlock Operational (Oper)"
"GROUP Dlep Vsp PModule PBlock Utilization (Util)"

Scope
Device

Description
*Lp/n Vsp PModule/n ProcessingBlock/n*
*Dlep/n Vsp PModule/n ProcessingBlock/n*

This dynamic component represents a block of Data Processors within a *ProcessingModule*.

The Processing Block is the smallest unit on the Voice Services Processor (VSP) FP on which different Data Processing software algorithms may be executed, or on which diagnostics may be performed.

Common Verbs
Help
List
Display

## GROUP Dlep Vsp PModule PBlock Operational (Oper)

Properties
Operational

| | |
|---|---|
| Description | This group contains status information about the *ProcessingBlock* component. |

### ATTRIBUTE Dlep Vsp PModule PBlock serviceList (servList)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the components that have resources allocated on this *ProcessingBlock* component.<br><br>This attribute is not displayed if the *Shelf Card cardType* attribute is set to ***2pOc3ChSmIrVsp3***. |
| List of | The name of the component |
| Default | No default |

### GROUP Dlep Vsp PModule PBlock Utilization (Util)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains information about processing utilization of this *PBlock* component.<br><br>This group is filtered if the *modType* attribute of the parent *PModule* component is not set to ***spm***, or on the ***12mVspAal*** card. |

### ATTRIBUTE Dlep Vsp PModule PBlock timeInterval

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the time period for which the average, minimum, and maximum utilization values are calculated.<br><br>If the associated *Vsp* component is locked this attribute will be reset to ***0***.<br><br>This attribute is reset to ***0*** every 15 minutes. |
| Values | Decimal (0..14) |
| Units | minutes |
| Default | No default |

### ATTRIBUTE Dlep Vsp PModule PBlock cpuUtil

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the approximate processing utilization of this *PBlock* component. |
| Values | Decimal (0..100) |
| Units | % |
| Default | No default |

### ATTRIBUTE Dlep Vsp PModule PBlock cpuUtilAvg

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates average processing utilization of this *PBlock* component over the time period indicated in the *timeInterval* attribute. |
| Values | Decimal (0..100) |
| Units | % |
| Default | No default |

### ATTRIBUTE Dlep Vsp PModule PBlock cpuUtilAvgMin

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the minimum average processing utilization of this *PBlock* component over the time period indicated in the *timeInterval* attribute. |
| Values | Decimal (0..100) |
| Units | % |
| Default | No default |

### ATTRIBUTE Dlep Vsp PModule PBlock cpuUtilAvgMax

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the maximum average processing utilization of this *PBlock* component over the time period indicated in the *timeInterval* attribute. |

| | |
|---|---|
| Values | Decimal (0..100) |
| Units | % |
| Default | No default |

## COMPONENT Dlep Vsp Test (Test)

| | |
|---|---|
| Groups | "GROUP Dlep Vsp Test OsiState (State)"<br>"GROUP Dlep Vsp Test Setup (Setup)"<br>"GROUP Dlep Vsp Test Results (Results)" |
| Scope | Application |
| Description | The *Test* component is configured to control a hardware facility test on a physical (*V35*, *X21*, *DS1*, *E1*, *DS3*, *E3* etc.) or a logical port. |
| Common Verbs | Help<br>List<br>Display |

## VERB START Dlep Vsp Test

| | |
|---|---|
| Impact | Service |
| Description | This command invokes a test on the hardware component. Note that some test types requires the parent component (the hardware component) to be locked (using the *Lock* command) before a test can be started. |

## VERB STOP Dlep Vsp Test

| | |
|---|---|
| Impact | Service |
| Description | This command stops a test running on the hardware component. |

## GROUP Dlep Vsp Test OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component |

which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Dlep Vsp Test adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Dlep Vsp Test operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the |

component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Dlep Vsp Test usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Dlep Vsp Test Setup (Setup)

Properties
Operational

Description
This group contains all of the operational data for a *Test* component.

### ATTRIBUTE Dlep Vsp Test purpose (purpose)

Access
Read and write

Description
This attribute records the purpose of the test so that the test results can be associated and properly analyzed.

Values
String (0..40, ASCII)

Default
No default

## ATTRIBUTE Dlep Vsp Test type (type)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the type of test to be run. The available test types include the following:<br>***card*** test sets up an internal loop on the board and runs a bit error rate test.<br>***manual*** test assumes the line is looped back externally and a bit error rate test is performed.<br>***localLoop*** test loops back the local modem and performs a bit error rate test.<br>***remoteLoop*** test loops back the remote modem (or CSU) and performs a bit error rate test.<br>***externalLoop*** test loops back the line to the far end.<br>***payloadLoop*** test only loops back the payload data received from the incoming line.<br>***remoteLoopThisTrib*** loops this particular tributary back at the far end, using services provided by the parent.<br>***v54RemoteLoop*** initiates a V.54 Remote Loopback test.<br>***pn127RemoteLoop*** initiates a PN127 Remote Loopback test.<br>***lineBIP8Error*** tests line BIP 8 error generation and detection (B2 byte inverted).<br>***sectionBIP8Error*** tests section BIP 8 error generation and detection (B1 byte inverted).<br>***pathBIP8Error*** tests path BIP 8 error generation and detection (B3 byte inverted).<br>***pathBIP2Error*** tests path BIP 2 error generation and detection (bit 1-2 of V5 byte inverted).<br>Note that not all test types are not supported by all function processors. |
| Values | card<br>manual<br>localLoop<br>remoteLoop<br>externalLoop<br>payloadLoop<br>remoteLoopThisTrib<br>v54RemoteLoop<br>pn127RemoteLoop<br>lineBIP8Error |

| | |
|---|---|
| | sectionBIP8Error<br>pathBIP8Error<br>pathBIP2Error |
| Default | card |

### ATTRIBUTE Dlep Vsp Test frmSize (size)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the size of the test data frames in number of bytes.<br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |
| Values | Decimal (4..4096) |
| Units | bytes |
| Default | 1024 |

### ATTRIBUTE Dlep Vsp Test frmPatternType (fpt)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the type of data pattern generation to use. The following lists the available pattern types:<br>***ccitt32kBitPattern*** is a pseudo-random sequence of 32 kbit.<br>***ccitt8MBitPattern*** is a pseudo-random sequence of 8Mbit.<br>***customizedPattern*** is the pattern defined in the ***customizedPattern*** attribute. |
| Values | ccitt32kBitPattern<br>ccitt8MBitPattern<br>customizedPattern |
| Default | ccitt32kBitPattern |

### ATTRIBUTE Dlep Vsp Test customizedPattern (cp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute allows a customized 32 bit pattern to be defined for use in the test data frames. This attribute is used when the attribute *frmPatternType* is set to ***CustomizedPattern***. Note that a 55 hex pattern is an alternating 1 and 0 pattern. |

| | |
|---|---|
| Values | Hex (H.0..H.ffffffff) |
| Units | Hex |
| Default | H.55555555 |

### ATTRIBUTE Dlep Vsp Test dataStartDelay (dsd)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time delay (in seconds) between when the test expects the loop to have been set up, to when the test data actually starts to be transmitted. This attribute is to accommodate some non-standard equipment that requires extra time for setting up a requested loop.<br>This attribute is ignored when the test *type* is set to ***externalLoop***. |
| Values | Decimal (0..1814400) |
| Units | seconds |
| Default | 0 |

### ATTRIBUTE Dlep Vsp Test displayInterval (di)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the interval (in minutes) between which interim test results are to be displayed. Results are displayed at the operator console at which the test was started. When the test *type* is set to ***externalLoop***, this attribute is ignored. There will be no display of results if *displayInterval* is set to 0. This attribute can be changed anytime. |
| Values | Decimal (0..30240) |
| Units | minutes |
| Default | 5 |

### ATTRIBUTE Dlep Vsp Test duration

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the duration for which the test data will be transmitted. In the case of an ***externalLoop***, this is the time that |

the loop is in effect. Note that *dataStartDelay* does not apply to the ***externalLoop*** test type.

Values: Decimal (0.00..30240.00)

Units: minutes

Default: 1.00

## GROUP Dlep Vsp Test Results (Results)

Properties: Operational

Description: This group contains all the statistics related attributes of the *Test* component.

## ATTRIBUTE Dlep Vsp Test causeOfTermination

Access: Read only

Description: This attribute indicates either the status of the test or the cause of the test's termination:

a value of ***neverStarted*** indicates that the test has not yet been started.

a value of ***testRunning*** indicates that the test has been started.

a value of ***stoppedByOperator*** indicates that the operator issued a stop command on a test that was running.

a value of ***testTimeExpired*** indicates that the test ran for the time specified by the test's *duration*.

a value of ***loopCodeSyncFailed*** indicates that the local end failed to synchronize to the loopCode pattern. The local end transmits the loopCode pattern to cause the remote end to apply a loopback, after which the local end should receive the loopCode pattern. The exact pattern used to request loopCode depends on the test *type*. This failure indicates a high rate of transmission errors, or that the remote end has failed to apply the loopback.

a value of ***patternSyncFailed*** indicates that the local end failed to synchronize to the *frmPatternType* test pattern, that should have

been looped back at the remote end. This failure indicates a high rate of transmission errors or the absence of a loopback.

a value of ***patternSyncLost*** indicates that the local end gained and then lost synchronization to the returned *frmPatternType* test pattern. This failure indicates a sudden increase in transmission errors, frame slippage, or the removal of an existing loopback.

a value of ***unknown*** is set when a reason to terminate other than those listed here is encountered.

Note: The *causeOfTermination* attribute values of ***loopCodeSyncFailed***, ***patternSyncFailed*** and ***patternSyncLost*** are supported only on MSA cards. *Test* components located on other cards or under an *Ima* component on an MSA card will never terminate the test under the conditions described by these values.

| | |
|---|---|
| Values | testTimeExpired<br>stoppedByOperator<br>unknown<br>neverStarted<br>testRunning<br>hardwareReconfigured<br>loopCodeSyncFailed<br>patternSyncFailed<br>patternSyncLost |
| Default | neverStarted |

### ATTRIBUTE Dlep Vsp Test bitsTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bits sent during the test period. As long as the line speed of the hardware interface is less than 70 Mbit/s, this counter is not expected to reach the maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Dlep Vsp Test bytesTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes sent during the test period. This counter is not expected to reach its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Dlep Vsp Test frmTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames sent during the test period. This counter is not expected to reach its maximum value.<br><br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Dlep Vsp Test bitsRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bits received during the test period. The counter wraps to zero when it exceeds the maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Dlep Vsp Test bytesRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes received during the test period. The counter wraps to zero when it exceeds its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Dlep Vsp Test frmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received during the test period. The counter wraps to zero when it exceeds its maximum value.<br><br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Dlep Vsp Test erroredFrmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute is not displayed for ATM and MSA32 cards. For ATM cards, the physical layer drops all errored frames at the controller interface. For MSA32 cards, the test does not generate any frame.<br><br>For all other card types, this attribute counts the errored frames received during the test period. The counter wraps to zero when it exceeds its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Dlep Vsp Test bitErrorRate

| | |
|---|---|
| Access | Read only |
| Description | This attribute is not displayed for ATM cards because the physical layer drops all errored frames at the controller interface. For MSA32 cards, this attribute indicates the link bit error rate, regardless of the *frameSize*, which is not supported<br><br>For all other card types, this attribute is the calculated bit error rate on the link. Test data are generated and sent in frames of a preset size (*frameSize*). The *Test* component will try to estimate the number of bit errors in any errored frame which is identifiable. The statistics will be updated accordingly. A lost |

| | |
|---|---|
| | frame (may be due to an error on the flag sequence) will be discarded for the bit error rate calculation. The result is presented in the form of xEsyy, where x is the mantissa, syy is the exponent, for example 0E+00, 2E-09.<br>Note that the *bitErrorRate* is an estimate only. For more reliable test results, the test should be done over a long period. Multiple tests would also improve the confidence level of the test results. |
| Values | String (5, ASCII) |
| Default | No default |

### ATTRIBUTE Dlep Vsp Test elapsedTime

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the time elapsed since the test started for an ***externalLoop*** test. For a data test, it indicates time since test data was first transmitted. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 0.00 |

### ATTRIBUTE Dlep Vsp Test timeRemaining

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the length of time remaining before the test stops according to the *duration* attribute. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 0.00 |

### COMPONENT Dlep Vsp Ethernet1000BaseSX (GigE)

| | |
|---|---|
| Instance | Decimal (0..1) |
| Groups | "GROUP Dlep Vsp GigE OsiState (State)"<br>"GROUP Dlep Vsp GigE Eth1000Operational (Oper)"<br>"GROUP Dlep Vsp GigE Eth1000Statistics (Stats)" |

| | |
|---|---|
| Scope | Device |
| Description | *Lp/n Vsp GigE/n*<br><br>This component monitors and provides access to statistical measurements of the *VspEth1000BaseSX* ports on the card, when the ***vspIpGigE*** or the ***vgpIpG729GigE*** feature is provisioned.<br><br>Two *VspEth1000BaseSX* ports are supported on the ***2pGeMmSrVsp3*** Function Processor. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Dlep Vsp GigE OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

## ATTRIBUTE Dlep Vsp GigE adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users |

only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Dlep Vsp GigE operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Dlep Vsp GigE usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has

spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Dlep Vsp GigE Eth1000Operational (Oper)

Properties
Operational

Description
This group contains the port operational attributes of the *VspEth1000BaseSX* component.

### ATTRIBUTE Dlep Vsp GigE macAddress (macAdd)

Access
Read only

Description
This attribute indicates the medium access controller address. The value of this attribute will be assigned by the system. The medium access controller address is displayed in canonical format.

Values
String (6, Dashed Hex)

Default
No default

### ATTRIBUTE Dlep Vsp GigE autoNegotiationStatus (negStatus)

Access
Read only

Description
This attribute indicates the status of the auto negotiation at the physical level.

Possible values are:

***succeeded*** – auto-negotiation has completed successfully.

***failed*** – auto-negotiation has failed to negotiate a compatible set of capabilities.

***inProgress*** – auto-negotiation is currently in progress.

***disabled*** – the port has detected that the far end does not support auto-negotiation.

Values
succeeded
failed
inProgress
disabled

Default
No default

### ATTRIBUTE Dlep Vsp GigE ingressFlowControlStatus (ingFcStatus)

Access
Read only

Description
This attribute indicates whether the ingress flow control has been successfully negotiated with the link partner.

Possible values are:

***enabled*** - this state will generate pause frames when internal congestion is detected.

***disabled*** - in this state, no pause frames are generated. In addition, there is a risk that the received packets may be discarded due to lack of internal resources.

Values
enabled
disabled

Default
No default

### ATTRIBUTE Dlep Vsp GigE lossofSyncAlarm (syncAlarm)

Access
Read only

Description
This attribute indicates whether the loss of synchronization alarm is ***on*** or ***off***.

Possible values are:

***on*** - the alarm is set.

***off*** - the alarm is clear.

Values
on
off

Default
No default

### ATTRIBUTE Dlep Vsp GigE autoNegIncompleteAlarm (negAlarm)

Access
Read only

Description
This attribute indicates whether the auto-negotiation incomplete alarm is ***on*** or ***off***.

Possible values are:

***on*** - the alarm is set.

***off*** - the alarm is clear.

Values
on
off

Default
No default

### ATTRIBUTE Dlep Vsp GigE remoteFaultIndicationAlarm (remFaultAlarm)

Access
Read only

Description
This attribute indicates whether the remote fault indication alarm is ***on*** or ***off***.

Possible values are:

***on*** - the alarm is set.

***off*** - the alarm is clear.

Values
on
off

Default
No default

### GROUP Dlep Vsp GigE Eth1000Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the statistics for the *VspEth1000BaseSX* component. |

### ATTRIBUTE Dlep Vsp GigE framesTransmittedOk (frmTxOk)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames that were transmitted without errors. This counter wraps to zero after it reaches its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Dlep Vsp GigE framesReceivedOk (frmRxOk)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames that were received without errors. This counter wraps to zero after it reaches its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Dlep Vsp GigE octetsTransmittedOk (octetsTxOk)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the octets that were transmitted without errors. This counter wraps to zero after it reaches its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Dlep Vsp GigE octetsReceivedOk (octetsRxOk)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the octets that were received without errors. This counter wraps to zero after it reaches its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Dlep Vsp GigE pauseFramesTransmitted (txPause)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the pause medium access controller control frames transmitted. This counter wraps to zero after it reaches its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Dlep Vsp GigE pauseFramesReceived (rxPause)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the pause medium access controller control frames received. This counter wraps to zero after it reaches its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Dlep Vsp GigE undersizeFrames (underFrm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames that were received but were less than the minimum size (64 bytes). This counter wraps to zero after it reaches its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Dlep Vsp GigE framesTooLong (longFrm)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the frames that were received but were greater than the maximum size. The count includes frames which have a bad frame check sequence. This counter wraps to zero after it reaches its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Dlep Vsp GigE frameCheckSequenceErrors (fcsErr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received that were an integral number of octets in length and did not pass the FCS check. This count does not include frames received that were too long or too short. This counter wraps to zero after it reaches its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Dlep Vsp GigE symbolErrors (symErr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the times a valid length frame was received and had at least one occurance of a data reception or symbol error. This counter increments once per valid Carrier Event as defined by the specification IEEE 802.3 - 2000 edition. This counter wraps to zero after it reaches its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Dlep Vsp GigE broadcastFramesReceivedOk (bcastRxOk)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the valid broadcast frames received without errors. This counter wraps to zero after it reaches its maximum value. |
| Values | Long Integer |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Dlep Vsp GigE discardedFrames (discFrm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the valid frames discarded because of a lack of resources available to receive them. This counter wraps to zero after it reaches its maximum value. |
| Values | Long Integer |
| Default | No default |

Passport 7400, 15000, 20000

# Component Dlep

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component DnsAg

241-5701-060

Passport 7400, 15000, 20000

# Component DnsAg

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT DnsAgent (DnsAg)

| | |
|---|---|
| Instance | virtualRouter (vr) [String (1..8, ASCII)]<br>dnsNum [Decimal (1..15)] |
| Groups | "GROUP DnsAg Provisioned (Prov)"<br>"GROUP DnsAg Statistics (Stats)"<br>"GROUP DnsAg WlcCustomCounters (WlcCustomCntr)"<br>"GROUP DnsAg OsiState (State)" |
| Scope | Application |
| Description | *DnsAgent/<vr>,n*<br><br>This component represents a Domain Name System (DNS) Agent for a particular Virtual Router (VR). |
| Subcomponents | "COMPONENT DnsAg MemoryPoolManager (Mpm)" |
| Dyn. Subcomp. | "COMPONENT DnsAg CacheEntry (CacheEnt)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP DnsAg Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioning attributes to set up the links to other components (for example, *SessionManagement*, *Port*) and to set the Name Server Internet Protocol (IP) addresses. |

### ATTRIBUTE DnsAg linkToLogicalProcessor (lp)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the Logical Processor that the *DnsAgent* and its subcomponents are provisioned on. |
| Values | Link (Hardware, linkToApplications) |
| Default | No default |

### ATTRIBUTE DnsAg maxDynamicEntries (maxDyEnt)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the maximum number of dynamic entries supported by the *DnsAgent* cache table. Decrease in the cache size will be effective only in the next restart.<br>The current cache usage can be obtained from the attribute *currentCacheUsage*. |
| Values | Decimal (0..500) |
| Default | 1 |

### ATTRIBUTE DnsAg linkToPort (lToPort)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the IP Address and the UDP port number that the DnsAgent associates with.<br>Changing this value causes the outstanding transactions to be affected. |
| Values | Link (Service, linkToApplication) |
| Default | No default |

### ATTRIBUTE DnsAg serverAddresses (servAddr)

| | |
|---|---|
| Access | Read: All<br>Write: All |

| | |
|---|---|
| Description | This attribute specifies the IP addresses of the Domain Name System (DNS) Name Server, which this Server queries as necessary. If this attribute is empty then only static entries are used. |
| List of | IP address |
| List Size | 4 |
| Default | No default |

### ATTRIBUTE DnsAg linkToDnsClient (lToCl)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the Application using a *DnsAgent*. This is to ensure that the *DnsAgent* is linked to the same Virtual Router (VR). |
| List of | Link (Service, linkToDnsAgent) |
| List Size | 1 |
| Default | No default |

### GROUP DnsAg Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for the *DnsAgent*. |

### ATTRIBUTE DnsAg currentCacheUsage (curCacUs)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the current cache usage for this instance of *DnsAgent*.<br><br>The maximum value is provisioned in the attribute *maxCacheEntries*. |
| Values | Decimal (0..100) |
| Units | % |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE DnsAg clientQueries (clQue)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the queries received by this *DnsAgent* from the GPRS applications. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE DnsAg cacheHits

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the successful Domain Name System (DNS) queries for which a Logical Name was found in the *DnsAgent* cache. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE DnsAg serverQueries (servQue)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the queries sent by this *DnsAgent* to the Name Server because the requested name was not in the cache. The value indicates only the initial queries sent. Retries are not counted. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE DnsAg serverPendingQueries (servPendQue)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the current outstanding queries of this *DnsAgent*. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE DnsAg serverQueryTimeouts (servQueTouts)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the failed Domain Name System (DNS) queries sent, that did not receive a response within the time provisioned in the *retryTimer* (defined in *Sgsn DnsAgent*). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE DnsAg serverQuerySuccesses (servQueSuc)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the successful Domain Name System (DNS) queries to which a valid IP address was received from the Name Server, using only dynamic resolution. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE DnsAg serverQueriesNameNotFound (servQueNnf)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the failed Domain Name System (DNS) queries. This can be due any of the following errors:<br>Format error - The Name server was unable to interpret the query.<br>Name error - Domain name referenced in the query does not exist.<br>Not implemented error - The Name server does not support the requested kind of query.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE DnsAg serverQueryFailures (servQueFail)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the failed Domain Name System (DNS) queries due to a failure in the Name Server itself or due to some network error.<br>Query failures can result from a connection problem, failure in the Server node, or a lower layer failure indication such as port unreachable.<br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE DnsAg cachePurges (cachePurg)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the entries that were purged from the Domain Name System (DNS) cache table. Entries are purged when an entry needs to be added to the cache and the cache is full. The least recently accessed dynamic entry is the one that is purged. Static entries are never purged. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### GROUP DnsAg WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE DnsAg customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE DnsAg customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE DnsAg customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP DnsAg OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE DnsAg adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |

| | |
|---|---|
| Default | unlocked |

### ATTRIBUTE DnsAg operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE DnsAg usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |

| | |
|---|---|
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### ATTRIBUTE DnsAg availabilityStatus (osiAvail)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.<br><br>The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.<br><br>The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.<br><br>The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.<br><br>The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***. |

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

## ATTRIBUTE DnsAg proceduralStatus (osiProc)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the

user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.

The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of: initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default: No default

### ATTRIBUTE DnsAg controlStatus (osiCntrl)

Access: Read only

| | |
|---|---|
| Description | If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.<br><br>The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.<br><br>The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.<br><br>The value ***suspended*** indicates that the service has been administratively suspended. |
| Set of | subjectToTest (subTst)<br>partOfServicesLocked (partLk)<br>reservedForTest (rsrvd)<br>suspended (suspnd) |
| Default | No default |

### ATTRIBUTE DnsAg alarmStatus (osiAlarm)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions |

described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE DnsAg standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and

thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values: hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

Default: notSet

### ATTRIBUTE DnsAg unknownStatus (osiUnknw)

Access: Read only

Description: This attribute indicates the OSI Unknown status of the component.

The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.

The value ***true*** indicates that the actual state of the component is not known for sure.

Values: false
true

Default: false

### COMPONENT DnsAg CacheEntry (CacheEnt)

Instance: String (1..253, ASCII)

| | |
|---|---|
| Groups | "GROUP DnsAg CacheEnt Operational (Oper)"<br>"GROUP DnsAg CacheEnt WlcCustomCounters (WlcCustomCntr)" |
| Scope | Application |
| Description | *DnsAg/<vr>,n CacheEntry/<logicalName>*<br><br>This component represents an entry in the Logical Name-IP Address mapping table for the Serving GPRS Support Node (SGSN). |
| Dyn. Subcomp. | "COMPONENT DnsAg CacheEnt AddressInfo (Addr)" |
| Common Verbs | Help<br>List<br>Display |

## GROUP DnsAg CacheEnt Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for the Logical Name-Internet Protocol (IP) mapping table on a particular *GprsSubscriberControl (Gsc)*. |

## ATTRIBUTE DnsAg CacheEnt entryType (type)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates whether this entry is a static entry (provisioned in the *Sgsn DnsAg StaticCacheEntry* component) or a dynamic entry. |
| Values | static<br>dynamic |
| Default | No default |

## ATTRIBUTE DnsAg CacheEnt lastUpdateTime (tUpdate)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute indicates the time that this entry was updated. If the *entryType* is ***static***, the value indicates the time this entry was created. If the *entryType* is ***dynamic***, the value is the time of the most recent update by the Name Server. |
| Values | Time (HMS) |
| Default | No default |

### ATTRIBUTE DnsAg CacheEnt mappedIpAddr (ipAddr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the Internet Protocol (IP) addresses associated with a given Logical Name. The order of the addresses is not important and success queries of the Logical Name returns the IP addresses in a round robin fashion. |
| List of | IP address |
| List Size | 10 |
| Default | No default |

### GROUP DnsAg CacheEnt WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE DnsAg CacheEnt customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE DnsAg CacheEnt customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE DnsAg CacheEnt customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT DnsAg CacheEnt AddressInfo (Addr)

| | |
|---|---|
| Instance | IP address |
| Groups | "GROUP DnsAg CacheEnt Addr Operational (Oper)"<br>"GROUP DnsAg CacheEnt Addr WlcCustomCounters (WlcCustomCntr)" |
| Scope | Application |
| Description | *DnsAg/<vr>,n CacheEnt/<logicalName> AddressInfo/<ipAddr>* |

This component represents the address specific information in a cache entry.

Common Verbs

Help
List
Display

## GROUP DnsAg CacheEnt Addr Operational (Oper)

Properties: Operational

Description: This group contains the operational attributes to define the *AddressInfo*.

## ATTRIBUTE DnsAg CacheEnt Addr ttl

Access: Read: All
Write: Illegal

Description: This attribute indicates the Time To Live (TTL) value received from the Domain Name System (DNS) Server in a DNS query response. This address is removed from the *CacheEntry ttl* seconds after the *lastUpdateTime*.
For static mapping, the *ttl* value is ***infinity***. The IP address with a negative *ttl* value is discarded from the query response received from the Name Server while the IP address with a ***0*** *ttl* value is sent to the application and then discarded.

Values: Decimal (0..2147483647)
infinity (inf)

Units: seconds

Default: No default

## GROUP DnsAg CacheEnt Addr WlcCustomCounters (WlcCustomCntr)

Properties: Operational

Description: This group contains the spare counters that can be dynamically patched.

### ATTRIBUTE DnsAg CacheEnt Addr customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE DnsAg CacheEnt Addr customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE DnsAg CacheEnt Addr customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT DnsAg MemoryPoolManager (Mpm)

| | |
|---|---|
| Scope | Application |

| | |
|---|---|
| Description | *Gsc/n MemoryPoolManager*<br>*Gsd/n MemoryPoolManager*<br>*Gtl/n MemoryPoolManager*<br>*DnsAgent/<vr>,n MemoryPoolManager*<br><br>This component represents the memory resources of a given GPRS application that are managed as pools of objects. |
| Dyn. Subcomp. | "COMPONENT DnsAg Mpm MemoryPoolClient (Mpc)" |
| Common Verbs | Help<br>List<br>Display |

## COMPONENT DnsAg Mpm MemoryPoolClient (Mpc)

| | |
|---|---|
| Instance | String (1..30, ASCII) |
| Scope | Application |
| Description | *Gsc/n Mpm MemoryPoolClient/<name>*<br>*Gsd/n Mpm MemoryPoolClient/<name>*<br>*SgGtl/n Mpm MemoryPoolClient/<name>*<br>*DnsAgent/<vr>,n Mpm MemoryPoolClient/<name>*<br><br>This component represents a pool of objects of a particular class that a GPRS application currently owns as well as all the objects that could be owned by that application. All the objects in the pool are of the same class. The instance value of this component is a string which is the class name of the objects in the pool. |
| Common Verbs | Help<br>List<br>Display |

Passport 7400, 15000, 20000

# Component DnsAg

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component DpnGate

241-5701-060

Passport 7400, 15000, 20000

# Component DpnGate

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT DpnGateway (DpnGate)

| | |
|---|---|
| Instance | Decimal (0..65535) |
| Groups | "GROUP DpnGate IfEntryProv (IfEntry)"<br>"GROUP DpnGate Provisioned (Prov)"<br>"GROUP DpnGate Overrides"<br>"GROUP DpnGate OsiState (State)"<br>"GROUP DpnGate OperationalStatus (OperStatus)"<br>"GROUP DpnGate Operational (Oper)"<br>"GROUP DpnGate Transport"<br>"GROUP DpnGate Statistics (Stats)" |

"COLLECTED STATS DpnGateway"

| | |
|---|---|
| Scope | Network |
| Description | *DpnGateway/n*<br>The *DpnGateway* component provides a Passport to DPN-100 connection. It controls a protocol stack associated with a logical port on a Functional Processor providing a connection to a DPN-100 Utp Trunk or NetworkLink. The underlying link protocol may be provided by either *Utp* or *FrAccess*. A maximum of 256 instances of *DpnGateway* may be provisioned on a module. |

| | |
|---|---|
| Opt. Subcomp. | "COMPONENT DpnGate Utp"<br>"COMPONENT DpnGate FrAccess" |
| Dyn. Subcomp. | "COMPONENT DpnGate ForwardingStatistics (FwdStats)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>Unlock |

## VERB LOCK DpnGate

| | |
|---|---|
| Impact | Service |
| Description | *Lock [-force][-forever] <component name>*<br>This verb will cause the specified component to no longer providing service and enter the OSI ***locked*** administrative state. In some cases, locking a component causes all its subcomponents to shut down also.<br><br>**Options:**<br>*-force*<br>If this option is present, service to current clients is terminated and the ***locked*** state is entered immediately. Without this option, *Lock* behaves as described above.<br>*-forever*<br>If this option is present, then after service to current clients is terminated and the ***locked*** state is entered, an unlock command is required to get the service into the ***unlocked*** state. Without this option, the service automatically returns to the ***unlocked*** state after five minutes. |

## GROUP DpnGate IfEntryProv (IfEntry)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the ifEntry. |

### ATTRIBUTE DpnGate ifAdminStatus (ifState)

| | |
|---|---|
| Access | Read and write |
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE DpnGate ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP DpnGate Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group of provisionable attributes provide parameters used by *DpnGateway* for staging. |

### ATTRIBUTE DpnGate expectedRemoteNamsId (expectedRemote)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the expected Nams Identifier of the module to which this *DpnGateway* is connected. The *DpnGateway* end points exchange their Nams Identifiers through the *DpnGateway*'s staging protocol. The staged value is validated and the *remoteValidationAction* will be executed for those values |

| | |
|---|---|
| | not matching the value supplied for this attribute.<br>If this value is zero, then the comparison is always successful. |
| Values | Decimal (0..65535) |
| Default | 0 |

### ATTRIBUTE DpnGate remoteValidationAction (validation)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the action to be taken if there is a mismatch between the provisioned value and the value received from the remote end, in cases where the *expectedRemoteNamsId* is non-zero. If this attribute is provisioned to ***continue*** then upon an unsucessful validation staging continues, otherwise, if ***disable*** is set then the *DpnGateway* does not continue to stage but, attempts to stage again after a one minute time out.<br>All unsuccessful validation when *expectedRemoteNamsId* has been set result in the generation of an alarm. |
| Values | continue<br>disable |
| Default | continue |

### ATTRIBUTE DpnGate linkType (type)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the type of network link. If this attribute is provisioned to ***dedicated*** then the link is a dedicated network link to a DPN module. If this attribute is provisioned to ***dialIn*** then the link is connected to the DPN module through a public telephone network, on a dial line. |
| Values | dedicated<br>dialIn |
| Default | dedicated |

### GROUP DpnGate Overrides

| | |
|---|---|
| Properties | Provisioned |

| | |
|---|---|
| Description | Theses attribute comprise the set of provisionable override parameters supported by both the *Trunk* and *DpnGateway* components. The attributes are used when reporting operational attributes (used for metric calculations) to the routing system. |

### ATTRIBUTE DpnGate overrideTransmitSpeed (ots)

| | |
|---|---|
| Access | Read and write |
| Description | This is the overridden value of link speed (bit/s) that, if staged successfully with the remote, is reported to the routing system for metric calculations. A zero indicates that an override value has not been provided and that only the measured value will be reported to the routing system.<br>If this value is changed on a *Trunk* or *DpnGateway* that is enabled, the LOCK and UNLOCK commands must be issued to the component to restage the override with the remote. |
| Values | Decimal (0; 1000..4294967295) |
| Units | bit/s |
| Default | 0 |

### ATTRIBUTE DpnGate overrideRoundTripDelay (ortd)

| | |
|---|---|
| Access | Read and write |
| Description | This is the overridden value of link delay (ms) that, if staged successfully with the remote, is reported to the routing system for metric calculations. A zero indicates that an override value has not been provided and that only the measured value will be reported to the routing system.<br>If this value is changed on a *Trunk* or *DpnGateway* that is enabled, the LOCK and UNLOCK commands must be issued to the component to restage the override with the remote. |
| Values | Decimal (0.0..1500.0) |
| Units | msec |
| Default | 0.0 |

## GROUP DpnGate OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

## ATTRIBUTE DpnGate adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE DpnGate operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE DpnGate usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |

| | |
|---|---|
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### ATTRIBUTE DpnGate availabilityStatus (osiAvail)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.<br><br>The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.<br><br>The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.<br><br>The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.<br><br>The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***. |

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

### ATTRIBUTE DpnGate proceduralStatus (osiProc)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the

user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.

The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of
initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default
No default

### ATTRIBUTE DpnGate controlStatus (osiCntrl)

Access
Read only

| | |
|---|---|
| Description | If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.<br><br>The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.<br><br>The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.<br><br>The value ***suspended*** indicates that the service has been administratively suspended. |
| Set of | subjectToTest (subTst)<br>partOfServicesLocked (partLk)<br>reservedForTest (rsrvd)<br>suspended (suspnd) |
| Default | No default |

### ATTRIBUTE DpnGate alarmStatus (osiAlarm)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions |

described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE DpnGate standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and

thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values
hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

Default
notSet

### ATTRIBUTE DpnGate unknownStatus (osiUnknw)

Access
Read only

Description
This attribute indicates the OSI Unknown status of the component.

The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.

The value ***true*** indicates that the actual state of the component is not known for sure.

Values
false
true

Default
false

### GROUP DpnGate OperationalStatus (OperStatus)

Properties
Operational

| | |
|---|---|
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

### ATTRIBUTE DpnGate snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### GROUP DpnGate Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group of attributes contain the operational information associated with this *DpnGateway* and the remote to which it has it staged. |

### ATTRIBUTE DpnGate remoteComponentName (remote)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Component Name of the remote DPN-100 Utp Trunk or NetworkLink supplied by the staging protocol. It is in the format *PM/n PE/n PI/n PO/n* where *PM* is the remote module Nams Identifier, *PE* is the remote module Processor Element that is staged with, *PI* is the remote module Peripheral Interface card associated with the *PE*, and *PO* is the remote module Port (physical or virtual) on the *PI* that the physical line is connected to. |
| Values | String (1..26, ASCII) |
| Default | No default |

### ATTRIBUTE DpnGate remoteNamsMnemonic (remoteNams)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Nams Mnemonic of the remote DPN-100 Module supplied by the staging protocol. It can be used as a parameter to *Rtg Dpn* for displaying all *DpnGateway* that are connect to the same module. |
| Values | String (1..12, ASCII) |
| Default | No default |

### ATTRIBUTE DpnGate linkMode (mode)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether the *DpnGateway* is a ***Trunk*** connected to a DPN-100 RM or a ***NetworkLink*** connected to a DPN-100 AM. |
| Values | trunk<br>networkLink<br>unknown |
| Default | No default |

### ATTRIBUTE DpnGate activateReason (reason)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the reason the *DpnGateway* has been activated by the remote end. The value corresponds to the link type of the DPN end. It is always ***unknown*** until the link comes into service. If this attribute is set to ***dedicated***, the DPN is a dedicated network link. If this attribute is set to ***dnl***, the DPN end is a dial network link, meaning a network link which is connected through a dial-up service. If this attribute is set to ***dbnl***, the DPN end is dial backup network link, activated because the main network link is out of service. If this attribute is set to ***bwod***, the DPN end is a bandwidth on demand link, activated because extra bandwidth is required. If the attribute is set to ***unknown***, the link is either not currently in use, or the DPN end has an unrecognized link type. |

| | |
|---|---|
| Values | dedicated<br>dnl<br>dbnl<br>dialIn<br>bwod<br>unknown |
| Default | unknown |

## GROUP DpnGate Transport

| | |
|---|---|
| Properties | Operational |
| Description | This group of attributes contains the set of operational parameters measured and maintained by both the *Trunk* and *DpnGateway* components. |

## ATTRIBUTE DpnGate measuredSpeedToIf (spd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current “transmittable” bandwidth of the underlying facility.<br>For a *Trunk* with a *Unack* subcomponent, and a *DpnGateway* with a *Utp* subcomponent, if a serial port is used, the value is the measured transmit speed of the port; if a channelized port (E1/DS1) is used, the value is the measured transmit speed of the *Channel*.<br>For a *Trunk* with an *AtmAccess* subcomponent, the value is calculated by converting the VCC transmit cell rate to an equivalent bit rate. The VCC transmit cell rate is determined based on the *vccReportingBw* attribute of the *Trunk AtmAccess* component. If *vccReportingBw* has a value of ***pcr*** and attribute *bwElastic* of *AtmAccess* has a value of ***no***, the peak cell rate (PCR) of the VCC, defined in *txTrafficDescParm* of *AtmIf Vcc Vcd*, is used. If *vccReportingBw* has a value of ***pcr*** and attribute *bwElastic* of *AtmAccess* has a value of ***yes***, the minimum of the PCR, defined in *txTrafficDescParm* of *AtmIf Vcc Vcd*, and the current cell rate (CCR) of the VCC is used. If *vccReportingBw* has a value of ***acr***, the best measurement of the actual cell rate (ACR) of the VCC is used, which is the minimum of the PCR, the CCR and the actual shaping rate (ASR).<br>For a *Trunk* with an *MplsAccess* subcomponent, the value is the |

| | |
|---|---|
| | transmit bandwidth reserved on the MPLS transport *Lsp*.<br>For a *DpnGateway* with a *FrAccess* subcomponent, the value indicates the *committedInformationRate* of *FrAccess FrMuxSetup*.<br>A value of zero is displayed when the underlying facility is disabled or the current “transmittable” bandwidth is unknown. |
| Values | Decimal (0..4294967295) |
| Units | bit/s |
| Default | 0 |

### ATTRIBUTE DpnGate maxTxUnit (mtu)

| | |
|---|---|
| Access | Read only |
| Description | This is the maximum transmission unit (byte size) that is supported by the *Trunk* or *DpnGateway* component. This size includes the data and routing headers. A value of zero indicates the MTU has not yet been determined. |
| Values | Decimal (0..65535) |
| Units | bytes |
| Default | 0 |

### ATTRIBUTE DpnGate measuredRoundTripDelay (rtd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the measured Round Trip Delay (msec) discovered with the remote through the *Trunk* and *DpnGateway* staging protocols. The value includes emission, propagation, and queuing delays. A 512 byte data packet is used to perform the measurement. A value of zero is displayed when the link is disabled or the measured Round Trip Delay is unknown. |
| Values | Decimal (0.0..1500.0) |
| Units | msec |
| Default | 0.0 |

## GROUP DpnGate Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group of attributes contains statistics collected by the *DpnGateway* component. |

## ATTRIBUTE DpnGate pktFromIf (pkt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of packets received from the remote module. This counter wraps around to zero when the maximum value is reached. |
| Values | Long Integer |
| Default | No default |

## ATTRIBUTE DpnGate trunkPktFromIf (trk)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of internal trunk protocol packets received from the remote module. These packets are forwarded to the *DpnGateway* component. This counter wraps around to zero when the maximum value is reached. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## ATTRIBUTE DpnGate trunkPktToIf (trkti)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of internal trunk protocol packets transmitted to the remote module. This counter wraps around to zero when the maximum value is reached. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## ATTRIBUTE DpnGate discardUnforward (disc)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the number of packets received from the remote module that have been discarded. This counter wraps around to zero when the maximum value is reached. Two main reasons that cause this counter to increment are: the remote protocol is not compatible to the local protocol stack or, the packet cannot be forwarded due to either a recent loss of connectivity or due to congestion. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE DpnGate discardTrunkPktFromIf (discTrk)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of internal trunk protocol packets received from the remote module that have been discarded. This counter wraps around to zero when the maximum value is reached. The two main reasons that cause this counter to increment is if the DpnGateway is unsynchronized with DPN-100 and if the remote protocol is not the same version as the local protocol. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE DpnGate stagingAttempts (statt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times that the staging protocol has attempted to stage with the remote module. This counter wraps around to zero when the maximum value is reached. The main reason for this counter to increment is that the local hardware is up but the local protocol cannot stage with the remote protocol due to a faulty connection. If the value is zero, then the local hardware has never enabled successfully. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE DpnGate discardTrunkPktToIf (discTrkti)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of internal trunk protocol packets that have been discarded before being transmitted to the remote module. This counter wraps around to zero when the maximum value is reached. The main reason that causes this counter to increment is that the DpnGateway can not get sufficient resources to create an internal trunk protocol packet. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## COLLECTED STATS DpnGateway

| | |
|---|---|
| Description | The statistics record generated by the DpnGateway component. |

### ATTRIBUTE DpnGate remoteComponentName (remote)

| | |
|---|---|
| Description | This attribute is the component name of the remote end which it has supplied through the *Trunk* or *DpnGateway* staging protocol. |
| Values | String (1..26, ASCII) |

### ATTRIBUTE DpnGate measuredSpeedToIfMax

| | |
|---|---|
| Description | This is the maximum measured transmit speed (bit/s) of the link. A value of zero is provided when the link is disabled for the whole interval or the measured speed is unknown. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE DpnGate measuredSpeedToIfMin

| | |
|---|---|
| Description | This is the minimum measured transmit speed (bit/s) of the link. A value of zero is provided when the link is disabled for any part of the interval or the measured speed is unknown. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE DpnGate measuredSpeedToIfCurrent

| | |
|---|---|
| Description | This is the current measured transmit speed (bit/s) of the link. A value of zero is provided when the link is disabled or the measured speed is unknown. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE DpnGate measuredRoundTripDelayMax

| | |
|---|---|
| Description | This is the maximum measured Round Trip Delay (ms) discovered with the remote through the *Trunk* and *DpnGateway* staging protocols. A value of zero is provided when the link is disabled for the whole interval or the delay is unknown. |
| Values | Decimal (0..1500) |

### ATTRIBUTE DpnGate measuredRoundTripDelayMin

| | |
|---|---|
| Description | This is the minimum measured Round Trip Delay (ms) discovered with the remote through the *Trunk* and *DpnGateway* staging protocols. A value of zero is provided when the link is disabled for any part of the interval or the delay is unknown. |
| Values | Decimal (0..1500) |

### ATTRIBUTE DpnGate measuredRoundTripDelayCurrent

| | |
|---|---|
| Description | This is the measured Round Trip Delay (ms) discovered with the remote through the *Trunk* and *DpnGateway* staging protocols. A value of zero is provided when the link is disabled or the delay is unknown. |
| Values | Decimal (0..1500) |

### ATTRIBUTE DpnGate fwdPktFromIf (fwdPkt)

| | |
|---|---|
| Description | This attribute counts the number of forwarding packets received on the *Trunk* or *DpnGateway* in the last statistics collection interval. |
| Values | Long Integer |

### ATTRIBUTE DpnGate fwdDiscUnforwardFromIf (fwdDisc)

| | |
|---|---|
| Description | This attribute counts the number of forwarding packets discarded by the *Trunk* or *DpnGateway* in the last statistics collection interval. |
| Values | Long Integer |

### ATTRIBUTE DpnGate fwdOctetFromIf (fwdOctet)

| | |
|---|---|
| Description | This attribute counts the number of forwarding bytes received on the *Trunk* or *DpnGateway* in the last statistics collection interval. |
| Values | Long Integer |

### COMPONENT DpnGate Utp

| | |
|---|---|
| Groups | "GROUP DpnGate Utp Provisioned (Prov)"<br>"GROUP DpnGate Utp OsiState (State)"<br>"GROUP DpnGate Utp Operational (Op)"<br>"GROUP DpnGate Utp Statistics (Stats)" |
| Scope | Network |
| Description | *DpnGateway/n Utp*<br>The *Utp* component provides the Utp Level2 link protocol, an acknowledged protocol that provides selective retransmission of frames. A *Framer* subcomponent is automatically added providing the underlying HDLC framing and associated hardware that the *Utp* component will use. |
| Subcomponents | "COMPONENT DpnGate Utp Framer" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP DpnGate Utp Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |

| | |
|---|---|
| Description | This group of provisionable attributes contains the parameters used by *Unacknowledged*, *Utp*, and *FrAccess* for monitoring link quality. |

### ATTRIBUTE DpnGate Utp maximumErroredInterval

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the interval time over which the error threshold (as specified by *receiveErrorSensitivity)* must be continuously exceeded before the *Unacknowledged*, *Utp*, or *FrAccess* component can be degraded. Once the error interval count exceeds the provisioned value, the *Unacknowledged*, *Utp*, or *FrAccess* component issues an alarm indicating that link quality has degraded, and it disables its parent component. The exception to this is a value of zero, the default, which indicates that the mechanism is completely disabled. |
| Values | Decimal (0; 1..15) |
| Units | minutes |
| Default | 0 |

### ATTRIBUTE DpnGate Utp receiveErrorSensitivity

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the allowable error rate beyond which the *Unacknowledged*, *Utp*, or *FrAccess* component can be degraded if it persists for a duration longer than the *maximumErrorInterval*. The threshold is expressed as a percentage of number of errored frames in the last interval per number of frames received in the last interval. The exception to this is a value of zero, which indicates that the mechanism is completely disabled. The configurable values are:<br>0 = the mechanism is completely disabled<br>1 = 1/(2**1)<br>2 = 1/(2**2)<br>3 = 1/(2**3)<br>:<br>10 = 1/(2**10) |
| Values | Decimal (0; 1..10) |

| | |
|---|---|
| Default | 3 |

### GROUP DpnGate Utp OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE DpnGate Utp adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE DpnGate Utp operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE DpnGate Utp usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |

| | |
|---|---|
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### ATTRIBUTE DpnGate Utp availabilityStatus (osiAvail)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.<br><br>The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.<br><br>The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.<br><br>The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.<br><br>The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***. |

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

### ATTRIBUTE DpnGate Utp proceduralStatus (osiProc)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the

user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.

The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of: initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default: No default

## ATTRIBUTE DpnGate Utp controlStatus (osiCntrl)

Access: Read only

| | |
|---|---|
| Description | If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.<br><br>The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.<br><br>The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.<br><br>The value ***suspended*** indicates that the service has been administratively suspended. |
| Set of | subjectToTest (subTst)<br>partOfServicesLocked (partLk)<br>reservedForTest (rsrvd)<br>suspended (suspnd) |
| Default | No default |

### ATTRIBUTE DpnGate Utp alarmStatus (osiAlarm)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions |

described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE DpnGate Utp standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and

thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values: hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

Default: notSet

### ATTRIBUTE DpnGate Utp unknownStatus (osiUnknw)

Access: Read only

Description: This attribute indicates the OSI Unknown status of the component.

The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.

The value ***true*** indicates that the actual state of the component is not known for sure.

Values: false
true

Default: false

### GROUP DpnGate Utp Operational (Op)

Properties: Operational

| | |
|---|---|
| Description | This group of attributes contains the set of UTP operational parameters measured and maintained by this component. |

### ATTRIBUTE DpnGate Utp roundTripDelay (rtd)

| | |
|---|---|
| Access | Read only |
| Description | This is the measured Round Trip Delay (ms) discovered with the remote through the UTP staging protocol. The value includes emission, propagation, and queuing delays. A 2 byte control frame is used to perform the measurement. A value of zero is displayed when the link is disabled or the measured Round Trip Delay is unknown. |
| Values | Decimal (0..1500) |
| Units | msec |
| Default | No default |

### GROUP DpnGate Utp Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group of attributes contains the set of Utp frame counters collected by this component. |

### ATTRIBUTE DpnGate Utp discardBadFromIf (discfi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the number of received frames discarded by the *Utp* component. UTP discards any received frame that is unknown to its protocol. This counter wraps around to zero when the maximum value is reached. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE DpnGate Utp discardExcessToIf (discti)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the number of transmitted frames discarded by the *Utp* component. Transmitted frames are discarded if the wait |

for transmission queue is congested. This counter wraps around to zero when the maximum value is reached.

Values Decimal (0..4294967295)

Default No default

### ATTRIBUTE DpnGate Utp frmRexmtToIf (rexmt)

Access Read only

Description This attribute is the number of frames retransmitted by the *Utp* component. This counter wraps around to zero when the maximum value is reached.

Values Decimal (0..4294967295)

Default No default

### ATTRIBUTE DpnGate Utp areYouThereModeEntries (ayt)

Access Read only

Description This attribute is the number of times the *Utp* component entered the AreYouThere mode. UTP enters this mode whenever the acknowledgment for the last transmitted frame has not been received within a certain time interval. In this mode UTP verifies that the remote end is still active. If so, it will retransmit all frames that were waiting to be acknowledged. This counter wraps around to zero when the maximum value is reached.

Values Decimal (0..4294967295)

Default No default

### ATTRIBUTE DpnGate Utp windowClosures (closures)

Access Read only

Description This attribute is the number of times the *Utp* component closed its frame window. The frame window determines the maximum number of unacknowledged frames allowed. Typically, the frame window closes when the remote end cannot keep up with the frame arrival rate. This counter wraps around to zero when the maximum value is reached.

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

## COMPONENT DpnGate Utp Framer

| | |
|---|---|
| Groups | "GROUP DpnGate Utp Framer Provisioned (Prov)"<br>"GROUP DpnGate Utp Framer LinkOptions (Link)"<br>"GROUP DpnGate Utp Framer OsiState (State)"<br>"GROUP DpnGate Utp Framer Statistics (Stats)"<br>"GROUP DpnGate Utp Framer LinkUtilization (Util)"<br>"GROUP DpnGate Utp Framer LinkUtilThreshold (UtilThreshold)" |

"COLLECTED STATS DpnGateway Utp Framer"

| | |
|---|---|
| Scope | Device |
| Description | *Trunk/n Utp Framer*<br><br>The *Framer* component controls link layer framing for application components sending and receiving data on a link interface. It is also through *Framer*, that an application component is associated with a specific hardware link interface.<br><br>The *Framer* component provides provisionable attributes related to datapath aspects of the hardware interface (such as crc and frame length) rather than interface specific attributes (such as modem leads and clocking) which are associated with specific hardware components (such as *V35/n* or *DS1/n*). The *Framer* component also provides a provisionable attribute which binds the application component to a specific hardware component.<br><br>The *Framer* component contains operational attributes for link interface datapath statistics (such as frame counts and aborts). |
| Common Verbs | Help<br>List<br>Display |

### GROUP DpnGate Utp Framer Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the base provisioning data for the *Framer* component. Application or hardware interface specific provisioning data is contained in other provisionable *Framer* groups. |

### ATTRIBUTE DpnGate Utp Framer interfaceName

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute contains a hardware component name.<br><br>The attribute associates the application with a specific link. This defines the module processor on which *Framer*'s parent component (as well as *Framer* itself) will run. |
| Values | Link (Hardware, applicationFramerName) |
| Default | No default |

### GROUP DpnGate Utp Framer LinkOptions (Link)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains attributes defining the framing of data on the link interface. |

### ATTRIBUTE DpnGate Utp Framer framingType

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute defines the type of framing on the link. |
| Values | hdlc |
| Default | hdlc |

### ATTRIBUTE DpnGate Utp Framer dataInversion

| | |
|---|---|
| Access | Read and write |
| Description | This attribute determines whether data bits are to be inverted (1 to 0 and 0 to 1) before transmission of frames to the interface. If the value of this attribute is On, the incoming data bits will also be inverted when frames are received from the link before being processed.<br><br>This option is typically used in ***hdlc*** framing mode when inversion is used to guarantee 1's density.<br><br>Note that aborts (in ***hdlc*** and ***interrupting*** modes) are corrupted when data is inverted. |
| Values | off<br>on |
| Default | off |

### ATTRIBUTE DpnGate Utp Framer frameCrcType

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the type of CRC used.<br><br>The CRC value calculated is appended to the end of the frames transmitted to the link. The CRC value is removed from the end of frames received from the link and checked for correctness. NoCrc means that CRC is not used. |
| Values | crc16<br>crc32<br>noCrc |
| Default | crc16 |

### ATTRIBUTE DpnGate Utp Framer flagsBetweenFrames

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the number of flags that are inserted between frames sent to the link interface. |

| | |
|---|---|
| Values | Decimal (1..16) |
| Default | 1 |

### GROUP DpnGate Utp Framer OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE DpnGate Utp Framer adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE DpnGate Utp Framer operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE DpnGate Utp Framer usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

## GROUP DpnGate Utp Framer Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational statistics data for a UTP Framer component. |

## ATTRIBUTE DpnGate Utp Framer aborts

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of aborts received. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## ATTRIBUTE DpnGate Utp Framer crcErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of frames with CRC errors, occurring in the receive direction from the link. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## ATTRIBUTE DpnGate Utp Framer lrcErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of frames with LRC errors, occurring in the Tx link prior to transmission onto the link. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## ATTRIBUTE DpnGate Utp Framer nonOctetErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of frames that were non octet aligned. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE DpnGate Utp Framer overruns

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of frames received from the link for which overruns occurred. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE DpnGate Utp Framer underruns

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of frames transmitted to the link for which underruns occurred. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE DpnGate Utp Framer largeFrmErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of frames received which were too large. The frame exceeded the maximumFrameLengthLimit provisioned attribute or it contained more than the 255 block hardware limit. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE DpnGate Utp Framer frmModeErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of frames detected with framing mode errors. A *framingModeError* is flagged when frames are inconsistent with the specified *framingType*, that is when interrupting frames are used while running in hdlc mode. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE DpnGate Utp Framer outOfSequenceFrm

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of out of sequence frames in interrupting mode that have been received from the link. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE DpnGate Utp Framer repeatedFrm

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of repeated frames (frames with the same sequence number) in interrupting mode that have been received from the link. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE DpnGate Utp Framer frmToIf

| | |
|---|---|
| Access | Read only |
| Description | The number of frames transmitted to the link interface by Framer.<br><br>Note: This does not include the number of frames transmitted directly to the hardware queue, thus bypassing the Framer component. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE DpnGate Utp Framer frmFromIf

| | |
|---|---|
| Access | Read only |
| Description | The number of frames received from the link interface by Framer. |
| Values | Long Integer |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE DpnGate Utp Framer octetFromIf

| | |
|---|---|
| Access | Read only |
| Description | The number of bytes received from the link interface by Framer. |
| Values | Long Integer |
| Default | No default |

### GROUP DpnGate Utp Framer LinkUtilization (Util)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the link utilization operational data for a Framer component. |

### ATTRIBUTE DpnGate Utp Framer normPrioLinkUtilToIf

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the utilization of the normal and high priority data traffic (interruptible traffic) sent to the link as a percentage of the available bandwidth on the link. Note that this includes traffic with Transfer Priorities (TP) of 0, 6 and 9 and/or Emission Priority of 2 and 3. The utilization is the average for the last minute. |
| Values | Decimal (0..100) |
| Units | % |
| Default | 0 |

### ATTRIBUTE DpnGate Utp Framer highPrioLinkUtilToIf

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the utilization of the interrupting data traffic sent to the link as a percentage of the available bandwidth on the link. Note that this includes traffic with a Transfer Priority (TP) of 11 and/or Emission Priority of 1. The utilization is the average for the last minute. |
| Values | Decimal (0..100) |

| | |
|---|---|
| Units | % |
| Default | 0 |

### ATTRIBUTE DpnGate Utp Framer normPrioLinkUtilFromIf

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the utilization of the normal and high priority data traffic (interruptible traffic) received from the link as a percentage of the available bandwidth on the link. Note that this includes traffic with Transfer Priorities (TP) of 0, 6 and 9 and/or Emission Priority of 2 and 3. The utilization is the average for the last minute. |
| Values | Decimal (0..100) |
| Units | % |
| Default | 0 |

### ATTRIBUTE DpnGate Utp Framer highPrioLinkUtilFromIf

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the utilization of the interrupting data traffic received from the link as a percentage of the available bandwidth on the link. Note that this includes traffic with a Transfer Priority (TP) of 11 and/or Emission Priority of 1. The utilization is the average for the last minute. |
| Values | Decimal (0..100) |
| Units | % |
| Default | 0 |

### GROUP DpnGate Utp Framer LinkUtilThreshold (UtilThreshold)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all of the provisioning data required to set the link utilization alarm thresholds. All thresholds are percentages which can take on any value in the range of 0% through 100%. The value 100% is used to disable an individual threshold. For values other than 100%, a semantic check ensures that the minor |

alarm threshold is less than the other thresholds and that the major alarm threshold is less than the critical alarm threshold.

### ATTRIBUTE DpnGate Utp Framer minorLinkUtilAlarmThreshold (minor)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute provides the threshold value which defines when a minor alarm would be issued, denoting a sustained total average link utilization. The total average link utilization is calculated based on the number of received bytes. The Set alarm is issued after 3 minutes of utilization greater than the given threshold. The corresponding Clear alarm is issued after a subsequent 3 minutes of utilization less than or equal to the given threshold.<br>The value 100% is used to disable an individual threshold. For values other than 100%, a semantic check ensures that the minor alarm threshold is less than the other thresholds. |
| Values | Decimal (0..100) |
| Units | % |
| Default | 75 |

### ATTRIBUTE DpnGate Utp Framer majorLinkUtilAlarmThreshold (major)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute provides the threshold value which defines when a major alarm would be issued, denoting a sustained total average link utilization. The total average link utilization is calculated based on the number of received bytes. The Set alarm is issued after 3 minutes of utilization greater than the given threshold. The corresponding Clear alarm is issued after a subsequent 3 minutes of utilization less than or equal to the given threshold.<br>The value 100% is used to disable an individual threshold. For values other than 100%, a semantic check ensures that the major alarm threshold is greater than the minor threshold and less than the critical threshold. |
| Values | Decimal (0..100) |
| Units | % |
| Default | 85 |

### ATTRIBUTE DpnGate Utp Framer criticalLinkUtilAlarmThreshold (critical)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute provides the threshold value which defines when a critical alarm would be issued, denoting a sustained total average link utilization. The total average link utilization is calculated based on the number of received bytes. The Set alarm is issued after 3 minutes of utilization greater than the given threshold. The corresponding Clear alarm is issued after a subsequent 3 minutes of utilization less than or equal to the given threshold.<br>The value 100% is used to disable an individual threshold. For values other than 100%, a semantic check ensures that the critical alarm threshold is greater than the other thresholds. |
| Values | Decimal (0..100) |
| Units | % |
| Default | 95 |

### ATTRIBUTE DpnGate Utp Framer linkUtilAlarmStatus (status)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute provides control of the generation of link utilization alarms. If the value is ***disabled***, none of the alarms are generated (this is equivalent to setting all of the thresholds to 100%). If the value is ***enabled***, the individual thresholds are handled. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

## COLLECTED STATS DpnGateway Utp Framer

| | |
|---|---|
| Description | The statistics record generated by the DpnGateway Utp Framer component. |

### ATTRIBUTE DpnGate Utp Framer rxBytes

| | |
|---|---|
| Description | This attribute provides the number of bytes received on the link by the Framer in the last collection interval. |
| Values | Long Integer |

### ATTRIBUTE DpnGate Utp Framer rxFrames

| | |
|---|---|
| Description | This attribute provides the number of frames received on the link interface by the Framer in the last collection interval. |
| Values | Long Integer |

### ATTRIBUTE DpnGate Utp Framer txBytes

| | |
|---|---|
| Description | This attribute provides the number of bytes transmitted to the link by the Framer in the last collection interval. This value could be zero if the application sends the frames directly to the link. |
| Values | Long Integer |

### ATTRIBUTE DpnGate Utp Framer txFrames

| | |
|---|---|
| Description | This attribute provides the number of frames transmitted to the link interface by the Framer in the last collection interval. This value could be zero if the application sends the frames directly to the link. |
| Values | Long Integer |

### ATTRIBUTE DpnGate Utp Framer rxTotalLinkUtil

| | |
|---|---|
| Description | This attribute provides the average total link utilization computed based on the total number of bytes received on the link in the last collection interval. |
| Values | Decimal (0..100) |

## COMPONENT DpnGate ForwardingStatistics (FwdStats)

| | |
|---|---|
| Groups | "GROUP DpnGate FwdStats Operational (Oper)" |
| Scope | Application |
| Description | *Trunk/n ForwardingStatistics*<br>This is a dynamic subcomponent of a *Trunk* or *DpnGateway* which appears when packet forwarding traffic is used over the *Trunk* or *DpnGateway*. It contains statistics associated with packet forwarding traffic for *Trunks* and *DpnGateways*. |

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display |

### GROUP DpnGate FwdStats Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This operational group counts the *Trunk* or *DpnGateway* packet forwarding traffic statistics for operator console display. |

### ATTRIBUTE DpnGate FwdStats fwdPktFromIf (fwdPkt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of forwarding packets received by the *Trunk* or *DpnGateway.* This counter wraps around to zero when the maximum value is exceeded. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE DpnGate FwdStats fwdDiscUnforwardFromIf (fwdDisc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of forwarding packets discarded by the *Trunk* or *DpnGateway.* This counter wraps around to zero when the maximum value is exceeded. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE DpnGate FwdStats fwdOctetFromIf (fwdOctet)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of forwarding bytes received by the *Trunk* or *DpnGateway.* This counter wraps around to zero when the maximum value is exceeded. |

| | |
|---|---|
| Values | Long Integer |
| Default | No default |

## COMPONENT DpnGate FrAccess

| | |
|---|---|
| Groups | "GROUP DpnGate FrAccess Provisioned (Prov)"<br>"GROUP DpnGate FrAccess OsiState (State)"<br>"GROUP DpnGate FrAccess Operational (Op)"<br>"GROUP DpnGate FrAccess Statistics (Stats)" |
| Scope | Network |
| Description | *DpnGate/n FrAccess*<br>This component provides Layer 2 trunking protocol, to be used by *DpnGateway* running over *FrMux* frame relay interface. |
| Subcomponents | "COMPONENT DpnGate FrAccess FrMuxSetup" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP DpnGate FrAccess Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group of provisionable attributes contains the parameters used by *Unacknowledged*, *Utp*, and *FrAccess* for monitoring link quality. |

## ATTRIBUTE DpnGate FrAccess maximumErroredInterval

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the interval time over which the error threshold (as specified by *receiveErrorSensitivity)* must be continuously exceeded before the *Unacknowledged*, *Utp*, or *FrAccess* component can be degraded. Once the error interval count exceeds the provisioned value, the *Unacknowledged*, *Utp*, or *FrAccess* component issues an alarm indicating that link quality has degraded, and it disables its parent component. The |

exception to this is a value of zero, the default, which indicates that the mechanism is completely disabled.

Values: Decimal (0; 1..15)

Units: minutes

Default: 0

### ATTRIBUTE DpnGate FrAccess receiveErrorSensitivity

Access: Read and write

Description: This attribute is the allowable error rate beyond which the *Unacknowledged*, *Utp*, or *FrAccess* component can be degraded if it persists for a duration longer than the *maximumErrorInterval*. The threshold is expressed as a percentage of number of errored frames in the last interval per number of frames received in the last interval. The exception to this is a value of zero, which indicates that the mechanism is completely disabled. The configurable values are:
0 = the mechanism is completely disabled
1 = 1/(2**1)
2 = 1/(2**2)
3 = 1/(2**3)
:
10 = 1/(2**10)

Values: Decimal (0; 1..10)

Default: 3

### GROUP DpnGate FrAccess OsiState (State)

Properties: Operational

Description: This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE DpnGate FrAccess adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE DpnGate FrAccess operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the |

component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE DpnGate FrAccess usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
idle
active (activ)
busy

Default
idle

### ATTRIBUTE DpnGate FrAccess availabilityStatus (osiAvail)

Access
Read only

Description
If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.

The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.

The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.

The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.

The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The

*operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

### ATTRIBUTE DpnGate FrAccess proceduralStatus (osiProc)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.

The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been

initiated. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

### ATTRIBUTE DpnGate FrAccess controlStatus (osiCntrl)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is

***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

Set of

subjectToTest (subTst)
partOfServicesLocked (partLk)
reservedForTest (rsrvd)
suspended (suspnd)

Default

No default

### ATTRIBUTE DpnGate FrAccess alarmStatus (osiAlarm)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE DpnGate FrAccess standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

| | |
|---|---|
| Values | hotStandby (hot)<br>coldStandby (cold)<br>providingService (serv)<br>notSet (nSet) |
| Default | notSet |

### ATTRIBUTE DpnGate FrAccess unknownStatus (osiUnknw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Unknown status of the component.<br><br>The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.<br><br>The value ***true*** indicates that the actual state of the component is not known for sure. |
| Values | false<br>true |
| Default | false |

### GROUP DpnGate FrAccess Operational (Op)

| | |
|---|---|
| Properties | Operational |
| Description | This group of attributes contains the set of LTP operational parameters measured and maintained by this component. |

### ATTRIBUTE DpnGate FrAccess roundTripDelay (rtd)

| | |
|---|---|
| Access | Read only |
| Description | This is the measured Round Trip Delay (ms) discovered with the remote through the LTP staging protocol. The value includes emission, propagation, and queuing delays. A 2 byte control frame is used to perform the measurement. A value of zero is displayed when the link is disabled or the measured Round Trip Delay is unknown. |
| Values | Decimal (0..1500) |

| | |
|---|---|
| Units | msec |
| Default | No default |

### GROUP DpnGate FrAccess Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational statistics for *FrAccess*. |

### ATTRIBUTE DpnGate FrAccess receivedBytesFromIf (rbfi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of bytes received by *FrAccess* in information frames. When the maximum count is reached the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE DpnGate FrAccess lostFramesFromIf (lfti)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames lost in the direction from interface, the loss of which is detected based on the sequence number mechanism. The reason for a loss may be the congestion-related loss in the external frame relay network, or errors/ congestion developing in the *FrMux* service. When *FrMux* statistics do not show errors/congestion developing internally in *FrMux*, then the losses visible through this statistic should be attributed to the external frame relay network. When the maximum count is reached the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE DpnGate FrAccess discardBadFromIf (dbfi)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the number of frames discarded in the direction ‘from interface’, because they are unknown to the *FrAccess* protocol. When the maximum count is reached the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE DpnGate FrAccess discardExcessToIf (deti)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames discarded in the direction ‘to interface’ because of congestion on the transmit queue. When the maximum count is reached the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT DpnGate FrAccess FrMuxSetup

| | |
|---|---|
| Groups | "GROUP DpnGate FrAccess FrMuxSetup TrafficDescriptors (TrafficDescr)"<br>"GROUP DpnGate FrAccess FrMuxSetup DlciCompNameOp" |
| Scope | Application |
| Description | *DpnGate/n FrAccess FrMuxSetup*<br>This component contains operational and provisionable attributes for setting up a *FrMux Dlci* to act as a transport for *DpnGate/n FrAccess*. |
| Subcomponents | "COMPONENT DpnGate FrAccess FrMuxSetup PvcSetup" |
| Common Verbs | Help<br>List<br>Display |

### GROUP DpnGate FrAccess FrMuxSetup TrafficDescriptors (TrafficDescr)

| | |
|---|---|
| Properties | Provisioned |

| | |
|---|---|
| Description | This group contains the provisionable attributes for the application of which this *FrMuxSetup* is a subcomponent. The parameters are used for maximum frame size checking and traffic shaping and are to be passed over to *FrMux Dlci* associated with the application. The attributes in this group are defined in T1.606 Addendum 1. |

### ATTRIBUTE DpnGate FrAccess FrMuxSetup committedInformationRate (cir)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies, in bit/s, the committed information rate (CIR) to which the traffic transmitted towards the interface is shaped. The minimum value is 4800 bit/s. |
| Values | Decimal (4800..2048000) |
| Units | bit/s |
| Default | 64000 |

### ATTRIBUTE DpnGate FrAccess FrMuxSetup maximumFrameSize (n203)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the maximum number of octets which may be included in the information field. The frame relay header and CRC octets are not included in this definition. This attribute corresponds to the dN1 parameter described in the Vendor Forum Specification. |
| Values | Decimal (1..4096) |
| Units | octets |
| Default | 4096 |

### GROUP DpnGate FrAccess FrMuxSetup DlciCompNameOp

| | |
|---|---|
| Properties | Operational |

| | |
|---|---|
| Description | This group contains the component name of the *Dlci* which carries the traffic for this application. |

### ATTRIBUTE DpnGate FrAccess FrMuxSetup dlciCompName

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the component name of the *Dlci* with which the application using this *FrMuxSetup* component is associated. The name is a string *FrMux/n Dlci/m.* For a PVC this is the same component name as provisioned under the subcomponent *FrMuxPvcSetup*. |
| Values | The name of the component |
| Default | No default |

### COMPONENT DpnGate FrAccess FrMuxSetup PvcSetup

| | |
|---|---|
| Groups | "GROUP DpnGate FrAccess FrMuxSetup PvcSetup Provisioned (Prov)" |
| Scope | Application |
| Description | *DpnGate/n FrAccess FrMuxSetup PvcSetup*<br>This component contains provisionable attributes for setting up a *Dlci* associated with the application using this component. The *Dlci* is of a PVC type. |
| Common Verbs | Help<br>List<br>Display |

### GROUP DpnGate FrAccess FrMuxSetup PvcSetup Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisionable attributes for setting up a *Dlci* associated with the application using the *FrMuxSetup* component. The *Dlci* is of the PVC type. |

## ATTRIBUTE DpnGate FrAccess FrMuxSetup PvcSetup dlciName

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute is the link to the *Dlci* which is associated with the application using the *FrMuxSetup* component. |
| Values | Link (Hardware, applicationName) |
| Default | No default |

Passport 7400, 15000, 20000

# Component DpnGate

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component EM

241-5701-060

Passport 7400, 15000, 20000

# Component EM

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT EM

| | |
|---|---|
| Scope | Device |
| Description | *Em/string*<br>This component represents the local node. An instance of the *EM* component class (with the local node name as its instance string) is automatically created as the root of the component hierarchy; that is, all of the top level components are its subcomponents.<br><br>The local node name is provisioned as the *nodeName* attribute of the *ModuleData* component.<br><br>An operator need not enter the *EM* component at the start of a component name; the local node is assumed by default. However, to specify some other node, it must be entered. Similarly, on output, the local node name is suppressed. |

| | |
|---|---|
| Subcomponents | COMPONENT RncInterfaceNode (RncIn)<br>COMPONENT CpdsNode (Cpds)<br>COMPONENT ProvisioningSystem (Prov)<br>COMPONENT Shelf<br>COMPONENT Software (Sw)<br>COMPONENT ModuleData (Mod)<br>COMPONENT NetworkManagementInterfaceSystem (Nmis)<br>COMPONENT Time (Time)<br>COMPONENT Collector (Col)<br>COMPONENT ActiveAlarmServices (AAServ) |
| Opt. Subcomp. | COMPONENT Router (Rtr)<br>COMPONENT ScpSimulator (ScpSim)<br>COMPONENT PortBridgeGroup (Pbg)<br>COMPONENT LogicalProcessor (Lp)<br>COMPONENT AccessControl (Ac)<br>COMPONENT NetworkSynchronization (NS)<br>COMPONENT DnsAgent (DnsAg)<br>COMPONENT Routing (Rtg)<br>COMPONENT CallRouter (CR)<br>COMPONENT VoiceNetworkingCallServer (Vncs)<br>COMPONENT IpInterfaceOverFrameRelay (IpiFr)<br>COMPONENT IpInterfaceOverVc (Ipivc)<br>COMPONENT Trunk (Trk)<br>COMPONENT DpnGateway (DpnGate)<br>COMPONENT FrameRelayNni (FrNni)<br>COMPONENT FrameRelayUni (FrUni)<br>COMPONENT FrameRelayAtmInterface (FrAtm)<br>COMPONENT VoiceService (Vs)<br>COMPONENT BitTransparentDataService (Btds)<br>COMPONENT HdlcTransparentDataService (Htds)<br>COMPONENT X25Dte<br>COMPONENT AtmRouting (ARtg)<br>COMPONENT VirtualRouter (Vr)<br>COMPONENT FrameRelayDte (FrDte)<br>COMPONENT PointToPointProtocol (Ppp)<br>COMPONENT ClusterBridge (CB)<br>COMPONENT PseudoBridge (PB) |

COMPONENT LanApplication (La)
COMPONENT RemoteServerAgent (Rsa)
COMPONENT FrMux
COMPONENT AtmInterface (AtmIf)
COMPONENT SignallingChannel (SigChan)
COMPONENT VoiceRoute (VRoute)
COMPONENT VoiceSubroute (Vsr)
COMPONENT AtmMultiprotocolEncapsulation (AtmMpe)
COMPONENT Aal1CircuitEmulationService (Aal1Ces)
COMPONENT DataSignallingChannel (DataSigChan)
COMPONENT McsManager (McsMgr)
COMPONENT MpaNetworkLink (Mpanl)
COMPONENT LanEmulationClient (Lec)
COMPONENT NarrowbandServicesTrunkOverATM (Nsta)
COMPONENT GsmIwfCallServer (GsmCs)
COMPONENT GsmIwfBearerChannel (GsmBc)
COMPONENT Dcme
COMPONENT DcmeLink (Dcl)
COMPONENT HuntGroup (Hg)
COMPONENT CallRedirectionServer (Crs)
COMPONENT VirtualMedia (Vm)
COMPONENT AutomaticProtectionSwitching (Aps)
COMPONENT TdmaIwfCallServer (TdmaCs)
COMPONENT TdmaIwfBearerChannel (TdmaBc)
COMPONENT RoutingGateway (RGty)
COMPONENT PCUSupportApplication (Pcusa)
COMPONENT HlrSimulator (HlrSim)
COMPONENT GprsIpServer (Gips)
COMPONENT GprsSubscriberControl (Gsc)
COMPONENh1T GprsSubscriberDataPath (Gsd)
COMPONENT SgGprsTransportLayer (SgGtl)
COMPONENT PacketControlUnitSupportNode (Pcusn)
COMPONENT PcGprsTransportLayer (PcGtl)
COMPONENT ServingGprsSupportNode (Sgsn)
COMPONENT TdmaIwfFcBearerChannel (TdmaFcBc)
COMPONENT Layer2TunnelingProtocolAccessConcentrator (Lac)
COMPONENT MaintenanceMonitorTx (MmTx)
COMPONENT FrameRelayIpServer (FrIpServer)
COMPONENT PppIwf (Piwf)
COMPONENT SgsnAccountingServer (Sas)

COMPONENT SignallingGateway (Sg)
COMPONENT VirtualMediaGateway (Vmg)
COMPONENT SignallingConnControlPart (Sccp)
COMPONENT MessageTransferPartLayer3 (Mtp3)
COMPONENT SaalNni (SaalNni)
COMPONENT UmtsServingGprsSupportNode (Usgsn)
COMPONENT UsgsnSubscriberControl (Usc)
COMPONENT UsgsnSubscriberDatapath (Usd)
COMPONENT IuxInterface (IuxIf)
COMPONENT LawfulInterceptAccessFunction (Liaf)
COMPONENT DualLpEquipmentProtection (Dlep)
COMPONENT TcapStack (Tcap)
COMPONENT IpDlciGroup (IpDlciGrp)
COMPONENT LocalMedia
COMPONENT ServiceTrace (SrvTrace)
COMPONENT SignallingSystem7 (Ss7)
COMPONENT VcTester (Vct)
COMPONENT LineAutomaticProtectionSwitching (Laps)

Dyn. Subcomp.

COMPONENT FileSystem (Fs)
COMPONENT TransportResource (Trm)
COMPONENT NumberingPlanIndicator (Npi)
COMPONENT LpPair (LpP)

Common Verbs

Help
List

## VERB LOGOUT (LOGOFF)

Impact

Passive

Description

*Logout*
This verb terminates a Local or Telnet Operator session.

If the session was in provisioning mode, an *End Prov* command is effectively executed before the session terminates. The edit view is neither saved nor modified by logging out while in provisioning mode.

## VERB ME

| | |
|---|---|
| Impact | Passive |
| Description | *Me*<br>This verb displays an FMIP, Local or Telnet Operator's component name and userid as well as other information. |

## VERB CANCEL

| | |
|---|---|
| Impact | Passive |
| Description | *Cancel*<br>This verb aborts the latest command, if possible. |

## VERB QUIT (EXIT)

| | |
|---|---|
| Impact | Passive |
| Description | *Quit*<br>This verb terminates a Local or Telnet Operator session, just like the *Logout* command does.<br><br>If the session was in provisioning mode, an *End Prov* command is effectively executed before the session terminates. The edit view is neither saved nor modified by logging out while in provisioning mode. |

## VERB RESETLOCAL

| | |
|---|---|
| Impact | System_admin |
| Description | *Resetlocal*<br>This verb logs out a user currently using the local operator port on the CP. This command can be executed from a telnet session to force another user out of the local port. |

Passport 7400, 15000, 20000

# Component EM

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component FrAtm

241-5701-060

Passport 7400, 15000, 20000

# Component FrAtm

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT FrameRelayAtmInterface (FrAtm)

| | |
|---|---|
| Instance | Decimal (1..4294967295) |
| Groups | "GROUP FrAtm CustomerIdentifierData (CidData)"<br>"GROUP FrAtm OsiState (State)"<br>"GROUP FrAtm Statistics (Stats)"<br>"GROUP FrAtm IfEntryProv (IfEntry)"<br>"GROUP FrAtm OperationalStatus (OperStatus)"<br>"GROUP FrAtm EmissionPriorityQs"<br>"GROUP FrAtm TrafficStatistics (TrafficStats)" |
| Scope | Application |
| Description | *FrameRelayAtmInterface/n*<br>This component defines an instance of the Frame Relay to ATM interworking interface. It manages the set of Frame Relay DLCI connections that are interworked with ATM connections. The component instance value is a unique positive integer within a module. Framer is created whenever the FrAtm is added. Users who need VirtualFramer should delete the Framer first, then add the VirtualFramer. |

| | |
|---|---|
| Subcomponents | "COMPONENT FrAtm LocalManagementInterface (Lmi)"<br>"COMPONENT FrAtm ConnectionAdministrator (Ca)" |
| Opt. Subcomp. | "COMPONENT FrAtm Framer"<br>"COMPONENT FrAtm DataLinkConnectionIdentifier (Dlci)"<br>"COMPONENT FrAtm VirtualFramer (VFramer)"<br>"COMPONENT FrAtm Address (Addr)"<br>"COMPONENT FrAtm Reroute" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP FrAtm CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

## ATTRIBUTE FrAtm customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.<br><br>Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those |

components which have a matching CID.

An operator CID of 0 is used to identify the Network Manager (referred to as “NetMan” in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to “basic CIDs” in DPN) may be assigned to specific customers.

Values: Decimal (0; 1..8191)

Default: 0

## GROUP FrAtm OsiState (State)

Properties: Operational

Description: This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

## ATTRIBUTE FrAtm adminState (osiAdmin)

Access: Read only

Description: This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE FrAtm operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE FrAtm usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has

spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
idle
active (activ)
busy

Default
idle

### ATTRIBUTE FrAtm availabilityStatus (osiAvail)

Access
Read only

Description
If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.

The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.

The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.

The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.

The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

| | |
|---|---|
| Default | No default |

### ATTRIBUTE FrAtm proceduralStatus (osiProc)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.<br><br>The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.<br><br>The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.<br><br>The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.<br><br>The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***. |

| | |
|---|---|
| Set of | initializationRequired (initRq)<br>notInitialized (notInit)<br>initializing (init)<br>reporting (report)<br>terminating (term) |
| Default | No default |

### ATTRIBUTE FrAtm controlStatus (osiCntrl)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.<br><br>The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.<br><br>The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.<br><br>The value ***suspended*** indicates that the service has been administratively suspended. |
| Set of | subjectToTest (subTst)<br>partOfServicesLocked (partLk)<br>reservedForTest (rsrvd)<br>suspended (suspnd) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE FrAtm alarmStatus (osiAlarm)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.<br><br>The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.<br><br>The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.<br><br>The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.<br><br>The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component. |
| Set of | underRepair (repair)<br>critical (crit)<br>major<br>minor<br>alarmOutstanding (outst) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE FrAtm standbyStatus (osiStby)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Standby status of the component.<br><br>The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.<br><br>The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.<br><br>The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.<br><br>The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource. |
| Values | hotStandby (hot)<br>coldStandby (cold)<br>providingService (serv)<br>notSet (nSet) |
| Default | notSet |

### ATTRIBUTE FrAtm unknownStatus (osiUnknw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Unknown status of the component. |

The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.

The value ***true*** indicates that the actual state of the component is not known for sure.

Values: false
true

Default: false

### GROUP FrAtm Statistics (Stats)

Properties: Operational

Description: FrUni/n Statistics
This group contains the statistics about the operational behavior of the service at the interface level.

### ATTRIBUTE FrAtm lastUnknownDlci (ludlc)

Access: Read only

Description: This attribute identifies the most recent DLCI which user frames were received on for which a DLCI has not been provisioned on the port.

Values: Decimal (0..1023)

Default: 0

### ATTRIBUTE FrAtm unknownDlciFramesFromIf (unknown)

Access: Read only

Description:

This attribute contains a count of the number of frames received from the interface with an unknown DLCI (DLCI which is not provisioned). When the maximum is reached the count wraps to zero.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE FrAtm invalidHeaderFramesFromIf (invalid)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames received from the interface with an invalid header format. When the maximum is reached the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### GROUP FrAtm IfEntryProv (IfEntry)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the ifEntry. |

### ATTRIBUTE FrAtm ifAdminStatus (ifState)

| | |
|---|---|
| Access | Read and write |
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE FrAtm ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

## GROUP FrAtm OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

## ATTRIBUTE FrAtm snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

## GROUP FrAtm EmissionPriorityQs

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attribute to specify the number of Frame Relay egress emission priority queues to be used on that Frame Relay Interface |

## ATTRIBUTE FrAtm numberOfEmissionQs

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the number of egress emission priority queues that will be used for that Frame Relay interface.<br><br>For V.35, V.11, HSSI, E1, DS1, E3, DS3 or 8pDS1 the possible values are: ***2*** (in which case they are hardware queues), or ***4*** (in which case they are software queues).<br><br>For DS1C, E1C or DS3C the possible values are ***2, 4*** (in all cases |

they are software queues).

For 32 port Msa cards the possible values are ***2, 4*** (in all cases they are hardware queues).

For 4pDS3Ch, 1pSTM1ChSmIr PQC6v2 (also known as PQC2) the possible values are ***2, 4*** (in all cases they are hardware queues).

For 4pDS3Ch PQC12, setting this attribute has no effect on the number of egress emission priority queues, four hardware queues are always used.

Values: Decimal (2; 4)

Default: 2

## GROUP FrAtm TrafficStatistics (TrafficStats)

Properties: Operational

Description: This operational group provides the traffic statistics of the service at the interface level. Each attribute type is a non-negative integer which monotonically increases until it reaches a maximum value, at which point it wraps around and starts increasing again from zero.

## ATTRIBUTE FrAtm frmToIfByQueue

Access: Read only

Description: This attribute counts the frames transmitted to the interface through each of the egress queues. The number of queues is determined by the attribute *numberOfEmissionQs*. Egress queue 0 has the lowest priority, and egress queue 3 has the highest priority.

The attribute is displayed only on SBIC cards when *numberOfEmissionQs* is 4.

Values: Decimal (0..4294967295)

Replication: Decimal (0..3)

| | |
|---|---|
| Default | No default |

### ATTRIBUTE FrAtm octetToIfByQueue

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the octets transmitted to the interface through each of the egress queues. The number of queues is determined by the attribute *numberOfEmissionQs*. Egress queue 0 has the lowest priority, and egress queue 3 has the highest priority.<br><br>The attribute is displayed only on SBIC cards when *numberOfEmissionQs* is 4. |
| Values | Decimal (0..4294967295) |
| Replication | Decimal (0..3) |
| Default | No default |

### COMPONENT FrAtm Framer

| | |
|---|---|
| Groups | "GROUP FrAtm Framer Provisioned (Prov)"<br>"GROUP FrAtm Framer LinkOptions (Link)"<br>"GROUP FrAtm Framer OsiState (State)"<br>"GROUP FrAtm Framer Statistics (Stats)"<br>"GROUP FrAtm Framer LinkUtilization (Util)" |

"COLLECTED STATS FrameRelayAtmInterface Framer"

| | |
|---|---|
| Scope | Application |
| Description | *FrUni/n Framer*<br>*FrNni/n Framer*<br>*FrAtm/n Framer*<br>This component controls link layer framing for application components sending and receiving data on a link interface. It is also through *Framer*, that an application component is associated with a specific hardware link interface.<br><br>The *Framer* component provides provisionable attributes related to datapath aspects of the hardware interface (such as crc and frame length) rather than interface specific attributes (such as |

modem leads and clocking) which are associated with specific hardware components (such as *V35/n* or *DS1/n*). The *Framer* component also provides a provisionable attribute which binds the application component to a specific hardware component.

The *Framer* component contains operational attributes for link interface datapath statistics (such as frame counts and aborts).

Common Verbs

Help
List
Display
Add
DELete

## GROUP FrAtm Framer Provisioned (Prov)

Properties: Provisioned

Description: This group contains the base provisioning data for the *Framer* component. Application or hardware interface specific provisioning data is contained in other provisionable *Framer* groups.

## ATTRIBUTE FrAtm Framer interfaceName

Access: Read and write

Criticality: Process

Description: This attribute contains a hardware component name.

The attribute associates the application with a specific link. This defines the module processor on which *Framer*'s parent component (as well as *Framer* itself) will run.

Values: Link (Hardware, applicationFramerName)

Default: No default

## GROUP FrAtm Framer LinkOptions (Link)

Properties: Provisioned

Description — This group contains attributes defining the framing of data on the link interface.

## ATTRIBUTE FrAtm Framer dataInversion

Access — Read and write

Description — This attribute determines whether data bits are to be inverted (1 to 0 and 0 to 1) before transmission of frames to the interface. If the value of this attribute is On, the incoming data bits will also be inverted when frames are received from the link before being processed.

This option is typically used in ***hdlc*** framing mode when inversion is used to guarantee 1's density.

Note that aborts (in ***hdlc*** and ***interrupting*** modes) are corrupted when data is inverted.

This attribute may only take its default value for non-MSA cards.

Values — off
on

Default — off

## ATTRIBUTE FrAtm Framer frameCrcType

Access — Read and write

Description — This attribute defines the type of CRC used.

The CRC value calculated is appended to the end of the frames transmitted to the link. The CRC value is removed from the end of frames received from the link and checked for correctness. NoCrc means that CRC is not used.

This attribute may take only its default value for non-MSA cards.

Values — crc16
crc32
noCrc

Default crc16

### ATTRIBUTE FrAtm Framer flagsBetweenFrames

Access Read and write

Description This attribute defines the number of flags that are inserted between frames sent to the link interface. The flagBetweenFrames can be set to only 1, 2, 4, 8 or 16 for 4pDS3Ch FrameRelay FP.

Values Decimal (1..16)

Default 1

### GROUP FrAtm Framer OsiState (State)

Properties Operational

Description This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE FrAtm Framer adminState (osiAdmin)

Access Read only

Description This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is

administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE FrAtm Framer operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE FrAtm Framer usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

| | |
|---|---|
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP FrAtm Framer Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational statistics data for a Framer component. |

### ATTRIBUTE FrAtm Framer aborts

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of aborts received. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrAtm Framer crcErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of frames with CRC errors, occurring in the receive direction from the link. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrAtm Framer lrcErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of frames with LRC errors, occurring in the Tx link prior to transmission onto the link. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrAtm Framer nonOctetErrors

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute is the total number of frames that were non octet aligned. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrAtm Framer overruns

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of frames received from the link for which overruns occurred. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrAtm Framer underruns

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of frames transmitted to the link for which underruns occurred. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrAtm Framer largeFrmErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of frames received which were too large. The frame exceeded the *maximumFrameLengthLimit* provisioned attribute or it contained more than the 255 block hardware limit. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrAtm Framer frmModeErrors

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute is the total number of frames detected with framing mode errors. A *framingModeError* is flagged when frames are inconsistent with the specified *framingType*, that is when interrupting frames are used while running in hdlc mode. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrAtm Framer frmToIf

| | |
|---|---|
| Access | Read only |
| Description | The number of frames transmitted to the link interface by Framer.<br><br>Note: This does not include the number of frames transmitted directly to the hardware queue, thus bypassing the Framer component. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE FrAtm Framer frmFromIf

| | |
|---|---|
| Access | Read only |
| Description | The number of frames received from the link interface by Framer. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE FrAtm Framer octetFromIf

| | |
|---|---|
| Access | Read only |
| Description | The number of bytes received from the link interface by Framer. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE FrAtm Framer ingressFrameDiscards

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute is the total number of frames discarded at ingress PQC. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### GROUP FrAtm Framer LinkUtilization (Util)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the link utilization operational data for a Framer component. |

### ATTRIBUTE FrAtm Framer normPrioLinkUtilToIf

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the utilization of the normal and high priority data traffic (interruptible traffic) sent to the link as a percentage of the available bandwidth on the link. Note that this includes traffic with Transfer Priorities (TP) of 0, 6 and 9 and/or Emission Priority of 2 and 3. The utilization is the average for the last minute. |
| Values | Decimal (0..100) |
| Units | % |
| Default | 0 |

### ATTRIBUTE FrAtm Framer normPrioLinkUtilFromIf

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the utilization of the normal and high priority data traffic (interruptible traffic) received from the link as a percentage of the available bandwidth on the link. Note that this includes traffic with Transfer Priorities (TP) of 0, 6 and 9 and/or Emission Priority of 2 and 3. The utilization is the average for the last minute. |
| Values | Decimal (0..100) |
| Units | % |

Default 0

## COLLECTED STATS FrameRelayAtmInterface Framer

Description The statistics record generated by the FrameRelayAtmInterface Framer component.

### ATTRIBUTE FrAtm Framer rxBytes

Description This attribute provides the number of bytes received on the link by the Framer in the last collection interval.

Values Long Integer

### ATTRIBUTE FrAtm Framer rxFrames

Description This attribute provides the number of frames received on the link interface by the Framer in the last collection interval.

Values Long Integer

### ATTRIBUTE FrAtm Framer txBytes

Description This attribute provides the number of bytes transmitted to the link by the Framer in the last collection interval. This value could be zero if the application sends the frames directly to the link.

Values Long Integer

### ATTRIBUTE FrAtm Framer txFrames

Description This attribute provides the number of frames transmitted to the link interface by the Framer in the last collection interval. This value could be zero if the application sends the frames directly to the link.

Values Long Integer

### ATTRIBUTE FrAtm Framer rxTotalLinkUtil

Description This attribute provides the average total link utilization computed based on the total number of bytes received on the link in the last collection interval.

Values Decimal (0..100)

## COMPONENT FrAtm LocalManagementInterface (Lmi)

| | |
|---|---|
| Groups | "GROUP FrAtm Lmi ProtocolParameters (Parms)"<br>"GROUP FrAtm Lmi OsiState (State)"<br>"GROUP FrAtm Lmi ProtocolStatusInfo (Psi)"<br>"GROUP FrAtm Lmi Statistics (Stats)"<br>"GROUP FrAtm Lmi UspProtocolParameters (UspParms)" |
| Scope | Application |
| Description | *FrUni/n LocalManagementInterface*<br>*FrNni/n LocalManagementInterface*<br>*FrAtm/n LocalManagementInterface*<br>This component defines the parameters for implementing the Local Management Interface protocol. |
| Common Verbs | Help<br>List<br>Display |

## GROUP FrAtm Lmi ProtocolParameters (Parms)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes of the *LMI* component. |

## ATTRIBUTE FrAtm Lmi procedures (proc)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute selects the procedures to be used for the Local Management Interface. The following procedures are supported:<br><br>***none:*** no Local Management Interface procedures are running on this interface. This accommodates Frame Relay user equipment that has not implemented any LMI procedures. The remaining attributes of this group are ignored.<br><br>For the ***4pDS3Ch*** card, when the *timeslot* of the *channel* component linked to this *FrUni* is set to ***none***, only ***none*** is |

permitted for the *procedures* attribute of this *Lmi* component.

***vendorForum***: Local Management Interface procedures from the Vendor Forum specification are supported on this interface. *DLCI 1023* is used for the LMI protocol. This value cannot be used if the side attribute is both.

***ansi***: Local Management Interface procedures from the ANSI specification are supported. *DLCI 0* is used for the LMI protocol.

***itu***: Local Management Interface procedures from the ITU-T specification are supported. *DLCI 0* is used for the LMI protocol. Was previously ***ccitt***.

***autoConfigure***: The interface determines automatically which Local Management Interface procedures to use. This value cannot be used if the side attribute is user.

The procedures currently in use can be seen in the operational attribute *opProcedures*.

Values
none
vendorForum
ansi
itu (ccitt)
autoConfigure

Default
autoConfigure

## ATTRIBUTE FrAtm Lmi asyncStatusReport (asr)

Access
Read and write

Description
This attribute selects the use of asynchronous PVC status report procedures as specified in ANSI, CCITT, and Vendor Forum.

This attribute can be set to ***on*** or ***off***. If *procedure*s is set to ***none***, this attribute is ignored.

Values
off
on

Default
off

### ATTRIBUTE FrAtm Lmi errorEventThreshold (n392)

| | |
|---|---|
| Access | Read and write |
| Description | An event is defined as follows: (1) receipt of a STATUS ENQUIRY message; or (2) expiration of timer T392. An error event is (1) nonreceipt of STATUS ENQUIRY in T392 seconds; (2) invalid contents of a LMI message; (3) invalid receive sequence number. This attribute specifies the number of error events which, if they occur within *eventCount* events, cause a protocol error condition. The condition is cleared after *eventCount* sequential correct events occur. This attribute corresponds to the nN2 parameter described in the Vendor Forum Specification.<br><br>It must be less than or equal to *eventCount*. |
| Values | Decimal (1..10) |
| Default | 3 |

### ATTRIBUTE FrAtm Lmi eventCount (n393)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the number of contiguous events within which no more than *eventErrorThreshold* error events are allowed. This attribute corresponds to the nN3 parameter described in the Vendor Forum Specification.<br><br>It must be greater than or equal to *errorEventThreshold*. |
| Values | Decimal (1..10) |
| Default | 4 |

### ATTRIBUTE FrAtm Lmi checkPointTimer (t392)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute selects the time (in seconds) within which a STATUS ENQUIRY message is expected. This attribute corresponds to the nT2 parameter described in the Vendor Forum Specification. |

| | |
|---|---|
| | It must be less than *messageCountTimer.* |
| Values | Decimal (1; 2; 3; 4; 5; 10; 15; 20; 25; 30) |
| Units | seconds |
| Default | 15 |

### ATTRIBUTE FrAtm Lmi messageCountTimer (nt3)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute selects the time (in seconds) within which at most five (this is a fixed value and corresponds to maximum message count in VendorForum) STATUS ENQUIRY messages are expected. This attribute applies only when the *lmiProcedures* is set to ***vendorForum***.<br><br>*messageCountTimer* must always be greater than *checkPointTimer.* |
| Values | Decimal (5; 10; 15; 20; 25; 30) |
| Units | seconds |
| Default | 20 |

### ATTRIBUTE FrAtm Lmi ignoreActiveBit (inab)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies whether the Frame Relay LMI Active Bit (A-bit) has a bearing on the transfer of user data across this Frame Relay interface for both directions of traffic flow.<br><br>When this attribute is set to ***yes***, the A-bit status of a user DLCI connection does not affect data transfer.<br><br>When this attribute is set to ***no,*** data received from the local interface will be discarded if an A-bit =0 condition exists towards the local user. Data being sent to the local interface is discarded if an A-bit = 0 condition exists towards the subnet. |

| | |
|---|---|
| Values | no<br>yes |
| Default | no |

### ATTRIBUTE FrAtm Lmi side

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute can be set to ***user, network,*** or ***both***.<br><br>When this attribute is set to ***user***, USP LMI procedures are running. When this attribute is set to ***network***, NSP LMI procedures are running. When this attribute is set to ***both***, USPNSP LMI procedures are running.<br>When the value is ***both***, the *procedures* attribute must not be set to ***vendorForum***.<br>Setting the value to ***user*** when the *procedures* attribute is set to ***autoConfigure*** is disallowed semantically. |
| Values | network<br>user<br>both |
| Default | network |

### ATTRIBUTE FrAtm Lmi pvcConfigParmsInFsr (pvcConfig)

| | |
|---|---|
| Access | Read and write |
| Description | When this attribute is set to ***yes***, additional Q.933 information elements are included in the LMI Full Status message to facilitate CPE PVC parameter configuring.<br><br>When set to ***yes***, the *Check Prov* command fails if the *Lmi side* is not set to ***network***.<br><br>When set to ***yes***, *Check Prov* fails if the number of DLCIs on the *FrUni* is greater than 300.<br><br>This attribute should be set to ***no*** if the *BnxProtocol* component is provisioned under this *FrUni* for BNX Frame Relay |

interworking.

If the service is not a *FrUni* this attribute is ignored.

Values
no
yes

Default
no

### ATTRIBUTE FrAtm Lmi pvcAlarmsReporting (pvcAlarms)

Access
Read and write

Description
This attribute specifies if alarms are generated when PVCs change state in the local network, an adjacent network or in remote networks.

When the value is ***internal***, PVCs operational status change in the local network are reported in alarms. When the value is ***external***, PVCs operational status change in an adjacent or remote networks are reported in alarms. When the value is ***both***, PVCs status change in local and adjacent or remote networks are reported in alarms. When the value is ***none***, no alarms are issued for PVCs status change.

There are four kinds of alarms controlled by the attribute.
Alarm 7007 200x reports PVCs that have lost connectivity in an adjacent or remote networks.
Alarm 7007 201x reports PVCs that have reached the data transfer state in an adjacent or remote networks.
Alarm 7007 202x reports PVCs that have lost connectivity in the local network.
Alarm 7007 203x reports PVCs that have reached the data transfer state in the local network.

Each alarm can report a maximum of 112 DLCIs. Up to nine alarms of the same kind may be required to report all PVCs that have changed state if all these PVCs have experienced the same condition at the *FrUni* interface.

Values
external
internal

| | |
|---|---|
| | both<br>none |
| Default | external |

### GROUP FrAtm Lmi OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE FrAtm Lmi adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

## ATTRIBUTE FrAtm Lmi operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

## ATTRIBUTE FrAtm Lmi usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

## GROUP FrAtm Lmi ProtocolStatusInfo (Psi)

| | |
|---|---|
| Properties | Operational |
| Description | This group provides the protocol status of the Local Management Interface. |

## ATTRIBUTE FrAtm Lmi protocolStatus

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether the LMI is in an error condition or whether the LMI procedures are behaving normally. When operating with no LMI protocol, this attribute is always set to ***normalCondition***. When operating with LMI procedures, this attribute is set to ***errorCondition*** after n392 of the last n393 events are in error. The consequence of an ***errorCondition*** is that all DLCIs on this interface will become inactive in both directions. The ***errorCondition*** is cleared and a ***normalCondition*** is indicated when a sufficient number of events have occurred without error. In ANSI, this occurs when n393 consecutive good events take place.<br><br>If the *procedures* attribute is set to ***autoConfigure***, this attribute is set to ***configuring*** while adaptive LMI determines which LMI procedures are running on the link. A single LMI error event during auto configuration causes the attribute value to change to ***errorCondition***. If during ***configuring*** no LMI message is received, an LMI ***errorCondition*** is raised after n392 x t392 seconds. |
| Values | errorCondition<br>normalCondition<br>configuring |
| Default | No default |

## ATTRIBUTE FrAtm Lmi opProcedures (opproc)

| | |
|---|---|
| Access | Read only |
| Criticality | Process |

Description

The *opProcedures* attribute indicates the procedures being used for the Local Management Interface. This attribute should be ignored if *protocolStatus* is not ***normalCondition***. The following procedures are supported:

***none:*** Local Management Interface procedures are not running on this interface. This accommodates Frame Relay user equipment that has not implemented any LMI procedures.

***vendorForum***: Local Management Interface procedures from the Vendor Forum specification are running on this interface. *DLCI 1023* is used for the LMI protocol.

***ansi***: Local Management Interface procedures from the ANSI specification are running. *DLCI 0* is used for the LMI protocol.

***itu***: Local Management Interface procedures from the ITU-T specification are running. *DLCI 0* is used for the LMI protocol. Was previously ***ccitt***.

***unknown***: Local Management Interface procedures have yet to be determined by Adaptive LMI.

Values

none
vendorForum
ansi
itu
unknown

Default

No default

## GROUP FrAtm Lmi Statistics (Stats)

Properties

Operational

Description

This group contains the operational statistics for the Frame Relay Local Management Interface.

## ATTRIBUTE FrAtm Lmi keepAliveStatusToIf (kasti)

Access

Read only

| | |
|---|---|
| Description | This attribute counts the number of Local Management Interface keep alive status messages sent to the external user device in response to a status enquiry for keep alive status. When the maximum count is exceeded it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrAtm Lmi fullStatusToIf (fsti)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of Local Management Interface full status messages sent to the external user device in response to a status enquiry for keep alive or full status. When the maximum count is reached it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrAtm Lmi keepAliveStatusEnqFromIf (kafi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of Local Management Interface valid keep alive status enquiry messages received from the external user device. When the maximum count is reached it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrAtm Lmi fullStatusEnqFromIf (fsfi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of Local Management Interface valid full status enquiry messages received from the external user device. When the maximum count is reached it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrAtm Lmi networkSideEventHistory (nsh)

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the Local Management Interface network side procedure event history in order of occurrence. An event is represented by a single symbol. A '+' symbol indicates a good event. An 'X' symbol indicates a protocol error event. The leftmost event is the most recent to occur. The provisioned *eventCount* (nN3/N393) dictates the maximum number of events displayed. A good event is triggered by receipt of a valid status enquiry message. An error event is one of three possibilities, either a nT2/T392 timer expiry, receipt of a status enquiry message with bad sequence numbers, or when *lmiProcedures* is provisioned to vendorForum and we receive more than nN4 status enquiry messages within the provisioned *messageCountTimer* (nT3). |
| Values | String (1..10, ASCII) |
| Default | No default |

### ATTRIBUTE FrAtm Lmi protocolErrors (proto)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of Local Management Interface protocol errors. It is the sum of the sequence (*sequenceErrors*), timeout (*pollingVerifTimeouts*) and too many status enquiry messages received within the *messageCountTimer* (nT3) errors. The too many status enquiries error only applies when *lmiProcedures* is set to ***vendorForum***. When the maximum count is exceeded it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrAtm Lmi unexpectedIes (uie)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of Local Management Interface frames received with an Information Element identifier that is unknown or unexpected. An unexpected Information Element is |

| | |
|---|---|
| | not a protocol error. When the maximum count is reached, this counter wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrAtm Lmi sequenceErrors (seq)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of Local Management Interface Status Enquiry message sequence errors. A sequence error is receipt of a Status Enquiry message with a receive sequence number not equal to the last send sequence number. When the maximum count is reached the counter wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrAtm Lmi unexpectedReports (ur)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of Local Management Interface frames received with an unknown or unexpected report type. An unexpected report type is not a protocol error. When the maximum count is reached the counter wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrAtm Lmi pollingVerifTimeouts (tmo)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of *checkPointTImer* (t392) timer expiries occurring on the Local Management Interface. When the maximum count is reached the counter wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrAtm Lmi keepAliveEnqToIf (kaeti)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of Local Management Interface keep alive enquiry status messages sent to the external user device for keep alive status. When the maximum count is reached it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrAtm Lmi fullStatusEnqToIf (fseti)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of Local Management Interface full status messages sent to the external user device in response to a status enquiry for keep alive or full status. When the maximum count is reached it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrAtm Lmi userSideEventHistory (ush)

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the Local Management Interface user side procedure event history in order of occurrence. An event is represented by a single symbol. A ‘+’ symbol indicates a good event. An ‘X‘ symbol indicates a protocol error event. The left most event is the most recent to occur. The provisioned *eventCount* (nN3/N393) dictates the maximum number of events displayed. A good event is triggered by receipt of a valid status message. An error event is either a nT1/T391 timer expiry or receipt of a status message with bad sequence numbers. |
| Values | String (1..10, ASCII) |
| Default | No default |

### ATTRIBUTE FrAtm Lmi statusSequenceErrors (stseq)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of Local Management Interface Status message sequence errors. A sequence error is receipt of a Status message with a receive sequence number not equal to the last send sequence number. When the maximum count is reached the counter wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrAtm Lmi noStatusReportCount (nsrc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times when no status report or an invalid status report comes from the external network. This attribute is incremented in two cases:<br>i) after a status enquiry is sent out and T391 timer expires without having a status report received.<br>ii) an invalid status report is received.<br><br>When the maximum count is reached it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### GROUP FrAtm Lmi UspProtocolParameters (UspParms)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes of the Local Management Interface user side procedure. |

### ATTRIBUTE FrAtm Lmi fullStatusPollingCycles (n391)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies how frequently the Frame Relay UNI service should initiate a Status Enquiry for a full PVC status report. A polling cycle is a Status Enquiry and Status Report exchange. |

This attribute is used only if the *side* attribute is either ***user*** or ***both***.

Values: Decimal (1..255)

Default: 6

### ATTRIBUTE FrAtm Lmi linkVerificationTimer (t391)

Access: Read and write

Description: This attribute specifies how frequently the Frame Relay UNI service should initiate a Status Enquiry for link integrity verification. It must be less than *checkPointTimer (t392)*.

When the Lmi *side* is ***network***, this attribute is ignored.

Values: Decimal (1; 2; 3; 4; 5; 10; 15; 20; 25; 30)

Units: seconds

Default: 10

### COMPONENT FrAtm DataLinkConnectionIdentifier (Dlci)

Instance: Decimal (16..1007)

Groups:
"GROUP FrAtm Dlci OsiState (State)"
"GROUP FrAtm Dlci ABitStatus (ABit)"
"GROUP FrAtm Dlci ServiceParametersOp (SpOp)"
"GROUP FrAtm Dlci Statistics (Stats)"
"GROUP FrAtm Dlci CallData (Calld)"
"GROUP FrAtm Dlci IntervalData (Int)"

Scope: Application

Description: *FrAtm/n DataLinkConnectionIdentifier/n*
This component represents a data link connection. The instance value defines the DLCI value for this connection. For example, *Dlci*/30 defines a logical connection with a DLCI of 30.

For the ***4pDS3Ch*** card, when the *timeslot* of the *channel* component linked to this *FrAtm* is set to ***none***, no *Dlci* component is allowed under this *FrAtm*.

The *Dlci* component is a subcomponent of *FrAtm*, and is responsible for the Frame Relay U-plane (User-plane) protocol for the specified data link connection.

Subcomponents "COMPONENT FrAtm Dlci ServiceParameters (Sp)"

Opt. Subcomp. "COMPONENT FrAtm Dlci ServiceInterworkingFunction (Siwf)"
"COMPONENT FrAtm Dlci NetworkInterworkingFunction (Niwf)"
"COMPONENT FrAtm Dlci EgressServiceParameters (EgSp)"

Common Verbs
Help
List
Display
Add
DELete
LOCK
Unlock

## GROUP FrAtm Dlci OsiState (State)

Properties Operational

Description This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

## ATTRIBUTE FrAtm Dlci adminState (osiAdmin)

Access Read only

Description This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component.

When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE FrAtm Dlci operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE FrAtm Dlci usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### ATTRIBUTE FrAtm Dlci availabilityStatus (osiAvail)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present. |

The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.

The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.

The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.

The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

| | |
|---|---|
| Set of | inTest<br>failed<br>dependency (depend)<br>powerOff (pwrOff)<br>offLine<br>offDuty<br>degraded (degrad)<br>notInstalled (notIn)<br>logFull<br>migrating |
| Default | No default |

### ATTRIBUTE FrAtm Dlci proceduralStatus (osiProc)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.<br><br>The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.<br><br>The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***. |

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

## ATTRIBUTE FrAtm Dlci controlStatus (osiCntrl)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

Set of

subjectToTest (subTst)
partOfServicesLocked (partLk)
reservedForTest (rsrvd)
suspended (suspnd)

Default

No default

## ATTRIBUTE FrAtm Dlci alarmStatus (osiAlarm)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of
underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default
No default

## ATTRIBUTE FrAtm Dlci standbyStatus (osiStby)

Access
Read only

Description
If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values
hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

| | |
|---|---|
| Default | notSet |

### ATTRIBUTE FrAtm Dlci unknownStatus (osiUnknw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Unknown status of the component.<br><br>The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.<br><br>The value ***true*** indicates that the actual state of the component is not known for sure. |
| Values | false<br>true |
| Default | false |

### GROUP FrAtm Dlci ABitStatus (ABit)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the A-Bit status information for this Data Link Connection Identifier. |

### ATTRIBUTE FrAtm Dlci aBitStatusToIf (abti)

| | |
|---|---|
| Access | Read only |
| Description | This attribute contains the most recent A-bit status sent to the interface. The A-bit status is part of the LMI protocol, and indicates the remote end's willingness to accept data from the local interface. When an inactive setting is sent out, the Frame Relay service will discard any data offered from the local interface. When an active setting is sent out, the Frame Relay service tries to process all data offered from the local interface. |
| Values | inactive<br>active<br>notApplicable |
| Default | No default |

### ATTRIBUTE FrAtm Dlci aBitReasonToIf (abrti)

| | |
|---|---|
| Access | Read only |
| Description | This attribute provides the reason (if any) for an inactive status to be sent to the interface. This reason is ***notApplicable*** for an active status. |
| Values | notApplicable<br>remoteUserSignaled<br>localLmiError<br>remoteLmiError<br>localLinkDown<br>remoteLinkDown<br>pvcDown |
| Default | No default |

### ATTRIBUTE FrAtm Dlci aBitStatusFromIf (abfi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the most recent A-Bit status received from the interface. |
| Values | inactive<br>active<br>notApplicable |
| Default | No default |

### ATTRIBUTE FrAtm Dlci aBitReasonFromIf (abrfi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute provides the reason (if any) for an inactive status to be sent to the subnet.<br>The value is ***notApplicable*** when the *aBitStatusFromIf* attribute is ***active***.<br>The value is ***remoteUserSignaled*** if the remote interface originating the A-Bit status detects that the virtual circuit is down at the remote network through the LMI protocol. The remote interface must be running network site LMI protocol for this A-Bit status reason to be sent.<br>The value is ***localLmiError*** if the LMI protocol is down at this |

interface.
The value is ***localLinkDown*** if the physical link is disabled at this interface.
The value is ***pvcDown*** if no A-Bit status has been sent to this interface from the local network.
The value is ***missingFromLmiReport*** if the remote interface did not provide a reason along with the inactive A-Bit status.

Values
notApplicable
remoteUserSignaled
localLmiError
localLinkDown
pvcDown
missingFromLmiReport

Default
No default

## GROUP FrAtm Dlci ServiceParametersOp (SpOp)

Properties
Operational

Description
This group contains service parameters for the *Dlci* component.

## ATTRIBUTE FrAtm Dlci maximumFrameSize (n203)

Access
Read only

Description
This attribute indicates the maximum number of octets which can be included in the information field. This definition does not include the FrameRelay header and CRC octets. This attribute corresponds to the dN1 parameter described in the Vendor Forum Specification.

Values
Decimal (1..8187)

Units
octets

Default
No default

## ATTRIBUTE FrAtm Dlci rateEnforcement (re)

Access
Read only

Description
This attribute indicates whether rate enforcement is in effect for this user Data Link Connection on this *FrAtm* interface.

When rate enforcement is on, Committed Information Rate (CIR) and DE=1 traffic will be measured and enforced.

When rate enforcement is off, all frames from the user will be accepted and no modifications to the frame with respect to the DE bit will be made.

Values
off
on

Default
No default

### ATTRIBUTE FrAtm Dlci committedInformationRate (cir)

Access
Read only

Description
This attribute indicates the committed information rate (CIR) in bits per second (bit/s) and represents the rate at which the network agrees to transfer information under normal conditions when *rateEnforcement* is ***on***. This rate is measured over a measurement interval (t).

This attribute is not applicable when *rateEnforcement* is ***off***.

Values
Decimal (0..50000000)

Units
bit/s

Default
No default

### ATTRIBUTE FrAtm Dlci committedBurstSize (bc)

Access
Read only

Description
This attribute indicates the committed burst size (Bc) in bits and represents the amount of data that a network agrees to transfer under normal conditions over a measurement interval (*t*) when rateEnforcement is ***on***. Data marked with DE=1 is not accounted for in committed burst size.

This attribute is not applicable when *rateEnforcement* is ***off***.

Values
Decimal (0..50000000)

| | |
|---|---|
| Units | bits |
| Default | No default |

### ATTRIBUTE FrAtm Dlci excessBurstSize (be)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the excess burst size (Be) in bits and represents the amount of uncommitted data that the network attempts to deliver over measurement interval (t) when *rateEnforcement* is ***on***. Data marked DE=1 by the user or by the network is accounted for here.<br><br>This attribute is not applicable ignored when *rateEnforcement* is ***off***. |
| Values | Decimal (0..50000000) |
| Units | bits |
| Default | No default |

### ATTRIBUTE FrAtm Dlci measurementInterval (t)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the time interval over which rates and burst sizes are measured.<br><br>This attribute is not applicable when *rateEnforcement* is ***off***. |
| Values | Decimal (0..4294967295) |
| Units | msec |
| Default | No default |

### ATTRIBUTE FrAtm Dlci emissionPriorityToIf (epToIf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the emission priority of frames sent to the interface.<br><br>If the value of *FrAtm/n numberOfEmissionQs* is ***2***, set the value |

of this attribute to either ***0*** or ***1***; if the value of *FrAtm/n numberOfEmissionQs* is ***4***, set the value of this attribute to one of ***0***, ***1***, ***2***, ***3***.

Values: Decimal (0; 1; 2; 3)

Default: No default

### ATTRIBUTE FrAtm Dlci dlciType (dlcty)

Access: Read only

Description: This attribute indicates the type of DLCI.
A value of ***serviceInterworking*** indicates that a *FrAtm/n Dlci/n Siwf* component is present.
A value of ***networkInterworking*** indicates that a *FrAtm/n Dlci/n Niwf* component is present.

Values: serviceInterworking
networkInterworking

Default: No default

### ATTRIBUTE FrAtm Dlci troubled (trb)

Access: Read only

Description: This attribute indicates whether or not the connection is in a troubled state. Connections may become troubled for the following reasons; if CAC failed to admit the call, or if one of the attributes *aBitStatusToIf*, *aBitStatusFromIf* goes inactive; otherwise it is set to no.

Values: no
yes

Default: no

### ATTRIBUTE FrAtm Dlci troubledReason (trbrc)

Access: Read only

Description: This attribute provides the reason (if any) for a troubled connection.

A value of ***notApplicable*** indicates no current failures; either

Connection Admission Control (CAC) is off, or call was admitted.

A value of ***notAdmitted*** indicates the CAC algorithm fails to admit this connection. Check if there is a sufficient bandwidth allocation.

A value of ***aBitInactive*** indicates that either the aBitStatusToIf or aBitStatusFromIf is inactive.

| | |
|---|---|
| Values | notApplicable<br>notAdmitted<br>aBitInactive |
| Default | notApplicable |

## GROUP FrAtm Dlci Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational statistics for the Frame Relay Data Link Connection Identifier. |

## ATTRIBUTE FrAtm Dlci frmToIf (fti)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames sent to the interface. When the maximum count is reached, the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## ATTRIBUTE FrAtm Dlci fecnFrmToIf (fecnti)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames sent to the interface with the Forward Explicit Congestion Notification (FECN) bit set. When the maximum count is reached, the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrAtm Dlci becnFrmToIf (becnti)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames sent to the interface with the Backward Explicit Congestion Notification (BECN) bit set. When the maximum count is reached, the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrAtm Dlci deFrmToIf (deti)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames sent to the interface with the Discard Eligibility (DE) bit set. When the maximum count is reached, the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrAtm Dlci discCongestedToIf (discardcti)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frame discards at the Frame Relay service due to local congestion in the direction toward the interface. When the maximum count is reached, the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrAtm Dlci discDeCongestedToIf (discarddecti)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of discarded frames, with the Discard Eligibility (DE) bit set, at the Frame Relay service, due to local congestion in the direction toward the interface. When the maximum count is reached, the count wraps to zero. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrAtm Dlci frmFromIf (ffi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames received from the interface. Frames that are discarded due to error or excess are not counted. When the maximum count is reached, the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrAtm Dlci fecnFrmFromIf (fecnfi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames received from the interface with the Forward Explicit Congestion Notification (FECN) bit set. When the maximum count is reached, the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrAtm Dlci becnFrmFromIf (becnfi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames received from the interface with the Backward Explicit Congestion Notification (BECN) bit set. When the maximum count is reached, the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrAtm Dlci efciFrmFromNetwork (efcifnwk)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the number of frames received from the interworking function with the Explicit Forward Congestion Indication (EFCI) bit set. When the maximum count is reached, the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrAtm Dlci deFrmFromIf (defi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames received from the interface with the Discard Eligibility (DE) bit set. When the maximum count is reached, the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrAtm Dlci excessFrmFromIf (excess)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames received from the interface with the Discard Eligibility (DE) bit clear, but subsequently set by the network due to rate enforcement. When the maximum count is reached, the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrAtm Dlci discExcessFromIf (discardefi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames which were discarded due to rate enforcement. When the maximum count is reached, the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrAtm Dlci discFrameAbit (discfab)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frame discards at the Frame Relay Service, due to an inactive PVC status, in the direction toward the interworking function. When the maximum count is reached, the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrAtm Dlci discCongestedFromIf (discardcfi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frame discards at the Frame Relay service due to local congestion in the direction toward the interworking function. When the maximum count is reached, the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrAtm Dlci discDeCongestedFromIf (discarddecfi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of discarded frames, with the Discard Eligibility (DE) bit set due to local congestion in the direction toward the interworking function. When the maximum count is reached, the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrAtm Dlci errorShortFrmFromIf (shortfi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames received with 0 octets in the information field. When the maximum count is reached, the count wraps to zero. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrAtm Dlci errorLongFrmFromIf (longfi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames received with number of octets in the information field greater than the subscribed maximum. When the maximum count is reached, the count wraps to zero. The hardware ignores frame lengths greater than the hardware receive buffer, and therefore does not includes them in this count. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrAtm Dlci becnFrmSetByService (becnset)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames with BECN set by the Frame Relay service. It is incremented when the Frame Relay service sets BECN on a frame upon detecting local congestion. This count is incremented regardless of whether the frame already bears a set BECN bit since its use is to determine the place of congestion. When the maximum count is reached, the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrAtm Dlci bytesToIf (bti)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of bytes sent out the interface. When the maximum count is reached, the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrAtm Dlci deBytesToIf (debti)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of bytes sent to the interface with the Discard Eligibility (DE) bit set. When the maximum count is reached, the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrAtm Dlci discCongestedToIfBytes (discardctib)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of byte discards at the Frame Relay service due to local congestion in the direction toward the link. When the maximum count is reached, the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrAtm Dlci discDeCongestedToIfBytes (discarddectib)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of discard eligible (DE=1) byte discards at the Frame Relay service due to local congestion in the direction toward the link. When the maximum count is reached, the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrAtm Dlci bytesFromIf (bfi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of bytes received from the interface. Bytes that are discarded due to error or excess are not counted. When the maximum count is reached, the count wraps to zero. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrAtm Dlci deBytesFromIf (debi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of bytes received from the interface with the Discard Eligibility (DE) bit set. When the maximum count is reached, the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrAtm Dlci excessBytesFromIf (excessb)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of bytes received from the interface with the Discard Eligibility (DE) bit clear, but subsequently set by the network due to rate enforcement. When the maximum count is reached, the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrAtm Dlci discExcessFromIfBytes (discardebi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of bytes which were discarded due to rate enforcement. When the maximum count is reached, the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrAtm Dlci discByteAbit (discbab)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the bytes number of which were discarded due to the A-bit being turned off. When the maximum count is reached, the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrAtm Dlci discCongestedFromIfBytes (discardcbib)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of byte discards at the Frame Relay service due to local congestion in the direction toward the interworking function. When the maximum count is reached, the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrAtm Dlci discDeCongestedFromIfBytes (discarddecbib)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of discard eligible (DE=1) byte discards at the Frame Relay service due to local congestion in the direction toward the interworking function. When the maximum count is reached, the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrAtm Dlci errorShortBytesFromIf (shortbi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of bytes received with 0 octets in the information field. When the maximum count is reached, the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrAtm Dlci errorLongBytesFromIf (longbi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of bytes received when the number of octets in the information field is greater than the subscribed maximum. The hardware ignores bytes lengths greater than the hardware receive buffer and therefore does not include them in this count.<br><br>When the maximum count is reached, the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP FrAtm Dlci CallData (CallD)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational values for the *FrAtm Dlci* call data. If the *accountingEnabled* attribute is ***no***, then this group except for *accountingEnabled* is not displayed. |

### ATTRIBUTE FrAtm Dlci accountingEnabled

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether accounting is enabled. To enable accounting, the *FrAtm Ca accountCollection* attribute must be non-empty and *FrAtm Dlci Sp accounting* attribute must be ***on***. |
| Values | no<br>yes |
| Default | No default |

### ATTRIBUTE FrAtm Dlci accountingEnd

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether this DLCI represents the called or calling end of the connection. If the *accountingEnabled* attribute is ***no***, then this attribute is not displayed. |

| | |
|---|---|
| Values | callingEnd<br>calledEnd |
| Default | No default |

### ATTRIBUTE FrAtm Dlci correlationTag

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the unique string which identifies this connection. The value of this operational attribute can be provisioned in the correlationTag attribute of either the Siwf Npvc, Siwf Spvc, or Niwf Spvc subcomponents. For the Siwf Spvc and Niwf Spvc cases, when the provisionable correlationTag is an empty string, then this attribute receives the value of a system- generated correlationTag. Downstream processing uses this attribute to correlate accounting records issued at different nodes in the network. If the accountingEnabled attribute is no, then this attribute is not displayed. |
| Values | String (0..32, ASCII) |
| Default | "" |

### GROUP FrAtm Dlci IntervalData (Int)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational statistics for the *FrAtm Dlci* interval data. |

### ATTRIBUTE FrAtm Dlci startTime

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the start time of this interval. A new interval is started each time an accounting record is generated and call at a setup. If the *accountingEnabled* attribute is ***no***, then this attribute is not displayed. |
| Values | Time (DHMS) |
| Default | No default |

### ATTRIBUTE FrAtm Dlci totalIngressBytes (tib)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total payload bytes in received from the link since the start of the interval. To calculate total valid payload bytes received from link, subtract *discardedBytes* from this attribute. The start of the interval is captured in the *startTime* attribute. The count is reset to zero when an accounting record is generated or at call setup. If the *accountingEnabled* attribute is ***no***, then this attribute is not displayed. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE FrAtm Dlci totalEgressBytes

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total payload bytes sent to the link since the start of the interval. The start of the interval is captured in the *startTime* attribute. The count is reset to zero when an accounting record is generated or at call setup. If the *accountingEnabled* attribute is ***no***, then this attribute is not displayed. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE FrAtm Dlci eirIngressBytes

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total valid payload bytes in frames with the Discard Eligibility (DE) bit set to 1 received from the link since the start of the interval. Subtract this attribute and *discardedBytes* from *totalIngressBytes* to calculate total valid payload bytes in frames received from the link, with the DE bit set to 0. The start of the interval is captured in the *startTime* attribute. The count is reset to zero when an accounting record is generated or at call setup. If the *accountingEnabled* attribute is ***no***, then this attribute is not displayed. |

| | |
|---|---|
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE FrAtm Dlci eirEgressBytes

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total valid payload bytes in frames with the Discard Eligibility (DE) bit set sent to the link since the start of the interval. Subtract the value of this attribute from *totalEgressBytes* to calculate total valid payload bytes in frames, with DE set to 0, sent to the link. The start of the interval is captured in the *startTime* attribute. The count is reset to zero when an accounting record is generated or at call setup. If the *accountingEnabled* attribute is ***no***, then this attribute is not displayed. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE FrAtm Dlci discardedBytes

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total payload bytes in invalid frames received from the link and discarded at the DLCI since the start of the interval. This count is a sum of octets in frames discarded due to: frames too long or too short; A-Bit off; or to rate enforcement. The start of the interval is captured in the *startTime* attribute. The count is reset to zero when an accounting record is generated or at call setup. If the *accountingEnabled* attribute is ***no***, then this attribute is not displayed. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE FrAtm Dlci totalIngressFrames

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the total number of frames received from the link since the start of the interval. To calculate the total valid number of frames received from the link, subtract *discardedFrames* from this attribute. The start of the interval is captured in the *startTime* attribute. The count is reset to zero when an accounting record is generated or at call setup. If the *accountingEnabled* attribute is ***no***, then this attribute is not displayed. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrAtm Dlci totalEgressFrames

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames sent to the link since the start of the interval. The start of the interval is captured in the *startTime* attribute. The count is reset to zero when an accounting record is generated or at call setup. If the *accountingEnabled* attribute is ***no***, then this attribute is not displayed. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrAtm Dlci eirIngressFrames

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of valid frames with the Discard Eligibility (DE) bit set to 1 received from the link since the start of the interval. Subtract this attribute and *discardedFrames* from *totalIngressFrames* to calculate total valid frames received from the link, with the DE bit set to 0. The start of the interval is captured in the *startTime* attribute. The count is reset to zero when an accounting record is generated or at call setup. If the *accountingEnabled* attribute is ***no***, then this attribute is not displayed. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrAtm Dlci eirEgressFrames

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames with the Discard Eligibility (DE) bit set sent to the link since the start of the interval. Subtract the value of this attribute from *totalEgressFrames* to calculate total frames, with DE set to 0, sent to the link.The start of the interval is captured in the *startTime* attribute. The count is reset to zero when an accounting record is generated call setup. If the *accountingEnabled* attribute is ***no***, then this attribute is not displayed. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrAtm Dlci discardedFrames

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of invalid frames received from the link and discarded at the DLCI. The count is reset to zero when an accounting record is generated or at call setup. The count is a sum of frames discarded due to: frames too long or too short; A-Bit is off; or rate enforcement. If the *accountingEnabled* attribute is ***no***, then this attribute is not displayed. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrAtm Dlci elapsedDifference

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the elapsed time representing the of this interval data. It is the elapsed time in 0.1 second increments since the start of the interval. If the *accountingEnabled* attribute is ***no***, then this attribute is not displayed. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## COMPONENT FrAtm Dlci ServiceParameters (Sp)

| | |
|---|---|
| Groups | "GROUP FrAtm Dlci Sp Provisioned (Prov)" |
| Scope | Application |
| Description | *FrAtm/n Dlci/n ServiceParameters*<br>This component is a subcomponent of *Dlci*. It contains the provisionable attributes for the parent *Dlci* component. |
| Common Verbs | Help<br>List<br>Display |

## GROUP FrAtm Dlci Sp Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the Data Link Connection Identifier. These attributes reflect the service parameters specific to this instance of DLCI. The congestion control attributes in this group are defined in T1.606 Addendum 1. |

## ATTRIBUTE FrAtm Dlci Sp maximumFrameSize (n203)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum number of octets which may be included in the information field. The Frame Relay header and CRC octets are not included in this definition. This attribute corresponds to the dN1 parameter described in the Vendor Forum Specification. |
| Values | Decimal (1..8187) |
| Units | octets |
| Default | 2100 |

## ATTRIBUTE FrAtm Dlci Sp rateEnforcement (re)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute specifies whether rate enforcement is in effect for this user data link connection.<br><br>When *rateEnforcement* is *on*, the *CIR* and *De=1* traffic will be measured and enforced.<br><br>When *rateEnforcement* is *off*, all frames from the user are accepted and no modifications to the frame with respect to the *De* bit will be made. |
| Values | off<br>on |
| Default | on |

### ATTRIBUTE FrAtm Dlci Sp committedInformationRate (cir)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the committed information rate (CIR). It represents the rate at which the network agrees to transfer information under normal conditions when rate enforcement is in effect.<br><br>When rate enforcement is not in effect, this attribute is ignored.<br><br>Determination of the actual CIR is based on *committedInformationRate*, *committedBurstSize* and a measurement interval. The measurement interval is determined internally when *committedInformationRate* has a non-zero value. Otherwise, it is based on *measurementInterval* which must be explicitly provisioned.<br><br>Note: The *committedBurstSize* must have a value of 0 when rate enforcement is in effect and *committedInformationRate* has a value of 0. |
| Values | Decimal (0..50000000) |
| Units | bit/s |
| Default | 64000 |

### ATTRIBUTE FrAtm Dlci Sp committedBurstSize (bc)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the committed burst size (Bc). It represents the amount of data that a network agrees to transfer under normal conditions over a measurement interval when rate enforcement is in effect. Data marked DE=1 is not accounted for in the committed burst size.<br><br>When rate enforcement is not in effect, this attribute is ignored.<br><br>Note: The *committedInformationRate* must have a value of 0 when rate enforcement is in effect and *committedBurstSize* has a value of 0. |
| Values | Decimal (0..50000000) |
| Units | bits |
| Default | 64000 |

### ATTRIBUTE FrAtm Dlci Sp excessBurstSize (be)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the excess burst size (Be). It represents the amount of uncommitted data that the network will attempt to deliver over a measurement interval when rate enforcement is in effect. Data marked DE=1 by the user or by the network is accounted for here.<br><br>*committedInformationRate*, *committedBurstSize*, and *excessBurstSize* cannot all be zero when rate enforcement is in effect. |
| Values | Decimal (0..50000000) |
| Units | bits |
| Default | 0 |

### ATTRIBUTE FrAtm Dlci Sp measurementInterval (t)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute specifies the time interval over which rates and burst sizes are measured when rate enforcement is in effect.<br><br>When rate enforcement is in effect and both *committedInformationRate* and *committedBurstSize* have values of zero, this attribute must have a non-zero value.<br><br>When rate enforcement is not in effect or when *committedInformationRate* and *committedBurstSize* have non-zero values, this attribute is ignored.<br><br>When *committedInformationRate* and *committedBurstSize* have non-zero values, the time interval is internally calculated. In this situation, *measurementInterval* is ignored, and it does not represent the time interval. |
| Values | Decimal (0..25500) |
| Units | msec |
| Default | 0 |

### ATTRIBUTE FrAtm Dlci Sp accounting (ac)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute allows the operator to control accounting for this DLCI. To enable accounting data collection and record generation, the value of this attribute must be ***on*** and at least one of the *accountCollection* reasons in the *FrAtm Ca* component must be set. |
| Values | off<br>on |
| Default | off |

### COMPONENT FrAtm Dlci ServiceInterworkingFunction (Siwf)

| | |
|---|---|
| Groups | "GROUP FrAtm Dlci Siwf ConnectionOp (ConnOp)"<br>"GROUP FrAtm Dlci Siwf ServiceDescriptorsOp (SdOp)"<br>"GROUP FrAtm Dlci Siwf FrAtmDlcSiwfSoftPvcOp (SiwfSpvcOp)"<br>"GROUP FrAtm Dlci Siwf Statistics (Stats)" |

| | |
|---|---|
| Scope | Application |
| Description | *FrAtm/n Dlci/n ServiceInterworkingFunction*<br>The *Siwf* component provides the service interworking function capability between a Frame Relay data link connection and an ATM connection. |
| Opt. Subcomp. | "COMPONENT FrAtm Dlci Siwf ServiceDescriptor (Sd)"<br>"COMPONENT FrAtm Dlci Siwf NailedUpPvc (NPvc)"<br>"COMPONENT FrAtm Dlci Siwf SoftPvc (SPvc)"<br>"COMPONENT FrAtm Dlci Siwf QualityOfService (QoS)" |
| Dyn. Subcomp. | "COMPONENT FrAtm Dlci Siwf AtmConnection (AtmCon)"<br>"COMPONENT FrAtm Dlci Siwf RerouteInfo (RerInfo)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP FrAtm Dlci Siwf ConnectionOp (ConnOp)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational attributes for the ATM connection. |

## ATTRIBUTE FrAtm Dlci Siwf discardPriority (dp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the discard priority of frames sent to and received from the ATM connection.<br><br>When *discardPriority* is ***dp3*** the frames belonging to this connection will be discarded first when the *FrAtm/n Dlci/n Siwf* and the ATM End-Point experience congestion.<br><br>When *discardPriority* is ***dp2*** the frames belonging to this connection will be discarded after all the ***dp3*** priority frames are discarded when the *FrAtm/n Dlci/n Siwf* and the ATM End-Point experience congestion. |

When *discardPriority* is ***dp1*** the frames belonging to this connection will be discarded after all the ***dp2*** and ***dp3*** priority frames are discarded when the *FrAtm/n Dlci/n Siwf* and the ATM End-Point experience congestion.

Values
dp1
dp2
dp3

Default
No default

### ATTRIBUTE FrAtm Dlci Siwf atmServiceCategory (sc)

Access
Read only

Description
This attribute indicates the ATM service category that is used for this connection. This attribute is only displayed for SPVCs.

Values
ubr
cbr
rtVbr
nrtVbr
notApplicable

Default
No default

### ATTRIBUTE FrAtm Dlci Siwf trafficParmConvPolicy (tpcp)

Access
Read only

Description
This attribute indicates the traffic parameter conversion policy that is being used for this connection.

For Npvcs, this attribute is not displayed.

Policy ***3*** characterizes the traffic in the following way:
- ATM traffic descriptor type 6 is selected
- ATM service category rtVbr and nrtVbr supported only
- PCR0+1 is based on AR
- SCR0+1 is based on CIR and EIR
- MBS0+1 is based on Bc, Be, CIR, EIR and AR
- Takes into account that the instantaneous rate of the frame relay stream can be above CIR and up to the AR.

Policy ***4*** characterizes the traffic in the following way:
- ATM traffic descriptor type 7 or 8 is selected. Type 7 is chosen when non-conforming cells are to be discarded and type 8 when non-conforming cells are tagged by UPC traffic policer.
- PCR0+1 is based on AR
- SCR0 is based on CIR
- MBS0 is based on Bc, CIR, and AR
- There is no direct characterization of EIR. The allowed EIR can be derived using the difference between the AR and CIR.

Policy ***5*** characterizes the traffic in the following way:
- ATM traffic descriptor type 7 or 8 is selected. Type 7 is chosen when non-conforming cells are to be discarded and type 8 when non-conforming cells are tagged by UPC traffic policer
- ATM service category rtVbr and nrtVbr supported only
- PCR0+1 is based on CIR and EIR
- SCR0 is based on the CIR
- MBS0 is based on the CIR
- The maximum PCR is no longer based on the AR but rather on the CIR and EIR or CIR.

Policy ***6*** characterizes the traffic in the following way:
- ATM traffic descriptor type 3 is selected
- ATM service category ubr, cbr, rtVbr and nrtVbr supported only
- PCR0+1 is based only on CIR.

Values
3
4
5
6
notApplicable

Default
No default

## ATTRIBUTE FrAtm Dlci Siwf avgFrameSize (afs)

Access
Read only

Description
This attribute indicates the average frame size that is used for this connection as part of the traffic parameter conversion policy.

| | |
|---|---|
| | Average frame size is not applicable for Npvcs, and therefore it is not displayed. |
| Values | Decimal (0..8187) |
| Units | bytes |
| Default | No default |

### ATTRIBUTE FrAtm Dlci Siwf remoteAddress (raddr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the remote address (native E.164, native X.121 or NSAP) for this connection. This attribute is only displayed for SPVCs. |
| Values | String (1..44, NativeAESANsapAddress) |
| Default | No default |

### ATTRIBUTE FrAtm Dlci Siwf remoteConnectionIdentifier (rci)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the remote connection identifier. This identifier is either a remote *Atm Vpi.Vci* logical channel number or a remote *Frame Relay Dlci* logical channel number. The remote *Atm Vpi.Vci* logical channel number is displayed as "***Vpi.Vci***". and the remote *Frame Relay Dlci* logical channel number is displayed as "***0.remoteDlci***".<br>For NPVCs, this attribute is not displayed. |
| Values | Integer Sequence (0..255; 0..16128) |
| Default | No default |

### GROUP FrAtm Dlci Siwf ServiceDescriptorsOp (SdOp)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational information for a *Siwf* component. |

### ATTRIBUTE FrAtm Dlci Siwf mode

| | |
|---|---|
| Access | Read only |

Description

This attribute indicates the mode of interoperability between the Frame Relay and ATM connections regarding upper layer protocol encapsulations.

A value of ***translationMode*** indicates that the interworking function performs translation between RFC 1490 and RFC 1483 encapsulated headers, including routed protocol translation, bridged protocol translation, and connection oriented protocol translation (except for RFC 1490 connection oriented protocol without RFC 1490 header, which is done in *speTranslationMode*).

A value of ***transparentMode*** indicates that the interworking function forwards data without altering the upper layer user protocol encapsulation. Transparent mode is selected when the upper layer user protocol encapsulation methods are compatible between terminal equipments.

A value of ***speTranslationMode*** indicates that the interworking function performs single protocol translation between RFC 1490 with no header and RFC 1483 encapsulated packets.

Values

translationMode
transparentMode
speTranslationMode

Default

No default

## ATTRIBUTE FrAtm Dlci Siwf deToClpMapping (detclp)

Access

Read only

Description

This attribute indicates the type of DE to CLP mapping that is performed in the Frame Relay to ATM direction.

A value of ***preserve*** indicates that the DE field in a Q.922 core frame is copied to the ATM CLP field of every cell containing the information of that frame.

A value of ***always0*** indicates that the CLP field of every generated ATM cell is always 0.

A value of ***always1*** indicates that the CLP field of every generated ATM cell is always1.

Values
always0
always1
preserve

Default
No default

### ATTRIBUTE FrAtm Dlci Siwf clpToDeMapping (clptde)

Access
Read only

Description
This attribute indicates the type of CLP to DE mapping that is performed in the ATM to Frame Relay direction.

A value of ***preserve*** indicates that the DE field of the Q.922 Core frame is set when one or more ATM cells belonging to an AAL5 frame have their CLP field set.

A value of ***always0*** indicates that the DE field of the Q.922 Core frame is always set to 0.

A value of ***always1*** indicates that the DE field of the Q.922 Core frame is always set to 1.

Values
always0
always1
preserve

Default
No default

### ATTRIBUTE FrAtm Dlci Siwf fecnToEfciMapping (fecntefci)

Access
Read only

Description
This attribute indicates the type of FECN to EFCI mapping that is performed in the Frame Relay to ATM direction.

A value of ***preserve*** indicates that the FECN field in a Q.922 Core frame is copied directly to the ATM EFCI field of every cell.

A value of ***always0*** indicates that the EFCI field in every ATM cell generated is set to 0.

Values
always0
preserve

Default
No default

## ATTRIBUTE FrAtm Dlci Siwf crToUuMapping (crtuu)

Access
Read only

Description
This attribute indicates the type of CR to UU mapping that is performed in the Frame Relay to ATM direction.

A value of ***preserve*** indicates that the proprietary and CR bits are mapped to the CPCS-UU field of the last cell generated by the AAL5 segmentation process. The proprietary bits are used for rate enforcement and rate adaption but are unused according to the FRF8 standard.

A value of ***standardFRF8*** indicates that only the CR bit is mapped to the CPCS-UU field of the last cell generated by the AAL5 segmentation process. This is in accordance with the FRF8 standard. This option is provided to avoid equipment inter-working issues with the proprietary use of the unused bits of the CPCS-UU field for rate enforcement and rate adaption.

Values
standardFRF8
preserve

Default
preserve

## ATTRIBUTE FrAtm Dlci Siwf transferPriority (tp)

Access
Read only

Description
This attribute indicates the transfer priority used to establish the connection.
For Npvcs, the value is ***notApplicable***.

| | |
|---|---|
| Values | 0<br>1<br>2<br>3<br>4<br>5<br>6<br>7<br>8<br>9<br>10<br>11<br>12<br>13<br>14<br>15<br>notApplicable |
| Default | No default |

### ATTRIBUTE FrAtm Dlci Siwf assignedBandwidthPool (asgBwPool)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the bandwidth pool that this *Dlci* uses. |
| Values | 0<br>1<br>2<br>3<br>4<br>5<br>6<br>7<br>8<br>9<br>10<br>11<br>12<br>13<br>14<br>15 |

Default No default

### GROUP FrAtm Dlci Siwf FrAtmDlcSiwfSoftPvcOp (SiwfSpvcOp)

Properties Operational

Description This group contains operational attributes for the *FrAtm Dlci Siwf Spvc* connection.

### ATTRIBUTE FrAtm Dlci Siwf peakCellRate0 (pcr0)

Access Read only

Description This attribute indicates the Peak Cell Rate (PCR) of the ATM VCC to which this interworking function is linked for all cells (with CLP=0).

The *pcr0* is derived from the remote end traffic parameters using the conversion policy of the *transferPriorityMapping*.

For NPVCs, this attribute is not displayed.

Values Decimal (0..4294967295)

Units cell/s

Default No default

### ATTRIBUTE FrAtm Dlci Siwf peakCellRate01 (pcr01)

Access Read only

Description This attribute indicates the Peak Cell Rate (PCR) of the ATM VCC to which this interworking function is linked for all cells (with CLP=0 and CLP=1).

The *pcr01* is derived from the remote end traffic parameters using the conversion policy of the *transferPriorityMapping*.

For NPVCs, this attribute is not displayed.

Values Decimal (0..4294967295)

Units cell/s

Default No default

### ATTRIBUTE FrAtm Dlci Siwf sustainedCellRate0 (scr0)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Sustained Cell Rate (SCR) of the ATM VCC to which this interworking function is linked for high priority cells (with CLP=0).<br><br>The *scr0* is derived from the remote end traffic parameters using the conversion policy of the *transferPriorityMapping*.<br><br>For NPVCs, this attribute is not displayed. |
| Values | Decimal (0..4294967295) |
| Units | cell/s |
| Default | No default |

### ATTRIBUTE FrAtm Dlci Siwf sustainedCellRate01 (scr01)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Sustained Cell Rate (SCR) of the ATM VCC that to which this interworking function is linked for all cells (with CLP=0 and CLP=1).<br><br>The *scr01* is derived from the remote end traffic parameters using the conversion policy of the *transferPriorityMapping*.<br><br>For NPVCs, this attribute is not displayed. |
| Values | Decimal (0..4294967295) |
| Units | cell/s |
| Default | No default |

### ATTRIBUTE FrAtm Dlci Siwf maximumBurstSize0 (mbs0)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Maximum Burst Size (MBS) of the ATM VCC to which this interworking function is linked for high priority cells (with CLP=0). |

The *mbs0* is derived from the remote end traffic parameters using the conversion policy of the *transferPriorityMapping*.

For NPVCs, this attribute is not displayed.

Values: Decimal (0..4294967295)

Units: cell/s

Default: No default

### ATTRIBUTE FrAtm Dlci Siwf maximumBurstSize01 (mbs01)

Access: Read only

Description: This attribute indicates the Maximum Burst Size (MBS) of the ATM VCC to which this interworking function is linked for all cells (with CLP=0 and CLP=1).

The *mbs01* is derived from the remote end traffic parameters using the conversion policy of the *transferPriorityMapping.*

For NPVCs, this attribute is not displayed.

Values: Decimal (0..4294967295)

Units: cell/s

Default: No default

### ATTRIBUTE FrAtm Dlci Siwf equivalentBitRate (ebr)

Access: Read only

Description: This attribute indicates the access reserved bandwidth for this FR-ATM connection when CAC is on. If a connection is subscribed to CIR only or CIR plus EIR service, the EBR reserved is CIR. If a connection is subscribed to EIR only service, the EBR reserved is 0.

Values: Decimal (0..4294967295)

Units: bit/s

Default: No default

### ATTRIBUTE FrAtm Dlci Siwf type (typ)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates if the component provisioned is a calling or called end. If the value is ***master***, the *Dlci Siwf Spvc* component is provisioned as a calling end and is responsible for originating the call to set up the ATM VCC. If the value is ***slave***, this *Dlci Siwf* component is provisioned as a called end and is responsible for terminating call setup requests from the remote end. This attribute is not displayed for NPVCs. |
| Values | master<br>slave<br>notApplicable |
| Default | No default |

### ATTRIBUTE FrAtm Dlci Siwf vccClearCause (vclc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the last received clear cause message from the network. This attribute is not displayed for NPVCs.<br><br>Please refer to ATM User-Network Interface Specification for possible clear causes. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE FrAtm Dlci Siwf vccCauseDiag (vcdg)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the diagnostic value of the last release message received from the network. This attribute is not displayed for NPVCs.<br><br>Please refer to ATM User-Network Interface Specification for possible diagnostic values. |
| Values | String (1..8, Hex) |

| | |
|---|---|
| Default | No default |

### GROUP FrAtm Dlci Siwf Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistics for the *Siwf* component. |

### ATTRIBUTE FrAtm Dlci Siwf unknown1490Frames (unknown1490)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames received from the interface that have a frame header that is not recognized by the RFC 1490.<br><br>When the maximum count is reached, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrAtm Dlci Siwf invalid1490Frames (invalid1490)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames received from the interface that have an invalid frame header. An invalid frame header occurs when the frame has less than the expected number of bytes.<br><br>When the maximum count is reached, the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrAtm Dlci Siwf lastUnknown1490ProtocolHeader (lastUnk1490)

| | |
|---|---|
| Access | Read only |
| Description | This attribute contains the most recent unrecognized protocol header that was received from the interface.<br><br>All the RFC 1490 protocols described in sections 5.3.1.1 through 5.3.1.3 of FRF.8 are supported, except ARP is not supported. |

| | |
|---|---|
| Values | String (1..8, Hex) |
| Default | No default |

### ATTRIBUTE FrAtm Dlci Siwf unknown1483Frames (unknown1483)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames received from the ATM connection that have a frame header that is not recognized by the RFC 1483.<br><br>When the maximum count is reached, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrAtm Dlci Siwf invalid1483Frames (invalid1483)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames received from the ATM connection that have an invalid frame header. An invalid frame header occurs when the frame has less than the expected number of bytes.<br><br>When the maximum count is reached, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrAtm Dlci Siwf lastUnknown1483ProtocolHeader (lastUnk1483)

| | |
|---|---|
| Access | Read only |
| Description | This attribute identifies the most recent unrecognized protocol header that was received from the ATM connection.<br><br>All the RFC 1483 protocols described in sections 5.3.1.1 through 5.3.1.3 of FRF.8 are supported except ARP. |
| Values | String (1..8, Hex) |
| Default | No default |

## COMPONENT FrAtm Dlci Siwf ServiceDescriptor (Sd)

| | |
|---|---|
| Groups | "GROUP FrAtm Dlci Siwf Sd Provisioned (Prov)" |
| Scope | Application |
| Description | *FrAtm/n Dlci/n Siwf ServiceDescriptor*<br>The *Sd* component contains provisioning information for its parent *Siwf* component. It is a required component when *Npvc* is provisioned. In the case of *Spvc*, if this component is not provisioned, the connection will use the provisioning information from the *FrAtm Ca* component. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP FrAtm Dlci Siwf Sd Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisionable attributes for the parent *Siwf* component. |

## ATTRIBUTE FrAtm Dlci Siwf Sd mode

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the mode of interoperability between the Frame Relay and ATM connections regarding upper layer protocol encapsulations.<br><br>When ***translationMode*** is selected, the interworking function performs translations between RFC 1490 and RFC 1483 encapsulated headers, including routed protocol translation, bridged protocol translation, and connection oriented protocol translation (except for RFC 1490 connection oriented protocol without RFC 1490 header, which is done in *speTranslationMode*).<br><br>A value of ***transparentMode*** indicates that the interworking |

function forwards data without altering the upper layer user protocol encapsulation. Transparent mode is selected when the upper layer user protocol encapsulation methods are compatible between terminal equipments.

A value of ***speTranslationMode*** indicates that the interworking function performs single protocol translation between RFC 1490 with no header and RFC 1483 encapsulated packets.

The default value is ***sameAsInterface,*** which means as defined in ***FrAtm/n Ca sdMode.***

Values
translationMode
transparentMode
speTranslationMode
sameAsInterface

Default
sameAsInterface

## ATTRIBUTE FrAtm Dlci Siwf Sd deToClpMapping (detclp)

Access
Read and write

Description
This attribute specifies the DE to CLP mapping that is performed in the Frame Relay to ATM direction.

When ***preserve*** is selected, the DE field in the Q.922 core frame is mapped to the ATM CLP field of every cell generated by the segmentation process of the AAL5 PDU containing the information of that frame.

When ***always0*** is selected, the CLP field of every ATM cell generated by the segmentation process of the AAL5 PDU containing the information of that frame is always set to 0.

When ***always1*** is selected, the CLP field of every ATM cell generated by the segmentation process of the AAL5 PDU containing the information of that frame is always set to 1.

Values
always0
always1
preserve
sameAsInterface

Default sameAsInterface

### ATTRIBUTE FrAtm Dlci Siwf Sd clpToDeMapping (clpToDe)

Access Read and write

Description This attribute specifies the type of CLP to DE mapping that is performed in the ATM to Frame Relay to direction.

When ***preserve*** is selected, the DE field of the Q.922 Core frame is set when one or more ATM cells belonging to an AAL5 frame have their CLP field set.

When ***always0*** is selected, the DE field of the Q.922 Core frame is always set to 0.

When ***always1*** is selected, the DE field of the Q.922 Core frame is always set to 1.

Values
always0
always1
preserve
sameAsInterface

Default sameAsInterface

### ATTRIBUTE FrAtm Dlci Siwf Sd fecnToEfciMapping (fecntefci)

Access Read and write

Description This attribute specifies the type of FECN to EFCI mapping that is performed in the Frame Relay to ATM direction.

When ***preserve*** is selected, the FECN field in the Q.922 Core frame is mapped directly to the ATM EFCI field of every cell generated by the AAL5 segmentation process.

When ***always0*** is selected, the EFCI field in every ATM cell generated is set to 0.

Values
always0
preserve
sameAsInterface

Default sameAsInterface

### ATTRIBUTE FrAtm Dlci Siwf Sd crToUuMapping (crtuu)

Access Read and write

Description This attribute indicates the type of CR to UU mapping that is performed in the Frame Relay to ATM direction.

A value of ***preserve*** indicates that the proprietary and CR bits are mapped to the CPCS-UU field of the last cell generated by the AAL5 segmentation process. The proprietary bits are used for rate enforcement and rate adaption but are unused according to the FRF8 standard.

A value of ***standardFRF8*** indicates that only the CR bit is mapped to the CPCS-UU field of the last cell generated by the AAL5 segmentation process. This is in accordance with the FRF8 standard. This option is provided to avoid equipment inter-working issues with the proprietary use of the unused bits of the CPCS-UU field for rate enforcement and rate adaption.

Values standardFRF8
preserve
sameAsInterface

Default sameAsInterface

### COMPONENT FrAtm Dlci Siwf NailedUpPvc (NPvc)

Groups "GROUP FrAtm Dlci Siwf NPvc Provisioned (Prov)"
"GROUP FrAtm Dlci Siwf NPvc FrAtmDlcSiwfNailedUpPvcOp (SiwfNpvcOp)"

Scope Application

| | |
|---|---|
| Description | *FrAtm/n Dlci/n Siwf NailedUpPvc*<br>This component associates an interworking function with an ATM connection. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP FrAtm Dlci Siwf NPvc Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisionable attributes for the NPvc component. |

## ATTRIBUTE FrAtm Dlci Siwf NPvc atmConnection (atmConn)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the ATM connection to which the interworking function is linked.<br><br>The ATM connection must be linked to an ATM end-point. For example *AtmIf/m Vcc/m Nep*. |
| Values | Link (Service, applicationName) |
| Default | No default |

## ATTRIBUTE FrAtm Dlci Siwf NPvc correlationTag

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies a unique string, set by the operator, which identifies the call for accounting purposes. Downstream processing uses this attribute to correlate accounting records issued at different nodes in the network. Normally, this value is provisioned with the same value at each end of the connection. If the value of accountingEnabled is no, this attribute has no effect. |

| | |
|---|---|
| | This attribute is also visible in the FrAtm Dlci component when accounting is enabled. |
| Values | String (0..32, ASCII) |
| Default | "" |

### GROUP FrAtm Dlci Siwf NPvc FrAtmDlcSiwfNailedUpPvcOp (SiwfNpvcOp)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for the *FrAtm Dlci Siwf Npvc* connection. |

### ATTRIBUTE FrAtm Dlci Siwf NPvc connectionToAtm (connToAtm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the ATM connection to which the interworking function is linked. |
| Values | The name of the component |
| Default | No default |

### COMPONENT FrAtm Dlci Siwf SoftPvc (SPvc)

| | |
|---|---|
| Groups | "GROUP FrAtm Dlci Siwf SPvc Provisioned (Prov)" |
| Scope | Application |
| Description | *FrAtm/n Dlci/n Siwf SoftPvc*<br>The *Spvc* component specifies the remote end for a soft PVC. |
| Opt. Subcomp. | "COMPONENT FrAtm Dlci Siwf SPvc RerouteOverride (RerOv)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP FrAtm Dlci Siwf SPvc Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |

Description This group contains provisionable attributes for the soft PVC component.

### ATTRIBUTE FrAtm Dlci Siwf SPvc remoteAddress (raddr)

Access Read and write

Description This attribute specifies the remote address of the SPVC.

It is represented as a prefix NPI string and a sequence of up to 15 digits to specify either a native (E.164 or X.121) address format or Atm End System Address(AESA) in ISO NSAP format.

For example:
native E.164 = “e.upto15digits”
native X.121 = “x.upto14digits”
NSAP E.164 ATM address = “n.upto15digits.ESI.SEL”
NSAP address = “40 hexadecimal digits”

Values String (1..44, ASCII)

Default No default

### ATTRIBUTE FrAtm Dlci Siwf SPvc remoteConnectionIdentifier (rci)

Access Read and write

Description This attribute specifies the remote connection identifier. The identifier is either a remote *Atm Vpi.Vci* logical channel number assignment or a remote *Frame Relay Dlci* logical channel number assignment. The remote *Atm Vpi.Vci* logical channel number is input as “***Vpi.Vci***” and the remote *Frame Relay Dlci* logical channel number is input as “***0.remoteDlci***”.

Values Integer Sequence (0..255; 0..16128)

Default No default

### ATTRIBUTE FrAtm Dlci Siwf SPvc correlationTag

Access Read and write

Description This attribute specifies the unique string, set by the operator, which identifies the call for accounting purposes. Downstream processing uses this attribute to correlate accounting records issued at different nodes in the network. If the value of

accountingEnabled is no, this attribute has no effect. This attribute is also visible in the FrAtm Dlci component when accounting is enabled. When this attribute is an empty string, the operational correlationTag attribute in the FrAtm Dlci component receives the value of a system-generated correlationTag.

Values: String (0..32, ASCII)

Default: ""

## COMPONENT FrAtm Dlci Siwf SPvc RerouteOverride (RerOv)

Groups: "GROUP FrAtm Dlci Siwf SPvc RerOv Provisioned (Prov)"

Scope: Device

Description: *FrAtm/n Dlci/x Siwf RerouteOverride*

This component represents the ability to override rerouting capability subscription options on a per connection basis for provisioned SPVC and SPVP connections.

The addition of this component and changes to the attributes contained in this component are critical to the parent SPVC or SPVP. However, the deletion of this component is not a critical change for the connection. If this component is deleted, the connection remains active with the last provisioned subscription options. Subscription is lost when the connection goes down and re-establishes.

Common Verbs:
- Help
- List
- Display
- Add
- DELete

### VERB OPTIMIZE FrAtm Dlci Siwf SPvc RerOv

Impact: Service

Description: *OPTimize FrAtm/n Dlci/x Siwf RerOv*

This command triggers path optimization for the connection segment. If the interface is already processing a path optimization request, then the *Optimize* command is cancelled.

Using the *Optimize* command results in service disruptions when connection segments are moved to a better path. Care should be exercised when using this command. It is recommended that the command be used during maintenance windows.

### GROUP FrAtm Dlci Siwf SPvc RerOv Provisioned (Prov)

Properties: Provisioned

Description: This group contains the provisionable attributes related to rerouting subscription options for provisioned connections.

### ATTRIBUTE FrAtm Dlci Siwf SPvc RerOv protocol

Access: Read and write

Description: This attribute specifies the rerouting protocols which are requested by the connection segment. A subset of the requested protocols is granted by the last rendezvous node, according to its software level and provisioning.

One of the following values can be specified:
***sameAsInterface***: The requested rerouting protocols are specified by the *protocol* attribute under the *Reroute Ov* component for the interface.
***localGlobal***: Local and global rerouting protocols are requested. Local and global rerouting are granted if the DTL terminator is provisioned with the Rerouting feature.
***localOnly***: Local rerouting is requested. This value guarantees interoperability with other vendors' equipment running the ATM Forum "Domain Based Rerouting" protocol. Local rerouting is granted if the DTL terminator is provisioned with the Rerouting feature.
***globalOnly***: Global rerouting is requested. Global rerouting is

granted if the DTL terminator is provisioned with the Rerouting feature.
***localEbr*:** Local and EBR rerouting protocols are requested. Local rerouting is granted if the DTL terminator is provisioned with the Rerouting feature. Alternatively, EBR is granted if the DTL terminator is provisioned with the EBR feature.
***ebrOnly***: EBR is requested. EBR is granted if the DTL terminator is provisioned with the EBR feature.

Values

localGlobal
localOnly
globalOnly
localEbr
ebrOnly
sameAsInterface (sameAs)

Default

sameAsInterface

## ATTRIBUTE FrAtm Dlci Siwf SPvc RerOv localConnectionRecoverySubscr (lRecSub)

Access

Read and write

Description

This attribute specifies whether the connection segment requests subscription to local connection recovery. This attribute only affects connection segments that request the local rerouting protocols. This attribute affects connection segments for a node that is either local domain rerouting node or a DTL originator.

If the connection segment requests ***localGlobal*** or ***localOnly*** protocols, this attribute controls local connection recovery subscription.

If the connection segment requests ***localEbr***, this attribute controls the local connection recovery subscription. Only one will be granted.

One of the following values can be specified:
***sameAsInterface***: The subscription rule is determined by the *localConnectionRecoverySubscr* attribute under the *Reroute Ov* component for the interface. If the attribute specifies the ***sourceSpvcSpvp*** value, the connection segment requests subscription to local connection recovery, otherwise the connection segment does not request subscription.

***yes:*** The connection segment requests subscription to local connection recovery.
***no***: The connection segment does not request subscription to local connection recovery.

Values
no
yes
sameAsInterface (sameAs)

Default
sameAsInterface

## ATTRIBUTE FrAtm Dlci Siwf SPvc RerOv localPathOptimizationSubscr (lOptSub)

Access
Read and write

Description
This attribute specifies whether the connection segment requests subscription to local connection recovery. This attribute only affects connection segments that request the local rerouting protocols. This attribute affects connection segments for a node that is either local domain rerouting node or a DTL originator.

If the connection segment requests ***localGlobal*** or ***localOnly*** protocols, this attribute controls local path optimization subscription.

If the connection segment requests ***localEbr***, this attribute controls the local path optimization subscription. Only one will be granted.

One of the following values can be specified:
***sameAsInterface***: The subscription rule is determined by the *localPathOptimizationSubscr* attribute under the *Reroute Ov* component for the interface. If the attribute specifies the ***sourceSpvcSpvp*** value, the connection segment requests subscription to local path optimization, otherwise the connection segment does not request subscription.
***yes:*** The connection segment requests subscription to local path optimization.
***no***: The connection segment does not request subscription to local path optimization.

Values
no
yes
sameAsInterface (sameAs)

Default
sameAsInterface

### ATTRIBUTE FrAtm Dlci Siwf SPvc RerOv globalConnectionRecoverySubscr (gRecSub)

Access
Read and write

Description
This attribute specifies whether the connection segment requests subscription to global or EBR connection recovery. This attribute only affects connection segments that request the global or EBR rerouting protocols. This attribute affects connection segments for a node that is a DTL originator.

If the connection segment requests ***ebrOnly***, this attribute controls EBR connection recovery subscription.

If the connection segment requests ***localEbr***, this attribute controls the EBR connection recovery subscription. Only one will be granted.

One of the following values can be specified:
***sameAsInterface***: The subscription rule is determined by the *globalConnectionRecoverySubscr* attribute under the *Reroute Ov* component for the interface. If the attribute specifies the ***sourceSpvcSpvp*** value, the connection segment requests subscription to global or EBR connection recovery, otherwise the connection segment does not request subscription.
***yes:*** The connection segment requests subscription to global or EBR connection recovery.
***no***: The connection segment does not request subscription to global or EBR connection recovery.

Values
no
yes
sameAsInterface (sameAs)

Default
sameAsInterface

### ATTRIBUTE FrAtm Dlci Siwf SPvc RerOv globalPathOptimizationSubscr (gOptSub)

Access
Read and write

| | |
|---|---|
| Description | This attribute specifies whether the connection segment requests subscription to global or EBR path optimization. This attribute only affects connection segments that request the global or EBR rerouting protocols. This attribute affects connection segments for a node that is a DTL originator.<br><br>If the connection segment requests ***ebrOnly***, this attribute controls EBR path optimization subscription.<br><br>If the connection segment requests ***localEbr***, this attribute controls the EBR path optimization subscription. Only one will be granted.<br><br>One of the following values can be specified:<br>***sameAsInterface***: The subscription rule is determined by the *globalPathOptimizationSubscr* attribute under the *Reroute Ov* component for the interface. If the attribute specifies the ***sourceSpvcSpvp*** value, the connection segment requests subscription to global or EBR path optimization, otherwise the connection segment does not request subscription.<br>***yes:*** The connection segment requests subscription to global or EBR path optimization.<br>***no***: The connection segment does not request subscription to global or EBR path optimization. |
| Values | no<br>yes<br>sameAsInterface (sameAs) |
| Default | sameAsInterface |

## COMPONENT FrAtm Dlci Siwf QualityOfService (QoS)

| | |
|---|---|
| Groups | "GROUP FrAtm Dlci Siwf QoS Provisioned (Prov)" |
| Scope | Application |

Description — *FrAtm/n Dlci/n Siwf QualityOfService*
The *QoS* component provides quality of service overrides for its parent *Siwf* component.

Common Verbs
- Help
- List
- Display
- Add
- DELete

## GROUP FrAtm Dlci Siwf QoS Provisioned (Prov)

Properties — Provisioned

Description — This group contains the provisionable quality of service attributes for the *Qos* component.

## ATTRIBUTE FrAtm Dlci Siwf QoS emissionPriorityToIf (epToIf)

Access — Read and write

Description — This attribute specifies the emission priority of frames sent to the *FrAtm* interface. Frames in a higher priority queue, represented by a numerically higher number, will be sent before frames in a lower priority queue.
The value of this attribute is interpreted according to the value of the provisionable attribute *numberOfEmissionQs* under the parent *FrAtm* component. If the *numberOfEmissionQs* attribute is set to ***2***, *emissionPriorityToIf* value of ***0*** maps to emission priority queue 0 representing a lower priority queue, and *emissionPriorityToIf* values of ***1, 2,*** and ***3*** are mapped to emission priority queue 1 representing the highest priority queue. If the *numberOfEmissionQs* is set to ***4***, the *emissionPriorityToIf* values are directly assigned to the emission priority queues.
A value of ***deriveFromTp*** specifies that the emission priority is to be extracted from the *Mod Frs AtmNet Tpm/n* component using the *transferPriority* attribute.
A value of ***sameAsInterface*** specifies that the emission priority is to be extracted from the *FrAtm Ca* component using the *niwfEmissionPriorityToIf* attribute.

Values
- 0
- 1

2
3
deriveFromTp
sameAsInterface

Default sameAsInterface

### ATTRIBUTE FrAtm Dlci Siwf QoS transferPriority (tp)

Access Read and write

Description This attribute specifies the transfer priority of frames sent to the ATM connection using this particular Dlci.
In the Frame Relay to ATM direction, the *tp* selects the ATM service category of the connection.
In the ATM to Frame Relay direction, the *tp* selects the *FrAtm* emission priority queue.
A value of ***sameAsInterface*** specifies that the emission priority extracts from the *FrAtm Ca* component using the *siwfTransferPriority* attribute.

Values
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
sameAsInterface

Default sameAsInterface

### COMPONENT FrAtm Dlci Siwf AtmConnection (AtmCon)

Groups "GROUP FrAtm Dlci Siwf AtmCon Operational (Oper)"

| | |
|---|---|
| Scope | Device |
| Description | An AtmConnection component is created for each ATM connection established by an application. It shows where the data traffic for this connection is directed. |
| Common Verbs | Help<br>List<br>Display |

### GROUP FrAtm Dlci Siwf AtmCon Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains the operational attributes for the *NapAtmConnection* component. |

### ATTRIBUTE FrAtm Dlci Siwf AtmCon nextHop

| | |
|---|---|
| Access | Read only |
| Description | This attribute shows the component name of the *AtmIf Vcc Ep* or *AtmCon* component to which this switched connection is established. |
| Values | The name of the component |
| Default | No default |

### COMPONENT FrAtm Dlci Siwf RerouteInfo (RerInfo)

| | |
|---|---|
| Groups | "GROUP FrAtm Dlci Siwf RerInfo Operational (Oper)"<br>"GROUP FrAtm Dlci Siwf RerInfo EbrOperational (EOper)"<br>"GROUP FrAtm Dlci Siwf RerInfo LocalOperational (LOper)"<br>"GROUP FrAtm Dlci Siwf RerInfo GlobalOperational (GOper)"<br>"GROUP FrAtm Dlci Siwf RerInfo EbrStatistics (EStats)"<br>"GROUP FrAtm Dlci Siwf RerInfo LocalStatistics (LStats)"<br>"GROUP FrAtm Dlci Siwf RerInfo GlobalStatistics (GStats)" |
| Scope | Device |
| Description | *AtmIf/n Vcc/vpi.vci RerouteInfo*<br>*AtmIf/n Vpc/vpi RerouteInfo*<br>*AtmIf/n Vpt/vpi Vcc/vci RerouteInfo*<br>*Aal1Ces/n RerouteInfo* |

*Fratm/n Dlci/n Siwf RerouteInfo*

This component represents the rerouting capabilities of a connection segment. The component is present at the DTL originator of the connection segment. It is also present at each local domain rerouting node, if the local rerouting protocol has been granted to the connection segment.

Common Verbs

Help
List
Display

## GROUP FrAtm Dlci Siwf RerInfo Operational (Oper)

Properties: Operational

Description: This group contains the common operational attributes that indicate rerouting activities at the connection level.

## ATTRIBUTE FrAtm Dlci Siwf RerInfo lastOptimizationMetric (lOptMet)

Access: Read only

Description: This attribute indicates which optimization metric was last used to select a path for the connection segment.

Values:
cdv
maxCtd
aw

Default: No default

## GROUP FrAtm Dlci Siwf RerInfo EbrOperational (EOper)

Properties: Operational

Description: This group contains attributes that indicate the EBR rerouting characteristics of a connection segment.

This group is only present if the connection segment has been granted the EBR rerouting protocol.

## ATTRIBUTE FrAtm Dlci Siwf RerInfo ebrRecoverySubscribed (eRecSub)

Access: Read only

| | |
|---|---|
| Description | This attribute indicates whether the connection segment is subscribed to EBR connection recovery.<br><br>This attribute is only present if the connection segment has been granted the EBR protocol. |
| Values | no<br>yes |
| Default | No default |

### ATTRIBUTE FrAtm Dlci Siwf RerInfo ebrOptimizationSubscribed (eOptSub)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether the connection segment is subscribed to EBR path optimization.<br><br>This attribute is only present if the connection segment has been granted the EBR protocol. |
| Values | no<br>yes |
| Default | No default |

### ATTRIBUTE FrAtm Dlci Siwf RerInfo ebrOptimizationMetricValue (eOptVal)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the EBR optimization metric value that was collected for the call during the most recent call establishment. It represents the segment of the connection between the rerouting and rendezvous nodes.<br><br>This attribute is only present if the connection segment has been granted the EBR protocol. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrAtm Dlci Siwf RerInfo ebrOptimalMetricValue (eOptMetVal)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the EBR optimization metric value of the connection's best path. It is initialized to the value collected during initial call establishment. It is set to the ***localOptimizationValue*** whenever a connection is optimized onto a path which has a better optimization value or when the number of optimization attempts is exhausted. It represents the segment of the connection between the rerouting and rendezvous nodes.<br><br>This attribute is only present if the connection segment has been granted the EBR protocol. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrAtm Dlci Siwf RerInfo ebrOptimizationState (eOptSt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current EBR optimization state of the connection segment.<br><br>One of the following values is indicated:<br>***optimal:*** This is the initial value when the connection segment is first established. The connection segment is in optimal state whenever the optimization metric value of the connection segment is equal to the best known value.<br>***recovered:*** This value represents the state when the connection segment has been recovered to a path with an optimization metric value for the connection segment which is greater than the value specified by the optimal metric value.<br>***optimized:*** This value represents the state when the connection segment has moved to a path which is better than the recovered path but not as good as the optimal path.<br><br>This attribute is only present if the connection segment has been granted the EBR protocol. |
| Values | optimal<br>recovered<br>optimized |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE FrAtm Dlci Siwf RerInfo ebrTimeOfLastRecovery (eTime)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the date and time of the last EBR connection recovery.<br><br>This attribute is only present if the connection segment has been granted the EBR protocol. |
| Values | Time (DHMS) |
| Default | No default |

### GROUP FrAtm Dlci Siwf RerInfo LocalOperational (LOper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains attributes that indicate the local rerouting characteristics of a connection segment.<br><br>This group is only present if the connection segment has been granted the local rerouting protocol. |

### ATTRIBUTE FrAtm Dlci Siwf RerInfo localRecoverySubscribed (lRecSub)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether the connection segment is subscribed to local connection recovery.<br><br>This attribute is only present if the connection segment has been granted the local rerouting protocol. |
| Values | no<br>yes |
| Default | No default |

### ATTRIBUTE FrAtm Dlci Siwf RerInfo localOptimizationSubscribed (lOptSub)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether the connection segment is subscribed to local path optimization. |

This attribute is only present if the connection segment has been granted the local rerouting protocol.

Values
no
yes

Default
No default

### ATTRIBUTE FrAtm Dlci Siwf RerInfo localOptimizationMetricValue (lOptVal)

Access
Read only

Description
This attribute indicates the local optimization metric value that was collected for the call during the most recent call establishment. It represents the segment of the connection between the rerouting and rendezvous nodes. A value of ***undefined*** indicates that the local optimization metric value is undetermined.

This attribute is only present if the connection segment has been granted the local rerouting protocol.

Values
Decimal (0..4294967294)
undefined

Default
No default

### ATTRIBUTE FrAtm Dlci Siwf RerInfo localOptimalMetricValue (lOptMetVal)

Access
Read only

Description
This attribute indicates the local optimization metric value of the connection's best path. It is initialized to the value collected during initial call establishment. It is set to the ***localOptimizationValue*** whenever a connection is optimized onto a path which has a better optimization value or when the number of optimization attempts is exhausted. It represents the segment of the connection between the rerouting and rendezvous nodes.A value of ***undefined*** indicates that the local optimal optimization metric value is undetermined.

This attribute is only present if the connection segment has been granted the local rerouting protocol.

| | |
|---|---|
| Values | Decimal (0..4294967294)<br>undefined |
| Default | No default |

### ATTRIBUTE FrAtm Dlci Siwf RerInfo localOptimizationState (lOptSt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current local optimization state of the connection segment.<br><br>One of the following values is indicated:<br>***optimal:*** This is the initial value when the connection segment is first established. The connection segment is in optimal state whenever the optimization metric value of the connection segment is equal to the best known value.<br>***recovered:*** This value represents the state when the connection segment has been recovered to a path with an optimization metric value for the connection segment which is greater than the value specified by the optimal metric value.<br>***optimized:*** This value represents the state when the connection segment has moved to a path which is better than the recovered path but not as good as the optimal path.<br><br>This attribute is only present if the connection segment has been granted the local rerouting protocol. |
| Values | optimal<br>recovered<br>optimized |
| Default | No default |

### ATTRIBUTE FrAtm Dlci Siwf RerInfo localTimeOfLastRecovery (lTime)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the date and time of the last local connection recovery.<br><br>This attribute is only present if the connection segment has been granted the local rerouting protocol. |

| | |
|---|---|
| Values | Time (DHMS) |
| Default | No default |

### GROUP FrAtm Dlci Siwf RerInfo GlobalOperational (GOper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains attributes that indicate the global rerouting characteristics of a connection.<br><br>This group is only present if the connection segment has been granted the global rerouting protocol. |

### ATTRIBUTE FrAtm Dlci Siwf RerInfo globalRecoverySubscribed (gRecSub)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether the connection segment is subscribed to global connection recovery.<br><br>This attribute is only present if the connection segment has been granted the global rerouting protocol. |
| Values | no<br>yes |
| Default | No default |

### ATTRIBUTE FrAtm Dlci Siwf RerInfo globalOptimizationSubscribed (gOptSub)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether the connection segment is subscribed to global path optimization.<br><br>This attribute is only present if the connection segment has been granted the global rerouting protocol. |
| Values | no<br>yes |
| Default | No default |

### ATTRIBUTE FrAtm Dlci Siwf RerInfo globalOptimizationMetricValue (gOptVal)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the global optimization metric value that was collected for the call during the most recent call establishment. It represents the segment of the connection between the rerouting and rendezvous nodes. A value of ***undefined*** indicates that the global optimization metric value is undetermined.<br><br>This attribute is only present if the connection segment has been granted the global rerouting protocol. |
| Values | Decimal (0..4294967294)<br>undefined |
| Default | No default |

### ATTRIBUTE FrAtm Dlci Siwf RerInfo globalOptimalMetricValue (gOptMetVal)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the global optimization metric value of the connection's best path. It is initialized to the value collected during initial call establishment. It is set to the ***globalOptimizationValue*** whenever a connection is optimized onto a path which has a better optimization value or when the number of optimization attempts is exhausted. It represents the segment of the connection between the rerouting and rendezvous nodes.A value of ***undefined*** indicates that the global optimal optimization metric value is undetermined.<br><br>This attribute is only present if the connection segment has been granted the global rerouting protocol. |
| Values | Decimal (0..4294967294)<br>undefined |
| Default | No default |

### ATTRIBUTE FrAtm Dlci Siwf RerInfo globalOptimizationState (gOptSt)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the current global optimization state of the connection segment.<br><br>One of the following values is indicated:<br>***optimal:*** This is the initial value when the connection segment is first established. The connection segment is in optimal state whenever the optimization metric value of the connection segment is equal to the best known value.<br>***recovered:*** This value represents the state when the connection segment has been recovered to a path with an optimization metric value for the connection segment which is greater than the value specified by the optimal metric value.<br>***optimized:*** This value represents the state when the connection segment has moved to a path which is better than the recovered path but not as good as the optimal path.<br><br>This attribute is only present if the connection segment has been granted the global rerouting protocol. |
| Values | optimal<br>recovered<br>optimized |
| Default | No default |

### ATTRIBUTE FrAtm Dlci Siwf RerInfo globalTimeOfLastRecovery (gTime)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the date and time of the last global connection recovery.<br><br>This attribute is only present if the connection segment has been granted the global rerouting protocol. |
| Values | Time (DHMS) |
| Default | No default |

### GROUP FrAtm Dlci Siwf RerInfo EbrStatistics (EStats)

| | |
|---|---|
| Properties | Operational |

| | |
|---|---|
| Description | This group contains statistics related to Ebr rerouting for the connection segment. |

### ATTRIBUTE FrAtm Dlci Siwf RerInfo totalEbrConnectionRecoveries (eConnRec)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts successful EBR connection recovery attempts. The counter wraps to zero when the maximum value is exceeded.<br><br>This attribute is only present if the connection segment has been granted the EBR protocol. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrAtm Dlci Siwf RerInfo totalEbrPathOptimizations (ePathOpt)

| | |
|---|---|
| Access | Read only |
| Description | This attributes counts successful EBR path optimization attempts. The counter wraps to zero when the maximum value is exceeded.<br><br>This attribute is only present if the connection segment has been granted the EBR protocol. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrAtm Dlci Siwf RerInfo totalEbrOptimizationAttempts (eOptAtt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of EBR path optimization attempts. The counter wraps to zero when the maximum value is exceeded.<br><br>This attribute is only present if the connection segment has been granted the EBR protocol. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## GROUP FrAtm Dlci Siwf RerInfo LocalStatistics (LStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistics related to local rerouting for the connection segment. |

## ATTRIBUTE FrAtm Dlci Siwf RerInfo totalLocalConnectionRecoveries (lConnRec)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts successful local connection recovery attempts. The counter wraps to zero when the maximum value is exceeded.<br><br>This attribute is only present if the connection segment has been granted the local rerouting protocol. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## ATTRIBUTE FrAtm Dlci Siwf RerInfo totalLocalPathOptimizations (lPathOpt)

| | |
|---|---|
| Access | Read only |
| Description | This attributes counts successful local path optimization attempts. The counter wraps to zero when the maximum value is exceeded.<br><br>This attribute is only present if the connection segment has been granted the local rerouting protocol. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## ATTRIBUTE FrAtm Dlci Siwf RerInfo totalLocalOptimizationAttempts (lOptAtt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of local path optimization attempts. The counter wraps to zero when the maximum value is exceeded.<br><br>This attribute is only present if the connection segment has been granted the local rerouting protocol. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP FrAtm Dlci Siwf RerInfo GlobalStatistics (GStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistics related to global rerouting for the connection segment. |

### ATTRIBUTE FrAtm Dlci Siwf RerInfo totalGlobalConnectionRecoveries (gConnRec)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts successful global connection recovery attempts. The counter wraps to zero when the maximum value is exceeded.<br><br>This attribute is only present if the connection segment has been granted the global rerouting protocol. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrAtm Dlci Siwf RerInfo totalGlobalPathOptimizations (gPathOpt)

| | |
|---|---|
| Access | Read only |
| Description | This attributes counts successful global path optimization attempts. The counter wraps to zero when the maximum value is exceeded.<br><br>This attribute is only present if the connection segment has been granted the global rerouting protocol. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrAtm Dlci Siwf RerInfo totalGlobalOptimizationAttempts (gOptAtt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of global path optimization attempts. The counter wraps to zero when the maximum value is |

exceeded.

This attribute is only present if the connection segment has been granted the global rerouting protocol.

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

## COMPONENT FrAtm Dlci NetworkInterworkingFunction (Niwf)

| | |
|---|---|
| Groups | "GROUP FrAtm Dlci Niwf Operational (Oper)" |
| Scope | Application |
| Description | *FrAtm/n Dlci/n NetworkInterworkingFunction*<br>The *Niwf* component provides the network interworking function capability between a Frame Relay data link connection and a FRF.5 ATM end point. |
| Subcomponents | "COMPONENT FrAtm Dlci Niwf SoftPermanentVirtualCircuit (Spvc)" |
| Opt. Subcomp. | "COMPONENT FrAtm Dlci Niwf NetworkingDescriptor (Nd)"<br>"COMPONENT FrAtm Dlci Niwf QualityOfService (QoS)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP FrAtm Dlci Niwf Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational networking description information for a *Niwf* component. |

## ATTRIBUTE FrAtm Dlci Niwf deToClpMapping (detclp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the type of DE to CLP mapping that is performed in the Frame Relay to ATM direction. |

A value of ***preserve*** indicates that the DE field in the Q.922 core frame copies to the CLP field of every ATM cell containing the frame.
A value of ***always0*** indicates that the CLP field of every ATM cell is always set to 0.
A value of ***always1*** indicates that the CLP field of every ATM cell is always set to 1.

Values
always0
always1
preserve

Default
No default

### ATTRIBUTE FrAtm Dlci Niwf clpToDeMapping (clptde)

Access
Read only

Description
This attribute indicates the type of CLP to DE mapping that is performed in the ATM to Frame Relay direction.
A value of ***preserve*** indicates that the DE field of the Q.922 core frame is set when one or more ATM cells belonging to the frame has its CLP field set, or when the DE field of the FR-SSCS PDU is set.
A value of ***transparent*** indicates that the DE field of the Q.922 core frame copies directly from the DE field of the FR-SSCS PDU.

Values
preserve
transparent

Default
No default

### ATTRIBUTE FrAtm Dlci Niwf transferPriority (tp)

Access
Read only

Description
This attribute indicates the transfer priority in use for a specific connection. This is the transfer priority that the local Frame Relay network uses for this connection to an ATM network.
In the Frame Relay to ATM direction, the *tp* selects the FRF.5 End Point which multiplexes the frames.
In the ATM to Frame Relay direction, the *tp* selects the default *FrAtm* emission priority queue to be used by this *Dlci*.

| | |
|---|---|
| Values | Decimal (0..15) |
| Default | No default |

### ATTRIBUTE FrAtm Dlci Niwf atmServiceCategory (asc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the ATM service category that was mapped for this connection.<br>A value of ***scNotAvailable*** indicates that *atmServiceCategory* is not yet available for this connection. |
| Values | ubr<br>cbr<br>rtVbr<br>nrtVbr<br>scNotAvailable |
| Default | No default |

### ATTRIBUTE FrAtm Dlci Niwf trafficParmConvPolicy (tpcp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the traffic parameter conversion policy that is used for this connection.<br><br>Policy ***3*** characterizes the traffic in the following way:<br>- ATM traffic descriptor type 6 is selected.<br>- PCR(0+1) is based on the ATM link rate.<br>- SCR(0+1) is based on the CIR and EIR.<br>- MB(0+1) is based on Bc, Be, CIR, EIR and AR.<br>- Takes into account that the instantaneous rate of the frame relay stream can be above CIR and up to the AR.<br><br>Policy ***4*** characterizes the traffic in the following way:<br>- ATM traffic descriptor type 7 or 8 is selected. Type 7 is chosen when non-conforming cells are to be discarded and type 8 when non-conforming cells are tagged by UPC traffic policer.<br>- PCR(0+1) is based on AR.<br>- SCR(0) is based on the CIR.<br>- MBS(0) is based on Bc, CIR, and AR.<br>- There is no direct characterization of EIR. The allowed EIR can |

be derived using the difference between the AR and CIR.

Policy ***5*** characterizes the traffic in the following way:
- ATM traffic descriptor type 7 or 8 is selected. Type 7 is chosen when non-conforming cells are to be discarded and type 8 when non-conforming cells are tagged by UPC traffic policer.
- PCR(0+1) is based on the CIR and EIR.
- SCR(0) is based on the CIR.
- MBS(0) is based on the CIR.
- The maximum PCR is no longer based on the AR but rather on the CIR and EIR.

Policy ***6*** characterizes the traffic in the following way:
- ATM traffic descriptor type 3 is selected.
- PCR(0+1) is based only on the CIR

***policyNotAvailable*** indicates that the *trafficParmConvPolicy* is not yet available for this connection.

Values
policyNotAvailable
3
4
5
6

Default
No default

## ATTRIBUTE FrAtm Dlci Niwf avgFrameSize (afs)

Access
Read only

Description
This attribute indicates the average frame size that was used for this connection as part of the traffic parameter conversion policy. A value of zero indicates that the *avgFrameSize* is not yet available for this connection.

Values
Decimal (0..8187)

Units
bytes

Default
No default

## ATTRIBUTE FrAtm Dlci Niwf equivalentBitRate (ebr)

Access
Read only

| | |
|---|---|
| Description | This attribute indicates the access reserved bandwidth for this FR-ATM connection when CAC is on. If a connection is subcribed to CIR only or CIR plus EIR service, the EBR reserved is CIR. If a connection is subcribed to EIR only service, the EBR reserved is 0. |
| Values | Decimal (0..4294967295) |
| Units | bit/s |
| Default | No default |

### ATTRIBUTE FrAtm Dlci Niwf atmDlci

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the DLCI logical channel used inside the ATM VCC.<br>A null value indicates that the *atmDlci* is not yet available for this connection. |
| Values | String (0..40, ASCII) |
| Default | No default |

### ATTRIBUTE FrAtm Dlci Niwf assignedBandwidthPool (asgBwPool)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the bandwidth pool which is used by this *Dlci*. |
| Values | 0<br>1<br>2<br>3<br>4<br>5<br>6<br>7<br>8<br>9<br>10<br>11<br>12 |

13
14
15

Default No default

## COMPONENT FrAtm Dlci Niwf SoftPermanentVirtualCircuit (Spvc)

Groups "GROUP FrAtm Dlci Niwf Spvc Provisioned (Prov)"

Scope Application

Description *FrAtm/n Dlci/n Niwf SoftPermanentVirtualCircuit*
The *Spvc* component represents the remote end of a soft PVC.

Common Verbs
Help
List
Display

## GROUP FrAtm Dlci Niwf Spvc Provisioned (Prov)

Properties Provisioned

Description This group contains the provisionable attributes for the soft PVC component.

## ATTRIBUTE FrAtm Dlci Niwf Spvc remoteAddress (raddr)

Access Read and write

Description This attribute specifies the remote address of the SPVC.
It is represented as a prefix NPI string and a sequence of up to 15 digits to specify either a native E.164 or native X.121 address format. For example, native E.164 = “e.upto15digits”.

Values String (3..17, ASCII)

Default No default

## ATTRIBUTE FrAtm Dlci Niwf Spvc remoteDlci

Access Read and write

Description This attribute specifies the remote connection identifier. This identifier is the DLCI logical channel number assignment used inside the ATM pipe.

| | |
|---|---|
| Values | Decimal (16..1007; 1022) |
| Default | 1022 |

### ATTRIBUTE FrAtm Dlci Niwf Spvc correlationTag

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies aunique string, set by the operator, which identifies the call for accounting purposes. Downstream processing uses this attribute to correlate accounting records issued at different nodes in the network. Normally, the attribute is provisioned with the same value at both ends of the connection. If the value of accountingEnabled is no, this attribute has no effect. This attribute is also visible in the FrAtm Dlci component when accounting is enabled. When this attribute is an empty string, the operational correlationTag attribute in the FrAtm Dlci component receives the value of a system-generated correlationTag. |
| Values | String (0..32, ASCII) |
| Default | "" |

### COMPONENT FrAtm Dlci Niwf NetworkingDescriptor (Nd)

| | |
|---|---|
| Groups | "GROUP FrAtm Dlci Niwf Nd Provisioned (Prov)" |
| Scope | Application |
| Description | *FrAtm/n Dlci/n Niwf NetworkingDescriptor*<br>The *Nd* component provides networking descriptor overrides for its parent *Niwf* component. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP FrAtm Dlci Niwf Nd Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisionable attributes for the parent *Niwf* component. |

### ATTRIBUTE FrAtm Dlci Niwf Nd deToClpMapping (detclp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the type of DE to CLP mapping performs in the Frame Relay to ATM direction.<br>When ***preserve*** is selected, the DE field in the Q.922 core frame copies to the CLP field of every ATM cell containing the frame.<br>When ***always0*** is selected, the CLP field of every ATM cell is always set to 0.<br>When ***always1*** is selected, the CLP field of every ATM cell is always set to 1. |
| Values | always0<br>always1<br>preserve<br>sameAsInterface |
| Default | sameAsInterface |

### ATTRIBUTE FrAtm Dlci Niwf Nd clpToDeMapping (clptde)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the type of CLP to DE mapping performs in the ATM to Frame Relay direction.<br>When ***preserve*** is selected, the DE field of the Q.922 core frame is set when one or more ATM cells belonging the frame has its CLP field set, or when the DE field of the FR-SSCS PDU is set.<br>When ***transparent*** is selected, the DE field of the Q.922 core frame copies directly from the DE field of the FR-SSCS PDU. |
| Values | preserve<br>transparent<br>sameAsInterface |
| Default | sameAsInterface |

### COMPONENT FrAtm Dlci Niwf QualityOfService (QoS)

| | |
|---|---|
| Groups | "GROUP FrAtm Dlci Niwf QoS Provisioned (Prov)" |
| Scope | Application |

Description *FrAtm/n Dlci/n Niwf QualityOfService*
The *QoS* component provides quality of service overrides for its parent *Niwf* component.

Common Verbs
Help
List
Display
Add
DELete

## GROUP FrAtm Dlci Niwf QoS Provisioned (Prov)

Properties Provisioned

Description This group contains the provisionable quality of service attributes for the *Qos* component.

## ATTRIBUTE FrAtm Dlci Niwf QoS emissionPriorityToIf (epToIf)

Access Read and write

Description This attribute specifies the emission priority of frames sent to the *FrAtm* interface. Frames in a higher priority queue, depicted by a numerically higher number, are sent before frames in a lower priority queue.
The value of this attribute is interpreted according to the value of the provisionable attribute *numberOfEmissionQs* under the parent *FrAtm* component. If the *numberOfEmissionQs* attribute is set to ***2***, *emissionPriorityToIf* value of ***0*** maps to emission priority queue 0 representing a lower priority queue, and *emissionPriorityToIf* values of ***1, 2,*** and ***3*** map to emission priority queue 1 representing the highest priority queue. If the *numberOfEmissionQs* is set to ***4***, the *emissionPriorityToIf* values are directly assigned to the emission priority queues.
A value of ***deriveFromTp*** specifies that the emission priority is to be extracted from the *Mod Frs AtmNet Tpm/n* component using the *transferPriority* attribute.
A value of ***sameAsInterface*** specifies that the emission priority is extracts from the *FrAtm Ca* component using the *niwfEmissionPriorityToIf* attribute.

Values
0
1

2
3
deriveFromTp
sameAsInterface

Default sameAsInterface

### ATTRIBUTE FrAtm Dlci Niwf QoS transferPriority (tp)

Access Read and write

Description This attribute specifies the transfer priority of frames sent to the ATM connection.
In the Frame Relay to ATM direction, the *tp* selects the FRF.5 End Point which multiplexes the frames.
In the ATM to Frame Relay direction, the *tp* selects the default *FrAtm* emission priority queue to be used by this DLCI.
A value of ***sameAsInterface*** specifies that the emission priority is to be extracted from the *FrAtm Ca* component using the *niwfTransferPriority* attribute.

Values
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
sameAsInterface

Default sameAsInterface

### COMPONENT FrAtm Dlci EgressServiceParameters (EgSp)

Groups "GROUP FrAtm Dlci EgSp Provisioned (Prov)"

| | |
|---|---|
| Scope | Application |
| Description | *FrAtm/n Dlci/n EgressServiceParameters*<br>This component contains the provisionable attributes of the egress direction for the parent *Dlci* component. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP FrAtm Dlci EgSp Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes of the egress direction for the Data Link Connection Identifier. These attributes reflect the service parameters for the egress direction specific to this instance of *Dlci*. |

## ATTRIBUTE FrAtm Dlci EgSp committedInformationRate (cir)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the committed information rate (CIR) for the egress direction. It is used for bandwidth reservation for the purpose of performing a Call Admission Control (CAC) function towards the egress link.<br><br>This attribute is not used to perform rate enforcement towards the egress link. |
| Values | Decimal (0..50000000) |
| Units | bit/s |
| Default | 64000 |

## ATTRIBUTE FrAtm Dlci EgSp committedBurstSize (bc)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute specifies the committed burst size (Bc) for the egress direction. It is used for bandwidth reservation for the purpose of performing a Call Admission Control (CAC) function towards the egress link.<br><br>This attribute is not used to perform rate enforcement towards the egress link. |
| Values | Decimal (0..50000000) |
| Units | bits |
| Default | 64000 |

### ATTRIBUTE FrAtm Dlci EgSp excessBurstSize (be)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the excess burst size (Be) for the egress direction. It is used for bandwidth reservation for the purpose of performing a Call Admission Control (CAC) function towards the egress link.<br><br>This attribute is not used to perform rate enforcement towards the egress link. |
| Values | Decimal (0..50000000) |
| Units | bits |
| Default | 0 |

### ATTRIBUTE FrAtm Dlci EgSp measurementInterval (t)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time interval for the egress direction. It is used for bandwidth reservation for the purpose of performing a Call Admission Control (CAC) function towards the egress link.<br><br>This attribute is not used to perform rate enforcement towards the egress link. |
| Values | Decimal (0..25500) |

| | |
|---|---|
| Units | msec |
| Default | 0 |

### COMPONENT FrAtm VirtualFramer (VFramer)

| | |
|---|---|
| Groups | "GROUP FrAtm VFramer Provisioned (Prov)"<br>"GROUP FrAtm VFramer OsiState (State)"<br>"GROUP FrAtm VFramer Statistics (Stats)" |
| Scope | Application |
| Description | *FrUni/n VirtualFramer*<br>*FrDte/n VirtualFramer*<br>The *VirtualFramer* component binds two services together to provide data transfer between them. It is mutually exclusive from *Framer* component. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP FrAtm VFramer Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisionable attributes for the *VirtualFramer* component. |

### ATTRIBUTE FrAtm VFramer otherVirtualFramer (ovf)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the other *VirtualFramer* to which the service is linked, for example, *FrUni/n VirtualFramer*, *FrDte/n VirtualFramer*. |
| Values | Link (Service, otherVirtualFramer) |
| Default | No default |

### ATTRIBUTE FrAtm VFramer logicalProcessor (lp)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the logical processor on which the service component will reside. |
| Values | Link (Hardware, linkToApplications) |
| Default | No default |

### GROUP FrAtm VFramer OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE FrAtm VFramer adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |

| | |
|---|---|
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE FrAtm VFramer operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE FrAtm VFramer usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |

| | |
|---|---|
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP FrAtm VFramer Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational statistics data for a *VirtualFramer* component. |

### ATTRIBUTE FrAtm VFramer frmToOtherVFramer

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames transmitted to the *otherVirtualFramer.* |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE FrAtm VFramer frmFromOtherVFramer

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received from the *otherVirtualFramer.* |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE FrAtm VFramer octetFromOtherVFramer

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the octets received from the *otherVirtualFramer.* |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE FrAtm VFramer discFrmFromOtherVFramer (discFrmFromOvf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the discarded frames from the *otherVirtualFramer*. Incrementing of this counter indicates that some incoming traffic cannot be handled by the FP. |
| Values | Long Integer |
| Default | No default |

### COMPONENT FrAtm Address (Addr)

| | |
|---|---|
| Groups | "GROUP FrAtm Addr Provisioned (Prov)"<br>"GROUP FrAtm Addr FrAtmAddrOp (addrOp)" |
| Scope | Application |
| Description | *FrAtm/n Address*<br>The *Addr* component contains the address for a *FrAtm* interface that supports native E.164 or X.121. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP FrAtm Addr Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group specifies the address of the *FrAtm* Interface. |

### ATTRIBUTE FrAtm Addr address (addr)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute contains digits which form the unique identifier of the customer. It is the equivalent of the telephone number in the telephone network (either native E.164 or X.121 address formats, or Atm End System Address(AESA) in ISO NSAP format ). |

For example, E.164 prefix “e.613722”, X.121 prefix “x.302”, NSAP “45000441812460730F000000000020480D200100”.

Values: String (1..44, ASCII)

Default: No default

### GROUP FrAtm Addr FrAtmAddrOp (addrOp)

Properties: Operational

Description: This group display the address of the *FrAtm* Interface.

### ATTRIBUTE FrAtm Addr myAddress (myAddr)

Access: Read only

Description: This attribute displays the parent FRATM component’s address in the ISO NSAP format.

Values: String (40, ASCII)

Default: No default

### COMPONENT FrAtm ConnectionAdministrator (Ca)

Groups:
"GROUP FrAtm Ca Provisioned (Prov)"
"GROUP FrAtm Ca ServiceDescriptor (Sd)"
"GROUP FrAtm Ca NetworkingDescriptor (Nd)"
"GROUP FrAtm Ca InterfaceQualityOfService (IfQoS)"
"GROUP FrAtm Ca Operational (Op)"
"GROUP FrAtm Ca AccountingOptions"

Scope: Application

Description: *FrAtm/n ConnectionAdministrator*
The *Ca* component allows common subscription options applicable to interworking with ATM networking to be specified by the network operator on a *FrAtm* interface. The values defined under the *Ca* component interface defaults are used for the majority of the connections. For exception cases, the interface defaults specified in the *Ca* component can be overridden on a

per connection basis by provisioning *FrAtm Dlci Siwf Qos* or *FrAtm Dlci Niwf Qos* components.

Opt. Subcomp. "COMPONENT FrAtm Ca TransferPriorityMapping (Tpm)"

Common Verbs
Help
List
Display

## GROUP FrAtm Ca Provisioned (Prov)

Properties Provisioned

Description This attribute group contains the common provisionable attributes of the *Ca* component.

## ATTRIBUTE FrAtm Ca callAdmissionControl (cac)

Access Read and write

Criticality Process

Description This attribute specifies the control to turn on Call Admission Control (CAC). The default value for CAC is off.

Values
off
on

Default off

## ATTRIBUTE FrAtm Ca overrideLinkRate (ovLinkRate)

Access Read and write

Criticality Process

Description This attribute allows the link rate to be overridden for this interface. This allows the user to specify a value other than the actual physical link rate computed when a *Framer* component is provisioned. In the absence of a *Framer* component, or when a *VirtualFramer* component is provisioned, this value needs to be explictly set to provide an equivalent link rate.

This attribute provides control on the amount of bandwidth available for performing CAC. This attribute also provides the

| | |
|---|---|
| | requested amount of bandwidth that is negotiated across an ATM network for traffic conversion polices 3 and 4, since these policies are a function of the access rate. |
| Values | Decimal (0..520000000) |
| Units | bit/s |
| Default | 0 |

### ATTRIBUTE FrAtm Ca bandwidthPool (bwPool)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | Port capacity is partitioned into 16 pools (pool 0 through pool 15). This attribute specifies the percentage of port capacity that is allowed for each pool. The percentage for each pool ranges from 0% to 1000%. It allows for under or over subscription of the port. Under subscription occurs when the sum of the percentage assigned to the 16 pools is less than 100%. Over subscription occurs when the sum of the percentage for the 16 pools exceeds 100%. The sum of the percentage assigned to the 16 pools cannot exceed 1000%.<br><br>The default is full sharing of port capacity without pre-set partitions between transfer priorities. |
| Vector of | Decimal (0..1000) |
| Units | % |
| Index | Decimal (0..15) |
| Default | (100, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0) |

### GROUP FrAtm Ca ServiceDescriptor (Sd)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisionable service interworking attributes for the *FrAtm* component. The attributes defined in this group provide the defaults for all the connections on the *FrAtm* interface. |

## ATTRIBUTE FrAtm Ca sdMode

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the mode of interoperability between the Frame Relay and ATM connections regarding upper layer protocol encapsulations. This is used as the default for all the connections on the interface.<br><br>When ***translationMode*** is selected, the interworking function performs translations between RFC1490 and RFC1483 encapsulated headers. This includes routed protocol translation, bridged protocol translation, and connection oriented protocol translation (except for RFC 1490 connection oriented protocol without RFC 1490 header, which is done in *speTranslationMode*).<br><br>A value of ***transparentMode*** indicates that the interworking function is forwarding data without altering the upper layer user protocol encapsulation. Use transparent mode when the upper layer user protocol encapsulation methods are compatible between terminal equipments.<br><br>A value of ***speTranslationMode*** indicates that the interworking function performs single protocol translation between RFC1490 with no header and RFC1483 encapsulated packets. |
| Values | translationMode<br>transparentMode<br>speTranslationMode |
| Default | translationMode |

## ATTRIBUTE FrAtm Ca sdDeToClpMapping (sdetclp)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the DE to CLP mapping that is performed in the Frame Relay to ATM direction. This is used as the default |

for all the connections on the interface.

When ***preserve*** is selected, the DE field in a Q.922 core frame copies to the ATM CLP field of every cell containing the information of that frame.

When ***always0*** is selected, the CLP field of every generated ATM cell is always 0.

When ***always1*** is selected, the CLP field of every generated ATM cell is always 1.

Values
always0
always1
preserve

Default
preserve

### ATTRIBUTE FrAtm Ca sdClpToDeMapping (sclpToDe)

Access
Read and write

Criticality
Process

Description
This attribute specifies the type of CLP to DE mapping that is performed in the ATM to Frame Relay direction.

When ***preserve*** is selected, the DE field of the Q.922 core frame is set when one or more ATM cells belonging to an AAL5 frame has its CLP field set.

When ***always0*** is selected, the DE field of the Q.922 core frame is always set to 0.

When ***always1*** is selected, the DE field of the Q.922 core frame is always set to 1.

Values
always0
always1
preserve

Default
preserve

## ATTRIBUTE FrAtm Ca sdFecnToEfciMapping (sfecntefci)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the type of FECN to EFCI mapping that is performed in the Frame Relay to ATM direction.<br><br>When ***preserve*** is selected, the FECN field in the Q.922 Core frame maps directly to the ATM EFCI field of every cell generated by the AAL5 segmentation process.<br><br>When ***always0*** is selected, the EFCI field in every ATM cell generated is set to 0. |
| Values | always0<br>preserve |
| Default | preserve |

## ATTRIBUTE FrAtm Ca sdCrToUuMapping (scrtuu)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute indicates the type of CR to UU mapping that is performed in the Frame Relay to ATM direction.<br><br>A value of ***preserve*** indicates that the proprietary and CR bits are mapped to the CPCS-UU field of the last cell generated by the AAL5 segmentation process. The proprietary bits are used for rate enforcement and rate adaption but are unused according to the FRF8 standard.<br><br>A value of ***standardFRF8*** indicates that only the CR bit is mapped to the CPCS-UU field of the last cell generated by the AAL5 segmentation process. This is in accordance with the FRF8 standard. This option is provided to avoid equipment inter-working issues with the proprietary use of the unused bits of the CPCS-UU field for rate enforcement and rate adaption. |

| | |
|---|---|
| Values | standardFRF8<br>preserve |
| Default | preserve |

### GROUP FrAtm Ca NetworkingDescriptor (Nd)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the default provisionable networking attributes for the *FrAtm* component. |

### ATTRIBUTE FrAtm Ca ndDeToClpMapping (ndetclp)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the type of DE to CLP mapping to be performed in the Frame Relay to ATM direction.<br>When ***preserve*** is selected, the DE field in the Q.922 core frame copies to the CLP field of every ATM cell containing the frame.<br>When ***always0*** is selected, the CLP field of every ATM cell is always set to 0.<br>When ***always1*** is selected, the CLP field of every ATM cell is always set to 1. |
| Values | always0<br>always1<br>preserve |
| Default | preserve |

### ATTRIBUTE FrAtm Ca ndClpToDeMapping (nclptde)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the type of CLP to DE mapping to be performed in the ATM to Frame Relay direction.<br>When ***preserve*** is selected, the DE field of the Q.922 core frame is set when one or more ATM cells belonging to the frame has its CLP field set, or when the DE field of the FR-SSCS PDU is set. |

When ***transparent*** is selected, the DE field of the Q.922 core frame copies directly from the DE field of the FR-SSCS PDU.

Values
preserve
transparent

Default
preserve

## GROUP FrAtm Ca InterfaceQualityOfService (IfQoS)

Properties
Provisioned

Description
This attribute group contains the provisionable quality of service attributes for the parent *FrAtm* interface.

## ATTRIBUTE FrAtm Ca siwfEmissionPriorityToIf (sEpToIf)

Access
Read and write

Criticality
Process

Description
This attribute specifies the emission priority of frames sent to this *FrAtm* interface from its service interworking functions. Frames in a higher priority queue, designated by a numerically higher number, are sent before frames in a lower priority queue.
The value of this attribute is interpreted according to the value of the provisionable attribute *numberOfEmissionQs* under the parent *FrAtm* component. If the *numberOfEmissionQs* attribute is set to ***2***, *siwfEmissionPriorityToIf* value of ***0*** maps to emission priority queue 0 representing a lower priority queue, and *siwfEmissionPriorityToIf* values of ***1***, ***2*** or ***3*** map to emission priority queue 1 representing the highest priority queue. If the *numberOfEmissionQs* is set to ***4***, the *siwfEmissionPriorityToIf* values directly map to the emission priority queues.
A value of ***deriveFromTp*** specifies that the emission priority is extracted from the *Mod Frs AtmNet Tpm/n* component using the *siwfTransferPriority* attribute.
The *siwfEmissionPriorityToIf* can also be overridden on a per connection basis by setting the *emissionPriorityToIf* attribute in the *FrAtm Dlci Siwf Qos* component.

Values
0
1
2

| | |
|---|---|
| | 3<br>deriveFromTp |
| Default | 0 |

### ATTRIBUTE FrAtm Ca siwfTransferPriority (stp)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the transfer priority of frames sent to and received from the ATM connection, through the service interworking functions of this interface.<br>In the Frame Relay to ATM direction, the *stp* selects the ATM service category of the connection.<br>In the ATM to Frame Relay direction, the s*tp* selects the *FrAtm* emission priority queue.<br>The *siwfTransferPriority* can also be overridden on a per connection basis by setting the *transferPriority* atribute in the *FrAtm Dlci Siwf Qos* component. |
| Values | Decimal (0..15) |
| Default | 0 |

### ATTRIBUTE FrAtm Ca niwfEmissionPriorityToIf (nEpToIf)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the emission priority of frames sent to this *FrAtm* interface from its network interworking functions. Frames in a higher priority queue are sent before frames in a lower priority queue.<br>The value of this attribute is interpreted according to the value of the provisionable attribute *numberOfEmissionQs* under the parent *FrAtm* component. If the *numberOfEmissionQs* attribute is set to ***2***, *niwfEmissionPriorityToIf* value of ***0*** maps to emission priority queue 0 representing a lower priority queue, and *niwfEmissionPriorityToIf* values of ***1, 2*** or ***3*** map to emission priority queue 1 representing the highest priority queue. If the *numberOfEmissionQs* is set to ***4***, the *emissionPrioToIf* values |

directly assign to the emission priority queues.
A value of ***deriveFromTp*** specifies that the emission priority is extracted from the *Mod Frs AtmNet Tpm/n* component using the *niwfTransferPriority* attribute.
The *niwfEmissionPriorityToIf* can also be overridden on a per connection basis by setting the *emissionPriorityToIf* atribute in the *FrAtm Dlci Niwf Qos* component.

Values
0
1
2
3
deriveFromTp

Default deriveFromTp

### ATTRIBUTE FrAtm Ca niwfTransferPriority (ntp)

Access Read and write

Criticality Process

Description This attribute specifies the transfer priority of frames sent to and received from the ATM connection, through the network interworking functions of this interface.
In the Frame Relay to ATM direction, the *ntp* selects the *Frf5EndPoint* which multiplexes the frames.
In the ATM to Frame Relay direction, the *ntp* selects the default *FrAtm* emission priority queue.
The *niwfTransferPriority* can also be overridden on a per connection basis by setting the *transferPriority* atribute in the *FrAtm Dlci Niwf Qos* component.

Values Decimal (0..15)

Default 0

### GROUP FrAtm Ca Operational (Op)

Properties Operational

Description This attribute group contains the operational status of the *Ca* component.

### ATTRIBUTE FrAtm Ca linkRate (linkRate)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the link rate.<br><br>If the provisionable attribute, *overrideLinkRate*, under the *Ca* component is 0, then the link rate reported is the actual link rate of the port or channel. Otherwise, the link rate reported is the *overrideLinkRate* provisioned under the *Ca* component. |
| Values | Decimal (0..520000000) |
| Units | bit/s |
| Default | No default |

### ATTRIBUTE FrAtm Ca nailedUpPvcs (nPvcs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of nailed-Up PVCs currently provisioned on this interface. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE FrAtm Ca troubledDlcis (trbDlcis)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of DLCIs that are disabled and are experiencing problems. This counter increments as a result of the following problem scenarios: Abit down, PVC down, local CAC failure, or call setup failure due to network problem. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE FrAtm Ca softPvcs (sPvcs)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the number of soft PVCs currently provisioned on this interface. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE FrAtm Ca poolProvisionedBandwidth (poolProvBw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute represents the total bandwidth that is allowed for each pool. Total bandwidth for a given pool can be oversubscribed or undersubscribed. The value of this attribute for a given pool is a percentage of the value of the *linkRate* attribute. This percentage is provisioned by setting the *FrAtm Ca bandwidthPool* attribute. |
| Vector of | Decimal (0..520000000) |
| Units | bit/s |
| Index | Decimal (0..15) |
| Default | No default |

### ATTRIBUTE FrAtm Ca poolAvailableBandwidth (poolAvailBw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total available bandwidth from the bandwidth pool. |
| Vector of | Decimal (0..52000000) |
| Units | bit/s |
| Index | Decimal (0..15) |
| Default | No default |

### ATTRIBUTE FrAtm Ca poolAdmittedBandwidth (poolAdmitBw)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the total admitted bandwidth from each bandwidth pool. Each value is the sum of the equivalent bit rates of the admitted connections. |
| Vector of | Decimal (0..520000000) |
| Units | bit/s |
| Index | Decimal (0..15) |
| Default | No default |

### GROUP FrAtm Ca AccountingOptions

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the common provisioned attributes for accounting on a *FrAtm*. |

### ATTRIBUTE FrAtm Ca accountClass (acl)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the accounting class, which is reserved for network operations usage. Its value is an arbitrary number. The accounting records the value of this attribute. |
| Values | Decimal (0..255) |
| Default | 0 |

### ATTRIBUTE FrAtm Ca accountCollection (aco)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute controls accounting data collection at the interface level. It contains the following values: ***bill, test, study, audit, force*** which are used to specify the reason(s) for which accounting records are collected. If the ***bill, test, study and audit*** options are selected in the accountCollection field, accounting records are collected for bill, test, study, or audit purposes. If the ***force*** option is selected in the accountCollection field, accounting records are collected regardless of whether other reasons are |

provisioned. If no reason is provisioned for this attribute, then accounting data collection does not occur.

Set of
bill
test
study
audit
force

Default (bill)

### ATTRIBUTE FrAtm Ca serviceExchange (sre)

Access Read and write

Description This attribute is an arbitrary number, which is reserved for network operations usage. It is recorded in the accounting record.

Values Decimal (0..255)

Default 0

### COMPONENT FrAtm Ca TransferPriorityMapping (Tpm)

Instance Decimal (0..15)

Groups "GROUP FrAtm Ca Tpm Provisioned (Prov)"

Scope Application

Description *FrAtm/n Ca TransferPriorityMapping/n*
The *Tpm* component defines the corresponding traffic management subscription options on a *FrAtm* interface corresponding to a particular transfer priority. This component is needed only if there is a requirement to override the *Mod Frs AtmNet Tpm* component defaults.

Common Verbs
Help
List
Display
Add
DELete

## GROUP FrAtm Ca Tpm Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This attribute group contains the provisionable attributes of the *Tpm* component at this interface. |

## ATTRIBUTE FrAtm Ca Tpm assignedBandwidthPool (asgBwPool)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the bandwidth pool that supports this transfer priority at this interface. |
| Values | 0<br>1<br>2<br>3<br>4<br>5<br>6<br>7<br>8<br>9<br>10<br>11<br>12<br>13<br>14<br>15<br>samePoolAsModule |
| Default | samePoolAsModule |

## ATTRIBUTE FrAtm Ca Tpm trafficParmConvPolicy (tpcp)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the traffic parameter conversion policy to use for a specific transfer priority for specifying equivalent bandwidth rate at the *FrAtm* interface. |

Policy 3 characterizes the traffic in the following way:
- ATM traffic descriptor type 6 is selected
- ATM service category rtVbr and nrtVbr supported only
- PCR0+1 is based on AR
- SCR0+1 is based on CIR and EIR
- MBS0+1 is based on Bc, Be, CIR, EIR and AR
- Takes into account that the instantaneous rate of the Frame Relay stream can be above CIR and up to the AR.

Policy 4 characterizes the traffic in the following way:
- ATM traffic descriptor type 7 or 8 is selected. Type 7 is chosen when non-conforming cells are to be discarded and type 8 when non-conforming cells are tagged by the UPC traffic policer.
- PCR0+1 is based on AR
- ATM service category rtVbr and nrtVbr supported only
- SCR0 is based on CIR
- MBS0 is based on Bc, CIR, and AR
- There is no direct characterization of EIR. The allowed EIR can be derived using the difference between the AR and CIR.

Policy 5 characterizes the traffic in the following way:
- ATM traffic descriptor type 7 or 8 is selected. Type 7 is chosen when non-conforming cells are to be discarded and type 8 when non-conforming cells are tagged by the UPC traffic policer.
- ATM service category rtVbr and nrtVbr supported only
- PCR0+1 is based on CIR for descriptor type 7
- PCR0+1 is based on CIR and EIR for descriptor type 8
- SCR0 is based on CIR
- MBS0 is based on Bc, CIR, and AR
- The maximum PCR is no longer based on the AR but rather on the CIR and EIR or CIR

Policy 6 characterizes the traffic in the following way:
- ATM traffic descriptor type 3 is selected
- ATM service category ubr, cbr, rtVbr and nrtVbr supported only
- PCR0+1 is based only on CIR.

The default value ***sameAsModule*** implies the *trafficParmConversionPolicy* of *Mod Frs AtmNet Tpm/n* is as defined as *Mod Frs AtmNet Tpm/n*.

| | |
|---|---|
| Values | sameAsModule<br>policy3<br>policy4<br>policy5<br>policy6 |
| Default | sameAsModule |

### ATTRIBUTE FrAtm Ca Tpm averageFrameSize (aFs)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the average frame size at the FrAtm interface for connections using this transfer priority. If a value of ***0*** is specified, the average frame size defined in *Mod Frs AtmNet Tpm/n avgFrameSize* attribute is used. |
| Values | Decimal (0..8187) |
| Units | bytes |
| Default | 0 |

### COMPONENT FrAtm Reroute

| | |
|---|---|
| Groups | "GROUP FrAtm Reroute LocalOperational (LOper)"<br>"GROUP FrAtm Reroute GlobalOperational (GOper)"<br>"GROUP FrAtm Reroute Statistics (Stats)" |
| Scope | Device |
| Description | *FrAtm/n Reroute*<br><br>This component represents the rerouting capabilities of the FrAtm interface. If this component is provisioned, the *Artg Pnni* component must already exist. The addition or deletion of this component, or changes to its provisionable attributes, does not affect existing connections. |

| | |
|---|---|
| Subcomponents | "COMPONENT FrAtm Reroute Ov" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### VERB OPTIMIZE FrAtm Reroute

| | |
|---|---|
| Impact | Service |
| Description | *Optimize [-all]FrAtm/n Reroute*<br><br>This command triggers path optimization for the connection segments managed by the *Reroute* component.<br><br>By default, only connection segsforation. The best known optimization metric value for the connection segment is indicated by the *localOptimalMetricValue* attribute under the *RerouteInfo* component for the connection.<br>The *-all* option causes all connection segments subscribed to path optimization to be considered.<br><br>Using the *Optimize* command results in service disruptions when connection segments are moved to a better path. Care should be exercised when using this command. It is recommended that the command be used during maintenance windows. |

### GROUP FrAtm Reroute LocalOperational (LOper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes that indicate the local rerouting activities at the interface level. |

### ATTRIBUTE FrAtm Reroute localSubscribedConnections (lsub)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the connection segments that are subscribed to one or more local rerouting capabilities. Note that a given connection segment is subscribed to either local rerouting capabilities capabilities, not both. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrAtm Reroute localEligibleRecoveredCon (lerc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the connection segments that have been recovered using local rerouting and are eligible for local path optimization. The value decreases as counted connections are released. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrAtm Reroute localIneligibleRecoveredCon (lirc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the connection segments that have been recovered by local rerouting but are not eligible for local path optimization. The value decreases as counted connections are released. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrAtm Reroute localLastRrCauseCode (lrrcc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the value of the last local rerouting cause code received at this interface. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE FrAtm Reroute localPathsOptimized (lPathsOpt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the paths that were successfully optimized by local rerouting or EBR during the last optimization pass at this interface. Successfully optimized paths are paths that switched to a better route. The value is reset to zero at the beginning of each optimization pass. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP FrAtm Reroute GlobalOperational (GOper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes that indicate the global and EBR rerouting activities at the interface level. |

### ATTRIBUTE FrAtm Reroute globalSubscribedConnections (gsub)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the connection segments that are subscribed to one or more global and EBR rerouting capabilities. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrAtm Reroute globalEligibleRecoveredCon (gerc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the connections that have been recovered by global and EBR rerouting and are eligible for global or EBR path optimization. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrAtm Reroute globalIneligibleRecoveredCon (girc)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the connections that have been recovered by global and EBR rerouting but are not eligible for global or EBR path optimization. The value decreases as counted connections are released. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrAtm Reroute globalLastRrCauseCode (grrcc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the value of the last global or EBR rerouting cause code received at this interface. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE FrAtm Reroute globalPathsOptimized (gPathsOpt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the paths that were successfully optimized by global and EBR rerouting during the last optimization pass at this interface. Successfully optimized paths are paths that switched to a better route. The value is reset to zero at the beginning of each optimization pass. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP FrAtm Reroute Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the rerouting statistics for the interface. |

### ATTRIBUTE FrAtm Reroute totalLocalConnectionRecoveries (tLConRec)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts successful local connection recovery attempts. The counter wraps to zero when the maximum value is exceeded. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrAtm Reroute totalLocalFailedRecoveries (lFailedRec)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts failed local connection recovery attempts. A connection recovery attempt fails if a rerouting connection segment can not be established. The counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrAtm Reroute totalLocalPathOptimizations (tLPathOpt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts successful local path optimization attempts. A successful path optimization attempt results in a switch to a better route. The counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrAtm Reroute totalGlobalConnectionRecoveries (tGConRec)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts successful global and EBR connection recovery attempts. The counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrAtm Reroute totalGlobalFailedRecoveries (gFailedRec)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts failed global and EBR connection recovery attempts. A connection recovery attempt fails if a rerouting connection segment cannot be established. The counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrAtm Reroute totalGlobalPathOptimizations (tGPathOpt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts successful global and EBR path optimization attempts. A successful path optimization attempt results in a switch to a better route. The counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrAtm Reroute totalOptimizationPasses (optPass)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts optimization passes at the interface. Both module and interface optimization passes are counted. The counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT FrAtm Reroute Ov

| | |
|---|---|
| Groups | "GROUP FrAtm Reroute Ov Provisioned (Prov)"<br>"GROUP FrAtm Reroute Ov LocalProvisioned (LProv)"<br>"GROUP FrAtm Reroute Ov GlobalProvisioned (GProv)" |
| Scope | Device |
| Description | *FrAtm/n Reroute Ov* |

This component represents the provisioning capabilities of the rerouting functionality for the FrAtm interface.

Common Verbs

Help
List
Display

## GROUP FrAtm Reroute Ov Provisioned (Prov)

Properties: Provisioned

Description: This group contains the common provisionable attributes for rerouting capabilities at the ATM signaling interface.

## ATTRIBUTE FrAtm Reroute Ov protocol

Access: Read and write

Description: This attribute specifies the rerouting protocols which are requested by connection segments on the interface, for which this node is the first rerouting node. This attribute has no effect on connection segments for which this node is not the first rerouting node. A subset of the requested protocols is granted by the last rendezvous node, according to its software level and provisioning.

One of the following values can be specified:
***sameAsARtgPnniReroute***: The requested rerouting protocols are specified by the *Artg Pnni Reroute protocol* attribute.
***localGlobal***: Local and global rerouting protocols are requested. Local and global rerouting are granted if the DTL terminator is provisioned with the Rerouting feature.
***localOnly***: Local rerouting is requested. This value guarantees interoperability with other vendors' equipment running the ATM Forum "Domain Based Rerouting" protocol. Local rerouting is granted if the DTL terminator is provisioned with the Rerouting feature.
***globalOnly***: Global rerouting is requested. Global rerouting is granted if the DTL terminator is provisioned with the Rerouting feature.
***localEbr*:** Local and EBR rerouting protocols are requested. Local rerouting is granted if the DTL terminator is provisioned

with the Rerouting feature. Alternatively, EBR is granted if the DTL terminator is provisioned with the EBR feature.
***ebrOnly***: EBR is requested. EBR is granted if the DTL terminator is provisioned with the EBR feature.

Values
localGlobal
localOnly
globalOnly
localEbr
ebrOnly
sameAsARtgPnniReroute (sameAs)

Default
sameAsARtgPnniReroute

### ATTRIBUTE FrAtm Reroute Ov numOptAttempts

Access
Read and write

Description
This attribute specifies the number of path optimizations attempted before declaring a recovered connection segment to be optimally routed. Following a connection recovery, each manual and automatic path optimization will attempt to optimize the connection segment. When a path is found with a better optimization metric than the best known value, or the number of optimization attempts is exhausted, the current optimization metric is declared to be the new optimal metric for the connection segment. Subsequent path optimizations will not attempt to optimize the connection segment unless all subscribed connection segments are eligible for path optimization.

If the value is set to ***0***, the optimization metric of a connection segment following connection recovery is declared to be the new optimal metric, and no connection recovery alarm is issued. A subsequent path optimization will not attempt to optimize the connection segment unless all subscribed connection segments are eligible for path optimization.

If the value is set to ***sameAsARtgPnniReroute***, the value of the *ARtg Pnni Reroute numOptAttempts* attribute is used.

Values
Decimal (0..15)
sameAsARtgPnniReroute (sameAs)

Default sameAs

### ATTRIBUTE FrAtm Reroute Ov moduleOptimizationConnections

Access Read and write

Description This attribute specifies which connection segments on the interface will be considered by a module optimization pass as controlled by the *ARtg Pnni Reroute* component.

One of the following values can be specified:
***sameAsARtgPnniReroute***: The connection segments to be considered by a module optimization pass are specified by the *Artg Pnni Reroute moduleOptimization* attribute.
***none***: No connection segments are considered for path optimization.
***recoveredOnly***: Only connection segments which are foration. The best known optimization metric value for the connection segment is indicated by the *localOptimalMetricValue* attribute under the *RerouteInfo* component for the connection
***allSubscribed***: All connection segments subscribed to path optimization are considered.

Values none
recoveredOnly
allSubscribed
sameAsARtgPnniReroute (sameAs)

Default sameAsARtgPnniReroute

### ATTRIBUTE FrAtm Reroute Ov switchoverMechanism

Access Read and write

Description This attribute specifies the mechanism used for switchover of a rerouted connection segment.

One of the following values can be specified:
***sameAsARtgPnniReroute***: The switchover mechanism is specified by the *ARtg Pnni Reroute switchoverMechanism* attribute.
***standard***: The mechanism described in the ATM Forum “Domain based Rerouting” specification is used for switchover. This value

ensures interoperability with other vendors' equipment running ATM Forum "Domain based Rerouting".
***rcl***: The Reduced Cell Loss mechanism is used for switchover. RCL is a value-added Passport extension to the standard mechanism that allows faster switchover time.

Values: standard
rcl
sameAsARtgPnniReroute (sameAs)

Default: sameAsARtgPnniReroute

## GROUP FrAtm Reroute Ov LocalProvisioned (LProv)

Properties: Provisioned

Description: This group contains the provisionable attributes for EBR and local rerouting protocols for the *FrAtm* interface.

## ATTRIBUTE FrAtm Reroute Ov localConnectionRecoverySubscr (lConRec)

Access: Read and write

Description: This attribute specifies whether the connection segments on this interface request subscription to local connection recovery. This attribute only affects connection segments that request the local rerouting protocols. This attribute affects connection segments for a node that is either a local domain rerouting node or a DTL originator.

If a connection segment requests ***localGlobal*** or ***localOnly*** protocols, this attribute controls local connection recovery subscription.

If a connection segment requests ***localEbr***, this attribute controls the local connection recovery subscription. Only one will be granted.

One of the following values can be specified:
***sameAsARtgPnniReroute***: The subscription rule is determined by the *Artg Pnni Reroute localConnectionRecoverySubscr* attribute. If the attribute specifies the ***sourceSpvcSpvp*** value, the connection segments request subscription to local connection

recovery, otherwise, the connection segments do not request subscription.
***yes:*** The connection segments request subscription to local connection recovery.
***no***: The connection segments do not request subscription to local connection recovery.

Values
no
yes
sameAsARtgPnniReroute (follow)

Default
sameAsARtgPnniReroute

## ATTRIBUTE FrAtm Reroute Ov localPathOptimizationSubscr (lPathOpt)

Access
Read and write

Description
This attribute specifies whether the connection segments on this interface request subscription to local path optimization. This attribute only affects connection segments that request the local rerouting protocols. This attribute affects connection segments for a node that is either a local domain rerouting node or a DTL originator.

If a connection segment requests ***localGlobal*** or ***localOnly*** protocols, this attribute controls local path optimization subscription.

If a connection segment requests ***localEbr***, this attribute controls the local path optimization subscription. Only one will be granted.

One of the following values can be specified:
***sameAsARtgPnniReroute***: The subscription rule is determined by the *Artg Pnni Reroute localPathOptimizationSubscr* attribute. If the attribute specifies the ***sourceSpvcSpvp*** value, the connection segments request subscription to local path optimization, otherwise, the connection segments do not request subscription.
***yes:*** The connection segments request subscription to local path optimization.
***no***: The connection segments do not request subscription to local

path optimization.

Values
no
yes
sameAsARtgPnniReroute (follow)

Default
sameAsARtgPnniReroute

## GROUP FrAtm Reroute Ov GlobalProvisioned (GProv)

Properties
Provisioned

Description
This group contains the provisionable attributes for the global rerouting protocol for the *FrAtm* interface.

## ATTRIBUTE FrAtm Reroute Ov globalConnectionRecoverySubscr (gConRec)

Access
Read and write

Description
This attribute specifies whether the connection segments on this interface request subscription to global or EBR connection recovery. This attribute only affects connection segments that request the global or EBR rerouting protocols. This attribute only affects connection segments for a node that is a DTL originator.

If a connection segment requests ***ebrOnly***, this attribute controls EBR connection recovery subscription.

If a connection segment requests ***localEbr***, this attribute controls the EBR connection recovery subscription. Only one will be granted.

One of the following values can be specified:
***sameAsARtgPnniReroute***: The subscription rule is determined by the *Artg Pnni Reroute globalConnectionRecoverySubscr* attribute. If the attribute specifies the ***sourceSpvcSpvp*** value, the connection segments request subscription to global or EBR connection recovery, otherwise, the connection segments do not request subscription.
***yes:*** The connection segments request subscription to global or EBR connection recovery.
***no***: The connection segments do not request subscription to

global or EBR connection recovery.

Values
no
yes
sameAsARtgPnniReroute (follow)

Default
sameAsARtgPnniReroute

## ATTRIBUTE FrAtm Reroute Ov globalPathOptimizationSubscr (gPathOpt)

Access
Read and write

Description
This attribute specifies whether the connection segments on this interface request subscription to global or EBR path optimization. This attribute only affects connection segments that request the global or EBR rerouting protocols. This attribute only affects connection segments for a node that is a DTL originator.

If a connection segment requests ***ebrOnly***, this attribute controls EBR path optimization subscription.

If a connection segment requests ***localEbr***, this attribute controls the EBR path optimization subscription. Only one will be granted.

One of the following values can be specified:
***sameAsARtgPnniReroute***: The subscription rule is determined by the *Artg Pnni Reroute globalPathOptimizationSubscr* attribute. If the attribute specifies the ***sourceSpvcSpvp*** value, the connection segments request subscription to global or EBR path optimization, otherwise, the connection segments do not request subscription.
***yes:*** The connection segments request subscription to global or EBR path optimization.
***no***: The connection segments do not request subscription to global or EBR path optimization.

Values
no
yes
sameAsARtgPnniReroute (follow)

Default
sameAsARtgPnniReroute

Passport 7400, 15000, 20000

# Component FrAtm

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component FrDte

241-5701-060

Passport 7400, 15000, 20000

# Component FrDte

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT FrameRelayDte (FrDte)

| | |
|---|---|
| Instance | Decimal (1..4294967295) |
| Groups | "GROUP FrDte CustomerIdentifierData (CidData)"<br>"GROUP FrDte IfEntryProv (IfEntry)"<br>"GROUP FrDte Provisioned (Prov)"<br>"GROUP FrDte OsiState (State)"<br>"GROUP FrDte OperationalStatus (OperStatus)"<br>"GROUP FrDte Operational (Oper)"<br>"GROUP FrDte FrErrEntry (Err)"<br>"GROUP FrDte ErrorStatistics (ErrStats)" |
| Scope | Application |
| Description | *FrameRelayDte/n*<br>The *FrameRelayDte* component defines the general parameters for implementing the Frame Relay DTE interface. |

| | |
|---|---|
| Subcomponents | "COMPONENT FrDte LinkManagementInterface (Lmi)"<br>"COMPONENT FrDte RemoteGroup (Rg)"<br>"COMPONENT FrDte DynamicDlciDefaults (DynDlciDefs)" |
| Opt. Subcomp. | "COMPONENT FrDte Framer"<br>"COMPONENT FrDte StaticDlci (StDlci)"<br>"COMPONENT FrDte LinkEmissionQueue (Leq)"<br>"COMPONENT FrDte VirtualFramer (VFramer)"<br>"COMPONENT FrDte DirectConnection (Dconn)" |
| Dyn. Subcomp. | "COMPONENT FrDte DataLinkConnectionIdentifier (Dlci)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP FrDte CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

## ATTRIBUTE FrDte customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.<br><br>Every operator session also has a CID, which is the CID |

provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.

An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to "basic CIDs" in DPN) may be assigned to specific customers.

| | |
|---|---|
| Values | Decimal (0; 1..8191) |
| Default | 0 |

### GROUP FrDte IfEntryProv (IfEntry)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the ifEntry. |

### ATTRIBUTE FrDte ifAdminStatus (ifState)

| | |
|---|---|
| Access | Read and write |
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE FrDte ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |

| | |
|---|---|
| Default | No default |

### GROUP FrDte Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioned attributes for the *FrDte* component. |

### ATTRIBUTE FrDte acceptUndefinedDlci (aud)

| | |
|---|---|
| Access | Read and write |
| Description | This parameter allows previously undefined Data Link Connection Identifiers (DLCIs) to be dynamically accepted in the default remote group. If set to ***enabled***, undefined DLCIs will be accepted, if ***disabled***, they will not. |
| Values | enabled<br>disabled |
| Default | enabled |

### GROUP FrDte OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE FrDte adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***. |

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE FrDte operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE FrDte usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in

use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP FrDte OperationalStatus (OperStatus)

Properties
Operational

Description
This group includes the Operational Status attribute. This attribute defines the current operational state of this component.

### ATTRIBUTE FrDte snmpOperStatus

Access
Read only

Description
The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed.

Values
up
down
testing

Default
up

### GROUP FrDte Operational (Oper)

Properties
Operational

Description
This group contains the operational attributes for the *FrDte* component.

### ATTRIBUTE FrDte linkOperState (lstate)

| | |
|---|---|
| Access | Read only |
| Description | This attribute describes the operational state of the Link Control protocol. If the interface to the physical link hardware is inactive, the *linkOperState* is in the ***down*** state.<br><br>The ***polling*** state only occurs when the Local Management Interface (LMI) is enabled and the physical link is active. The ***polling*** state indicates LMI is polling for its peer. Once communication is established the *linkOperState* will transition to the ***active*** state.<br><br>If the *procedure* attribute of the *Lmi* component is set to ***none***, *linkOperState* will transition to the ***active*** state once the physical link becomes active. |
| Values | active<br>down<br>polling |
| Default | down |

### GROUP FrDte FrErrEntry (Err)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the SNMP frErrEntry attributes for the *FrDte* component. |

### ATTRIBUTE FrDte errType (etype)

| | |
|---|---|
| Access | Read only |
| Description | The type of error that was last seen on this interface. The error types are as follows:<br><br>***receiveShort***: This error indicates a received frame was discarded because it was less than four octets long or it was missing the Organizationally Unique Identifier (OUI) for a SNAP header.<br><br>***receiveLong***: This error indicates a received frame was discarded because it was longer than expected. This error is currently not |

used on this interface.

***illegalDlci***: This error indicates that a received frame was discarded because it's Q.922 address was not two octets in length. This error could also indicate that a frame was discarded because it was received on a DLCI reserved for LMI which had not been provisioned active.

***dlcmiProtoErr***: This error indicates an LMI frame was received with contents formatted incorrectly.

***dlcmiUnknownIe***: This error indicates that an LMI frame was received which contained an unsupported Information Element (IE) type

***dlcmiSequenceErr***: This error indicates that an LMI frame was received whose Keep Alive Sequence was incorrect.

***dlcmiUnknownRpt***: This error indicates that an LMI frame was received which contained a Report-type Information Element with an invalid type of report.

***noErrorSinceReset***: This error type indicates that there has not been an error since the interface has been reset.

***unknownError***: This error type contains the cumulation of receive frame errors that did not fit one of the MIB error descriptions above. These errors include those counted by the following attributes:

*ulpUnknownProtocol* - A received frame was discarded because the Upper Level Protocol (ULP) encapsulation used was unsupported.

*badFc* - A received frame was discarded because the frame control character was incorrect.

*defragSequenceErrors* - A fragment was received which was discarded due to an out of sequence error detection.

| | |
|---|---|
| Values | unknownError<br>receiveShort<br>receiveLong<br>illegalDlci<br>dlcmiProtoErr<br>dlcmiUnknownIe<br>dlcmiSequenceErr<br>dlcmiUnknownRpt<br>noErrorSinceReset |
| Default | noErrorSinceReset |

### ATTRIBUTE FrDte errData (edata)

| | |
|---|---|
| Access | Read only |
| Description | An octet string containing the first part of the frame in which an error was last detected. |
| Values | String (64, Hex) |
| Default | No default |

### ATTRIBUTE FrDte errTime (etime)

| | |
|---|---|
| Access | Read only |
| Description | The time at which the last error was detected and recorded in *errType*. |
| Values | Time (DHMS) |
| Default | No default |

### ATTRIBUTE FrDte errDiscards (ed)

| | |
|---|---|
| Access | Read only |
| Description | Number of inbound frames dropped because of format errors or because the virtual circuit was not known. Format errors, in this case, are any errors which would prevent the system from recognizing the DLCI and placing the error in the discard category. |

| | |
|---|---|
| | This counter will wrap around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrDte errFaults (ef)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times LMI has taken down the interface. When the *procedure* attribute of the *Lmi* component is set to ***none***, this counter will not be incremented.<br><br>This counter will wrap around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrDte errFaultTime (eftime)

| | |
|---|---|
| Access | Read only |
| Description | The last time the *errFaults* counter was incremented. |
| Values | Time (DHMS) |
| Default | No default |

### GROUP FrDte ErrorStatistics (ErrStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains error counters for the *FrDte*. |

### ATTRIBUTE FrDte xmitDiscardPvcDown

| | |
|---|---|
| Access | Read only |
| Description | Count of transmitted frames discarded because the *Dlci* or a component positioned in a hierarchically fashion above it (e.g. it's remote group or the *FrDte* component) was administratively disabled. |

| | |
|---|---|
| | This counter will wrap around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrDte xmitDiscardLmiInactive

| | |
|---|---|
| Access | Read only |
| Description | Count of transmitted frames discarded because the Local Management Interface (LMI) was not yet active (i.e. LMI was still in the polling state).<br><br>This counter will wrap around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrDte xmitDiscardFramerDown

| | |
|---|---|
| Access | Read only |
| Description | Count of transmitted frames discarded because the *framer* component was down.<br><br>This counter will wrap around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrDte xmitDiscardPvcInactive

| | |
|---|---|
| Access | Read only |
| Description | Count of transmitted frames discarded because the Local Management Interface (LMI) had inactivated or invalidated the *Dlci*.<br><br>This counter will wrap around to 0 when it exceeds its maximum count. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrDte xmitDiscardCirExceeded

| | |
|---|---|
| Access | Read only |
| Description | Count of transmitted frames discarded because CIR was enabled on a *Dlci* without a *HibernationQueue* subcomponent and the traffic exceeded the combined Committed and Excess Burst thresholds.<br><br>This counter will wrap around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrDte recvDiscardPvcDown

| | |
|---|---|
| Access | Read only |
| Description | Count of received frames discarded because the *Dlci* or a component<br>positioned in a hierarchically fashion above it (e.g. it's remote group or<br>the *FrDte* component) was administratively disabled.<br><br>This counter will wrap around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrDte recvDiscardLmiInactive

| | |
|---|---|
| Access | Read only |
| Description | Count of received frames discarded because the Local Management<br>Interface (LMI) was not yet active (i.e. LMI was still in the polling |

state).

This counter will wrap around to 0 when it exceeds its maximum count.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE FrDte recvDiscardPvcInactive

Access: Read only

Description: Count of received frames discarded because the Local Management
Interface (LMI) had inactivated or invalidated the *Dlci*.

This counter will wrap around to 0 when it exceeds its maximum count.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE FrDte badFc

Access: Read only

Description: Count of received frames discarded because the frame control character was incorrect. This may indicate that the other side of the link is configured for a different link level protocol.

This counter will wrap around to 0 when it exceeds its maximum count.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE FrDte ulpUnknownProtocol

Access: Read only

Description: Count of received frames discarded because the Upper Level Protocol (ULP) encapsulation used was unsupported.

| | |
|---|---|
| | This counter will wrap around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrDte defragSequenceErrors

| | |
|---|---|
| Access | Read only |
| Description | Count of fragments received which were discarded due to out of sequence error detection.<br><br>This counter will wrap around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrDte receiveShort

| | |
|---|---|
| Access | Read only |
| Description | Count of received frames (including LMI frames) discarded because they were less than four octets long or they were missing the Organizationally Unique Identifier (OUI) for a SNAP header.<br><br>This counter will wrap around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrDte illegalDlci

| | |
|---|---|
| Access | Read only |
| Description | Count of received frames discarded because their Q.922 address was not two octets in length. This count also includes frames discarded because they were received on a *Dlci* reserved for LMI which had not been provisioned active. |

| | |
|---|---|
| | This counter will wrap around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrDte dlcmiProtoErr

| | |
|---|---|
| Access | Read only |
| Description | Count of received LMI frames whose contents were formatted incorrectly.<br><br>This counter will wrap around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrDte dlcmiUnknownIe

| | |
|---|---|
| Access | Read only |
| Description | Count of received LMI frames which contained an unsupported Information Element (IE) type.<br><br>This counter will wrap around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrDte dlcmiSequenceErr

| | |
|---|---|
| Access | Read only |
| Description | Count of received LMI frames whose Keep Alive Sequence was incorrect.<br><br>This counter will wrap around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |

Default 0

### ATTRIBUTE FrDte dlcmiUnknownRpt

Access Read only

Description Count of received LMI frames which contained a Report-type Information Element with an invalid type of report.

This counter will wrap around to 0 when it exceeds its maximum count.

Values Decimal (0..4294967295)

Default 0

### COMPONENT FrDte Framer

Groups "GROUP FrDte Framer Provisioned (Prov)"
"GROUP FrDte Framer OsiState (State)"
"GROUP FrDte Framer Statistics (Stats)"
"GROUP FrDte Framer LinkUtilization (Util)"

Scope Application

Description

*FrDte/n Framer*

The *Framer* component controls link layer framing for application components sending and receiving data on a link interface. It is also through *Framer*, that an application component is associated with a specific hardware link interface.

The *Framer* component provides provisional attributes related to datapath aspects of the hardware interface (such as crc and frame length) rather than interface specific attributes (such as modem leads and clocking) which are associated with specific hardware components (such as *V35/n* or *DS1/n*). The *Framer* component also provides a provisional attribute which binds the application component to a specific hardware component.

The *Framer* component contains operational attributes for link

interface datapath statistics (such as frame counts and aborts).

Common Verbs

Help
List
Display
Add
DELete

## GROUP FrDte Framer Provisioned (Prov)

Properties: Provisioned

Description: This group contains the base provisioning data for the *Framer* component. Application or hardware interface specific provisioning data is contained in other provisional *Framer* groups.

## ATTRIBUTE FrDte Framer interfaceName

Access: Read and write

Criticality: Process

Description: This attribute contains a hardware component name.

The attribute associates the application with a specific link. This defines the module processor on which *Framer*'s parent component (as well as *Framer* itself) will run.

Values: Link (Hardware, applicationFramerName)

Default: No default

## GROUP FrDte Framer OsiState (State)

Properties: Operational

Description: This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

## ATTRIBUTE FrDte Framer adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

## ATTRIBUTE FrDte Framer operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |

| | |
|---|---|
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE FrDte Framer usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP FrDte Framer Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational statistics data for a Framer component. |

### ATTRIBUTE FrDte Framer frmToIf

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames transmitted to the link interface by Framer.<br><br>Note: This does not include the number of frames transmitted directly to the hardware queue, thus bypassing the Framer component. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE FrDte Framer frmFromIf

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames received from the link interface by Framer. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrDte Framer aborts

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of aborts received. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrDte Framer crcErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames with CRC errors. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrDte Framer lrcErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames with LRC errors. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrDte Framer nonOctetErrors

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the total number of frames that were non octet aligned. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrDte Framer overruns

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames received from the link for which overruns occurred. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrDte Framer underruns

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames transmitted to the link for which underruns occurred. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrDte Framer largeFrmErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames received which were too large. The frame exceeded the maximumFrameLengthLimit provisioned attribute or it contained more than the 255 block hardware limit. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### GROUP FrDte Framer LinkUtilization (Util)

| | |
|---|---|
| Properties | Operational |

| | |
|---|---|
| Description | This group contains the link utilization operational data for a Framer component. |

### ATTRIBUTE FrDte Framer normPrioLinkUtilToIf

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the utilization of the normal priority data sent to the link as a percentage of the available bandwidth on the link. The utilization is the average for the last minute. |
| Values | Decimal (0..100) |
| Units | % |
| Default | 0 |

### ATTRIBUTE FrDte Framer normPrioLinkUtilFromIf

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the utilization of the normal priority data received from the link as a percentage of the available bandwidth on the link. The utilization is the average for the last minute. |
| Values | Decimal (0..100) |
| Units | % |
| Default | 0 |

### COMPONENT FrDte LinkManagementInterface (Lmi)

| | |
|---|---|
| Groups | "GROUP FrDte Lmi Provisioned (Prov)"<br>"GROUP FrDte Lmi Operational (Oper)" |
| Scope | Application |
| Description | *FrDte/n Lmi*<br>This component defines parameters for implementing the Local Management Interface (LMI) protocol for the *FrDte* interface. |
| Common Verbs | Help<br>List<br>Display |

## GROUP FrDte Lmi Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioned attributes for the *Lmi* component. |

## ATTRIBUTE FrDte Lmi procedures (proc)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute selects the Local Management Interface (LMI) protocol to be used on the interface. This attribute is equivalent to the SNMP variable frDlcmiState. The ***vendorForum*** LMI protocol automatically implies that the DLCI used by the protocol is 1023. The ***ansi*** (T1.617 Annex D) and ***ccitt*** (Q.933 Annex A) LMI protocols use DLCI 0. If ***none*** is selected, no LMI procedures will run on the interface. |
| Values | none<br>vendorForum<br>ansi<br>ccitt |
| Default | ccitt |

## ATTRIBUTE FrDte Lmi pollingInterval (polli)

| | |
|---|---|
| Access | Read and write |
| Description | This is the number of seconds between successive status enquiry messages. This field corresponds to the parameter T391 described in the ANSI T1.617-1991 Annex D. |
| Values | Decimal (5..30) |
| Units | seconds |
| Default | 10 |

## ATTRIBUTE FrDte Lmi fullEnquiryInterval (n391)

| | |
|---|---|
| Access | Read and write |
| Description | The count of status polls before a full status enquiry message is issued. Every nth poll will request a full status. This field |

| | |
|---|---|
| | corresponds to the parameter N391 described in the ANSI T1.617-1991 Annex D. |
| Values | Decimal (1..255) |
| Default | 6 |

### ATTRIBUTE FrDte Lmi errorThreshold (n392)

| | |
|---|---|
| Access | Read and write |
| Description | The number of errors detected within the monitored events window before declaring the link non-functional. This field corresponds to the parameter N392 described in the ANSI T1.617-1991 Annex D. |
| Values | Decimal (1..10) |
| Default | 3 |

### ATTRIBUTE FrDte Lmi monitoredEvents (n393)

| | |
|---|---|
| Access | Read and write |
| Description | The number of status polling intervals over which the *errorthreshold* is counted This is used to determine if the *errorThreshold* is exceeded. This field corresponds to the parameter N393 described in the ANSI T1.617-1991 Annex D. |
| Values | Decimal (1..10) |
| Default | 4 |

### GROUP FrDte Lmi Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for the *Lmi* component. |

### ATTRIBUTE FrDte Lmi lmiStatus

| | |
|---|---|
| Access | Read only |
| Description | This indicates the status of the Frame Relay interface as determined by the performance of the link management interface |

(LMI). If no LMI is running, *lmiStatus* will stay in the ***running*** state indefinitely.

Values
running
fault
initializing

Default
No default

## COMPONENT FrDte RemoteGroup (Rg)

Instance
Decimal (1..256)

Groups
"GROUP FrDte Rg IfEntryProv (IfEntry)"
"GROUP FrDte Rg Provisioned (Prov)"
"GROUP FrDte Rg MediaProv (Mp)"
"GROUP FrDte Rg OsiState (State)"
"GROUP FrDte Rg OperationalStatus (OperStatus)"

Scope
Application

Description
*FrDte/n Rg/n*

This component describes the links between a group of *Dlci*s and a Protocol Port.

The *Rg/1* instance is required.

Opt. Subcomp.
"COMPONENT FrDte Rg BridgedFrameRouting (Bfr)"

Common Verbs
Help
List
Display
Add
DELete
LOCK
Unlock

## GROUP FrDte Rg IfEntryProv (IfEntry)

Properties
Provisioned

Description
This group contains the provisionable attributes for the ifEntry.

### ATTRIBUTE FrDte Rg ifAdminStatus (ifState)

| | |
|---|---|
| Access | Read and write |
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE FrDte Rg ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP FrDte Rg Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioned attributes for the Remote Group component. |

### ATTRIBUTE FrDte Rg maxTransmissionUnit (mtuSize)

| | |
|---|---|
| Access | Read and write |
| Description | The Maximum Transmission Unit size of the largest datagram (including Frame Relay header) which can be sent on the interface. |
| Values | Decimal (80..9190) |
| Units | octets |

| | |
|---|---|
| Default | 1604 |

### ATTRIBUTE FrDte Rg linkToFrDteDlci (ltDlci)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute associates a *Rg* component with zero or more *StDlci* components. The *Rg* and *StDlci* components must be under the same *FrDte* component. |
| List of | Link (Service, linkToRemoteGroup) |
| List Size | 256 |
| Default | No default |

### GROUP FrDte Rg MediaProv (Mp)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the base provisioning data for the Media Application component. |

### ATTRIBUTE FrDte Rg linkToProtocolPort (pp)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute contains a protocol port component name. The attribute associates the application with a protocol port. |
| Values | Link (Service, linkToMedia) |
| Default | No default |

### GROUP FrDte Rg OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE FrDte Rg adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE FrDte Rg operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |

| | |
|---|---|
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE FrDte Rg usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP FrDte Rg OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

### ATTRIBUTE FrDte Rg snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |

| | |
|---|---|
| Values | up<br>down<br>testing |
| Default | up |

## COMPONENT FrDte Rg BridgedFrameRouting (Bfr)

| | |
|---|---|
| Groups | "GROUP FrDte Rg Bfr Provisioned (Prov)"<br>"GROUP FrDte Rg Bfr Operational (Opr)" |
| Scope | Application |
| Description | *FrDte/n Rg/n Bridged Frame Routing*<br><br>The *BridgedFrameRouting* component defines the parameters for implementing the Bridged Frame Routing port. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP FrDte Rg Bfr Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioning attributes for the *Bfr* component. |

## ATTRIBUTE FrDte Rg Bfr macType (macType)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the MAC address type of the *Bfr* component.<br>The value must be chosen based on the media of the traffic source. For traffic originated from FDDI, use ***fddi***; for ethernet, use ***enet***; for token ring, use ***tokenRing*** |

| | |
|---|---|
| Values | fddi<br>enet<br>tokenRing |
| Default | enet |

### ATTRIBUTE FrDte Rg Bfr bfrIndex (index)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the value which is used to derive a unique MAC address for the *Bfr*. The *bfrIndex* must be unique across all *Bfr*s on the same *Lp*. |
| Values | Decimal (0..511) |
| Default | No default |

### GROUP FrDte Rg Bfr Operational (Opr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for the *Bfr* component.. |

### ATTRIBUTE FrDte Rg Bfr macAddr (macAddr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the unique MAC address of the *Bfr* component. This value is derived by the value of the attribute *bfrIndex*.<br>The value is displayed as cannonical format. |
| Values | String (6, Dashed Hex) |
| Default | No default |

### COMPONENT FrDte DynamicDlciDefaults (DynDlciDefs)

| | |
|---|---|
| Groups | "GROUP FrDte DynDlciDefs Provisioned (Prov)" |
| Scope | Application |

Description *FrDte/n DynDlciDefs*
This component defines the default values that will be used when a *Dlci* of *creationType* ***dynamic*** is created.

Common Verbs
Help
List
Display

## GROUP FrDte DynDlciDefs Provisioned (Prov)

Properties Provisioned

Description This group contains the provisioned attributes for a virtual circuit. These attributes represent the default settings for the resulting *Dlci* components and can be operationally changed using the corresponding attributes under the *Dlci* component.

## ATTRIBUTE FrDte DynDlciDefs rowStatus

Access Read and write

Description This attribute is used to manage the status of a *StDlci* component.

Set to ***active*** to enable the *StDlci* component.
Set to ***notInService*** to disable the *StDlci* component.
Set to ***createAndGo*** (SNMP only) to create a new *StDlci* component.
Set to ***destroy*** (SNMP only) to delete an existing *StDlci* component.

Values
active
notInService

Default active

## ATTRIBUTE FrDte DynDlciDefs rateEnforcement (re)

Access Read and write

Description This attribute specifies whether the CIR attributes *committedInformationRate*, *committedBurst*, and *excessBurst* are used to define rate enforcement on this user DLCI.

If *rateEnforcement* is ***enabled***, and the combined Committed and Excess burst thresholds are exceeded, the frame in violation will be discarded immediately if a *HibernationQueue* subcomponent is not provisioned under the *StDlci* component. If a *HibernationQueue* is provisioned, the frame will be placed on the *HibernationQueue* at time of violation and transmission will be attempted later after the point at which the burst thresholds will no longer be exceeded.

Setting all the CIR attributes to zero has the same affect as setting this attribute to ***disabled***.

| | |
|---|---|
| Values | enabled<br>disabled |
| Default | disabled |

### ATTRIBUTE FrDte DynDlciDefs committedInformationRate (cir)

| | |
|---|---|
| Access | Read and write |
| Description | The average number of bits to be transferred per second over the DLCI to the DCE. When this attribute is set to zero, the link speed will be used instead. |
| Values | Decimal (0..50000000) |
| Units | bit/s |
| Default | 64000 |

### ATTRIBUTE FrDte DynDlciDefs committedBurst (bc)

| | |
|---|---|
| Access | Read and write |
| Description | The committed burst size (in bits) to which the DLCI wants to subscribe. |
| Values | Decimal (0..50000000) |
| Units | bits |
| Default | 64000 |

### ATTRIBUTE FrDte DynDlciDefs excessBurst (be)

| | |
|---|---|
| Access | Read and write |
| Description | The excess burst size (in bits) to which the DLCI wants to subscribe. |
| Values | Decimal (0..50000000) |
| Units | bits |
| Default | 0 |

### ATTRIBUTE FrDte DynDlciDefs excessBurstAction (beAction)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the action taken when the *committedBurst* size has been exceeded on the DLCI but the *excessBurst* size has not. If the attribute is set to ***setDeBit***, the Discard Eligibility bit in the Frame Relay header will be turned on. If the attribute is set to ***none***, no action will be taken. |
| Values | none<br>setDeBit |
| Default | none |

### ATTRIBUTE FrDte DynDlciDefs ipCos

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the IP connection class of the Frame Relay connection. This value is used to distinguish the connection from others for the purpose of IP forwarding and IP accounting. IP connection class values vary in range from ***0*** to ***3*** allowing up to four connections to be distinguished on each next hop between IP routers.<br><br>If an IP packet is forwarded to a *ProtocolPort* or *Interface* configured to use more than one Frame Relay connection, then one of the connections is selected for transmitting the packet. The selection is made according to the connection class assigned to |

the packet.

An explanation of how an IP packet is assigned a connection class is found in the description of the *connectionClass* operational attribute of the *DifferentiatedServicesDomain PerHopBehavior* component, and in the description of *Vr Ip CosPolicyGroup* component.

Modifying this attribute will reset the Frame Relay connection.

The remainder of this description applies only to a Frame Relay connection used by a *VirtualRouter ProtocolPort* and not to a Frame Relay connection used by a *Router Interface* or *VpnRouteForwarder Interface* component.

If the *VirtualRouter* does not have a *DifferentiatedServicesDomain* subcomponent, then *ipCos* also specifies the initial CoS value assigned to an IP packet received on the Frame Relay connection. See the description of *Vr Ip CosPolicyGroup* for more information.

Values: Decimal (0..3)

Default: 0

## ATTRIBUTE FrDte DynDlciDefs ipDscp

Access: Read and write

Criticality: Component

Description: This attribute specifies the value marked into the Differentiated Services Code Point (DSCP) field of an IP packet received at an *IpPort* over the Frame Relay connection. This DSCP marking is applied only if one of the following conditions is true:

1) the *IpPort* is linked by its *diffServAssignment* attribute to a *Vr Ip DifferentiatedServices* interface configuration where the *baMode* attribute of the *IngressServices* subcomponent is set to ***link***, or

2) the *Ip* is linked by its *diffServAssignment* attribute to a *Vr Ip*

*DifferentiatedServices* interface configuration where the *baMode* attribute of the *IngressServices* subcomponent is set to ***link***, and the *IpPort* does not have the *diffServAssignment* attribute set.

If one of theseconditions is true, then the *ipDscp* value must match a *Virtual Router DifferentiatedServicesDomain PerHopBehavior* subcomponent instance value. See the description of *Vr Ip DifferentiatedServices* interface configuration for more information.

If the *VirtualRouter* does not have a *DifferentiatedServicesDomain* subcomponent, then *ipDscp* must be set to ***na***.

This attribute is not applicable to a Frame Relay connection associated with a *Router Interface* or *VpnRouteForwarder Interface* component.

Modifying this attribute will reset the Frame Relay connection.

Values

Decimal (0..63)
df
ef
af11
af12
af13
af21
af22
af23
af31
af32
af33
af41
af42
af43
cs0
cs1
cs2
cs3
cs4

| | |
|---|---|
| | cs5<br>cs6<br>cs7<br>na |
| Default | na |

## COMPONENT FrDte StaticDlci (StDlci)

| | |
|---|---|
| Instance | Decimal (16..1007) |
| Groups | "GROUP FrDte StDlci Provisioned (Prov)"<br>"GROUP FrDte StDlci RemoteGroupLink (RgLink)"<br>"GROUP FrDte StDlci IpIfLink" |
| Scope | Application |
| Description | *FrDte/n StDlci/n*<br>This component is used to provision a static virtual circuit on the Frame Relay DTE interface. For each *StDlci* provisioned, there will be a matching *Dlci* component. *Dlci* components of *creationType* ***dynamic*** will be converted to ***static*** without disruption of service when a *StDlci* component is provisioned with the same instance number. |
| Opt. Subcomp. | "COMPONENT FrDte StDlci HibernationQueue (Hq)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP FrDte StDlci Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioned attributes for a virtual circuit. These attributes represent the default settings for the resulting *Dlci* components and can be operationally changed using the corresponding attributes under the *Dlci* component. |

## ATTRIBUTE FrDte StDlci rowStatus

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to manage the status of a *StDlci* component.<br><br>Set to ***active*** to enable the *StDlci* component.<br>Set to ***notInService*** to disable the *StDlci* component.<br>Set to ***createAndGo*** (SNMP only) to create a new *StDlci* component.<br>Set to ***destroy*** (SNMP only) to delete an existing *StDlci* component. |
| Values | active<br>notInService |
| Default | active |

## ATTRIBUTE FrDte StDlci rateEnforcement (re)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether the CIR attributes *committedInformationRate*, *committedBurst*, and *excessBurst* are used to define rate enforcement on this user DLCI.<br><br>If *rateEnforcement* is ***enabled***, and the combined Committed and Excess burst thresholds are exceeded, the frame in violation will be discarded immediately if a *HibernationQueue* subcomponent is not provisioned under the *StDlci* component. If a *HibernationQueue* is provisioned, the frame will be placed on the *HibernationQueue* at time of violation and transmission will be attempted later after the point at which the burst thresholds will no longer be exceeded.<br><br>Setting all the CIR attributes to zero has the same affect as setting this attribute to ***disabled***. |
| Values | enabled<br>disabled |
| Default | disabled |

### ATTRIBUTE FrDte StDlci committedInformationRate (cir)

| | |
|---|---|
| Access | Read and write |
| Description | The average number of bits to be transferred per second over the DLCI to the DCE. When this attribute is set to zero, the link speed will be used instead. |
| Values | Decimal (0..50000000) |
| Units | bit/s |
| Default | 64000 |

### ATTRIBUTE FrDte StDlci committedBurst (bc)

| | |
|---|---|
| Access | Read and write |
| Description | The committed burst size (in bits) to which the DLCI wants to subscribe. |
| Values | Decimal (0..50000000) |
| Units | bits |
| Default | 64000 |

### ATTRIBUTE FrDte StDlci excessBurst (be)

| | |
|---|---|
| Access | Read and write |
| Description | The excess burst size (in bits) to which the DLCI wants to subscribe. |
| Values | Decimal (0..50000000) |
| Units | bits |
| Default | 0 |

### ATTRIBUTE FrDte StDlci excessBurstAction (beAction)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the action taken when the *committedBurst* size has been exceeded on the DLCI but the *excessBurst* size has not. If the attribute is set to ***setDeBit***, the Discard Eligibility bit in |

the Frame Relay header will be turned on. If the attribute is set to ***none***, no action will be taken.

Values
none
setDeBit

Default
none

## ATTRIBUTE FrDte StDlci ipCos

Access
Read and write

Criticality
Component

Description
This attribute specifies the IP connection class of the Frame Relay connection. This value is used to distinguish the connection from others for the purpose of IP forwarding and IP accounting. IP connection class values vary in range from ***0*** to ***3*** allowing up to four connections to be distinguished on each next hop between IP routers.

If an IP packet is forwarded to a *ProtocolPort* or *Interface* configured to use more than one Frame Relay connection, then one of the connections is selected for transmitting the packet. The selection is made according to the connection class assigned to the packet.

An explanation of how an IP packet is assigned a connection class is found in the description of the *connectionClass* operational attribute of the *DifferentiatedServicesDomain PerHopBehavior* component, and in the description of *Vr Ip CosPolicyGroup* component.

Modifying this attribute will reset the Frame Relay connection.

The remainder of this description applies only to a Frame Relay connection used by a *VirtualRouter ProtocolPort* and not to a Frame Relay connection used by a *Router Interface* or *VpnRouteForwarder Interface* component.

If the *VirtualRouter* does not have a *DifferentiatedServicesDomain* subcomponent, then *ipCos* also specifies the initial CoS value assigned to an IP packet received

on the Frame Relay connection. See the description of *Vr Ip CosPolicyGroup* for more information.

Values Decimal (0..3)

Default 0

### ATTRIBUTE FrDte StDlci ipDscp

Access Read and write

Criticality Component

Description This attribute specifies the value marked into the Differentiated Services Code Point (DSCP) field of an IP packet received at an *IpPort* over the Frame Relay connection. This DSCP marking is applied only if one of the following conditions is true:

1) the *IpPort* is linked by its *diffServAssignment* attribute to a *Vr Ip DifferentiatedServices* interface configuration where the *baMode* attribute of the *IngressServices* subcomponent is set to ***link***, or

2) the *Ip* is linked by its *diffServAssignment* attribute to a *Vr Ip DifferentiatedServices* interface configuration where the *baMode* attribute of the *IngressServices* subcomponent is set to ***link***, and the *IpPort* does not have the *diffServAssignment* attribute set.

If one of theseconditions is true, then the *ipDscp* value must match a *Virtual Router DifferentiatedServicesDomain PerHopBehavior* subcomponent instance value. See the description of *Vr Ip DifferentiatedServices* interface configuration for more information.

If the *VirtualRouter* does not have a *DifferentiatedServicesDomain* subcomponent, then *ipDscp* must be set to ***na***.

This attribute is not applicable to a Frame Relay connection associated with a *Router Interface* or *VpnRouteForwarder Interface* component.

Modifying this attribute will reset the Frame Relay connection.

| | |
|---|---|
| Values | Decimal (0..63)<br>df<br>ef<br>af11<br>af12<br>af13<br>af21<br>af22<br>af23<br>af31<br>af32<br>af33<br>af41<br>af42<br>af43<br>cs0<br>cs1<br>cs2<br>cs3<br>cs4<br>cs5<br>cs6<br>cs7<br>na |
| Default | na |

### GROUP FrDte StDlci RemoteGroupLink (RgLink)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group provides the link between a *Dlci* and a *remoteGroup*. |

### ATTRIBUTE FrDte StDlci linkToRemoteGroup (ltrg)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |

| | |
|---|---|
| Description | This attribute associates a *StDlci* component with a *Rg* component. Provisioned *StDlci* components must be linked to a *Rg* component which is under the same *FrDte* component. |
| Values | Link (Service, linkToFrDteDlci) |
| Default | No default |

### GROUP FrDte StDlci IpIfLink

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the link between this component and an *IpLogicalInterface* component. |

### ATTRIBUTE FrDte StDlci linkToIpLogicalInterface (ipIf)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the IP logical interface, *Vr/m Pp/n IpPort LogicalIf/ipAddress*, that this connection is associated with.<br><br>When set, the value of this attribute must be consistent with the *linkToProtocolPort* attribute value of the associated *RemoteGroup* component. That is, they must both point to the same *ProtocolPort* component. |
| Values | Link (Service, linkToMediaConnection) |
| Default | No default |

### COMPONENT FrDte StDlci HibernationQueue (Hq)

| | |
|---|---|
| Groups | "GROUP FrDte StDlci Hq Provisioned (Prov)"<br>"GROUP FrDte StDlci Hq Statistics (Stats)"<br>"GROUP FrDte StDlci Hq TotalStatistics (TStats)"<br>"GROUP FrDte StDlci Hq CurrentStatistics (CStats)"<br>"GROUP FrDte StDlci Hq ThresholdStatistics (ThrStats)" |
| Scope | Application |
| Description | *FrDte/n StDlci/n Hq*<br>This component provides a Hibernation Queue capability for a *Dlci* component which has been provisioned with CIR enforcement enabled. The *HibernationQueue* provides priority |

placement of frames on the queue, Time To Live (TTL) discarding of frames from the queue, and queue statistics.

Common Verbs

Help
List
Display
Add
DELete

## GROUP FrDte StDlci Hq Provisioned (Prov)

Properties: Provisioned

Description: This group contains the Link Emission Queue provisioned attributes.

## ATTRIBUTE FrDte StDlci Hq maxPackets (maxP)

Access: Read and write

Description: This attribute specifies the maximum number of packets allowed in the *Leq* before being discarded. If this attribute is set to zero then the maximum number of packets is calculated from the transmit data rate. This calculated value is placed in *queuePktThreshold*.

Values: Decimal (0..2048)

Default: 0

## ATTRIBUTE FrDte StDlci Hq maxMsecData (maxData)

Access: Read and write

Description: This attribute specifies the maximum number of “Milliseconds worth of data” allowed in the *Leq* before packets are discarded. The *queueByteThreshold* will be calculated from this attribute, based on the transmit data rate.

Values: Decimal (100..60000)

Default: 10000

### ATTRIBUTE FrDte StDlci Hq maxPercentMulticast (mpm)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum percentage of multicast packets allowed in the *Leq*, based on *queuePktThreshold*, before being discarded. The calculated value will be placed in *queueMulticastThreshold*. |
| Values | Decimal (1..100) |
| Default | 50 |

### ATTRIBUTE FrDte StDlci Hq timeToLive (ttl)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the “Milliseconds Time To Live” of packets in the *Leq*. If the *timeToLive* of a packet expires, it will be discarded. |
| Values | Decimal (100..60000) |
| Units | msec |
| Default | 10000 |

### GROUP FrDte StDlci Hq Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains *HibernationQueue* general statistics. |

### ATTRIBUTE FrDte StDlci Hq timedOutPkt (topkt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of packets that have been discarded due to exceeding the *timeToLive*. This counter will wrap around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrDte StDlci Hq queuePurgeDiscards (qpd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of packets discarded by a queue purge which occurs when the *Dlci* goes down. This counter will wrap around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### GROUP FrDte StDlci Hq TotalStatistics (TStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains Link Emission Queue total statistics. |

### ATTRIBUTE FrDte StDlci Hq totalPktHandled (tpkthand)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of packets handled by the *Leq*. This counter will wrap around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrDte StDlci Hq totalPktForwarded (tpktfor)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of packets forwarded by the *Leq*. This counter will wrap around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrDte StDlci Hq totalPktQueued (tpktq)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the total number of packets that required queuing by the *Leq* due to transmit congestion. This counter will wrap around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrDte StDlci Hq totalMulticastPkt (tmulp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of multicast packets handled by this instance of *FrDte*. This counter will wrap around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrDte StDlci Hq totalPktDiscards (tpktdis)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of packets that were discarded for this instance of *FrDte*. This is the sum of *timedOutPkt*, *forcedPktDiscards*, *queuePurgeDiscards*, *pktThresholdExceeded*, *byteThresholdExceeded*, *mulThresholdExceeded* and *memThresholdExceeded*. This counter will wrap around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### GROUP FrDte StDlci Hq CurrentStatistics (CStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains Link Emission Queue current statistics. |

### ATTRIBUTE FrDte StDlci Hq currentPktQueued (cpktq)

| | |
|---|---|
| Access | Read only |
| Description | This attribute contains the current number of packets queued. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrDte StDlci Hq currentBytesQueued (cbytesq)

| | |
|---|---|
| Access | Read only |
| Description | This attribute contains the current number of bytes queued. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrDte StDlci Hq currentMulticastQueued (cmulq)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the current number of multicast packets in the queue. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### GROUP FrDte StDlci Hq ThresholdStatistics (ThrStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains Link Emission Queue threshold statistics. |

### ATTRIBUTE FrDte StDlci Hq queuePktThreshold (qpthr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the maximum number of packets that can be contained in the queue before being discarded. If *maxPackets* was set to 0 then this attribute will contain the value that has been calculated based on the transmit data rate. If *maxPackets* was set to one or more than this attribute will contain that number. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrDte StDlci Hq pktThresholdExceeded (pthrx)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the number of packets discarded due to the *queuePktThreshold* being exceeded. This counter will wrap around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrDte StDlci Hq queueByteThreshold (qbytethr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the maximum number of bytes allowed in the queue based on *maxMsecData* and the transmit data rate. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrDte StDlci Hq byteThresholdExceeded (bthrx)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of packets discarded due to the *queueByteThreshold* being exceeded. This counter will wrap around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrDte StDlci Hq queueMulticastThreshold (qmolthr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the number of multicast packets allowed in the queue based on *maxPercentMulticast* and *maxPackets*. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrDte StDlci Hq mulThresholdExceeded (multhrx)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the number of packets discarded due to the *queueMulticastThreshold* being exceeded. This counter will wrap around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrDte StDlci Hq memThresholdExceeded (memthrx)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of packets discarded due to exceeding the memory usage threshold for *Leq*. The memory usage threshold is determined by the *Leq* software, guaranteeing that the *Leq* does not consume all of the memory. This counter will wrap around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT FrDte LinkEmissionQueue (Leq)

| | |
|---|---|
| Groups | "GROUP FrDte Leq Provisioned (Prov)"<br>"GROUP FrDte Leq Statistics (Stats)"<br>"GROUP FrDte Leq TotalStatistics (TStats)"<br>"GROUP FrDte Leq CurrentStatistics (CStats)"<br>"GROUP FrDte Leq ThresholdStatistics (ThrStats)" |
| Scope | Application |
| Description | *FrDte/n Leq*<br>This component provides a means of statistics gathering and packet discard. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP FrDte Leq Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the Link Emission Queue provisioned attributes. |

## ATTRIBUTE FrDte Leq maxPackets (maxP)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum number of packets allowed in the *Leq* before being discarded. If this attribute is set to zero then the maximum number of packets is calculated from the transmit data rate. This calculated value is placed in *queuePktThreshold*. |
| Values | Decimal (0..2048) |
| Default | 0 |

## ATTRIBUTE FrDte Leq maxMsecData (maxData)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum number of “Milliseconds worth of data” allowed in the *Leq* before packets are discarded. The *queueByteThreshold* will be calculated from this attribute, based on the transmit data rate. |
| Values | Decimal (100..60000) |
| Default | 10000 |

## ATTRIBUTE FrDte Leq maxPercentMulticast (mpm)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum percentage of multicast packets allowed in the *Leq*, based on *queuePktThreshold*, before being discarded. The calculated value will be placed in *queueMulticastThreshold*. |
| Values | Decimal (1..100) |
| Default | 50 |

### ATTRIBUTE FrDte Leq timeToLive (ttl)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the “Milliseconds Time To Live” of packets in the *Leq*. If the *timeToLive* of a packet expires, it will be discarded. |
| Values | Decimal (100..60000) |
| Units | msec |
| Default | 10000 |

### GROUP FrDte Leq Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains Link Emission Queue general statistics. |

### ATTRIBUTE FrDte Leq timedOutPkt (topkt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of packets that have been discarded due to exceeding the *timeToLive*. This counter will wrap around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrDte Leq hardwareForcedPkt (hfpkt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of hardware forced packets on this instance of *FrDte*. This counter will wrap around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrDte Leq forcedPktDiscards (fpktd)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the total number of hardware forced packets that had to be discarded due to link failure. This counter will wrap around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrDte Leq queuePurgeDiscards (qpd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of packets discarded by a queue purge (i.e. a discarding of all packets on the queue). This counter will wrap around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### GROUP FrDte Leq TotalStatistics (TStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains Link Emission Queue total statistics. |

### ATTRIBUTE FrDte Leq totalPktHandled (tpkthand)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of packets handled by the *Leq*. This counter will wrap around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrDte Leq totalPktForwarded (tpktfor)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of packets forwarded by the *Leq*. This counter will wrap around to 0 when it exceeds its maximum count. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrDte Leq totalPktQueued (tpktq)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of packets that required queuing by the *Leq* due to transmit congestion. This counter will wrap around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrDte Leq totalMulticastPkt (tmulp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of multicast packets handled by this instance of *FrDte*. This counter will wrap around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrDte Leq totalPktDiscards (tpktdis)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of packets that were discarded for this instance of *FrDte*. This is the sum of *timedOutPkt*, *forcedPktDiscards*, *queuePurgeDiscards*, *pktThresholdExceeded*, *byteThresholdExceeded*, *mulThresholdExceeded* and *memThresholdExceeded*. This counter will wrap around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### GROUP FrDte Leq CurrentStatistics (CStats)

| | |
|---|---|
| Properties | Operational |

| | |
|---|---|
| Description | This group contains Link Emission Queue current statistics. |

### ATTRIBUTE FrDte Leq currentPktQueued (cpktq)

| | |
|---|---|
| Access | Read only |
| Description | This attribute contains the current number of packets queued. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrDte Leq currentBytesQueued (cbytesq)

| | |
|---|---|
| Access | Read only |
| Description | This attribute contains the current number of bytes queued. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrDte Leq currentMulticastQueued (cmulq)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the current number of multicast packets in the queue. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### GROUP FrDte Leq ThresholdStatistics (ThrStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains Link Emission Queue threshold statistics. |

### ATTRIBUTE FrDte Leq queuePktThreshold (qpthr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the maximum number of packets that can be contained in the queue before being discarded. If *maxPackets* was set to 0 then this attribute will contain the value that has been calculated based on the transmit data rate. If *maxPackets* was set to one or more than this attribute will contain that number. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrDte Leq pktThresholdExceeded (pthrx)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of packets discarded due to the *queuePktThreshold* being exceeded. This counter will wrap around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrDte Leq queueByteThreshold (qbytethr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the maximum number of bytes allowed in the queue based on *maxMsecData* and the transmit data rate. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrDte Leq byteThresholdExceeded (bthrx)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of packets discarded due to the *queueByteThreshold* being exceeded. This counter will wrap around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrDte Leq queueMulticastThreshold (qmolthr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the number of multicast packets allowed in the queue based on *maxPercentMulticast* and *maxPackets*. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE FrDte Leq mulThresholdExceeded (multhrx)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of packets discarded due to the *queueMulticastThreshold* being exceeded. This counter will wrap around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrDte Leq memThresholdExceeded (memthrx)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of packets discarded due to exceeding the memory usage threshold for *Leq*. The memory usage threshold is determined by the *Leq* software, guaranteeing that the *Leq* does not consume all of the memory. This counter will wrap around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT FrDte DataLinkConnectionIdentifier (Dlci)

| | |
|---|---|
| Instance | Decimal (0..1023) |
| Groups | "GROUP FrDte Dlci OsiState (State)"<br>"GROUP FrDte Dlci Operational (Oper)" |
| Scope | Application |
| Description | *FrDte/n Dlci/n*<br>This component provides access to both static and dynamic virtual circuit instances. |

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display<br>LOCK<br>Unlock |

### VERB Clear FrDte Dlci

| | |
|---|---|
| Impact | Service |
| Description | *Clear FrDte/n Dlci/n*<br><br>The *Clear* verb allows the user the ability to delete a *Dlci* component of *creationType* ***dynamic***. |

### GROUP FrDte Dlci OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE FrDte Dlci adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users |

only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE FrDte Dlci operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE FrDte Dlci usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has

spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP FrDte Dlci Operational (Oper)

Properties
Operational

Description
This group contains the operational attributes for the *Dlci* component.

### ATTRIBUTE FrDte Dlci dlciState

Access
Read only

Description
This attribute reflects the current operational circuit state of the *Dlci*. The state ***active*** indicates that the circuit is up and ***inactive*** that the circuit is down. The state ***invalid*** means the circuit has been deleted by the DCE (via *Lmi*).

Values
invalid
active
inactive

Default
inactive

### ATTRIBUTE FrDte Dlci lastTimeChange

Access
Read only

Description
The last time *dlciState* changed state.

Values
Time (DHMS)

Default
No default

### ATTRIBUTE FrDte Dlci sentFrames

Access
Read only

| | |
|---|---|
| Description | Number of frames transmitted across the interface. This counter will wrap around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrDte Dlci sentOctets

| | |
|---|---|
| Access | Read only |
| Description | The number of octets sent from this virtual circuit since it was created. This counter will wrap around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrDte Dlci receivedFrames (recvFrames)

| | |
|---|---|
| Access | Read only |
| Description | Number of frames received across the interface. This counter will wrap around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrDte Dlci receivedOctets (recvOctets)

| | |
|---|---|
| Access | Read only |
| Description | The number of octets sent from this virtual circuit since it was created. This counter will wrap around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrDte Dlci receivedFECNs (recvFecn)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | Number of frames with the FECN bit set received from the network. This counter will wrap around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrDte Dlci receivedBECNs (recvBecn)

| | |
|---|---|
| Access | Read only |
| Description | Number of frames with the BECN bit set received from the network. This counter will wrap around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrDte Dlci discardedFrames (discards)

| | |
|---|---|
| Access | Read only |
| Description | The number of inbound frames dropped because of format errors, or because the VC was inactive. This counter will wrap around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrDte Dlci creationType (type)

| | |
|---|---|
| Access | Read only |
| Description | This indicates whether the virtual circuit was manually created (static), or dynamically created (dynamic) via the data link control management interface. |
| Values | static<br>dynamic |
| Default | No default |

### ATTRIBUTE FrDte Dlci creationTime

| | |
|---|---|
| Access | Read only |
| Description | The time when the circuit was created, whether by the Data Link Connection Management Interface or by an SNMP set request. |
| Values | Time (DHMS) |
| Default | No default |

### ATTRIBUTE FrDte Dlci rateEnforcement (re)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether the CIR attributes *committedInformationRate*, *committedBurst*, and *excessBurst* are used to define rate enforcement on this user DLCI.<br><br>If *rateEnforcement* is ***enabled***, and the combined Committed and Excess burst thresholds are exceeded, the frame in violation will be discarded immediately if a *HibernationQueue* subcomponent is not provisioned under the *StDlci* component (static entries only). If a *HibernationQueue* is provisioned, the frame will be placed on the *HibernationQueue* at time of violation and transmission will be attempted later after the point at which the burst thresholds will no longer be exceeded.<br><br>Setting all the CIR attributes to zero has the same affect as setting this attribute to ***disabled***.<br><br>Setting this attribute will operationally override the corresponding provisional value on static entries. |
| Values | enabled<br>disabled |
| Default | disabled |

### ATTRIBUTE FrDte Dlci committedInformationRate (cir)

| | |
|---|---|
| Access | Read and write |
| Description | The average number of bits to be transferred per second over the DLCI to the DCE. When this attribute is set to zero, the link |

| | |
|---|---|
| | speed will be used instead.<br><br>Setting this attribute will operationally override the corresponding provisional value on static entries. |
| Values | Decimal (0..48000000) |
| Units | bit/s |
| Default | 64000 |

### ATTRIBUTE FrDte Dlci committedBurst (bc)

| | |
|---|---|
| Access | Read and write |
| Description | The committed burst size (in bits) to which the DLCI wants to subscribe.<br><br>Setting this attribute will operationally override the corresponding provisional value on static entries. |
| Values | Decimal (0..2048000) |
| Units | bits |
| Default | 64000 |

### ATTRIBUTE FrDte Dlci excessBurst (be)

| | |
|---|---|
| Access | Read and write |
| Description | The excess burst size (in bits) to which the DLCI wants to subscribe.<br><br>Setting this attribute will operationally override the corresponding provisional value on static entries. |
| Values | Decimal (0..2048000) |
| Units | bits |
| Default | 0 |

### ATTRIBUTE FrDte Dlci excessBurstAction (beAction)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute specifies the action taken when the *committedBurst* size has been exceeded on the *Dlci* but the *excessBurst* size has not. If the attribute is set to ***setDeBit***, the Discard Eligibility bit in the Frame Relay header will be turned on. If the attribute is set to ***none***, no action will be taken.<br><br>Setting this attribute will operationally override the corresponding provisional value on static entries. |
| Values | none<br>setDeBit |
| Default | none |

## COMPONENT FrDte VirtualFramer (VFramer)

| | |
|---|---|
| Groups | "GROUP FrDte VFramer Provisioned (Prov)"<br>"GROUP FrDte VFramer OsiState (State)"<br>"GROUP FrDte VFramer Statistics (Stats)" |
| Scope | Application |
| Description | *FrUni/n VirtualFramer*<br>*FrDte/n VirtualFramer*<br>The *VirtualFramer* component binds two services together to provide data transfer between them. It is mutually exclusive from *Framer* component. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP FrDte VFramer Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisionable attributes for the *VirtualFramer* component. |

### ATTRIBUTE FrDte VFramer otherVirtualFramer (ovf)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the other *VirtualFramer* to which the service is linked, for example, *FrUni/n VirtualFramer*, *FrDte/n VirtualFramer*. |
| Values | Link (Service, otherVirtualFramer) |
| Default | No default |

### ATTRIBUTE FrDte VFramer logicalProcessor (lp)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the logical processor on which the service component will reside. |
| Values | Link (Hardware, linkToApplications) |
| Default | No default |

### GROUP FrDte VFramer OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE FrDte VFramer adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively |

prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE FrDte VFramer operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE FrDte VFramer usageState (osiUsage)

Access
Read only

| | |
|---|---|
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP FrDte VFramer Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational statistics data for a *VirtualFramer* component. |

### ATTRIBUTE FrDte VFramer frmToOtherVFramer

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames transmitted to the *otherVirtualFramer.* |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE FrDte VFramer frmFromOtherVFramer

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received from the *otherVirtualFramer.* |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE FrDte VFramer octetFromOtherVFramer

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the octets received from the *otherVirtualFramer*. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE FrDte VFramer discFrmFromOtherVFramer (discFrmFromOvf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the discarded frames from the *otherVirtualFramer*. Incrementing of this counter indicates that some incoming traffic cannot be handled by the FP. |
| Values | Long Integer |
| Default | No default |

### COMPONENT FrDte DirectConnection (Dconn)

| | |
|---|---|
| Groups | "GROUP FrDte Dconn DirectFrUniConnData (DirData)" |
| Scope | Application |
| Description | *FrDte/n DirectConnection*<br>This component defines the parameter for implementing the IP over Frame Relay Direct Connection for the *FrameRelayDte* interface.<br><br>The Direct Connection is only supported on the Passport 7000 32-Port Multi-Service Access (MSA32), and Passport 15000 4-Port DS3 Channelised and 1-Port STM1 Channelised cards. Before a Direct Connection can be establish, the provisioning check for this component will ensure that the following conditions are present:<br><br>- *FrameRelayDte* (*FrDte*) is provisioned with a Virtual Framer.<br>- *FrameRelayUni* (*FrUni*) to which the Direct Connection will be establish is provisioned with a Framer.<br>- *FrDte* and *FrUni* link by the Direct Connection are on the same. |

Logical Processor, and they are provisioned on a Passport 7000 Multi-Services Access card.
- accounting on the *FrUni* connected to the *FrDte* via the Virtual Framer is set to **off**.
- *Lmi* on the *FrUni* and *FrDte* connected via the Virtual Framer is off.
- all *Dlci*'s instances on the *FrUni*'s in the IP over Frame Relay setup match, and the provisioned PVC's do not connect to any other *FrUni* than the *FrUni*'s in IP over Frame Relay setup.

Common Verbs

Help
List
Display
Add
DELete

## GROUP FrDte Dconn DirectFrUniConnData (DirData)

Properties: Provisioned

Description: This group contains the provisioned attribute for the *FrameRelayDte DirectConnection* component.

## ATTRIBUTE FrDte Dconn directFrUniConnection (direct)

Access: Read and write

Criticality: Process

Description: This attribute specifies the *FrameRelayUni* to which the *FrameRelayDte* will extablish a Direct Connection to.

Values: Link (Service, directFrDteConnection)

Default: No default

Passport 7400, 15000, 20000

# Component FrDte

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component FrIpServer

241-5701-060

Passport 7400, 15000, 20000

# Component FrIpServer

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT FrameRelayIpServer (FrIpServer)

| | |
|---|---|
| Instance | Decimal (1..1024) |
| Groups | "GROUP FrIpServer CustomerIdentifierData (CidData)"<br>"GROUP FrIpServer IfEntryProv (IfEntry)"<br>"GROUP FrIpServer Provisioned (Prov)"<br>"GROUP FrIpServer Operational (Oper)"<br>"GROUP FrIpServer OperationalStatus (OperStatus)"<br>"GROUP FrIpServer OsiState (State)" |
| Scope | Application |
| Description | *FrameRelayIpServer/n*<br>This component represents a server that distributes traffic between an IP protocol port and multiple Frame Relay interfaces. The *FrIpServer* receives all datagrams destined for the subnet specified at the *ProtocolPort* and forwards each to the appropriate Frame Relay interface. An instance of this component should be provisioned for each *LogicalProcessor* having BNX DLCIs and for each subnet on which BNX DLCIs are located. |
| Dyn. Subcomp. | "COMPONENT FrIpServer IpAddress (IpAddr)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP FrIpServer CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

## ATTRIBUTE FrIpServer customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.<br><br>Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.<br><br>An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to "basic CIDs" in DPN) may be assigned to specific customers. |
| Values | Decimal (0; 1..8191) |
| Default | 0 |

## GROUP FrIpServer IfEntryProv (IfEntry)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the ifEntry. |

## ATTRIBUTE FrIpServer ifAdminStatus (ifState)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE FrIpServer ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP FrIpServer Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all attributes that can be provisioned to define a *FrIpServer* instance. |

### ATTRIBUTE FrIpServer logicalProcessor (lp)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the *LogicalProcessor* where the *FrIpServer* is located. |
| Values | Link (Hardware, linkToApplications) |
| Default | No default |

### ATTRIBUTE FrIpServer linkToProtocolPort (lToPp)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the *ProtocolPort* to which the *FrIpServer* instance is linked. The *ProtocolPort* must have only an *IpPort* subcomponent which has exactly one logical interface. |
| Values | Link (Service, linkToMedia) |
| Default | No default |

### GROUP FrIpServer Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational attributes specific to the *FrIpServer* component. |

### ATTRIBUTE FrIpServer datagramsFromPp (dataFrPP)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the datagrams received from the *ProtocolPort*, including those counted in *unknownIpAddrErr*. Counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrIpServer lastUnknownIpAddress (lastUnkwnAddr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the destination IP address of the last datagram that was dropped because none of the interfaces specified in *linkToFrameRelayApps* have a matching IP address. |
| Values | IP address |
| Default | No default |

### ATTRIBUTE FrIpServer unknownIpAddressErr (unkwnAddrErr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the datagrams dropped by the *FrIpServer* because none of the interfaces specified in *linkToFrameRelayApps* have a matching IP address. The destination address from most recent dropped datagram is counted and saved in *lastUnknownIpAddress*. Counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrIpServer invalidIpHeaderVersion (iiphv)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the datagrams dropped because the version in IP header was invalid. |
| Values | Decimal (0..429496729) |
| Default | 0 |

### GROUP FrIpServer OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

### ATTRIBUTE FrIpServer snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |

| | |
|---|---|
| Default | up |

## GROUP FrIpServer OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

## ATTRIBUTE FrIpServer adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

## ATTRIBUTE FrIpServer operationalState (osiOper)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE FrIpServer usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### COMPONENT FrIpServer IpAddress (IpAddr)

| | |
|---|---|
| Instance | IP address |
| Groups | "GROUP FrIpServer IpAddr Operational (Oper)" |

| | |
|---|---|
| Scope | Application |
| Description | *FrIpServer/n IpAddress/<IP Address>*<br>This component represents the IP address of the Frame Relay interfaces that are connected to the parent *FrIpServer*. It is a dynamic component used for informational purposes only. |
| Common Verbs | Help<br>List<br>Display |

## GROUP FrIpServer IpAddr Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all *IpAddress* attributes. |

## ATTRIBUTE FrIpServer IpAddr hostApplication (host)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the component name of the Frame Relay interface with the IP Address specified by the index of the *IpAddress* component. |
| Values | The name of the component |
| Default | No default |

Passport 7400, 15000, 20000

# Component FrIpServer

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component FrMux

241-5701-060

Passport 7400, 15000, 20000

# Component FrMux

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT FrMux

| | |
|---|---|
| Instance | Decimal (1..65535) |
| Groups | "GROUP FrMux OperationalStatus (OperStatus)"<br>"GROUP FrMux IfEntryProv (IfEntry)"<br>"GROUP FrMux CustomerIdentifierData (CidData)"<br>"GROUP FrMux OsiState (State)"<br>"GROUP FrMux Statistics (Stats)" |
| Scope | Application |
| Description | *FrMux/n*<br>This component defines an instance of the Frame Relay Multiplexer/Demultiplexer used by the *DpnGateway* as a frame relay transport mechanism. The component instance value n is a unique positive integer within a module. |
| Subcomponents | "COMPONENT FrMux Framer"<br>"COMPONENT FrMux LocalManagementInterface (Lmi)" |
| Opt. Subcomp. | "COMPONENT FrMux DataLinkConnectionIdentifier (Dlci)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>Unlock |

## VERB LOCK FrMux

| | |
|---|---|
| Impact | Service |
| Description | *Lock [-force] [-forever] frMux*.<br>This verb locks the frMux. If option [-forever] is present, then the locked state lasts forever and can only be terminated by a respective Unlock command. Without option [-forever] the service returns automatically to the unlocked state after five minutes. The option [-force] is accepted, but not acted upon; the effect of the Lock command with this option is the same as without this option. |

## GROUP FrMux OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

## ATTRIBUTE FrMux snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

## GROUP FrMux IfEntryProv (IfEntry)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the ifEntry. |

## ATTRIBUTE FrMux ifAdminStatus (ifState)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE FrMux ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP FrMux CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

### ATTRIBUTE FrMux customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.<br><br>Every operator session also has a CID, which is the CID |

provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.

An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to "basic CIDs" in DPN) may be assigned to specific customers.

Values: Decimal (0; 1..8191)

Default: 0

### GROUP FrMux OsiState (State)

Properties: Operational

Description: This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE FrMux adminState (osiAdmin)

Access: Read only

Description: This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE FrMux operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE FrMux usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in

use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
idle
active (activ)
busy

Default
idle

### ATTRIBUTE FrMux availabilityStatus (osiAvail)

Access
Read only

Description
If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.

The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.

The value ***dependency*** indicates that the component cannot

operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.

The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.

The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

| | |
|---|---|
| Set of | inTest<br>failed<br>dependency (depend)<br>powerOff (pwrOff)<br>offLine<br>offDuty<br>degraded (degrad)<br>notInstalled (notIn)<br>logFull<br>migrating |
| Default | No default |

### ATTRIBUTE FrMux proceduralStatus (osiProc)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.<br><br>The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.<br><br>The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***. |

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

## ATTRIBUTE FrMux controlStatus (osiCntrl)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

Set of

subjectToTest (subTst)
partOfServicesLocked (partLk)
reservedForTest (rsrvd)
suspended (suspnd)

Default

No default

## ATTRIBUTE FrMux alarmStatus (osiAlarm)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE FrMux standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values

hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

| | |
|---|---|
| Default | notSet |

### ATTRIBUTE FrMux unknownStatus (osiUnknw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Unknown status of the component.<br><br>The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.<br><br>The value ***true*** indicates that the actual state of the component is not known for sure. |
| Values | false<br>true |
| Default | false |

### GROUP FrMux Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the statistics about the operational behavior of the *FrMux* at the interface level. |

### ATTRIBUTE FrMux lastUnknownDlci (ludlc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute identifies the most recent DLCI which user frames were received on, for which a *Dlci* has not been provisioned on the interface. |
| Values | Decimal (0..1023) |
| Default | 0 |

### ATTRIBUTE FrMux unknownDlciFramesFromIf (unknown)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts frames received from the interface with an unknown DLCI (*Dlci* which is not provisioned). When the maximum is reached the count wraps to zero. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrMux invalidHeaderFramesFromIf (invalid)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames received from the interface with an invalid header format. When the maximum is reached the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrMux timeFramerCongested (timeCong)

| | |
|---|---|
| Access | Read only |
| Description | This attribute accumulates the time (in msec) during which *Framer* congestion has been observed in the direction towards the interface. The overload causing this statistic to increase may be caused by oversubscription. When this count reaches maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Units | msec |
| Default | 0 |

### COMPONENT FrMux Framer

| | |
|---|---|
| Groups | "GROUP FrMux Framer Provisioned (Prov)"<br>"GROUP FrMux Framer LinkOptions (Link)"<br>"GROUP FrMux Framer OsiState (State)"<br>"GROUP FrMux Framer Statistics (Stats)"<br>"GROUP FrMux Framer LinkUtilization (Util)" |

"COLLECTED STATS FrMux Framer"

| | |
|---|---|
| Scope | Application |
| Description | *FrUni/n Framer*<br>*FrNni/n Framer* |

*FrAtm/n Framer*
This component controls link layer framing for application components sending and receiving data on a link interface. It is also through *Framer*, that an application component is associated with a specific hardware link interface.

The *Framer* component provides provisionable attributes related to datapath aspects of the hardware interface (such as crc and frame length) rather than interface specific attributes (such as modem leads and clocking) which are associated with specific hardware components (such as *V35/n* or *DS1/n*). The *Framer* component also provides a provisionable attribute which binds the application component to a specific hardware component.

The *Framer* component contains operational attributes for link interface datapath statistics (such as frame counts and aborts).

Common Verbs
Help
List
Display

## GROUP FrMux Framer Provisioned (Prov)

Properties: Provisioned

Description: This group contains the base provisioning data for the *Framer* component. Application or hardware interface specific provisioning data is contained in other provisionable *Framer* groups.

## ATTRIBUTE FrMux Framer interfaceName

Access: Read and write

Criticality: Process

Description: This attribute contains a hardware component name.

The attribute associates the application with a specific link. This defines the module processor on which *Framer*'s parent component (as well as *Framer* itself) will run.

| | |
|---|---|
| Values | Link (Hardware, applicationFramerName) |
| Default | No default |

### GROUP FrMux Framer LinkOptions (Link)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains attributes defining the framing of data on the link interface. |

### ATTRIBUTE FrMux Framer dataInversion

| | |
|---|---|
| Access | Read and write |
| Description | This attribute determines whether data bits are to be inverted (1 to 0 and 0 to 1) before transmission of frames to the interface. If the value of this attribute is On, the incoming data bits will also be inverted when frames are received from the link before being processed.<br><br>This option is typically used in ***hdlc*** framing mode when inversion is used to guarantee 1's density.<br><br>Note that aborts (in ***hdlc*** and ***interrupting*** modes) are corrupted when data is inverted.<br><br>This attribute may only take its default value for non-MSA cards. |
| Values | off<br>on |
| Default | off |

### ATTRIBUTE FrMux Framer frameCrcType

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the type of CRC used.<br><br>The CRC value calculated is appended to the end of the frames transmitted to the link. The CRC value is removed from the end of frames received from the link and checked for correctness. NoCrc means that CRC is not used. |

This attribute may take only its default value for non-MSA cards.

Values
crc16
crc32
noCrc

Default
crc16

### ATTRIBUTE FrMux Framer flagsBetweenFrames

Access
Read and write

Description
This attribute defines the number of flags that are inserted between frames sent to the link interface. The flagBetweenFrames can be set to only 1, 2, 4, 8 or 16 for 4pDS3Ch FrameRelay FP.

Values
Decimal (1..16)

Default
1

### GROUP FrMux Framer OsiState (State)

Properties
Operational

Description
This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE FrMux Framer adminState (osiAdmin)

Access
Read only

Description
This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE FrMux Framer operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE FrMux Framer usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

| | |
|---|---|
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP FrMux Framer Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational statistics data for a Framer component. |

### ATTRIBUTE FrMux Framer aborts

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of aborts received. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrMux Framer crcErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of frames with CRC errors, occurring in the receive direction from the link. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrMux Framer lrcErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of frames with LRC errors, occurring in the Tx link prior to transmission onto the link. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrMux Framer nonOctetErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of frames that were non octet aligned. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrMux Framer overruns

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of frames received from the link for which overruns occurred. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrMux Framer underruns

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of frames transmitted to the link for which underruns occurred. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrMux Framer largeFrmErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of frames received which were too large. The frame exceeded the *maximumFrameLengthLimit* provisioned attribute or it contained more than the 255 block hardware limit. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE FrMux Framer frmModeErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of frames detected with framing mode errors. A *framingModeError* is flagged when frames are inconsistent with the specified *framingType*, that is when interrupting frames are used while running in hdlc mode. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrMux Framer frmToIf

| | |
|---|---|
| Access | Read only |
| Description | The number of frames transmitted to the link interface by Framer.<br><br>Note: This does not include the number of frames transmitted directly to the hardware queue, thus bypassing the Framer component. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE FrMux Framer frmFromIf

| | |
|---|---|
| Access | Read only |
| Description | The number of frames received from the link interface by Framer. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE FrMux Framer octetFromIf

| | |
|---|---|
| Access | Read only |
| Description | The number of bytes received from the link interface by Framer. |
| Values | Long Integer |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE FrMux Framer ingressFrameDiscards

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of frames discarded at ingress PQC. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### GROUP FrMux Framer LinkUtilization (Util)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the link utilization operational data for a Framer component. |

### ATTRIBUTE FrMux Framer normPrioLinkUtilToIf

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the utilization of the normal and high priority data traffic (interruptible traffic) sent to the link as a percentage of the available bandwidth on the link. Note that this includes traffic with Transfer Priorities (TP) of 0, 6 and 9 and/or Emission Priority of 2 and 3. The utilization is the average for the last minute. |
| Values | Decimal (0..100) |
| Units | % |
| Default | 0 |

### ATTRIBUTE FrMux Framer normPrioLinkUtilFromIf

| | |
|---|---|
| Access | Read onlyThis attribute is the utilization of the normal and high priority data traffic (interruptible traffic) received from the link as a percentage of the available bandwidth on the link. Note that this includes traffic with Transfer Priorities (TP) of 0, 6 and 9 and/or Emission Priority of 2 and 3. The utilization is the average for the last minute. |

| | |
|---|---|
| Values | Decimal (0..100) |
| Units | % |
| Default | 0 |

## COLLECTED STATS FrMux Framer

| | |
|---|---|
| Description | The statistics record generated by the FrMux Framer component. |

### ATTRIBUTE FrMux Framer rxBytes

| | |
|---|---|
| Description | This attribute provides the number of bytes received on the link by the Framer in the last collection interval. |
| Values | Long Integer |

### ATTRIBUTE FrMux Framer rxFrames

| | |
|---|---|
| Description | This attribute provides the number of frames received on the link interface by the Framer in the last collection interval. |
| Values | Long Integer |

### ATTRIBUTE FrMux Framer txBytes

| | |
|---|---|
| Description | This attribute provides the number of bytes transmitted to the link by the Framer in the last collection interval. This value could be zero if the application sends the frames directly to the link. |
| Values | Long Integer |

### ATTRIBUTE FrMux Framer txFrames

| | |
|---|---|
| Description | This attribute provides the number of frames transmitted to the link interface by the Framer in the last collection interval. This value could be zero if the application sends the frames directly to the link. |
| Values | Long Integer |

### ATTRIBUTE FrMux Framer rxTotalLinkUtil

| | |
|---|---|
| Description | This attribute provides the average total link utilization computed based on the total number of bytes received on the link in the last collection interval. |

| | |
|---|---|
| Values | Decimal (0..100) |

## COMPONENT FrMux LocalManagementInterface (Lmi)

| | |
|---|---|
| Groups | "GROUP FrMux Lmi Provisioned (Prov)"<br>"GROUP FrMux Lmi OsiState (State)"<br>"GROUP FrMux Lmi ProtocolStatusInfo (Psi)"<br>"GROUP FrMux Lmi Statistics (Stats)" |
| Scope | Application |
| Description | *FrMux/n Lmi*<br>This component defines the parameters for implementing the Local Management Interface protocol. |
| Common Verbs | Help<br>List<br>Display |

## GROUP FrMux Lmi Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes of the Local Management Interface component of the *FrMux*. The Local Management Interface of the *FrMux* is always User Side Procedure of the User Network Interface (USP-UNI). |

## ATTRIBUTE FrMux Lmi procedures (proc)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute selects the procedures to be used for the Local Management Interface. The following are the supported procedures:<br>***none***: No Local Management Interface procedure is active.<br>***vendorForum***:Local Management Interface procedure according to the Vendor Forum specification is active. DLCI 1023 is used for the LMI protocol.<br>***ansi***: Local Management Interface procedure according to the ANSI specification is active. DLCI 0 is used for the LMI protocol. |

***ccitt***: Local Management Interface procedure according to the CCITT specification is active. DLCI 0 is used for the LMI protocol.

Values
none
vendorForum
ansi
ccitt

Default
ccitt

### ATTRIBUTE FrMux Lmi linkVerificationTimer (t391)

Access
Read and write

Description
This attribute specifies the time interval (in seconds) at which the *FrMux* sends Status Enquiry messages to the interface. Exchange of Status Enquiry and Status Report messages constitutes a polling cycle, so this attribute may also be interpreted as time interval at which the *FrMux* initiates polling cycles. It must be less than *checkPointTimer (t392)* configured at the other end of the Frame Relay interface.

This attribute corresponds to t391 of the ANSI and CCITT specifications, and nT1 of the Vendor Forum specification.

Values
Decimal (5; 10; 15; 20; 25; 30)

Units
seconds

Default
10

### ATTRIBUTE FrMux Lmi fullStatusPollingCycles (n391)

Access
Read and write

Description
This attribute specifies every which polling cycle the *FrMux* sends a full STATUS ENQUIRY to the interface. Every *fullStatusPollingCycles* polling cycles the *FrMux* sends a full STATUS ENQUIRY. In all other cycles of a sequence of *fullStatusPollingCycles* polling cycles the *FrMux* sends a keep alive STATUS ENQUIRY.

This attribute corresponds to n391 of the ANSI and CCITT specifications and nN1 of the Vendor Forum specification.

Values: Decimal (1..255)

Default: 6

### ATTRIBUTE FrMux Lmi errorEventThreshold (n392)

Access: Read and write

Description: This attribute specifies the number of error events which, if they occur within *eventCount* events, will cause a protocol error condition (*protocolStatus* = ***errorCondition***). The error condition is cleared after *eventCount* sequential correct events occur (*protocolStatus* = ***normalCondition***).

An event is one of the following: (1) expiry of the linkVerificationTimer (t391), (2) reception of a STATUS message. An error event is one of the following: (1)non-receipt of the STATUS message in t391 seconds, (2)invalid STATUS message, (3) invalid sequence number.

This attribute corresponds to n392 of the ANSI and CCITT specifications and nN2 of the Vendor Forum Specification.

This attribute must be less than or equal to *eventCount*.

Values: Decimal (1..10)

Default: 3

### ATTRIBUTE FrMux Lmi eventCount (n393)

Access: Read and write

Description: This attribute specifies the number of contiguous events within which no more than *eventErrorThreshold* error events are allowed.

This attribute corresponds to n392 of the ANSI and CCITT specifications and nN3 of the Vendor Forum Specification.

| | |
|---|---|
| | This attribute must be greater than or equal to *errorEventThreshold*. |
| Values | Decimal (1..10) |
| Default | 4 |

### GROUP FrMux Lmi OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE FrMux Lmi adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE FrMux Lmi operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE FrMux Lmi usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

## GROUP FrMux Lmi ProtocolStatusInfo (Psi)

| | |
|---|---|
| Properties | Operational |
| Description | This group provides the protocol status of the Local Management Interface of this *FrMux*. |

## ATTRIBUTE FrMux Lmi protocolStatus

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether the *Lmi* is in an error condition or whether the protocol is behaving normally. When operating with no LMI protocol (*procedures* = ***none***), this attribute will always be set to ***normalCondition***. When operating with an LMI protocol (procedures set to one of ***venforForum***, ***ansi***, ***ccitt***), this attribute is set to ***errorCondition*** when *errorEventThreshold* of the last *eventCount* events are in error.<br>The error condition is cleared when *eventCount* consecutive good events take place.<br>The consequence of an error condition is that all *Dlci*'s on this interface become disabled and there is no data flow in either direction. |
| Values | errorCondition<br>normalCondition |
| Default | normalCondition |

## GROUP FrMux Lmi Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational statistics for the *FrMux* Local Management Interface. |

## ATTRIBUTE FrMux Lmi keepAliveStatusEnqToIf (kati)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of keep alive STATUS ENQUIRY messages sent to the interface. When the maximum count is reached it wraps to zero. |
| Values | Decimal (0..4294967275) |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE FrMux Lmi fullStatusEnqToIf (fsti)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of full STATUS ENQUIRY messages sent to the interface. When the maximum count is reached it wraps to zero. |
| Values | Decimal (0..4294967275) |
| Default | 0 |

### ATTRIBUTE FrMux Lmi protocolErrors (proto)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of Local Management Interface protocol errors. Protocol errors include (1) protocol message format errors, (2) protocol timer expiry errors, and (3) sequence errors. When the maximum count is reached it wraps to zero. |
| Values | Decimal (0..4294967275) |
| Default | 0 |

### ATTRIBUTE FrMux Lmi unexpectedIes (uie)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames received with an Information Element identifier that is unknown or unexpected. When the maximum count is reached, this counter wraps to zero. |
| Values | Decimal (0..4294967275) |
| Default | 0 |

### ATTRIBUTE FrMux Lmi sequenceErrors (seq)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of Local Management Interface sequence errors. A sequence error is receipt of an LMI message with a receive sequence number not equal to the last send |

| | |
|---|---|
| | sequence number. When the maximum count is reached the counter wraps to zero. |
| Values | Decimal (0..4294967275) |
| Default | 0 |

### ATTRIBUTE FrMux Lmi unexpectedReports (ur)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames received on the Local Management Interface with an unknown or unexpected report type. When the maximum count is reached the counter wraps to zero. |
| Values | Decimal (0..4294967275) |
| Default | 0 |

### ATTRIBUTE FrMux Lmi noStatusReportCount (nsrc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times when no status report or an invalid status report comes from the external network. This attribute is incremented in two cases:<br>i) after a status enquiry is sent out and t391 timer expires without having a status report received.<br>ii) an invalid status report is received.<br>When the maximum count is reached it wraps to zero. |
| Values | Decimal (0..4294967275) |
| Default | 0 |

### COMPONENT FrMux DataLinkConnectionIdentifier (Dlci)

| | |
|---|---|
| Instance | Decimal (16..1007) |
| Groups | "GROUP FrMux Dlci Operational (Oper)"<br>"GROUP FrMux Dlci OsiState (State)"<br>"GROUP FrMux Dlci ABitStatus (Abit)"<br>"GROUP FrMux Dlci Statistics (Stats)" |
| Scope | Application |

| | |
|---|---|
| Description | *FrMux/n Dlci/n*<br>This component is responsible for the Frame Relay U-plane (User-plane) protocol for the specified instance. The instance value is used to identify the logical connection, multiplexed within the physical channel, with which a frame is associated. All frames carried within a particular physical channel and having the same DLCI value are associated with the same logical connection. |
| Subcomponents | "COMPONENT FrMux Dlci ApplicationInfo (ApplInfo)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP FrMux Dlci Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the name of the application associated with this *Dlci*. |

### ATTRIBUTE FrMux Dlci applicationName (applName)

| | |
|---|---|
| Access | Read only |
| Description | This attribute contains the name of the application associated with this *Dlci*. |
| Values | The name of the component |
| Default | No default |

### GROUP FrMux Dlci OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component |

which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE FrMux Dlci adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE FrMux Dlci operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the |

component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE FrMux Dlci usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP FrMux Dlci ABitStatus (Abit)

Properties
Operational

Description
This group contains the A-Bit status information for this *Dlci*.

### ATTRIBUTE FrMux Dlci aBitStatusFromIf (abfi)

Access
Read only

Description
This attribute is the most recent A-Bit status received from the interface.

Values
inactive
active

Default
inactive

## GROUP FrMux Dlci Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational statistics for the *FrMux Dlci*. |

## ATTRIBUTE FrMux Dlci frmToIf (fti)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames sent to the interface. When the maximum count is reached the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## ATTRIBUTE FrMux Dlci bytesToIf (bti)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes sent to the interface. When the maximum count is reached the count wraps to zero. |
| Values | Long Integer |
| Default | No default |

## ATTRIBUTE FrMux Dlci frmFromIf (ffi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received from the interface. Frames that are discarded are not included in this count. When the maximum count is reached the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## ATTRIBUTE FrMux Dlci deFrmFromIf (defi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received from the interface with the Discard Eligibility (DE) bit set. When the count reaches maximum it wraps to zero. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrMux Dlci bytesFromIf (bfi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes received from the interface. Frames that are discarded are not included in this count. When the maximum count is reached the count wraps to zero. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE FrMux Dlci deBytesFromIf (debi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes received from the interface with the Discard Eligibility (DE) bit set. When the count reaches maximum it wraps to zero. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE FrMux Dlci fecnFrmToIf (fecnti)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames sent to the interface with the Forward Explicit Congestion Notification (FECN) bit set. When the count reaches maximum it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrMux Dlci fecnFrmFromIf (fecnfi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received from the interface with the Forward Explicit Congestion Notification (FECN) bit set. When the count reaches maximum it wraps to zero. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrMux Dlci becnFrmToIf (becnti)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames sent to the interface with the Backward Explicit Congestion Notification (BECN) bit set. When the count reaches maximum it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrMux Dlci becnFrmFromIf (becnfi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received from the interface with the Backward Explicit Congestion Notification (BECN) bit set. When the count reaches maximum it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrMux Dlci discCongestedFromIf (disccfi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames discarded in the receive direction due to local congestion. When this count reaches maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrMux Dlci discCongestedFromIfBytes (disccfib)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of bytes discarded in the receive direction due to local congestion. When this count reaches maximum, it wraps to zero. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrMux Dlci discDeCongestedFromIf (discdecfi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of discard eligible (DE=1) frames discarded in the receive direction due to local congestion. When this count reaches maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrMux Dlci discDeCongestedFromIfBytes (discdecfib)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of bytes of discard eligible (DE=1) traffic discarded in the receive direction due to local congestion. When the maximum count is reached the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrMux Dlci errorShortFrmFromIf (shortfi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received with 0 octets in the information field. When the count reaches maximum it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrMux Dlci errorLongFrmFromIf (longfi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received with number of octets in the information field greater than the maximum frame size |

provisioned in the component pointed to by the *applicationName*. When the count reaches maximum it wraps to zero. Frames whose lengths are greater than the hardware receive buffer are discarded by the *Framer* and are therefore not included in this count.

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT FrMux Dlci ApplicationInfo (ApplInfo)

| | |
|---|---|
| Groups | "GROUP FrMux Dlci ApplInfo Provisioned (Prov)" |
| Scope | Application |
| Description | *FrMux/n Dlci/n ApplicationInfo*<br>This component contains provisionable attributes of this *Dlci*. |
| Common Verbs | Help<br>List<br>Display |

### GROUP FrMux Dlci ApplInfo Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisionable attributes of this *Dlci*. |

### ATTRIBUTE FrMux Dlci ApplInfo applicationName (applName)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the link to the application associated with this *Dlci*. |
| Values | Link (Service, dlciName) |
| Default | No default |

Passport 7400, 15000, 20000

# Component FrMux

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component FrNni

241-5701-060

Passport 7400, 15000, 20000

# Component FrNni

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT FrameRelayNni (FrNni)

| | |
|---|---|
| Instance | Decimal (1..4294967295) |
| Groups | "GROUP FrNni CustomerIdentifierData (CidData)"<br>"GROUP FrNni OsiState (State)"<br>"GROUP FrNni Statistics (Stats)"<br>"GROUP FrNni IfEntryProv (IfEntry)"<br>"GROUP FrNni OperationalStatus (OperStatus)"<br>"GROUP FrNni EmissionPriorityQs"<br>"GROUP FrNni TrafficStatistics (TrafficStats)" |
| Scope | Application |
| Description | *FrameRelayNni/n*<br>This component defines an instance of the Frame Relay Network-to-Network Interface (NNI) service. This service allows two networks to be interconnected using the Frame Relay protocol. The component instance value n is a unique positive integer within a module. The *FrNni* interface must have either a *Framer* or a *VirtualFramer* subcomponent. As a default, a *Framer* is created whenever the *FrNni* is added. Users who need a *VirtualFramer* should delete the *Framer* and then add the *VirtualFramer*. |

| | |
|---|---|
| Subcomponents | "COMPONENT FrNni DataNetworkAddress (Dna)"<br>"COMPONENT FrNni LocalManagementInterface (Lmi)"<br>"COMPONENT FrNni ConnectionAdministrator (Ca)" |
| Opt. Subcomp. | "COMPONENT FrNni Framer"<br>"COMPONENT FrNni VirtualFramer (VFramer)"<br>"COMPONENT FrNni Signaling (Sig)"<br>"COMPONENT FrNni LoadTestSystem (Lts)"<br>"COMPONENT FrNni ServiceTrace (SrvTrace)"<br>"COMPONENT FrNni BnxProtocol (Bp)" |
| Opt. Subcomp. | "COMPONENT FrNni DataLinkConnectionIdentifier (Dlci)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP FrNni CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

## ATTRIBUTE FrNni customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0. |

Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.

An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to "basic CIDs" in DPN) may be assigned to specific customers.

Values: Decimal (0; 1..8191)

Default: 0

## GROUP FrNni OsiState (State)

Properties: Operational

Description: This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

## ATTRIBUTE FrNni adminState (osiAdmin)

Access: Read only

Description: This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE FrNni operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE FrNni usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
idle
active (activ)
busy

Default
idle

### ATTRIBUTE FrNni availabilityStatus (osiAvail)

Access
Read only

Description
If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.

The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.

The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.

The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.

The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

| | |
|---|---|
| Set of | inTest<br>failed<br>dependency (depend)<br>powerOff (pwrOff)<br>offLine<br>offDuty<br>degraded (degrad)<br>notInstalled (notIn)<br>logFull<br>migrating |
| Default | No default |

### ATTRIBUTE FrNni proceduralStatus (osiProc)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.<br><br>The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.<br><br>The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***. |

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

## ATTRIBUTE FrNni controlStatus (osiCntrl)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

Set of

subjectToTest (subTst)
partOfServicesLocked (partLk)
reservedForTest (rsrvd)
suspended (suspnd)

Default

No default

### ATTRIBUTE FrNni alarmStatus (osiAlarm)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE FrNni standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values

hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

| | |
|---|---|
| Default | notSet |

### ATTRIBUTE FrNni unknownStatus (osiUnknw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Unknown status of the component.<br><br>The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.<br><br>The value ***true*** indicates that the actual state of the component is not known for sure. |
| Values | false<br>true |
| Default | false |

### GROUP FrNni Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the statistics about the operational behavior of the service at the interface level. |

### ATTRIBUTE FrNni lastUnknownDlci (ludlc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute identifies the most recent DLCI which user frames were received on for which a DLCI has not been provisioned on the port. |
| Values | Decimal (0..1023) |
| Default | 0 |

### ATTRIBUTE FrNni unknownDlciFramesFromIf (unknown)

| | |
|---|---|
| Access | Read only |
| Description | This attribute contains a count of the number of frames received from the interface with an unknown DLCI (DLCI which is not |

| | |
|---|---|
| | provisioned). When the maximum is exceeded the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrNni invalidHeaderFramesFromIf (invalid)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames received from the interface with an invalid header format. When the maximum is exceeded the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### GROUP FrNni IfEntryProv (IfEntry)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the ifEntry. |

### ATTRIBUTE FrNni ifAdminStatus (ifState)

| | |
|---|---|
| Access | Read and write |
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE FrNni ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |

| | |
|---|---|
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP FrNni OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

### ATTRIBUTE FrNni snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### GROUP FrNni EmissionPriorityQs

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attribute to specify the number of Frame Relay egress emission priority queues to be used on that Frame Relay Interface |

### ATTRIBUTE FrNni numberOfEmissionQs

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the number of egress emission priority queues that will be used for that Frame Relay interface. |

For V.35, V.11, HSSI, E1, DS1, E3, DS3 or 8pDS1 the possible values are: ***2*** (in which case they are hardware queues), or ***4*** (in which case they are software queues).

For DS1C, E1C or DS3C the possible values are ***2, 4*** (in all cases they are software queues).

For 32 port Msa cards the possible values are ***2, 4*** (in all cases they are hardware queues).

For 4pDS3Ch, 1pSTM1ChSmIr PQC6v2 (also known as PQC2) the possible values are ***2, 4*** (in all cases they are hardware queues).

For 4pDS3Ch PQC12, setting this attribute has no effect on the number of egress emission priority queues, four hardware queues are always used.

| | |
|---|---|
| Values | Decimal (2; 4) |
| Default | 2 |

### GROUP FrNni TrafficStatistics (TrafficStats)

| | |
|---|---|
| Properties | Operational |
| Description | This operational group provides the traffic statistics of the service at the interface level. Each attribute type is a non-negative integer which monotonically increases until it reaches a maximum value, at which point it wraps around and starts increasing again from zero. |

### ATTRIBUTE FrNni frmToIfByQueue

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames transmitted to the interface through each of the egress queues. The number of queues is determined by the attribute *numberOfEmissionQs*. Egress queue 0 has the lowest priority, and egress queue 3 has the highest priority. |

| | |
|---|---|
| | The attribute is displayed only on SBIC cards when *numberOfEmissionQs* is 4. |
| Values | Decimal (0..4294967295) |
| Replication | Decimal (0..3) |
| Default | No default |

### ATTRIBUTE FrNni octetToIfByQueue

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the octets transmitted to the interface through each of the egress queues. The number of queues is determined by the attribute *numberOfEmissionQs*. Egress queue 0 has the lowest priority, and egress queue 3 has the highest priority.<br><br>The attribute is displayed only on SBIC cards when *numberOfEmissionQs* is 4. |
| Values | Decimal (0..4294967295) |
| Replication | Decimal (0..3) |
| Default | No default |

### COMPONENT FrNni DataNetworkAddress (Dna)

| | |
|---|---|
| Groups | "GROUP FrNni Dna Address"<br>"GROUP FrNni Dna OutgoingOptions"<br>"GROUP FrNni Dna CallOptions" |
| Scope | Application |
| Description | This group contains a superset of all attributes which may apply to a VC. Particular applications will typically offer only a subset of these attributes by providing a definition of their own DNA subcomponent. |

| | |
|---|---|
| Opt. Subcomp. | "COMPONENT FrNni Dna HuntGroupMember (HgM)" |
| Common Verbs | Help<br>List<br>Display |

## GROUP FrNni Dna Address

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains attributes common to all DNAs. Every DNA used in the network is defined with this group of 2 attributes. |

## ATTRIBUTE FrNni Dna numberingPlanIndicator (npi)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute indicates the Numbering Plan Indicator (NPI) of the DNA that is entered. Address may belong to X.121 or E.164 plans. X.121 is used in packet switched data networks. |
| Values | x121<br>e164 |
| Default | x121 |

## ATTRIBUTE FrNni Dna dataNetworkAddress (dna)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute indicates the customer’s unique identifier. It is the equivalent of the telephone number in the telephone network. |
| Values | BCD (1..15) |
| Default | No default |

## GROUP FrNni Dna OutgoingOptions

| | |
|---|---|
| Properties | Provisioned |
| Description | This group defines DNA call options for calls made from the interface. These options are not used for calls arriving to the interface represented by this *DNA*. |

## ATTRIBUTE FrNni Dna outDefaultPriority (odf)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates the default priority of outgoing calls from the DTE to the network.<br><br>It can be overridden by the *discardPriority* under *DLCI Direct Call* subcomponent.<br><br>This option can be also included in X.25 signaling, in such case it will be overruled. |
| Values | normal<br>high |
| Default | normal |

## ATTRIBUTE FrNni Dna outDefaultPathReliability (opr)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the default class of routing for reliability routing for all outgoing calls (from the DTE to the network) using this particular DNA. The chosen default class of routing applies to all outgoing calls established using this DNA, and applies to the packets travelling in both directions on all outgoing calls (local to remote, and remote to local). For incoming calls, the default class of routing is chosen by the calling party (as opposed to DPN, where either end of the call can choose the default routing class).<br>This attribute, if set to a value of *normal*, indicates that the default class of routing is normal reliability routing. If set to a value of *high*, then the default class of routing is high reliability routing.<br>High reliability is the standard choice for most DPN and Passport |

services. It usually indicates that packets are overflowed or retransmitted at various routing levels. Typically high reliability results in duplication and disordering of packets in the network when errors are detected or during link congestion. However, the VC handles the duplication and disordering to ensure that packets are delivered to the DTE properly.
For the Frame Relay service, duplication of packets is not desired, in which case, normal reliability may be chosen as the preferred class of routing.

Values
normal
high

Default
normal

### ATTRIBUTE FrNni Dna defaultTransferPriority (dtp)

Access
Read and write

Description
This attribute specifies the default transfer priority for all outgoing calls using this particular *DNA*. It can be overridden by the *transferPriority* provisioned in the *Dlci DirectCall* sub-component.

The transfer priority is a preference configured for an application according to its delay-sensitivity requirement. Frames with higher transfer priority are served by the network before the frames with lower priority. The transfer priority standard is defined to have 16 levels from 0 to 15.

Each transfer priority n, where n indicates the transfer priority index, contains a default setting for routing class of service (multimedia, delay or throughput) and frame relay egress queue (depending on the number of supported egress queues on the remote end interface) specified by the *routingClassOfServic*e and *emissionPriority* attributes provisioned in the *Mod Frs DprsNet Tpm/n* component. The default mapping can be altered by a user if required.

The default *defaultTransferPriority* is ***0***.

Values
0
1

2
3
4
5
6
7
8
9
10
11
12
13
14
15

Default 0

### ATTRIBUTE FrNni Dna transferPriorityOverRide (tpor)

Access Read and write

Description When this attribute is set to ***yes*** in the call request, the called end will use the calling end provisioning data on transfer priority to override its own provisioning data. If it is set ***no***, the called end will use its own provisioning data on transfer priority.

This attribute is not applicable for Frame Relay SVCs.

For more information about transfer priority, please refer to the previous attribute *defaultTransferPriority.*

The default of *transferPriorityOverRide* is ***yes***.

Values yes
no

Default yes

### GROUP FrNni Dna CallOptions

Properties Provisioned

Description This group defines additional all options for not related to direction of the call.

## ATTRIBUTE FrNni Dna accountClass (acl)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the accounting class which is reserved for network operations usage. Its value is returned in the accounting record in the local and remote service type attributes. Use of this attribute is decided by network operator.<br>This attribute is returned by the local VC in the accounting record for all calls that are set up using this particular DNA. |
| Values | Decimal (0..255) |
| Default | 0 |

## ATTRIBUTE FrNni Dna accountCollection (aco)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates that accounting records are to be collected by the network for the various reasons: billing, test, study, auditing. The last of the parameters, force, indicates that accounting records are to be collected irrespective of other collection reasons. The force option is available for X.75 Gateways only. If none of these reasons are set, then accounting will be suppressed.<br>To set a specific accounting collection reason, the reason is entered and the corresponding bit in the structure is set to a value of 1. To turn off a specific accounting collection reason, the reason is entered preceded with the '~' character, and the corresponding bit in the structure is set to a value of 0.<br>The bit placement for the accounting collection reasons is as follows:<br>Bit 0 - Bill<br>Bit 1 - Test<br>Bit 2 - Study<br>Bit 3 - Audit<br>Bit 4 - Force |

| | |
|---|---|
| Set of | bill<br>test<br>study<br>audit<br>force |
| Default | (bill) |

### ATTRIBUTE FrNni Dna serviceExchange (sre)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is an arbitrary number, Data Service Exchange, as entered by the network operator and reported in accounting record. It is converted into an internal 8-bit integer value for use in the accounting record as well as in various X.25 and X.75 Tariff utilities. |
| Values | Decimal (0..255) |
| Default | 0 |

### ATTRIBUTE FrNni Dna egressAccounting (ega)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies if egress accounting is enabled by the frame relay service. If egress accounting is disabled, only segment counts are collected by the VC. No frame relay counts appear in the accounting records for the frame relay service. If egress accounting is enabled, the accounting records for the frame relay service will contain frame relay specific counts. |
| Values | yes<br>no |
| Default | no |

### ATTRIBUTE FrNni Dna dataPath (dpa)

| | |
|---|---|
| Access | Read and write |

Description

This attribute specifies the data path to be used by Virtual Circuits on this interface. If the connection has a *DirectCall* component then the value can be overridden by the *dataPath* attribute of the *DirectCall* component.

This value applies to the connection after data transfer state is reached. All the data and control traffic will be sent using this data path. If the provisioned *dataPath* is not available the connection is not established.

The value of the *dataPath* is signaled by both ends of the connection. If this value is not the same at both ends ***dprsOnly*** is used for the duration of the connection.

A virtual circuit connection is always established using ***dprsOnly*** even if this attribute is provisioned as some other value.

***dprsOnly*** - dynamic packet routing system is used

***dprsMcsOnly*** - dprs Multi-Service Cut-Through Switching path is used.

***dprsMcsFirst*** - dprs Multi-Service Cut-Through Switching path is used if it is available. If it is not available ***dprsOnly*** is used.

Values

dprsOnly
dprsMcsOnly
dprsMcsFirst

Default

dprsOnly

## COMPONENT FrNni Dna HuntGroupMember (HgM)

Groups

"GROUP FrNni Dna HgM Interface (If)"
"GROUP FrNni Dna HgM Operational (Op)"

Scope

Application

Description

*FrNni/n Dna HuntGroupMember*
This component specifies the interaction of this *DNA* with one or more hunt groups to which it is expected to belong.
Note that is not possible to automatically verify the consistency of the hunt group membership specified under this component

| | |
|---|---|
| | with the hunt group provisioning on the DPN Hunt Group Server(s). |
| Subcomponents | "COMPONENT FrNni Dna HgM HuntGroupAddress (HgAddr)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP FrNni Dna HgM Interface (If)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the interface parameters between the *HuntGroupMember* and the hunt group server. |

### ATTRIBUTE FrNni Dna HgM availabilityUpdateThreshold (aut)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies how much *availableAggregateCIR* can change before an Availability Message Packet (AMP) is sent to the hunt group server informing it of the change.<br>If the value specified is not a multiple of 2048, the value actually used as the threshold will be the next higher multiple of 2048. |
| Values | Decimal (2048..16777216) |
| Units | bit/s |
| Default | 8192 |

### GROUP FrNni Dna HgM Operational (Op)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes of the *HuntGroupMember* component. |

### ATTRIBUTE FrNni Dna HgM availabilityDelta (ad)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the net change in the available aggregate CIR since the last Availability Message Packet (AMP) was sent to the Hunt Group. Once the absolute value of this attribute reaches the *availabilityUpdateThreshold* an AMP is sent to the hunt group server(s) and the *availabilityDelta* is re-computed. |
| Values | Signed (-16777216..16777215) |
| Units | bit/s |
| Default | No default |

### ATTRIBUTE FrNni Dna HgM availableDlcis (adl)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of DLCIs available for SVCs on the interface associated with this DNA. If this value reaches 0, an AMP with zero availability is sent to the hunt group server(s). Both this attribute and the *availableAggregateCir* attribute must be non zero for this DNA to receive calls on the hunt group. |
| Values | Decimal (0..4096) |
| Default | No default |

### ATTRIBUTE FrNni Dna HgM maximumAvailableAggregateCir (mcir)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the maximum available bandwidth for this hunt group member. This value represents the total sum of the sixteen egress bandwidth pools. It is the sum of the sixteen indices of the *FrNni Ca egressBandwidthPool* attribute multiplied by the link speed. |
| Values | Long Integer |
| Units | bit/s |
| Default | No default |

### ATTRIBUTE FrNni Dna HgM availableAggregateCir (acir)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the current total available bandwidth reported to the hunt group server in the Availability Message Packet (AMP). This value represents the sum of the sixteen currently available egress bandwidth pools. It is the sum of the sixteen indices of the *FrNni Ca egressPoolAvailableBandwidth* attribute.<br>It increments when a connection is released.<br>It decrements when a connection is accepted.<br>Both this attribute and the *availableDlcis* attribute must be non zero for this interface to receive calls on a hunt group. |
| Values | Long Integer |
| Units | bit/s |
| Default | No default |

## COMPONENT FrNni Dna HgM HuntGroupAddress (HgAddr)

| | |
|---|---|
| Instance | Decimal (0..63) |
| Groups | "GROUP FrNni Dna HgM HgAddr Address (Addr)" |
| Scope | Application |
| Description | *FrNni/n Dna HgM HuntGroupAddress/n*<br>This component specifies a hunt group address to which this member belongs. A hunt group member belongs to at least one hunt group. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP FrNni Dna HgM HgAddr Address (Addr)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains attributes common to all DNAs. Every DNA used in the network is defined with this group of 2 attributes. |

### ATTRIBUTE FrNni Dna HgM HgAddr numberingPlanIndicator (npi)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates the Numbering Plan Indicator (NPI) of the *DNA*. The address may belong to X.121 or E.164 plans. |
| Values | x121<br>e164 |
| Default | x121 |

### ATTRIBUTE FrNni Dna HgM HgAddr dataNetworkAddress (dna)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute contains digits which form the unique identifier of the customer interface. It can be compared (approximation only) to a telephone number where the phone number identifies a unique telephone set. *DNA* digits are selected and assigned by network operators. |
| Values | BCD (1..15) |
| Default | No default |

### COMPONENT FrNni Framer

| | |
|---|---|
| Groups | "GROUP FrNni Framer Provisioned (Prov)"<br>"GROUP FrNni Framer LinkOptions (Link)"<br>"GROUP FrNni Framer OsiState (State)"<br>"GROUP FrNni Framer Statistics (Stats)"<br>"GROUP FrNni Framer LinkUtilization (Util)" |

"COLLECTED STATS FrameRelayNni Framer"

| | |
|---|---|
| Scope | Application |
| Description | *FrUni/n Framer*<br>*FrNni/n Framer*<br>*FrAtm/n Framer*<br>This component controls link layer framing for application components sending and receiving data on a link interface. It is also through *Framer*, that an application component is associated with a specific hardware link interface. |

The *Framer* component provides provisionable attributes related to datapath aspects of the hardware interface (such as crc and frame length) rather than interface specific attributes (such as modem leads and clocking) which are associated with specific hardware components (such as *V35/n* or *DS1/n*). The *Framer* component also provides a provisionable attribute which binds the application component to a specific hardware component.

The *Framer* component contains operational attributes for link interface datapath statistics (such as frame counts and aborts).

Common Verbs

Help
List
Display
Add
DELete

## GROUP FrNni Framer Provisioned (Prov)

Properties: Provisioned

Description: This group contains the base provisioning data for the *Framer* component. Application or hardware interface specific provisioning data is contained in other provisionable *Framer* groups.

## ATTRIBUTE FrNni Framer interfaceName

Access: Read and write

Criticality: Process

Description: This attribute contains a hardware component name.

The attribute associates the application with a specific link. This defines the module processor on which *Framer*'s parent component (as well as *Framer* itself) will run.

Values: Link (Hardware, applicationFramerName)

Default: No default

## GROUP FrNni Framer LinkOptions (Link)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains attributes defining the framing of data on the link interface. |

## ATTRIBUTE FrNni Framer dataInversion

| | |
|---|---|
| Access | Read and write |
| Description | This attribute determines whether data bits are to be inverted (1 to 0 and 0 to 1) before transmission of frames to the interface. If the value of this attribute is On, the incoming data bits will also be inverted when frames are received from the link before being processed.<br><br>This option is typically used in ***hdlc*** framing mode when inversion is used to guarantee 1's density.<br><br>Note that aborts (in ***hdlc*** and ***interrupting*** modes) are corrupted when data is inverted.<br><br>This attribute may only take its default value for non-MSA cards. |
| Values | off<br>on |
| Default | off |

## ATTRIBUTE FrNni Framer frameCrcType

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the type of CRC used.<br><br>The CRC value calculated is appended to the end of the frames transmitted to the link. The CRC value is removed from the end of frames received from the link and checked for correctness. NoCrc means that CRC is not used.<br><br>This attribute may take only its default value for non-MSA cards. |

| | |
|---|---|
| Values | crc16<br>crc32<br>noCrc |
| Default | crc16 |

### ATTRIBUTE FrNni Framer flagsBetweenFrames

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the number of flags that are inserted between frames sent to the link interface. The flagBetweenFrames can be set to only 1, 2, 4, 8 or 16 for 4pDS3Ch FrameRelay FP. |
| Values | Decimal (1..16) |
| Default | 1 |

### GROUP FrNni Framer OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE FrNni Framer adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it |

is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE FrNni Framer operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE FrNni Framer usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

| | |
|---|---|
| | The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP FrNni Framer Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational statistics data for a Framer component. |

### ATTRIBUTE FrNni Framer aborts

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of aborts received. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrNni Framer crcErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of frames with CRC errors, occurring in the receive direction from the link. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrNni Framer lrcErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of frames with LRC errors, occurring in the Tx link prior to transmission onto the link. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE FrNni Framer nonOctetErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of frames that were non octet aligned. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrNni Framer overruns

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of frames received from the link for which overruns occurred. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrNni Framer underruns

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of frames transmitted to the link for which underruns occurred. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrNni Framer largeFrmErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of frames received which were too large. The frame exceeded the *maximumFrameLengthLimit* provisioned attribute or it contained more than the 255 block hardware limit. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrNni Framer frmModeErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of frames detected with framing mode errors. A *framingModeError* is flagged when frames are inconsistent with the specified *framingType*, that is when interrupting frames are used while running in hdlc mode. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrNni Framer frmToIf

| | |
|---|---|
| Access | Read only |
| Description | The number of frames transmitted to the link interface by Framer.<br><br>Note: This does not include the number of frames transmitted directly to the hardware queue, thus bypassing the Framer component. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE FrNni Framer frmFromIf

| | |
|---|---|
| Access | Read only |
| Description | The number of frames received from the link interface by Framer. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE FrNni Framer octetFromIf

| | |
|---|---|
| Access | Read only |
| Description | The number of bytes received from the link interface by Framer. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE FrNni Framer ingressFrameDiscards

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of frames discarded at ingress PQC. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### GROUP FrNni Framer LinkUtilization (Util)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the link utilization operational data for a Framer component. |

### ATTRIBUTE FrNni Framer normPrioLinkUtilToIf

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the utilization of the normal and high priority data traffic (interruptible traffic) sent to the link as a percentage of the available bandwidth on the link. Note that this includes traffic with Transfer Priorities (TP) of 0, 6 and 9 and/or Emission Priority of 2 and 3. The utilization is the average for the last minute. |
| Values | Decimal (0..100) |
| Units | % |
| Default | 0 |

### ATTRIBUTE FrNni Framer normPrioLinkUtilFromIf

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the utilization of the normal and high priority data traffic (interruptible traffic) received from the link as a percentage of the available bandwidth on the link. Note that this includes traffic with Transfer Priorities (TP) of 0, 6 and 9 and/or Emission Priority of 2 and 3. The utilization is the average for the last minute. |

| | |
|---|---|
| Values | Decimal (0..100) |
| Units | % |
| Default | 0 |

## COLLECTED STATS FrameRelayNni Framer

| | |
|---|---|
| Description | The statistics record generated by the FrameRelayNni Framer component. |

### ATTRIBUTE FrNni Framer rxBytes

| | |
|---|---|
| Description | This attribute provides the number of bytes received on the link by the Framer in the last collection interval. |
| Values | Long Integer |

### ATTRIBUTE FrNni Framer rxFrames

| | |
|---|---|
| Description | This attribute provides the number of frames received on the link interface by the Framer in the last collection interval. |
| Values | Long Integer |

### ATTRIBUTE FrNni Framer txBytes

| | |
|---|---|
| Description | This attribute provides the number of bytes transmitted to the link by the Framer in the last collection interval. This value could be zero if the application sends the frames directly to the link. |
| Values | Long Integer |

### ATTRIBUTE FrNni Framer txFrames

| | |
|---|---|
| Description | This attribute provides the number of frames transmitted to the link interface by the Framer in the last collection interval. This value could be zero if the application sends the frames directly to the link. |
| Values | Long Integer |

### ATTRIBUTE FrNni Framer rxTotalLinkUtil

| | |
|---|---|
| Description | This attribute provides the average total link utilization computed based on the total number of bytes received on the link in the last collection interval. |
| Values | Decimal (0..100) |

### COMPONENT FrNni LocalManagementInterface (Lmi)

| | |
|---|---|
| Groups | "GROUP FrNni Lmi ProtocolParameters (Parms)"<br>"GROUP FrNni Lmi NniProtocolParameters (NniParms)"<br>"GROUP FrNni Lmi OsiState (State)"<br>"GROUP FrNni Lmi ProtocolStatusInfo (Psi)"<br>"GROUP FrNni Lmi Statistics (Stats)" |
| Scope | Application |
| Description | *FrNni/n LocalManagementInterface*<br>This component defines the parameters for implementing the Frame Relay NNI Local Management Interface protocol. This differs from its UNI counterpart in that bi-directional LMI procedures are supported and protocols other than ANSI and CCITT are not supported. |
| Common Verbs | Help<br>List<br>Display |

### GROUP FrNni Lmi ProtocolParameters (Parms)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes of the Local Management Interface component. |

### ATTRIBUTE FrNni Lmi procedures (proc)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute selects the procedures to be used for the Local Management Interface. The following are the supported |

procedures:

***none***: Local Management Interface procedures are not running on this interface. This accommodates Frame Relay user equipment which didn't implement any LMI procedures. In this case, the remaining attributes of this group are ignored.

For the ***4pDS3Ch*** card, when the *timeslot* of the *channel* component linked to this *FrNni* is set to ***none***, only ***none*** is permitted for the *procedures* attribute of this *Lmi* component.

***ansi***: Local Management Interface procedures from the ANSI specification are supported. *DLCI 0* is used for the LMI protocol.

***itu***: Local Management Interface procedures from the ITU-T specification are supported. *DLCI 0* is used for the LMI protocol. Was previously ***ccitt***.

***autoConfigure***:The interface determines automatically which Local Management Interface procedures to use.

The procedures currently being used can be seen in the operational attribute *opProcedures*.

Values
none
ansi
itu (ccitt)
autoConfigure

Default
autoConfigure

## ATTRIBUTE FrNni Lmi asyncStatusReport (asr)

Access
Read and write

Description
This attribute selects the use of asynchronous PVC status report procedures as specified in ANSI and CCITT specification.

Values
off
on

Default
off

### ATTRIBUTE FrNni Lmi errorEventThreshold (n392)

| | |
|---|---|
| Access | Read and write |
| Description | For the network-side-procedure, an event is defined as follows: (1) receipt of a STATUS ENQUIRY message, or (2) expiration of timer T392. An error event is (1) nonreceipt of STATUS ENQUIRY in T392 seconds; (2) invalid format of a LMI message; (3) invalid receive sequence number.<br>For the user-side-procedure, an event is defined as a polling cycle or a status enquiry and status report exchange. An error event is (1) non-receipt of a STATUS within the polling cycle, or (2) invalid format of a LMI message, or (3) invalid sequence number<br>This attribute specifies the number of error events which, if they occur within *eventCount* events, will cause a protocol error condition. The condition is cleared after *eventCount* sequential correct events occur.<br><br>It must be less than or equal to *eventCount* (n393) |
| Values | Decimal (1..10) |
| Default | 3 |

### ATTRIBUTE FrNni Lmi eventCount (n393)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the number of contiguous events within which no more than *eventErrorThreshold* error events are allowed.<br><br>It must be greater than or equal to *errorEventThreshold* (n392). |
| Values | Decimal (1..10) |
| Default | 4 |

### ATTRIBUTE FrNni Lmi checkPointTimer (t392)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute selects the time (in seconds) within which a STATUS ENQUIRY message is expected. It must be greater than *linkVerificationTimer (t391).* |

| | |
|---|---|
| Values | Decimal (1; 2; 3; 4; 5; 10; 15; 20; 25; 30) |
| Units | seconds |
| Default | 15 |

### ATTRIBUTE FrNni Lmi ignoreActiveBit (inab)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies whether the Frame Relay LMI Active Bit (A-bit) has a bearing on the transfer of user data across this Frame Relay interface for both directions of traffic flow.<br><br>When this attribute is set to ***yes***, the A-bit status of a user DLCI connection does not affect data transfer.<br><br>When this attribute is set to ***no,*** data received from the local interface is discarded if an A-bit =0 condition exists towards the local user. Data being sent to the local interface is discarded if an A-bit = 0 condition exists towards the local user. |
| Values | no<br>yes |
| Default | no |

### ATTRIBUTE FrNni Lmi pvcAlarmsReporting (pvcAlarms)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies if alarms are generated when PVCs change state in the local network, an adjacent network or in remote networks.<br><br>When the value is ***internal***, PVCs operational status change in the local network are reported in alarms. When the value is ***external***, PVCs operational status change in an adjacent or remote networks are reported in alarms. When the value is ***both***, PVCs status change in local and adjacent or remote networks are reported in alarms. When the value is ***none***, no alarms are issued |

for PVCs status change.

There are four kinds of alarms controlled by the attribute.
Alarm 7007 200x reports PVCs that have lost connectivity in an adjacent or remote networks.
Alarm 7007 201x reports PVCs that have reached the data transfer state in an adjacent or remote networks.
Alarm 7007 202x reports PVCs that have lost connectivity in the local network.
Alarm 7007 203x reports PVCs that have reached the data transfer state in the local network.

Each alarm can report a maximum of 112 DLCIs. Up to nine alarms of the same kind may be required to report all PVCs that have changed state if all these PVCs have experienced the same condition at the *FrNni* interface.

Values
external
internal
both
none

Default
external

## GROUP FrNni Lmi NniProtocolParameters (NniParms)

Properties
Provisioned

Description
This group contains the provisionable attributes of the Local Management Interface component which are unique to NNI.

## ATTRIBUTE FrNni Lmi fullStatusPollingCycles (n391)

Access
Read and write

Description
This attribute specifies how frequently the Frame Relay NNI service should initiate a Status Enquiry for a full PVC status report. A polling cycle is a Status Enquiry and Status Report exchange.

Values
Decimal (1..255)

Default
6

### ATTRIBUTE FrNni Lmi linkVerificationTimer (t391)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies how frequently the Frame Relay NNI service should initiate a Status Enquiry for link integrity verification. It must be less than *checkPointTimer (t392)*. |
| Values | Decimal (1; 2; 3; 4; 5; 10; 15; 20; 25; 30) |
| Units | seconds |
| Default | 10 |

### GROUP FrNni Lmi OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE FrNni Lmi adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is |

| | |
|---|---|
| | administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE FrNni Lmi operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE FrNni Lmi usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |

| | |
|---|---|
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

## GROUP FrNni Lmi ProtocolStatusInfo (Psi)

| | |
|---|---|
| Properties | Operational |
| Description | This group provides the protocol status of the Local Management Interface. |

## ATTRIBUTE FrNni Lmi protocolStatus

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether the LMI is in an error condition or whether the LMI procedures are behaving normally. When operating with no LMI protocol, this attribute is always set to ***normalCondition***. When operating with LMI procedures, this attribute is set to ***errorCondition*** after n392 of the last n393 events are in error. The consequence of an ***errorCondition*** is that all DLCIs on this interface will become inactive in both directions. The ***errorCondition*** is lifted and a ***normalCondition*** is indicated when a sufficient number of events have occurred without error. In ANSI, this occurs when n393 consecutive good events take place.<br><br>If the *procedures* attribute is set to ***autoConfigure***, this attribute is se to ***configuring*** while adaptive LMI determines which LMI procedures are running on the link. A single LMI error event during auto configuration causes the attribute value to change to ***errorCondition***. If during ***configuring*** no LMI message is received, an LMI ***errorCondition*** is raised after n392 x t392 seconds. |
| Values | errorCondition<br>normalCondition<br>configuring |
| Default | No default |

### ATTRIBUTE FrNni Lmi opProcedures (opproc)

| | |
|---|---|
| Access | Read only |
| Criticality | Process |
| Description | This attribute indicates the procedures being used for the Local Management Interface. This attribute should be ignored if *protocolStatus* is not ***normalCondition***. The following procedures are supported:<br><br>***none***: Local Management Interface procedures are not running on this interface. This accommodates Frame Relay user equipment that has not implemented any LMI procedures.<br><br>***ansi***: Local Management Interface procedures from the ANSI specification are running. *DLCI 0* is used for the LMI protocol.<br><br>***itu***: Local Management Interface procedures from the ITU-T specification are running. *DLCI 0* is used for the LMI protocol. Was previously ***ccitt***.<br><br>***unknown***: Local Management Interface procedures have yet to be determined by Adaptive LMI. |
| Values | none<br>ansi<br>itu<br>unknown |
| Default | No default |

### GROUP FrNni Lmi Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational statistics for the Frame Relay NNI Local Management Interface. |

### ATTRIBUTE FrNni Lmi keepAliveStatusToIf (kasti)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the number of Local Management Interface keep alive status messages sent to the external network in response to a status enquiry for keep alive status. When the maximum count is exceeded it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrNni Lmi fullStatusToIf (fsti)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of Local Management Interface full status messages sent to the external network in response to a status enquiry for keep alive or full status. When the maximum count is exceeded it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrNni Lmi keepAliveStatusEnqFromIf (kafi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of Local Management Interface valid keep alive status enquiry messages received from the external network. When the maximum count is exceeded it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrNni Lmi fullStatusEnqFromIf (fsfi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of Local Management Interface valid full status enquiry messages received from the external network. When the maximum count is exceeded it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrNni Lmi networkSideEventHistory (nsh)

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the Local Management Interface network side procedure event history in order of occurrence. An event is represented by a single symbol. A '+' symbol indicates a good event. An 'X' symbol indicates a protocol error event. The leftmost event is the most recent to occur. The provisioned *eventCount* (nN3/N393) dictates the maximum number of events displayed. A good event is triggered by receipt of a valid status enquiry message. An error event is either a nT2/T392 timer expiry or receipt of a status enquiry with bad sequence numbers. |
| Values | String (1..10, ASCII) |
| Default | No default |

### ATTRIBUTE FrNni Lmi userSideEventHistory (ush)

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the Local Management Interface user side procedure event history in order of occurrence. An event is represented by a single symbol. A '+' symbol indicates a good event. An 'X' symbol indicates a protocol error event. The leftmost event is the most recent to occur. The provisioned *eventCount* (nN3/N393) dictates the maximum number of events displayed. A good event is triggered by receipt of a valid status message. An error event is either a nT1/T391 timer expiry or receipt of a status message with bad sequence numbers. |
| Values | String (1..10, ASCII) |
| Default | No default |

### ATTRIBUTE FrNni Lmi protocolErrors (proto)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of Local Management Interface protocol errors. It is the sum of the sequence (*sequenceErrors* and *statusSequenceErrors*) and timeout (*pollingVerifTimeouts* and *noStatusReportCount*) errors. When the maximum count is exceeded it wraps to zero. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrNni Lmi unexpectedIes (uie)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of Local Management Interface frames received with an Information Element identifier that is unknown or unexpected. An unexpected Information Element is not a protocol error. When the maximum count is exceeded, this counter wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrNni Lmi sequenceErrors (seq)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of Local Management Interface Status Enquiry message sequence errors. A sequence error is receipt of a Status Enquiry message with a receive sequence number not equal to the last send sequence number. When the maximum count is exceeded the counter wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrNni Lmi statusSequenceErrors (stseq)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of Local Management Interface Status message sequence errors. A sequence error is receipt of a Status message with a receive sequence number not equal to the last send sequence number. When the maximum count is exceeded the counter wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrNni Lmi unexpectedReports (ur)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of Local Management Interface frames received with an unknown or unexpected report type. An unexpected report type is not a protocol error. When the maximum count is exceeded the counter wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrNni Lmi pollingVerifTimeouts (tmo)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of checkPointTImer (t392) timer expiries occurring on the Local Management Interface. When the maximum count is exceeded the counter wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrNni Lmi noStatusReportCount (nsrc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times when no status report or an invalid status report comes from the external network. This attribute is incremented in two cases:<br>i) after a status enquiry is sent out and T391 timer expires without having a status report received.<br>ii) an invalid status report is received.<br><br>When the maximum count is exceeded it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT FrNni DataLinkConnectionIdentifier (Dlci)

| | |
|---|---|
| Instance | Decimal (16..1007) |

| | |
|---|---|
| Groups | "GROUP FrNni Dlci OsiState (State)"<br>"GROUP FrNni Dlci ABitStatus (Abit)"<br>"GROUP FrNni Dlci ServiceParametersOp (SpOp)"<br>"GROUP FrNni Dlci Statistics (Stats)"<br>"GROUP FrNni Dlci IntervalData (Int)"<br>"GROUP FrNni Dlci CallData (Calld)" |
| Scope | Application |
| Description | *FrNni/n DataLinkConnectionIdentifier/n*<br>This component represents a Data Link Connection Identifier. It is responsible for the Frame Relay U-plane (User-plane) protocol for the specified instance. There can be many instances of *Dlci* for each *FrNni*. The instance value is used to identify the logical connection, multiplexed within the physical channel, with which a frame is associated. All frames carried within a particular physical channel and having the same DLCI value are associated with the same logical connection.<br><br>A DLCI instance can be a permanent virtual circuit (PVC) or switched permanent virtual circuit (P-SPVC) added through provisioning, or a switched virtual circuit (SVC) or S-SPVC which is created dynamically through signaling.<br><br>The *lock* and *unlock* commands apply to permanent DLCIs. The *clear* command applies to switched DLCIs.<br><br>For the ***4pDS3Ch*** card, when the *timeslot* of the *channel* component linked to this *FrNni* is set to ***none***, no *Dlci* component is allowed under this *FrNni*. |

| | |
|---|---|
| Subcomponents | "COMPONENT FrNni Dlci ServiceParametersProv (Sp)"<br>"COMPONENT FrNni Dlci EgressServiceParameters (EgressSp)" |
| Opt. Subcomp. | "COMPONENT FrNni Dlci DirectCall (Dc)"<br>"COMPONENT FrNni Dlci BnxInterworkingFunction (BnxIwf)" |
| Dyn. Subcomp. | "COMPONENT FrNni Dlci Vc"<br>"COMPONENT FrNni Dlci LoopBack (Lb)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## VERB CLEAR FrNni Dlci

| | |
|---|---|
| Impact | Service |
| Description | This command is used to clear a Frame Relay switched (SVC or S-SPVC) connection. |

## GROUP FrNni Dlci OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

## ATTRIBUTE FrNni Dlci adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |

Description

This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values

locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default

unlocked

### ATTRIBUTE FrNni Dlci operationalState (osiOper)

Access

Read only

Description

This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE FrNni Dlci usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
idle
active (activ)
busy

Default
idle

### ATTRIBUTE FrNni Dlci availabilityStatus (osiAvail)

Access
Read only

Description
If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.

The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.

The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.

The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.

The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

### ATTRIBUTE FrNni Dlci proceduralStatus (osiProc)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.

The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***initializing*** indicates that initialization has been

initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

## ATTRIBUTE FrNni Dlci controlStatus (osiCntrl)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is

administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

Set of: subjectToTest (subTst)
partOfServicesLocked (partLk)
reservedForTest (rsrvd)
suspended (suspnd)

Default: No default

### ATTRIBUTE FrNni Dlci alarmStatus (osiAlarm)

Access: Read only

Description: If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or

***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

## ATTRIBUTE FrNni Dlci standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values

hotStandby (hot)
coldStandby (cold)

providingService (serv)
notSet (nSet)

Default notSet

### ATTRIBUTE FrNni Dlci unknownStatus (osiUnknw)

Access Read only

Description This attribute indicates the OSI Unknown status of the component.

The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.

The value ***true*** indicates that the actual state of the component is not known for sure.

Values false
true

Default false

### GROUP FrNni Dlci ABitStatus (Abit)

Properties Operational

Description This group contains the A-Bit status information for this Data Link Connection Identifier.

### ATTRIBUTE FrNni Dlci aBitStatusToIf (abti)

Access Read only

Description This attribute is the most recent A-bit status sent to the interface. The A-bit status is part of the LMI protocol, and indicates willingness to accept data from the local interface.

***inactive*** - the Frame Relay service discards all data offered from the local interface.

***active*** - the Frame Relay service tries to process all data offered from the local interface.

***notApplicable*** - the DLCI is switched, so this attribute is ignored.

| | |
|---|---|
| Values | inactive<br>active<br>notApplicable |
| Default | inactive |

### ATTRIBUTE FrNni Dlci aBitReasonToIf (abrti)

| | |
|---|---|
| Access | Read only |
| Description | This attribute provides the reason (if any) for an ***inactive*** status to be sent to the interface. This reason is ***notApplicable*** for an ***active*** status. |
| Values | notApplicable<br>remoteUserSignaled<br>localLmiError<br>remoteLmiError<br>localLinkDown<br>remoteLinkDown<br>pvcSpvcDown<br>userNotAuthorized<br>resourceNotAvailable<br>dlciCollisionAtNni |
| Default | notApplicable |

### ATTRIBUTE FrNni Dlci aBitStatusFromIf (abfi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the most recent A-Bit status received from the interface.<br><br>***inactive*** - the Frame Relay service informs the remote DLCI not to send user data to this interface.<br><br>***active*** - the Frame Relay service informs the remote DLCI that it is okay to send user data to this interface.<br><br>***notApplicable*** - the DLCI is switched, so this attribute is ignored. |

| | |
|---|---|
| Values | inactive<br>active<br>notApplicable |
| Default | inactive |

### ATTRIBUTE FrNni Dlci aBitReasonFromIf (abrfi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute provides the reason (if any) for an ***inactive*** status to be sent to the subnet. This reason is ***notApplicable*** for an ***active*** status. |
| Values | notApplicable<br>remoteUserSignaled<br>localLmiError<br>localLinkDown<br>missingFromLmiReport |
| Default | notApplicable |

### ATTRIBUTE FrNni Dlci loopbackState

| | |
|---|---|
| Access | Read only |
| Description | This attribute has the value ***on*** when the DLCI is in loopback mode and ***off*** otherwise. The loopback command verbs *start* and *stop* are used to initiate and terminate the loopback mode for a DLCI. While *loopbackState* is ***on***, the local LMI will report to the interface the A-bit status as active. Also an active A-bit signal will be reliably propagated across the subnet to the remote DLCI. |
| Values | off<br>on |
| Default | off |

### GROUP FrNni Dlci ServiceParametersOp (SpOp)

| | |
|---|---|
| Properties | Operational |
| Description | This group defines the service and traffic parameters specific to this instance of DLCI. In the case of permanent (PVC and P-SPVC) DLCIs, the values of attributes with the exception of the |

*measurementInterval* reflect the provisioning under the *FrNni Dlci Sp* component. In the case of switched (SVC and S-SPVC) DLCIs, the values of attributes reflect the service parameter negotiations between what is provisioned under the *FrNni Sig* component and the signaled parameters.

### ATTRIBUTE FrNni Dlci maximumFrameSize (n203)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the maximum number of octets which may be included in the information field. The frame relay header and CRC octets are not included in this definition. This attribute corresponds to the dN1 parameter described in the Vendor Forum Specification. |
| Values | Decimal (1..8187) |
| Units | octets |
| Default | No default |

### ATTRIBUTE FrNni Dlci committedInformationRate (cir)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the committed information rate (CIR) in bits per second (bit/s). When *rateEnforcement* is set to ***on***, *cir* is the rate at which the network agrees to transfer information under normal conditions. This rate is measured over a measurement interval (*t*) that is determined internally based on CIR and the committed burst size (Bc). An exception to this occurs when CIR is provisioned to be zero, in which case the measurement interval (*t*) must be provisioned explicitly.<br><br>This attribute should be ignored when *rateEnforcement* is ***off***. |
| Values | Decimal (0..2048000) |
| Units | bit/s |
| Default | No default |

### ATTRIBUTE FrNni Dlci committedBurstSize (bc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the committed burst size (Bc) in bits. *bc* is the amount of data that a network agrees to transfer under normal conditions over a measurement interval (*t*). Data marked DE=1 is not accounted for in Bc.<br><br>This attribute should be ignored when *rateEnforcement* is ***off***. |
| Values | Decimal (0..2048000) |
| Units | bits |
| Default | No default |

### ATTRIBUTE FrNni Dlci excessBurstSize (be)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the excess burst size (Be) in bits. Be is the amount of uncommitted data that the network will attempt to deliver over measurement interval T. Data marked DE=1 by the user or by the network is accounted for here.<br><br>This attribute should be ignored when *rateEnforcement* is ***off***. |
| Values | Decimal (0..2048000) |
| Units | bits |
| Default | No default |

### ATTRIBUTE FrNni Dlci measurementInterval (t)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the time interval (in milliseconds) over which rates and burst sizes are measured.<br><br>This attribute should be ignored when *rateEnforcement* is ***off***. |
| Values | Decimal (0..4294967295) |
| Units | msec |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE FrNni Dlci accounting (ac)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether accounting data collection and record generation is turned on at this DLCI. For accounting data collection and record generation to be turned on, the ***accountingOn*** bit and at least one of the ***accountCollection*** bits in the ***DataNetworkAddress*** component must be set to on. |
| Values | off<br>on |
| Default | No default |

### ATTRIBUTE FrNni Dlci emissionPriorityToIf (epToIf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the emission priority of frames sent to the interface. A larger value denotes a higher priority. |
| Values | Decimal (0; 1; 2; 3) |
| Default | No default |

### ATTRIBUTE FrNni Dlci transferPriorityToNetwork (tpToNwk)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the priority at which data is transferred to the network.<br><br>The transfer priority is a preference configured for an application according to its delay-sensitivity requirement. Frames with higher transfer priority are served by the network before the frames with lower priority. The transfer priority standard is defined to have 16 indices from 0 to 15.<br><br>Each transfer priority n, where n specifies the transfer priority index, contains a default setting for routing class of service (***multimedia***, ***delay***, or ***throughput***) and frame relay egress queue |

(depending on the number of supported egress queues on the remote end interface) specified by the *routingClassOfServic*e and *emissionPriority* attributes provisioned in the *Mod Frs DprsNet Tpm/n* component. The default mapping can be altered by a user if required.

Values Decimal (0..15)

Default No default

### ATTRIBUTE FrNni Dlci transferPriorityFromNetwork (tpFromNwk)

Access Read only

Description This attribute indicates the priority at which data is transferred from
the network.

The transfer priority is a preference configured for an application according to its delay-sensitivity requirement. Frames with higher transfer priority are served by the network before the frames with lower priority. The transfer priority standard is defined to have 16 indices from 0 to 15.

Each transfer priority n, where n specifies the transfer priority index, contains a default setting for routing class of service (***multimedia***, ***delay***, or ***throughput***) and frame relay egress queue (depending on the number of supported egress queues on the remote end interface) specified by the *routingClassOfServic*e and *emissionPriority* attributes provisioned in the *Mod Frs DprsNet Tpm/n* component. The default mapping can be altered by a user if required.

Values Decimal (0..15)

Default No default

### ATTRIBUTE FrNni Dlci correlationTag (ctag)

Access Read only

| | |
|---|---|
| Description | This attribute indicates the unique string which identifies this connection. The value of this attribute is provisioned under the *correlationTag* attribute under *Service Parameters* subcomponent. If required for correlation purposes, the attribute is provisioned with the same value at both endpoints of the connection.<br><br>An empty string value for this attribute indicates that the user either does not want to use the correlation tag functionality, or wants the correlation tag string to be an empty string.<br><br>This attribute can be used for off-switch data correlation purposes. Downstream processing uses this attribute to correlate data records (accounting etc.) issued at different nodes in the network. In accounting, the value of this attribute appears as the *circuitId* (circuit identifier) for the endpoint.<br><br>There is no system-generated value for the correlationTag. Therefore, this attribute does not appear for SVC DLCIs. |
| Values | String (0..32, ASCII) |
| Default | "" |

### GROUP FrNni Dlci Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational statistics for the Frame Relay Data Link Connection Identifier.<br><br>When the DLCI is in local loopback mode, the DLCI statistics do not increment. |

### ATTRIBUTE FrNni Dlci frmToIf (fti)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames sent out the interface. When the maximum count is reached the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrNni Dlci fecnFrmToIf (fecnti)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames sent to the interface with the Forward Explicit Congestion Notification (FECN) bit set. When the count reaches maximum it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrNni Dlci becnFrmToIf (becnti)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames sent to the interface with the Backward Explicit Congestion Notification (BECN) bit set. When the count reaches maximum it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrNni Dlci bciToSubnet (bcits)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames sent into the local network with the Backward Congestion Indication (BCI) bit set. When the count reaches maximum it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrNni Dlci deFrmToIf (deti)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames sent to the interface with the Discard Eligibility (DE) bit set. When the count reaches maximum it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrNni Dlci discCongestedToIf (discardcti)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frame discards at the Frame Relay service due to local congestion in the direction toward the interface. When this count reaches maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrNni Dlci discDeCongestedToIf (discarddecti)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of discarded frames, with the Discard Eligibility (DE) bit set, at the Frame Relay service, due to local congestion in the direction toward the interface. When this count reaches maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrNni Dlci frmFromIf (ffi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received from the interface. It includes the frames that are discarded due to error or excess. When the maximum count is reached the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrNni Dlci fecnFrmFromIf (fecnfi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received from the interface with the Forward Explicit Congestion Notification (FECN) bit set. When the count reaches maximum it wraps to zero. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE FrNni Dlci becnFrmFromIf (becnfi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received from the interface with the Backward Explicit Congestion Notification (BECN) bit set. When the count reaches maximum it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrNni Dlci fciFromSubnet (fcifs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received from the network with the Forward Congestion Indication (FCI) bit set. When the count reaches maximum it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrNni Dlci bciFromSubnet (bcifsb)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received from the network with the Backward Congestion Indication (BCI) bit set. When the count reaches maximum it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrNni Dlci deFrmFromIf (defi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received from the interface with the Discard Eligibility (DE) bit set. When the count reaches maximum it wraps to zero. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE FrNni Dlci excessFrmFromIf (excess)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received from the interface with the Discard Eligibility (DE) bit clear, but subsequently set by the network due to rate enforcement. When the count reaches maximum it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrNni Dlci discExcessFromIf (discardefi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames which were discarded due to rate enforcement. When the count reaches maximum it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrNni Dlci discFrameAbit (discfab)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frame discards at the Frame Relay Service, due to an inactive PVC status, in the direction toward the local network. When this count reaches maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrNni Dlci discCongestedFromIf (discardcfi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frame discards at the Frame Relay service due to local congestion in the direction toward the network. When this count reaches maximum, it wraps to zero. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrNni Dlci discDeCongestedFromIf (discarddecfi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of discarded frames, with the Discard Eligibility (DE) bit set, at the Frame Relay service, due to local congestion, in the direction toward the local network. When this count reaches maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrNni Dlci errorShortFrmFromIf (shortfi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received with 0 octets in the information field. When the count reaches maximum it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrNni Dlci errorLongFrmFromIf (longfi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received with number of octets in the information field greater than the subscribed maximum. When the count reaches maximum it wraps to zero. Frames whose lengths are greater than the hardware receive buffer are ignored by the hardware and are therefore not included in this count. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrNni Dlci becnFrmSetByService (becnset)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the number of frames with BECN set by the Frame Relay service. It is incremented whenever the Frame Relay service sets BECN on a frame upon detecting local congestion. This count is incremented regardless of whether the frame already bears a set BECN bit since its use is to determine the place of congestion. When the count reaches maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrNni Dlci bytesToIf (bti)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes sent out the interface. When the maximum count is reached the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrNni Dlci deBytesToIf (debti)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes sent to the interface with the Discard Eligibility (DE) bit set. When the count reaches maximum it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrNni Dlci discCongestedToIfBytes (discardctib)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of byte discards at the Frame Relay service due to local congestion in the direction toward the link. When this count reaches maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrNni Dlci discDeCongestedToIfBytes (discarddectib)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of discard eligible (DE=1) byte discards at the Frame Relay service due to local congestion in the direction toward the link. When the maximum count is reached the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrNni Dlci bytesFromIf (bfi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes received from the interface. Bytes that are discarded due to error or excess are not counted. When the maximum count is reached the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrNni Dlci deBytesFromIf (debi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes received from the interface with the Discard Eligibility (DE) bit set. When the count reaches maximum it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrNni Dlci excessBytesFromIf (excessb)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes received from the interface with the Discard Eligibility (DE) bit clear, but subsequently set by the network due to rate enforcement. When the count reaches maximum it wraps to zero. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE FrNni Dlci discExcessFromIfBytes (discardebi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes which were discarded due to rate enforcement. When the count reaches maximum it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrNni Dlci discByteAbit (discbab)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes which were discarded due to aBit turned off. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrNni Dlci discCongestedFromIfBytes (discardcbib)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of byte discards at the Frame Relay service due to local congestion in the direction toward the network. When this count reaches maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrNni Dlci discDeCongestedFromIfBytes (discarddecbib)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of discard eligible (DE=1) byte discards at the Frame Relay service due to local congestion in the direction toward the network. When the maximum count is reached the count wraps to zero. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE FrNni Dlci errorShortBytesFromIf (shortbi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes received with 0 octets in the information field. When the count reaches maximum it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrNni Dlci errorLongBytesFromIf (longbi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes received with number of octets in the information field greater than the subscribed maximum. When the count reaches maximum it wraps to zero. Bytes whose lengths are greater than the hardware receive buffer are ignored by the hardware and are therefore not included in this count. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrNni Dlci rateAdaptReduct (rar)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of rate reductions due to rate adaptation. Rate adaptation causes the allowed rate to be reduced in steps. After each reduction, a period of time is awaited before further action is taken. At the end of this period, the allowed rate is further reduced if congestion is still prevalent. When this count reaches maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrNni Dlci rateAdaptReductPeriod (rarp)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute provides a cumulative count of the amount of time that rate adaptation procedures have been in effect. When this count reaches maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Units | msec |
| Default | 0 |

### ATTRIBUTE FrNni Dlci cirPresent

| | |
|---|---|
| Access | Read only |
| Description | This attribute provides the actual Committed Information Rate (CIR) enforced for this DLCI. This number is in units of 800 bits/sec, since that is the internal resolution of Passport rate enforcement. If *rateEnforcement* is **off**, then this number does not have meaning. Normally, this attribute matches the provisioned CIR for the DLCI. But when Rate Adaptation is active, then this number will vary to represent the actual Allowed CIR at the moment that this attribute is collected. |
| Values | Decimal (0..4294967295) |
| Units | bit/s |
| Default | 0 |

### ATTRIBUTE FrNni Dlci eirPresent

| | |
|---|---|
| Access | Read only |
| Description | This attribute provides the actual Excess Information Rate (EIR) enforced for this DLCI. This number is in units of 800 bits/sec, since that is the internal resolution of Passport rate enforcement. If *rateEnforcement* is **off**, then this number does not have meaning. Normally, this attribute matches the provisioned EIR for the DLCI. But when Rate Adaptation is active, then this number will vary to represent the actual Allowed EIR at the moment that this attribute is collected. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Units | bit/s |
| Default | 0 |

### GROUP FrNni Dlci IntervalData (Int)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational statistics for the Frame Relay Data Link Connection Identifier interval data (accounting data). |

### ATTRIBUTE FrNni Dlci startTime

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the start time of this interval period. If *Vc* spans 12 hour time or time of day change *startTime* reflects new time as recorded at 12 hour periods or time of day changes. A new interval period is started each time an accounting record is generated. |
| Values | Time (DHMS) |
| Default | No default |

### ATTRIBUTE FrNni Dlci totalIngressBytes (tib)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total bytes received from the interface since the start of the interval period. The start of the interval period is captured in the *startTime* attribute. The count is reset to zero when an accounting record is generated. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE FrNni Dlci totalEgressBytes

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total bytes sent to the interface since the start of the interval period. The start of the interval period is |

captured in the *startTime* attribute. The count is reset to zero when an accounting record is generated.

Values Long Integer

Default No default

### ATTRIBUTE FrNni Dlci eirIngressBytes

Access Read only

Description This attribute counts the total bytes with the Discard Eligibility (DE) bit set sent to the subnet since the start of the interval period. The start of the interval period is captured in the *startTime* attribute. The count is reset to zero when an accounting record is generated.

Values Long Integer

Default No default

### ATTRIBUTE FrNni Dlci eirEgressBytes

Access Read only

Description This attribute counts the total bytes with the Discard Eligibility (DE) bit set sent to the interface since the start of the interval period. The start of the interval period is captured in the *startTime* attribute. The count is reset to zero when an accounting record is generated.

Values Long Integer

Default No default

### ATTRIBUTE FrNni Dlci discardedBytes

Access Read only

Description This attribute counts the total bytes in invalid frames received from the interface and discarded at the DLCI since the start of the interval period. This count is a sum of octets in frames discarded due to the number of octets in the information field greater than the subscribed maximum or equal to 0, due to aBit turned off, or due to rate enforcement. The start of the interval period is

captured in the *startTime* attribute. The count is reset to zero when an accounting record is generated.

Values: Long Integer

Default: No default

### ATTRIBUTE FrNni Dlci totalIngressSegFrm

Access: Read only

Description: If the value of the *unitsCounted* attribute in *moduleData* component is ***segments***, this attribute counts the total number of segments in frames received from the interface since the start of the interval period. If the value of the *unitsCounted* attribute in *moduleData* component is ***frames***, this attribute counts the total number of frames received from the interface since the start of the interval period. The start of the interval period is captured in the *startTime* attribute. The count is reset to zero when an accounting record is generated.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE FrNni Dlci totalEgressSegFrm

Access: Read only

Description: If the value of the *unitsCounted* attribute in *moduleData* component is ***segments***, this attribute counts the total number of segments in frames sent to the interface since the start of the interval period. If the value of the *unitsCounted* attribute in *moduleData* component is ***frames***, this attribute counts the total number of frames sent to the interface since the start of the interval period. The start of the interval period is captured in the *startTime* attribute. The count is reset to zero when an accounting record is generated.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE FrNni Dlci eirIngressSegFrm

| | |
|---|---|
| Access | Read only |
| Description | If the value of the *unitsCounted* attribute in *moduleData* component is ***segments***, this attribute counts the number of segments in frames with the Discard Eligibility (DE) bit set sent to the subnet since the start of the interval period. If the value of the *unitsCounted* attribute in *moduleData* component is ***frames***, this attribute counts the number of frames with the Discard Eligibility (DE) bit set sent to the subnet since the start of the interval period. The start of the interval period is captured in the *startTime* attribute. The count is reset to zero when an accounting record is generated. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrNni Dlci eirEgressSegFrm

| | |
|---|---|
| Access | Read only |
| Description | If the value of the *unitsCounted* attribute in *moduleData* component is ***segments***, this attribute counts the number of segments in frames with the Discard Eligibility (DE) bit set sent to the interface since the start of the interval period. If the value of the *unitsCounted* attribute in *moduleData* component is ***frames***, this attribute counts the number of frames with the Discard Eligibility (DE) bit set sent to the interface since the start of the interval period. The start of the interval period is captured in the *startTime* attribute. The count is reset to zero when an accounting record is generated |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrNni Dlci discardedSegFrm

| | |
|---|---|
| Access | Read only |
| Description | If the value of the *unitsCounted* attribute in *moduleData* component is ***segments***, this attribute counts the number of segments in invalid frames received from the interface and |

discarded at the DLCI. If the value of the *unitsCounted* attribute in *moduleData* component is ***frames***, this attribute counts the number of invalid frames received from the interface and discarded at the DLCI. Segments of frames are counted since the start of the interval period. The count is reset to zero when an accounting record is generated. The count is a sum of segments in frames or frames discarded due to the number of octets in the information field greater than the subscribed maximum or equal to 0, due to aBit turned off, or due to rate enforcement.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE FrNni Dlci localRateAdaptOccurred

Access: Read only

Description: This attribute indicates whether rate adaptation has occurred on this user Data Link Connection on this Frame Relay interface. The value is set to ***no*** when an accounting record is generated.

Values: yes
no

Default: no

### ATTRIBUTE FrNni Dlci elapsedDifference

Access: Read only

Description: This attribute indicates the elapsed time representing the period of this interval data. It is elapsed time in 0.1 second increments since the call started.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE FrNni Dlci callRefNumber

Access: Read only

Description: This attribute indicates the call reference number which is a unique number generated by the switch. The same Call Reference Number is stored in the interval data (accounting record) at both

ends of the call. It can be used as one of the attributes in matching duplicate records generated at each end of the connection.

Values: Decimal (0..4294967295)

Default: 0

### GROUP FrNni Dlci CallData (CallId)

Properties: Operational

Description: This group of attributes describes the characteristics of the call such as call type and call state.

### ATTRIBUTE FrNni Dlci callType (ct)

Access: Read only

Description: This attribute indicates whether this DLCI is a permanent virtual circuit (PVC), a switched virtual circuit (SVC), or a switched permanent virtual circuit (SPVC).

Values:
pvc
svc
spvc

Default: No default

### ATTRIBUTE FrNni Dlci callState

Access: Read only

Description: This attribute indicates the FRF.10 state of a switched call. The value of this attribute for a permanent (PVC and P-SPVC) DLCI is always ***notApplicable***. In the description that follows, “calling STE” refers to the network who has initiated the SETUP request, and “called STE” refers to the network that receives the request.

State description:
In the ***null*** state, the network has neither received nor sent call setup requests for this DLCI.

In the ***callInitiated*** state, the called STE has received a SETUP message from the calling STE.

In the ***callProceedingSent*** state, the called STE has sent a CALL PROCEEDING message to the calling STE in response to the SETUP message.

In the ***callPresent*** state, the calling STE has sent a SETUP message to the called STE but has not received a response.

In the ***callProceedingReceived*** state, the calling STE has received a CALL PROCEEDING message from the called STE in response to a SETUP message.

In the ***active*** state, either the called STE has sent a CONNECT message to the calling STE, or the calling STE has received a CONNECT from the called STE.

In the ***releaseRequest*** state, the STE has sent a RELEASE message to release the call and is waiting for a RELEASE COMPLETE message.

In the ***releaseIndication*** state, the STE has received a RELEASE and sends a RELEASE COMPLETE message after releasing the relevant call resources.

In the ***restartRequest*** state, the STE has sent a RESTART request to the other STE and is waiting for an acknowledgement.

In the ***restart*** state, the STE has received a request for a restart from the other STE and this STE has not returned an acknowledgement.

Values

null
callInitiated
callProceedingSent
callPresent
callProceedingReceived
active
releaseRequest
releaseIndication
restartRequest
restart
notApplicable

| | |
|---|---|
| Default | No default |

### ATTRIBUTE FrNni Dlci callReference (callref)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the FRF.10 call reference number associated with this DLCI. The value of this attribute for a provisioned (PVC or P-SPVC) DLCI is always ***0***. |
| Values | Decimal (0..32767) |
| Default | No default |

### COMPONENT FrNni Dlci DirectCall (Dc)

| | |
|---|---|
| Groups | "GROUP FrNni Dlci Dc Options" |
| Scope | Application |
| Description | *FrUni/n Dlci/n DirectCall*<br>*FrNni/n Dlci/n DirectCall*<br>This component defines direct call options for calls issued without operator intervention. Connection is complete and can be initiated automatically. Frequency of connection tries is controlled by retry timer.<br><br>If no BnxProtocol component is provisioned under a FrUni or FrNni, a DirectCall component is automatically added to all the Dlci components added to the FrUni or FrNni.<br><br>If a BnxProtocol component is provisioned under a FrUni or FrNni, no DirectCall is automatically added under the Dlci component. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP FrNni Dlci Dc Options

| | |
|---|---|
| Properties | Provisioned |

| | |
|---|---|
| Description | This group defines attributes associated with a direct call. It defines connection in terms of path and call option parameters. This connection can be permanent (PVC), switched (SVC), or switched permanent (SPVC). It can have four facilities:<br>- CCITT Facilities<br>- DTE Facilities<br>- National Facilities<br>- International Facilities<br>The total number of bytes of facilities including the facility codes and all of the facility data from all of the four classes of facilities must not exceed 512 bytes. |

### ATTRIBUTE FrNni Dlci Dc remoteNpi (rnpi)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the Numbering Plan Indicator (NPI) of the *remoteDna.* |
| Values | x121<br>e164 |
| Default | x121 |

### ATTRIBUTE FrNni Dlci Dc remoteDna (rdna)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the Data Network Address (DNA) of the service at the remote end of the DLCI. This is the called (destination) DCE address (DNA) of this PVC. |
| Values | BCD (1..15) |
| Default | No default |

### ATTRIBUTE FrNni Dlci Dc remoteDlci (rdlci)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the remote DLCI of the PVC connection. |
| Values | Decimal (16..1007) |
| Default | No default |

## ATTRIBUTE FrNni Dlci Dc type

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the type of VC call. |

If the value is set to ***permanentMaster,*** then a permanent connection will be established between two ends. The remote end must be defined as a ***permanentSlave, permanentBackupSlave,*** or ***permanentSlaveWithBackup***. The connection cannot be established if the remote end is defined as anything else. The end defined as ***permanentMaster*** always initiates the calls. It attempts to call once per minute.

If the value is set to ***permanentSlave*** then a permanent connection will be established between two ends. The remote end must be defined as a ***permanentMaster.*** The connection cannot be established if the remote end is defined as anything else. The ***permanentSlave*** end attempts to call once per minute.

If the value is set to ***permanentSlaveWithBackup*** then a permanent connection will be established between the two ends. The remote end must be defined as a ***permanentMaster.*** The connection cannot be established if the remote interface is defined as anything else. The ***permanentSlaveWithBackup*** attempts to call once per minute. When *type* is set to ***permanentSlaveWithBackup,*** the connection is cleared if the interface becomes unavailable. This enables a retry of the connection which can be redirected to the ***permanentBackupSlave***.

If the value is set to ***permanentBackupSlave*** then a permanent connection is established between the two ends only if the ***permanentMaster*** end is disconnected from the ***permanentSlaveWithBackup*** end and a backup call is established by the call redirection system. If the ***permanentSlaveWithBackup*** interface becomes available again, the ***permanentBackupSlave*** end is disconnected and the ***permanentSlaveWithBackup*** end is reconnected to the ***permanentMaster*** end. The ***permanentBackupSlave*** end does

not try to establish a call.

Values
permanentMaster (master)
permanentSlave (slave)
permanentBackupSlave (backSl)
permanentSlaveWithBackup (slavWB)
spvcMaster (spvcM)
spvcSlave (spvcS)
spvcBackupSlave (spvcBackS)
spvcSlaveWithBackup (spvcSWBack)

Default
permanentMaster

### ATTRIBUTE FrNni Dlci Dc transferPriority (tp)

Access
Read and write

Description
This attribute specifies the transfer priority to the local network for the outgoing calls using this particular DLCI. It overrides the *defaultTransferPriority* provisioned in its associated *Dna* component.

The transfer priority is a preference configured for an application according to its delay-sensitivity requirement. Frames with higher transfer priority are served by the network before the frames with lower priority. The transfer priority standard is defined to have 16 levels from 0 to 15.

Each transfer priority n, where n is the transfer priority index, has a default setting for routing class of service (multimedia, delay, or throughput) and Frame Relay egress queue (depending on the number of supported egress queues on the remote end interface). These settings are specified by the *routingClassOfServic*e and *emissionPriority* attributes provisioned under the *Mod Frs DprsNet Tpm/n* component.

Specifying ***useDnaDefTP*** means using the value given by *defaultTransferPriority* in the associated *Dna* for this DLCI.

Values
0
1
2

3
4
5
6
7
8
9
10
11
12
13
14
15
useDnaDefTP

Default useDnaDefTP

### ATTRIBUTE FrNni Dlci Dc discardPriority (dp)

Access Read and write

Description This attribute specifies the discard priority for outgoing call using this DLCI.

The discard priority has three provisioning values: ***normal***, ***high***, and ***useDnaDefPriority***. Under congestion conditions, traffic with ***normal*** priority is discarded before traffic with ***high*** priority. The *Dna* default value (provisioned by *outDefaultPriority*) is taken if this attribute is set to the value ***useDnaDefPriority***.

Values normal
high
useDnaDefPriority

Default useDnaDefPriority

### ATTRIBUTE FrNni Dlci Dc deDiscardPriority (ddp)

Access Read and write

Description This attribute specifies whether the *discardPriority* applies to DE frames for this DLCI.

When set to ***determinedByDiscardPriority***, traffic with DE bit set

will be discarded according to the setting of the *discardPriority.*

When set to ***lowest***, all traffic with DE bit set is treated the same and is sent to the subnet at the lowest discard priority.

Values: lowest
determinedByDiscardPriority

Default: determinedByDiscardPriority

## ATTRIBUTE FrNni Dlci Dc dataPath (dpa)

Access: Read and write

Description: This attribute specifies the data path to be used by Virtual Circuits on this interface. The value of the *dataPath* attribute in the *Dna* component is overridden by this attribute if the value is not ***useDnaValue***.

This value applies to the connection after data transfer state is reached. All the data and control traffic will be sent using this data path. If the provisioned *dataPath* is not available the connection is not established.

The value of the *dataPath* is signaled by both ends of the connection. If this value is not the same at both ends ***dprsOnly*** is used for the duration of the connection.

A virtual circuit connection is always established using ***dprsOnly*** even if this attribute is provisioned as some other value.

***dprsOnly*** - The dynamic packet routing system is used.

***dprsMcsOnly*** - The DPRS Multi-Service Cut-Through Switching path is used.

***dprsMcsFirst*** - The DPRS Multi-Service Cut-Through Switching path is used if it is available. If it is not available, ***dprsOnly*** is used.

***useDnaValue*** - The routing system used is based on the value provisioned in the *Dna* component.

| | |
|---|---|
| Values | dprsOnly (dpOnly)<br>dprsMcsOnly (mcOnly)<br>dprsMcsFirst (mcFrst)<br>useDnaValue (dnaVal) |
| Default | useDnaValue |

### ATTRIBUTE FrNni Dlci Dc cugIndex (ci)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the CUG index which is to be signaled in PVC and SPVC call requests to the remote end.<br><br>The type of CUG signaling is defined in attribute *cugType* in this component. |
| Values | Decimal (0..255) |
| Default | 0 |

### ATTRIBUTE FrNni Dlci Dc cugType (ct)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the type of CUG signaling to be used in PVC and SPVC call requests. Index of CUG to be used is defined in attribute *cugIndex* in this component.<br><br>Possible values are:<br>***cug*** **-** signal CUG<br>***cugOa*** **-** signal CUG with outgoing access<br>***doNotSignal*** **-** no CUG in call request |
| Values | cug<br>cugOa<br>doNotSignal |
| Default | doNotSignal |

### ATTRIBUTE FrNni Dlci Dc mapIpCosToFrQos (mapctof)

| | |
|---|---|
| Access | Read and write |

Description

This attribute specifies whether an IP TOS value is mapped to an FR QOS. The mapping used is provisioned in the *Mod Frs IpCosToFrQos* component.

When this attribute is set to ***yes***, at Frame Relay egress, the IP TOS byte in each frame is checked. The TOS value determines the egress emission queue and the discard priority for that frame.

When this attribute is set to ***no***, FR QOS is determined by the provisioned discard priority and transfer priority.

When this attribute is set to ***protocolDependent*** at Frame Relay egress, the IP version field in each frame is checked. If the IP version is IP version Four, the TOS value determines the egress emission queue and the discard priority for that frame. If not, the FR QOS is determined by the provisioned discard priority and transfer priority.

A semantic check error is generated when this attribute is set to either ***yes*** or ***protocolDependent***, and a *FrUni DirectConnection* component is provisioned under the same *FrUni* component.

Values

no
yes
protocolDependent

Default

no

## COMPONENT FrNni Dlci Vc

Groups

"GROUP FrNni Dlci Vc CallData (Cad)"
"GROUP FrNni Dlci Vc IntervalData (Intd)"
"GROUP FrNni Dlci Vc FrameRelayData (Frd)"

Scope

Application

Description

This component defines attributes collected by Frame Relay *Vc*.

Common Verbs

Help
List
Display

## VERB Ping FrNni Dlci Vc

Impact: Passive

Description: *Ping [-roundTripDelay] [-sendPktDataSize(octets)] [-returnPktDataSize(octets)] FrUni/<n> Dlci/<n> Vc*

*Ping* causes a query packet to be sent to the destination module where the Frame Relay DLCI VC terminates. It can be used to either display the path of the VC being used by the Frame Relay DLCI or to measure the round trip delay of the Frame Relay DLCI connection. Since the query packet carries the same path selector as the Frame Relay data packets and the Frame Relay VC's transfer priority (TP) is used to set the RCOS, reliability and emission priority of the query packet, the path taken by the *ping* query packet will be the same as that of the Frame Relay data except at the source and destination module. The *ping* packets originate from the CP rather than the Frame Relay DLCI's FP. At the far end, it is also the CP that receives the ping packets and returns them, rather than the Frame Relay FP.

Note that this command does not provide any information regarding the status of the far end VC process. If, however, the destination module is unreachable or the VC path is congested, the operator will be notified.

The *ping* command can be issued with or without options. If no options are specified, the command reports the path of the VC associated with the Frame Relay DLCI. When the command is used to find the VC path, it displays the RID and MID of each module that the query packet passes through on its way to the destination. If the *roundTripDelay* option is specified, the command reports the time taken to reach the destination and back. For the *roundTripDelay* option, the path taken by the query packets in both directions (from the source to the destination and from the destination back to the source) is the same as that of the Frame Relay data except at the source and destination where the *ping* packets are generated and bounced back by the CP rather than the Frame Relay DLCI's FP.

The *ping* command supports the following options:

*-roundTripDelay (-rtd):* If this option is selected, the round trip delay time to reach the destination and back will be reported. The round trip delay is calculated by timing how long it takes to send five packets to the destination node and back. The packet size can be specified using the *sendPktSize* and *returnPktSize* options. The minimum, maximum and average time taken by the returned packets are reported. If this option is not selected, the path taken to the destination is displayed.

*-sendPktDataSize:* This option specifies the number of data octets to be included in the round trip delay query packet. The rtd query packet consists of the Passport common header (2 octets), the subnet header (11 octets), plus the data. The minimum data size is 12, since 12 octets are required to carry the ping control information. If the value specified for this option is less than 12, 12 octets are sent to the destination. The actual number of data octets sent is displayed in the ping response. Note that the total packet size (headers plus data) is identical to that of a Frame Relay packet carrying the same number of octets of data.

If this option is not selected the default value is 64 octets if *transferPriority* of the *Frame Relay DLCI Dc* is 11, and 128 octets otherwise. This option is ignored if the *-rtd* option is not specified. If the specified packet data size exceeds the capability of some facilities on the path, the packet will be discarded and the operator will get the timeout response.

*-returnPktDataSize:* This option specifies the number of data octets to be included in the round trip delay acknowledge packet. The rtd acknowledge packet consists of the Passport common header (2 octets), the subnet header (11 octets), plus the data. The minimum data size is 12, since 12 octets are required to carry the ping control information. If the value specified for this option is

less than 12, 12 octets are returned to the source. The actual number of data octets returned is displayed in the ping response. Note that the total packet size (headers plus data) is identical to that of a Frame Relay packet carrying the same number of octets of data.

If this option is not selected the default value is 64 octets if *transferPriority* of the *Frame Relay DLCI Dc* is 11, and 128 octets otherwise. This option is ignored if the *-rtd* option is not specified. If the specified packet data size exceeds the capability of some facilities on the path, the packet will be discarded and the operator will get the timeout response.

### GROUP FrNni Dlci Vc CallData (Cad)

| | |
|---|---|
| Properties | Operational |
| Description | This group represents operational call data related to Frame Relay *Vc*. It can be displayed only for Frame Relay *Vc* which is created by application. |

### ATTRIBUTE FrNni Dlci Vc type

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the type of call, ***pvc***, ***svc, spvc*** or ***frf10spvc***. |
| Values | pvc<br>svc<br>spvc<br>frf10spvc |
| Default | No default |

### ATTRIBUTE FrNni Dlci Vc state

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the state of call control. P5 state is not supported but is listed for completeness. Transitions from one state to another take very short time. *state* most often displayed is ***dataTransferP4***. |

| | |
|---|---|
| Values | creating<br>readyP1<br>dteWaitingP2<br>dceWaitingP3<br>dataTransferP4<br>unsupportedP5<br>dteClearRequestP6<br>dceClearIndicationP7<br>termination |
| Default | No default |

### ATTRIBUTE FrNni Dlci Vc previousState

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the previous state of call control. This is a valuable field to determine how the processing is progressing. |
| Values | creating<br>readyP1<br>dteWaitingP2<br>dceWaitingP3<br>dataTransferP4<br>unsupportedP5<br>dteClearRequestP6<br>dceClearIndicationP7<br>termination |
| Default | No default |

### ATTRIBUTE FrNni Dlci Vc diagnosticCode

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the internal substate of call control. It is used to further refine *state* of call processing. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE FrNni Dlci Vc previousDiagnosticCode

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute displays the internal substate of call control. It is used to further refine *state* of call processing. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE FrNni Dlci Vc calledNpi

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the Numbering Plan Indicator (NPI) of the called end. |
| Values | x121<br>e164 |
| Default | No default |

### ATTRIBUTE FrNni Dlci Vc calledDna

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the Data Network Address (*Dna*) of the called (destination) DTE to which this call is sent. This address if defined at receiving end will complete *Vc* connection. |
| Values | BCD (1..15) |
| Default | No default |

### ATTRIBUTE FrNni Dlci Vc calledLcn

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the Logical Channel Number of the called end. It is valid only after both ends of *Vc* exchanged relevant information. |
| Values | Decimal (1..65535) |
| Default | No default |

### ATTRIBUTE FrNni Dlci Vc callingNpi

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute displays the Numbering Plan Indicator (NPI) of the calling end. |
| Values | x121<br>e164 |
| Default | No default |

### ATTRIBUTE FrNni Dlci Vc callingDna

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the Data Network Address (*Dna*) of the calling end. |
| Values | BCD (1..15) |
| Default | No default |

### ATTRIBUTE FrNni Dlci Vc callingLcn

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the Logical Channel Number of the calling end. |
| Values | Decimal (1..65535) |
| Default | No default |

### ATTRIBUTE FrNni Dlci Vc accountingEnabled

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates that this optional section of accounting record is suppressed or permitted. If *accountingEnabled* is ***yes***, conditions for generation of accounting record were met. These conditions include billing options, vc recovery conditions and Module wide accounting data options. |
| Values | yes<br>no |
| Default | No default |

### ATTRIBUTE FrNni Dlci Vc fastSelectCall

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays that this is a fast select call. |
| Values | yes<br>no |
| Default | No default |

### ATTRIBUTE FrNni Dlci Vc pathReliability

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the path reliability. |
| Values | high<br>normal |
| Default | No default |

### ATTRIBUTE FrNni Dlci Vc accountingEnd

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates if this end should generate an accounting record. Normally, ***callingEnd*** is the end to generate an accounting record. |
| Values | callingEnd<br>calledEnd |
| Default | No default |

### ATTRIBUTE FrNni Dlci Vc priority

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays whether the call is a ***normal*** or a ***high*** priority call. |
| Values | normal<br>high |
| Default | No default |

### ATTRIBUTE FrNni Dlci Vc segmentSize

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the segment size (in bytes) used on the call. It is used to calculate the number of segments transmitted and received. |
| Values | Decimal (0..4096) |
| Default | No default |

### ATTRIBUTE FrNni Dlci Vc maxSubnetPktSize

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the maximum packet size allowed on the *Vc*. |
| Values | Decimal (0..4096) |
| Default | No default |

### ATTRIBUTE FrNni Dlci Vc rcosToNetwork (rcosto)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the routing metric routing class of service to<br>the network. |
| Values | throughput<br>delay<br>multimedia |
| Default | No default |

### ATTRIBUTE FrNni Dlci Vc rcosFromNetwork (rcosfrom)

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the routing metric Routing Class of Service from the Network. |
| Values | throughput<br>delay<br>multimedia |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE FrNni Dlci Vc emissionPriorityToNetwork (epto)

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the network internal emission priority to the<br>network. |
| Values | normal<br>high<br>interrupting |
| Default | No default |

### ATTRIBUTE FrNni Dlci Vc emissionPriorityFromNetwork (epfrom)

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the network internal emission priority from the network. |
| Values | normal<br>high<br>interrupting |
| Default | No default |

### ATTRIBUTE FrNni Dlci Vc dataPath (dapa)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the data path used by the connection. The data path is provisioned in *Dna* and *DirectCall* components. The displayed value of this attribute can be different from the provisioned value.<br><br>If the connection is using ***dprsOnly*** data path, the string ***dprsOnly*** is displayed. (dynamic packet routing system)<br><br>If the connection is using ***dprsMcsOnly*** data path, the string ***dprsMcsOnly*** is displayed. |

If the connection is using ***dprsMcsFirst*** data path, the string ***dprsMcsFirst*** is displayed.

Values: String (0..32, ASCII)

Default: No default

### ATTRIBUTE FrNni Dlci Vc dprsMcsEndPoint (dmep)

Access: Read only

Description: This attribute displays the data path used by the connection. Data path is provisioned in *Dna* and *DirectCall* components.

If the connection is using ***dprsOnly*** data path, this attribute is empty.

If the connection is using ***dprsMcsOnly*** or ***dprsMcsFirst*** data path, this attribute displays component name of the dprsMcsEndPoint.

List of: The name of the component

Default: No default

### GROUP FrNni Dlci Vc IntervalData (Intd)

Properties: Operational

Description: This group defines display of interval data collected by *Vc*. Data in this group is variable and may depend on time when this *display* command is issued.

### ATTRIBUTE FrNni Dlci Vc elapsedTimeTillNow

Access: Read only

Description: This attribute displays the elapsed time representing the period of this interval data. It is elapsed time in 0.1 second increments since *Vc* started.

Values: Decimal (0..16777215)

Default: No default

### ATTRIBUTE FrNni Dlci Vc segmentsRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of segments received at the time command was issued. This is the segment received count maintained by accounting at each end of the *Vc*. This counter is updated only when the packet cannot be successfully delivered out of the sink *Vc* and to the sink AP Conditions in which packets may be discarded by the sink *Vc* include: missing packets due to subnet discards, segmentation protocol violations due to subnet discard, duplicated and out-of-ranged packets and packets that arrive while *Vc* is in path recovery state. |
| Values | Decimal (0..16777215) |
| Default | No default |

### ATTRIBUTE FrNni Dlci Vc segmentsSent

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of segments sent at the time command was issued. This is the segment sent count maintained by accounting at the source *Vc*. *Vc* only counts packets that *Vc* thinks can be delivered successfully into the subnet. In reality, these packets may be dropped by trunking, for instance. This counter is not updated when splitting fails, when *Vc* is in a path recovery state, when packet forwarding fails to forward this packet and when subsequent packets have to be discarded as we want to minimize the chance of out-of-sequence and do not intentionally send out-of-sequenced packets into the subnet. |
| Values | Decimal (0..16777215) |
| Default | No default |

### ATTRIBUTE FrNni Dlci Vc startTime

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the start time of this interval period. If *Vc* spans 12 hour time or time of day change *startTime* reflects new time as recorded at 12 hour periods or time of day changes. |

| | |
|---|---|
| Values | Time (DHMS) |
| Default | No default |

### ATTRIBUTE FrNni Dlci Vc callReferenceNumber

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the call reference number which is a unique number generated by the switch.The same Call Reference Number is stored in the interval data (accounting record) at both ends of the call. It can be used as one of the attributes in matching duplicate records generated at each end of the call. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP FrNni Dlci Vc FrameRelayData (Frd)

| | |
|---|---|
| Properties | Operational |
| Description | This group defines Frame Relay attributes collected by Frame Relay *Vc*.<br>The purpose of *Vc* attributes is to aid end users and verification people to understand the *Vc* internal behavior. This is particularly useful when the network has experienced abnormality and we want to isolate problems and pinpoint trouble spots.<br>Attributes are collected on a per *Vc* basis. Until a need is identified, statistics are not collected at a processor level. Each attribute is stored in a 32 bit field and is initialized to zero when a *Vc* enters into the data transfer state. When a PVC is disconnected and then connected again, the attributes will be reset. Attributes cannot be reset through other methods.<br>Frame Relay *Vc* uses a best effort data packet delivery protocol and a different packet segmentation and combination methods from the General *Vc*. The Frame Relay *Vc* uses the same call setup and control mechanism (e.g. the support of non-flow control data packets) as in a General *Vc*. Most General *Vc* statistics and internal variables are used in a Frame Relay *Vc* and are displayed by software developers |

### ATTRIBUTE FrNni Dlci Vc frmCongestedToSubnet

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of frames from link discarded due to lack of resources. It keeps track of the number of frames from link that have to be discarded. The discard reasons include insufficient memory for splitting the frame into smaller subnet packet size. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE FrNni Dlci Vc cannotForwardToSubnet

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of discarded packets that can not be forwarded into the subnet because of subnet congestion. Number of frames from link discarded due to failure in forwarding a packet from *Vc* into the subnet.- This attribute is increased when packet forwarding fails to forward a packet into the subnet. If a frame is split into multiple subnet packets and a partial packet has to be discarded, all subsequent partial packets that have not yet been delivered to the subnet will be discarded as well. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE FrNni Dlci Vc notDataXferToSubnet

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the number of frames from link discarded when the *Vc* tries to recover from internal path failure. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE FrNni Dlci Vc outOfRangeFrmFromSubnet

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute displays the number of frames from subnet discarded due to out of sequence range for arriving too late. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE FrNni Dlci Vc combErrorsFromSubnet

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the number of subnet packets discarded at the sink *Vc* due to the *Vc* segmentation and combination protocol error. Usually, this occurs when the subnet discards packets and thus this statistics can be used to guest the number of subnet packets that are not delivered to the *Vc*. It cannot be used as an actual measure because some subnet packets may have been delivered to *Vc* but have to be discarded because these are partial packets to a frame in which some other partial packets have not been properly delivered to *Vc* |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE FrNni Dlci Vc duplicatesFromSubnet

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of subnet packets discarded due to duplication. Although packets are not retransmitted by the Frame Relay *Vc*, it is possible for the subnet to retransmit packets. When packets are out-of-sequenced and copies of the same packets arrive, then this attribute is increased. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE FrNni Dlci Vc notDataXferFromSubnet

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of subnet packets discarded when data transfer is suspended in *Vc* recovery. |

| | |
|---|---|
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE FrNni Dlci Vc frmLossTimeouts

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of lost frame timer expiries. When this count is excessive, the network is very congested and packets have been discarded in the subnet. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE FrNni Dlci Vc ooSeqByteCntExceeded

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number times that the out of sequence byte threshold is exceeded. When the threshold is exceeded, this condition is treated as if the loss frame timer has expired and all frames queued at the sink *Vc* are delivered to the AP. We need to keep this count to examine if the threshold is engineered properly. This should be used in conjunction with the peak value of out-of-sequenced queue and the number of times the loss frame timer has expired. This count should be relatively small when compared with loss frame timer expiry count. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE FrNni Dlci Vc peakOoSeqPktCount

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the frame relay peak packet count of the out of sequence queue. This attribute records the maximum queue length of the out-of-sequenced queue. The counter can be used to deduce the message buffer requirement on a *Vc*. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE FrNni Dlci Vc peakOoSeqFrmForwarded

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the frame relay peak size of the sequence packet queue. The subnet may deliver packets out-of-sequenced. These packets are then queued in an out-of-sequenced queue, waiting for a packet with the expected sequence number to come. When that packet arrives, this attribute records the maximum number of packets that were out-of-sequenced, but now have become in-sequenced. The statistics is used to measure expected queue size due to normal subnet packet disorder (not due to subnet packet discard). Current implementation also uses this statistics to set a maximum size for the out-of-sequenced queue. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE FrNni Dlci Vc sendSequenceNumber

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the Vc internal packet's send sequence number. Note that a "packet" in this context, may be either a user data packet, or an OAM frame. |
| Values | Decimal (0..1048575) |
| Default | No default |

### ATTRIBUTE FrNni Dlci Vc pktRetryTimeouts

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of packets which have retransmission time-outs. When this count is excessive, the network is very congested and packets have been discarded in the subnet. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE FrNni Dlci Vc peakRetryQueueSize

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the peak size of retransmission queue. This attribute is used as an indicator of the acknowledgment behavior across the subnet. Records the largest body of unacknowledged packets. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE FrNni Dlci Vc subnetRecoveries

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of successful *Vc* recovery attempts. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE FrNni Dlci Vc ooSeqPktCntExceeded

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number times that the out of sequence packet threshold is exceeded. When the threshold is exceeded, this condition is treated as if the loss frame timer has expired and all frames queued at the sink *Vc* are delivered to the AP. We need to keep this count to examine if the threshold is engineered properly. This should be used in conjunction with the peak value of out-of-sequenced queue and the number of times the loss frame timer has expired. This count should be relatively small when compared with loss frame timer expiry count. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE FrNni Dlci Vc peakOoSeqByteCount

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute displays the frame relay peak byte count of the out of sequence queue. This attribute records the maximum queue length of the out-of-sequenced queue. The counter can be used to deduce the message buffer requirement on a *Vc*. |
| Values | Decimal (0..50000) |
| Default | No default |

## COMPONENT FrNni Dlci ServiceParametersProv (Sp)

| | |
|---|---|
| Groups | "GROUP FrNni Dlci Sp ServiceParametersProv (Parms)" |
| Scope | Application |
| Description | *FrNni/n Dlci/n ServiceParametersProv*<br>This component contains the provisionable traffic control attributes for its parent *Dlci* component. |
| Common Verbs | Help<br>List<br>Display |

## GROUP FrNni Dlci Sp ServiceParametersProv (Parms)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the Data Link Connection Identifier. These attributes reflect the service parameters specific to this instance of DLCI . The congestion control attributes in this group are defined in T1.606 Addendum 1. |

## ATTRIBUTE FrNni Dlci Sp maximumFrameSize (n203)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum number of octets which may be included in the information field. The frame relay header and CRC octets are not included in this definition. This attribute corresponds to the dN1 parameter described in the Vendor Forum Specification. |
| Values | Decimal (1..8187) |

| | |
|---|---|
| Units | octets |
| Default | 2100 |

### ATTRIBUTE FrNni Dlci Sp rateEnforcement (re)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether rate enforcement is in effect for this user Data Link Connection on this Frame Relay interface. Turning on rate enforcement means that CIR and DE=1 traffic will be measured and enforced. Turning off rate enforcement means that all frames from the user will be accepted and no modifications to the frame with respect to the DE bit will be made. |
| Values | off<br>on |
| Default | off |

### ATTRIBUTE FrNni Dlci Sp committedInformationRate (cir)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the committed information rate (CIR) in bits per second (bit/s). When *rateEnforcement* is set to ***on***, *cir* is the rate at which the network agrees to transfer information under normal conditions. This rate is measured over a measurement interval (*t*) that is determined internally based on CIR and the committed burst size (Bc). An exception to this occurs when CIR is provisioned to be zero, in which case the measurement interval (*t*) must be provisioned explicitly.<br><br>This attribute is ignored when *rateEnforcement* is ***off***. If *rateEnforcement* is ***on*** and this attribute is ***0***, *Bc* must also be ***0***. |
| Values | Decimal (0..50000000) |
| Units | bit/s |
| Default | 64000 |

### ATTRIBUTE FrNni Dlci Sp committedBurstSize (bc)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the committed burst size (Bc) in bits. *bc* is the amount of data that a network agrees to transfer under normal conditions over a measurement interval (*t*). Data marked DE=1 is not accounted for in Bc.<br><br>This attribute is ignored when *rateEnforcement* is ***off***. If *rateEnforcement* is ***on*** and this attribute is ***0***, *cir* must also be ***0***. |
| Values | Decimal (0..50000000) |
| Units | bits |
| Default | 64000 |

### ATTRIBUTE FrNni Dlci Sp excessBurstSize (be)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the excess burst size (Be) in bits. Be is the amount of uncommitted data that the network will attempt to deliver over measurement interval T. Data marked DE=1 by the user or by the network is accounted for here.<br><br>CIR, Bc, and Be cannot all be zero when rateEnforcement is on. |
| Values | Decimal (0..50000000) |
| Units | bits |
| Default | 0 |

### ATTRIBUTE FrNni Dlci Sp measurementInterval (t)

| | |
|---|---|
| Access | Read and write |
| Description | When *cir* and *bc* are zero and *rateEnforcement* is on, this attribute must be provisioned to specify the time interval (in milliseconds) over which rates and burst sizes are measured.<br><br>When *cir* and *bc* are non-zero, the time interval is internally calculated and is *not shown*. In that situation, this field is ignored, |

and is not representative of the time interval.

This attribute is ignored when *rateEnforcement* is ***off***, or when *cir* and *bc* are ***non-zero***. If *rateEnforcement* is ***on*** and both *cir* and *bc* are ***zero***, this field must be ***non-zero***.

Values: Decimal (0..25500)

Units: msec

Default: 0

### ATTRIBUTE FrNni Dlci Sp rateAdaptation (ra)

Access: Read and write

Description: This attribute specifies whether rate adaptation is in effect for this user Data Link Connection on this Frame Relay interface. Rate adaptation is a feature that, in periods of congestion, adapts the rate at which the user is allowed to send data into the network to that which the network is able to handle at that time. This pro-active measure of handling congestion optimizes network resources by causing the ingress to discard frames that would otherwise be discarded in the network.

If this attribute is set to ***on***, then, at the onset of congestion, the excess information rate (EIR) is reduced to a very low rate. If congestion persists, then the allowed CIR is reduced geometrically by 25% of the current value at that time. The minimum to which CIR can be reduced is 1/16th (6.25%) of the provisioned value. As congestion alleviates, CIR is increased linearly by 6.25% of the provisioned value specified in *committedInformationRate*.

If set to ***eirOnly***, then rate adaptation will only apply to the excess information rate (EIR). At the onset of congestion, the allowed EIR is reduced by 25% of its provisioned value. If congestion persists, EIR is reduced geometrically by 25% of the current value at that time. As congestion alleviates, EIR is gradually increased linearly by 6.25% of the provisioned EIR.

If set to ***cirProportionate***, then rate adaptation will also only apply to the excess information rate (EIR). At the onset of

congestion the initial allowed EIR is set to a multiple of the provisioned CIR. If congestion persists, the allowed EIR is reduced geometrically by 25% of the current value at that time. As congestion alleviates, EIR is gradually increased linearly by 6.25% of the provisioned EIR. Note that the allowed EIR may be set higher than the provisioned EIR, since it is calculated initially using another parameter, the provisioned CIR. If the allowed EIR at the moment is higher than the provisioned EIR, then the provisioned EIR is used instead.

This attribute can only be set to ***on eirOnly*** or ***cirProportionate*** if *rateEnforcement* is turned ***on***.

This attribute must be set to ***off*** if the *BnxIwf* component is provisioned under this *Dlci*.

Values
off
on
eirOnly
cirProportionate

Default
off

## ATTRIBUTE FrNni Dlci Sp accounting (ac)

Access
Read and write

Description
This attribute specifies whether accounting data collection and record generation is turned on at this DLCI. For accounting data collection and record generation to be turned on, the ***accountingOn*** bit and at least one of the ***accountCollection*** bits in the ***DataNetworkAddress*** component must be set to on.

Values
off
on

Default
on

## ATTRIBUTE FrNni Dlci Sp raSensitivity (rasens)

Access
Read and write

Description
This attribute specifies the sensitivity of the rate adaptation system. A higher number indicates a higher sensitivity and

therefore a quicker reaction time to network conditions. A quicker reaction time allows the network to discard frames at the access and protect network resources, but can lead to false alarms and a greater fluctuation of the allowed rate. A higher setting therefore tends to favour the protection of the network over the allowed throughput of the user.

A lower number indicates a lower sensitivity and therefore a slower reaction to network conditions. A slower reaction time results in a greater amount of user traffic allowed into the network, but can lead to a waste of network bandwidth since the traffic may be discarded at the congested resource. A lower setting therefore tends to favour the allowed throughput of the user over the protection of the network.

This attribute is applicable for adapting EIR when *rateAdaptation* is ***eirOnly*** or ***cirProportionate***, or CIR when *rateAdaptation* is ***on***.

This attribute is ignored if *rateAdaptation* is turned ***off***.

Values — Decimal (1..20)

Default — 7

### ATTRIBUTE FrNni Dlci Sp updateBCI (updBCI)

Access — Read and write

Description — This attribute specifies whether internal Backward Congestion Indication (BCI) bits will report congestion external to the Passport network, as communicated through incoming BECN bits.

If *updateBCI* is set to ***on***, then BCI bits for incoming frames will be set if the BECN on the frame is set. If *updatBCI* is set to ***off***, then incoming BECN bits will have no effect.

Setting *updateBCI* ***on*** for a DLCI means that the remote end of the DLCI, which is specified by the *remotedna* and *remotedlci* attributes of the *dc* component of the *dlci*, may perform Rate Adaptation using the flow of incoming BECN bits, in addition to

internal Passport congestion management systems.

If the *rateAdaptation* attribute of the remote dlci is provisioned as ***eirOnly***, ***cirProportionate***, or ***on***, then congestion from another network connected to a Passport network may trigger dynamic congestion management. If the *rateAdaptation* attribute of the remote dlci is provisioned to ***off***, then the setting of *updateBCI* attribute here will have no effect.

Values
off
on

Default
off

## ATTRIBUTE FrNni Dlci Sp correlationTag (ctag)

Access
Read and write

Description
This attribute specifies the unique string which identifies each end of a connection.

If required for correlation purposes, the attribute must be provisioned with the same value at both ends of the connection. This attribute can be left as an empty string when the functionality is not required, or when the user requires an empty circuit identifier string against the DLCI.

This attribute can be used for off-switch data correlation purposes. Downstream processing uses this attribute to correlate data records (accounting etc.) issued at different nodes in the network. In the accounting record, the value for the *correlationTag* attribute appears as the attribute *circuitId* (circuit identifier) for the endpoint.

Values
String (0..32, ASCII)

Default
""

## COMPONENT FrNni Dlci LoopBack (Lb)

Groups
"GROUP FrNni Dlci Lb Statistics (Stats)"

Scope
Application

| | |
|---|---|
| Description | *FrUni/n Dlci/n LoopBackFrNni/n Dlci/n LoopBack*This component is the data loopback tool for the parent *DLCI*. |
| Common Verbs | Help<br>List<br>Display |

### VERB START FrNni Dlci Lb

| | |
|---|---|
| Impact | Service |
| Description | *start FrUni/n Dlci/n LoopBack*<br>*start FrNni/n Dlci/n LoopBack*This command resets the *LoopbackStatistics* and initiates the loopback mode. The *loopbackState* for this *DLCI* is set to ***on*** for the duration of the loopback mode. When a *DLCI* is in loopback mode, frames coming from the link are returned to the link, incrementing the local loopback statistics. Also, frames coming from the VC are returned to the VC, incrementing the remote loopback statistics. The loopback mode is ended using the stop command. |

### VERB STOP FrNni Dlci Lb

| | |
|---|---|
| Impact | Service |
| Description | *stop FrUni/n Dlci/n LoopBack stop FrNni/n Dlci/n LoopBack*<br>This command terminates the loopback mode and displays the loopback statistics. |

### GROUP FrNni Dlci Lb Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all the statistics for the data loopback tool. |

### ATTRIBUTE FrNni Dlci Lb localTotalFrm (ltf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the number of frames looped back to the link since loopback was last started. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrNni Dlci Lb localTotalBytes (ltb)

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the number of bytes looped back to the link since loopback mode was started. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrNni Dlci Lb localFecnFrm (lff)

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the number of frames with the Forward Explicit Congestion Notification (FECN) bit set, looped back to the link since the loopback mode was started. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrNni Dlci Lb localBecnFrm (lbf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the number of frames with the Backward Explicit Congestion Notification (BECN) bit set, looped back to the link since the loopback mode was started. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrNni Dlci Lb localDeFrm (ldf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the number of frames with the Discard Eligibility (DE) bit set, looped back to the link since the loopback mode was started. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrNni Dlci Lb localDeBytes (ldb)

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the number of bytes in frames with the Discard Eligibility (DE) bit set, looped back to the link since the loopback mode was started. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrNni Dlci Lb remoteTotalFrm (rtf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the number of frames looped back to the subnet since loopback was last started. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrNni Dlci Lb remoteTotalBytes (rtb)

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the number of bytes looped back to the subnet since loopback was last started. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrNni Dlci Lb remoteFecnFrm (rff)

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the number of frames with the Forward Explicit Congestion Notification (FECN) bit set, looped back to the subnet since the loopback mode was started. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrNni Dlci Lb remoteBecnFrm (rbf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the number of frames with the Backward Explicit Congestion Notification (BECN) bit set, looped back to the subnet since the loopback mode was started. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrNni Dlci Lb remoteDeFrm (rdf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the number of frames with the Discard Eligibility (DE) bit set, looped back to the subnet since the loopback mode was started. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrNni Dlci Lb remoteDeBytes (rdb)

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the number of bytes in frames with the Discard Eligibility (DE) bit set, looped back to the subnet since the loopback mode was started. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT FrNni Dlci EgressServiceParameters (EgressSp)

| | |
|---|---|
| Groups | "GROUP FrNni Dlci EgressSp Provisioned (Prov)" |
| Scope | Application |
| Description | *FrNni/n Dlci/n EgressServiceParameters*<br>This component contains the provisionable attributes of the egress direction for the parent *Dlci* component. |

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display |

## GROUP FrNni Dlci EgressSp Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for this component. |

## ATTRIBUTE FrNni Dlci EgressSp committedInformationRate (cir)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the committed information rate (CIR) for the egress direction. It is used for Call Admission Control (CAC) at the egress link.<br>If the value is set to ***sameAsSp***, the value of this attribute is the same as the *committedInformationRate* attribute under the *ServiceParameters* component. |
| Values | Decimal (0..50000000)<br>sameAsServiceParameters (sameAsSp) |
| Units | bit/s |
| Default | sameAsServiceParameters |

## ATTRIBUTE FrNni Dlci EgressSp committedBurstSize (bc)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the committed burst size (Bc) for the egress direction. It is used for performing Call Admission Control (CAC) at the egress link.<br>If the value is set to ***sameAsSp***, the value of this attribute is the same as the *committedBurstSize* attribute under the *ServiceParameters* component. |

| | |
|---|---|
| Values | Decimal (0..50000000)<br>sameAsServiceParameters (sameAsSp) |
| Units | bits |
| Default | sameAsServiceParameters |

### ATTRIBUTE FrNni Dlci EgressSp excessBurstSize (be)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the excess burst size (Be) for the egress direction. It is used for Call Admission Control (CAC) function towards the egress link.<br>If the value is set to ***sameAsSp***, the value of this attribute is the same as the *excessBurstSize* attribute under the *ServiceParameters* component. |
| Values | Decimal (0..50000000)<br>sameAsServiceParameters (sameAsSp) |
| Units | bits |
| Default | sameAsServiceParameters |

### ATTRIBUTE FrNni Dlci EgressSp measurementInterval (t)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time interval over which rates and burst sizes are measured in the egress direction. It is used for bandwidth reservation for Call Admission Control (CAC) towards the egress link.<br>If the value is set to ***sameAsSp***, the value of this attribute is the same as the *measurementInterval* attribute under the *ServiceParameters* component. |
| Values | Decimal (0..25500)<br>sameAsServiceParameters (sameAsSp) |
| Units | msec |
| Default | sameAsServiceParameters |

## COMPONENT FrNni Dlci BnxInterworkingFunction (BnxIwf)

Groups
"GROUP FrNni Dlci BnxIwf Provisioned (Prov)"
"GROUP FrNni Dlci BnxIwf Operational (Op)"

Scope
Application

Description
*FrUni/n Dlci/n BnxInterworkingFunction*
*FrNni/n Dlci/n BnxInterworkingFunction*
This component specifies that the parent DLCI uses BNX frame relay over an IP network as its networking mechanism. It contains the networking parameters specific to BNX networking.

Common Verbs
Help
List
Display
Add
DELete

## VERB Redirect FrNni Dlci BnxIwf

Impact
Service

Description
*Redirect [-**force**] -**destination**(<**destination**>) FrUni/n Dlci/n BnxInterworkingFunction*
or
*Redirect [-**force**] -**destination**(<**destination**>) FrNni/n Dlci/n BnxInterworkingFunction*

This verb is used to manually select the PVC destination between the primary and backup destinations, or to enable the automatic redirection. The primary destination and the backup destination are specified by the *BnxInterworkingFunction* component.

The ***-destination*** option indicates the destination of PVC redirection. The value of this option can be ***primary***, ***backup,*** or ***onDemand***.

The value ***primary*** means that the destination for this PVC has been manually selected to be the primary destination, automatic redirection is disabled. This redirect action corresponds to the “Redirect to Primary” redirect action in the BNX

implementation.

The value ***backup*** means that the destination for this PVC has been manually selected to be the backup destination, and automatic redirection is disabled. The backup destination must be provisioned. This redirect action corresponds to the “Redirect to Backup” redirect action in the BNX implementation.

The value ***onDemand*** means this PVC is redirected automatically to either the primary destination or the backup destination based on the cross-net status of the primary destination. This automatic switch-over mechanism is revertive to the primary destination. The *crossNetListenEnabled* attribute of the *BnxProtocol* component must be ***yes*** and the backup destination must be provisioned. This redirect action corresponds to the “Switch on Demand” redirect action in the BNX implementation.

The ***-force*** option specifies that the PVC is redirected to either the primary destination or the backup destination indicated by the ***-destination*** option even if the destination is not active. When the value of ***-destination*** is ***onDemand***, this option is ignored.

## GROUP FrNni Dlci Bnxlwf Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group defines the provisioning attributes associated with a PVC using BNX frame relay interworking. |

## ATTRIBUTE FrNni Dlci Bnxlwf calledIpAddress (cia)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the IP address of the primary destination which receives the datagrams. |
| Values | IP address |
| Default | 0.0.0.0 |

## ATTRIBUTE FrNni Dlci Bnxlwf calledDlci (cdlci)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute specifies the DLCI of the primary destination which receives the datagrams. |
| Values | Decimal (16..1007) |
| Default | No default |

### ATTRIBUTE FrNni Dlci BnxIwf trafficPriority (tp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the user control on traffic priority. The value is transmitted in the traffic priority field of the BNX header. Possible values are:<br>***1*** - High Priority<br>***2*** - Normal Priority<br>***3*** - Low Priority<br>***useBpDefault*** - use the *defaultTrafficPriority* attribute value from the *BnxProtocol* component. |
| Values | 1<br>2<br>3<br>useBpDefault |
| Default | useBpDefault |

### ATTRIBUTE FrNni Dlci BnxIwf backupCalledIpAddress (bcia)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the IP address of the backup destination which receives the datagrams. A value of ***0.0.0.0*** for this attribute and a value of ***undefined*** for the *backupCalledDlci* attribute specify that there is no backup destination. |
| Values | IP address |
| Default | 0.0.0.0 |

### ATTRIBUTE FrNni Dlci BnxIwf backupCalledDlci (bcdlci)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the DLCI of the backup destination which receives the datagrams. A value of ***undefined*** for this attribute |

and a value of ***0.0.0.0*** for the *backupCalledIpAddress* attribute specify that there is no backup destination.

Values
Decimal (16..1007)
undefined

Default
undefined

## ATTRIBUTE FrNni Dlci Bnxlwf redirectType (rtype)

Access
Read and write

Description
This attribute indicates the type of DTE notification when a PVC redirection between primary and backup destinations occurs.

***transparent*** means no notification is sent to the DTE.

***aIntrusive*** means that an asynchronous update with the A-bit not set is sent to the DTE.

***nIntrusive*** means that an asynchronous update with the N-bit set is sent to the DTE.

Values
transparent
aIntrusive
nIntrusive

Default
aIntrusive

## ATTRIBUTE FrNni Dlci Bnxlwf minActiveIntervals (mai)

Access
Read and write

Description
This attribute specifies the minimum number of consecutive time intervals for which the primary destination must be active before the PVC is redirected back to the primary destination from the backup destination in ***switchOnDemand*** mode. The interval duration is controlled by the *crossNetPollingInterval* attribute of the *BnxProtocol* component. This attribute is ignored if the *BnxProtocol* attribute *crossNetListenEnabled* is set to ***no***.

If the value of this attribute is ***0***, the PVC is redirected back to the primary destination as soon as an active cross-net message is received from the primary destination.

| | |
|---|---|
| Values | Decimal (0..4) |
| Default | 0 |

### ATTRIBUTE FrNni Dlci Bnxlwf redirectAction (ra)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates the redirect action for a PVC. The Redirect command can be used to override this redirect action.<br><br>***switchOnDemand*** means this PVC is redirected automatically to either the primary destination or the backup destination based on the cross-net status of the primary destination. This automatic switch-over mechanism is revertive to the primary destination. The *crossNetListenEnabled* attribute of the *BnxProtocol* component must be ***yes*** and the backup destination must be provisioned. This redirect action corresponds to the “Switch on Demand” redirect action in the BNX implementation.<br><br>***manualPrimary*** means that the destination for this PVC has been manually selected to be the primary destination, automatic redirection is disabled. This redirect action corresponds to the “Redirect to Primary” redirect action in the BNX implementation.<br><br>***manualBackup*** means that the destination for this PVC has been manually selected to be the backup destination, and automatic redirection is disabled. The backup destination must be provisioned. This redirect action corresponds to the “Redirect to Backup” redirect action in the BNX implementation. |
| Values | switchOnDemand<br>manualPrimary<br>manualBackup |
| Default | manualPrimary |

### GROUP FrNni Dlci Bnxlwf Operational (Op)

| | |
|---|---|
| Properties | Operational |

| | |
|---|---|
| Description | This attribute group contains the operational status of the BNX frame relay interworking functionality. |

### ATTRIBUTE FrNni Dlci Bnxlwf timeOfLastStateChange (tlsc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the time at which the state of the DLCI last changed. |
| Values | Time (DHMS) |
| Default | No default |

### ATTRIBUTE FrNni Dlci Bnxlwf crossNetSent (cnsent)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates if a cross-net status message was sent to the primary destination during the current polling interval. The interval duration is controlled by the *crossNetPollingInterval* attribute of the *BnxProtocol* component. |
| Values | unsent<br>sent |
| Default | No default |

### ATTRIBUTE FrNni Dlci Bnxlwf crossNetStatus (cns)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the state of the PVC when the remote end is the primary destination. If the *crossNetListenEnabled* attribute of the *BnxProtocol* component is set to ***yes***, this attribute reflects the state as reported by the remote end. If the *crossNetListenEnabled* attribute is set to ***no***, the PVC is assumed to be up and this attribute has a value of ***active***. |
| Values | inactive<br>active |
| Default | inactive |

### ATTRIBUTE FrNni Dlci Bnxlwf crossNetReceived (cnr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates if the DLCI has received a cross-net status message from the primary destination during the current polling interval. The interval duration is controlled by the *crossNetPollingInterval* attribute of the *BnxProtocol* component. This attribute is ignored if the *BnxProtocol* attribute *crossNetListenEnabled* is set to ***no***. |
| Values | unrecv<br>recv |
| Default | unrecv |

### ATTRIBUTE FrNni Dlci Bnxlwf crossNetErrors (cne)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts how many polling intervals have elapsed without receiving an error free cross-net status message from the primary destination of the PVC. Errors are generally caused by time-outs. The value of this attribute wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrNni Dlci Bnxlwf ipAddressMismatches (iam)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the received datagrams which were dropped because the source IP address in the IP header did not match the value of *calledIpAddress* or *backupCalledIpAddress* attribute. The value of this attribute wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrNni Dlci Bnxlwf lastMismatchedIpAddress (lmia)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the source IP address in the IP header of the most recently received datagram which was dropped because this IP address did not match the value of *calledIpAddress* or *backupCalledIpAddress* attribute. |
| Values | IP address |
| Default | 0.0.0.0 |

### ATTRIBUTE FrNni Dlci Bnxlwf backupCrossNetSent (bcnsent)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates if a cross-net status message was sent to the backup destination during the current polling interval. The interval duration is controlled by the *crossNetPollingInterval* attribute of the *BnxProtocol* component. |
| Values | unsent<br>sent |
| Default | No default |

### ATTRIBUTE FrNni Dlci Bnxlwf backupCrossNetStatus (bcns)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the state of the PVC when the remote end is the backup destination. If the *crossNetListenEnabled* attribute of the *BnxProtocol* component is set to ***yes***, this attribute reflects the state as reported by the remote end. If the *crossNetListenEnabled* attribute is set to ***no***, the PVC is assumed to be up and this attribute has a value of ***active***. |
| Values | inactive<br>active |
| Default | inactive |

### ATTRIBUTE FrNni Dlci Bnxlwf backupCrossNetReceived (bcnr)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates if the DLCI has received a cross-net status message from the backup destination of the PVC during the current polling interval. The interval duration is controlled by the *crossNetPollingInterval* attribute of the *BnxProtocol*. This attribute is ignored if the *BnxProtocol* attribute *crossNetListenEnabled* is set to ***no***. |
| Values | unrecv<br>recv |
| Default | unrecv |

### ATTRIBUTE FrNni Dlci Bnxlwf backupCrossNetErrors (bcne)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts how many polling intervals have elapsed without receiving an error free cross-net status message from the backup destination of the PVC. Errors are generally caused by time-outs. The value of this attribute wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrNni Dlci Bnxlwf redirectMode (rmode)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the mode of the PVC redirection.<br><br>The value ***switchOnDemand*** means this PVC is redirected automatically to either the primary destination or the backup destination based on the cross-net status of the primary destination. This automatic switch-over mechanism is revertive to the primary destination.<br><br>The value ***manual*** means that the destination for this PVC has been manually selected and automatic redirection is disabled.<br><br>When the value is ***noBackup***, the PVC does not have a backup destination provisioned. |

| | |
|---|---|
| Values | switchOnDemand<br>manual<br>noBackup |
| Default | No default |

### ATTRIBUTE FrNni Dlci Bnxlwf currentDestination (cdest)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates if the current destination is the primary destination or the backup destination. |
| Values | primary<br>backup |
| Default | No default |

### ATTRIBUTE FrNni Dlci Bnxlwf remoteIpAddress (ria)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the IP address of the current destination. |
| Values | IP address |
| Default | No default |

### ATTRIBUTE FrNni Dlci Bnxlwf remoteDlci (rdlci)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the DLCI of the current destination. |
| Values | Decimal (16..1007) |
| Default | No default |

### ATTRIBUTE FrNni Dlci Bnxlwf ipFragFromSubnet (fragfs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the IP fragments received from subnet by this Dlci. The value of this attribute wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE FrNni Dlci Bnxlwf discardedIpFragments (discFrag)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the IP fragments that are dropped by this Dlci. The value of this attribute wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrNni Dlci Bnxlwf discMisorderedFrm (dmfrm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames from subnet that are dropped due to misordered fragments. A misordered fragment occurs when the offset in the IP header is not equal to the expected offset, or the timer expires before the last fragment is received. The value of this attribute wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrNni Dlci Bnxlwf lastDroppedIpFragmentId (lastid)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Id of the last misordered frame that was dropped. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT FrNni VirtualFramer (VFramer)

| | |
|---|---|
| Groups | "GROUP FrNni VFramer Provisioned (Prov)"<br>"GROUP FrNni VFramer OsiState (State)"<br>"GROUP FrNni VFramer Statistics (Stats)" |
| Scope | Application |

| | |
|---|---|
| Description | *FrUni/n VirtualFramer*<br>*FrDte/n VirtualFramer*<br>The *VirtualFramer* component binds two services together to provide data transfer between them. It is mutually exclusive from *Framer* component. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP FrNni VFramer Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisionable attributes for the *VirtualFramer* component. |

## ATTRIBUTE FrNni VFramer otherVirtualFramer (ovf)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the other *VirtualFramer* to which the service is linked, for example, *FrUni/n VirtualFramer*, *FrDte/n VirtualFramer*. |
| Values | Link (Service, otherVirtualFramer) |
| Default | No default |

## ATTRIBUTE FrNni VFramer logicalProcessor (lp)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the logical processor on which the service component will reside. |
| Values | Link (Hardware, linkToApplications) |
| Default | No default |

## GROUP FrNni VFramer OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

## ATTRIBUTE FrNni VFramer adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

## ATTRIBUTE FrNni VFramer operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component. |

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE FrNni VFramer usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP FrNni VFramer Statistics (Stats)

Properties
Operational

Description
This group contains the operational statistics data for a *VirtualFramer* component.

### ATTRIBUTE FrNni VFramer frmToOtherVFramer

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames transmitted to the *otherVirtualFramer*. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE FrNni VFramer frmFromOtherVFramer

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received from the *otherVirtualFramer*. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE FrNni VFramer octetFromOtherVFramer

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the octets received from the *otherVirtualFramer*. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE FrNni VFramer discFrmFromOtherVFramer (discFrmFromOvf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the discarded frames from the *otherVirtualFramer*. Incrementing of this counter indicates that some incoming traffic cannot be handled by the FP. |
| Values | Long Integer |
| Default | No default |

## COMPONENT FrNni Signaling (Sig)

| | |
|---|---|
| Groups | "GROUP FrNni Sig Prov"<br>"GROUP FrNni Sig ServiceParameters (ServParms)"<br>"GROUP FrNni Sig SystemParameters (SysParms)"<br>"GROUP FrNni Sig LapfSystemParameters (LapfSys)"<br>"GROUP FrNni Sig LastSvcClearCodes (Codes)"<br>"GROUP FrNni Sig OsiState (State)"<br>"GROUP FrNni Sig Statistics (Stats)"<br>"GROUP FrNni Sig LapfStatus"<br>"GROUP FrNni Sig LapfStatistics (LapfStats)"<br>"GROUP FrNni Sig FrsSvcAcc (Svcacc)" |
| Scope | Application |
| Description | *FrNni/n Signaling*<br>This component defines the FRF.10 and Q.922 (LAPF) parameters for Frame Relay switched virtual circuits at the Network-Network interface. This component must be provisioned for the *FrNni* interface to support switched connections. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP FrNni Sig Prov

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains common provisionable attributes for signaling at the interface. |

## ATTRIBUTE FrNni Sig dlciAllocation

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the order in which DLCIs are dynamically allocated for SVCs. The purpose of this attribute is to prevent DLCI collisions between SVCs initiated by two FrNni interfaces |

talking to each other. This is achieved by provisioning a different value for this attribute at each end of the NNI link.

A value of ***fromLowEnd*** specifies that the DLCI number assignment for SVC connections is initiated from the lowest value of the range (that is, *highestPvcDlci*+1 up to 1007).

A value of ***fromHighEnd*** specifies that the DLCI number assignment for SVC connections is initiated from the highest value of the range (that is, 1007 down to *highestPvcDlci*+1).

Values: fromLowEnd
fromHighEnd

Default: fromLowEnd

### ATTRIBUTE FrNni Sig highestPvcDlci

Access: Read and write

Criticality: Process

Description: This attribute specifies the highest DLCI value that can be provisioned for a permanent connection. It partitions the DLCI space into permanent and switched connections. Permanent DLCI numbers higher than this value cannot be provisioned. The value ***0*** is used to indicate that no permanent connections are allowed on this interface. The value ***1007*** indicates that no switched connections are allowed on this interface.

Values: Decimal (0; 16..1007)

Default: 500

### GROUP FrNni Sig ServiceParameters (ServParms)

Properties: Provisioned

Description: This group contains the provisionable service parameters.

### ATTRIBUTE FrNni Sig maximumFrameSize (dn1)

Access: Read and write

| | |
|---|---|
| Description | This attribute specifies the maximum number of octets that may be included in the information field of the user DLCI of any switched connections using this interface. Its value must not be smaller than the value of *defaultMaximumFrameSize*. |
| Values | Decimal (1..8187) |
| Units | octets |
| Default | 4096 |

### ATTRIBUTE FrNni Sig defaultMaximumFrameSize (defaultdn1)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the default maximum number of octets that may be included in the information field of the user DLCI assigned for any switched connections using this interface. This value is used during call parameter negotiation for switched calls on this interface when the maximum frame size is not specified in the user's SETUP message. The value of this attribute must not exceed the value of the *maximumFrameSize* attribute. |
| Values | Decimal (1..8187) |
| Units | octets |
| Default | 2100 |

### ATTRIBUTE FrNni Sig defaultCommittedInformationRate (defaultCir)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the default user to network direction CIR. This value is used during call parameter negotiation for switched calls on this interface when the CIR is not specified in the user's SETUP message. |
| Values | Decimal (0..52000000) |
| Units | bit/s |
| Default | 64000 |

### ATTRIBUTE FrNni Sig defaultCommittedBurstSize (defaultBc)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the default user to network direction Bc. This value is used during call parameter negotiation for switched calls on this interface when the Bc is not specified in the user's SETUP message. |
| Values | Decimal (0..52000000) |
| Units | bits |
| Default | 64000 |

### ATTRIBUTE FrNni Sig defaultExcessBurstSize (defaultBe)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the default user to network direction Be. This value is used during call parameter negotiation for switched calls on this interface when the Be is not specified in the user's SETUP message. |
| Values | Decimal (0..52000000) |
| Units | bits |
| Default | 0 |

### ATTRIBUTE FrNni Sig rateEnforcement (re)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether rate enforcement is in effect for SVCs on this interface. |
| Values | off<br>on |
| Default | on |

### ATTRIBUTE FrNni Sig rateAdaptation (ra)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute specifies whether closed-loop rate adaptation is in effect for SVCs on this interface. Rate adaptation is a feature that, in periods of congestion, adapts the rate at which the user is allowed to send data into the network to that which the network is able to handle at that time. This proactive measure of handling congestion optimizes network resources by causing the ingress to discard frames that would otherwise be discarded in the network.<br><br>If this attribute is set to ***on***, then, at the onset of congestion, the excess information rate (EIR) is reduced to a very low rate. If congestion persists, then the allowed CIR is reduced geometrically by 25% of the current value at that time. The minimum to which CIR can be reduced is 1/16th (6.25%) of the provisioned value. As congestion alleviates, CIR is increased linearly by 6.25% of the provisioned value specified in *committedInformationRate*.<br><br>If set to ***eirOnly***, then rate adaptation will only apply to the excess information rate (EIR). At the onset of congestion, the allowed EIR is reduced by 25% of its provisioned value. If congestion persists, EIR is reduced geometrically by 25% of the current value at that time. As congestion alleviates, EIR is gradually increased linearly by 6.25% of the provisioned EIR.<br><br>If set to ***cirProportionate***, then rate adaptation will also only apply to the excess information rate (EIR). At the onset of congestion the initial allowed EIR is set to a multiple of the provisioned CIR. If congestion persists, the allowed EIR is reduced geometrically by 25% of the current value at that time. As congestion alleviates, EIR is gradually increased linearly by 6.25% of the provisioned EIR. Note that the allowed EIR may be set higher than the provisioned EIR, since it is calculated initially using another parameter, the provisioned CIR. If the allowed EIR at the moment is higher than the provisioned EIR, then the provisioned EIR is used instead.<br><br>This attribute can only be set to ***on*** or ***eirOnly*** if *rateEnforcement* is set to ***on***. |
| Values | off<br>on |

| | |
|---|---|
| | eirOnly<br>cirProportionate |
| Default | off |

### ATTRIBUTE FrNni Sig raSensitivity (rasens)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the sensitivity of the rate adaptation system for all switched connections on this interface.<br><br>A higher number indicates a higher sensitivity and therefore a quicker reaction time to network conditions. A quicker reaction time allows the network to discard frames at the access and protect network resources, but can lead to false alarms and a greater fluctuation of the allowed rate. A higher setting therefore tends to favor the protection of the network over the allowed throughput of the user.<br><br>A lower number indicates a lower sensitivity and therefore a slower reaction to network conditions. A slower reaction time results in a greater amount of user traffic allowed into the network, but can lead to a waste of network bandwidth since the traffic may be discarded at the congested resource. A lower setting therefore tends to favour the allowed throughput of the user over the protection of the network.<br><br>This attribute is applicable for adapting EIR when *rateAdaptation* is ***eirOnly*** or ***cirProportionate***, or CIR when *rateAdaptation* is ***on***.<br><br>This attribute is ignored if *rateAdaptation* is ***off***. |
| Values | Decimal (1..20) |
| Default | 7 |

### ATTRIBUTE FrNni Sig updateBCI (updBCI)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether internal Backward Congestion Indication (BCI) bits will report congestion external to the |

Passport network, as communicated through incoming BECN bits.

If *updateBCI* is set to ***on***, then BCI bits for incoming frames will be set if the BECN on the frame is set. If *updateBCI* is set to ***off***, then incoming BECN bits has no effect.

Setting *updateBCI* ***on*** for a DLCI means that the remote end of the DLCI, which is specified by the *remoteDna* and *remoteDlci* attributes of the *Dc* component of the *Dlci*, may perform Rate Adaptation using the flow of incoming BECN bits, in addition to internal Passport congestion management systems.

If the *rateAdaptation* attribute of the remote DLCI is provisioned as ***eirOnly***, ***cirProportionate***, or ***on***, then congestion from another network connected to a Passport network may trigger dynamic congestion management. If there is no rate adaptation at the other end, then the setting of *updateBCI* attribute here will have no effect.

| | |
|---|---|
| Values | off<br>on |
| Default | off |

## GROUP FrNni Sig SystemParameters (SysParms)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable FRF.10 system parameters. |

## ATTRIBUTE FrNni Sig callSetupTimer (t303)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time this interface waits for a response to the SETUP message sent to the adjacent network. Upon timer expiry, the SETUP message is retransmitted. The second expiry of this timer causes the call to be cleared. |
| Values | Decimal (1..255) |
| Units | seconds |

| | |
|---|---|
| Default | 4 |

### ATTRIBUTE FrNni Sig releaseTimer (t308)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time this interface waits for a response to the RELEASE message sent to the adjacent network. Upon timer expiry, the RELEASE message is retransmitted. The second expiry of the timer causes the call to be released. |
| Values | Decimal (1..255) |
| Units | seconds |
| Default | 4 |

### ATTRIBUTE FrNni Sig callProceedingTimer (t310)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time this interface waits for the CONNECT message from the adjacent network after the network has received the optional CALL PROCEEDING message from the adjacent network. Upon timer expiry, the call is cleared. |
| Values | Decimal (1..255) |
| Units | seconds |
| Default | 30 |

### ATTRIBUTE FrNni Sig restartReqTimer (t316)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time this interface waits for the RESTART ACKNOWLEDGE message from the adjacent network after sending a first RESTART message. Upon timer expiry, another RESTART message is sent. After the second expiry, the interface is treated as idle.<br><br>If the *restartReqTimer* attribute is set to the default value, then the interface is treated as idle when it receives an indication that the link is up and does not send a RESTART message. |

| | |
|---|---|
| Values | Decimal (0..255) |
| Units | seconds |
| Default | 0 |

### ATTRIBUTE FrNni Sig restartRcvTimer (t317)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time this interface waits for the processing of a RESTART message received by the interface. Upon expiry of this timer, an alarm will be displayed to report the problem. The timer value must be less than the *restartReqTimer* provisioned value at the adjacent node. |
| Values | Decimal (1..255) |
| Units | seconds |
| Default | 110 |

### ATTRIBUTE FrNni Sig statusEnqTimer (t322)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time the network waits for the requested STATUS message from the adjacent network. Upon expiry of this timer, another STATUS ENQUIRY message will be sent. |
| Values | Decimal (1..255) |
| Units | seconds |
| Default | 4 |

### ATTRIBUTE FrNni Sig networkType (type)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether this Frame Relay service is running on a public or a private network. This value is used solely in populating applicable information elements within those signaling messages that require a public or private network indication. |

| | |
|---|---|
| Values | private<br>public |
| Default | private |

### GROUP FrNni Sig LapfSystemParameters (LapfSys)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the SVC data link layer. The data link layer is governed primarily through ITU specification Q.922, and operates over DLCI 0. |

### ATTRIBUTE FrNni Sig windowSize (ws)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the window size. This is the maximum number of unacknowledged sequenced frames that may be outstanding from or to this interface at any one time. |
| Values | Decimal (1..127) |
| Default | 7 |

### ATTRIBUTE FrNni Sig retransmitLimit (rtl)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the number of times a frame can be retransmitted by the SVC data link layer before appropriate recovery action is taken. |
| Values | Decimal (0..20) |
| Default | 3 |

### ATTRIBUTE FrNni Sig ackTimer (at)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies how long the layer 2 protocol waits for an acknowledgment to a sent frame. The value set for *ackTimer* must be less than the value set for *idleProbeTimer*. |
| Values | Decimal (1000..10000) |

| | |
|---|---|
| Units | msec |
| Default | 1500 |

### ATTRIBUTE FrNni Sig ackDelayTimer (adt)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies how long the network waits before sending an acknowledgment for a received in-sequence I-frame. A value of 0 means that every frame is acknowledged and there will be no delay in acknowledgment. A non-zero value means that one acknowledgement is sent for a number of frames. |
| Values | Decimal (0..10000) |
| Units | msec |
| Default | 0 |

### ATTRIBUTE FrNni Sig idleProbeTimer (ipt)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies how long the link is permitted to remain idle (that is, no frames are exchanged on the data link). Upon expiry of this timer, the network side's link layer polls its peer for status. The value set for *idleProbeTimer* must be greater than the value set for *ackTimer.* |
| Values | Decimal (1000..65535000) |
| Units | msec |
| Default | 30000 |

### GROUP FrNni Sig LastSvcClearCodes (Codes)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the remote data network address, the last SVC clear cause and the last SVC diagnostic code coming from the subnet or the local VC. |

### ATTRIBUTE FrNni Sig lastClearRemoteDataNetworkAddress

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the Data Network Address (DNA) of the remote (the other end of the SVC connection) of the call which cleared last and whose clear and diagnostic codes were recorded. |
| Values | BCD (0..15) |
| Default | No default |

### ATTRIBUTE FrNni Sig lastClearCause

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the last SVC clear cause signalled at the end of the connection or failure to connect. It is updated only if the clear request comes from the subnet or the call is rejected locally by the VC. The same set of possible values provides the clear cause field in the accounting record. |
| Values | Decimal (0..255) |
| Default | 0 |

### ATTRIBUTE FrNni Sig lastDiagnosticCode

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the last SVC diagnostic code signalled at the end of the connection or failure to connect. It is updated if the clear request comes from the subnet or the call is rejected locally by the VC. The same set of possible values provides the diagnostic code field in the accounting record. |
| Values | Decimal (0..255) |
| Default | 0 |

### GROUP FrNni Sig OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

## ATTRIBUTE FrNni Sig adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

## ATTRIBUTE FrNni Sig operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |

| | |
|---|---|
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE FrNni Sig usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP FrNni Sig Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the statistics related to the SVC signaling layer at the interface level. |

### ATTRIBUTE FrNni Sig currentNumberOfSvcCalls (ncall)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of Frame Relay SVCs currently existing on this interface. |
| Values | Decimal (0..992) |
| Default | No default |

### ATTRIBUTE FrNni Sig inCalls (incall)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current number of incoming SVCs on this interface (that is, the number of SVCs for which this interface represents the destination end of the call). |
| Values | Decimal (0..992) |
| Default | No default |

### ATTRIBUTE FrNni Sig inCallsRefused (icr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the incoming SVC call requests that are rejected by either this interface or by the called user. When this count exceeds the maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrNni Sig outCalls (outcall)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current number of outgoing SVCs on this interface (that is, the number of SVCs for which this interface represents the source end of the call). |
| Values | Decimal (0..992) |
| Default | No default |

### ATTRIBUTE FrNni Sig outCallsFailed (ocf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the outgoing SVC call requests that are rejected by either this interface, or by the network side of the destination end, or by the called user. When this count exceeds the maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |

Default No default

### ATTRIBUTE FrNni Sig protocolErrors (pe)

Access Read only

Description This attribute counts the number of times a FRF.10 protocol error has occurred. Any one of the following events constitutes a protocol error:
1. In the user-signaled *Link Layer Core Parameters* IE within the SETUP or CONNECT messages, *Cir*, *Bc* and *Be* are all zero;
2. In the user-signaled *Link Layer Core Parameters* IE within the SETUP or CONNECT messages, *Cir* is zero but *Bc* is non-zero, or *Bc* is zero but *Cir* is non-zero;
3. In the user-signaled *Link Layer Core Parameters* IE within the SETUP or CONNECT messages, the *Minimum Acceptable CIR* is greater than *Cir*;
4. At the destination end, any of the destination to source direction
link layer core parameters has been increased in the CONNECT message from the called user;
5. At the destination end, the destination to source direction *Cir* in the CONNECT message is smaller than the corresponding *minimum acceptable Cir* signaled to the called user;
6. At the source end, any of the source to destination direction link layer core parameters in the CONNECT message from the destination end has been increased;
7. At the source end, the source to destination direction *Cir*, after negotiation, is smaller than the corresponding *minimum acceptable Cir*;
8. The network has received a STATUS message from the user with an incompatible FRF.10 state.

When this count reaches maximum, it wraps to zero.

Values Decimal (0..4294967295)

Default No default

### ATTRIBUTE FrNni Sig qualityOfServiceNotAvailable (qosna)

Access Read only

| | |
|---|---|
| Description | This attribute counts the number of incoming and outgoing SVCs that are rejected because the quality of service requested cannot be met by the network. When this count reaches maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrNni Sig setupTimeout (setupt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times the T303 setup timer has expired. When this count reaches maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrNni Sig lastCauseInStatusMsgReceived (lcis)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the cause value in the last received user's STATUS message to an existing call. The DLCI to which this STATUS message applies is specified in the *lastDlciReceivedStatus* attribute.<br><br>The initial value of this attribute is **0** which means that no STATUS message has been received for an existing call yet. |
| Values | Decimal (0..255) |
| Default | 0 |

### ATTRIBUTE FrNni Sig lastStateInStatusMsgReceived (lsis)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the state value in the last received user's STATUS message to an existing call. The DLCI to which this STATUS message applies is specified in the *lastDlciReceivedStatus* attribute.<br><br>The initial value of this attribute is ***notApplicable***. |

| | |
|---|---|
| Values | null<br>callInitiated<br>outgoingCallProceeding<br>callPresent<br>incomingCallProceeding<br>active<br>releaseRequest<br>releaseIndication<br>restartRequest<br>restart<br>notApplicable<br>2<br>4<br>5<br>7<br>8<br>13<br>14<br>15<br>16<br>17<br>18<br>19<br>21<br>22<br>23<br>24<br>25<br>26<br>27<br>28<br>29<br>30<br>31<br>32<br>33<br>34<br>35<br>36<br>37<br>38 |

39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
63

Default notApplicable

### ATTRIBUTE FrNni Sig lastDlciReceivedStatus (ldrs)

Access Read only

Description This attribute shows the value of the DLCI that has most recently received a STATUS message from the user.

The initial value of this attribute is ***0***.

Values Decimal (0; 16..1007)

Default 0

### ATTRIBUTE FrNni Sig lastStateReceivedStatus (lsrs)

Access Read only

| | |
|---|---|
| Description | This attribute shows the network FRF.10 state of the DLCI that has most recently received a STATUS message from the user. The DLCI to which this STATUS message applies is specified in the *lastDlciReceivedStatus* attribute.<br><br>The initial value of this attribute is ***notApplicable***. |
| Values | null<br>callInitiated<br>outgoingCallProceeding<br>callPresent<br>incomingCallProceeding<br>active<br>releaseRequest<br>releaseIndication<br>restartRequest<br>restart<br>notApplicable |
| Default | notApplicable |

### ATTRIBUTE FrNni Sig dlciCollisions

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of call failures due to DLCI collisions. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrNni Sig bandwidthNotAvailable

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of call failures for each bandwidth pool due to the requested bandwidth not being available. |
| Vector of | Decimal (0..4294967295) |
| Index | Decimal (0..15) |
| Default | No default |

## GROUP FrNni Sig LapfStatus

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the Q.922 SVC data link layer status. |

## ATTRIBUTE FrNni Sig currentState (currState)

| | |
|---|---|
| Access | Read only |
| Description | This attribute shows the current state of the SVC data link layer interface. |
| Values | disconnected<br>linkSetup<br>disconnectRequest<br>informationTransfer<br>waitingAck |
| Default | No default |

## ATTRIBUTE FrNni Sig lastStateChangeReason (lscr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute shows the reason for the most recent state change.<br>***notStarted*** - this is the default state after SVC data link has just been created.<br><br>***abmeEntered*** - SVC data link has entered Asynchronous Balanced Mode after SABME or UA has been received.<br>***abmeReset*** - the data link has been reset.<br>***dmReceived*** - DM response received.<br>***dmSent*** - DM sent.<br>***discReceived*** - DISC response received.<br>***discSent*** - DISC sent.<br>***frmrReceived*** - FRMR received.<br>***n200RetranTimeOut*** - *retransmitLimit* has been exceeded.<br>***other*** - unspecified state change reasons. The most likely reason for this is the transition from state ***waitingAck*** to state ***informationTransfer***. |
| Values | notStarted<br>abmeEntered |

| | |
|---|---|
| | abmeReset<br>dmReceived<br>dmSent<br>discReceived<br>discSent<br>frmrReceived<br>n200RetranTimeOut<br>other |
| Default | notStarted |

### ATTRIBUTE FrNni Sig frmrReceive (frmrr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute shows the information field of the Frame Reject (FRMR) most recently received. |
| Values | String (0..8, Hex) |
| Default | No default |

### ATTRIBUTE FrNni Sig currentQueueSize (queues)

| | |
|---|---|
| Access | Read only |
| Description | This attribute shows the current number of frames in the SVC data link layer transmit queue. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP FrNni Sig LapfStatistics (LapfStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the statistics for the SVC data link layer. |

### ATTRIBUTE FrNni Sig remoteBusy

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times transmission of an I-frame was unsuccessful due to a perceived remote busy condition |

| | |
|---|---|
| | (window closed or remote busy). When this count reaches maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrNni Sig receiveRejectFrame

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of REJ frames received by the interface. When this count reaches maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrNni Sig ackTimeout

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times the *ackTimer* has expired. Frequent increments of this counter indicate a problem at the link or improper values have been chosen for *ackTimer* and *ackDelayTimer* between the local and remote sides. When this count reaches maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrNni Sig iFramesTransmitted

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of SVC I-frames transmitted to the interface on DLCI 0. An I-frame may be counted more than once if there are retransmissions at the SVC data link layer. When this count reaches maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrNni Sig iFramesTxDiscarded

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of SVC I-frames that are bound for the link but have been discarded. Discard reasons may be one of the following:<br>1. the frame length is beyond the allowed limit.<br>2. the SVC data link layer is in ***disconnected*** state.<br>3. the transmit queue has been purged because the queue length has reached the reset threshold.<br>4. the transmit queue or the queue waiting for acknowledgment has been purged because the link cannot be re-established.<br><br>When this count reaches maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrNni Sig iFramesReceived

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of SVC I-frames received from the interface. When this count reaches maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrNni Sig iFramesRcvdDiscarded

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of SVC I-frames received but have been discarded. The discard reasons are:<br>1. incorrect frame size<br>2. frame is out of sequence<br>3. frame received while the network side of the SVC data link layer is not in the ***informationTransfer*** or ***waitingAck*** state.<br><br>When this count reaches maximum, it wraps to zero. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrNni Sig stateChange

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times the SVC data link layer interface has changed state. While the data link layer is in ***informationTransfer*** state, this counter will increment on each expiry of *idleProbeTimer* as its state goes from ***informationTransfer*** to ***waitingAck*** and back. When this count exceeds the maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP FrNni Sig FrsSvcAcc (Svcacc)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attribute which controls accounting for this interface. |

### ATTRIBUTE FrNni Sig defaultAccounting (defAcc)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies whether accounting data collection and record generation is turned on for switched connections at this interface. For accounting data collection and record generation to occur, this attribute must be ***on*** and at least one of the *accountCollection* reasons in the *Dna* component must be present. |
| Values | off<br>on |
| Default | on |

## COMPONENT FrNni LoadTestSystem (Lts)

| | |
|---|---|
| Groups | "GROUP FrNni Lts Setup (Setup)"<br>"GROUP FrNni Lts OperationalState (State)"<br>"GROUP FrNni Lts Results (Results)" |
| Scope | Application |
| Description | *FrUni/n LoadTestSystem*<br>*FrNni/n LoadTestSystem*<br>This component defines an instance of the Frame Relay Load Test System (UNI) service. The component instance value n is a unique positive integer within a module. |
| Subcomponents | "COMPONENT FrNni Lts Pattern (Pat)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## VERB START FrNni Lts

| | |
|---|---|
| Impact | Service |
| Description | *START FrUni/n Lts*<br>This verb starts the load generator. The load generator can be stopped by issuing the stop verb. |

## VERB STOP FrNni Lts

| | |
|---|---|
| Impact | Service |
| Description | *STOP FrUni/n Lts*<br>This verb stops the traffic generator. |

## VERB RESET FrNni Lts

| | |
|---|---|
| Impact | Service |
| Description | *RESET FrUni/n Lts*<br>This verb clears the TestStatistics |

## GROUP FrNni Lts Setup (Setup)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains the parameters used to configure the behavior of the Frame Relay Load Test System. |

## ATTRIBUTE FrNni Lts duration (dur)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the duration of the test in milliseconds. The test will run until the duration expires or the STOP command is issued. A value of 0 is used to indicate infinity. |
| Values | Decimal (0..4294967295) |
| Units | msec |
| Default | 0 |

## ATTRIBUTE FrNni Lts algorithm (alg)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies which algorithm is used to generate the frames.<br><br>**ContinuousBurst**<br>This mode of traffic generation creates traffic at the maximum rate possible until all of the frames have been sent. The generator then waits until the end of the timeInterval to begin again.<br><br>**IntervalBurst**<br>This algorithm attempts to generate 10 ms bursts of burstSize frames. It will generate as many of the burstSize frames as it can per sub-interval.<br><br>**DelayedBurst**<br>This algorithm generates bursts of burstSize frames separated by 10 ms delays.<br><br>**FixedBurst**<br>This aglorithm is similar to IntervalBurst, except a fixed burst |

size of 12 frames is used.

**delayMeasurement**
This algorithm is used to measure delay. The specified number of frames in the indicated pattern are generated, one at a time, with a maximum wait of maxDelay before sending the next frame.
This algorithm is not implemented yet.

| | |
|---|---|
| Values | continousBurst (cont)<br>intervalBurst (int)<br>delayBurst (delay)<br>fixedBurst (fixed) |
| Default | continousBurst |

### ATTRIBUTE FrNni Lts burstSize (fpb)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the number of frames per burst under the delayedBurst and intervalBurst algorithms. |
| Values | Decimal (1..250) |
| Default | 50 |

### ATTRIBUTE FrNni Lts timeInterval (tint)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time interval to the specified number of seconds. Granuality is in centiseconds. Maximum is 1 minute. |
| Values | Decimal (1..60000) |
| Units | csec |
| Default | 100 |

### GROUP FrNni Lts OperationalState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operation statistics of the load generator. |

### ATTRIBUTE FrNni Lts generatorState (gstate)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether the Lts is generating traffic. |
| Values | stopped<br>running |
| Default | stopped |

### ATTRIBUTE FrNni Lts cycleIncomplete (cycle)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether the time required to generate all of the enabled patterns is more than timeInterval by a true value. Otherwise, this flag is set to false. Default is True. |
| Values | false<br>true |
| Default | true |

### ATTRIBUTE FrNni Lts lastActiveInterval (actInt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the actual time it took to generate all of the enabled patterns in the last cycle. If cycleIncomplete is true, this value should be zero. |
| Values | Decimal (0..4294967295) |
| Units | microsec |
| Default | No default |

### ATTRIBUTE FrNni Lts load

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the load being generated. This value represents that calculated using the set number of ticks. The actual burstTimeInterval may differ. One entire cycle of the patterns is completed in activeInterval and thus most of the load may be concentrated early in the set interval. |

| | |
|---|---|
| Values | Decimal (0.000..4294967.295) |
| Units | kbit/s |
| Default | No default |

### ATTRIBUTE FrNni Lts elapsedGenerationTime (etime)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates how many milliseconds have elapsed since the start of this test. |
| Values | Decimal (0..4294967295) |
| Units | msec |
| Default | No default |

### GROUP FrNni Lts Results (Results)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the frame counting attributes for the LTS component. |

### ATTRIBUTE FrNni Lts framesTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the number of frames send to the network since the last time these statistics were cleared. This is similar to the framesToIf attribute of the FRAMER component. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrNni Lts bytesTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of bytes sent. |
| Values | Decimal (0..4294967295) |
| Units | bytes |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE FrNni Lts bitRateTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the bit rate being sent to the link. It should only differ from the load if the burstTimeInterval would be >= the timeInterval or burstSize frames cannot be generated in 10ms (intervalBurst algorithm). |
| Values | Decimal (0.000..4294967.295) |
| Units | kbit/s |
| Default | 0.000 |

### ATTRIBUTE FrNni Lts frameRateTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the frame rate being sent to the link. It is calculated using the number of frames sent to the link in one cycle of the patterns. |
| Values | Decimal (0..4294967295) |
| Units | frame/s |
| Default | 0 |

### COMPONENT FrNni Lts Pattern (Pat)

| | |
|---|---|
| Instance | Decimal (0..29) |
| Groups | "GROUP FrNni Lts Pat Defaults (Defaults)"<br>"GROUP FrNni Lts Pat Setup (Setup)"<br>"GROUP FrNni Lts Pat OperationalData (OpData)"<br>"GROUP FrNni Lts Pat OperationalState (OpState)" |
| Scope | Application |
| Description | FrUni/n Lts Pattern<br>FrNni/n Lts Pattern<br>Each instance of this component specifies a pattern to be |

generated as part of each cycle. One cycle represents one pass through each pattern.

Common Verbs

Help
List
Display
Add
DELete

### VERB TRIGGER FrNni Lts Pat

Impact: Service

Description: *TRIGGER FrUni/x Lts Pattern/y*
This verb triggers the single execution of the specified pattern. In order for this command to be executed, the Lts component cannot be generating traffic.

### GROUP FrNni Lts Pat Defaults (Defaults)

Properties: Provisioned

Description: This attribute group contains the specifications of the pattern.

### ATTRIBUTE FrNni Lts Pat defaultDlci (dDlci)

Access: Read and write

Description: This attribute specifies for which dlci (on the local end) the frames are destined.

Values: Decimal (16..1007)

Default: 16

### ATTRIBUTE FrNni Lts Pat defaultNumFrames (dNum)

Access: Read and write

Description: This attribute specifies the number of frames in this pattern. This is the number of frames of this type which will be generated in one timeInterval.

Values: Decimal (0..4294967295)

| | |
|---|---|
| Default | 100 |

### ATTRIBUTE FrNni Lts Pat defaultDataSize (dSize)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the payload size of each frame in bytes. This is in excess to the header. |
| Values | Decimal (0..8200) |
| Units | octets |
| Default | 512 |

### ATTRIBUTE FrNni Lts Pat defaultHeaderBits (dBits)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether the following bits are on/off in the header of each frame. The following bits can be set: BeCn, C/R, De, FeCn |
| Set of | becn<br>fecn<br>cr<br>de |
| Default | No default |

### ATTRIBUTE FrNni Lts Pat defaultHeaderLength (dLen)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the size of the frame relay header in bytes. Passport currently only supports a 2-byte header. |
| Values | Decimal (0; 2..4) |
| Units | octets |
| Default | 2 |

### ATTRIBUTE FrNni Lts Pat defaultEABits (dEABits)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute specifies how the address field extension bits are set in the frame header. Consider the value to be a four bit binary number. For example, 4 = 0100. Only the first headerLength bits are used. For instance, suppose headerLength is 3, then the appropriate EABits is 2, or 0010. This attribute can be used to create a header of length greater than two bytes or to specify incorrect EABits in the header. |
| Values | Hex (H.0..H.f) |
| Default | H.4 |

### ATTRIBUTE FrNni Lts Pat defaultPayloadPattern (dPattern)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the payload of each frame. The value specified is in hexadecimal, where every two digits represent a byte. A maximum of 24 digits (12 bytes) may be set, after which the pattern will repeat in the payload (depending on repeatPattern attribute).<br>NOTE: If a RFC 1490 header is specified, via the 1490Header attribute, the specified pattern will begin following the header (i.e. at the 9th byte in the payload). |
| Values | String (1..12, Hex) |
| Default | 55 |

### ATTRIBUTE FrNni Lts Pat defaultRfc1490Header (d1490)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the appropriate RFC 1490 encapsulated header of the frame. A value of 0 indicates no 1490 header.<br>NOTE: This header resides in the first 8 bytes of the payload. If the specified value is non-zero, then the payload pattern provisioned will begin at the 9th byte. |
| Values | 0<br>1<br>2<br>3<br>4 |

5
6
7
8
9
10
11
12
13
14
15
16
17
none

Default none

### ATTRIBUTE FrNni Lts Pat defaultUseBadLrc (dBadLrc)

Access Read and write

Description This attribute specifies whether the frames from this pattern are to have a bad LRC prior to being sent to the framer. The LRC is checked while the frame is being put onto the link and the failure should cause an abort frame to be sent.

Values no
yes

Default no

### GROUP FrNni Lts Pat Setup (Setup)

Properties Operational

Description This attribute group contains the specifications of the pattern.

### ATTRIBUTE FrNni Lts Pat dlci

Access Read and write

Description This attribute specifies for which dlci (on the local end) the frames are destined.

Values Decimal (16..1007)

| | |
|---|---|
| Default | 16 |

### ATTRIBUTE FrNni Lts Pat numFrames (num)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the number of frames in this pattern. This is the number of frames of this type which will be generated in one timeInterval. |
| Values | Decimal (0..4294967295) |
| Default | 100 |

### ATTRIBUTE FrNni Lts Pat dataSize (size)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the payload size of each frame in bytes. This is in excess to the header. |
| Values | Decimal (0..8200) |
| Units | octets |
| Default | 512 |

### ATTRIBUTE FrNni Lts Pat headerBits (bits)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether the following bits are on/off in the header of each frame. The following bits can be set: BeCn, C/R, De, FeCn |
| Set of | becn<br>fecn<br>cr<br>de |
| Default | No default |

### ATTRIBUTE FrNni Lts Pat headerLength (len)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute specifies the size of the frame relay header in bytes. Passport currently only supports a 2-byte header. Valid values are 0, 2, 3, 4. 0 indicates to use no header. That is, the frame will start with either the payload or rfc1490 header. |
| Values | Decimal (0; 2..4) |
| Units | octets |
| Default | 2 |

### ATTRIBUTE FrNni Lts Pat eaBits

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies how the address field extension bits are set in the frame header. Consider the value to be a four bit binary number. For example, 4 = 0100. Only the first headerLength bits are used. For instance, suppose headerLength is 3, then the appropriate eaBits is 2, or 0010. This attribute can be used to create a header of length greater than two bytes or to specify incorrect eaBits in the header. |
| Values | Hex (H.0..H.f) |
| Default | H.4 |

### ATTRIBUTE FrNni Lts Pat payloadPattern (pattern)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the payload of each frame. The value specified is in hexadecimal, where every two digits represent a byte. A maximum of 24 digits (12 bytes) may be set, after which the pattern will repeat in the payload (depending on repeatPattern attribute).<br>NOTE: If a RFC 1490 header is specified, via the 1490Header attribute, the specified pattern will begin following the header (i.e. at the 9th byte in the payload). |
| Values | String (1..12, Hex) |
| Default | 55 |

### ATTRIBUTE FrNni Lts Pat rfc1490Header (rfc)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the appropriate RFC 1490 encapsulated header of the frame. A value of 0 indicates no 1490 header. NOTE: This header resides in the first 8 bytes of the payload. If the specified value is non-zero, then the payload pattern provisioned will begin at the 9th byte. |
| Values | 0<br>1<br>2<br>3<br>4<br>5<br>6<br>7<br>8<br>9<br>10<br>11<br>12<br>13<br>14<br>15<br>16<br>17<br>none |
| Default | none |

### ATTRIBUTE FrNni Lts Pat useBadLrc

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether the frames from this pattern are to have a bad LRC prior to being sent to the framer. The LRC is checked while the frame is being put onto the link and the failure should cause an abort frame to be sent. |
| Values | no<br>yes |

| | |
|---|---|
| Default | no |

### GROUP FrNni Lts Pat OperationalData (OpData)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes which allow changing the pattern outside of provisioning mode. |

### ATTRIBUTE FrNni Lts Pat framePattern

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the first 20 to 24 bytes of the frame payload, depending on the frame relay header size selected. This attribute represents the frame if it were at least 20 to 24 bytes in size. That is, the actual frame may be smaller. |
| Values | String (20..24, Hex) |
| Default | No default |

### ATTRIBUTE FrNni Lts Pat hdlcBitsInserted (hdlc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays how many times a zero bit will be inserted after 5 consecutive 1 bits when a frame from this pattern is sent out. |
| Values | Decimal (0..65535) |
| Default | No default |

### GROUP FrNni Lts Pat OperationalState (OpState)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the attributes containing the operational statistics of the pattern. |

### ATTRIBUTE FrNni Lts Pat load

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the load due to this particular pattern. The loads associated with all of the provisioned patterns are summed to arrive at the FrLts load. |
| Values | Decimal (0.000..4294967.295) |
| Units | kbit/s |
| Default | No default |

### ATTRIBUTE FrNni Lts Pat status

| | |
|---|---|
| Access | Read and write |
| Description | This attributes specifies the administrative state of the pattern. A disabled pattern will not be generated, although it can still be triggered. |
| Values | disabled<br>enabled |
| Default | enabled |

### COMPONENT FrNni ServiceTrace (SrvTrace)

| | |
|---|---|
| Groups | "GROUP FrNni SrvTrace Operational" |
| Scope | Application |
| Description | *FrUni/n ServiceTrace*<br>*FrNni/n ServiceTrace*<br>The *ServiceTrace* component of the Frame Relay service determines if the trace capability is allowed on this interface. If it is not provisioned, then a service trace session cannot be started on this service.<br><br>Frame Relay service trace is restricted to use FrameRelay, X25 or ATM service trace receiver. If the *SrvTrace rcvr* operational attribute is set to a string name of FrAtm service trace receiver, *Start* command will return a “Receiver Not Supported” response. |

| | |
|---|---|
| Dyn. Subcomp. | "COMPONENT FrNni SrvTrace Filter" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### VERB Start FrNni SrvTrace

| | |
|---|---|
| Impact | Service |
| Description | *Start FrUni/n ServiceTrace*<br>*Start FrNni/n ServiceTrace*<br>This command starts a Frame Relay service trace session. |

### VERB Stop FrNni SrvTrace

| | |
|---|---|
| Impact | Service |
| Description | *Stop FrUni/n ServiceTrace*<br>*Stop FrNni/n ServiceTrace*<br>This command stops a Frame Relay service trace session. |

### GROUP FrNni SrvTrace Operational

| | |
|---|---|
| Properties | Operational |
| Description | This group provides the operational attributes for the *SrvTrace* component. |

### ATTRIBUTE FrNni SrvTrace receiverName (rcvr)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute should be set to the name of the desired trace receiver before starting a trace session. All available trace receivers are listed under the *SrvTrace Rcvr* component. This attribute cannot be set while the service trace is active. The receiver name is validated by the trace manager when the service *SrvTrace* is started. |

| | |
|---|---|
| Values | String (0..8, ASCII) |
| Default | No default |

### ATTRIBUTE FrNni SrvTrace duration

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the duration, in minutes, of a trace session. A value of ***0*** indicates unlimited duration in which case a trace session remains active until a *Stop* command is issued. This attribute cannot be set while a trace is active. |
| Values | Decimal (0..9999) |
| Units | minutes |
| Default | 60 |

### ATTRIBUTE FrNni SrvTrace queueLimit

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the total number of bytes of traced data which may be queued for transmission to the trace receiver. When this limit is exceeded, incoming traced frames are discarded. This attribute can be set while a trace is active and takes effect immediately. |
| Values | Decimal (1..100) |
| Units | Kbyte |
| Default | 20 |

### ATTRIBUTE FrNni SrvTrace session

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the *SrvTrace Session* component that is forwarding the trace data. This attribute is set automatically, and is empty unless the service trace is active. |
| Values | The name of the component |
| Default | No default |

## COMPONENT FrNni SrvTrace Filter

| | |
|---|---|
| Groups | "GROUP FrNni SrvTrace Filter Operational" |
| Scope | Application |
| Description | *FrUni/n SrvTrace Filter*<br>*FrNni/n SrvTrace Filter*<br>The *Filter* component defines the type of traced data that is sent to the receiver. The *Filter* component provides default values for all its attributes which are sufficient to start a trace session. If required, these attributes may be changed before or during a trace session. |
| Common Verbs | Help<br>List<br>Display |

## GROUP FrNni SrvTrace Filter Operational

| | |
|---|---|
| Properties | Operational |
| Description | This group provides the operational attributes for the Frame Relay *SrvTrace Filter* component. |

## ATTRIBUTE FrNni SrvTrace Filter traceType (type)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the level of filtering required for this trace session. A value of ***lmi*** indicates that LMI frames are traced. A value of ***dlci*** indicates that frames from the *Dlci* specified by the *tracedDlci* attribute are traced. A value of ***badFrames*** indicates that bad received frames (overruns, CRC errors, aborts) are traced. The default is to trace all frames. This attribute can be set while a trace is active and takes effect immediately. |
| Set of | lmi<br>dlci<br>badFrames |
| Default | (lmi, dlci, badFrames) |

### ATTRIBUTE FrNni SrvTrace Filter tracedDlci (dlci)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies a particular DLCI to trace. A value of ***0*** specifies that all DLCIs are to be traced. This attribute can be set while a trace is active and takes effect immediately. |
| Values | Decimal (0..1007) |
| Default | 0 |

### ATTRIBUTE FrNni SrvTrace Filter direction (dir)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the direction of the data to be traced as viewed by the service. The values can be ***egress*** and ***ingress***. An ***egress*** value indicates frames outbound from the service. An ***ingress*** value indicates frames inbound to the service. This attribute can be set while a trace is active and takes effect immediately. |
| Set of | egress<br>ingress |
| Default | (egress, ingress) |

### ATTRIBUTE FrNni SrvTrace Filter tracedLength (len)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum number of octets to trace per frame starting from the octet following the frame flag. If the frame length is longer than the value specified by this attribute, then the traced frame is truncated. If set to ***disabled***, the traced frame is not truncated.<br><br>This attribute can be set while a trace is active and takes effect immediately.<br><br>If the Frame Relay *SrvTrace* is started with an ATM service trace receiver, the *tracedLength* attribute of ATM service trace receiver is ignored. |

| | |
|---|---|
| Values | Decimal (1..4000)<br>disabled |
| Units | octets |
| Default | 2000 |

## COMPONENT FrNni ConnectionAdministrator (Ca)

| | |
|---|---|
| Groups | "GROUP FrNni Ca Provisioned (Prov)"<br>"GROUP FrNni Ca IngressCac"<br>"GROUP FrNni Ca EgressCac"<br>"GROUP FrNni Ca Operational (Op)" |
| Scope | Application |
| Description | *FrNni/n ConnectionAdministrator*<br>The *Ca* component allows the network operator to specify common subscription options for the parent interface. It defines the call admission control parameters in the ingress and egress direction for the parent interface. |
| Opt. Subcomp. | "COMPONENT FrNni Ca TransferPriorityMapping (Tpm)" |
| Common Verbs | Help<br>List<br>Display |

## GROUP FrNni Ca Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This attribute group contains the common provisionable attributes of the *Ca* component. |

## ATTRIBUTE FrNni Ca overrideLinkRate (ovLinkRate)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute allows the link rate to be overridden for this interface. This allows the user to specify a value other than the actual physical link rate computed when a *Framer* component is provisioned. When a *VFramer* component is provisioned, this |

| | |
|---|---|
| | attribute overrides a link rate set to the maximum value supported by CAC .<br><br>This attribute serves to provide the user control on the amount of bandwidth available for performing CAC. |
| Values | Decimal (0..429496729) |
| Units | bit/s |
| Default | 0 |

### ATTRIBUTE FrNni Ca maximumBandwidthPerCall (maxBwCall)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the maximum bandwidth that can be allocated per connection. |
| Values | Decimal (0..520000000) |
| Units | bit/s |
| Default | 520000000 |

### GROUP FrNni Ca IngressCac

| | |
|---|---|
| Properties | Provisioned |
| Description | This attribute group contains the common provisionable attributes for ingress call admission control. |

### ATTRIBUTE FrNni Ca ingressApplyToCos (ingCos)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies which Classes of Service (CoS) have ingress Call Admission Control (CAC) applied to them. Ingress CAC applies only to switched connections (SVCs and S-SPVCs).<br><br>***none*** - Ingress CAC is turned off for all classes of service.<br>***cirOnly*** - Ingress CAC is applied only to the CIR portion of a |

connection's bandwidth requirements for CIR>0 classes of service.
***cirAndEir*** - Ingress CAC is applied to both CIR and EIR portions of a connections bandwidth requirements for all classes of service.

Values
none
cirOnly
cirAndEir

Default
cirOnly

### ATTRIBUTE FrNni Ca ingressMaximumEirOnlyCalls

Access
Read and write

Criticality
Process

Description
This attribute specifies the maximum number of connections in the ingress direction with EIR only traffic that can be up at a given time.

Values
Decimal (0..992)

Default
992

### ATTRIBUTE FrNni Ca ingressCirBandwidthPool (ingCirBP)

Access
Read and write

Criticality
Process

Description
Port capacity is partitioned into 16 pools (pool 0 through pool 15) for the ingress CIR traffic. This attribute specifies the percentage of port capacity that is allowed for each pool. The percentage for each pool ranges from 0% to 1000% of the link rate. It allows for under or over subscription of the port. Under subscription occurs when the sum of the percentages assigned to the 16 pools is less than 100%. Over subscription occurs when the sum of the percentages for the 16 pools exceeds 100%.

The default is full sharing of port capacity with three pre-set partitions.

Vector of
Decimal (0..1000)

| | |
|---|---|
| Units | % |
| Index | Decimal (0..15) |
| Default | (1000, 1000, 1000, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0) |

### ATTRIBUTE FrNni Ca ingressEirBandwidthPool (ingEirBp)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | Port capacity is partitioned into 16 pools (pool 0 through pool 15) for the ingress EIR traffic. This attribute specifies the percentage of port capacity that is allowed for each pool. The percentage for each pool ranges from 0% to 1000% of the link rate. It allows for under or over subscription of the port. Under subscription occurs when the sum of the percentages assigned to the 16 pools is less than 100%. Over subscription occurs when the sum of the percentages for the 16 pools exceeds 100%.<br><br>The default is full sharing of port capacity with three pre-set partitions. |
| Vector of | Decimal (0..1000) |
| Units | % |
| Index | Decimal (0..15) |
| Default | (1000, 1000, 1000, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0) |

### GROUP FrNni Ca EgressCac

| | |
|---|---|
| Properties | Provisioned |
| Description | This attribute group contains the common provisionable attributes for egress call admission control. |

### ATTRIBUTE FrNni Ca egressApplyToCos (egCos)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |

| | |
|---|---|
| Description | This attribute specifies which Classes of Service (CoS) have egress Call Admission Control (CAC) applied to them. Egress CAC applies only to switched connections (SVCs and S-SPVCs).<br><br>***none*** - Egress CAC is turned off for all classes of service.<br>***cirOnly*** - Egress CAC is applied only to the CIR portion of a connection's bandwidth requirements for CIR>0 classes of service.<br>***cirAndEir*** - Egress CAC is applied to both CIR and EIR portions of a connections bandwidth requirements for all classes of service. |
| Values | none<br>cirOnly<br>cirAndEir |
| Default | none |

### ATTRIBUTE FrNni Ca egressMaximumEirOnlyCalls

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the maximum number of connections in the egress direction with EIR only traffic that can be up at a given time. |
| Values | Decimal (0..992) |
| Default | 992 |

### ATTRIBUTE FrNni Ca egressCirBandwidthPool (egCirBp)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | Port capacity is partitioned into 16 pools (pool 0 through pool 15) for the egress CIR traffic. This attribute specifies the percentage of port capacity that is allowed for each pool. The percentage for each pool ranges from 0% to 1000% of the link rate. It allows for under or over subscription of the port. Under subscription occurs when the sum of the percentages assigned to the 16 pools is less than 100%. Over subscription occurs when the sum of the |

| | |
|---|---|
| | percentages for the 16 pools exceeds 100%.<br><br>The default is full sharing of port capacity with three pre-set partitions. |
| Vector of | Decimal (0..1000) |
| Units | % |
| Index | Decimal (0..15) |
| Default | (1000, 1000, 1000, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0) |

### ATTRIBUTE FrNni Ca egressEirBandwidthPool (egEirBp)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | Port capacity is partitioned into 16 pools (pool 0 through pool 15) for the egress EIR traffic. This attribute specifies the percentage of port capacity that is allowed for each pool. The percentage for each pool ranges from 0% to 1000% of the link rate. It allows for under or over subscription of the port. Under subscription occurs when the sum of the percentages assigned to the 16 pools is less than 100%. Over subscription occurs when the sum of the percentages for the 16 pools exceeds 100%.<br><br>The default is full sharing of port capacity with three pre-set partitions. |
| Vector of | Decimal (0..1000) |
| Units | % |
| Index | Decimal (0..15) |
| Default | (1000, 1000, 1000, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0) |

### GROUP FrNni Ca Operational (Op)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains the operational status of the *Ca* component. |

### ATTRIBUTE FrNni Ca linkRate (linkRate)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the link rate used by both ingress and egress CAC to calculate the effective bandwidth pool sizes.<br><br>If the provisionable attribute *overrideLinkRate* under this component is 0, then the link rate reported is the actual link rate of the port or channel. Otherwise, the link rate reported is the *overrideLinkRate* under this component. |
| Values | Decimal (0..520000000) |
| Units | bit/s |
| Default | No default |

### ATTRIBUTE FrNni Ca ingressCirPoolAdmittedBandwidth (ingCirPoolAdmitBw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total admitted CIR bandwidth from each CIR bandwidth pool in the ingress direction. Each value is the sum of the equivalent bit rates of the admitted connections. |
| Vector of | Decimal (0..520000000) |
| Units | bit/s |
| Index | Decimal (0..15) |
| Default | No default |

### ATTRIBUTE FrNni Ca ingressCirPoolAvailableBandwidth (ingCirPoolAvailBw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the remaining available CIR bandwidth in each ingress CIR bandwidth pool. |
| Vector of | Decimal (0..52000000) |
| Units | bit/s |
| Index | Decimal (0..15) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE FrNni Ca egressCirPoolAdmittedBandwidth (egCirPoolAdmitBw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total admitted CIR bandwidth from each CIR bandwidth pool in the egress direction. Each value is the sum of the equivalent bit rates of the admitted connections. |
| Vector of | Decimal (0..520000000) |
| Units | bit/s |
| Index | Decimal (0..15) |
| Default | No default |

### ATTRIBUTE FrNni Ca egressCirPoolAvailableBandwidth (egCirPoolAvailBw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the remaining available CIR bandwidth in each egress CIR bandwidth pool. |
| Vector of | Decimal (0..52000000) |
| Units | bit/s |
| Index | Decimal (0..15) |
| Default | No default |

### ATTRIBUTE FrNni Ca ingressEirPoolAdmittedBandwidth (ingEirPoolAdmitBw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total admitted EIR bandwidth from each EIR bandwidth pool in the ingress direction. Each value is the sum of the equivalent bit rates of the admitted connections.<br><br>If the *ingressApplyToCos* attribute is set to ***none***, all ingress CIR bandwidth pools are set to 0. |
| Vector of | Decimal (0..520000000) |

| | |
|---|---|
| Units | bit/s |
| Index | Decimal (0..15) |
| Default | No default |

### ATTRIBUTE FrNni Ca ingressEirPoolAvailableBandwidth (ingEirPoolAvailBw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the remaining available EIR bandwidth in each ingress EIR bandwidth pool.<br><br>If the *ingressApplyToCos* attribute is set to either ***none*** or ***cirOnly***, all ingress EIR bandwidth pools are set to 0. |
| Vector of | Decimal (0..52000000) |
| Units | bit/s |
| Index | Decimal (0..15) |
| Default | No default |

### ATTRIBUTE FrNni Ca egressEirPoolAdmittedBandwidth (egEirPoolAdmitBw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total admitted EIR bandwidth from each EIR bandwidth pool in the egress direction. Each value is the sum of the equivalent bit rates of the admitted connections.<br><br>If the *egressApplyToCos* attribute is set to ***none***, all egress CIR bandwidth pools are set to 0. |
| Vector of | Decimal (0..520000000) |
| Units | bit/s |
| Index | Decimal (0..15) |
| Default | No default |

### ATTRIBUTE FrNni Ca egressEirPoolAvailableBandwidth (egEirPoolAvailBw)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the remaining available EIR bandwidth in each egress EIR bandwidth pool.<br><br>If the *egressApplyToCos* attribute is set to either ***none*** or ***cirOnly***, all egress EIR bandwidth pools are set to 0. |
| Vector of | Decimal (0..52000000) |
| Units | bit/s |
| Index | Decimal (0..15) |
| Default | No default |

### ATTRIBUTE FrNni Ca numberRejectedEgressCirPermConn (numRegEgCirPerm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of permanent connections (that is, PVC and P-SPVC) that are rejected by egress CAC. A connection is rejected by egress CAC if it requests more egress CIR bandwidth than is available, and the *egressApplyToCos* attribute is set to either ***cirOnly*** or ***cirAndEir***. |
| Values | Decimal (0..992) |
| Default | No default |

### ATTRIBUTE FrNni Ca numberRejectedEgressEirPermConn (numRegEgEirPerm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of permanent connections (that is, PVC and P-SPVC) that are rejected by egress CAC. A connection is rejected by egress CAC if it requests more egress EIR bandwidth than is available, and the *egressApplyToCos* attribute is set to ***cirAndEir***. |
| Values | Decimal (0..992) |
| Default | No default |

### COMPONENT FrNni Ca TransferPriorityMapping (Tpm)

| | |
|---|---|
| Instance | Decimal (0..15) |

| | |
|---|---|
| Groups | "GROUP FrNni Ca Tpm Provisioned (Prov)" |
| Scope | Application |
| Description | *FrNni/n Ca TransferPriorityMapping/n*<br>The *Tpm* component defines the corresponding traffic management subscription options on a *FrNni* interface corresponding to a particular transfer priority. This component is needed only if there is a requirement to override the *Mod Frs DprsNet Tpm* component defaults. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP FrNni Ca Tpm Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This attribute group contains the provisionable attributes of the *Tpm* component at this interface. |

## ATTRIBUTE FrNni Ca Tpm assignedIngressBandwidthPool (asgInBwPool)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the ingress bandwidth pool which is used to support this transfer priority at this interface. When this attribute is set to ***sameAsModule***, the bandwidth pool that is used is obtained from the *assignedIngressBandwidthPool* attribute under the *Mod Frs DprsNet Tpm/n* component. |
| Values | Decimal (0..15)<br>sameAsModule |
| Default | sameAsModule |

## ATTRIBUTE FrNni Ca Tpm assignedEgressBandwidthPool (asgEgBwPool)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the egress bandwidth pool which is used to support this transfer priority at this interface. When this attribute is set to ***sameAsModule***, the bandwidth pool that is used is obtained from the *assignedEgressBandwidthPool* attribute under the *Mod Frs DprsNet Tpm/n* component. |
| Values | Decimal (0..15)<br>sameAsModule |
| Default | sameAsModule |

## COMPONENT FrNni BnxProtocol (Bp)

| | |
|---|---|
| Groups | "GROUP FrNni Bp Provisioned (Prov)"<br>"GROUP FrNni Bp OsiState (State)"<br>"GROUP FrNni Bp Operational (Op)" |
| Scope | Application |
| Description | *FrUni/n BnxProtocol*<br>*FrNni/n BnxProtocol*<br>This component defines how the Frame Relay interface handles the BNX protocol. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP FrNni Bp Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group defines the provisioning attributes to control the BNX protocol running on the Frame Relay interface. |

### ATTRIBUTE FrNni Bp linkToIpServer (linkToIp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the link to a Frame Relay IP server. |
| Values | Link (Service, linkToFrameRelayApps) |
| Default | No default |

### ATTRIBUTE FrNni Bp ipAddress (ipadd)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the IP address associated with the Frame Relay interface. This address must be in the same subnet as the *ProtocolPort* associated with the *FrIpServer.* |
| Values | IP address |
| Default | 0.0.0.0 |

### ATTRIBUTE FrNni Bp crossNetEnabled (cne)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether or not cross-net status messages are sent from the Frame Relay interface. |
| Values | no<br>yes |
| Default | yes |

### ATTRIBUTE FrNni Bp crossNetPollingInterval (cnpi)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time interval between two cross-net status messages. This attribute is used for both sending and expecting status messages. The two ends of a PVC should be provisioned with values within a close range. Otherwise, it could result in PVC failure. |
| Values | Decimal (30..86400) |
| Units | seconds |

| | |
|---|---|
| Default | 120 |

### ATTRIBUTE FrNni Bp crossNetAsyncUpdate (cnau)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies when a cross-net status message is sent following a BNX DLCI state change. If set to ***enabled***, the status message is sent as soon as the state change occurs. If set to ***disabled***, the state of the BNX DLCI will be sent in a cross-net status message only at the next polling interval. The polling interval is determined by *crossNetPollingInterval* attribute. The *crossNetAsyncUpdate* attribute is ignored if *crossNetEnabled* is set to ***no***. |
| Values | disabled<br>enabled |
| Default | enabled |

### ATTRIBUTE FrNni Bp crossNetListenEnabled (cnle)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether or not to expect cross-net status messages. When set to ***yes***, this interface wait for a cross-net status message from the remote end to declare the PVCs up or down. When set to ***no***, the interface assumes the PVCs are always up. |
| Values | no<br>yes |
| Default | yes |

### ATTRIBUTE FrNni Bp crossNetErrorThreshold (cnet)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies how many *crossNetPollingIntervals* without receiving a status message from the remote end are permitted to elapse before declaring the PVC down. |
| Values | Decimal (1..30) |
| Default | 3 |

### ATTRIBUTE FrNni Bp trafficPriorityEnabled (tpe)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies how to set the "Priority Level" field of the BNX header. When set to ***no***, both the *defaultTrafficPriority* attribute of the *BnxProtocol* component and the *trafficPriority* attribute of the *BnxIwf* component are ignored, and the "Priority Level" field is set to ***2***. When set to ***yes***, the "Priority Level" field is set to the value of the *trafficPriority* attribute of the *BnxIwf*, unless the *trafficPriority* attribute has a value of ***useDefault***. In this case the “Priority Level” field is set to the value of the *defaultTrafficPriority* attribute. |
| Values | no<br>yes |
| Default | no |

### ATTRIBUTE FrNni Bp defaultTrafficPriority (dtp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the default traffic priority used to tag all the ingress traffic. This attribute is used when the *trafficPriority* attribute of the *BnxIwf* is set to ***useDefault***. A larger value denotes a lower priority. This attribute is ignored if the *trafficPriorityEnabled* is set to ***no***. |
| Values | Decimal (1..3) |
| Default | 2 |

### ATTRIBUTE FrNni Bp trafficDiscardLevel (tdl)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the discard level used to tag ingress traffic.This value is ignored when the attribute *discardLevelEnabled* is set to ***no***. In this case, the "Discard Level" field of BNX header is set to ***2*** for DE=1 datagrams and to ***4*** for DE=0 datagrams. When *discardLevelEnabled* is set to ***yes***, the "Discard Level" field is tagged with the value of *trafficDiscardLevel* attribute. The "Discard Level" value is used as follows: |

Discard Level=***1***: drop datagrams when congestion level >= 1
Discard Level=***2***: drop datagrams when congestion level >= 2
Discard Level=***3***: drop datagrams when congestion level >= 3
Discard Level=***4***: drop datagrams when congestion level >= 4

Values: Decimal (1..4)

Default: 4

### ATTRIBUTE FrNni Bp discardLevelEnabled (dle)

Access: Read and write

Description: This attribute specifies how to use discard level to tag ingress traffic. When set to ***yes***, the provisioned *trafficDiscardLevel* is used. Otherwise ingress DE=1 datagrams are tagged with discard level ***2*** and DE=0 datagrams are tagged with discard level ***4***.

Values:
no
yes

Default: no

### GROUP FrNni Bp OsiState (State)

Properties: Operational

Description: This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE FrNni Bp adminState (osiAdmin)

Access: Read only

Description: This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component.

When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE FrNni Bp operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
enabled (ena)
disabled (dis)

Default
disabled

## ATTRIBUTE FrNni Bp usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

## ATTRIBUTE FrNni Bp availabilityStatus (osiAvail)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present. |

The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.

The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.

The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.

The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

| | |
|---|---|
| Set of | inTest<br>failed<br>dependency (depend)<br>powerOff (pwrOff)<br>offLine<br>offDuty<br>degraded (degrad)<br>notInstalled (notIn)<br>logFull<br>migrating |
| Default | No default |

### ATTRIBUTE FrNni Bp proceduralStatus (osiProc)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.<br><br>The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.<br><br>The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***. |

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

## ATTRIBUTE FrNni Bp controlStatus (osiCntrl)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

Set of

subjectToTest (subTst)
partOfServicesLocked (partLk)
reservedForTest (rsrvd)
suspended (suspnd)

Default

No default

### ATTRIBUTE FrNni Bp alarmStatus (osiAlarm)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE FrNni Bp standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values

hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

| | |
|---|---|
| Default | notSet |

### ATTRIBUTE FrNni Bp unknownStatus (osiUnknw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Unknown status of the component.<br><br>The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.<br><br>The value ***true*** indicates that the actual state of the component is not known for sure. |
| Values | false<br>true |
| Default | false |

### GROUP FrNni Bp Operational (Op)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains the operational status of the *BnxProtocol* component. |

### ATTRIBUTE FrNni Bp invalidBnxHeader (ibh)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the datagrams dropped because the BNX header was invalid. It could be caused by a invalid header version, invalid protocol type, or that discard level or priority level is out of range. |
| Values | Decimal (0..429496729) |
| Default | 0 |

### ATTRIBUTE FrNni Bp lastInvalidBnxHeader (libh)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the BNX header of the datagram which was last dropped by the *BnxProtocol* because one or more fields |

| | |
|---|---|
| | of the BNX header are invalid. The invalid field could be any of the following: header version, protocol type, discard level out of range, priority level out of range. |
| Values | Hex (H.0..H.ffffffff) |
| Default | No default |

### ATTRIBUTE FrNni Bp invalidIpProtocolId (ipid)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the datagrams dropped because the protocol ID in IP header was invalid. |
| Values | Decimal (0..429496729) |
| Default | 0 |

### ATTRIBUTE FrNni Bp discardedIpFragment (dipf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of fragmented datagrams dropped by this interface. The case could be unknown Dlci, or unknown ID in IP header when misordering happened. |
| Values | Decimal (0..429496729) |
| Default | 0 |

### ATTRIBUTE FrNni Bp sourceIpAddressLastDropped (ldsia)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the source IP address of the datagram that was last dropped by the *BnxProtocol* because one or more fields of the IP header are invalid. The invalid field could be any of the following: header version, protocol ID, or Identification of a fragmented datagram. |
| Values | IP address |
| Default | 0.0.0.0 |

### ATTRIBUTE FrNni Bp droppedUnknownDlci (dud)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the datagrams dropped because the DLCI was unknown. |
| Values | Decimal (0..429496729) |
| Default | 0 |

### ATTRIBUTE FrNni Bp lastUnknownDlci (lud)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the DLCI of datagram last dropped. |
| Values | Decimal (0..429496729) |
| Default | 0 |

### ATTRIBUTE FrNni Bp droppedUnknownDlciXnet (dudx)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the received cross-net status messages that were dropped because the DLCI was unknown. |
| Values | Decimal (0..429496729) |
| Default | 0 |

### ATTRIBUTE FrNni Bp lastUnknownDlciXnet (ludx)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the DLCI of last received cross-net status message that was dropped because the DLCI was unknown. |
| Values | Decimal (0..429496729) |
| Default | 0 |

### ATTRIBUTE FrNni Bp ipFragFromSubnet (fragfs)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the IP fragments received from subnet by this frame relay interface. The value of this attribute wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..429496729) |
| Default | 0 |

### ATTRIBUTE FrNni Bp lastInvalidIpFragId (lastid)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Id in the IP header of the last fragment dropped by the frame relay interface. |
| Values | Decimal (0..429496729) |
| Default | 0 |

### ATTRIBUTE FrNni Bp lastDlciWithIpFragment (lfdlci)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Dlci which last received IP fragment. This attribute is used for tracking fragmented IP traffic. |
| Values | Decimal (0..429496729) |
| Default | 0 |

Passport 7400, 15000, 20000

# Component FrNni

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component FrUni

241-5701-060

Passport 7400, 15000, 20000

# Component FrUni

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT FrameRelayUni (FrUni)

| | |
|---|---|
| Instance | Decimal (1..4294967295) |
| Groups | "GROUP FrUni CustomerIdentifierData (CidData)"<br>"GROUP FrUni OsiState (State)"<br>"GROUP FrUni Statistics (Stats)"<br>"GROUP FrUni IfEntryProv (IfEntry)"<br>"GROUP FrUni OperationalStatus (OperStatus)"<br>"GROUP FrUni EmissionPriorityQs"<br>"GROUP FrUni TrafficStatistics (TrafficStats)" |
| Scope | Application |
| Description | *FrameRelayUni/n*<br>This component defines an instance of the Frame Relay UNI service. The component instance value n is a unique positive integer within a module. Framer is created whenever the FrUni is added. Users who need VirtualFramer should delete the Framer first, then add the VirtualFramer. |

| | |
|---|---|
| Subcomponents | "COMPONENT FrUni DataNetworkAddress (Dna)"<br>"COMPONENT FrUni LocalManagementInterface (Lmi)"<br>"COMPONENT FrUni ConnectionAdministrator (Ca)" |
| Opt. Subcomp. | "COMPONENT FrUni Framer"<br>"COMPONENT FrUni Signaling (Sig)"<br>"COMPONENT FrUni VirtualFramer (VFramer)"<br>"COMPONENT FrUni LoadTestSystem (Lts)"<br>"COMPONENT FrUni DirectConnection (Dconn)"<br>"COMPONENT FrUni ServiceTrace (SrvTrace)"<br>"COMPONENT FrUni Isdn"<br>"COMPONENT FrUni BnxProtocol (Bp)" |
| Opt. Subcomp. | "COMPONENT FrUni DataLinkConnectionIdentifier (Dlci)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP FrUni CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

## ATTRIBUTE FrUni customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top- |

level component has a CID of 0.

Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.

An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to "basic CIDs" in DPN) may be assigned to specific customers.

Values: Decimal (0; 1..8191)

Default: 0

## GROUP FrUni OsiState (State)

Properties: Operational

Description: This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

## ATTRIBUTE FrUni adminState (osiAdmin)

Access: Read only

Description: This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users

only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE FrUni operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE FrUni usageState (osiUsage)

Access
Read only

Description

This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values

idle
active (activ)
busy

Default

idle

### ATTRIBUTE FrUni availabilityStatus (osiAvail)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.

The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is

***disabled***.

The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.

The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.

The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

| | |
|---|---|
| Set of | inTest<br>failed<br>dependency (depend)<br>powerOff (pwrOff)<br>offLine<br>offDuty<br>degraded (degrad)<br>notInstalled (notIn)<br>logFull<br>migrating |
| Default | No default |

### ATTRIBUTE FrUni proceduralStatus (osiProc)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.<br><br>The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.<br><br>The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***. |

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

## ATTRIBUTE FrUni controlStatus (osiCntrl)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

Set of

subjectToTest (subTst)
partOfServicesLocked (partLk)
reservedForTest (rsrvd)
suspended (suspnd)

Default

No default

### ATTRIBUTE FrUni alarmStatus (osiAlarm)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE FrUni standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values

hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

| | |
|---|---|
| Default | notSet |

### ATTRIBUTE FrUni unknownStatus (osiUnknw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Unknown status of the component.<br><br>The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.<br><br>The value ***true*** indicates that the actual state of the component is not known for sure. |
| Values | false<br>true |
| Default | false |

### GROUP FrUni Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | FrUni/n Statistics<br>This group contains the statistics about the operational behavior of the service at the interface level. |

### ATTRIBUTE FrUni lastUnknownDlci (ludlc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute identifies the most recent DLCI which user frames were received on for which a DLCI has not been provisioned on the port. |
| Values | Decimal (0..1023) |
| Default | 0 |

### ATTRIBUTE FrUni unknownDlciFramesFromIf (unknown)

| | |
|---|---|
| Access | Read only |
| Description | This attribute contains a count of the number of frames received from the interface with an unknown DLCI (DLCI which is not |

| | |
|---|---|
| | provisioned). When the maximum is reached the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni invalidHeaderFramesFromIf (invalid)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames received from the interface with an invalid header format. When the maximum is reached the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### GROUP FrUni IfEntryProv (IfEntry)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the ifEntry. |

### ATTRIBUTE FrUni ifAdminStatus (ifState)

| | |
|---|---|
| Access | Read and write |
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE FrUni ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |

| | |
|---|---|
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP FrUni OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

### ATTRIBUTE FrUni snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### GROUP FrUni EmissionPriorityQs

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attribute to specify the number of Frame Relay egress emission priority queues to be used on that Frame Relay Interface |

### ATTRIBUTE FrUni numberOfEmissionQs

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the number of egress emission priority queues that will be used for that Frame Relay interface. |

For V.35, V.11, HSSI, E1, DS1, E3, DS3 or 8pDS1 the possible values are: ***2*** (in which case they are hardware queues), or ***4*** (in which case they are software queues).

For DS1C, E1C or DS3C the possible values are ***2, 4*** (in all cases they are software queues).

For 32 port Msa cards the possible values are ***2, 4*** (in all cases they are hardware queues).

For 4pDS3Ch, 1pSTM1ChSmIr PQC6v2 (also known as PQC2) the possible values are ***2, 4*** (in all cases they are hardware queues).

For 4pDS3Ch PQC12, setting this attribute has no effect on the number of egress emission priority queues, four hardware queues are always used.

Values: Decimal (2; 4)

Default: 2

## GROUP FrUni TrafficStatistics (TrafficStats)

Properties: Operational

Description: This operational group provides the traffic statistics of the service at the interface level. Each attribute type is a non-negative integer which monotonically increases until it reaches a maximum value, at which point it wraps around and starts increasing again from zero.

## ATTRIBUTE FrUni frmToIfByQueue

Access: Read only

Description: This attribute counts the frames transmitted to the interface through each of the egress queues. The number of queues is determined by the attribute *numberOfEmissionQs*. Egress queue 0 has the lowest priority, and egress queue 3 has the highest priority.

| | |
|---|---|
| | The attribute is displayed only on SBIC cards when *numberOfEmissionQs* is 4. |
| Values | Decimal (0..4294967295) |
| Replication | Decimal (0..3) |
| Default | No default |

### ATTRIBUTE FrUni octetToIfByQueue

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the octets transmitted to the interface through each of the egress queues. The number of queues is determined by the attribute *numberOfEmissionQs*. Egress queue 0 has the lowest priority, and egress queue 3 has the highest priority.<br><br>The attribute is displayed only on SBIC cards when *numberOfEmissionQs* is 4. |
| Values | Decimal (0..4294967295) |
| Replication | Decimal (0..3) |
| Default | No default |

### COMPONENT FrUni DataNetworkAddress (Dna)

| | |
|---|---|
| Groups | "GROUP FrUni Dna Address"<br>"GROUP FrUni Dna OutgoingOptions"<br>"GROUP FrUni Dna IncomingOptions"<br>"GROUP FrUni Dna CallOptions" |
| Scope | Application |
| Description | This group contains a superset of all attributes which may apply to a VC. Particular applications will typically offer only a subset of these attributes by providing a definition of their own DNA subcomponent. |

| | |
|---|---|
| Opt. Subcomp. | "COMPONENT FrUni Dna ClosedUserGroup (Cug)"<br>"COMPONENT FrUni Dna HuntGroupMember (HgM)"<br>"COMPONENT FrUni Dna SpareDna (SDna)" |
| Common Verbs | Help<br>List<br>Display |

## GROUP FrUni Dna Address

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains attributes common to all DNAs. Every DNA used in the network is defined with this group of 2 attributes. |

## ATTRIBUTE FrUni Dna numberingPlanIndicator (npi)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute indicates the Numbering Plan Indicator (NPI) of the DNA that is entered. Address may belong to X.121 or E.164 plans. X.121 is used in packet switched data networks. |
| Values | x121<br>e164 |
| Default | x121 |

## ATTRIBUTE FrUni Dna dataNetworkAddress (dna)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies digits which form the unique identifier of the customer interface.<br><br>When a *SpareDna* component is provisioned this attribute specifies the main *dna*, that is the one on the *mainCard* supporting the interface. |

It is the equivalent of a telephone number in the telephone network.

Values: BCD (1..15)

Default: No default

### GROUP FrUni Dna OutgoingOptions

Properties: Provisioned

Description: This group defines DNA call options for calls made from the interface. These options are not used for calls arriving to the interface represented by this *DNA*.

### ATTRIBUTE FrUni Dna outDefaultPriority (odf)

Access: Read and write

Description: This attribute indicates the default priority of outgoing calls from the DTE to the network.

It can be overridden by the *discardPriority* under *DLCI Direct Call* subcomponent.

This option can be also included in X.25 signaling, in such case it will be overruled.

Values: normal
high

Default: normal

### ATTRIBUTE FrUni Dna outDefaultPathReliability (opr)

Access: Read and write

Description: This attribute specifies the default class of routing for reliability routing for all outgoing calls (from the DTE to the network) using this particular DNA. The chosen default class of routing applies to all outgoing calls established using this DNA, and applies to the packets travelling in both directions on all outgoing calls (local to remote, and remote to local). For incoming calls, the default class of routing is chosen by the calling party (as

opposed to DPN, where either end of the call can choose the default routing class).
This attribute, if set to a value of *normal*, indicates that the default class of routing is normal reliability routing. If set to a value of *high*, then the default class of routing is high reliability routing.
High reliability is the standard choice for most DPN and Passport services. It usually indicates that packets are overflowed or retransmitted at various routing levels. Typically high reliability results in duplication and disordering of packets in the network when errors are detected or during link congestion. However, the VC handles the duplication and disordering to ensure that packets are delivered to the DTE properly.
For the Frame Relay service, duplication of packets is not desired, in which case, normal reliability may be chosen as the preferred class of routing.

Values: normal
high

Default: normal

## ATTRIBUTE FrUni Dna outAccess (oua)

Access: Read and write

Description: This attribute is an extension of the Closed User Group (CUG) facility, as follows:
This attribute, if set to a value of *allowed* indicates that outgoing calls (from the DTE to the network) to the open (non-CUG) part of the network are permitted. It also permits outgoing calls to DTEs that have Incoming Access capabilities. If set to a value of *disallowed*, then such calls cannot be made using this DNA. Such calls will be cleared by the local DCE.
This attribute corresponds to the CCITT 'Closed User Group with Outgoing Access' feature for DNAs in that outgoing access is granted if this attribute is set to a value of *allowed*.

Values: disallowed
allowed

Default: disallowed

## ATTRIBUTE FrUni Dna defaultTransferPriority (dtp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the default transfer priority for all outgoing calls using this particular *DNA*. It can be overridden by the *transferPriority* provisioned in the *Dlci DirectCall* sub-component.<br><br>The transfer priority is a preference configured for an application according to its delay-sensitivity requirement. Frames with higher transfer priority are served by the network before the frames with lower priority. The transfer priority standard is defined to have 16 levels from 0 to 15.<br><br>Each transfer priority n, where n indicates the transfer priority index, contains a default setting for routing class of service (multimedia, delay or throughput) and frame relay egress queue (depending on the number of supported egress queues on the remote end interface) specified by the *routingClassOfServic*e and *emissionPriority* attributes provisioned in the *Mod Frs DprsNet Tpm/n* component. The default mapping can be altered by a user if required.<br><br>The default *defaultTransferPriority* is ***0***. |
| Values | 0<br>1<br>2<br>3<br>4<br>5<br>6<br>7<br>8<br>9<br>10<br>11<br>12<br>13<br>14<br>15 |

Default 0

### ATTRIBUTE FrUni Dna transferPriorityOverRide (tpor)

Access Read and write

Description When this attribute is set to ***yes*** in the call request, the called end will use the calling end provisioning data on transfer priority to override its own provisioning data. If it is set ***no***, the called end will use its own provisioning data on transfer priority.

This attribute is not applicable for Frame Relay SVCs.

For more information about transfer priority, please refer to the previous attribute *defaultTransferPriority.*

The default of *transferPriorityOverRide* is ***yes***.

Values yes
no

Default yes

### GROUP FrUni Dna IncomingOptions

Properties Provisioned

Description This group defines options for incoming calls. These options are used for calls arriving to the interface represented by this *DNA.* For calls originated from the interface, *IncomingOptions* attributes are not used.

### ATTRIBUTE FrUni Dna incAccess (ina)

Access Read and write

Description This attribute, if set to a value of *allowed* specifies that incoming calls (from the network to the DTE) from the open (non-CUG) part of the network are permitted. It also permits incoming calls from DTEs that have outgoing access capabilities. If set to a value of *disallowed*, such calls cannot be made to this DNA. They will be cleared by the local DCE.
This attribute corresponds to the CCITT 'Closed User Group with

Incoming Access' feature for DNAs in that incoming access is granted if this attribute is set to a value of *allowed*.

Values
disallowed
allowed

Default
disallowed

### GROUP FrUni Dna CallOptions

Properties
Provisioned

Description
This group defines additional all options for not related to direction of the call.

### ATTRIBUTE FrUni Dna accountClass (acl)

Access
Read and write

Description
This attribute specifies the accounting class which is reserved for network operations usage. Its value is returned in the accounting record in the local and remote service type attributes. Use of this attribute is decided by network operator.
This attribute is returned by the local VC in the accounting record for all calls that are set up using this particular DNA.

Values
Decimal (0..255)

Default
0

### ATTRIBUTE FrUni Dna accountCollection (aco)

Access
Read and write

Description
This attribute indicates that accounting records are to be collected by the network for the various reasons: billing, test, study, auditing. The last of the parameters, force, indicates that accounting records are to be collected irrespective of other collection reasons. The force option is available for X.75 Gateways only. If none of these reasons are set, then accounting will be suppressed.
To set a specific accounting collection reason, the reason is entered and the corresponding bit in the structure is set to a value of 1. To turn off a specific accounting collection reason, the reason is entered preceded with the '~' character, and the

| | |
|---|---|
| | corresponding bit in the structure is set to a value of 0.<br>The bit placement for the accounting collection reasons is as follows:<br>Bit 0 - Bill<br>Bit 1 - Test<br>Bit 2 - Study<br>Bit 3 - Audit<br>Bit 4 - Force |
| Set of | bill<br>test<br>study<br>audit<br>force |
| Default | (bill) |

### ATTRIBUTE FrUni Dna serviceExchange (sre)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is an arbitrary number, Data Service Exchange, as entered by the network operator and reported in accounting record. It is converted into an internal 8-bit integer value for use in the accounting record as well as in various X.25 and X.75 Tariff utilities. |
| Values | Decimal (0..255) |
| Default | 0 |

### ATTRIBUTE FrUni Dna egressAccounting (ega)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies if egress accounting is enabled by the frame relay service. If egress accounting is disabled, only segment counts are collected by the VC. No frame relay counts appear in the accounting records for the frame relay service. If egress accounting is enabled, the accounting records for the frame relay service will contain frame relay specific counts. |
| Values | yes<br>no |

| | |
|---|---|
| Default | no |

### ATTRIBUTE FrUni Dna dataPath (dpa)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the data path to be used by Virtual Circuits on this interface. If the connection has a *DirectCall* component then the value can be overridden by the *dataPath* attribute of the *DirectCall* component.<br><br>This value applies to the connection after data transfer state is reached. All the data and control traffic will be sent using this data path. If the provisioned *dataPath* is not available the connection is not established.<br><br>The value of the *dataPath* is signaled by both ends of the connection. If this value is not the same at both ends ***dprsOnly*** is used for the duration of the connection.<br><br>A virtual circuit connection is always established using ***dprsOnly*** even if this attribute is provisioned as some other value.<br><br>***dprsOnly*** - dynamic packet routing system is used<br><br>***dprsMcsOnly*** - dprs Multi-Service Cut-Through Switching path is used.<br><br>***dprsMcsFirst*** - dprs Multi-Service Cut-Through Switching path is used if it is available. If it is not available ***dprsOnly*** is used. |
| Values | dprsOnly<br>dprsMcsOnly<br>dprsMcsFirst |
| Default | dprsOnly |

### COMPONENT FrUni Dna ClosedUserGroup (Cug)

| | |
|---|---|
| Instance | Decimal (0..255) |
| Groups | "GROUP FrUni Dna Cug CugOptions" |
| Scope | Application |

Description

*FrUni/n Dna ClosedUserGroup*
This group defines options associated with national or international *CUG* Identifier. Other *DNAs* in the network can have *CUGs* defined which groups these *DNAs* by *CUG interlockCode*. If *DNAs* are defined with *CUGs*, calls from *DNAs* which do not have the same *interlockCode* defined are refused. Attributes *incAccess* and *outAccess* can override this rule.

A CUG is provisioned by default as a SELECTABLE CUG. If a SELECTABLE CUG is provisioned, the DTE can include a CUG facility in the call request. If it does, the DTE selects a specific CUG by signaling the CUG's index. A DTE can subscribe to as many as 256 SELECTABLE CUGs.

A SIMPLE CUG is provisioned by setting a SELECTABLE CUG's preferential attribute to the value **yes**. There are two prerequisites: a single SELECTABLE CUG must exist; its attributes incCalls and outCalls must both be set to **allowed**. If a SIMPLE CUG is provisioned, it is the default CUG used to establish a call when the call request sent by the DTE does not include any CUG facility. If the DTE includes any CUG facility in the call request, the call is cleared. A DTE subscribing to a SIMPLE CUG cannot subscribe to any other CUG.

Common Verbs

Help
List
Display
Add
DELete

## GROUP FrUni Dna Cug CugOptions

Properties

Provisioned

Description

Attributes in this group define *ClosedUserGroup* options associated with *interlockCode*. *DNA's* with the same *CUG* (*interlockCode*) can make calls within this group. Various combinations which permit or prevent calls in the same *CUG* group are defined here.

## ATTRIBUTE FrUni Dna Cug type

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the CUG type - the CUG is either a national CUG, or an international CUG. International closed user groups are usually established between DTEs for which there is an X.75 Gateway between; whereas national closed user groups are usually established between DTEs for which there is no X.75 Gateway between. (National CUGs cannot normally traverse an X.75 Gateway).<br>If this attribute is set to ***national***, then the *CUG* is a national *CUG*, in which case, the *dnic* should be left at its default value since it is not part of a national *CUG*. If this attribute is set to ***international***, then the *CUG* is an international *CUG*, in which case, the *dnic* should be set appropriately as part of the *CUG interlockCode*. |
| Values | national<br>international |
| Default | national |

## ATTRIBUTE FrUni Dna Cug dnic

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the *dnic* (Data Network ID Code) of the *CUG* by which packet networks are identified. This attribute is not applicable if the *CUG* is a ***national*** *CUG*, as specified by the CUG *type* attribute. There are usually 1 or 2 *dnics* assigned per country, for public networks. The U.S. is an exception where each BOC has a *dnic*. Also, a group of private networks can have its own *dnic*.<br><br>*dnic* value is not an arbitrary number. It is assigned by international agreement and controlled by CCITT. |
| Values | BCD (4) |
| Default | 0000 |

## ATTRIBUTE FrUni Dna Cug interlockCode (ilc)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the *CUG* identifier of a national or international *CUG* call. It is an arbitrary number and it also can be called CUG in some descriptions. Interfaces (*DNA's*) defined with this number can make calls to *DNA's* with the same *interlockCode*. |
| Values | Decimal (0..65535) |
| Default | 65535 |

## ATTRIBUTE FrUni Dna Cug preferential (pre)

| | |
|---|---|
| Access | Read and write |
| Description | The attribute "preferential", if set to ***yes*** indicates that this CUG is the SIMPLE CUG (as defined in ITU X.36 [10/96]), in which case it will be used during the call establishment phase if the DTE has not explicitly specified a CUG index in the call request packet. If set to ***no***, then this CUG is not the SIMPLE CUG, but an instance of the SELECTABLE CUG.<br><br>The attribute "preferential" is set to ***no*** by CAS when a CUG instance is created. If only one CUG instance exists under a DNA, and if this CUG's attributes "incCalls" and "outCall" are both set to ***allowed,*** **t**hen this CUG instance can be changed to a SIMPLE CUG by setting the attribute "preferential" to ***yes***. If more than one CUG instances exist under a DNA, none of the CUGs can be set by the user as "preferential". Essentially, the attribute "preferential" distinguishes a SIMPLE CUG from a SELECTABLE CUG.<br><br>In the case of a FRUNI DNA with a single CUG instance, the CUG can be a SIMPLE CUG (preferential = ***yes***) or the only instance of a SELECTABLE CUG (preferential = ***no***). |
| Values | no<br>yes |
| Default | no |

## ATTRIBUTE FrUni Dna Cug outCalls (ouc)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute, if set to ***allowed*** indicates that outgoing calls (from the DTE into the network) can be made using this particular CUG. If set to a value of ***disallowed***, then outgoing calls cannot be made using this CUG - such calls will be cleared by the local DCE.<br>This attribute corresponds to the CCITT 'Outgoing Calls Barred' feature for CUGs in that outgoing calls are barred if this attribute is set to a value of ***disallowed***. |
| Values | disallowed<br>allowed |
| Default | allowed |

## ATTRIBUTE FrUni Dna Cug incCalls (inc)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute, if set to ***allowed*** indicates that incoming calls (from the network to the DTE) can be made using this particular CUG. If set to ***disallowed***, then incoming calls cannot be made using this CUG - such calls will be cleared by the local DCE.<br>This attribute corresponds to the CCITT 'Incoming Calls Barred' feature for CUGs in that incoming calls are barred if this attribute is set to a value of ***disallowed***. |
| Values | disallowed<br>allowed |
| Default | allowed |

## COMPONENT FrUni Dna HuntGroupMember (HgM)

| | |
|---|---|
| Groups | "GROUP FrUni Dna HgM Interface (If)"<br>"GROUP FrUni Dna HgM Operational (Op)" |
| Scope | Application |
| Description | *FrUni/n Dna HuntGroupMember*<br>This component specifies the interaction of this *DNA* with one or more hunt groups to which it is expected to belong. |

| | |
|---|---|
| | Note that is not possible to automatically verify the consistency of the hunt group membership specified under this component with the hunt group provisioning on the DPN Hunt Group Server(s). |
| Subcomponents | "COMPONENT FrUni Dna HgM HuntGroupAddress (HgAddr)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP FrUni Dna HgM Interface (If)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the interface parameters between the *HuntGroupMember* and the hunt group server. |

### ATTRIBUTE FrUni Dna HgM availabilityUpdateThreshold (aut)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies how much *availableAggregateCIR* can change before an Availability Message Packet (AMP) is sent to the hunt group server informing it of the change.<br>If the value specified is not a multiple of 2048, the value actually used as the threshold will be the next higher multiple of 2048. |
| Values | Decimal (2048..16777216) |
| Units | bit/s |
| Default | 8192 |

### GROUP FrUni Dna HgM Operational (Op)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes of the *HuntGroupMember* component. |

### ATTRIBUTE FrUni Dna HgM maximumAvailableAggregateCir (mcir)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the maximum available bandwidth for this hunt group member. This value represents the total sum of the sixteen egress bandwidth pools. It is the sum of the sixteen indices of the *FrUni Ca egressBandwidthPool* attribute multiplied by the link speed. |
| Values | Decimal (0..4294967295) |
| Units | bit/s |
| Default | No default |

### ATTRIBUTE FrUni Dna HgM availableAggregateCir (acir)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current total available bandwidth reported to the hunt group server in the Availability Message Packet (AMP). This value represents the sum of the sixteen currently available egress bandwidth pools. It is the sum of the sixteen indices of the *FrUni Ca egressPoolAvailableBandwidth* attribute.<br>It increments when a connection is released.<br>It decrements when a connection is accepted.<br>Both this attribute and the *availableDlcis* attribute must be non zero for this interface to receive calls on a hunt group. |
| Values | Decimal (0..4294967295) |
| Units | bit/s |
| Default | No default |

### ATTRIBUTE FrUni Dna HgM availabilityDelta (ad)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the net change in the available aggregate CIR since the last Availability Message Packet (AMP) was sent to the Hunt Group. Once the absolute value of this attribute |

reaches the *availabilityUpdateThreshold* an AMP is sent to the hunt group server(s) and the *availabilityDelta* is re-computed.

Values: Signed (-16777216..16777215)

Units: bit/s

Default: No default

### ATTRIBUTE FrUni Dna HgM availableDlcis (adl)

Access: Read only

Description: This attribute indicates the number of DLCIs available for SVCs on the interface associated with this DNA. If this value reaches 0, an AMP with zero availability is sent to the hunt group server(s). Both this attribute and the *availableAggregateCir* attribute must be non zero for this DNA to receive calls on the hunt group.

Values: Decimal (0..4096)

Default: No default

### COMPONENT FrUni Dna HgM HuntGroupAddress (HgAddr)

Instance: Decimal (0..1)

Groups: "GROUP FrUni Dna HgM HgAddr Address (Addr)"

Scope: Application

Description: *FrUni/n Dna HgM HuntGroupAddress/n*
This component specifies a hunt group address to which this member belongs. A hunt group member belongs to at least one hunt group.

Common Verbs:
- Help
- List
- Display
- Add
- DELete

### GROUP FrUni Dna HgM HgAddr Address (Addr)

Properties: Provisioned

| | |
|---|---|
| Description | This group contains attributes common to all DNAs. Every DNA used in the network is defined with this group of 2 attributes. |

### ATTRIBUTE FrUni Dna HgM HgAddr numberingPlanIndicator (npi)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates the Numbering Plan Indicator (NPI) of the *DNA*. The address may belong to X.121 or E.164 plans. |
| Values | x121<br>e164 |
| Default | x121 |

### ATTRIBUTE FrUni Dna HgM HgAddr dataNetworkAddress (dna)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute contains digits which form the unique identifier of the customer interface. It can be compared (approximation only) to a telephone number where the phone number identifies a unique telephone set. *DNA* digits are selected and assigned by network operators. |
| Values | BCD (1..15) |
| Default | No default |

### COMPONENT FrUni Dna SpareDna (SDna)

| | |
|---|---|
| Groups | "GROUP FrUni Dna SDna Address (Addr)" |
| Scope | Application |
| Description | *FrUni/n Dna SpareDna*<br>This component represents the Data Network Address associated with the FrUni on the *spareCard* when the ***frUniPvcSparingDprs*** feature is provisioned. When this component is provisioned, the spare Dna is supported by the *spareCard* and the main Dna is supported by the *mainCard*.<br><br>The remote *FrUni* must have a *SpareDc* component provisioned, otherwise hot standby sparing will not be provided by this DNA. |

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP FrUni Dna SDna Address (Addr)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains attributes common to all DNAs. Every DNA used in the network is defined with this group of 2 attributes. |

## ATTRIBUTE FrUni Dna SDna numberingPlanIndicator (npi)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the Numbering Plan Indicator (NPI) of the *dna*. The address may belong to X.121 or E.164 plans. |
| Values | x121<br>e164 |
| Default | x121 |

## ATTRIBUTE FrUni Dna SDna dataNetworkAddress (dna)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies digits which form the alternate identifier of the customer interface used for hot standby sparing. This spare *dna* is supported by the *spareCard*.<br>It is the equivalent of a telephone number in the telephone network. DNA digits are selected and assigned by network operators. |
| Values | BCD (1..15) |

Default No default

## COMPONENT FrUni Framer

Groups "GROUP FrUni Framer Provisioned (Prov)"
"GROUP FrUni Framer LinkOptions (Link)"
"GROUP FrUni Framer OsiState (State)"
"GROUP FrUni Framer Statistics (Stats)"
"GROUP FrUni Framer LinkUtilization (Util)"

"COLLECTED STATS FrameRelayUni Framer"

Scope Application

Description *FrUni/n Framer*
*FrNni/n Framer*
*FrAtm/n Framer*
This component controls link layer framing for application components sending and receiving data on a link interface. It is also through *Framer*, that an application component is associated with a specific hardware link interface.

The *Framer* component provides provisionable attributes related to datapath aspects of the hardware interface (such as crc and frame length) rather than interface specific attributes (such as modem leads and clocking) which are associated with specific hardware components (such as *V35/n* or *DS1/n*). The *Framer* component also provides a provisionable attribute which binds the application component to a specific hardware component.

The *Framer* component contains operational attributes for link interface datapath statistics (such as frame counts and aborts).

Common Verbs Help
List
Display
Add
DELete

## GROUP FrUni Framer Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the base provisioning data for the *Framer* component. Application or hardware interface specific provisioning data is contained in other provisionable *Framer* groups. |

## ATTRIBUTE FrUni Framer interfaceName

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute contains a hardware component name.<br><br>The attribute associates the application with a specific link. This defines the module processor on which *Framer*'s parent component (as well as *Framer* itself) will run. |
| Values | Link (Hardware, applicationFramerName) |
| Default | No default |

## GROUP FrUni Framer LinkOptions (Link)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains attributes defining the framing of data on the link interface. |

## ATTRIBUTE FrUni Framer dataInversion

| | |
|---|---|
| Access | Read and write |
| Description | This attribute determines whether data bits are to be inverted (1 to 0 and 0 to 1) before transmission of frames to the interface. If the value of this attribute is On, the incoming data bits will also be inverted when frames are received from the link before being processed.<br><br>This option is typically used in ***hdlc*** framing mode when inversion is used to guarantee 1's density. |

Note that aborts (in ***hdlc*** and ***interrupting*** modes) are corrupted when data is inverted.

This attribute may only take its default value for non-MSA cards.

Values
off
on

Default
off

### ATTRIBUTE FrUni Framer frameCrcType

Access
Read and write

Description
This attribute defines the type of CRC used.

The CRC value calculated is appended to the end of the frames transmitted to the link. The CRC value is removed from the end of frames received from the link and checked for correctness. NoCrc means that CRC is not used.

This attribute may take only its default value for non-MSA cards.

Values
crc16
crc32
noCrc

Default
crc16

### ATTRIBUTE FrUni Framer flagsBetweenFrames

Access
Read and write

Description
This attribute defines the number of flags that are inserted between frames sent to the link interface. The flagBetweenFrames can be set to only 1, 2, 4, 8 or 16 for 4pDS3Ch FrameRelay FP.

Values
Decimal (1..16)

Default
1

## GROUP FrUni Framer OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

## ATTRIBUTE FrUni Framer adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

## ATTRIBUTE FrUni Framer operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component. |

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE FrUni Framer usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP FrUni Framer Statistics (Stats)

Properties
Operational

Description
This group contains the operational statistics data for a Framer component.

### ATTRIBUTE FrUni Framer aborts

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of aborts received. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni Framer crcErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of frames with CRC errors, occurring in the receive direction from the link. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni Framer lrcErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of frames with LRC errors, occurring in the Tx link prior to transmission onto the link. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni Framer nonOctetErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of frames that were non octet aligned. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni Framer overruns

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute is the total number of frames received from the link for which overruns occurred. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni Framer underruns

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of frames transmitted to the link for which underruns occurred. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni Framer largeFrmErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of frames received which were too large. The frame exceeded the *maximumFrameLengthLimit* provisioned attribute or it contained more than the 255 block hardware limit. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni Framer frmModeErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of frames detected with framing mode errors. A *framingModeError* is flagged when frames are inconsistent with the specified *framingType*, that is when interrupting frames are used while running in hdlc mode. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni Framer frmToIf

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | The number of frames transmitted to the link interface by Framer.<br><br>Note: This does not include the number of frames transmitted directly to the hardware queue, thus bypassing the Framer component. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE FrUni Framer frmFromIf

| | |
|---|---|
| Access | Read only |
| Description | The number of frames received from the link interface by Framer. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE FrUni Framer octetFromIf

| | |
|---|---|
| Access | Read only |
| Description | The number of bytes received from the link interface by Framer. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE FrUni Framer ingressFrameDiscards

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of frames discarded at ingress PQC. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### GROUP FrUni Framer LinkUtilization (Util)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the link utilization operational data for a Framer component. |

### ATTRIBUTE FrUni Framer normPrioLinkUtilToIf

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the utilization of the normal and high priority data traffic (interruptible traffic) sent to the link as a percentage of the available bandwidth on the link. Note that this includes traffic with Transfer Priorities (TP) of 0, 6 and 9 and/or Emission Priority of 2 and 3. The utilization is the average for the last minute. |
| Values | Decimal (0..100) |
| Units | % |
| Default | 0 |

### ATTRIBUTE FrUni Framer normPrioLinkUtilFromIf

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the utilization of the normal and high priority data traffic (interruptible traffic) received from the link as a percentage of the available bandwidth on the link. Note that this includes traffic with Transfer Priorities (TP) of 0, 6 and 9 and/or Emission Priority of 2 and 3. The utilization is the average for the last minute. |
| Values | Decimal (0..100) |
| Units | % |
| Default | 0 |

## COLLECTED STATS FrameRelayUni Framer

| | |
|---|---|
| Description | The statistics record generated by the FrameRelayUni Framer component. |

### ATTRIBUTE FrUni Framer rxBytes

| | |
|---|---|
| Description | This attribute provides the number of bytes received on the link by the Framer in the last collection interval. |
| Values | Long Integer |

### ATTRIBUTE FrUni Framer rxFrames

| | |
|---|---|
| Description | This attribute provides the number of frames received on the link interface by the Framer in the last collection interval. |
| Values | Long Integer |

### ATTRIBUTE FrUni Framer txBytes

| | |
|---|---|
| Description | This attribute provides the number of bytes transmitted to the link by the Framer in the last collection interval. This value could be zero if the application sends the frames directly to the link. |
| Values | Long Integer |

### ATTRIBUTE FrUni Framer txFrames

| | |
|---|---|
| Description | This attribute provides the number of frames transmitted to the link interface by the Framer in the last collection interval. This value could be zero if the application sends the frames directly to the link. |
| Values | Long Integer |

### ATTRIBUTE FrUni Framer rxTotalLinkUtil

| | |
|---|---|
| Description | This attribute provides the average total link utilization computed based on the total number of bytes received on the link in the last collection interval. |
| Values | Decimal (0..100) |

## COMPONENT FrUni LocalManagementInterface (Lmi)

| | |
|---|---|
| Groups | "GROUP FrUni Lmi ProtocolParameters (Parms)"<br>"GROUP FrUni Lmi OsiState (State)"<br>"GROUP FrUni Lmi ProtocolStatusInfo (Psi)"<br>"GROUP FrUni Lmi Statistics (Stats)"<br>"GROUP FrUni Lmi UspProtocolParameters (UspParms)" |
| Scope | Application |
| Description | *FrUni/n LocalManagementInterface*<br>*FrNni/n LocalManagementInterface*<br>*FrAtm/n LocalManagementInterface* |

This component defines the parameters for implementing the Local Management Interface protocol.

Common Verbs

Help
List
Display

## GROUP FrUni Lmi ProtocolParameters (Parms)

Properties: Provisioned

Description: This group contains the provisionable attributes of the *LMI* component.

## ATTRIBUTE FrUni Lmi procedures (proc)

Access: Read and write

Criticality: Process

Description: This attribute selects the procedures to be used for the Local Management Interface. The following procedures are supported:

***none:*** no Local Management Interface procedures are running on this interface. This accommodates Frame Relay user equipment that has not implemented any LMI procedures. The remaining attributes of this group are ignored.

For the ***4pDS3Ch*** card, when the *timeslot* of the *channel* component linked to this *FrUni* is set to ***none***, only ***none*** is permitted for the *procedures* attribute of this *Lmi* component.

***vendorForum***: Local Management Interface procedures from the Vendor Forum specification are supported on this interface. *DLCI 1023* is used for the LMI protocol. This value cannot be used if the side attribute is both.

***ansi***: Local Management Interface procedures from the ANSI specification are supported. *DLCI 0* is used for the LMI protocol.

***itu***: Local Management Interface procedures from the ITU-T specification are supported. *DLCI 0* is used for the LMI protocol.

Was previously ***ccitt***.

***autoConfigure***: The interface determines automatically which Local Management Interface procedures to use. This value cannot be used if the side attribute is user.

The procedures currently in use can be seen in the operational attribute *opProcedures*.

Values
none
vendorForum
ansi
itu (ccitt)
autoConfigure

Default
autoConfigure

### ATTRIBUTE FrUni Lmi asyncStatusReport (asr)

Access
Read and write

Description
This attribute selects the use of asynchronous PVC status report procedures as specified in ANSI, CCITT, and Vendor Forum.

This attribute can be set to ***on*** or ***off***. If *procedure*s is set to ***none***, this attribute is ignored.

Values
off
on

Default
off

### ATTRIBUTE FrUni Lmi errorEventThreshold (n392)

Access
Read and write

Description
An event is defined as follows: (1) receipt of a STATUS ENQUIRY message; or (2) expiration of timer T392. An error event is (1) nonreceipt of STATUS ENQUIRY in T392 seconds; (2) invalid contents of a LMI message; (3) invalid receive sequence number. This attribute specifies the number of error events which, if they occur within *eventCount* events, cause a protocol error condition. The condition is cleared after *eventCount* sequential correct events occur. This attribute

| | |
|---|---|
| | corresponds to the nN2 parameter described in the Vendor Forum Specification.<br><br>It must be less than or equal to *eventCount*. |
| Values | Decimal (1..10) |
| Default | 3 |

### ATTRIBUTE FrUni Lmi eventCount (n393)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the number of contiguous events within which no more than *eventErrorThreshold* error events are allowed. This attribute corresponds to the nN3 parameter described in the Vendor Forum Specification.<br><br>It must be greater than or equal to *errorEventThreshold*. |
| Values | Decimal (1..10) |
| Default | 4 |

### ATTRIBUTE FrUni Lmi checkPointTimer (t392)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute selects the time (in seconds) within which a STATUS ENQUIRY message is expected. This attribute corresponds to the nT2 parameter described in the Vendor Forum Specification.<br><br>It must be less than *messageCountTimer.* |
| Values | Decimal (1; 2; 3; 4; 5; 10; 15; 20; 25; 30) |
| Units | seconds |
| Default | 15 |

### ATTRIBUTE FrUni Lmi messageCountTimer (nt3)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute selects the time (in seconds) within which at most five (this is a fixed value and corresponds to maximum message count in VendorForum) STATUS ENQUIRY messages are expected. This attribute applies only when the *lmiProcedures* is set to ***vendorForum***.<br><br>*messageCountTimer* must always be greater than *checkPointTimer.* |
| Values | Decimal (5; 10; 15; 20; 25; 30) |
| Units | seconds |
| Default | 20 |

### ATTRIBUTE FrUni Lmi ignoreActiveBit (inab)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies whether the Frame Relay LMI Active Bit (A-bit) has a bearing on the transfer of user data across this Frame Relay interface for both directions of traffic flow.<br><br>When this attribute is set to ***yes***, the A-bit status of a user DLCI connection does not affect data transfer.<br><br>When this attribute is set to ***no,*** data received from the local interface will be discarded if an A-bit =0 condition exists towards the local user. Data being sent to the local interface is discarded if an A-bit = 0 condition exists towards the subnet. |
| Values | no<br>yes |
| Default | no |

### ATTRIBUTE FrUni Lmi side

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |

Description

This attribute can be set to ***user, network,*** or ***both***.

When this attribute is set to ***user***, USP LMI procedures are running. When this attribute is set to ***network***, NSP LMI procedures are running. When this attribute is set to ***both***, USPNSP LMI procedures are running.
When the value is ***both***, the *procedures* attribute must not be set to ***vendorForum***.
Setting the value to ***user*** when the *procedures* attribute is set to ***autoConfigure*** is disallowed semantically.

Values

network
user
both

Default

network

## ATTRIBUTE FrUni Lmi pvcConfigParmsInFsr (pvcConfig)

Access

Read and write

Description

When this attribute is set to ***yes***, additional Q.933 information elements are included in the LMI Full Status message to facilitate CPE PVC parameter configuring.

When set to ***yes***, the *Check Prov* command fails if the *Lmi side* is not set to ***network***.

When set to ***yes***, *Check Prov* fails if the number of DLCIs on the *FrUni* is greater than 300.

This attribute should be set to ***no*** if the *BnxProtocol* component is provisioned under this *FrUni* for BNX Frame Relay interworking.

If the service is not a *FrUni* this attribute is ignored.

Values

no
yes

Default

no

## ATTRIBUTE FrUni Lmi pvcAlarmsReporting (pvcAlarms)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies if alarms are generated when PVCs change state in the local network, an adjacent network or in remote networks.<br><br>When the value is ***internal***, PVCs operational status change in the local network are reported in alarms. When the value is ***external***, PVCs operational status change in an adjacent or remote networks are reported in alarms. When the value is ***both***, PVCs status change in local and adjacent or remote networks are reported in alarms. When the value is ***none***, no alarms are issued for PVCs status change.<br><br>There are four kinds of alarms controlled by the attribute.<br>Alarm 7007 200x reports PVCs that have lost connectivity in an adjacent or remote networks.<br>Alarm 7007 201x reports PVCs that have reached the data transfer state in an adjacent or remote networks.<br>Alarm 7007 202x reports PVCs that have lost connectivity in the local network.<br>Alarm 7007 203x reports PVCs that have reached the data transfer state in the local network.<br><br>Each alarm can report a maximum of 112 DLCIs. Up to nine alarms of the same kind may be required to report all PVCs that have changed state if all these PVCs have experienced the same condition at the *FrUni* interface. |
| Values | external<br>internal<br>both<br>none |
| Default | external |

## GROUP FrUni Lmi OsiState (State)

| | |
|---|---|
| Properties | Operational |

Description

This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE FrUni Lmi adminState (osiAdmin)

Access

Read only

Description

This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values

locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default

unlocked

### ATTRIBUTE FrUni Lmi operationalState (osiOper)

Access

Read only

Description

This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be

providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values: enabled (ena)
disabled (dis)

Default: disabled

### ATTRIBUTE FrUni Lmi usageState (osiUsage)

Access: Read only

Description: This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values: idle
active (activ)
busy

Default: idle

### GROUP FrUni Lmi ProtocolStatusInfo (Psi)

Properties: Operational

Description: This group provides the protocol status of the Local Management Interface.

### ATTRIBUTE FrUni Lmi protocolStatus

Access: Read only

Description

This attribute indicates whether the LMI is in an error condition or whether the LMI procedures are behaving normally. When operating with no LMI protocol, this attribute is always set to ***normalCondition***. When operating with LMI procedures, this attribute is set to ***errorCondition*** after n392 of the last n393 events are in error. The consequence of an ***errorCondition*** is that all DLCIs on this interface will become inactive in both directions. The ***errorCondition*** is cleared and a ***normalCondition*** is indicated when a sufficient number of events have occurred without error. In ANSI, this occurs when n393 consecutive good events take place.

If the *procedures* attribute is set to ***autoConfigure***, this attribute is set to ***configuring*** while adaptive LMI determines which LMI procedures are running on the link. A single LMI error event during auto configuration causes the attribute value to change to ***errorCondition***. If during ***configuring*** no LMI message is received, an LMI ***errorCondition*** is raised after n392 x t392 seconds.

Values

errorCondition
normalCondition
configuring

Default

No default

## ATTRIBUTE FrUni Lmi opProcedures (opproc)

Access

Read only

Criticality

Process

Description

The *opProcedures* attribute indicates the procedures being used for the Local Management Interface. This attribute should be ignored if *protocolStatus* is not ***normalCondition***. The following procedures are supported:

***none:*** Local Management Interface procedures are not running on this interface. This accommodates Frame Relay user equipment that has not implemented any LMI procedures.

***vendorForum***: Local Management Interface procedures from the Vendor Forum specification are running on this interface. *DLCI*

*1023* is used for the LMI protocol.

***ansi***: Local Management Interface procedures from the ANSI specification are running. *DLCI 0* is used for the LMI protocol.

***itu***: Local Management Interface procedures from the ITU-T specification are running. *DLCI 0* is used for the LMI protocol. Was previously ***ccitt***.

***unknown***: Local Management Interface procedures have yet to be determined by Adaptive LMI.

Values
none
vendorForum
ansi
itu
unknown

Default
No default

## GROUP FrUni Lmi Statistics (Stats)

Properties
Operational

Description
This group contains the operational statistics for the Frame Relay Local Management Interface.

## ATTRIBUTE FrUni Lmi keepAliveStatusToIf (kasti)

Access
Read only

Description
This attribute counts the number of Local Management Interface keep alive status messages sent to the external user device in response to a status enquiry for keep alive status. When the maximum count is exceeded it wraps to zero.

Values
Decimal (0..4294967295)

Default
0

## ATTRIBUTE FrUni Lmi fullStatusToIf (fsti)

Access
Read only

| | |
|---|---|
| Description | This attribute counts the number of Local Management Interface full status messages sent to the external user device in response to a status enquiry for keep alive or full status. When the maximum count is reached it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni Lmi keepAliveStatusEnqFromIf (kafi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of Local Management Interface valid keep alive status enquiry messages received from the external user device. When the maximum count is reached it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni Lmi fullStatusEnqFromIf (fsfi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of Local Management Interface valid full status enquiry messages received from the external user device. When the maximum count is reached it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni Lmi networkSideEventHistory (nsh)

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the Local Management Interface network side procedure event history in order of occurrence. An event is represented by a single symbol. A ‘+’ symbol indicates a good event. An ‘X‘ symbol indicates a protocol error event. The leftmost event is the most recent to occur. The provisioned *eventCount* (nN3/N393) dictates the maximum number of events displayed. A good event is triggered by receipt of a valid status enquiry message. An error event is one of three possibilities, |

| | |
|---|---|
| | either a nT2/T392 timer expiry, receipt of a status enquiry message with bad sequence numbers, or when *lmiProcedures* is provisioned to vendorForum and we receive more than nN4 status enquiry messages within the provisioned *messageCountTimer* (nT3). |
| Values | String (1..10, ASCII) |
| Default | No default |

### ATTRIBUTE FrUni Lmi protocolErrors (proto)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of Local Management Interface protocol errors. It is the sum of the sequence (*sequenceErrors*), timeout (*pollingVerifTimeouts*) and too many status enquiry messages received within the *messageCountTimer* (nT3) errors. The too many status enquiries error only applies when *lmiProcedures* is set to ***vendorForum***. When the maximum count is exceeded it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni Lmi unexpectedIes (uie)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of Local Management Interface frames received with an Information Element identifier that is unknown or unexpected. An unexpected Information Element is not a protocol error. When the maximum count is reached, this counter wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni Lmi sequenceErrors (seq)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of Local Management Interface Status Enquiry message sequence errors. A sequence error is |

| | |
|---|---|
| | receipt of a Status Enquiry message with a receive sequence number not equal to the last send sequence number. When the maximum count is reached the counter wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni Lmi unexpectedReports (ur)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of Local Management Interface frames received with an unknown or unexpected report type. An unexpected report type is not a protocol error. When the maximum count is reached the counter wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni Lmi pollingVerifTimeouts (tmo)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of *checkPointTImer* (t392) timer expiries occurring on the Local Management Interface. When the maximum count is reached the counter wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni Lmi keepAliveEnqToIf (kaeti)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of Local Management Interface keep alive enquiry status messages sent to the external user device for keep alive status. When the maximum count is reached it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni Lmi fullStatusEnqToIf (fseti)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of Local Management Interface full status messages sent to the external user device in response to a status enquiry for keep alive or full status. When the maximum count is reached it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni Lmi userSideEventHistory (ush)

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the Local Management Interface user side procedure event history in order of occurrence. An event is represented by a single symbol. A ‘+’ symbol indicates a good event. An ‘X‘ symbol indicates a protocol error event. The left most event is the most recent to occur. The provisioned *eventCount* (nN3/N393) dictates the maximum number of events displayed. A good event is triggered by receipt of a valid status message. An error event is either a nT1/T391 timer expiry or receipt of a status message with bad sequence numbers. |
| Values | String (1..10, ASCII) |
| Default | No default |

### ATTRIBUTE FrUni Lmi statusSequenceErrors (stseq)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of Local Management Interface Status message sequence errors. A sequence error is receipt of a Status message with a receive sequence number not equal to the last send sequence number. When the maximum count is reached the counter wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni Lmi noStatusReportCount (nsrc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times when no status report or an invalid status report comes from the external network. This attribute is incremented in two cases:<br>i) after a status enquiry is sent out and T391 timer expires without having a status report received.<br>ii) an invalid status report is received.<br><br>When the maximum count is reached it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### GROUP FrUni Lmi UspProtocolParameters (UspParms)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes of the Local Management Interface user side procedure. |

### ATTRIBUTE FrUni Lmi fullStatusPollingCycles (n391)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies how frequently the Frame Relay UNI service should initiate a Status Enquiry for a full PVC status report. A polling cycle is a Status Enquiry and Status Report exchange.<br><br>This attribute is used only if the *side* attribute is either ***user*** or ***both***. |
| Values | Decimal (1..255) |
| Default | 6 |

### ATTRIBUTE FrUni Lmi linkVerificationTimer (t391)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies how frequently the Frame Relay UNI service should initiate a Status Enquiry for link integrity |

verification. It must be less than *checkPointTimer (t392)*.

When the Lmi *side* is ***network***, this attribute is ignored.

Values: Decimal (1; 2; 3; 4; 5; 10; 15; 20; 25; 30)

Units: seconds

Default: 10

## COMPONENT FrUni DataLinkConnectionIdentifier (Dlci)

Instance: Decimal (16..1007)

Groups:
"GROUP FrUni Dlci OsiState (State)"
"GROUP FrUni Dlci ABitStatus (Abit)"
"GROUP FrUni Dlci CallData (Calld)"
"GROUP FrUni Dlci ServiceParametersOp (SpOp)"
"GROUP FrUni Dlci Statistics (Stats)"
"GROUP FrUni Dlci IntervalData (Int)"

Scope: Application

Description: *FrUni/n DataLinkConnectionIdentifier/n*
This component represents a Data Link Connection Identifier. It is responsible for the Frame Relay U-plane (User-plane) protocol for the specified instance. There can be many instances of *Dlci* for each *FrUni*. The instance value is used to identify the logical connection, multiplexed within the physical channel, with which a frame is associated. All frames carried within a particular physical channel and having the same DLCI value are associated with the same logical connection.

A DLCI instance can be a permanent virtual circuit (PVC) or switched permanent virtual circuit (P-SPVC) added through provisioning, or a switched virtual circuit (SVC) which is created dynamically through signaling.

The *lock* and *unlock* commands apply to permanent (PVC and P-SPVC) DLCIs. The *clear* command applies to switched (SVC) DLCIs.

For the ***4pDS3Ch*** card, when the *timeslot* of the *channel*

component linked to this *FrUni* is set to ***none***, no *Dlci* component is allowed under this *FrUni*.

A *Dlci* must have one (and only one) instance of *DirectCall*, *IpConnection*, or *BnxInterworkingFunction* under it.

A *DirectConnection* can not be provisioned on a *FrUni* with an *IpConnection* or *BnxInterworkingFunction* component provisioned under any of its *Dlci subcomponents*.

| | |
|---|---|
| Subcomponents | "COMPONENT FrUni Dlci ServiceParametersProv (Sp)"<br>"COMPONENT FrUni Dlci EgressServiceParameters (EgressSp)" |
| Opt. Subcomp. | "COMPONENT FrUni Dlci DirectCall (Dc)"<br>"COMPONENT FrUni Dlci SpareDirectCall (SpareDc)"<br>"COMPONENT FrUni Dlci BnxInterworkingFunction (BnxIwf)"<br>"COMPONENT FrUni Dlci IpConnection (IpConn)" |
| Dyn. Subcomp. | "COMPONENT FrUni Dlci Vc"<br>"COMPONENT FrUni Dlci LoopBack (Lb)"<br>"COMPONENT FrUni Dlci StandbyVc (StbyVc)"<br>"COMPONENT FrUni Dlci Frf12Stats (Frf12)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## VERB CLEAR FrUni Dlci

| | |
|---|---|
| Impact | Service |
| Description | This command is used to clear a Frame Relay switched (SVC) connection. |

## VERB LOCK FrUni Dlci

| | |
|---|---|
| Impact | Service |
| Description | *Lock [-force] <component name>*<br>This verb will cause the specified component to enter the OSI ***shuttingDown*** administrative state. While shutting down, the component continues to provide service to existing clients but rejects any new requests for service. In some cases, locking a component causes all its subcomponents to shut down also.<br><br>When the component is no longer providing service, it enters the OSI ***locked*** administrative state.<br><br>**Options:**<br>*-force*<br>If this option is present, service to current clients is terminated and the ***locked*** state is entered immediately (that is, without first going through the ***shuttingDown*** state). Without this option, *Lock* behaves as described above. |

## VERB UNLOCK FrUni Dlci

| | |
|---|---|
| Impact | Service |
| Description | This command is used to unlock a Frame Relay PVC DLCI. |

## GROUP FrUni Dlci OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

## ATTRIBUTE FrUni Dlci adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |

Description

This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values

locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default

unlocked

## ATTRIBUTE FrUni Dlci operationalState (osiOper)

Access

Read only

Description

This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE FrUni Dlci usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
idle
active (activ)
busy

Default
idle

### ATTRIBUTE FrUni Dlci availabilityStatus (osiAvail)

Access
Read only

Description
If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.

The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.

The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.

The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.

The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

### ATTRIBUTE FrUni Dlci proceduralStatus (osiProc)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.

The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***initializing*** indicates that initialization has been

initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

## ATTRIBUTE FrUni Dlci controlStatus (osiCntrl)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is

administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

Set of: subjectToTest (subTst)
partOfServicesLocked (partLk)
reservedForTest (rsrvd)
suspended (suspnd)

Default: No default

### ATTRIBUTE FrUni Dlci alarmStatus (osiAlarm)

Access: Read only

Description: If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or

***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE FrUni Dlci standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values

hotStandby (hot)
coldStandby (cold)

providingService (serv)
notSet (nSet)

Default notSet

### ATTRIBUTE FrUni Dlci unknownStatus (osiUnknw)

Access Read only

Description This attribute indicates the OSI Unknown status of the component.

The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.

The value ***true*** indicates that the actual state of the component is not known for sure.

Values false
true

Default false

### GROUP FrUni Dlci ABitStatus (Abit)

Properties Operational

Description This group contains the A-Bit status information for this Data Link Connection Identifier.

### ATTRIBUTE FrUni Dlci aBitStatusToIf (abti)

Access Read only

Description This attribute is the most recent A-bit status sent to the interface. The A-bit status is part of the LMI protocol, and indicates willingness to accept data from the local interface.

***inactive*** - the Frame Relay service discards all data offered from the local interface.

***active*** - the Frame Relay service tries to process all data offered from the local interface.

***notApplicable*** - the DLCI is switched, so this attribute is ignored.

| | |
|---|---|
| Values | inactive<br>active<br>notApplicable |
| Default | inactive |

### ATTRIBUTE FrUni Dlci aBitReasonToIf (abrti)

| | |
|---|---|
| Access | Read only |
| Description | This attribute provides the reason (if any) for an ***inactive*** status to be sent to the interface. This reason is ***notApplicable*** for an ***active*** status. |
| Values | notApplicable<br>remoteUserSignaled<br>localLmiError<br>remoteLmiError<br>localLinkDown<br>remoteLinkDown<br>pvcSpvcDown<br>userNotAuthorized<br>resourceNotAvailable<br>dlciCollisionAtNni |
| Default | notApplicable |

### ATTRIBUTE FrUni Dlci aBitStatusFromIf (abfi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the most recent A-Bit status received from the interface.<br><br>***inactive*** - the Frame Relay service informs the remote DLCI not to send user data to this interface.<br><br>***active*** - the Frame Relay service informs the remote DLCI that it is okay to send user data to this interface.<br><br>***notApplicable*** - the DLCI is switched, so this attribute is ignored. |

| | |
|---|---|
| Values | inactive<br>active<br>notApplicable |
| Default | inactive |

### ATTRIBUTE FrUni Dlci aBitReasonFromIf (abrfi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute provides the reason (if any) for an ***inactive*** status to be sent to the subnet. This reason is ***notApplicable*** for an ***active*** status. |
| Values | notApplicable<br>remoteUserSignaled<br>localLmiError<br>localLinkDown<br>missingFromLmiReport |
| Default | notApplicable |

### ATTRIBUTE FrUni Dlci loopbackState

| | |
|---|---|
| Access | Read only |
| Description | This attribute has the value ***on*** when the DLCI is in loopback mode and ***off*** otherwise. The loopback command verbs *start* and *stop* are used to initiate and terminate the loopback mode for a DLCI. While *loopbackState* is ***on***, the local LMI will report to the interface the A-bit status as active. Also an active A-bit signal will be reliably propagated across the subnet to the remote DLCI. |
| Values | off<br>on |
| Default | off |

### GROUP FrUni Dlci CallData (CallId)

| | |
|---|---|
| Properties | Operational |
| Description | This group of attributes describes the characteristics of the call such as call type and call state. |

## ATTRIBUTE FrUni Dlci callType (ct)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether this DLCI is a permanent virtual circuit (PVC), a switched virtual circuit (SVC) or a switched permanent virtual circuit (SPVC). |
| Values | pvc<br>svc<br>spvc |
| Default | No default |

## ATTRIBUTE FrUni Dlci callState

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the FRF.4 state of an SVC call. The value of this attribute for a permanent (PVC and P-SPVC) DLCI is always ***notApplicable***. In the description that follows, “local” refers to the user who has initiated the SETUP request, and “remote” refers to the user to whom the local user wishes to connect.<br><br>State description:<br>In the ***null*** state, the network has neither received nor sent call setup requests for this DLCI.<br><br>In the ***callInitiated*** state, the network has received a SETUP message from the local user.<br><br>In the ***outgoingCallProceeding*** state, the network has sent a CALL PROCEEDING message to the local user in response to the SETUP message.<br><br>In the ***callPresent*** state, the network has sent a SETUP message to the remote user.<br><br>In the ***incomingCallProceeding*** state, the network has received a CALL PROCEEDING message from the remote user in response to a SETUP message. |

In the ***active*** state, either the network has sent a CONNECT message to the local user, or the network has received a CONNECT from the remote user.

In the ***disconnectRequest*** state, the network has received a DISCONNECT message from the local user.

In the ***disconnectIndication*** state, the network has sent a DISCONNECT to the local user.

In the ***releaseRequest*** state, the network has sent out a RELEASE message to the local user.

In the ***restartRequest*** state, the network has sent a RESTART request to the local user and is waiting for an acknowledgement.

In the ***restart*** state, the network has received a request for a restart from the local user and the network has not returned an acknowledgement.

Values

null
callInitiated
callProceedingSent
callPresent
callProceedingReceived
active
disconnectRequest
disconnectIndication
releaseRequest
restartRequest
restart
notApplicable

Default

No default

## ATTRIBUTE FrUni Dlci callReference (callref)

Access

Read only

Description

This attribute indicates the FRF.4 call reference number associated with this DLCI. The value of this attribute for a provisioned (PVC or P-SPVC) DLCI is always ***0***.

| | |
|---|---|
| Values | Decimal (0..32767) |
| Default | No default |

### GROUP FrUni Dlci ServiceParametersOp (SpOp)

| | |
|---|---|
| Properties | Operational |
| Description | This group defines the service and traffic parameters specific to this instance of DLCI. For permanent (PVC and P-SPVC) DLCIs, the values of attributes with the exception of the *measurementInterval* should be identical to those in the group *FrsDataLinkConnectionProv* under the *FrsUniServiceParametersProv* component. For switched (SVC) DLCIs, the values of attributes may be different from the values provisioned under the *FrUni Sig* component, if signaling negotiations have occurred to alter the service parameters. |

### ATTRIBUTE FrUni Dlci maximumFrameSize (n203)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the maximum number of octets which may be included in the information field. The frame relay header and CRC octets are not included in this definition. This attribute corresponds to the dN1 parameter described in the Vendor Forum Specification. |
| Values | Decimal (1..8187) |
| Units | octets |
| Default | No default |

### ATTRIBUTE FrUni Dlci committedInformationRate (cir)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the committed information rate (CIR) in bits per second (bit/s). When *rateEnforcement* is set to ***on***, *cir* is the rate at which the network agrees to transfer information under normal conditions. This rate is measured over a measurement interval (*t*) that is determined internally based on CIR and the committed burst size (Bc). An exception to this occurs when CIR is provisioned to be zero, in which case the measurement interval |

| | |
|---|---|
| | (*t*) must be provisioned explicitly.<br><br>This attribute should be ignored when *rateEnforcement* is ***off***. |
| Values | Decimal (0..50000000) |
| Units | bit/s |
| Default | No default |

### ATTRIBUTE FrUni Dlci committedBurstSize (bc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the committed burst size (Bc) in bits. *bc* is the amount of data that a network agrees to transfer under normal conditions over a measurement interval (*t*). Data marked DE=1 is not accounted for in Bc.<br><br>This attribute should be ignored when *rateEnforcement* is ***off***. |
| Values | Decimal (0..50000000) |
| Units | bits |
| Default | No default |

### ATTRIBUTE FrUni Dlci excessBurstSize (be)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the excess burst size (Be) in bits. Be is the amount of uncommitted data that the network will attempt to deliver over measurement interval T. Data marked DE=1 by the user or by the network is accounted for here.<br><br>This attribute should be ignored when *rateEnforcement* is ***off***. |
| Values | Decimal (0..50000000) |
| Units | bits |
| Default | No default |

### ATTRIBUTE FrUni Dlci measurementInterval (t)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the time interval (in milliseconds) over which rates and burst sizes are measured.<br><br>This attribute should be ignored when *rateEnforcement* is ***off***. |
| Values | Decimal (0..4294967295) |
| Units | msec |
| Default | No default |

### ATTRIBUTE FrUni Dlci accounting (ac)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether accounting data collection and record generation is turned on at this DLCI. For accounting data collection and record generation to be turned on, the ***accountingOn*** bit and at least one of the ***accountCollection*** bits in the ***DataNetworkAddress*** component must be set to on. |
| Values | off<br>on |
| Default | No default |

### ATTRIBUTE FrUni Dlci emissionPriorityToIf (epToIf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the emission priority of frames sent to the interface. A larger value denotes a higher priority. |
| Values | Decimal (0; 1; 2; 3) |
| Default | No default |

### ATTRIBUTE FrUni Dlci transferPriorityToNetwork (tpToNwk)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the priority at which data is transferred to the network. |

The transfer priority is a preference configured for an application according to its delay-sensitivity requirement. Frames with higher transfer priority are served by the network before the frames with lower priority. The transfer priority standard is defined to have 16 indices from 0 to 15.

Each transfer priority n, where n specifies the transfer priority index, contains a default setting for routing class of service (***multimedia***, ***delay***, or ***throughput***) and frame relay egress queue (depending on the number of supported egress queues on the remote end interface) specified by the *routingClassOfServic*e and *emissionPriority* attributes provisioned in the *Mod Frs DprsNet Tpm/n* component. The default mapping can be altered by a user if required.

Values Decimal (0..15)

Default No default

### ATTRIBUTE FrUni Dlci transferPriorityFromNetwork (tpFromNwk)

Access Read only

Description This attribute indicates the priority at which data is transferred from
the network.

The transfer priority is a preference configured for an application according to its delay-sensitivity requirement. Frames with higher transfer priority are served by the network before the frames with lower priority. The transfer priority standard is defined to have 16 indices from 0 to 15.

Each transfer priority n, where n specifies the transfer priority index, contains a default setting for routing class of service (***multimedia***, ***delay***, or ***throughput***) and frame relay egress queue (depending on the number of supported egress queues on the remote end interface) specified by the *routingClassOfServic*e and *emissionPriority* attributes provisioned in the *Mod Frs DprsNet Tpm/n* component. The default mapping can be altered by a user

if required.

| | |
|---|---|
| Values | Decimal (0..15) |
| Default | No default |

### ATTRIBUTE FrUni Dlci correlationTag (ctag)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the unique string which identifies this connection. The value of this attribute is provisioned under the *correlationTag* attribute under *Service Parameters* subcomponent. If required for correlation purposes, the attribute is provisioned with the same value at both endpoints of the connection.<br><br>An empty string value for this attribute indicates that the user either does not want to use the correlation tag functionality, or wants the correlation tag string to be an empty string.<br><br>This attribute can be used for off-switch data correlation purposes. Downstream processing uses this attribute to correlate data records (accounting etc.) issued at different nodes in the network. In accounting, the value of this attribute appears as the *circuitId* (circuit identifier) for the endpoint.<br><br>There is no system-generated value for the correlationTag. Therefore, this attribute does not appear for SVC DLCIs. |
| Values | String (0..32, ASCII) |
| Default | "" |

### GROUP FrUni Dlci Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational statistics for the Frame Relay Data Link Connection Identifier.<br><br>When the DLCI is in local loopback mode, the DLCI statistics do not increment. |

### ATTRIBUTE FrUni Dlci frmToIf (fti)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames sent out the interface. When the maximum count is reached the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni Dlci fecnFrmToIf (fecnti)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames sent to the interface with the Forward Explicit Congestion Notification (FECN) bit set. When the count reaches maximum it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni Dlci becnFrmToIf (becnti)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames sent to the interface with the Backward Explicit Congestion Notification (BECN) bit set. When the count reaches maximum it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni Dlci bciToSubnet (bcits)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames sent into the local network with the Backward Congestion Indication (BCI) bit set. When the count reaches maximum it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni Dlci deFrmToIf (deti)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames sent to the interface with the Discard Eligibility (DE) bit set. When the count reaches maximum it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni Dlci discCongestedToIf (discardcti)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frame discards at the Frame Relay service due to local congestion in the direction toward the interface. When this count reaches maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni Dlci discDeCongestedToIf (discarddecti)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of discarded frames, with the Discard Eligibility (DE) bit set, at the Frame Relay service, due to local congestion in the direction toward the interface. When this count reaches maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni Dlci frmFromIf (ffi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received from the interface. It includes the frames that are discarded due to error or excess. When the maximum count is reached the count wraps to zero. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE FrUni Dlci fecnFrmFromIf (fecnfi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received from the interface with the Forward Explicit Congestion Notification (FECN) bit set. When the count reaches maximum it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni Dlci becnFrmFromIf (becnfi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received from the interface with the Backward Explicit Congestion Notification (BECN) bit set. When the count reaches maximum it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni Dlci fciFromSubnet (fcifs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received from the network with the Forward Congestion Indication (FCI) bit set. When the count reaches maximum it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni Dlci bciFromSubnet (bcifsb)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received from the network with the Backward Congestion Indication (BCI) bit set. When the count reaches maximum it wraps to zero. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE FrUni Dlci deFrmFromIf (defi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received from the interface with the Discard Eligibility (DE) bit set. When the count reaches maximum it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni Dlci excessFrmFromIf (excess)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received from the interface with the Discard Eligibility (DE) bit clear, but subsequently set by the network due to rate enforcement. When the count reaches maximum it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni Dlci discExcessFromIf (discardefi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames which were discarded due to rate enforcement. When the count reaches maximum it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni Dlci discFrameAbit (discfab)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frame discards at the Frame Relay Service, due to an inactive PVC status, in the direction toward the local network. When this count reaches maximum, it wraps to zero. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni Dlci discCongestedFromIf (discardcfi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frame discards at the Frame Relay service due to local congestion in the direction toward the network. When this count reaches maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni Dlci discDeCongestedFromIf (discarddecfi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of discarded frames, with the Discard Eligibility (DE) bit set, at the Frame Relay service, due to local congestion, in the direction toward the local network. When this count reaches maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni Dlci errorShortFrmFromIf (shortfi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received with 0 octets in the information field. When the count reaches maximum it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni Dlci errorLongFrmFromIf (longfi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received with number of octets in the information field greater than the subscribed maximum. |

When the count reaches maximum it wraps to zero. Frames whose lengths are greater than the hardware receive buffer are ignored by the hardware and are therefore not included in this count.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE FrUni Dlci becnFrmSetByService (becnset)

Access: Read only

Description: This attribute counts the number of frames with BECN set by the Frame Relay service. It is incremented whenever the Frame Relay service sets BECN on a frame upon detecting local congestion. This count is incremented regardless of whether the frame already bears a set BECN bit since its use is to determine the place of congestion. When the count reaches maximum, it wraps to zero.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE FrUni Dlci bytesToIf (bti)

Access: Read only

Description: This attribute counts the bytes sent out the interface. When the maximum count is reached the count wraps to zero.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE FrUni Dlci deBytesToIf (debti)

Access: Read only

Description: This attribute counts the bytes sent to the interface with the Discard Eligibility (DE) bit set. When the count reaches maximum it wraps to zero.

Values: Decimal (0..4294967295)

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE FrUni Dlci discCongestedToIfBytes (discardctib)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of byte discards at the Frame Relay service due to local congestion in the direction toward the link. When this count reaches maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni Dlci discDeCongestedToIfBytes (discarddectib)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of discard eligible (DE=1) byte discards at the Frame Relay service due to local congestion in the direction toward the link. When the maximum count is reached the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni Dlci bytesFromIf (bfi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes received from the interface. Bytes that are discarded due to error or excess are not counted. When the maximum count is reached the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni Dlci deBytesFromIf (debi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes received from the interface with the Discard Eligibility (DE) bit set. When the count reaches maximum it wraps to zero. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni Dlci excessBytesFromIf (excessb)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes received from the interface with the Discard Eligibility (DE) bit clear, but subsequently set by the network due to rate enforcement. When the count reaches maximum it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni Dlci discExcessFromIfBytes (discardebi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes which were discarded due to rate enforcement. When the count reaches maximum it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni Dlci discByteAbit (discbab)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes which were discarded due to aBit turned off. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni Dlci discCongestedFromIfBytes (discardcbib)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of byte discards at the Frame Relay service due to local congestion in the direction toward the network. When this count reaches maximum, it wraps to zero. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni Dlci discDeCongestedFromIfBytes (discarddecbib)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of discard eligible (DE=1) byte discards at the Frame Relay service due to local congestion in the direction toward the network. When the maximum count is reached the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni Dlci errorShortBytesFromIf (shortbi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes received with 0 octets in the information field. When the count reaches maximum it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni Dlci errorLongBytesFromIf (longbi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes received with number of octets in the information field greater than the subscribed maximum. When the count reaches maximum it wraps to zero. Bytes whose lengths are greater than the hardware receive buffer are ignored by the hardware and are therefore not included in this count. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni Dlci rateAdaptReduct (rar)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the number of rate reductions due to rate adaptation. Rate adaptation causes the allowed rate to be reduced in steps. After each reduction, a period of time is awaited before further action is taken. At the end of this period, the allowed rate is further reduced if congestion is still prevalent. When this count reaches maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni Dlci rateAdaptReductPeriod (rarp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute provides a cumulative count of the amount of time that rate adaptation procedures have been in effect. When this count reaches maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Units | msec |
| Default | 0 |

### ATTRIBUTE FrUni Dlci cirPresent

| | |
|---|---|
| Access | Read only |
| Description | This attribute provides the actual Committed Information Rate (CIR) enforced for this DLCI. This number is in units of 800 bits/sec, since that is the internal resolution of Passport rate enforcement. If *rateEnforcement* is **off**, then this number does not have meaning. Normally, this attribute matches the provisioned CIR for the DLCI. But when Rate Adaptation is active, then this number will vary to represent the actual Allowed CIR at the moment that this attribute is collected. |
| Values | Decimal (0..4294967295) |
| Units | bit/s |
| Default | 0 |

### ATTRIBUTE FrUni Dlci eirPresent

| | |
|---|---|
| Access | Read only |
| Description | This attribute provides the actual Excess Information Rate (EIR) enforced for this DLCI. This number is in units of 800 bits/sec, since that is the internal resolution of Passport rate enforcement. If *rateEnforcement* is **off**, then this number does not have meaning. Normally, this attribute matches the provisioned EIR for the DLCI. But when Rate Adaptation is active, then this number will vary to represent the actual Allowed EIR at the moment that this attribute is collected. |
| Values | Decimal (0..4294967295) |
| Units | bit/s |
| Default | 0 |

### GROUP FrUni Dlci IntervalData (Int)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational statistics for the Frame Relay Data Link Connection Identifier interval data (accounting data). |

### ATTRIBUTE FrUni Dlci startTime

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the start time of this interval period. If *Vc* spans 12 hour time or time of day change *startTime* reflects new time as recorded at 12 hour periods or time of day changes. A new interval period is started each time an accounting record is generated. |
| Values | Time (DHMS) |
| Default | No default |

### ATTRIBUTE FrUni Dlci totalIngressBytes (tib)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the total bytes received from the interface since the start of the interval period. The start of the interval period is captured in the *startTime* attribute. The count is reset to zero when an accounting record is generated. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE FrUni Dlci totalEgressBytes

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total bytes sent to the interface since the start of the interval period. The start of the interval period is captured in the *startTime* attribute. The count is reset to zero when an accounting record is generated. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE FrUni Dlci eirIngressBytes

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total bytes with the Discard Eligibility (DE) bit set sent to the subnet since the start of the interval period. The start of the interval period is captured in the *startTime* attribute. The count is reset to zero when an accounting record is generated. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE FrUni Dlci eirEgressBytes

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total bytes with the Discard Eligibility (DE) bit set sent to the interface since the start of the interval period. The start of the interval period is captured in the *startTime* attribute. The count is reset to zero when an accounting record is generated. |

| | |
|---|---|
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE FrUni Dlci discardedBytes

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total bytes in invalid frames received from the interface and discarded at the DLCI since the start of the interval period. This count is a sum of octets in frames discarded due to the number of octets in the information field greater than the subscribed maximum or equal to 0, due to aBit turned off, or due to rate enforcement. The start of the interval period is captured in the *startTime* attribute. The count is reset to zero when an accounting record is generated. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE FrUni Dlci totalIngressSegFrm

| | |
|---|---|
| Access | Read only |
| Description | If the value of the *unitsCounted* attribute in *moduleData* component is ***segments***, this attribute counts the total number of segments in frames received from the interface since the start of the interval period. If the value of the *unitsCounted* attribute in *moduleData* component is ***frames***, this attribute counts the total number of frames received from the interface since the start of the interval period. The start of the interval period is captured in the *startTime* attribute. The count is reset to zero when an accounting record is generated. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni Dlci totalEgressSegFrm

| | |
|---|---|
| Access | Read only |
| Description | If the value of the *unitsCounted* attribute in *moduleData* component is ***segments***, this attribute counts the total number of |

segments in frames sent to the interface since the start of the interval period. If the value of the *unitsCounted* attribute in *moduleData* component is ***frames***, this attribute counts the total number of frames sent to the interface since the start of the interval period. The start of the interval period is captured in the *startTime* attribute. The count is reset to zero when an accounting record is generated.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE FrUni Dlci eirIngressSegFrm

Access: Read only

Description: If the value of the *unitsCounted* attribute in *moduleData* component is ***segments***, this attribute counts the number of segments in frames with the Discard Eligibility (DE) bit set sent to the subnet since the start of the interval period. If the value of the *unitsCounted* attribute in *moduleData* component is ***frames***, this attribute counts the number of frames with the Discard Eligibility (DE) bit set sent to the subnet since the start of the interval period. The start of the interval period is captured in the *startTime* attribute. The count is reset to zero when an accounting record is generated.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE FrUni Dlci eirEgressSegFrm

Access: Read only

Description: If the value of the *unitsCounted* attribute in *moduleData* component is ***segments***, this attribute counts the number of segments in frames with the Discard Eligibility (DE) bit set sent to the interface since the start of the interval period. If the value of the *unitsCounted* attribute in *moduleData* component is ***frames***, this attribute counts the number of frames with the Discard Eligibility (DE) bit set sent to the interface since the start of the interval period. The start of the interval period is captured

in the *startTime* attribute. The count is reset to zero when an accounting record is generated.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE FrUni Dlci discardedSegFrm

Access: Read only

Description: If the value of the *unitsCounted* attribute in *moduleData* component is ***segments***, this attribute counts the number of segments in invalid frames received from the interface and discarded at the DLCI. If the value of the *unitsCounted* attribute in *moduleData* component is ***frames***, this attribute counts the number of invalid frames received from the interface and discarded at the DLCI. Segments of frames are counted since the start of the interval period. The count is reset to zero when an accounting record is generated. The count is a sum of segments in frames or frames discarded due to the number of octets in the information field greater than the subscribed maximum or equal to 0, due to aBit turned off, or due to rate enforcement.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE FrUni Dlci localRateAdaptOccurred

Access: Read only

Description: This attribute indicates whether rate adaptation has occurred on this user Data Link Connection on this Frame Relay interface. The value is reset to ***no*** when an accounting record is generated.

Values: yes
no

Default: no

### ATTRIBUTE FrUni Dlci elapsedDifference

Access: Read only

| | |
|---|---|
| Description | This attribute indicates the elapsed time representing the period of this interval data. It is elapsed time in 0.1 second increments since the call started. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni Dlci callRefNumber

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the call reference number which is a unique number generated by the switch.The same Call Reference Number is stored in the interval data (accounting record) at both ends of the call. It can be used as one of the attributes in matching duplicate records generated at each end of the call. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT FrUni Dlci DirectCall (Dc)

| | |
|---|---|
| Groups | "GROUP FrUni Dlci Dc Options" |
| Scope | Application |
| Description | *FrUni/n Dlci/n DirectCall*<br>*FrNni/n Dlci/n DirectCall*<br>This component defines direct call options for calls issued without operator intervention. Connection is complete and can be initiated automatically. Frequency of connection tries is controlled by retry timer.<br><br>If no BnxProtocol component is provisioned under a FrUni or FrNni, a DirectCall component is automatically added to all the Dlci components added to the FrUni or FrNni.<br><br>If a BnxProtocol component is provisioned under a FrUni or FrNni, no DirectCall is automatically added under the Dlci component. |

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP FrUni Dlci Dc Options

| | |
|---|---|
| Properties | Provisioned |
| Description | This group defines attributes associated with a direct call. It defines connection in terms of path and call option parameters. This connection can be permanent (PVC), switched (SVC), or switched permanent (SPVC). It can have four facilities:<br>- CCITT Facilities<br>- DTE Facilities<br>- National Facilities<br>- International Facilities<br>The total number of bytes of facilities including the facility codes and all of the facility data from all of the four classes of facilities must not exceed 512 bytes. |

## ATTRIBUTE FrUni Dlci Dc remoteNpi (rnpi)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the Numbering Plan Indicator (NPI) of the *remoteDna.* |
| Values | x121<br>e164 |
| Default | x121 |

## ATTRIBUTE FrUni Dlci Dc remoteDna (rdna)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the Data Network Address (DNA) of the service at the remote end of the DLCI. This is the called (destination) DCE address (DNA) of this PVC. |

| | |
|---|---|
| Values | BCD (1..15) |
| Default | No default |

### ATTRIBUTE FrUni Dlci Dc remoteDlci (rdlci)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the remote DLCI of the PVC connection. |
| Values | Decimal (16..1007) |
| Default | No default |

### ATTRIBUTE FrUni Dlci Dc type

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the type of VC call.<br><br>If the value is set to ***permanentMaster,*** then a permanent connection will be established between two ends. The remote end must be defined as a ***permanentSlave, permanentBackupSlave,*** or ***permanentSlaveWithBackup***. The connection cannot be established if the remote end is defined as anything else. The end defined as ***permanentMaster*** always initiates the calls. It attempts to call once per minute.<br><br>If the value is set to ***permanentSlave*** then a permanent connection will be established between two ends. The remote end must be defined as a ***permanentMaster.*** The connection cannot be established if the remote end is defined as anything else. The ***permanentSlave*** end attempts to call once per minute.<br><br>If the value is set to ***permanentSlaveWithBackup*** then a permanent connection will be established between the two ends. The remote end must be defined as a ***permanentMaster.*** The connection cannot be established if the remote interface is defined as anything else. The ***permanentSlaveWithBackup*** attempts to call once per minute. When *type* is set to ***permanentSlaveWithBackup,*** the connection is cleared if the interface becomes unavailable. This enables a retry of the connection which can be redirected to the ***permanentBackupSlave***. |

If the value is set to ***permanentBackupSlave*** then a permanent connection is established between the two ends only if the ***permanentMaster*** end is disconnected from the ***permanentSlaveWithBackup*** end and a backup call is established by the call redirection system. If the ***permanentSlaveWithBackup*** interface becomes available again, the ***permanentBackupSlave*** end is disconnected and the ***permanentSlaveWithBackup*** end is reconnected to the ***permanentMaster*** end. The ***permanentBackupSlave*** end does not try to establish a call.

Values

permanentMaster (master)
permanentSlave (slave)
permanentBackupSlave (backSl)
permanentSlaveWithBackup (slavWB)
spvcMaster (spvcM)
spvcSlave (spvcS)
spvcBackupSlave (spvcBackS)
spvcSlaveWithBackup (spvcSWBack)

Default

permanentMaster

## ATTRIBUTE FrUni Dlci Dc transferPriority (tp)

Access

Read and write

Description

This attribute specifies the transfer priority to the local network for the outgoing calls using this particular DLCI. It overrides the *defaultTransferPriority* provisioned in its associated *Dna* component.

The transfer priority is a preference configured for an application according to its delay-sensitivity requirement. Frames with higher transfer priority are served by the network before the frames with lower priority. The transfer priority standard is defined to have 16 levels from 0 to 15.

Each transfer priority n, where n is the transfer priority index, has a default setting for routing class of service (multimedia, delay, or throughput) and Frame Relay egress queue (depending on the

number of supported egress queues on the remote end interface). These settings are specified by the *routingClassOfServic*e and *emissionPriority* attributes provisioned under the *Mod Frs DprsNet Tpm/n* component.

Specifying ***useDnaDefTP*** means using the value given by *defaultTransferPriority* in the associated *Dna* for this DLCI.

Values

0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
useDnaDefTP

Default

useDnaDefTP

## ATTRIBUTE FrUni Dlci Dc discardPriority (dp)

Access

Read and write

Description

This attribute specifies the discard priority for outgoing call using this DLCI.

The discard priority has three provisioning values: ***normal***, ***high***, and ***useDnaDefPriority***. Under congestion conditions, traffic with ***normal*** priority is discarded before traffic with ***high*** priority. The *Dna* default value (provisioned by *outDefaultPriority*) is taken if this attribute is set to the value ***useDnaDefPriority***.

| | |
|---|---|
| Values | normal<br>high<br>useDnaDefPriority |
| Default | useDnaDefPriority |

### ATTRIBUTE FrUni Dlci Dc deDiscardPriority (ddp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether the *discardPriority* applies to DE frames for this DLCI.<br><br>When set to ***determinedByDiscardPriority***, traffic with DE bit set will be discarded according to the setting of the *discardPriority.*<br><br>When set to ***lowest***, all traffic with DE bit set is treated the same and is sent to the subnet at the lowest discard priority. |
| Values | lowest<br>determinedByDiscardPriority |
| Default | determinedByDiscardPriority |

### ATTRIBUTE FrUni Dlci Dc dataPath (dpa)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the data path to be used by Virtual Circuits on this interface. The value of the *dataPath* attribute in the *Dna* component is overridden by this attribute if the value is not ***useDnaValue***.<br><br>This value applies to the connection after data transfer state is reached. All the data and control traffic will be sent using this data path. If the provisioned *dataPath* is not available the connection is not established.<br><br>The value of the *dataPath* is signaled by both ends of the connection. If this value is not the same at both ends ***dprsOnly*** is used for the duration of the connection.<br><br>A virtual circuit connection is always established using ***dprsOnly*** even if this attribute is provisioned as some other value. |

***dprsOnly*** - The dynamic packet routing system is used.

***dprsMcsOnly*** - The DPRS Multi-Service Cut-Through Switching path is used.

***dprsMcsFirst*** - The DPRS Multi-Service Cut-Through Switching path is used if it is available. If it is not available, ***dprsOnly*** is used.

***useDnaValue*** - The routing system used is based on the value provisioned in the *Dna* component.

Values
dprsOnly (dpOnly)
dprsMcsOnly (mcOnly)
dprsMcsFirst (mcFrst)
useDnaValue (dnaVal)

Default
useDnaValue

### ATTRIBUTE FrUni Dlci Dc cugIndex (ci)

Access
Read and write

Description
This attribute specifies the CUG index which is to be signaled in PVC and SPVC call requests to the remote end.

The type of CUG signaling is defined in attribute *cugType* in this component.

Values
Decimal (0..255)

Default
0

### ATTRIBUTE FrUni Dlci Dc cugType (ct)

Access
Read and write

Description
This attribute specifies the type of CUG signaling to be used in PVC and SPVC call requests. Index of CUG to be used is defined in attribute *cugIndex* in this component.

Possible values are:
***cug*** - signal CUG

***cugOa* -** signal CUG with outgoing access
***doNotSignal* -** no CUG in call request

Values
cug
cugOa
doNotSignal

Default
doNotSignal

## ATTRIBUTE FrUni Dlci Dc mapIpCosToFrQos (mapctof)

Access
Read and write

Description
This attribute specifies whether an IP TOS value is mapped to an FR QOS. The mapping used is provisioned in the *Mod Frs IpCosToFrQos* component.

When this attribute is set to ***yes***, at Frame Relay egress, the IP TOS byte in each frame is checked. The TOS value determines the egress emission queue and the discard priority for that frame.

When this attribute is set to ***no***, FR QOS is determined by the provisioned discard priority and transfer priority.

When this attribute is set to ***protocolDependent*** at Frame Relay egress, the IP version field in each frame is checked. If the IP version is IP version Four, the TOS value determines the egress emission queue and the discard priority for that frame. If not, the FR QOS is determined by the provisioned discard priority and transfer priority.

A semantic check error is generated when this attribute is set to either ***yes*** or ***protocolDependent***, and a *FrUni DirectConnection* component is provisioned under the same *FrUni* component.

Values
no
yes
protocolDependent

Default
no

## COMPONENT FrUni Dlci Vc

| | |
|---|---|
| Groups | "GROUP FrUni Dlci Vc CallData (Cad)"<br>"GROUP FrUni Dlci Vc IntervalData (Intd)"<br>"GROUP FrUni Dlci Vc FrameRelayData (Frd)" |
| Scope | Application |
| Description | This component defines attributes collected by Frame Relay *Vc*. |
| Common Verbs | Help<br>List<br>Display |

## VERB Ping FrUni Dlci Vc

| | |
|---|---|
| Impact | Passive |
| Description | *Ping [-roundTripDelay] [-sendPktDataSize(octets)] [-returnPktDataSize(octets)] FrUni/<n> Dlci/<n> Vc* |

*Ping* causes a query packet to be sent to the destination module where the Frame Relay DLCI VC terminates. It can be used to either display the path of the VC being used by the Frame Relay DLCI or to measure the round trip delay of the Frame Relay DLCI connection. Since the query packet carries the same path selector as the Frame Relay data packets and the Frame Relay VC's transfer priority (TP) is used to set the RCOS, reliability and emission priority of the query packet, the path taken by the *ping* query packet will be the same as that of the Frame Relay data except at the source and destination module. The *ping* packets originate from the CP rather than the Frame Relay DLCI's FP. At the far end, it is also the CP that receives the ping packets and returns them, rather than the Frame Relay FP.

Note that this command does not provide any information regarding the status of the far end VC process. If, however, the destination module is unreachable or the VC path is congested, the operator will be notified.

The *ping* command can be issued with or without options. If no options are specified, the command reports the path of the VC

associated with the Frame Relay DLCI. When the command is used to find the VC path, it displays the RID and MID of each module that the query packet passes through on its way to the destination. If the *roundTripDelay* option is specified, the command reports the time taken to reach the destination and back. For the *roundTripDelay* option, the path taken by the query packets in both directions (from the source to the destination and from the destination back to the source) is the same as that of the Frame Relay data except at the source and destination where the *ping* packets are generated and bounced back by the CP rather than the Frame Relay DLCI's FP.

The *ping* command supports the following options:

-*roundTripDelay (-rtd):* If this option is selected, the round trip delay time to reach the destination and back will be reported. The round trip delay is calculated by timing how long it takes to send five packets to the destination node and back. The packet size can be specified using the *sendPktSize* and *returnPktSize* options. The minimum, maximum and average time taken by the returned packets are reported. If this option is not selected, the path taken to the destination is displayed.

-*sendPktDataSize:* This option specifies the number of data octets to be included in the round trip delay query packet. The rtd query packet consists of the Passport common header (2 octets), the subnet header (11 octets), plus the data. The minimum data size is 12, since 12 octets are required to carry the ping control information. If the value specified for this option is less than 12, 12 octets are sent to the destination. The actual number of data octets sent is displayed in the ping response. Note that the total packet size (headers plus data) is identical to that of a Frame Relay packet carrying the same number of octets of data.

If this option is not selected the default value is 64 octets if *transferPriority* of the *Frame Relay DLCI Dc* is 11, and 128 octets otherwise. This option is ignored if the -*rtd* option is not specified. If the specified packet data size exceeds the capability of some facilities on the path, the packet will be discarded and the operator will get the timeout response.

*-returnPktDataSize:* This option specifies the number of data octets to be included in the round trip delay acknowledge packet. The rtd acknowledge packet consists of the Passport common header (2 octets), the subnet header (11 octets), plus the data. The minimum data size is 12, since 12 octets are required to carry the ping control information. If the value specified for this option is less than 12, 12 octets are returned to the source. The actual number of data octets returned is displayed in the ping response. Note that the total packet size (headers plus data) is identical to that of a Frame Relay packet carrying the same number of octets of data.

If this option is not selected the default value is 64 octets if *transferPriority* of the *Frame Relay DLCI Dc* is 11, and 128 octets otherwise. This option is ignored if the *-rtd* option is not specified. If the specified packet data size exceeds the capability of some facilities on the path, the packet will be discarded and the operator will get the timeout response.

## GROUP FrUni Dlci Vc CallData (Cad)

| | |
|---|---|
| Properties | Operational |
| Description | This group represents operational call data related to Frame Relay *Vc*. It can be displayed only for Frame Relay *Vc* which is created by application. |

## ATTRIBUTE FrUni Dlci Vc type

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the type of call, ***pvc***, ***svc, spvc*** or ***frf10spvc***. |
| Values | pvc<br>svc<br>spvc<br>frf10spvc |
| Default | No default |

### ATTRIBUTE FrUni Dlci Vc state

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the state of call control. P5 state is not supported but is listed for completeness. Transitions from one state to another take very short time. *state* most often displayed is ***dataTransferP4***. |
| Values | creating<br>readyP1<br>dteWaitingP2<br>dceWaitingP3<br>dataTransferP4<br>unsupportedP5<br>dteClearRequestP6<br>dceClearIndicationP7<br>termination |
| Default | No default |

### ATTRIBUTE FrUni Dlci Vc previousState

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the previous state of call control. This is a valuable field to determine how the processing is progressing. |
| Values | creating<br>readyP1<br>dteWaitingP2<br>dceWaitingP3<br>dataTransferP4<br>unsupportedP5<br>dteClearRequestP6<br>dceClearIndicationP7<br>termination |
| Default | No default |

### ATTRIBUTE FrUni Dlci Vc diagnosticCode

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute displays the internal substate of call control. It is used to further refine *state* of call processing. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE FrUni Dlci Vc previousDiagnosticCode

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the internal substate of call control. It is used to further refine *state* of call processing. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE FrUni Dlci Vc calledNpi

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the Numbering Plan Indicator (NPI) of the called end. |
| Values | x121<br>e164 |
| Default | No default |

### ATTRIBUTE FrUni Dlci Vc calledDna

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the Data Network Address (*Dna*) of the called (destination) DTE to which this call is sent. This address if defined at receiving end will complete *Vc* connection. |
| Values | BCD (1..15) |
| Default | No default |

### ATTRIBUTE FrUni Dlci Vc calledLcn

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute displays the Logical Channel Number of the called end. It is valid only after both ends of *Vc* exchanged relevant information. |
| Values | Decimal (1..65535) |
| Default | No default |

### ATTRIBUTE FrUni Dlci Vc callingNpi

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the Numbering Plan Indicator (NPI) of the calling end. |
| Values | x121<br>e164 |
| Default | No default |

### ATTRIBUTE FrUni Dlci Vc callingDna

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the Data Network Address (*Dna*) of the calling end. |
| Values | BCD (1..15) |
| Default | No default |

### ATTRIBUTE FrUni Dlci Vc callingLcn

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the Logical Channel Number of the calling end. |
| Values | Decimal (1..65535) |
| Default | No default |

### ATTRIBUTE FrUni Dlci Vc accountingEnabled

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates that this optional section of accounting record is suppressed or permitted. If *accountingEnabled* is ***yes***, conditions for generation of accounting record were met. These conditions include billing options, vc recovery conditions and Module wide accounting data options. |
| Values | yes<br>no |
| Default | No default |

### ATTRIBUTE FrUni Dlci Vc fastSelectCall

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays that this is a fast select call. |
| Values | yes<br>no |
| Default | No default |

### ATTRIBUTE FrUni Dlci Vc pathReliability

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the path reliability. |
| Values | high<br>normal |
| Default | No default |

### ATTRIBUTE FrUni Dlci Vc accountingEnd

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates if this end should generate an accounting record. Normally, ***callingEnd*** is the end to generate an accounting record. |
| Values | callingEnd<br>calledEnd |
| Default | No default |

### ATTRIBUTE FrUni Dlci Vc priority

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays whether the call is a ***normal*** or a ***high*** priority call. |
| Values | normal<br>high |
| Default | No default |

### ATTRIBUTE FrUni Dlci Vc segmentSize

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the segment size (in bytes) used on the call. It is used to calculate the number of segments transmitted and received. |
| Values | Decimal (0..4096) |
| Default | No default |

### ATTRIBUTE FrUni Dlci Vc maxSubnetPktSize

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the maximum packet size allowed on the *Vc*. |
| Values | Decimal (0..4096) |
| Default | No default |

### ATTRIBUTE FrUni Dlci Vc rcosToNetwork (rcosto)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the routing metric routing class of service to<br>the network. |
| Values | throughput<br>delay<br>multimedia |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE FrUni Dlci Vc rcosFromNetwork (rcosfrom)

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the routing metric Routing Class of Service from the Network. |
| Values | throughput<br>delay<br>multimedia |
| Default | No default |

### ATTRIBUTE FrUni Dlci Vc emissionPriorityToNetwork (epto)

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the network internal emission priority to the<br>network. |
| Values | normal<br>high<br>interrupting |
| Default | No default |

### ATTRIBUTE FrUni Dlci Vc emissionPriorityFromNetwork (epfrom)

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the network internal emission priority from the network. |
| Values | normal<br>high<br>interrupting |
| Default | No default |

### ATTRIBUTE FrUni Dlci Vc dataPath (dapa)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the data path used by the connection. The data path is provisioned in *Dna* and *DirectCall* components. The displayed value of this attribute can be different from the provisioned value.<br><br>If the connection is using ***dprsOnly*** data path, the string ***dprsOnly*** is displayed. (dynamic packet routing system)<br><br>If the connection is using ***dprsMcsOnly*** data path, the string ***dprsMcsOnly*** is displayed.<br><br>If the connection is using ***dprsMcsFirst*** data path, the string ***dprsMcsFirst*** is displayed. |
| Values | String (0..32, ASCII) |
| Default | No default |

### ATTRIBUTE FrUni Dlci Vc dprsMcsEndPoint (dmep)

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the data path used by the connection. Data path is provisioned in *Dna* and *DirectCall* components.<br><br>If the connection is using ***dprsOnly*** data path, this attribute is empty.<br><br>If the connection is using ***dprsMcsOnly*** or ***dprsMcsFirst*** data path, this attribute displays component name of the dprsMcsEndPoint. |
| List of | The name of the component |
| Default | No default |

### GROUP FrUni Dlci Vc IntervalData (Intd)

| | |
|---|---|
| Properties | Operational |
| Description | This group defines display of interval data collected by *Vc*. Data in this group is variable and may depend on time when this *display* command is issued. |

### ATTRIBUTE FrUni Dlci Vc elapsedTimeTillNow

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the elapsed time representing the period of this interval data. It is elapsed time in 0.1 second increments since *Vc* started. |
| Values | Decimal (0..16777215) |
| Default | No default |

### ATTRIBUTE FrUni Dlci Vc segmentsRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of segments received at the time command was issued. This is the segment received count maintained by accounting at each end of the *Vc*. This counter is updated only when the packet cannot be successfully delivered out of the sink *Vc* and to the sink AP Conditions in which packets may be discarded by the sink *Vc* include: missing packets due to subnet discards, segmentation protocol violations due to subnet discard, duplicated and out-of-ranged packets and packets that arrive while *Vc* is in path recovery state. |
| Values | Decimal (0..16777215) |
| Default | No default |

### ATTRIBUTE FrUni Dlci Vc segmentsSent

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of segments sent at the time command was issued. This is the segment sent count maintained by accounting at the source *Vc*. *Vc* only counts packets that *Vc* thinks can be delivered successfully into the subnet. In reality, these packets may be dropped by trunking, for instance. This counter is not updated when splitting fails, when *Vc* is in a path recovery state, when packet forwarding fails to forward this packet and when subsequent packets have to be discarded as we want to minimize the chance of out-of-sequence and do not intentionally send out-of-sequenced packets into the subnet. |

| | |
|---|---|
| Values | Decimal (0..16777215) |
| Default | No default |

### ATTRIBUTE FrUni Dlci Vc startTime

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the start time of this interval period. If *Vc* spans 12 hour time or time of day change *startTime* reflects new time as recorded at 12 hour periods or time of day changes. |
| Values | Time (DHMS) |
| Default | No default |

### ATTRIBUTE FrUni Dlci Vc callReferenceNumber

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the call reference number which is a unique number generated by the switch.The same Call Reference Number is stored in the interval data (accounting record) at both ends of the call. It can be used as one of the attributes in matching duplicate records generated at each end of the call. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP FrUni Dlci Vc FrameRelayData (Frd)

| | |
|---|---|
| Properties | Operational |
| Description | This group defines Frame Relay attributes collected by Frame Relay *Vc*.<br>The purpose of *Vc* attributes is to aid end users and verification people to understand the *Vc* internal behavior. This is particularly useful when the network has experienced abnormality and we want to isolate problems and pinpoint trouble spots.<br>Attributes are collected on a per *Vc* basis. Until a need is identified, statistics are not collected at a processor level. Each attribute is stored in a 32 bit field and is initialized to zero when a *Vc* enters into the data transfer state. When a PVC is |

disconnected and then connected again, the attributes will be reset. Attributes cannot be reset through other methods.
Frame Relay *Vc* uses a best effort data packet delivery protocol and a different packet segmentation and combination methods from the General *Vc*. The Frame Relay *Vc* uses the same call setup and control mechanism (e.g. the support of non-flow control data packets) as in a General *Vc*. Most General *Vc* statistics and internal variables are used in a Frame Relay *Vc* and are displayed by software developers

### ATTRIBUTE FrUni Dlci Vc frmCongestedToSubnet

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of frames from link discarded due to lack of resources. It keeps track of the number of frames from link that have to be discarded. The discard reasons include insufficient memory for splitting the frame into smaller subnet packet size. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE FrUni Dlci Vc cannotForwardToSubnet

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of discarded packets that can not be forwarded into the subnet because of subnet congestion. Number of frames from link discarded due to failure in forwarding a packet from *Vc* into the subnet.- This attribute is increased when packet forwarding fails to forward a packet into the subnet. If a frame is split into multiple subnet packets and a partial packet has to be discarded, all subsequent partial packets that have not yet been delivered to the subnet will be discarded as well. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE FrUni Dlci Vc notDataXferToSubnet

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute records the number of frames from link discarded when the *Vc* tries to recover from internal path failure. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE FrUni Dlci Vc outOfRangeFrmFromSubnet

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of frames from subnet discarded due to out of sequence range for arriving too late. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE FrUni Dlci Vc combErrorsFromSubnet

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the number of subnet packets discarded at the sink *Vc* due to the *Vc* segmentation and combination protocol error. Usually, this occurs when the subnet discards packets and thus this statistics can be used to guest the number of subnet packets that are not delivered to the *Vc*. It cannot be used as an actual measure because some subnet packets may have been delivered to *Vc* but have to be discarded because these are partial packets to a frame in which some other partial packets have not been properly delivered to *Vc* |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE FrUni Dlci Vc duplicatesFromSubnet

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of subnet packets discarded due to duplication. Although packets are not retransmitted by the Frame Relay *Vc*, it is possible for the subnet to retransmit packets. When packets are out-of-sequenced and copies of the same packets arrive, then this attribute is increased. |

| | |
|---|---|
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE FrUni Dlci Vc notDataXferFromSubnet

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of subnet packets discarded when data transfer is suspended in *Vc* recovery. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE FrUni Dlci Vc frmLossTimeouts

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of lost frame timer expiries. When this count is excessive, the network is very congested and packets have been discarded in the subnet. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE FrUni Dlci Vc ooSeqByteCntExceeded

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number times that the out of sequence byte threshold is exceeded. When the threshold is exceeded, this condition is treated as if the loss frame timer has expired and all frames queued at the sink *Vc* are delivered to the AP. We need to keep this count to examine if the threshold is engineered properly. This should be used in conjunction with the peak value of out-of-sequenced queue and the number of times the loss frame timer has expired. This count should be relatively small when compared with loss frame timer expiry count. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE FrUni Dlci Vc peakOoSeqPktCount

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the frame relay peak packet count of the out of sequence queue. This attribute records the maximum queue length of the out-of-sequenced queue. The counter can be used to deduce the message buffer requirement on a *Vc*. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE FrUni Dlci Vc peakOoSeqFrmForwarded

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the frame relay peak size of the sequence packet queue. The subnet may deliver packets out-of-sequenced. These packets are then queued in an out-of-sequenced queue, waiting for a packet with the expected sequence number to come. When that packet arrives, this attribute records the maximum number of packets that were out-of-sequenced, but now have become in-sequenced. The statistics is used to measure expected queue size due to normal subnet packet disorder (not due to subnet packet discard). Current implementation also uses this statistics to set a maximum size for the out-of-sequenced queue. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE FrUni Dlci Vc sendSequenceNumber

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the Vc internal packet's send sequence number. Note that a "packet" in this context, may be either a user data packet, or an OAM frame. |
| Values | Decimal (0..1048575) |
| Default | No default |

### ATTRIBUTE FrUni Dlci Vc pktRetryTimeouts

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of packets which have retransmission time-outs. When this count is excessive, the network is very congested and packets have been discarded in the subnet. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE FrUni Dlci Vc peakRetryQueueSize

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the peak size of retransmission queue. This attribute is used as an indicator of the acknowledgment behavior across the subnet. Records the largest body of unacknowledged packets. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE FrUni Dlci Vc subnetRecoveries

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of successful *Vc* recovery attempts. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE FrUni Dlci Vc ooSeqPktCntExceeded

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number times that the out of sequence packet threshold is exceeded. When the threshold is exceeded, this condition is treated as if the loss frame timer has expired and all frames queued at the sink *Vc* are delivered to the AP. We need to keep this count to examine if the threshold is engineered |

properly. This should be used in conjunction with the peak value of out-of-sequenced queue and the number of times the loss frame timer has expired. This count should be relatively small when compared with loss frame timer expiry count.

Values: Decimal (0..255)

Default: No default

### ATTRIBUTE FrUni Dlci Vc peakOoSeqByteCount

Access: Read only

Description: This attribute displays the frame relay peak byte count of the out of sequence queue. This attribute records the maximum queue length of the out-of-sequenced queue. The counter can be used to deduce the message buffer requirement on a *Vc*.

Values: Decimal (0..50000)

Default: No default

### COMPONENT FrUni Dlci ServiceParametersProv (Sp)

Groups: "GROUP FrUni Dlci Sp ServiceParametersProv (Parms)"

Scope: Application

Description: *FrUni/n Dlci/n ServiceParametersProv*
This component contains the provisionable traffic control attributes for its parent *Dlci* component.

Common Verbs:
- Help
- List
- Display

### GROUP FrUni Dlci Sp ServiceParametersProv (Parms)

Properties: Provisioned

Description: This group contains the provisionable attributes for the Data Link Connection Identifier. These attributes reflect the service parameters specific to this instance of DLCI. The congestion control attributes in this group are defined in T1.606 Addendum 1.

### ATTRIBUTE FrUni Dlci Sp maximumFrameSize (n203)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum number of octets which may be included in the information field. The frame relay header and CRC octets are not included in this definition. This attribute corresponds to the dN1 parameter described in the Vendor Forum Specification. |
| Values | Decimal (1..8187) |
| Units | octets |
| Default | 2100 |

### ATTRIBUTE FrUni Dlci Sp rateEnforcement (re)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether rate enforcement is in effect for this user Data Link Connection on this Frame Relay interface. Turning on rate enforcement means that CIR and DE=1 traffic will be measured and enforced. Turning off rate enforcement means that all frames from the user will be accepted and no modifications to the frame with respect to the DE bit will be made. |
| Values | off<br>on |
| Default | on |

### ATTRIBUTE FrUni Dlci Sp committedInformationRate (cir)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the committed information rate (CIR) in bits per second (bit/s). When *rateEnforcement* is set to ***on***, *cir* is the rate at which the network agrees to transfer information under normal conditions. This rate is measured over a measurement interval (*t*) that is determined internally based on CIR and the committed burst size (Bc). An exception to this occurs when CIR is provisioned to be zero, in which case the measurement interval (*t*) must be provisioned explicitly. |

| | |
|---|---|
| | This attribute is ignored when *rateEnforcement* is ***off***. If *rateEnforcement* is ***on*** and this attribute is ***0***, *Bc* must also be ***0***. |
| Values | Decimal (0..50000000) |
| Units | bit/s |
| Default | 64000 |

### ATTRIBUTE FrUni Dlci Sp committedBurstSize (bc)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the committed burst size (Bc) in bits. *bc* is the amount of data that a network agrees to transfer under normal conditions over a measurement interval (*t*). Data marked DE=1 is not accounted for in Bc.<br><br>This attribute is ignored when *rateEnforcement* is ***off***. If *rateEnforcement* is ***on*** and this attribute is ***0***, *cir* must also be ***0***. |
| Values | Decimal (0..50000000) |
| Units | bits |
| Default | 64000 |

### ATTRIBUTE FrUni Dlci Sp excessBurstSize (be)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the excess burst size (Be) in bits. Be is the amount of uncommitted data that the network will attempt to deliver over measurement interval T. Data marked DE=1 by the user or by the network is accounted for here.<br><br>CIR, Bc, and Be cannot all be zero when rateEnforcement is on. |
| Values | Decimal (0..50000000) |
| Units | bits |
| Default | 0 |

### ATTRIBUTE FrUni Dlci Sp measurementInterval (t)

| | |
|---|---|
| Access | Read and write |
| Description | When *cir* and *bc* are zero and *rateEnforcement* is on, this attribute must be provisioned to specify the time interval (in milliseconds) over which rates and burst sizes are measured.<br><br>When *cir* and *bc* are non-zero, the time interval is internally calculated and is *not shown*. In that situation, this field is ignored, and is not representative of the time interval.<br><br>This attribute is ignored when *rateEnforcement* is ***off***, or when *cir* and *bc* are ***non-zero***. If *rateEnforcement* is ***on*** and both *cir* and *bc* are ***zero***, this field must be ***non-zero***. |
| Values | Decimal (0..25500) |
| Units | msec |
| Default | 0 |

### ATTRIBUTE FrUni Dlci Sp rateAdaptation (ra)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether rate adaptation is in effect for this user Data Link Connection on this Frame Relay interface. Rate adaptation is a feature that, in periods of congestion, adapts the rate at which the user is allowed to send data into the network to that which the network is able to handle at that time. This pro-active measure of handling congestion optimizes network resources by causing the ingress to discard frames that would otherwise be discarded in the network.<br><br>If this attribute is set to ***on***, then, at the onset of congestion, the excess information rate (EIR) is reduced to a very low rate. If congestion persists, then the allowed CIR is reduced geometrically by 25% of the current value at that time. The minimum to which CIR can be reduced is 1/16th (6.25%) of the provisioned value. As congestion alleviates, CIR is increased linearly by 6.25% of the provisioned value specified in *committedInformationRate*. |

If set to ***eirOnly***, then rate adaptation will only apply to the excess information rate (EIR). At the onset of congestion, the allowed EIR is reduced by 25% of its provisioned value. If congestion persists, EIR is reduced geometrically by 25% of the current value at that time. As congestion alleviates, EIR is gradually increased linearly by 6.25% of the provisioned EIR.

If set to ***cirProportionate***, then rate adaptation will also only apply to the excess information rate (EIR). At the onset of congestion the initial allowed EIR is set to a multiple of the provisioned CIR. If congestion persists, the allowed EIR is reduced geometrically by 25% of the current value at that time. As congestion alleviates, EIR is gradually increased linearly by 6.25% of the provisioned EIR. Note that the allowed EIR may be set higher than the provisioned EIR, since it is calculated initially using another parameter, the provisioned CIR. If the allowed EIR at the moment is higher than the provisioned EIR, then the provisioned EIR is used instead.

This attribute can only be set to ***on eirOnly*** or ***cirProportionate*** if *rateEnforcement* is turned ***on***.

This attribute must be set to ***off*** if the *BnxIwf* component is provisioned under this *Dlci*.

Values
off
on
eirOnly
cirProportionate

Default
off

## ATTRIBUTE FrUni Dlci Sp accounting (ac)

Access
Read and write

Description
This attribute specifies whether accounting data collection and record generation is turned on at this DLCI. For accounting data collection and record generation to be turned on, the ***accountingOn*** bit and at least one of the ***accountCollection*** bits in the ***DataNetworkAddress*** component must be set to on.

| | |
|---|---|
| Values | off<br>on |
| Default | on |

### ATTRIBUTE FrUni Dlci Sp raSensitivity (rasens)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the sensitivity of the rate adaptation system. A higher number indicates a higher sensitivity and therefore a quicker reaction time to network conditions. A quicker reaction time allows the network to discard frames at the access and protect network resources, but can lead to false alarms and a greater fluctuation of the allowed rate. A higher setting therefore tends to favour the protection of the network over the allowed throughput of the user.<br><br>A lower number indicates a lower sensitivity and therefore a slower reaction to network conditions. A slower reaction time results in a greater amount of user traffic allowed into the network, but can lead to a waste of network bandwidth since the traffic may be discarded at the congested resource. A lower setting therefore tends to favour the allowed throughput of the user over the protection of the network.<br><br>This attribute is applicable for adapting EIR when *rateAdaptation* is ***eirOnly*** or ***cirProportionate***, or CIR when *rateAdaptation* is ***on***.<br><br>This attribute is ignored if *rateAdaptation* is turned ***off***. |
| Values | Decimal (1..20) |
| Default | 7 |

### ATTRIBUTE FrUni Dlci Sp updateBCI (updBCI)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether internal Backward Congestion Indication (BCI) bits will report congestion external to the Passport network, as communicated through incoming BECN bits. |

If *updateBCI* is set to ***on***, then BCI bits for incoming frames will be set if the BECN on the frame is set. If *updatBCI* is set to ***off***, then incoming BECN bits will have no effect.

Setting *updateBCI* ***on*** for a DLCI means that the remote end of the DLCI, which is specified by the *remotedna* and *remotedlci* attributes of the *dc* component of the *dlci*, may perform Rate Adaptation using the flow of incoming BECN bits, in addition to internal Passport congestion management systems.

If the *rateAdaptation* attribute of the remote dlci is provisioned as ***eirOnly***, ***cirProportionate***, or ***on***, then congestion from another network connected to a Passport network may trigger dynamic congestion management. If the *rateAdaptation* attribute of the remote dlci is provisioned to ***off***, then the setting of *updateBCI* attribute here will have no effect.

Values
off
on

Default
off

## ATTRIBUTE FrUni Dlci Sp correlationTag (ctag)

Access
Read and write

Description
This attribute specifies the unique string which identifies each end of a connection.

If required for correlation purposes, the attribute must be provisioned with the same value at both ends of the connection. This attribute can be left as an empty string when the functionality is not required, or when the user requires an empty circuit identifier string against the DLCI.

This attribute can be used for off-switch data correlation purposes. Downstream processing uses this attribute to correlate data records (accounting etc.) issued at different nodes in the network. In the accounting record, the value for the

*correlationTag* attribute appears as the attribute *circuitId* (circuit identifier) for the endpoint.

Values: String (0..32, ASCII)

Default: ""

### ATTRIBUTE FrUni Dlci Sp frf12EndToEnd (frf12)

Access: Read and write

Criticality: Component

Description: This attribute specifies whether FRF.12 End-to-End fragmentation is turned on for this *Dlci* component.

When this attribute is set to ***on***, ingress End-to-End FRF.12 fragments are reassembled to frame relay packets, and egress frame relay packets are fragmented to End-to-End FRF.12 fragments.

Values: off
on

Default: off

### ATTRIBUTE FrUni Dlci Sp frf12FragmentSize (fragSize)

Access: Read and write

Description: This attribute specifies the maximum payload in octets for a FRF.12 fragment on this *Dlci* component. The frame relay header, FRF.12 header and CRC octets are not included.

Values: Decimal (40; 48; 60; 80; 120; 240; 480)

Units: octets

Default: 60

### COMPONENT FrUni Dlci LoopBack (Lb)

Groups: "GROUP FrUni Dlci Lb Statistics (Stats)"

Scope: Application

| | |
|---|---|
| Description | *FrUni/n Dlci/n LoopBackFrNni/n Dlci/n LoopBack*This component is the data loopback tool for the parent *DLCI*. |
| Common Verbs | Help<br>List<br>Display |

### VERB START FrUni Dlci Lb

| | |
|---|---|
| Impact | Service |
| Description | *start FrUni/n Dlci/n LoopBack*<br>*start FrNni/n Dlci/n LoopBack*This command resets the *LoopbackStatistics* and initiates the loopback mode. The *loopbackState* for this *DLCI* is set to ***on*** for the duration of the loopback mode. When a *DLCI* is in loopback mode, frames coming from the link are returned to the link, incrementing the local loopback statistics. Also, frames coming from the VC are returned to the VC, incrementing the remote loopback statistics. The loopback mode is ended using the stop command. |

### VERB STOP FrUni Dlci Lb

| | |
|---|---|
| Impact | Service |
| Description | *stop FrUni/n Dlci/n LoopBack stop FrNni/n Dlci/n LoopBack*<br>This command terminates the loopback mode and displays the loopback statistics. |

### GROUP FrUni Dlci Lb Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all the statistics for the data loopback tool. |

### ATTRIBUTE FrUni Dlci Lb localTotalFrm (ltf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the number of frames looped back to the link since loopback was last started. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni Dlci Lb localTotalBytes (ltb)

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the number of bytes looped back to the link since loopback mode was started. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni Dlci Lb localFecnFrm (lff)

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the number of frames with the Forward Explicit Congestion Notification (FECN) bit set, looped back to the link since the loopback mode was started. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni Dlci Lb localBecnFrm (lbf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the number of frames with the Backward Explicit Congestion Notification (BECN) bit set, looped back to the link since the loopback mode was started. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni Dlci Lb localDeFrm (ldf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the number of frames with the Discard Eligibility (DE) bit set, looped back to the link since the loopback mode was started. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni Dlci Lb localDeBytes (ldb)

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the number of bytes in frames with the Discard Eligibility (DE) bit set, looped back to the link since the loopback mode was started. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni Dlci Lb remoteTotalFrm (rtf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the number of frames looped back to the subnet since loopback was last started. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni Dlci Lb remoteTotalBytes (rtb)

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the number of bytes looped back to the subnet since loopback was last started. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni Dlci Lb remoteFecnFrm (rff)

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the number of frames with the Forward Explicit Congestion Notification (FECN) bit set, looped back to the subnet since the loopback mode was started. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni Dlci Lb remoteBecnFrm (rbf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the number of frames with the Backward Explicit Congestion Notification (BECN) bit set, looped back to the subnet since the loopback mode was started. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni Dlci Lb remoteDeFrm (rdf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the number of frames with the Discard Eligibility (DE) bit set, looped back to the subnet since the loopback mode was started. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni Dlci Lb remoteDeBytes (rdb)

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the number of bytes in frames with the Discard Eligibility (DE) bit set, looped back to the subnet since the loopback mode was started. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT FrUni Dlci EgressServiceParameters (EgressSp)

| | |
|---|---|
| Groups | "GROUP FrUni Dlci EgressSp Provisioned (Prov)" |
| Scope | Application |

| | |
|---|---|
| Description | *FrNni/n Dlci/n EgressServiceParameters*<br>This component contains the provisionable attributes of the egress direction for the parent *Dlci* component. |
| Common Verbs | Help<br>List<br>Display |

### GROUP FrUni Dlci EgressSp Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for this component. |

### ATTRIBUTE FrUni Dlci EgressSp committedInformationRate (cir)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the committed information rate (CIR) for the egress direction. It is used for Call Admission Control (CAC) at the egress link.<br>If the value is set to ***sameAsSp***, the value of this attribute is the same as the *committedInformationRate* attribute under the *ServiceParameters* component. |
| Values | Decimal (0..50000000)<br>sameAsServiceParameters (sameAsSp) |
| Units | bit/s |
| Default | sameAsServiceParameters |

### ATTRIBUTE FrUni Dlci EgressSp committedBurstSize (bc)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the committed burst size (Bc) for the egress direction. It is used for performing Call Admission Control (CAC) at the egress link.<br>If the value is set to ***sameAsSp***, the value of this attribute is the same as the *committedBurstSize* attribute under the *ServiceParameters* component. |

| | |
|---|---|
| Values | Decimal (0..50000000)<br>sameAsServiceParameters (sameAsSp) |
| Units | bits |
| Default | sameAsServiceParameters |

### ATTRIBUTE FrUni Dlci EgressSp excessBurstSize (be)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the excess burst size (Be) for the egress direction. It is used for Call Admission Control (CAC) function towards the egress link.<br>If the value is set to ***sameAsSp***, the value of this attribute is the same as the *excessBurstSize* attribute under the *ServiceParameters* component. |
| Values | Decimal (0..50000000)<br>sameAsServiceParameters (sameAsSp) |
| Units | bits |
| Default | sameAsServiceParameters |

### ATTRIBUTE FrUni Dlci EgressSp measurementInterval (t)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time interval over which rates and burst sizes are measured in the egress direction. It is used for bandwidth reservation for Call Admission Control (CAC) towards the egress link.<br>If the value is set to ***sameAsSp***, the value of this attribute is the same as the *measurementInterval* attribute under the *ServiceParameters* component. |
| Values | Decimal (0..25500)<br>sameAsServiceParameters (sameAsSp) |
| Units | msec |
| Default | sameAsServiceParameters |

## COMPONENT FrUni Dlci StandbyVc (StbyVc)

| | |
|---|---|
| Groups | "GROUP FrUni Dlci StbyVc CallData (Cad)" |
| Scope | Application |
| Description | *FrUni/n Dlci/n StandbyVc*<br>This component represents the call data of the Standby Frame Relay Vc on the active FP. This is the Vc that will become active if the FP of the remote FrUni fails and a switchover occurs. |
| Common Verbs | Help<br>List<br>Display |

## GROUP FrUni Dlci StbyVc CallData (Cad)

| | |
|---|---|
| Properties | Operational |
| Description | This group represents operational call data related to Frame Relay *StandbyVc* on the active FP. |

## ATTRIBUTE FrUni Dlci StbyVc state

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the state of call control. P5 state is not supported but is listed for completeness. Transitions from one state to another take very short time. *state* most often displayed is ***dataTransferP4***. |
| Values | creating<br>readyP1<br>dteWaitingP2<br>dceWaitingP3<br>dataTransferP4<br>unsupportedP5<br>dteClearRequestP6<br>dceClearIndicationP7<br>termination |
| Default | No default |

### ATTRIBUTE FrUni Dlci StbyVc previousState

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the previous state of call control. This is a valuable field to determine how the processing is progressing. |
| Values | creating<br>readyP1<br>dteWaitingP2<br>dceWaitingP3<br>dataTransferP4<br>unsupportedP5<br>dteClearRequestP6<br>dceClearIndicationP7<br>termination |
| Default | No default |

### ATTRIBUTE FrUni Dlci StbyVc diagnosticCode

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the internal substate of call control. It is used to further refine *state* of call processing. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE FrUni Dlci StbyVc previousDiagnosticCode

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the internal substate of call control. It is used to further refine *state* of call processing. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE FrUni Dlci StbyVc calledNpi

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the Numbering Plan Indicator (NPI) of the called end. |
| Values | x121<br>e164 |
| Default | No default |

### ATTRIBUTE FrUni Dlci StbyVc calledDna

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Data Network Address (*Dna*) of the called (destination) DTE to which this call is sent. This address if defined at receiving end will complete the *StandbyVc* connection. |
| Values | BCD (1..15) |
| Default | No default |

### ATTRIBUTE FrUni Dlci StbyVc calledLcn

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Logical Channel Number of the called end. It is valid only after both ends of the *StandbyVc* exchanged relevant information. |
| Values | Decimal (1..65535) |
| Default | No default |

### ATTRIBUTE FrUni Dlci StbyVc callingNpi

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Numbering Plan Indicator (NPI) of the calling end. |
| Values | x121<br>e164 |
| Default | No default |

### ATTRIBUTE FrUni Dlci StbyVc callingDna

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the active Data Network Address (*Dna*) of the calling end. |
| Values | BCD (1..15) |
| Default | No default |

### ATTRIBUTE FrUni Dlci StbyVc callingLcn

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Logical Channel Number of the calling end. |
| Values | Decimal (1..65535) |
| Default | No default |

### COMPONENT FrUni Dlci SpareDirectCall (SpareDc)

| | |
|---|---|
| Groups | "GROUP FrUni Dlci SpareDc Options" |
| Scope | Application |
| Description | *FrUni/n Dlci/n SpareDirectCall*<br>This component defines the Remote Data Network Address of the *SpareDirectCall*, all other direct call options will be the same as the *FrUni/n Dlci/n DirectCall*. The provisioning of this component will create a standby permanent (PVC) call, used for the ***frUniPvcSparingDprs*** feature.<br>This *SpareDirectCall* should only be provisioned when the remote *FrUni* is provisioned with a *SpareDna*.<br>If this component is provisioned, the value of *FrUni Dc type* must be ***pemanentMaster*** or ***permanentSlave***. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP FrUni Dlci SpareDc Options

| | |
|---|---|
| Properties | Provisioned |

| | |
|---|---|
| Description | This group contains attributes associated with a *SpareDirectCall*. It defines the connection path. This connection can only be permanent (PVC). |

### ATTRIBUTE FrUni Dlci SpareDc spareRemoteNpi (srnpi)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the Numbering Plan Indicator (NPI) of the *spareRemoteDna*. This should be set to the *SpareDna npi* of the remote *FrUni*. |
| Values | x121<br>e164 |
| Default | x121 |

### ATTRIBUTE FrUni Dlci SpareDc spareRemoteDna (srdna)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the Spare Data Network Address (SDNA) of the service at the remote end of the DLCI. This is the called (destination) DCE address (DNA) of this PVC.<br>This should be set to the *SpareDna dna* of the remote *FrUni*. |
| Values | BCD (1..15) |
| Default | No default |

### COMPONENT FrUni Dlci Frf12Stats (Frf12)

| | |
|---|---|
| Groups | "GROUP FrUni Dlci Frf12 Frf12Stats (Stats)" |
| Scope | Application |
| Description | *FrUni/n Dlci/n Frf12Stats*<br>This component represents the End-to-End FRF.12 statistics of a Data Link Connection Identifier. FRF.12 provides the capability to fragment frames that are sent to the link, and reassemble fragments that arrive from the link. The *Frf12Stats* component may be used to monitor the functioning of the End-to-End FRF.12 feature when the feature is enabled. |

This component is only visible when the feature is enabled.

Common Verbs

Help
List
Display

### GROUP FrUni Dlci Frf12 Frf12Stats (Stats)

Properties: Operational

Description: This group contains the operational attributes for the *Frf12Stats* component.

### ATTRIBUTE FrUni Dlci Frf12 fragFromIf (ffi)

Access: Read only

Description: This attribute counts the End-to-End FRF.12 fragments received from the link.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE FrUni Dlci Frf12 peakFragSizeFromIf (pkSize)

Access: Read only

Description: This attribute indicates the size of the largest fragment received from the link. It is reset on every accounting collection period.

Values: Decimal (0..65535)

Default: 0

### ATTRIBUTE FrUni Dlci Frf12 expectedSequenceNumber (expSeq)

Access: Read only

Description: This attribute indicates the expected sequence number in the next fragment received from the link. The attribute is set to the sequence number of the last fragment received plus one.

Values: Decimal (0..4095)

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE FrUni Dlci Frf12 outOfSequenceEvent (outOfSeq)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the times an out of sequence number event occurs. An out of sequence number event occurs when a fragment received from the link has a sequence number that is different from the one indicated by the *expectedSequenceNumber* attribute. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni Dlci Frf12 headerErrorEvent (hdrErr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the times an End-to-End FRF.12 header error event occurs. The header must comply with the End-to-End FRF.12 Implementation Agreement. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni Dlci Frf12 cpuExhaustionFromIfEvent (extnfi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the times a CPU exhaustion event occurs. A CPU exhaustion event occurs when ingress fragments requiring reassembly are discarded due to CPU exhaustion. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni Dlci Frf12 discFragFromIf (discfi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts fragments received from the link that have been discarded. Fragments are discarded when header error, out of sequence number or CPU exhaustion event occurs. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni Dlci Frf12 fragToIf (fti)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the End-to-End FRF.12 fragments sent to the link. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni Dlci Frf12 sendSequenceNumber (sndSeq)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the sequence number of the next fragment to be sent to the link. |
| Values | Decimal (0..4095) |
| Default | 0 |

### ATTRIBUTE FrUni Dlci Frf12 cpuExhaustionToIfEvent (extnti)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the times a CPU exhaustion event occurs. A CPU exhaustion event occurs when egress frames requiring fragmentation are discarded due to CPU exhaustion. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni Dlci Frf12 longFrameToIfEvent (longti)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the times a long frame event occurs. A long frame event occurs when an egress frame requiring fragmentation is discarded because it will generate more than fourty fragments. |
| Values | Decimal (0..4294967295) |

Default 0

## COMPONENT FrUni Dlci BnxInterworkingFunction (BnxIwf)

Groups "GROUP FrUni Dlci BnxIwf Provisioned (Prov)"
"GROUP FrUni Dlci BnxIwf Operational (Op)"

Scope Application

Description *FrUni/n Dlci/n BnxInterworkingFunction*
*FrNni/n Dlci/n BnxInterworkingFunction*
This component specifies that the parent DLCI uses BNX frame relay over an IP network as its networking mechanism. It contains the networking parameters specific to BNX networking.

Common Verbs
Help
List
Display
Add
DELete

## VERB Redirect FrUni Dlci BnxIwf

Impact Service

Description *Redirect [-**force**] -**destination**(<**destination**>) FrUni/n Dlci/n BnxInterworkingFunction*
or
*Redirect [-**force**] -**destination**(<**destination**>) FrNni/n Dlci/n BnxInterworkingFunction*

This verb is used to manually select the PVC destination between the primary and backup destinations, or to enable the automatic redirection. The primary destination and the backup destination are specified by the *BnxInterworkingFunction* component.

The ***-destination*** option indicates the destination of PVC redirection. The value of this option can be ***primary***, ***backup,*** or ***onDemand***.

The value ***primary*** means that the destination for this PVC has been manually selected to be the primary destination, automatic

redirection is disabled. This redirect action corresponds to the "Redirect to Primary" redirect action in the BNX implementation.

The value ***backup*** means that the destination for this PVC has been manually selected to be the backup destination, and automatic redirection is disabled. The backup destination must be provisioned. This redirect action corresponds to the "Redirect to Backup" redirect action in the BNX implementation.

The value ***onDemand*** means this PVC is redirected automatically to either the primary destination or the backup destination based on the cross-net status of the primary destination. This automatic switch-over mechanism is revertive to the primary destination. The *crossNetListenEnabled* attribute of the *BnxProtocol* component must be ***yes*** and the backup destination must be provisioned. This redirect action corresponds to the "Switch on Demand" redirect action in the BNX implementation.

The ***-force*** option specifies that the PVC is redirected to either the primary destination or the backup destination indicated by the ***-destination*** option even if the destination is not active. When the value of ***-destination*** is ***onDemand***, this option is ignored.

## GROUP FrUni Dlci Bnxlwf Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group defines the provisioning attributes associated with a PVC using BNX frame relay interworking. |

## ATTRIBUTE FrUni Dlci Bnxlwf calledIpAddress (cia)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the IP address of the primary destination which receives the datagrams. |
| Values | IP address |
| Default | 0.0.0.0 |

## ATTRIBUTE FrUni Dlci Bnxlwf calledDlci (cdlci)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the DLCI of the primary destination which receives the datagrams. |
| Values | Decimal (16..1007) |
| Default | No default |

## ATTRIBUTE FrUni Dlci Bnxlwf trafficPriority (tp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the user control on traffic priority. The value is transmitted in the traffic priority field of the BNX header. Possible values are:<br>***1*** - High Priority<br>***2*** - Normal Priority<br>***3*** - Low Priority<br>***useBpDefault*** - use the *defaultTrafficPriority* attribute value from the *BnxProtocol* component. |
| Values | 1<br>2<br>3<br>useBpDefault |
| Default | useBpDefault |

## ATTRIBUTE FrUni Dlci Bnxlwf backupCalledIpAddress (bcia)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the IP address of the backup destination which receives the datagrams. A value of ***0.0.0.0*** for this attribute and a value of ***undefined*** for the *backupCalledDlci* attribute specify that there is no backup destination. |
| Values | IP address |
| Default | 0.0.0.0 |

### ATTRIBUTE FrUni Dlci Bnxlwf backupCalledDlci (bcdlci)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the DLCI of the backup destination which receives the datagrams. A value of ***undefined*** for this attribute and a value of ***0.0.0.0*** for the *backupCalledIpAddress* attribute specify that there is no backup destination. |
| Values | Decimal (16..1007)<br>undefined |
| Default | undefined |

### ATTRIBUTE FrUni Dlci Bnxlwf redirectType (rtype)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates the type of DTE notification when a PVC redirection between primary and backup destinations occurs.<br><br>***transparent*** means no notification is sent to the DTE.<br><br>***aIntrusive*** means that an asynchronous update with the A-bit not set is sent to the DTE.<br><br>***nIntrusive*** means that an asynchronous update with the N-bit set is sent to the DTE. |
| Values | transparent<br>aIntrusive<br>nIntrusive |
| Default | aIntrusive |

### ATTRIBUTE FrUni Dlci Bnxlwf minActiveIntervals (mai)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the minimum number of consecutive time intervals for which the primary destination must be active before the PVC is redirected back to the primary destination from the backup destination in ***switchOnDemand*** mode. The interval duration is controlled by the *crossNetPollingInterval* attribute of the *BnxProtocol* component. This attribute is ignored if the |

*BnxProtocol* attribute *crossNetListenEnabled* is set to ***no***.

If the value of this attribute is ***0***, the PVC is redirected back to the primary destination as soon as an active cross-net message is received from the primary destination.

Values: Decimal (0..4)

Default: 0

### ATTRIBUTE FrUni Dlci Bnxlwf redirectAction (ra)

Access: Read and write

Description: This attribute indicates the redirect action for a PVC. The Redirect command can be used to override this redirect action.

***switchOnDemand*** means this PVC is redirected automatically to either the primary destination or the backup destination based on the cross-net status of the primary destination. This automatic switch-over mechanism is revertive to the primary destination. The *crossNetListenEnabled* attribute of the *BnxProtocol* component must be ***yes*** and the backup destination must be provisioned. This redirect action corresponds to the “Switch on Demand” redirect action in the BNX implementation.

***manualPrimary*** means that the destination for this PVC has been manually selected to be the primary destination, automatic redirection is disabled. This redirect action corresponds to the “Redirect to Primary” redirect action in the BNX implementation.

***manualBackup*** means that the destination for this PVC has been manually selected to be the backup destination, and automatic redirection is disabled. The backup destination must be provisioned. This redirect action corresponds to the “Redirect to Backup” redirect action in the BNX implementation.

Values:
switchOnDemand
manualPrimary
manualBackup

| | |
|---|---|
| Default | manualPrimary |

### GROUP FrUni Dlci Bnxlwf Operational (Op)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains the operational status of the BNX frame relay interworking functionality. |

### ATTRIBUTE FrUni Dlci Bnxlwf timeOfLastStateChange (tlsc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the time at which the state of the DLCI last changed. |
| Values | Time (DHMS) |
| Default | No default |

### ATTRIBUTE FrUni Dlci Bnxlwf crossNetSent (cnsent)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates if a cross-net status message was sent to the primary destination during the current polling interval. The interval duration is controlled by the *crossNetPollingInterval* attribute of the *BnxProtocol* component. |
| Values | unsent<br>sent |
| Default | No default |

### ATTRIBUTE FrUni Dlci Bnxlwf crossNetStatus (cns)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the state of the PVC when the remote end is the primary destination. If the *crossNetListenEnabled* attribute of the *BnxProtocol* component is set to ***yes***, this attribute reflects the state as reported by the remote end. If the *crossNetListenEnabled* attribute is set to ***no***, the PVC is assumed to be up and this attribute has a value of ***active***. |

| | |
|---|---|
| Values | inactive<br>active |
| Default | inactive |

### ATTRIBUTE FrUni Dlci Bnxlwf crossNetReceived (cnr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates if the DLCI has received a cross-net status message from the primary destination during the current polling interval. The interval duration is controlled by the *crossNetPollingInterval* attribute of the *BnxProtocol* component. This attribute is ignored if the *BnxProtocol* attribute *crossNetListenEnabled* is set to ***no***. |
| Values | unrecv<br>recv |
| Default | unrecv |

### ATTRIBUTE FrUni Dlci Bnxlwf crossNetErrors (cne)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts how many polling intervals have elapsed without receiving an error free cross-net status message from the primary destination of the PVC. Errors are generally caused by time-outs. The value of this attribute wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni Dlci Bnxlwf ipAddressMismatches (iam)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the received datagrams which were dropped because the source IP address in the IP header did not match the value of *calledIpAddress* or *backupCalledIpAddress* attribute. The value of this attribute wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE FrUni Dlci Bnxlwf lastMismatchedIpAddress (lmia)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the source IP address in the IP header of the most recently received datagram which was dropped because this IP address did not match the value of *calledIpAddress* or *backupCalledIpAddress* attribute. |
| Values | IP address |
| Default | 0.0.0.0 |

### ATTRIBUTE FrUni Dlci Bnxlwf backupCrossNetSent (bcnsent)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates if a cross-net status message was sent to the backup destination during the current polling interval. The interval duration is controlled by the *crossNetPollingInterval* attribute of the *BnxProtocol* component. |
| Values | unsent<br>sent |
| Default | No default |

### ATTRIBUTE FrUni Dlci Bnxlwf backupCrossNetStatus (bcns)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the state of the PVC when the remote end is the backup destination. If the *crossNetListenEnabled* attribute of the *BnxProtocol* component is set to ***yes***, this attribute reflects the state as reported by the remote end. If the *crossNetListenEnabled* attribute is set to ***no***, the PVC is assumed to be up and this attribute has a value of ***active***. |
| Values | inactive<br>active |
| Default | inactive |

## ATTRIBUTE FrUni Dlci Bnxlwf backupCrossNetReceived (bcnr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates if the DLCI has received a cross-net status message from the backup destination of the PVC during the current polling interval. The interval duration is controlled by the *crossNetPollingInterval* attribute of the *BnxProtocol*. This attribute is ignored if the *BnxProtocol* attribute *crossNetListenEnabled* is set to ***no***. |
| Values | unrecv<br>recv |
| Default | unrecv |

## ATTRIBUTE FrUni Dlci Bnxlwf backupCrossNetErrors (bcne)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts how many polling intervals have elapsed without receiving an error free cross-net status message from the backup destination of the PVC. Errors are generally caused by time-outs. The value of this attribute wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## ATTRIBUTE FrUni Dlci Bnxlwf redirectMode (rmode)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the mode of the PVC redirection.<br><br>The value ***switchOnDemand*** means this PVC is redirected automatically to either the primary destination or the backup destination based on the cross-net status of the primary destination. This automatic switch-over mechanism is revertive to the primary destination.<br><br>The value ***manual*** means that the destination for this PVC has been manually selected and automatic redirection is disabled. |

When the value is ***noBackup***, the PVC does not have a backup destination provisioned.

Values
switchOnDemand
manual
noBackup

Default
No default

### ATTRIBUTE FrUni Dlci Bnxlwf currentDestination (cdest)

Access
Read only

Description
This attribute indicates if the current destination is the primary destination or the backup destination.

Values
primary
backup

Default
No default

### ATTRIBUTE FrUni Dlci Bnxlwf remoteIpAddress (ria)

Access
Read only

Description
This attribute indicates the IP address of the current destination.

Values
IP address

Default
No default

### ATTRIBUTE FrUni Dlci Bnxlwf remoteDlci (rdlci)

Access
Read only

Description
This attribute indicates the DLCI of the current destination.

Values
Decimal (16..1007)

Default
No default

### ATTRIBUTE FrUni Dlci Bnxlwf ipFragFromSubnet (fragfs)

Access
Read only

| | |
|---|---|
| Description | This attribute counts the IP fragments received from subnet by this Dlci. The value of this attribute wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni Dlci Bnxlwf discardedIpFragments (discFrag)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the IP fragments that are dropped by this Dlci. The value of this attribute wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni Dlci Bnxlwf discMisorderedFrm (dmfrm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames from subnet that are dropped due to misordered fragments. A misordered fragment occurs when the offset in the IP header is not equal to the expected offset, or the timer expires before the last fragment is received. The value of this attribute wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni Dlci Bnxlwf lastDroppedIpFragmentId (lastid)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Id of the last misordered frame that was dropped. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## COMPONENT FrUni Dlci IpConnection (IpConn)

| | |
|---|---|
| Groups | "GROUP FrUni Dlci IpConn Provisioned (Prov)" |
| Scope | Application |
| Description | *FrUni/n Dlci/n IpConnection*<br>This component represents direct frame relay access to IP (IPoFR) for this *Dlci*. This *Dlci* must be linked to an *IpDlciGroup FrConnection*. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP FrUni Dlci IpConn Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the *IpConnection* component. |

## ATTRIBUTE FrUni Dlci IpConn linkToIpDlciGrp (dlcGrp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the *IpDlciGroup FrConnection* associated with this component. |
| Values | Link (Service, linkToFrDlci) |
| Default | No default |

## ATTRIBUTE FrUni Dlci IpConn de0DiscardPriority (de0Dp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the discard priority for frames received on this DLCI whose DE bit is not set after being processed by the frame relay service.<br><br>***low*** specifies that the packet is least likely to be discarded. This value should be used for traffic that requires a high probability of |

being forwarded.

***high*** specifies that the packet is most likely to be discarded. This value should be used for traffic that is given a low probability of being forwarded.

The value of this attribute must not be higher than the value of the *de1DiscardPriority* attribute.

Values
low
medium
high

Default
medium

### ATTRIBUTE FrUni Dlci IpConn de1DiscardPriority (de1Dp)

Access
Read and write

Description
This attribute specifies the discard priority for frames received on this DLCI whose DE bit is set after being processed by the frame relay service.

***low*** specifies that the packet is least likely to be discarded. This value should be used for traffic that requires a high probability of being forwarded.

***high*** specifies that the packet is most likely to be discarded. This value should be used for traffic that is given a low probability of being forwarded.

The value of this attribute must not be lower than the value of the *de0DiscardPriority* attribute.

Values
low
medium
high

Default
high

### ATTRIBUTE FrUni Dlci IpConn dpToDeMapLevel (dpToDe)

Access
Read and write

Description

This attribute specifies the lowest discard priority that will be mapped to a set DE bit.

All frames with a discard priority of this level or higher, sent on this DLCI, will have the DE bit set to 1 after being processed by the frame relay service.

If the value is ***notApplicable*** then all frames sent on this DLCI will have the DE bit set to 0, after being processed by the frame relay service.

Values

low
medium
high
notApplicable

Default

notApplicable

## COMPONENT FrUni Signaling (Sig)

Groups

"GROUP FrUni Sig DlciRange (Range)"
"GROUP FrUni Sig ServiceParameters (ServParms)"
"GROUP FrUni Sig SystemParameters (SysParms)"
"GROUP FrUni Sig LapfSystemParameters (LapfSys)"
"GROUP FrUni Sig OsiState (State)"
"GROUP FrUni Sig Statistics (Stats)"
"GROUP FrUni Sig LapfStatus (LapfStatus)"
"GROUP FrUni Sig LapfStatistics (LapfStats)"
"GROUP FrUni Sig FrsSvcAcc (Svcacc)"
"GROUP FrUni Sig LastSvcClearCodes (Codes)"

Scope

Application

Description

*FrUni/n Signaling*
This component defines the FRF.4 and Q.922 (LAPF) parameters for Frame Relay switched virtual circuits at the User-Network

interface. This component must be provisioned for the FrUni interface to support switched connections.

Common Verbs

Help
List
Display
Add
DELete

## GROUP FrUni Sig DlciRange (Range)

Properties: Provisioned

Description: This group contains the provisionable attribute to define the range of DLCIs for PVCs and SVCs. The purpose of this range is to prevent DLCI collisions between the provisioned PVCs and the dynamic SVCs.

## ATTRIBUTE FrUni Sig highestPvcDlci

Access: Read and write

Criticality: Process

Description: This attribute specifies the highest DLCI value that can be provisioned for a permanent connection. It partitions the DLCI space into permanent and switched connections. Permanent DLCI numbers higher than this value cannot be provisioned. The value ***0*** is used to indicate that no permanent connections are allowed on this interface. The value ***1007*** indicates that no switched connections are allowed on this interface.

Values: Decimal (0; 16..1007)

Default: 500

## GROUP FrUni Sig ServiceParameters (ServParms)

Properties: Provisioned

Description: This group contains the provisionable FRF.4 service parameters.

## ATTRIBUTE FrUni Sig maximumFrameSize (dn1)

Access: Read and write

| | |
|---|---|
| Description | This attribute specifies the maximum number of octets that may be included in the information field of the user DLCI of any switched connections using this interface. Its value must not be smaller than the value of *defaultMaximumFrameSize*. |
| Values | Decimal (1..8187) |
| Units | octets |
| Default | 4096 |

### ATTRIBUTE FrUni Sig defaultMaximumFrameSize (defaultdn1)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the default maximum number of octets that may be included in the information field of the user DLCI assigned for any switched connections using this interface. This value is used during call parameter negotiation for switched calls on this interface when the maximum frame size is not specified in the user's SETUP message. The value of this attribute must not exceed the value of the *maximumFrameSize* attribute. |
| Values | Decimal (1..8187) |
| Units | octets |
| Default | 2100 |

### ATTRIBUTE FrUni Sig defaultCommittedInformationRate (defaultCir)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the default user to network direction CIR. This value is used during call parameter negotiation for switched calls on this interface when the CIR is not specified in the user's SETUP message. |
| Values | Decimal (0..52000000) |
| Units | bit/s |
| Default | 64000 |

### ATTRIBUTE FrUni Sig defaultCommittedBurstSize (defaultBc)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the default user to network direction Bc. This value is used during call parameter negotiation for switched calls on this interface when the Bc is not specified in the user's SETUP message. |
| Values | Decimal (0..52000000) |
| Units | bits |
| Default | 64000 |

### ATTRIBUTE FrUni Sig defaultExcessBurstSize (defaultBe)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the default user to network direction Be. This value is used during call parameter negotiation for switched calls on this interface when the Be is not specified in the user's SETUP message. |
| Values | Decimal (0..52000000) |
| Units | bits |
| Default | 0 |

### ATTRIBUTE FrUni Sig rateEnforcement (re)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether rate enforcement is in effect for SVCs on this interface. |
| Values | off<br>on |
| Default | on |

### ATTRIBUTE FrUni Sig rateAdaptation (ra)

| | |
|---|---|
| Access | Read and write |

Description

This attribute specifies whether closed-loop rate adaptation is in effect for SVCs on this interface. Rate adaptation is a feature that, in periods of congestion, adapts the rate at which the user is allowed to send data into the network to that which the network is able to handle at that time. This proactive measure of handling congestion optimizes network resources by causing the ingress to discard frames that would otherwise be discarded in the network.

If this attribute is set to ***on***, then, at the onset of congestion, the excess information rate (EIR) is reduced to a very low rate. If congestion persists, then the allowed CIR is reduced geometrically by 25% of the current value at that time. The minimum to which CIR can be reduced is 1/16th (6.25%) of the provisioned value. As congestion alleviates, CIR is increased linearly by 6.25% of the provisioned value specified in *committedInformationRate*.

If set to ***eirOnly***, then rate adaptation will only apply to the excess information rate (EIR). At the onset of congestion, the allowed EIR is reduced by 25% of its provisioned value. If congestion persists, EIR is reduced geometrically by 25% of the current value at that time. As congestion alleviates, EIR is gradually increased linearly by 6.25% of the provisioned EIR.

If set to ***cirProportionate***, then rate adaptation will also only apply to the excess information rate (EIR). At the onset of congestion the initial allowed EIR is set to a multiple of the provisioned CIR. If congestion persists, the allowed EIR is reduced geometrically by 25% of the current value at that time. As congestion alleviates, EIR is gradually increased linearly by 6.25% of the provisioned EIR. Note that the allowed EIR may be set higher than the provisioned EIR, since it is calculated initially using another parameter, the provisioned CIR. If the allowed EIR at the moment is higher than the provisioned EIR, then the provisioned EIR is used instead.

This attribute can only be set to ***on*** or ***eirOnly*** if *rateEnforcement* is set to ***on***.

Values

off
on

| | |
|---|---|
| | eirOnly<br>cirProportionate |
| Default | off |

### ATTRIBUTE FrUni Sig x213IeHandling (x213)

| | |
|---|---|
| Access | Read and write |
| Description | The *x213IeHandling* attribute specifies how Frame Relay handles the X.213 Priority IE when it is in the FRF.4 setup message.<br><br>When the attribute is set to ***notSupported***, the X.213 Priority IE will not be recognized in the setup message. A FRF.4 status message will be sent to the calling DTE, with the indication that an unrecognized IE was encountered. The call setup then proceeds as normal, and the X.213 Priority IE does not appear in the setup message at the called end.<br><br>When the attribute is set to ***proprietary***, and the X.213 Priority IE is present in the FRF.4 setup message, it will be recognized. If there is no Frame Transfer Priority IE in the setup message, the first data byte of the X.213 Priority IE is used to select the transfer and discard priority values for the connection and the X.213 Priority IE is signaled to the called end in the setup message. If the Frame Transfer Priority IE is present in the FRF.4 setup message, its value is used to select the transfer priority, the discard priority is taken from the *FRUNI Dna* component, and the X.213 Priority IE is ignored.<br><br>Refer to the related Application Note for further details before setting the attribute value to ***proprietary***. |
| Values | notSupported<br>proprietary |
| Default | notSupported |

### ATTRIBUTE FrUni Sig raSensitivity (rasens)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the sensitivity of the rate adaptation system for all switched connections on this interface. |

A higher number indicates a higher sensitivity and therefore a quicker reaction time to network conditions. A quicker reaction time allows the network to discard frames at the access and protect network resources, but can lead to false alarms and a greater fluctuation of the allowed rate. A higher setting therefore tends to favor the protection of the network over the allowed throughput of the user.

A lower number indicates a lower sensitivity and therefore a slower reaction to network conditions. A slower reaction time results in a greater amount of user traffic allowed into the network, but can lead to a waste of network bandwidth since the traffic may be discarded at the congested resource. A lower setting therefore tends to favour the allowed throughput of the user over the protection of the network.

This attribute is applicable for adapting EIR when *rateAdaptation* is ***eirOnly*** or ***cirProportionate***, or CIR when *rateAdaptation* is ***on***.

This attribute is ignored if *rateAdaptation* is ***off***.

Values — Decimal (1..20)

Default — 7

### ATTRIBUTE FrUni Sig updateBCI (updBCI)

Access — Read and write

Description — This attribute specifies whether internal Backward Congestion Indication (BCI) bits will report congestion external to the Passport network, as communicated through incoming BECN bits.

If *updateBCI* is set to ***on***, then BCI bits for incoming frames will be set if the BECN on the frame is set. If *updateBCI* is set to ***off***, then incoming BECN bits has no effect.

Setting *updateBCI* ***on*** for a DLCI means that the remote end of the DLCI, which is specified by the *remoteDna* and *remoteDlci*

attributes of the *Dc* component of the *Dlci*, may perform Rate Adaptation using the flow of incoming BECN bits, in addition to internal Passport congestion management systems.

If the *rateAdaptation* attribute of the remote DLCI is provisioned as ***eirOnly***, ***cirProportionate***, or ***on***, then congestion from another network connected to a Passport network may trigger dynamic congestion management. If there is no rate adaptation at the other end, then the setting of *updateBCI* attribute here will have no effect.

Values: off, on

Default: off

### ATTRIBUTE FrUni Sig defaultLocCheck (defLoc)

Access: Read and write

Criticality: Process

Description: This attribute specifies whether Passport needs to check the location of Cause IE in a Release or a Disc message issued by local DTE. If this bit is set to on, then Passport will check the location of Cause IE issued by the local DTE and overwrite it by "user". If it is set to off, then Passport will not check the location in Cause IE.

Values: off, on

Default: on

### GROUP FrUni Sig SystemParameters (SysParms)

Properties: Provisioned

Description: This group contains the provisionable FRF.4 system parameters.

### ATTRIBUTE FrUni Sig callSetupTimer (t303)

Access: Read and write

| | |
|---|---|
| Description | This attribute specifies the time the network waits for a response to the SETUP message sent to the called user. Upon timer expiry, the SETUP message is retransmitted. The second expiry of this timer causes the call to be cleared. |
| Values | Decimal (1..255) |
| Units | seconds |
| Default | 4 |

### ATTRIBUTE FrUni Sig disconnectTimer (t305)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time the network waits for a response to the DISCONNECT message sent to the user. Upon timer expiry, the RELEASE message is sent. |
| Values | Decimal (1..255) |
| Units | seconds |
| Default | 30 |

### ATTRIBUTE FrUni Sig releaseTimer (t308)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time the network waits for a response to the RELEASE message sent to the user. Upon timer expiry, the RELEASE message is retransmitted. The second expiry of the timer causes the call to be released. |
| Values | Decimal (1..255) |
| Units | seconds |
| Default | 4 |

### ATTRIBUTE FrUni Sig callProceedingTimer (t310)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time the network waits for the CONNECT message from the called user after the network has |

received the optional CALL PROCEEDING message from the called user. Upon timer expiry, the call is cleared.

Values: Decimal (1..255)

Units: seconds

Default: 10

### ATTRIBUTE FrUni Sig networkType (type)

Access: Read and write

Description: This attribute specifies whether this Frame Relay service is running on a public or a private network. This value is used solely in populating applicable information elements within those FRF.4 messages that require a public or private network indication.

Values: private
public

Default: private

### ATTRIBUTE FrUni Sig restartReqTimer (t316)

Access: Read and write

Description: This attribute specifies the time the network waits for the RESTART ACKNOWLEDGE message from the adjacent network after sending a first RESTART message. Upon timer expiry, another RESTART message is sent. After the second expiry, the interface is treated as idle.

If the *restartReqTimer* attribute is set to the default value, then the interface is treated as idle when it receives an indication that the link is up and does not send a RESTART message.

Values: Decimal (0..255)

Units: seconds

Default: 0

### ATTRIBUTE FrUni Sig restartRcvTimer (t317)

Access: Read and write

| | |
|---|---|
| Description | This attribute specifies the time the local network waits for the processing of a RESTART message received by the interface. Upon expiry of this timer, an alarm will be displayed to report the problem. The timer value must be less than the *restartReqTimer* provisioned value at the adjacent node. |
| Values | Decimal (1..255) |
| Units | seconds |
| Default | 110 |

### ATTRIBUTE FrUni Sig statusEnqTimer (t322)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time the network waits for the requested STATUS message from the adjacent network. Upon expiry of this timer, another STATUS ENQUIRY message will be sent. |
| Values | Decimal (1..255) |
| Units | seconds |
| Default | 4 |

### GROUP FrUni Sig LapfSystemParameters (LapfSys)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the SVC data link layer. The data link layer is governed primarily through ITU specification Q.922, and operates over DLCI 0.. |

### ATTRIBUTE FrUni Sig windowSize (ws)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the window size. This is the maximum number of unacknowledged sequenced frames that may be outstanding from or to this interface at any one time. |
| Values | Decimal (1..127) |
| Default | 7 |

### ATTRIBUTE FrUni Sig retransmitLimit (rtl)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the number of times a frame can be retransmitted by the SVC data link layer before appropriate recovery action is taken. |
| Values | Decimal (0..20) |
| Default | 3 |

### ATTRIBUTE FrUni Sig ackTimer (at)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies how long the layer 2 protocol waits for an acknowledgment to a sent frame. The value set for *ackTimer* must be less than the value set for *idleProbeTimer*. |
| Values | Decimal (1000..10000) |
| Units | msec |
| Default | 1500 |

### ATTRIBUTE FrUni Sig ackDelayTimer (adt)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies how long the network waits before sending an acknowledgment for a received in-sequence I-frame. A value of 0 means that every frame is acknowledged and there will be no delay in acknowledgment. A non-zero value means that one acknowledgement is sent for a number of frames. |
| Values | Decimal (0..10000) |
| Units | msec |
| Default | 0 |

### ATTRIBUTE FrUni Sig idleProbeTimer (ipt)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute specifies how long the link is permitted to remain idle (that is, no frames are exchanged on the data link). Upon expiry of this timer, the network side's link layer polls its peer for status. The value set for *idleProbeTimer* must be greater than the value set for *ackTimer.* |
| Values | Decimal (1000..65535000) |
| Units | msec |
| Default | 30000 |

### GROUP FrUni Sig OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE FrUni Sig adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |

| | |
|---|---|
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE FrUni Sig operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE FrUni Sig usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |

| | |
|---|---|
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP FrUni Sig Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the statistics related to the SVC signaling layer at the interface level. |

### ATTRIBUTE FrUni Sig currentNumberOfSvcCalls (ncall)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of Frame Relay SVCs currently existing on this interface. |
| Values | Decimal (0..992) |
| Default | No default |

### ATTRIBUTE FrUni Sig inCalls (incall)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current number of incoming SVCs on this interface (that is, the number of SVCs for which this interface represents the destination end of the call). |
| Values | Decimal (0..992) |
| Default | No default |

### ATTRIBUTE FrUni Sig inCallsRefused (icr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the incoming SVC call requests that are rejected by either this interface or by the called user. When this count exceeds the maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrUni Sig outCalls (outcall)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current number of outgoing SVCs on this interface (that is, the number of SVCs for which this interface represents the source end of the call). |
| Values | Decimal (0..992) |
| Default | No default |

### ATTRIBUTE FrUni Sig outCallsFailed (ocf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the outgoing SVC call requests that are rejected by either this interface, or by the network side of the destination end, or by the called user. When this count exceeds the maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrUni Sig protocolErrors (pe)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times a FRF.4 protocol error has occurred. Any one of the following events constitutes a protocol error:<br>1. In the user-signaled *Link Layer Core Parameters* IE within the SETUP or CONNECT messages, *Cir*, *Bc* and *Be* are all zero;<br>2. In the user-signaled *Link Layer Core Parameters* IE within the SETUP or CONNECT messages, *Cir* is zero but *Bc* is non-zero, or *Bc* is zero but *Cir* is non-zero;<br>3. In the user-signaled *Link Layer Core Parameters* IE within the SETUP or CONNECT messages, the *Minimum Acceptable CIR* is greater than *Cir*;<br>4. At the destination end, any of the destination to source direction<br>link layer core parameters has been increased in the CONNECT message from the called user;<br>5. At the destination end, the destination to source direction *Cir* |

in the CONNECT message is smaller than the corresponding *minimum acceptable Cir* signaled to the called user;
6. At the source end, any of the source to destination direction link layer core parameters in the CONNECT message from the destination end has been increased;
7. At the source end, the source to destination direction *Cir*, after negotiation, is smaller than the corresponding *minimum acceptable Cir*;
8. The network has received a STATUS message from the user with an incompatible FRF.4 state.

When this count reaches maximum, it wraps to zero.

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrUni Sig qualityOfServiceNotAvailable (qosna)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of incoming and outgoing SVCs that are rejected because the quality of service requested cannot be met by the network. When this count reaches maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrUni Sig setupTimeout (setupt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times the T303 setup timer has expired. When this count reaches maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrUni Sig lastCauseInStatusMsgReceived (lcis)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the cause value in the last received user's STATUS message to an existing call. The DLCI to which this STATUS message applies is specified in the *lastDlciReceivedStatus* attribute.<br><br>The initial value of this attribute is **0** which means that no STATUS message has been received for an existing call yet. |
| Values | Decimal (0..255) |
| Default | 0 |

### ATTRIBUTE FrUni Sig lastStateInStatusMsgReceived (lsis)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the state value in the last received user's STATUS message to an existing call. The DLCI to which this STATUS message applies is specified in the *lastDlciReceivedStatus* attribute.<br><br>The initial value of this attribute is **notApplicable**. |
| Values | null<br>callInitiated<br>outgoingCallProceeding<br>callPresent<br>incomingCallProceeding<br>active<br>disconnectRequest<br>disconnectIndication<br>releaseRequest<br>restartRequest<br>restart<br>notApplicable<br>2<br>4<br>5<br>7<br>8<br>13<br>14<br>15 |

16
17
18
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58

| | |
|---|---|
| | 59<br>60<br>63 |
| Default | notApplicable |

### ATTRIBUTE FrUni Sig lastDlciReceivedStatus (ldrs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute shows the value of the DLCI that has most recently received a STATUS message from the user.<br><br>The initial value of this attribute is **0**. |
| Values | Decimal (0; 16..1007) |
| Default | 0 |

### ATTRIBUTE FrUni Sig bandwidthNotAvailable

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of call failures for each bandwidth pool due to the requested bandwidth not being available. |
| Vector of | Decimal (0..4294967295) |
| Index | Decimal (0..15) |
| Default | No default |

### GROUP FrUni Sig LapfStatus (LapfStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the Q.922 SVC data link layer status. |

### ATTRIBUTE FrUni Sig currentState (currState)

| | |
|---|---|
| Access | Read only |
| Description | This attribute shows the current state of the SVC data link layer interface. |

| | |
|---|---|
| Values | disconnected<br>linkSetup<br>disconnectRequest<br>informationTransfer<br>waitingAck |
| Default | No default |

### ATTRIBUTE FrUni Sig lastStateChangeReason (lscr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute shows the reason for the most recent state change.<br>***notStarted*** - this is the default state after SVC data link has just been created.<br><br>***abmeEntered*** - SVC data link has entered Asynchronous Balanced Mode after SABME or UA has been received.<br>***abmeReset*** - the data link has been reset.<br>***dmReceived*** - DM response received.<br>***dmSent*** - DM sent.<br>***discReceived*** - DISC response received.<br>***discSent*** - DISC sent.<br>***frmrReceived*** - FRMR received.<br>***n200RetranTimeOut*** - *retransmitLimit* has been exceeded.<br>***other*** - unspecified state change reasons. The most likely reason for this is the transition from state ***waitingAck*** to state ***informationTransfer***. |
| Values | notStarted<br>abmeEntered<br>abmeReset<br>dmReceived<br>dmSent<br>discReceived<br>discSent<br>frmrReceived<br>n200RetranTimeOut<br>other |
| Default | notStarted |

### ATTRIBUTE FrUni Sig frmrReceive (frmrr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute shows the information field of the Frame Reject (FRMR) most recently received. |
| Values | String (0..8, Hex) |
| Default | No default |

### ATTRIBUTE FrUni Sig currentQueueSize (queues)

| | |
|---|---|
| Access | Read only |
| Description | This attribute shows the current number of frames in the SVC data link layer transmit queue. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP FrUni Sig LapfStatistics (LapfStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the statistics for the SVC data link layer. |

### ATTRIBUTE FrUni Sig stateChange

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times the SVC data link layer interface has changed state. While the data link layer is in ***informationTransfer*** state, this counter will increment on each expiry of *idleProbeTimer* as its state goes from ***informationTransfer*** to ***waitingAck*** and back. When this count exceeds the maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrUni Sig remoteBusy

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the number of times transmission of an I-frame was unsuccessful due to a perceived remote busy condition (window closed or remote busy). When this count reaches maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrUni Sig receiveRejectFrame

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of REJ frames received by the interface. When this count reaches maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrUni Sig ackTimeout

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times the *ackTimer* has expired. Frequent increments of this counter indicate a problem at the link or improper values have been chosen for *ackTimer* and *ackDelayTimer* between the local and remote sides. When this count reaches maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrUni Sig iFramesTransmitted

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of SVC I-frames transmitted to the interface on DLCI 0. An I-frame may be counted more than once if there are retransmissions at the SVC data link layer. When this count reaches maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrUni Sig iFramesTxDiscarded

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of SVC I-frames that are bound for the link but have been discarded. Discard reasons may be one of the following:<br>1. the frame length is beyond the allowed limit.<br>2. the SVC data link layer is in ***disconnected*** state.<br>3. the transmit queue has been purged because the queue length has reached the reset threshold.<br>4. the transmit queue or the queue waiting for acknowledgment has been purged because the link cannot be re-established.<br><br>When this count reaches maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrUni Sig iFramesReceived

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of SVC I-frames received from the interface. When this count reaches maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE FrUni Sig iFramesRcvdDiscarded

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of SVC I-frames received but have been discarded. The discard reasons are:<br>1. incorrect frame size<br>2. frame is out of sequence<br>3. frame received while the network side of the SVC data link layer is not in the ***informationTransfer*** or ***waitingAck*** state.<br><br>When this count reaches maximum, it wraps to zero. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP FrUni Sig FrsSvcAcc (Svcacc)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attribute which controls accounting for this interface. |

### ATTRIBUTE FrUni Sig defaultAccounting (defAcc)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies whether accounting data collection and record generation is turned on for switched connections at this interface. For accounting data collection and record generation to occur, this attribute must be ***on*** and at least one of the *accountCollection* reasons in the *Dna* component must be present. |
| Values | off<br>on |
| Default | on |

### GROUP FrUni Sig LastSvcClearCodes (Codes)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the remote data network address, the last SVC clear cause and the last SVC diagnostic code coming from the subnet or the local VC. |

### ATTRIBUTE FrUni Sig lastClearRemoteDataNetworkAddress

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Data Network Address (DNA) of the remote (the other end of the SVC connection) of the call which cleared last and whose clear and diagnostic codes were recorded. |
| Values | BCD (0..15) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE FrUni Sig lastClearCause

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the last SVC clear cause signaled at the end of the connection or failure to connect. It is updated only if the clear request comes from the subnet or the call is rejected locally by the VC. The same set of possible values provides the clear cause field in the accounting record. |
| Values | Decimal (0..255) |
| Default | 0 |

### ATTRIBUTE FrUni Sig lastDiagnosticCode

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the last SVC diagnostic code signaled at the end of the connection or failure to connect. It is updated if the clear request comes from the subnet or the call is rejected locally by the VC. The same set of possible values provides the diagnostic code field in the accounting record. |
| Values | Decimal (0..255) |
| Default | 0 |

### COMPONENT FrUni VirtualFramer (VFramer)

| | |
|---|---|
| Groups | "GROUP FrUni VFramer Provisioned (Prov)"<br>"GROUP FrUni VFramer OsiState (State)"<br>"GROUP FrUni VFramer Statistics (Stats)" |
| Scope | Application |
| Description | *FrUni/n VirtualFramer*<br>*FrDte/n VirtualFramer*<br>The *VirtualFramer* component binds two services together to provide data transfer between them. It is mutually exclusive from *Framer* component. |

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP FrUni VFramer Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisionable attributes for the *VirtualFramer* component. |

### ATTRIBUTE FrUni VFramer otherVirtualFramer (ovf)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the other *VirtualFramer* to which the service is linked, for example, *FrUni/n VirtualFramer*, *FrDte/n VirtualFramer*. |
| Values | Link (Service, otherVirtualFramer) |
| Default | No default |

### ATTRIBUTE FrUni VFramer logicalProcessor (lp)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the logical processor on which the service component will reside. |
| Values | Link (Hardware, linkToApplications) |
| Default | No default |

### GROUP FrUni VFramer OsiState (State)

| | |
|---|---|
| Properties | Operational |

Description

This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

## ATTRIBUTE FrUni VFramer adminState (osiAdmin)

Access

Read only

Description

This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values

locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default

unlocked

## ATTRIBUTE FrUni VFramer operationalState (osiOper)

Access

Read only

Description

This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be

providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values: enabled (ena)
disabled (dis)

Default: disabled

### ATTRIBUTE FrUni VFramer usageState (osiUsage)

Access: Read only

Description: This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values: idle
active (activ)
busy

Default: idle

### GROUP FrUni VFramer Statistics (Stats)

Properties: Operational

Description: This group contains the operational statistics data for a *VirtualFramer* component.

### ATTRIBUTE FrUni VFramer frmToOtherVFramer

Access: Read only

| | |
|---|---|
| Description | This attribute counts the frames transmitted to the *otherVirtualFramer.* |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE FrUni VFramer frmFromOtherVFramer

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received from the *otherVirtualFramer.* |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE FrUni VFramer octetFromOtherVFramer

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the octets received from the *otherVirtualFramer.* |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE FrUni VFramer discFrmFromOtherVFramer (discFrmFromOvf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the discarded frames from the *otherVirtualFramer.* Incrementing of this counter indicates that some incoming traffic cannot be handled by the FP. |
| Values | Long Integer |
| Default | No default |

## COMPONENT FrUni LoadTestSystem (Lts)

| | |
|---|---|
| Groups | "GROUP FrUni Lts Setup (Setup)"<br>"GROUP FrUni Lts OperationalState (State)"<br>"GROUP FrUni Lts Results (Results)" |

| | |
|---|---|
| Scope | Application |
| Description | *FrUni/n LoadTestSystem*<br>*FrNni/n LoadTestSystem*<br>This component defines an instance of the Frame Relay Load Test System (UNI) service. The component instance value n is a unique positive integer within a module. |
| Subcomponents | "COMPONENT FrUni Lts Pattern (Pat)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### VERB START FrUni Lts

| | |
|---|---|
| Impact | Service |
| Description | *START FrUni/n Lts*<br>This verb starts the load generator. The load generator can be stopped by issuing the stop verb. |

### VERB STOP FrUni Lts

| | |
|---|---|
| Impact | Service |
| Description | *STOP FrUni/n Lts*<br>This verb stops the traffic generator. |

### VERB RESET FrUni Lts

| | |
|---|---|
| Impact | Service |
| Description | *RESET FrUni/n Lts*<br>This verb clears the TestStatistics |

### GROUP FrUni Lts Setup (Setup)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains the parameters used to configure the behavior of the Frame Relay Load Test System. |

## ATTRIBUTE FrUni Lts duration (dur)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the duration of the test in milliseconds. The test will run until the duration expires or the STOP command is issued. A value of 0 is used to indicate infinity. |
| Values | Decimal (0..4294967295) |
| Units | msec |
| Default | 0 |

## ATTRIBUTE FrUni Lts algorithm (alg)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies which algorithm is used to generate the frames.<br><br>**ContinuousBurst**<br>This mode of traffic generation creates traffic at the maximum rate possible until all of the frames have been sent. The generator then waits until the end of the timeInterval to begin again.<br><br>**IntervalBurst**<br>This algorithm attempts to generate 10 ms bursts of burstSize frames. It will generate as many of the burstSize frames as it can per sub-interval.<br><br>**DelayedBurst**<br>This algorithm generates bursts of burstSize frames separated by 10 ms delays.<br><br>**FixedBurst**<br>This aglorithm is similar to IntervalBurst, except a fixed burst size of 12 frames is used.<br><br>**delayMeasurement**<br>This algorithm is used to measure delay. The specified number of frames in the indicated pattern are generated, one at a time, with a |

| | |
|---|---|
| | maximum wait of maxDelay before sending the next frame. This algorithm is not implemented yet. |
| Values | continousBurst (cont)<br>intervalBurst (int)<br>delayBurst (delay)<br>fixedBurst (fixed) |
| Default | continousBurst |

### ATTRIBUTE FrUni Lts burstSize (fpb)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the number of frames per burst under the delayedBurst and intervalBurst algorithms. |
| Values | Decimal (1..250) |
| Default | 50 |

### ATTRIBUTE FrUni Lts timeInterval (tint)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time interval to the specified number of seconds. Granuality is in centiseconds. Maximum is 1 minute. |
| Values | Decimal (1..60000) |
| Units | csec |
| Default | 100 |

### GROUP FrUni Lts OperationalState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operation statistics of the load generator. |

### ATTRIBUTE FrUni Lts generatorState (gstate)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether the Lts is generating traffic. |

| | |
|---|---|
| Values | stopped<br>running |
| Default | stopped |

### ATTRIBUTE FrUni Lts cycleIncomplete (cycle)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether the time required to generate all of the enabled patterns is more than timeInterval by a true value. Otherwise, this flag is set to false. Default is True. |
| Values | false<br>true |
| Default | true |

### ATTRIBUTE FrUni Lts lastActiveInterval (actInt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the actual time it took to generate all of the enabled patterns in the last cycle. If cycleIncomplete is true, this value should be zero. |
| Values | Decimal (0..4294967295) |
| Units | microsec |
| Default | No default |

### ATTRIBUTE FrUni Lts load

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the load being generated. This value represents that calculated using the set number of ticks. The actual burstTimeInterval may differ. One entire cycle of the patterns is completed in activeInterval and thus most of the load may be concentrated early in the set interval. |
| Values | Decimal (0.000..4294967.295) |
| Units | kbit/s |
| Default | No default |

### ATTRIBUTE FrUni Lts elapsedGenerationTime (etime)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates how many milliseconds have elapsed since the start of this test. |
| Values | Decimal (0..4294967295) |
| Units | msec |
| Default | No default |

### GROUP FrUni Lts Results (Results)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the frame counting attributes for the LTS component. |

### ATTRIBUTE FrUni Lts framesTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the number of frames send to the network since the last time these statistics were cleared. This is similar to the framesToIf attribute of the FRAMER component. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE FrUni Lts bytesTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of bytes sent. |
| Values | Decimal (0..4294967295) |
| Units | bytes |
| Default | 0 |

### ATTRIBUTE FrUni Lts bitRateTx

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the bit rate being sent to the link. It should only differ from the load if the burstTimeInterval would be >= the timeInterval or burstSize frames cannot be generated in 10ms (intervalBurst algorithm). |
| Values | Decimal (0.000..4294967.295) |
| Units | kbit/s |
| Default | 0.000 |

### ATTRIBUTE FrUni Lts frameRateTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the frame rate being sent to the link. It is calculated using the number of frames sent to the link in one cycle of the patterns. |
| Values | Decimal (0..4294967295) |
| Units | frame/s |
| Default | 0 |

### COMPONENT FrUni Lts Pattern (Pat)

| | |
|---|---|
| Instance | Decimal (0..29) |
| Groups | "GROUP FrUni Lts Pat Defaults (Defaults)"<br>"GROUP FrUni Lts Pat Setup (Setup)"<br>"GROUP FrUni Lts Pat OperationalData (OpData)"<br>"GROUP FrUni Lts Pat OperationalState (OpState)" |
| Scope | Application |
| Description | FrUni/n Lts Pattern<br>FrNni/n Lts Pattern<br>Each instance of this component specifies a pattern to be generated as part of each cycle. One cycle represents one pass through each pattern. |

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### VERB TRIGGER FrUni Lts Pat

| | |
|---|---|
| Impact | Service |
| Description | *TRIGGER FrUni/x Lts Pattern/y*<br>This verb triggers the single execution of the specified pattern. In order for this command to be executed, the Lts component cannot be generating traffic. |

### GROUP FrUni Lts Pat Defaults (Defaults)

| | |
|---|---|
| Properties | Provisioned |
| Description | This attribute group contains the specifications of the pattern. |

### ATTRIBUTE FrUni Lts Pat defaultDlci (dDlci)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies for which dlci (on the local end) the frames are destined. |
| Values | Decimal (16..1007) |
| Default | 16 |

### ATTRIBUTE FrUni Lts Pat defaultNumFrames (dNum)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the number of frames in this pattern. This is the number of frames of this type which will be generated in one timeInterval. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | 100 |

### ATTRIBUTE FrUni Lts Pat defaultDataSize (dSize)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the payload size of each frame in bytes. This is in excess to the header. |
| Values | Decimal (0..8200) |
| Units | octets |
| Default | 512 |

### ATTRIBUTE FrUni Lts Pat defaultHeaderBits (dBits)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether the following bits are on/off in the header of each frame. The following bits can be set: BeCn, C/R, De, FeCn |
| Set of | becn<br>fecn<br>cr<br>de |
| Default | No default |

### ATTRIBUTE FrUni Lts Pat defaultHeaderLength (dLen)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the size of the frame relay header in bytes. Passport currently only supports a 2-byte header. |
| Values | Decimal (0; 2..4) |
| Units | octets |
| Default | 2 |

### ATTRIBUTE FrUni Lts Pat defaultEABits (dEABits)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute specifies how the address field extension bits are set in the frame header. Consider the value to be a four bit binary number. For example, 4 = 0100. Only the first headerLength bits are used. For instance, suppose headerLength is 3, then the appropriate EABits is 2, or 0010. This attribute can be used to create a header of length greater than two bytes or to specify incorrect EABits in the header. |
| Values | Hex (H.0..H.f) |
| Default | H.4 |

### ATTRIBUTE FrUni Lts Pat defaultPayloadPattern (dPattern)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the payload of each frame. The value specified is in hexadecimal, where every two digits represent a byte. A maximum of 24 digits (12 bytes) may be set, after which the pattern will repeat in the payload (depending on repeatPattern attribute).<br>NOTE: If a RFC 1490 header is specified, via the 1490Header attribute, the specified pattern will begin following the header (i.e. at the 9th byte in the payload). |
| Values | String (1..12, Hex) |
| Default | 55 |

### ATTRIBUTE FrUni Lts Pat defaultRfc1490Header (d1490)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the appropriate RFC 1490 encapsulated header of the frame. A value of 0 indicates no 1490 header.<br>NOTE: This header resides in the first 8 bytes of the payload. If the specified value is non-zero, then the payload pattern provisioned will begin at the 9th byte. |
| Values | 0<br>1<br>2<br>3<br>4 |

5
6
7
8
9
10
11
12
13
14
15
16
17
none

Default none

### ATTRIBUTE FrUni Lts Pat defaultUseBadLrc (dBadLrc)

Access Read and write

Description This attribute specifies whether the frames from this pattern are to have a bad LRC prior to being sent to the framer. The LRC is checked while the frame is being put onto the link and the failure should cause an abort frame to be sent.

Values no
yes

Default no

### GROUP FrUni Lts Pat Setup (Setup)

Properties Operational

Description This attribute group contains the specifications of the pattern.

### ATTRIBUTE FrUni Lts Pat dlci

Access Read and write

Description This attribute specifies for which dlci (on the local end) the frames are destined.

Values Decimal (16..1007)

| | |
|---|---|
| Default | 16 |

### ATTRIBUTE FrUni Lts Pat numFrames (num)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the number of frames in this pattern. This is the number of frames of this type which will be generated in one timeInterval. |
| Values | Decimal (0..4294967295) |
| Default | 100 |

### ATTRIBUTE FrUni Lts Pat dataSize (size)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the payload size of each frame in bytes. This is in excess to the header. |
| Values | Decimal (0..8200) |
| Units | octets |
| Default | 512 |

### ATTRIBUTE FrUni Lts Pat headerBits (bits)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether the following bits are on/off in the header of each frame. The following bits can be set: BeCn, C/R, De, FeCn |
| Set of | becn<br>fecn<br>cr<br>de |
| Default | No default |

### ATTRIBUTE FrUni Lts Pat headerLength (len)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute specifies the size of the frame relay header in bytes. Passport currently only supports a 2-byte header. Valid values are 0, 2, 3, 4. 0 indicates to use no header. That is, the frame will start with either the payload or rfc1490 header. |
| Values | Decimal (0; 2..4) |
| Units | octets |
| Default | 2 |

### ATTRIBUTE FrUni Lts Pat eaBits

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies how the address field extension bits are set in the frame header. Consider the value to be a four bit binary number. For example, 4 = 0100. Only the first headerLength bits are used. For instance, suppose headerLength is 3, then the appropriate eaBits is 2, or 0010. This attribute can be used to create a header of length greater than two bytes or to specify incorrect eaBits in the header. |
| Values | Hex (H.0..H.f) |
| Default | H.4 |

### ATTRIBUTE FrUni Lts Pat payloadPattern (pattern)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the payload of each frame. The value specified is in hexadecimal, where every two digits represent a byte. A maximum of 24 digits (12 bytes) may be set, after which the pattern will repeat in the payload (depending on repeatPattern attribute).<br>NOTE: If a RFC 1490 header is specified, via the 1490Header attribute, the specified pattern will begin following the header (i.e. at the 9th byte in the payload). |
| Values | String (1..12, Hex) |
| Default | 55 |

### ATTRIBUTE FrUni Lts Pat rfc1490Header (rfc)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the appropriate RFC 1490 encapsulated header of the frame. A value of 0 indicates no 1490 header. NOTE: This header resides in the first 8 bytes of the payload. If the specified value is non-zero, then the payload pattern provisioned will begin at the 9th byte. |
| Values | 0<br>1<br>2<br>3<br>4<br>5<br>6<br>7<br>8<br>9<br>10<br>11<br>12<br>13<br>14<br>15<br>16<br>17<br>none |
| Default | none |

### ATTRIBUTE FrUni Lts Pat useBadLrc

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether the frames from this pattern are to have a bad LRC prior to being sent to the framer. The LRC is checked while the frame is being put onto the link and the failure should cause an abort frame to be sent. |
| Values | no<br>yes |

| | |
|---|---|
| Default | no |

### GROUP FrUni Lts Pat OperationalData (OpData)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes which allow changing the pattern outside of provisioning mode. |

### ATTRIBUTE FrUni Lts Pat framePattern

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the first 20 to 24 bytes of the frame payload, depending on the frame relay header size selected. This attribute represents the frame if it were at least 20 to 24 bytes in size. That is, the actual frame may be smaller. |
| Values | String (20..24, Hex) |
| Default | No default |

### ATTRIBUTE FrUni Lts Pat hdlcBitsInserted (hdlc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays how many times a zero bit will be inserted after 5 consecutive 1 bits when a frame from this pattern is sent out. |
| Values | Decimal (0..65535) |
| Default | No default |

### GROUP FrUni Lts Pat OperationalState (OpState)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the attributes containing the operational statistics of the pattern. |

### ATTRIBUTE FrUni Lts Pat load

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the load due to this particular pattern. The loads associated with all of the provisioned patterns are summed to arrive at the FrLts load. |
| Values | Decimal (0.000..4294967.295) |
| Units | kbit/s |
| Default | No default |

### ATTRIBUTE FrUni Lts Pat status

| | |
|---|---|
| Access | Read and write |
| Description | This attributes specifies the administrative state of the pattern. A disabled pattern will not be generated, although it can still be triggered. |
| Values | disabled<br>enabled |
| Default | enabled |

### COMPONENT FrUni DirectConnection (Dconn)

| | |
|---|---|
| Groups | "GROUP FrUni Dconn DirectFrDteConnData (DirData)" |
| Scope | Application |
| Description | ‘FrUni/n DirectConnection’<br><br>A *DirectConnection* can not be provisioned under a *FrUni* if any of its *Dlci* subcompoentents has an *IpConnection* or *BnxInterworkingFunction* component provisioned under it. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP FrUni Dconn DirectFrDteConnData (DirData)

| | |
|---|---|
| Properties | Provisioned |

| | |
|---|---|
| Description | This group contains the attribute for creating a Direct Connection for IP over Frame Relay networking between FrUni and FrDte. |

### ATTRIBUTE FrUni Dconn directFrDteConnection (direct)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the FrUni to which the FrDte will be connected to via the Direct Connect feature.<br><br>This attribute must be linked to a *FrDte DirectConnection* component or a semantic check error is generated. |
| Values | Link (Service, directFrUniConnection) |
| Default | No default |

### COMPONENT FrUni ServiceTrace (SrvTrace)

| | |
|---|---|
| Groups | "GROUP FrUni SrvTrace Operational" |
| Scope | Application |
| Description | *FrUni/n ServiceTrace*<br>*FrNni/n ServiceTrace*<br>The *ServiceTrace* component of the Frame Relay service determines if the trace capability is allowed on this interface. If it is not provisioned, then a service trace session cannot be started on this service.<br><br>Frame Relay service trace is restricted to use FrameRelay, X25 or ATM service trace receiver. If the *SrvTrace rcvr* operational attribute is set to a string name of FrAtm service trace receiver, *Start* command will return a “Receiver Not Supported” response. |
| Dyn. Subcomp. | "COMPONENT FrUni SrvTrace Filter" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### VERB Start FrUni SrvTrace

| | |
|---|---|
| Impact | Service |
| Description | *Start FrUni/n ServiceTrace*<br>*Start FrNni/n ServiceTrace*<br>This command starts a Frame Relay service trace session. |

### VERB Stop FrUni SrvTrace

| | |
|---|---|
| Impact | Service |
| Description | *Stop FrUni/n ServiceTrace*<br>*Stop FrNni/n ServiceTrace*<br>This command stops a Frame Relay service trace session. |

### GROUP FrUni SrvTrace Operational

| | |
|---|---|
| Properties | Operational |
| Description | This group provides the operational attributes for the *SrvTrace* component. |

### ATTRIBUTE FrUni SrvTrace receiverName (rcvr)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute should be set to the name of the desired trace receiver before starting a trace session. All available trace receivers are listed under the *SrvTrace Rcvr* component. This attribute cannot be set while the service trace is active. The receiver name is validated by the trace manager when the service *SrvTrace* is started. |
| Values | String (0..8, ASCII) |
| Default | No default |

### ATTRIBUTE FrUni SrvTrace duration

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the duration, in minutes, of a trace session. A value of ***0*** indicates unlimited duration in which case a trace session remains active until a *Stop* command is issued. This attribute cannot be set while a trace is active. |

| | |
|---|---|
| Values | Decimal (0..9999) |
| Units | minutes |
| Default | 60 |

### ATTRIBUTE FrUni SrvTrace queueLimit

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the total number of bytes of traced data which may be queued for transmission to the trace receiver. When this limit is exceeded, incoming traced frames are discarded. This attribute can be set while a trace is active and takes effect immediately. |
| Values | Decimal (1..100) |
| Units | Kbyte |
| Default | 20 |

### ATTRIBUTE FrUni SrvTrace session

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the *SrvTrace Session* component that is forwarding the trace data. This attribute is set automatically, and is empty unless the service trace is active. |
| Values | The name of the component |
| Default | No default |

### COMPONENT FrUni SrvTrace Filter

| | |
|---|---|
| Groups | "GROUP FrUni SrvTrace Filter Operational" |
| Scope | Application |
| Description | *FrUni/n SrvTrace Filter*<br>*FrNni/n SrvTrace Filter*<br>The *Filter* component defines the type of traced data that is sent to the receiver. The *Filter* component provides default values for all its attributes which are sufficient to start a trace session. If |

required, these attributes may be changed before or during a trace session.

Common Verbs

Help
List
Display

## GROUP FrUni SrvTrace Filter Operational

Properties: Operational

Description: This group provides the operational attributes for the Frame Relay *SrvTrace Filter* component.

## ATTRIBUTE FrUni SrvTrace Filter traceType (type)

Access: Read and write

Description: This attribute specifies the level of filtering required for this trace session. A value of ***lmi*** indicates that LMI frames are traced. A value of ***dlci*** indicates that frames from the *Dlci* specified by the *tracedDlci* attribute are traced. A value of ***badFrames*** indicates that bad received frames (overruns, CRC errors, aborts) are traced. The default is to trace all frames. This attribute can be set while a trace is active and takes effect immediately.

Set of:
lmi
dlci
badFrames

Default: (lmi, dlci, badFrames)

## ATTRIBUTE FrUni SrvTrace Filter tracedDlci (dlci)

Access: Read and write

Description: This attribute specifies a particular DLCI to trace. A value of ***0*** specifies that all DLCIs are to be traced. This attribute can be set while a trace is active and takes effect immediately.

Values: Decimal (0..1007)

Default: 0

## ATTRIBUTE FrUni SrvTrace Filter direction (dir)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the direction of the data to be traced as viewed by the service. The values can be ***egress*** and ***ingress***. An ***egress*** value indicates frames outbound from the service. An ***ingress*** value indicates frames inbound to the service. This attribute can be set while a trace is active and takes effect immediately. |
| Set of | egress<br>ingress |
| Default | (egress, ingress) |

## ATTRIBUTE FrUni SrvTrace Filter tracedLength (len)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum number of octets to trace per frame starting from the octet following the frame flag. If the frame length is longer than the value specified by this attribute, then the traced frame is truncated. If set to ***disabled***, the traced frame is not truncated.<br><br>This attribute can be set while a trace is active and takes effect immediately.<br><br>If the Frame Relay *SrvTrace* is started with an ATM service trace receiver, the *tracedLength* attribute of ATM service trace receiver is ignored. |
| Values | Decimal (1..4000)<br>disabled |
| Units | octets |
| Default | 2000 |

## COMPONENT FrUni Isdn

| | |
|---|---|
| Groups | "GROUP FrUni Isdn Provisioned (Prov)"<br>"GROUP FrUni Isdn Operational (Oper)" |

| | |
|---|---|
| Scope | Application |
| Description | *FrUni/n Isdn*<br>This component defines the parameters associated with the ISDN B-<br>Channel interface. Adding this component makes the *FrUni* behave as an ISDN access to the Frame Relay Network. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP FrUni Isdn Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes of the Isdn component. |

## ATTRIBUTE FrUni Isdn t320

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the waiting time for a silent B-Channel (no active VCs associated with the *FrUni*) to be disconnected and made available. Default is 60 seconds. 0 means t320 will never timeout. |
| Values | Decimal (0..255) |
| Units | seconds |
| Default | 60 |

## ATTRIBUTE FrUni Isdn addressSignalling (asig)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |

| | |
|---|---|
| Description | This attribute defines whether the ISDN Calling Party Number is to be signaled to the remote DTE during an SVC call establishment. Otherwise, no changes to the current behavior of SVC call establishment(i.e., Passport Dna is used in the calling party number information element). |
| Values | IsdnDna<br>normalBehavior |
| Default | normalBehavior |

### GROUP FrUni Isdn Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes of the *Isdn* component. |

### ATTRIBUTE FrUni Isdn dataSigChan

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the instance number of the *dataSigChan* component controlling the allocation of this *FrUni Isdn* component. |
| Values | Decimal (1..255) |
| Default | No default |

### ATTRIBUTE FrUni Isdn bChannelState (bState)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the state of the B-Channel. If the value is ***idle*** it means that no VCs are connected and this B-Channel is available. If the value is ***busy*** it means this B-Channel has been allocated and is not available. If the value is ***disabled*** it means the application interface or the port is locked or disabled. |
| Values | idle<br>busy<br>disabled |
| Default | No default |

### ATTRIBUTE FrUni Isdn lastUsedCgpn (lucgpn)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the calling party number currently using the B-Channel. When the B-Channel is free, the null string is displayed. |
| Values | BCD (0..15) |
| Default | No default |

### ATTRIBUTE FrUni Isdn bChanIntState (bInt)

| | |
|---|---|
| Access | Read only |
| Description | Debug information |
| Values | isdnInit<br>waitAccEnable<br>waitLnsResponse<br>waitFramerData<br>enabling<br>waitAccRegAck<br>up<br>down<br>releasing |
| Default | No default |

### ATTRIBUTE FrUni Isdn activeVirtualCircuitsCount (vcCount)

| | |
|---|---|
| Access | Read only |
| Description | Current number of virtual circuits (switched and permanent) in data transfer. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT FrUni ConnectionAdministrator (Ca)

| | |
|---|---|
| Groups | "GROUP FrUni Ca Provisioned (Prov)"<br>"GROUP FrUni Ca IngressCac" |

| | |
|---|---|
| | "GROUP FrUni Ca EgressCac"<br>"GROUP FrUni Ca Operational (Op)" |
| Scope | Application |
| Description | *FrNni/n ConnectionAdministrator*<br>The *Ca* component allows the network operator to specify common subscription options for the parent interface. It defines the call admission control parameters in the ingress and egress direction for the parent interface. |
| Opt. Subcomp. | "COMPONENT FrUni Ca TransferPriorityMapping (Tpm)" |
| Common Verbs | Help<br>List<br>Display |

## GROUP FrUni Ca Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This attribute group contains the common provisionable attributes of the *Ca* component. |

## ATTRIBUTE FrUni Ca overrideLinkRate (ovLinkRate)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute allows the link rate to be overridden for this interface. This allows the user to specify a value other than the actual physical link rate computed when a *Framer* component is provisioned. When a *VFramer* component is provisioned, this attribute overrides a link rate set to the maximum value supported by CAC .<br><br>This attribute serves to provide the user control on the amount of bandwidth available for performing CAC. |
| Values | Decimal (0..429496729) |
| Units | bit/s |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE FrUni Ca maximumBandwidthPerCall (maxBwCall)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the maximum bandwidth that can be allocated per connection. |
| Values | Decimal (0..520000000) |
| Units | bit/s |
| Default | 520000000 |

### GROUP FrUni Ca IngressCac

| | |
|---|---|
| Properties | Provisioned |
| Description | This attribute group contains the common provisionable attributes for ingress call admission control. |

### ATTRIBUTE FrUni Ca ingressApplyToCos (ingCos)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies which Classes of Service (CoS) have ingress Call Admission Control (CAC) applied to them. Ingress CAC applies only to switched connections (SVCs and S-SPVCs).<br><br>***none*** - Ingress CAC is turned off for all classes of service.<br>***cirOnly*** - Ingress CAC is applied only to the CIR portion of a connection's bandwidth requirements for CIR>0 classes of service.<br>***cirAndEir*** - Ingress CAC is applied to both CIR and EIR portions of a connections bandwidth requirements for all classes of service. |
| Values | none<br>cirOnly<br>cirAndEir |

| | |
|---|---|
| Default | cirOnly |

### ATTRIBUTE FrUni Ca ingressMaximumEirOnlyCalls

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the maximum number of connections in the ingress direction with EIR only traffic that can be up at a given time. |
| Values | Decimal (0..992) |
| Default | 992 |

### ATTRIBUTE FrUni Ca ingressCirBandwidthPool (ingCirBP)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | Port capacity is partitioned into 16 pools (pool 0 through pool 15) for the ingress CIR traffic. This attribute specifies the percentage of port capacity that is allowed for each pool. The percentage for each pool ranges from 0% to 1000% of the link rate. It allows for under or over subscription of the port. Under subscription occurs when the sum of the percentages assigned to the 16 pools is less than 100%. Over subscription occurs when the sum of the percentages for the 16 pools exceeds 100%.<br><br>The default is full sharing of port capacity with three pre-set partitions. |
| Vector of | Decimal (0..1000) |
| Units | % |
| Index | Decimal (0..15) |
| Default | (1000, 1000, 1000, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0) |

### ATTRIBUTE FrUni Ca ingressEirBandwidthPool (ingEirBp)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | Port capacity is partitioned into 16 pools (pool 0 through pool 15) for the ingress EIR traffic. This attribute specifies the percentage of port capacity that is allowed for each pool. The percentage for each pool ranges from 0% to 1000% of the link rate. It allows for under or over subscription of the port. Under subscription occurs when the sum of the percentages assigned to the 16 pools is less than 100%. Over subscription occurs when the sum of the percentages for the 16 pools exceeds 100%.<br><br>The default is full sharing of port capacity with three pre-set partitions. |
| Vector of | Decimal (0..1000) |
| Units | % |
| Index | Decimal (0..15) |
| Default | (1000, 1000, 1000, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0) |

### GROUP FrUni Ca EgressCac

| | |
|---|---|
| Properties | Provisioned |
| Description | This attribute group contains the common provisionable attributes for egress call admission control. |

### ATTRIBUTE FrUni Ca egressApplyToCos (egCos)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies which Classes of Service (CoS) have egress Call Admission Control (CAC) applied to them. Egress CAC applies only to switched connections (SVCs and S-SPVCs).<br><br>***none*** - Egress CAC is turned off for all classes of service.<br>***cirOnly*** - Egress CAC is applied only to the CIR portion of a |

| | |
|---|---|
| | connection's bandwidth requirements for CIR>0 classes of service.<br>***cirAndEir*** - Egress CAC is applied to both CIR and EIR portions of a connections bandwidth requirements for all classes of service. |
| Values | none<br>cirOnly<br>cirAndEir |
| Default | none |

### ATTRIBUTE FrUni Ca egressMaximumEirOnlyCalls

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the maximum number of connections in the egress direction with EIR only traffic that can be up at a given time. |
| Values | Decimal (0..992) |
| Default | 992 |

### ATTRIBUTE FrUni Ca egressCirBandwidthPool (egCirBp)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | Port capacity is partitioned into 16 pools (pool 0 through pool 15) for the egress CIR traffic. This attribute specifies the percentage of port capacity that is allowed for each pool. The percentage for each pool ranges from 0% to 1000% of the link rate. It allows for under or over subscription of the port. Under subscription occurs when the sum of the percentages assigned to the 16 pools is less than 100%. Over subscription occurs when the sum of the percentages for the 16 pools exceeds 100%.<br><br>The default is full sharing of port capacity with three pre-set partitions. |
| Vector of | Decimal (0..1000) |

| | |
|---|---|
| Units | % |
| Index | Decimal (0..15) |
| Default | (1000, 1000, 1000, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0) |

### ATTRIBUTE FrUni Ca egressEirBandwidthPool (egEirBp)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | Port capacity is partitioned into 16 pools (pool 0 through pool 15) for the egress EIR traffic. This attribute specifies the percentage of port capacity that is allowed for each pool. The percentage for each pool ranges from 0% to 1000% of the link rate. It allows for under or over subscription of the port. Under subscription occurs when the sum of the percentages assigned to the 16 pools is less than 100%. Over subscription occurs when the sum of the percentages for the 16 pools exceeds 100%.<br><br>The default is full sharing of port capacity with three pre-set partitions. |
| Vector of | Decimal (0..1000) |
| Units | % |
| Index | Decimal (0..15) |
| Default | (1000, 1000, 1000, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0) |

### GROUP FrUni Ca Operational (Op)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains the operational status of the *Ca* component. |

### ATTRIBUTE FrUni Ca linkRate (linkRate)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the link rate used by both ingress and egress CAC to calculate the effective bandwidth pool sizes. |

| | |
|---|---|
| | If the provisionable attribute *overrideLinkRate* under this component is 0, then the link rate reported is the actual link rate of the port or channel. Otherwise, the link rate reported is the *overrideLinkRate* under this component. |
| Values | Decimal (0..520000000) |
| Units | bit/s |
| Default | No default |

### ATTRIBUTE FrUni Ca ingressCirPoolAdmittedBandwidth (ingCirPoolAdmitBw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total admitted CIR bandwidth from each CIR bandwidth pool in the ingress direction. Each value is the sum of the equivalent bit rates of the admitted connections. |
| Vector of | Decimal (0..520000000) |
| Units | bit/s |
| Index | Decimal (0..15) |
| Default | No default |

### ATTRIBUTE FrUni Ca ingressCirPoolAvailableBandwidth (ingCirPoolAvailBw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the remaining available CIR bandwidth in each ingress CIR bandwidth pool. |
| Vector of | Decimal (0..52000000) |
| Units | bit/s |
| Index | Decimal (0..15) |
| Default | No default |

### ATTRIBUTE FrUni Ca egressCirPoolAdmittedBandwidth (egCirPoolAdmitBw)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the total admitted CIR bandwidth from each CIR bandwidth pool in the egress direction. Each value is the sum of the equivalent bit rates of the admitted connections. |
| Vector of | Decimal (0..520000000) |
| Units | bit/s |
| Index | Decimal (0..15) |
| Default | No default |

### ATTRIBUTE FrUni Ca egressCirPoolAvailableBandwidth (egCirPoolAvailBw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the remaining available CIR bandwidth in each egress CIR bandwidth pool. |
| Vector of | Decimal (0..52000000) |
| Units | bit/s |
| Index | Decimal (0..15) |
| Default | No default |

### ATTRIBUTE FrUni Ca ingressEirPoolAdmittedBandwidth (ingEirPoolAdmitBw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total admitted EIR bandwidth from each EIR bandwidth pool in the ingress direction. Each value is the sum of the equivalent bit rates of the admitted connections.<br><br>If the *ingressApplyToCos* attribute is set to ***none***, all ingress CIR bandwidth pools are set to 0. |
| Vector of | Decimal (0..520000000) |
| Units | bit/s |
| Index | Decimal (0..15) |
| Default | No default |

### ATTRIBUTE FrUni Ca ingressEirPoolAvailableBandwidth (ingEirPoolAvailBw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the remaining available EIR bandwidth in each ingress EIR bandwidth pool.<br><br>If the *ingressApplyToCos* attribute is set to either ***none*** or ***cirOnly***, all ingress EIR bandwidth pools are set to 0. |
| Vector of | Decimal (0..52000000) |
| Units | bit/s |
| Index | Decimal (0..15) |
| Default | No default |

### ATTRIBUTE FrUni Ca egressEirPoolAdmittedBandwidth (egEirPoolAdmitBw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total admitted EIR bandwidth from each EIR bandwidth pool in the egress direction. Each value is the sum of the equivalent bit rates of the admitted connections.<br><br>If the *egressApplyToCos* attribute is set to ***none***, all egress CIR bandwidth pools are set to 0. |
| Vector of | Decimal (0..520000000) |
| Units | bit/s |
| Index | Decimal (0..15) |
| Default | No default |

### ATTRIBUTE FrUni Ca egressEirPoolAvailableBandwidth (egEirPoolAvailBw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the remaining available EIR bandwidth in each egress EIR bandwidth pool. |

| | |
|---|---|
| | If the *egressApplyToCos* attribute is set to either ***none*** or ***cirOnly***, all egress EIR bandwidth pools are set to 0. |
| Vector of | Decimal (0..52000000) |
| Units | bit/s |
| Index | Decimal (0..15) |
| Default | No default |

### ATTRIBUTE FrUni Ca numberRejectedEgressCirPermConn (numRegEgCirPerm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of permanent connections (that is, PVC and P-SPVC) that are rejected by egress CAC. A connection is rejected by egress CAC if it requests more egress CIR bandwidth than is available, and the *egressApplyToCos* attribute is set to either ***cirOnly*** or ***cirAndEir***. |
| Values | Decimal (0..992) |
| Default | No default |

### ATTRIBUTE FrUni Ca numberRejectedEgressEirPermConn (numRegEgEirPerm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of permanent connections (that is, PVC and P-SPVC) that are rejected by egress CAC. A connection is rejected by egress CAC if it requests more egress EIR bandwidth than is available, and the *egressApplyToCos* attribute is set to ***cirAndEir***. |
| Values | Decimal (0..992) |
| Default | No default |

### COMPONENT FrUni Ca TransferPriorityMapping (Tpm)

| | |
|---|---|
| Instance | Decimal (0..15) |
| Groups | "GROUP FrUni Ca Tpm Provisioned (Prov)" |
| Scope | Application |

| | |
|---|---|
| Description | *FrNni/n Ca TransferPriorityMapping/n*<br>The *Tpm* component defines the corresponding traffic management subscription options on a *FrNni* interface corresponding to a particular transfer priority. This component is needed only if there is a requirement to override the *Mod Frs DprsNet Tpm* component defaults. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP FrUni Ca Tpm Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This attribute group contains the provisionable attributes of the *Tpm* component at this interface. |

### ATTRIBUTE FrUni Ca Tpm assignedIngressBandwidthPool (asgInBwPool)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the ingress bandwidth pool which is used to support this transfer priority at this interface. When this attribute is set to ***sameAsModule***, the bandwidth pool that is used is obtained from the *assignedIngressBandwidthPool* attribute under the *Mod Frs DprsNet Tpm/n* component. |
| Values | Decimal (0..15)<br>sameAsModule |
| Default | sameAsModule |

### ATTRIBUTE FrUni Ca Tpm assignedEgressBandwidthPool (asgEgBwPool)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |

| | |
|---|---|
| Description | This attribute specifies the egress bandwidth pool which is used to support this transfer priority at this interface. When this attribute is set to ***sameAsModule***, the bandwidth pool that is used is obtained from the *assignedEgressBandwidthPool* attribute under the *Mod Frs DprsNet Tpm/n* component. |
| Values | Decimal (0..15)<br>sameAsModule |
| Default | sameAsModule |

## COMPONENT FrUni BnxProtocol (Bp)

| | |
|---|---|
| Groups | "GROUP FrUni Bp Provisioned (Prov)"<br>"GROUP FrUni Bp OsiState (State)"<br>"GROUP FrUni Bp Operational (Op)" |
| Scope | Application |
| Description | *FrUni/n BnxProtocol*<br>*FrNni/n BnxProtocol*<br>This component defines how the Frame Relay interface handles the BNX protocol. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP FrUni Bp Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group defines the provisioning attributes to control the BNX protocol running on the Frame Relay interface. |

## ATTRIBUTE FrUni Bp linkToIpServer (linkToIp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the link to a Frame Relay IP server. |
| Values | Link (Service, linkToFrameRelayApps) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE FrUni Bp ipAddress (ipadd)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the IP address associated with the Frame Relay interface. This address must be in the same subnet as the *ProtocolPort* associated with the *FrIpServer.* |
| Values | IP address |
| Default | 0.0.0.0 |

### ATTRIBUTE FrUni Bp crossNetEnabled (cne)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether or not cross-net status messages are sent from the Frame Relay interface. |
| Values | no<br>yes |
| Default | yes |

### ATTRIBUTE FrUni Bp crossNetPollingInterval (cnpi)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time interval between two cross-net status messages. This attribute is used for both sending and expecting status messages. The two ends of a PVC should be provisioned with values within a close range. Otherwise, it could result in PVC failure. |
| Values | Decimal (30..86400) |
| Units | seconds |
| Default | 120 |

### ATTRIBUTE FrUni Bp crossNetAsyncUpdate (cnau)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute specifies when a cross-net status message is sent following a BNX DLCI state change. If set to ***enabled***, the status message is sent as soon as the state change occurs. If set to ***disabled***, the state of the BNX DLCI will be sent in a cross-net status message only at the next polling interval. The polling interval is determined by *crossNetPollingInterval* attribute. The *crossNetAsyncUpdate* attribute is ignored if *crossNetEnabled* is set to ***no***. |
| Values | disabled<br>enabled |
| Default | enabled |

### ATTRIBUTE FrUni Bp crossNetListenEnabled (cnle)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether or not to expect cross-net status messages. When set to ***yes***, this interface wait for a cross-net status message from the remote end to declare the PVCs up or down. When set to ***no***, the interface assumes the PVCs are always up. |
| Values | no<br>yes |
| Default | yes |

### ATTRIBUTE FrUni Bp crossNetErrorThreshold (cnet)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies how many *crossNetPollingIntervals* without receiving a status message from the remote end are permitted to elapse before declaring the PVC down. |
| Values | Decimal (1..30) |
| Default | 3 |

### ATTRIBUTE FrUni Bp trafficPriorityEnabled (tpe)

| | |
|---|---|
| Access | Read and write |

Description — This attribute specifies how to set the "Priority Level" field of the BNX header. When set to ***no***, both the *defaultTrafficPriority* attribute of the *BnxProtocol* component and the *trafficPriority* attribute of the *BnxIwf* component are ignored, and the "Priority Level" field is set to ***2***. When set to ***yes***, the "Priority Level" field is set to the value of the *trafficPriority* attribute of the *BnxIwf*, unless the *trafficPriority* attribute has a value of ***useDefault***. In this case the “Priority Level” field is set to the value of the *defaultTrafficPriority* attribute.

Values — no
yes

Default — no

### ATTRIBUTE FrUni Bp defaultTrafficPriority (dtp)

Access — Read and write

Description — This attribute specifies the default traffic priority used to tag all the ingress traffic. This attribute is used when the *trafficPriority* attribute of the *BnxIwf* is set to ***useDefault***. A larger value denotes a lower priority. This attribute is ignored if the *trafficPriorityEnabled* is set to ***no***.

Values — Decimal (1..3)

Default — 2

### ATTRIBUTE FrUni Bp trafficDiscardLevel (tdl)

Access — Read and write

Description — This attribute specifies the discard level used to tag ingress traffic.This value is ignored when the attribute *discardLevelEnabled* is set to ***no***. In this case, the "Discard Level" field of BNX header is set to ***2*** for DE=1 datagrams and to ***4*** for DE=0 datagrams. When *discardLevelEnabled* is set to ***yes***, the "Discard Level" field is tagged with the value of *trafficDiscardLevel* attribute. The "Discard Level" value is used as follows:
Discard Level=***1***: drop datagrams when congestion level >= 1
Discard Level=***2***: drop datagrams when congestion level >= 2

Discard Level=***3***: drop datagrams when congestion level >= 3
Discard Level=***4***: drop datagrams when congestion level >= 4

Values: Decimal (1..4)

Default: 4

### ATTRIBUTE FrUni Bp discardLevelEnabled (dle)

Access: Read and write

Description: This attribute specifies how to use discard level to tag ingress traffic. When set to ***yes***, the provisioned *trafficDiscardLevel* is used. Otherwise ingress DE=1 datagrams are tagged with discard level ***2*** and DE=0 datagrams are tagged with discard level ***4***.

Values:
no
yes

Default: no

### GROUP FrUni Bp OsiState (State)

Properties: Operational

Description: This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE FrUni Bp adminState (osiAdmin)

Access: Read only

Description: This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE FrUni Bp operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE FrUni Bp usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### ATTRIBUTE FrUni Bp availabilityStatus (osiAvail)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present. |

The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.

The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.

The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.

The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration

activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

### ATTRIBUTE FrUni Bp proceduralStatus (osiProc)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.

The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

## ATTRIBUTE FrUni Bp controlStatus (osiCntrl)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

Set of

subjectToTest (subTst)
partOfServicesLocked (partLk)
reservedForTest (rsrvd)
suspended (suspnd)

Default

No default

### ATTRIBUTE FrUni Bp alarmStatus (osiAlarm)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE FrUni Bp standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values

hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

| | |
|---|---|
| Default | notSet |

### ATTRIBUTE FrUni Bp unknownStatus (osiUnknw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Unknown status of the component.<br><br>The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.<br><br>The value ***true*** indicates that the actual state of the component is not known for sure. |
| Values | false<br>true |
| Default | false |

### GROUP FrUni Bp Operational (Op)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains the operational status of the *BnxProtocol* component. |

### ATTRIBUTE FrUni Bp invalidBnxHeader (ibh)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the datagrams dropped because the BNX header was invalid. It could be caused by a invalid header version, invalid protocol type, or that discard level or priority level is out of range. |
| Values | Decimal (0..429496729) |
| Default | 0 |

### ATTRIBUTE FrUni Bp lastInvalidBnxHeader (libh)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the BNX header of the datagram which was last dropped by the *BnxProtocol* because one or more fields |

| | |
|---|---|
| | of the BNX header are invalid. The invalid field could be any of the following: header version, protocol type, discard level out of range, priority level out of range. |
| Values | Hex (H.0..H.ffffffff) |
| Default | No default |

### ATTRIBUTE FrUni Bp invalidIpProtocolId (ipid)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the datagrams dropped because the protocol ID in IP header was invalid. |
| Values | Decimal (0..429496729) |
| Default | 0 |

### ATTRIBUTE FrUni Bp discardedIpFragment (dipf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of fragmented datagrams dropped by this interface. The case could be unknown Dlci, or unknown ID in IP header when misordering happened. |
| Values | Decimal (0..429496729) |
| Default | 0 |

### ATTRIBUTE FrUni Bp sourceIpAddressLastDropped (ldsia)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the source IP address of the datagram that was last dropped by the *BnxProtocol* because one or more fields of the IP header are invalid. The invalid field could be any of the following: header version, protocol ID, or Identification of a fragmented datagram. |
| Values | IP address |
| Default | 0.0.0.0 |

### ATTRIBUTE FrUni Bp droppedUnknownDlci (dud)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the datagrams dropped because the DLCI was unknown. |
| Values | Decimal (0..429496729) |
| Default | 0 |

### ATTRIBUTE FrUni Bp lastUnknownDlci (lud)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the DLCI of datagram last dropped. |
| Values | Decimal (0..429496729) |
| Default | 0 |

### ATTRIBUTE FrUni Bp droppedUnknownDlciXnet (dudx)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the received cross-net status messages that were dropped because the DLCI was unknown. |
| Values | Decimal (0..429496729) |
| Default | 0 |

### ATTRIBUTE FrUni Bp lastUnknownDlciXnet (ludx)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the DLCI of last received cross-net status message that was dropped because the DLCI was unknown. |
| Values | Decimal (0..429496729) |
| Default | 0 |

### ATTRIBUTE FrUni Bp ipFragFromSubnet (fragfs)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the IP fragments received from subnet by this frame relay interface. The value of this attribute wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..429496729) |
| Default | 0 |

### ATTRIBUTE FrUni Bp lastInvalidIpFragId (lastid)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Id in the IP header of the last fragment dropped by the frame relay interface. |
| Values | Decimal (0..429496729) |
| Default | 0 |

### ATTRIBUTE FrUni Bp lastDlciWithIpFragment (lfdlci)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Dlci which last received IP fragment. This attribute is used for tracking fragmented IP traffic. |
| Values | Decimal (0..429496729) |
| Default | 0 |

Passport 7400, 15000, 20000

# Component FrUni

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component Fs

241-5701-060

Passport 7400, 15000, 20000

# Component Fs

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT FileSystem (Fs)

| | |
|---|---|
| Groups | "GROUP Fs OsiState (State)"<br>"GROUP Fs Operational (Oper)" |
| Scope | Device |
| Description | *FILESYSTEM*<br>The *Filesystem* component provides and controls access to files and directories stored on one or two disks. It is automatically created and always present.<br><br>The Filesystem restricts files and directories names to 40 characters. It also restricts filenames including path to 128 characters. Directory names including the path cannot exceed 125 characters. There must be 112 or less directories and files at the root level on each partition. The maximum hierarchy depth is 10 directory levels.<br>The only characters that can appear in a filename are the alpha-numeric characters, the . (dot) and the _ (underscore). The names are case sensitive. A pathname is a sequence of zero to ten directory names along the path and separated by the / (slash) character. A pathname that begins with a slash is an absolute pathname, otherwise it is a relative pathname. Access to the standby disk is not allowed.<br><br>When there are two disks, the standby control processor disk is normally synchronized with the disk of the active control processor. After a crash or a disk failure the standby control processor disk becomes unsynchronized with respect to the disk |

on the active CP.

Dyn. Subcomp. "COMPONENT Fs Disk"
"COMPONENT Fs FsPartition (Part)"

Common Verbs
- Help
- List
- Display
- LOCK
- Unlock

## VERB SYNChronize Fs

Impact Configuration

Description synchronize Filesystem
The ***Synchronize*** command makes the standby disk an exact copy of the active disk. The operation also removes files and directories that exist only in the standby disk. Manual synchronization will set the standby disk volume name equal to the active disk. The synchronization process will fail if the capacity of the standby disk is smaller than the used space size in the active. At boot time, the filesystem selects the active control processor disk as the active disk and automatically attempts to synchronize the standby control processor disk. The automatic synchronization will fail if the volume names of the two disks are not identical. While the synchronization is running, disk testing and formatting are not allowed.

## VERB ListFile (LS) Fs

| | |
|---|---|
| Impact | Passive |
| Description | listFile -path<file or directory> [-status] [-newer<file>] filesystem<br><br>The ***List*** verb displays information about files and directories in a directory. For every entry found in the directory, it displays its name, modification time, size, type and write permission.<br>If the ***status*** option is specified, then the command displays the information about the directory and not its contents. The ***newer*** option tells the list command to display only entries that have been modified more recently than the argument of the option.<br><br>***Options***:<br>-***path***: The pathname of the file or directory that you want to ***List***.<br>-***status***: This option causes the ***List*** command to display information about the path not its content.<br>-***newer***: This option causes the ***List*** command to display only files newer than the argument of this option.<br>***Examples***:<br>list -path(“/tmp”) filesystem<br>list -path(“/spooled”) -newer(“/spooled/alarm.01”) fs<br>list -path(“/spooled”) -status filesystem |

## VERB Move (MV) Fs

| | |
|---|---|
| Impact | Configuration |
| Description | move -s <existing-file> -d <new-filename> Filesystem<br>move -s <existing-directory> -d <new-directory> Filesystem<br>move -s<existing-file> -d<existing-directory> Filesystem.<br>move -s<existing-directory> -d<existing-directory>Filesystem.<br><br>The ***Move*** command moves or renames files and directories. If the destination does not exist, ***Move*** renames the source. If the destination is a directory, the command moves the source into the destination directory. The ***Move*** command does not move files or directories from one disk to another. The Move command does not overwrite existing files.<br>***Options***:<br>-***source***: The pathname of the file or directory that ***Move*** is going to move.<br>-***destination***: The pathname of the file or directory where ***Move*** is going to place the source file or directory.<br>***Examples:***<br>move -source(“/spooled/alarm.01”) -destination(“/tmp”) fs<br>move -source(“/spooled”) -destination(“/tmp”) fs |

## VERB Copy (CP) Fs

| | |
|---|---|
| Impact | Configuration |
| Description | copy -s <file1> -d<file> Filesystem<br>copy -s<directory1> -d<directory2> -recursive Filesystem<br>copy -s<filename> -d<directory> Filesystem<br><br>The ***Copy*** command copies files or directories. The recursive option is required if the source is a directory. The new file is always unprotected. The Copy command does not overwrite existing files.<br>***Options***:<br>-***source***: The pathname of the file or directory that ***Copy*** is going to copy.<br>-***destination:*** The pathname of the file or directory that ***Copy*** places the resulting copied file or directory in.<br>-***recursive:*** When the source is a directory, this option causes the ***Copy*** to copy the contents of that directory and any of its subdirectories into the destination directory. The subdirectories themselves are copied as well as the files they contain.<br>***Examples***:<br>copy -source(“/tmp/log.01”) -destination(“/log.old”) fs<br>copy -s(“/spooled”) -d(“/tmp”) -recursive fs |

## VERB REMOVE Fs

Impact: Configuration

Description: remove -path <filename> [-force] Filesystem
remove -path <directory> [-recursive, -force] Filesystem

The REMOVE command deletes files and directories. The filesystem component releases the space the file occupied on disk for future use. The recursive option is required to remove any directory including an empty one. If the file or directory is write protected, the command returns an error. The force option causes the command to remove write protected files.

***Options***:

-***path*** The pathname of the file or directory ***Remove*** is to delete.

-***recursive*** This option causes ***Remove*** to delete the contents of the specified directory, including all its subdirectories, and the directory itself.

-***force*** This option causes ***Remove*** to delete files regardless of whether they are “protected”.

***Examples***:

remove -path(“/tmp/SCN.001”) filesystem
remove -path(“/tmp”) -recursive filesystem
remove -path(“/tmp/SCN.004”) -force filesystem

## VERB Protect Fs

Impact: Configuration

Description: protect -path< file> Filesystem

The ***Protect*** command protects the specified file against accidental deletion and modification. The REMOVE command will fail unless the ***force*** option is specified. The Protect command has no effect on a directory.

***Options***:

-path: The pathname of the file to be protected against accidental deletion and/or modification.

***Examples***:

protect -path(“/spooled/alarm.001”) filesystem
protect -path(“standby:/spooled”) filesystem

## VERB Unprotect Fs

| | |
|---|---|
| Impact | Configuration |
| Description | unprotect -path< file> Filesystem<br><br>The ***Unprotect*** command removes the protection against accidental deletion or modification of the specified file. The Unprotect command has no effect on a directory.<br>***Options***:<br>-path: The pathname of the file to be unprotected against accidental deletion or modification.<br>***Examples***:<br>unprotect -path(“/spooled/alarm.001”) filesystem |

## VERB Touch Fs

| | |
|---|---|
| Impact | Configuration |
| Description | touch -path <filename> Filesystem<br>The ***Touch*** command updates the file’s modification time. ***Touch*** creates the file if it does not exist. If the pathname is a directory, the creation time of the directory is updated.<br>***Options***:<br>-path: The pathname of the file or directory ***Touch*** is to update.<br>-date: The date and time specified by this option are used to update the file's modification time. If this option is not specified then the file's modification time is updated with the current date and time.<br>***Examples***:<br>touch -path(“/tmp/backup.074”) filesystem<br>touch -path("/tmp/backup.074") -date(1998-03-30 19:26:10) filesystem |

### VERB MakeDirectory (MKDIR) Fs

| | |
|---|---|
| Impact | Configuration |
| Description | makedirectory -path <directory> Filesystem<br>The ***MakeDirectory*** command creates a directory. The command returns an error if the parent directory does not exist.<br>***Options***:<br>-path : The pathname of directory that ***MakeDirectory*** creates.<br>Examples:<br>mkdir -path(“/tmp/temporary”) fs |

### VERB Chdir (CD) Fs

| | |
|---|---|
| Impact | Passive |
| Description | chdir -path <directory> Filesystem<br>The ***Chdir*** command makes the directory specified as argument of the ***path*** option the current working directory. If the directory does not exist, the command returns an error.<br>***Options***:<br>-path: The pathname of the directory that will become the working directory.<br>Examples:<br>cd -path(“/tmp/temporary”) filesystem |

### VERB WorkingDir (PWD) Fs

| | |
|---|---|
| Impact | Passive |
| Description | WorkingDir filesystem<br>The ***WorkingDir*** command displays the current working directory associated with the session. The initial working directory is a provisionable attribute of the *Userid* component which is a subcomponent of the *AccessControl* component. The ***Chdir*** command changes the current working directory to the specified directory.<br>***Examples***:<br>pwd filesystem |

### GROUP Fs OsiState (State)

| | |
|---|---|
| Properties | Operational |

Description

This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

## ATTRIBUTE Fs adminState (osiAdmin)

Access

Read only

Description

This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values

locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default

unlocked

## ATTRIBUTE Fs operationalState (osiOper)

Access

Read only

Description

This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be

providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values: enabled (ena)
disabled (dis)

Default: disabled

### ATTRIBUTE Fs usageState (osiUsage)

Access: Read only

Description: This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values: idle
active (activ)
busy

Default: idle

### GROUP Fs Operational (Oper)

Properties: Operational

Description: This group contains the filesystem operational data.

### ATTRIBUTE Fs volumeName

Access: Read only

Description: This attribute describes the volume name of the filesystem. This is the active disk volume name.

| | |
|---|---|
| Values | String (1..11, ASCII) |
| Default | No default |

### ATTRIBUTE Fs activeDisk

| | |
|---|---|
| Access | Read only |
| Description | The activeDisk attribute value is the Disk component instance value of the active disk. This is also the card number of the active control processor. |
| Values | The name of the component |
| Default | No default |

### ATTRIBUTE Fs syncStatus

| | |
|---|---|
| Access | Read only |
| Description | The synchronization status value indicates whether the file system is synchronized or not. |
| Values | synchronized<br>unSynchronized<br>synchronizing |
| Default | No default |

### ATTRIBUTE Fs syncProgress

| | |
|---|---|
| Access | Read only |
| Description | The synchronization progress value indicates the percentage of the standby disk already synchronized with the active disk. This value is equal to 100 if the two disks are synchronized or 0 if they are out of synchronization. |
| Values | Decimal (0..100) |
| Units | % |
| Default | No default |

### ATTRIBUTE Fs capacity

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the total size of the filesystem (in bytes). This value is equal to the smallest disk size in a synchronized filesystem; otherwise it is the capacity of the active disk. This attribute is not displayed on a disk with multiple partitions. The corresponding information is available under the *FileSystemPartition* subcomponent. |
| Values | Decimal (0..4294967295) |
| Units | bytes |
| Default | No default |

### ATTRIBUTE Fs freeSpace

| | |
|---|---|
| Access | Read only |
| Description | This attribute describes the free disk space (in bytes) currently available in the filesystem. It is equal to the smallest free disk space size of the active and standby disks in a synchronized filesystem.When the filesystem is unsynchronized it is the free disk space of the active disk. This attribute is not displayed on a disk with multiple partitions. The corresponding information is available under the *FileSystemPartition* subcomponent. |
| Values | Decimal (0..4294967295) |
| Units | bytes |
| Default | No default |

### ATTRIBUTE Fs usage

| | |
|---|---|
| Access | Read only |
| Description | This attribute describes the percentage of the free space available on the filesystem. This attribute is not displayed on a disk with multiple partitions. The corresponding information is available under the *FileSystemPartition* subcomponent. |
| Values | Decimal (0..100) |
| Units | % |
| Default | No default |

## COMPONENT Fs Disk

| | |
|---|---|
| Instance | Decimal (0..15) |
| Groups | "GROUP Fs Disk OsiState (State)"<br>"GROUP Fs Disk Operational (Oper)" |
| Scope | Device |
| Description | *Fs Disk/n*<br>A disk component is an operational subcomponent of the filesystem. When the system is in dual-mode configuration, there will be two instances of the disk component. The 0 instance represents the disk on the card 0 and the instance 15 represents the disk on the card 15. |
| Dyn. Subcomp. | "COMPONENT Fs Disk Test"<br>"COMPONENT Fs Disk Partition (Part)" |
| Common Verbs | Help<br>List<br>Display<br>LOCK<br>Unlock |

## VERB FORMAT Fs Disk

| | |
|---|---|
| Impact | Configuration |
| Description | format -v<volumeName> filesystem disk/<instance><br>This command formats the disk and prepares it to be a part of the filesystem. The disk component must be locked, before the format can start. All disks are formatted before delivery, but this command may be required if disk corruption occurs. A format destroys all the data in the disk. While formatting the disk , synchronizing and testing the disks are not allowed.<br>***Options***:<br>-volumeName: The argument of this option is the volume name of the disk.<br>-backward: format the disk to 256 MBytes format for backward compatibility. Older releases do not support disks larger than 256 MBytes.<br>***Examples***:<br>format -v(myDisk) filesystem disk/15<br>format -backward filesystem disk/15 |

## GROUP Fs Disk OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

## ATTRIBUTE Fs Disk adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. |

When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values: locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default: unlocked

### ATTRIBUTE Fs Disk operationalState (osiOper)

Access: Read only

Description: This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values: enabled (ena)
disabled (dis)

Default: disabled

### ATTRIBUTE Fs Disk usageState (osiUsage)

Access: Read only

Description: This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Fs Disk Operational (Oper)

Properties
Operational

Description
This group contains the disk component operational data.

### ATTRIBUTE Fs Disk volumeName

Access
Read and write

Description
This attribute describes the volume name of the disk. The volume names of the disks must be identical to be synchronized.

Values
String (1..11, ASCII)

Default
No default

### ATTRIBUTE Fs Disk capacity

Access
Read only

Description
This attribute describes the total formatted disk size (in bytes) on disk. This attribute is not displayed on a disk with multiple partitions. The corresponding information is available under the *Partition* subcomponent.

Values
Decimal (0..4294967295)

Units
bytes

Default
No default

### ATTRIBUTE Fs Disk freeSpace

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the available free disk space (in bytes) of the disk. Free space is reduced by bad blocks (if any). If there are different numbers of bad blocks on the disks in a dual-disk system, the reported free space will differ on the two disks.<br><br>Moreover, due to the DOS file system internal representation of directories and files, adding and deleting files may fragment the disks differently resulting in some disk space wasted. A small discrepancy (less than 1% of the disk size) in the disks free space is considered as normal. This attribute is not displayed on a disk with multiple partitions. The corresponding information is available under the *Partition* subcomponent. |
| Values | Decimal (0..4294967295) |
| Units | bytes |
| Default | No default |

### ATTRIBUTE Fs Disk badBlocksPercentage

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the percentage of the disk space lost because of defects. If this percentage is high, it is recommended to change the disk. This attribute is not displayed on a disk with multiple partitions. The corresponding information is available under *Partition* subcomponent |
| Values | Decimal (0..100) |
| Units | % |
| Default | No default |

### ATTRIBUTE Fs Disk unformattedCapacity

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the physical disk size (in bytes). The physical disk size may be different from the formatted disk size if |

there are bad blocks or the disk has been formatted to a smaller disk size for backward compatibility with older releases. This attribute is not displayed on a disk with multiple partitions. The corresponding information is available under the *Partition* subcomponent.

Values: Decimal (0..4294967295)

Units: bytes

Default: No default

## COMPONENT Fs Disk Test

Groups:
"GROUP Fs Disk Test OsiState (State)"
"GROUP Fs Disk Test Setup (Setup)"
"GROUP Fs Disk Test Results (Results)"

Scope: Device

Description:
*Test*
The Test component embodies logical and physical filesystem tests. It is an operational subcomponent of the Disk component.

Common Verbs:
Help
List
Display

## VERB Start Fs Disk Test

Impact: Configuration

Description:
This command invokes a test on the *Disk* component (this includes all underlying partitions). The *Disk* component must be locked before the test can start.
Examples:
start filesystem disk/15 test

### VERB Stop Fs Disk Test

| | |
|---|---|
| Impact | Configuration |
| Description | This command stops a test running on the *Disk* component (this includes all underlying partitions). The test stops only after completing the current pass.<br>***Example***:<br>stop filesystem disk/15 test |

### GROUP Fs Disk Test OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Fs Disk Test adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |

| | |
|---|---|
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Fs Disk Test operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Fs Disk Test usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |

| | |
|---|---|
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Fs Disk Test Setup (Setup)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the Test component operational data. The testCount, duration and type can be set to control the duration and the test type which will be run. |

### ATTRIBUTE Fs Disk Test testCount

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates the number of times that the test will run. Note that the test will not run that many times if “duration” is not long enough to allow the test to complete. The test will execute at least one and then stop at the count where duration has just exceeded. |
| Values | Decimal (0..4294967295) |
| Default | 1 |

### ATTRIBUTE Fs Disk Test duration

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the maximum duration (in minutes) that the test will run. The test can finish in less time if the number of tests, as recorded by testCount, is reached before this time. A test may take longer than the specified duration since a test cycle (or pass) is not interruptible. |
| Values | Decimal (0..35791394) |
| Units | minutes |
| Default | 60 |

### ATTRIBUTE Fs Disk Test type

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the type of the test to be run. The diskRead test reads every sector on the disk once and reports bad sectors. The filesystemCheck does a sanity check and attempts to repair corruption. The flakyBitDetection test reads every sector on the disk twice and compares the two read results. The surfaceAnalysis test writes a magnetically hard to record pattern to the disk and reads back the pattern to determine the condition of the magnetic surface of the disk. The surface analysis test destroys all the data and disk should be formatted afterward. |
| Values | filesystemCheck<br>diskRead<br>flakyBitDetection<br>surfaceAnalysis |
| Default | filesystemCheck |

### GROUP Fs Disk Test Results (Results)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the results of the test. |

### ATTRIBUTE Fs Disk Test causeOfTermination

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the reason why the test was terminated. The reasons are:<br>***testCountReached:*** the test ran the number of times specified in the attribute testCount and ended normally.<br>***error***: the test was terminated by an error that is recorded in the natureOfError attribute.<br>***neverStarted***: the test was never started.<br>***stoppedByOperator***: the test was terminated by the Stop command.<br>***testTimeExpired***: the duration of the test expired.<br>***testRunning***: the test is still running.<br>***unknown***: the test terminated for unknown reasons.<br>***internalError***: An internal error terminated the test. |

| | |
|---|---|
| Values | testCountReached<br>testTimeExpired<br>stoppedByOperator<br>neverStarted<br>testRunning<br>error<br>internalError<br>unknown |
| Default | No default |

### ATTRIBUTE Fs Disk Test natureOfError

| | |
|---|---|
| Access | Read only |
| Description | This attribute describes the error found by a test. A logical error can be fixed by a filesystemCheck test followed eventually by a synchronization. A media error indicates that a fault in the disk hardware is suspected. A failedToComplete error indicates that the test was terminated. |
| Values | logical<br>media<br>noErrorDetected<br>failedToComplete |
| Default | No default |

### ATTRIBUTE Fs Disk Test severity

| | |
|---|---|
| Access | Read only |
| Description | This attribute describes the severity of the error found by a test. There are three types of severity**:** no data was lost, data was lost and hardware problem**.** If the test found no error(s), this will be reported as noError. If the test found error(s) but no data was lost, then noDataLost is reported. |
| Values | noDataLost<br>dataLost<br>hardwareProblem<br>noError |
| Default | No default |

### ATTRIBUTE Fs Disk Test elapsedTime

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the elapsed time (in minutes) since the test was started. |
| Values | Decimal (0..4294967295) |
| Units | minutes |
| Default | No default |

### ATTRIBUTE Fs Disk Test testExecutionCount

| | |
|---|---|
| Access | Read only |
| Description | The number of times the test had actually run. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT Fs Disk Partition (Part)

| | |
|---|---|
| Instance | Decimal (1..4) |
| Groups | "GROUP Fs Disk Part OsiState (State)"<br>"GROUP Fs Disk Part Operational (Oper)" |
| Scope | Device |
| Description | *Fs Disk/m Part/n*<br>A *Partition* component is an operational subcomponent of *Disk*. Each instance of this component represents a partition. The instance is the partition number. The first instance is the first partition and fourth instance is the maximum number of partitions that could be defined in the system. The component is only visible on a partitioned disk. |
| Common Verbs | Help<br>List<br>Display<br>LOCK<br>Unlock |

## GROUP Fs Disk Part OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

## ATTRIBUTE Fs Disk Part adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

## ATTRIBUTE Fs Disk Part operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component. |

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Fs Disk Part usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Fs Disk Part Operational (Oper)

Properties
Operational

Description
This group contains the *Partition* component operational data. The group is only visible on a partitioned disk.

### ATTRIBUTE Fs Disk Part capacity

| | |
|---|---|
| Access | Read only |
| Description | This attribute describes the total formatted disk size (in Gbytes) of partition n on disk. The attribute is only visible on a partitioned disk. |
| Values | Decimal (0.000000..42.949672) |
| Units | Gbyte |
| Default | No default |

### ATTRIBUTE Fs Disk Part freeSpace

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the available free disk space (in Gbytes) on the partition n of the disk. Free space is reduced by bad blocks (if any). If there are different numbers of bad blocks on the disks in a dual-disk system, the reported free space will differ on the two disks. The attribute is only visible on a partitioned disk. |
| Values | Decimal (0.000000..42.949672) |
| Units | Gbyte |
| Default | No default |

### ATTRIBUTE Fs Disk Part badBlocksPercentage

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the percentage of the disk space lost because of defects. If this percentage is high, it is recommended to change the disk. The attribute is only visible on a partitioned disk. |
| Values | Decimal (0..100) |
| Units | % |
| Default | No default |

## COMPONENT Fs FsPartition (Part)

| | |
|---|---|
| Instance | Decimal (1..4) |
| Groups | "GROUP Fs Part OsiState (State)"<br>"GROUP Fs Part Operational (Oper)" |
| Scope | Device |
| Description | *Fs Part/n*<br>A *FileSystemPartition* component is an operational subcomponent of the *FileSystem* component. Each instance of this component represents a partition. The instance value is the partition number. The first instance is the first partition, and fourth instance is the maximum number of partitions that could be defined in the system. The component is only visible on a partitioned disk. |
| Common Verbs | Help<br>List<br>Display<br>LOCK<br>Unlock |

## GROUP Fs Part OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

## ATTRIBUTE Fs Part adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively |

prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values: locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default: unlocked

### ATTRIBUTE Fs Part operationalState (osiOper)

Access: Read only

Description: This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values: enabled (ena)
disabled (dis)

Default: disabled

### ATTRIBUTE Fs Part usageState (osiUsage)

Access: Read only

| | |
|---|---|
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Fs Part Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the *FileSystemPartition* component. The group is only visible on a partitioned disk. |

### ATTRIBUTE Fs Part capacity

| | |
|---|---|
| Access | Read only |
| Description | This attribute describes the total formatted disk size (in Gbytes) of partition n on disk. The attribute is only visible on a partitioned disk. |
| Values | Decimal (0.000000..42.949672) |
| Units | Gbyte |
| Default | No default |

### ATTRIBUTE Fs Part freeSpace

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the available free disk space (in Gbytes) on the partition n of the disk. Free space is reduced by bad blocks |

| | |
|---|---|
| | (if any). If there are different numbers of bad blocks on the disks in a dual-disk system, the reported free space will differ on the two disks. The attribute is only visible on a partitioned disk. |
| Values | Decimal (0.000000..42.949672) |
| Units | Gbyte |
| Default | No default |

### ATTRIBUTE Fs Part usage

| | |
|---|---|
| Access | Read only |
| Description | This attribute describes the percentage of the free space available on the filesystem for Partition n. The attribute is only visible on a partitioned disk. |
| Values | Decimal (0..100) |
| Units | % |
| Default | No default |

Passport 7400, 15000, 20000

# Component Fs

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component Gips

241-5701-060

Passport 7400, 15000, 20000

# Component Gips

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT GprsIpServer (Gips)

| | |
|---|---|
| Instance | Decimal (1..64) |
| Groups | "GROUP Gips CustomerIdentifierData (CidData)"<br>"GROUP Gips IfEntryProv (IfEntry)"<br>"GROUP Gips Provisioned (Prov)"<br>"GROUP Gips Statistics (Stats)" |
| Scope | Application |
| Description | *GprsIpServer/n*<br><br>This component represents the host GPRS IP Server on a Logical Processor. |
| Opt. Subcomp. | "COMPONENT Gips IpAddress (Ip)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Gips CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

## ATTRIBUTE Gips customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.<br><br>Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.<br><br>An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to "basic CIDs" in DPN) may be assigned to specific customers. |
| Values | Decimal (0; 1..8191) |
| Default | 0 |

### GROUP Gips IfEntryProv (IfEntry)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the ifEntry. |

### ATTRIBUTE Gips ifAdminStatus (ifState)

| | |
|---|---|
| Access | Read and write |
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE Gips ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP Gips Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes of the *GprsIpServer* component. |

### ATTRIBUTE Gips linkToProtocolPort (lToPp)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the Virtual Router Protocol Port that the *GprsIpServer* associates with. |
| Values | The name of the component |
| Default | No default |

### ATTRIBUTE Gips linkToLogicalProcessor (lp)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the Logical Processor that the *GprsIpServer* and its subcomponents are provisioned on. |
| Values | Link (Hardware, linkToApplications) |
| Default | No default |

### ATTRIBUTE Gips defaultTtl (defTtl)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the default value inserted into the Time-To-Live field of the IP header of datagrams originated at this entity.<br>This is the value used to build the IP header unless it is overridden by an application. |
| Values | Decimal (0..255) |
| Default | 64 |

### ATTRIBUTE Gips reasmTimeout (reasmTo)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the maximum time that the received fragments of IP packets are held while awaiting reassembly at the *GprsIpServer*. |
| Values | Decimal (0..255) |
| Units | seconds |
| Default | 5 |

### ATTRIBUTE Gips performUdpChecksum (checksum)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies whether the UDP checksum is generated and checked. |
| Values | no<br>yes |
| Default | no |

### GROUP Gips Statistics (Stats)

| | |
|---|---|
| Properties | Operational |

| | |
|---|---|
| Description | This group contains the GPRS Internet Protocol (IP) related statistical attributes. |

### ATTRIBUTE Gips inPacketForUnknownAddr (inFr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts all the incoming datagrams destined to an address for which there is no *IpAddress* subcomponent. This includes fragmented packets. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gips inErrors (inErrs)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the input datagrams discarded due to errors in their IP headers, including bad checksums, version number mismatch, address errors which have not already been filtered by the IP forwarder. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT Gips IpAddress (Ip)

| | |
|---|---|
| Instance | IP address |
| Groups | "GROUP Gips Ip Statistics (Stats)" |
| Scope | Application |
| Description | *Gips/n IpAddress/<ipaddress>*<br><br>This component represents the Internet Protocol (IP) functionality supported by the GPRS for a particular address. The *IpAddress* provides best-effort delivery, inter network-wide addressing, fragmentation and reassembly, time-to-live control of |

datagrams and checksum verification of header contents. Each *IpAddress* should be unique among *GprsIpServer* Instances. In addition, the IP address should not be the virtual router protocol port logical interface address, the subnet address, or the subnet broadcast address.

Subcomponents

"COMPONENT Gips Ip Udp"
"COMPONENT Gips Ip Icmp"
"COMPONENT Gips Ip Tcp"

Common Verbs

Help
List
Display
Add
DELete

### GROUP Gips Ip Statistics (Stats)

Properties: Operational

Description: This group contains the Internet Protocol (IP) related statistical attributes.

### ATTRIBUTE Gips Ip inReceives (inRcvs)

Access: Read: All
Write: Illegal

Description: This attribute counts all the incoming datagrams, including those counted in *inErrors* and *inUnknownProtocols*. The counter wraps to zero when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Gips Ip inErrors (inErrs)

Access: Read: All
Write: Illegal

Description: This attribute counts the input datagrams discarded due to errors in their IP headers, version number mismatch, other format errors, and time-to-live exceeded which have not already been

| | |
|---|---|
| | filtered by the Virtual Router's IP forwarder. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gips Ip inUnknownProtocols (inUnkProtos)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the locally-addressed datagrams received successfully but discarded because of an unknown or unsupported protocol. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gips Ip inDelivers

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the input datagrams successfully delivered to the IP user-protocols (including Internet Control Message Protocol (ICMP)). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gips Ip outRequests (outReqs)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the datagrams which the local IP user-protocols (including Internet Control Message Protocol (ICMP)) supplied to IP in requests for transmission. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Gips Ip reasmTimeOuts (reasmTo)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the IP packet reassembly time-outs at the receiving *GprsIpServer*. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gips Ip reasmRequireds (reasmReqds)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the IP packets with the reassembly bit set. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gips Ip reasmOks

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the IP packets successfully reassembled by the *GprsIpServer*. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gips Ip reasmFails

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the number of times the *GprsIpServer* is unable to assemble IP-fragments for any reason. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## COMPONENT Gips Ip Udp

| | |
|---|---|
| Groups | "GROUP Gips Ip Udp Statistics (Stats)" |
| Scope | Application |
| Description | *Gips/n Ip/<ipaddress> Udp*<br><br>This component represents the UDP functionality supported by the GPRS. |
| Opt. Subcomp. | "COMPONENT Gips Ip Udp Port" |
| Common Verbs | Help<br>List<br>Display |

## GROUP Gips Ip Udp Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all UDP related statistical attributes supported by the *GprsIpServer.* |

## ATTRIBUTE Gips Ip Udp inDatagrams (inDg)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the UDP datagrams delivered to UDP users. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gips Ip Udp outDatagrams (outDg)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the UDP datagrams sent from the UDP stack. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gips Ip Udp inUnknownPorts (inUnkPorts)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the UDP datagrams received for which there was no associated application at the destination port. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gips Ip Udp inErrors (inErr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the received UDP datagrams that could not be delivered for reasons other than the lack of an application at the destination port. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT Gips Ip Udp Port

| | |
|---|---|
| Instance | Decimal (0..65535) |
| Groups | "GROUP Gips Ip Udp Port Provisioned (Prov)" |
| Scope | Application |

| | |
|---|---|
| Description | *Gips/n Ip/<ipaddress> Udp Port/n*<br><br>This component represents a UDP port. GPRS applications link to this port. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Gips Ip Udp Port Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attribute to bind GPRS application to this UDP port. |

### ATTRIBUTE Gips Ip Udp Port linkToApplication (lToApp)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the user of this UDP port. |
| Values | Link |
| Default | No default |

### COMPONENT Gips Ip Icmp

| | |
|---|---|
| Groups | "GROUP Gips Ip Icmp Statistics (Stats)" |
| Scope | Application |
| Description | *Gips/n Ip/<ipaddress> Icmp*<br><br>This component represents the Internet Control Message Protocol (ICMP) functionality supported by the GPRS. The ICMP provides feedback from an IP router or gateway to a source host. It can be used to report errors or verify the reachability of routers or end-systems. |

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display |

## GROUP Gips Ip Icmp Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the Internet Control Message Protocol (ICMP) related statistical attributes. |

## ATTRIBUTE Gips Ip Icmp inMsgs

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Internet Control Message Protocol (ICMP) messages received by the *GprsIpServer*. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## ATTRIBUTE Gips Ip Icmp inErrors (inErrs)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Internet Control Message Protocol (ICMP) messages received by the *GprsIpServer*, but determined as having ICMP specific errors such as bad ICMP checksums or bad length. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gips Ip Icmp inTimeExceeds (inTimeEx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Internet Control Message Protocol (ICMP) time exceeded messages received by the *GprsIpServer*. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gips Ip Icmp outTimeExceeds (outTimeExcds)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Internet Control Message Protocol (ICMP) time exceeded messages sent by the *GprsIpServer*. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gips Ip Icmp inEchos (inEc)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Internet Control Message Protocol (ICMP) echo request messages received by the *GprsIpServer*. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gips Ip Icmp outEchoReplies (outEcRe)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the Internet Control Message Protocol (ICMP) echo reply messages sent by this *GprsIpServer*. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gips Ip Icmp inTimestamps (inTiSta)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Internet Control Message Protocol (ICMP) timestamp request messages received by this *GprsIpServer*. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gips Ip Icmp outTimestampReplies (outTsRep)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Internet Control Message Protocol (ICMP) timestamp reply messages sent by this *GprsIpServer*. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gips Ip Icmp inDestUnreachs (inDestUnr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Internet Control Message Protocol (ICMP) destination unreachable messages received by the *GprsIpServer*. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Gips Ip Icmp outDestUnreachs (outDestUnr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Internet Control Message Protocol (ICMP) destination unreachable messages sent out by this *GprsIpServer*. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gips Ip Icmp inParmProbs (inProb)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Internet Control Message Protocol (ICMP) parameter problem messages received by the *GprsIpServer*. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gips Ip Icmp outParmProbs (outProbs)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Internet Control Message Protocol (ICMP) parameter problem messages sent by this *GprsIpServer*. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## ATTRIBUTE Gips Ip Icmp inSrcQuenchs (inSrcQ)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Internet Control Message Protocol (ICMP) source quench messages received by the *GprsIpServer*. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## COMPONENT Gips Ip Tcp

| | |
|---|---|
| Groups | "GROUP Gips Ip Tcp Statistics (Stats)" |
| Scope | Application |
| Description | *Gips/n Ip/<ipaddress> Tcp*<br><br>The component represents the TCP functionality supported by the GPRS. |
| Opt. Subcomp. | "COMPONENT Gips Ip Tcp Port" |
| Dyn. Subcomp. | "COMPONENT Gips Ip Tcp TcpEntry" |
| Common Verbs | Help<br>List<br>Display |

## GROUP Gips Ip Tcp Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistics for TCP. |

## ATTRIBUTE Gips Ip Tcp rToAlgorithm

| | |
|---|---|
| Access | Read only |
| Description | Indicate which algorithm was used to calculate the timeout value used for retransmitting unackowledged octet. |

| | |
|---|---|
| Values | other<br>constant<br>rsre<br>vanJacobson |
| Default | No default |

### ATTRIBUTE Gips Ip Tcp rToMin

| | |
|---|---|
| Access | Read only |
| Description | Indicate the minimum value, measured in milliseconds, allowed for retransmission timeout. |
| Values | Decimal (0..4294967295) |
| Units | msec |
| Default | 0 |

### ATTRIBUTE Gips Ip Tcp rToMax

| | |
|---|---|
| Access | Read only |
| Description | Indicates the maximun value, measured in milliseconds, allowed for retransmission timeout. |
| Values | Decimal (0..4294967295) |
| Units | msec |
| Default | No default |

### ATTRIBUTE Gips Ip Tcp maxConn

| | |
|---|---|
| Access | Read only |
| Description | Limit on number of connections the TCP can support. The value is always -1 which indicates that the number of connections supported is dynamic (limited by memory in the system). |
| Values | Signed (-1) |
| Default | -1 |

### ATTRIBUTE Gips Ip Tcp activeOpens

| | |
|---|---|
| Access | Read only |
| Description | The number of times TCP connections have made a direct transition to the ***synSent*** state from the ***closed*** state. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gips Ip Tcp passiveOpens

| | |
|---|---|
| Access | Read only |
| Description | The number of times TCP connections have made a direct transition to the ***synRcvd*** state from the ***listen*** state. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gips Ip Tcp attemptFails

| | |
|---|---|
| Access | Read only |
| Description | The number of times TCP connections have made a direct transition to the ***closed*** state from either the ***synSent*** state or the ***synRcvd*** state, plus the number of times TCP connections have made a direct transition to the ***listen*** state from the ***synRcvd*** state. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gips Ip Tcp estabResets

| | |
|---|---|
| Access | Read only |
| Description | The number of times TCP connections have made a direct transition to the ***closed*** state from either the ***established*** state or the ***closedWait*** state. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gips Ip Tcp currEstab

| | |
|---|---|
| Access | Read only |
| Description | The number of TCP connections for which the current state is either ***established*** or ***closedWait***. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gips Ip Tcp inSegs

| | |
|---|---|
| Access | Read only |
| Description | The number of segments received, including those received in error. This count includes segments received on currently established connections. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gips Ip Tcp outSegs

| | |
|---|---|
| Access | Read only |
| Description | The number of segments sent, including those on current connections but excluding those containing only retransmitted octets. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gips Ip Tcp retransSegs

| | |
|---|---|
| Access | Read only |
| Description | The number of segments retransmitted that is, the number of TCP segments transmitted containing one or more previously transmitted octets. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gips Ip Tcp inErrs

| | |
|---|---|
| Access | Read only |
| Description | Total number of segments received in error, for example bad TCP checksum. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gips Ip Tcp outRsts

| | |
|---|---|
| Access | Read only |
| Description | Number of TCP segments sent containing the RST flag. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT Gips Ip Tcp Port

| | |
|---|---|
| Instance | Decimal (0..65535) |
| Groups | "GROUP Gips Ip Tcp Port Provisioned (Prov)" |
| Scope | Application |
| Description | *Gips/n Ip/<ipaddress> Tcp Port/n*<br><br>This component represents a TCP port. GPRS applications using TCP link to this port. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Gips Ip Tcp Port Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attribute to bind a GPRS application to this TCP port. |

### ATTRIBUTE Gips Ip Tcp Port linkToApplication (lToApp)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the GPRS application which is to use this TCP port number. |
| Values | Link (Service, linkToPort) |
| Default | No default |

### COMPONENT Gips Ip Tcp TcpEntry

| | |
|---|---|
| Instance | localAddress [IP address]<br>localPort [Decimal (0..65535)]<br>remoteAddress [IP address]<br>remotePort [Decimal (0..65535)] |
| Groups | "GROUP Gips Ip Tcp TcpEntry Operational (Oper)" |
| Scope | Application |
| Description | *Gips/n Ip/<ipaddress> Tcp TcpEntry/<lA>, <lP>, <rA>, <rP>*<br><br>The component defines an entry in the TCP connection table. Each entry corresponds to TCP end-point identified by 4-tuples, *LocalAddress*, *LocalPort*, *RemoteAddress*, and *RemotePort*. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Gips Ip Tcp TcpEntry Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains columnar entries for each end-point on the TCP. |

### ATTRIBUTE Gips Ip Tcp TcpEntry state

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute reflects the current state of this Tcp connection. |
| Values | closed<br>listen<br>synSent<br>synReceived<br>established<br>closeWait<br>finWait1<br>closing<br>lastAck<br>finWait2<br>timeWait<br>delete |
| Default | No default |

Passport 7400, 15000, 20000

# Component Gips

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component Gsc

241-5701-060

Passport 7400, 15000, 20000

# Component Gsc

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT GprsSubscriberControl (Gsc)

| | |
|---|---|
| Instance | Decimal (1..15) |
| Groups | "GROUP Gsc Provisioned (Prov)"<br>"GROUP Gsc Operational (Oper)"<br>"GROUP Gsc OsiState (State)"<br>"GROUP Gsc Statistics (Stats)"<br>"GROUP Gsc OvldScOper"<br>"GROUP Gsc OvldOper"<br>"GROUP Gsc WlcCustomCounters (WlcCustomCntr)" |

"COLLECTED STATS GprsSubscriberControl"

| | |
|---|---|
| Scope | Application |
| Description | *GprsSubscriberControl/n*<br><br>This component represents the subscriber control entities such as the GPRS Mobility Management (GMM), the Session Management (SM), the *MapClient*, and the *HlrCache*. |

| | |
|---|---|
| Subcomponents | "COMPONENT Gsc MapClient (Mc)"<br>"COMPONENT Gsc GtpMgmt (GtpM)"<br>"COMPONENT Gsc GprsMobilityManagement (Gmm)"<br>"COMPONENT Gsc SessionManagement (Sm)"<br>"COMPONENT Gsc HlrCache (HlrC)"<br>"COMPONENT Gsc MemoryPoolManager (Mpm)"<br>"COMPONENT Gsc BaseStationSystemApplPart (Bssap)"<br>"COMPONENT Gsc ShortMessageService (Sms)"<br>"COMPONENT Gsc ServiceSwitchingFunction (Ssf)" |
| Opt. Subcomp. | "COMPONENT Gsc PrepaidShortMessageService (PSms)"<br>"COMPONENT Gsc LocationServices (Lcs)" |
| Dyn. Subcomp. | "COMPONENT Gsc InternationalMobileSubscriberId (Imsi)"<br>"COMPONENT Gsc TemporaryLogicalLinkId (Tlli)"<br>"COMPONENT Gsc RemoteApplicationConnection (RaConn)"<br>"COMPONENT Gsc MobileCountryCode (Mcc)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP Gsc Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisionable attributes to link this component to a Logical Processor and to set the engineering parameters for an instance of *GprsSubscriberControl (Gsc)*. |

## ATTRIBUTE Gsc linkToLogicalProcessor (lp)

| | |
|---|---|
| Access | Read: All<br>Write: All |

| | |
|---|---|
| Description | This attribute specifies the Logical Processor that the *GprsSubscriberControl (Gsc)* and its subcomponents are provisioned on. |
| Values | Link (Hardware, linkToApplications) |
| Default | No default |

### ATTRIBUTE Gsc sgsnNumber (sgsnNum)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the designated E.164 number in the international format for this Serving GPRS Support Node (SGSN). This is used to associate the SGSN in the Home Location Register (HLR) and in the MSC-VLR, to identify the SGSN in the SS7 network and to provide the routing capabilities. |
| Values | String (1..17, NativeAddress) |
| Default | No default |

### ATTRIBUTE Gsc maxAttachedSubscribers (maxAttSubs)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the maximum number of attached subscribers for this instance of *GprsSubscriberControl (Gsc)*.<br><br>The current attached subscribers can be obtained from the attribute *currentlyAttached* defined in the *GprsMobilityManagement* component. Currently attached subscribers are unaffected by changes to this value.<br><br>The sum of the *maxAttachedSubscribers* provisioned on all the *Gsc instances should* not exceed the value of *maxSubscribers* provisioned on the *ServingGprsSupportNode (Sgsn)*.<br><br>Changing the value of this parameter requires a reset of the Gsc card. |

This attribute together with currentlyAttached are used to determine when subscriber count overload occurs (Refer to Gsc subCountOvldAttachesDiscarded).

Values: Decimal (1..1000000)

Default: 500

### ATTRIBUTE Gsc avgActivePdpCPerActiveSub (avgPdpC)

Access: Read: All
Write: All

Description: This attribute specifies the average number of Packet Data Protocol (PDP) contexts that can be active for an active subscriber in this *GprsSubscriberControl (Gsc)*.

Values: Decimal (1.0..16.0)

Default: 1.0

### ATTRIBUTE Gsc localPointCode (localPc)

Access: Read: All
Write: All

Criticality: Process

Description: This attribute specifies the point code of the node that the MAP layer manages.

The point code must be provisioned in one of the following formats:

***basic***: The point code is provisioned as a decimal number in the range ***1..16383*** if the value of the attribute *sccpVariant* in *Gsc/n MapClient* is set to ***itu***.

The point code is provisioned as a decimal number in the range ***1..16777215*** if the value of the attribute *sccpVariant* in *Gsc/n MapClient* is set to ***ansi*** or ***ituChinese***.

***segmented***: The point code is provisioned as three integers,

separated by dots.

If the value of the attribute *sccpVariant* in *Gsc/n MapClient* is set to ***itu***, the first integer must be in the range ***0..7***, the second integer must be in the range ***0..255***, and the third integer must be in the range ***0..7***. A value of ***0.0.0*** is not valid.

If the value of the attribute *sccpVariant* in *Gsc/n MapClient* is set to ***ansi*** or ***ituChinese***, all the three integers must be in the range ***0..255***.

Changing the value of this attribute causes the process to be restarted. When the process is restarted all traffic on the GSC is lost and the Map Client re-registers with the new point code.

| | |
|---|---|
| Values | Integer Sequence |
| Default | No default |

### ATTRIBUTE Gsc linkToLisp

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies a link to the *LawfulInterceptAccessFunction (Liaf)* component that is resident on a *LawfulInterceptServiceProcessor (Lisp)* card and that is used by the *GprsSubscriberControl* entities. |
| Values | Link (Service, linkToLiClient) |
| Default | No default |

### GROUP Gsc Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data of the *GprsSubscriberControl (Gsc)* that is needed by the related protocol layers. |

### ATTRIBUTE Gsc unknownRai

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute indicates the unknown Routing Area Identifiers (RAI) and their associated information, and lists them in the following format:<br>"<MCC>.<MNC>.<LAC>.<RAC> <Time>"<br><br>where<br><MCC> is the Mobile Country Code<br><MNC> is the Mobile Network Code<br><LAC> is the Location Area Code<br><RAC> is the Routing Area Code<br><Time> is the time at which this lookup failure occurred<br><br>When GPRS Subscriber Control (GSC) fails to look up an RAI while handling GPRS Mobility Management (GMM) procedures, the RAI is added to the list. The list is purged either when it gets full, by replacing the oldest entry, or when a previously unknown RAI gets provisioned. |
| List of | String (1..40, ASCII) |
| List Size | 100 |
| Default | No default |

### GROUP Gsc OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Gsc adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component. |

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Gsc operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

| | |
|---|---|
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Gsc usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### ATTRIBUTE Gsc availabilityStatus (osiAvail)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal |

users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.

The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.

The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.

The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.

The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration

activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

### ATTRIBUTE Gsc proceduralStatus (osiProc)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.

The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

### ATTRIBUTE Gsc controlStatus (osiCntrl)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

| | |
|---|---|
| | The value ***suspended*** indicates that the service has been administratively suspended. |
| Set of | subjectToTest (subTst)<br>partOfServicesLocked (partLk)<br>reservedForTest (rsrvd)<br>suspended (suspnd) |
| Default | No default |

### ATTRIBUTE Gsc alarmStatus (osiAlarm)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.<br><br>The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.<br><br>The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.<br><br>The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***. |

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE Gsc standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values

hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

| | |
|---|---|
| Default | notSet |

### ATTRIBUTE Gsc unknownStatus (osiUnknw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Unknown status of the component.<br><br>The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.<br><br>The value ***true*** indicates that the actual state of the component is not known for sure. |
| Values | false<br>true |
| Default | false |

### GROUP Gsc Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the statistical attributes for the Mobile Subscriber Purge functionality on the (UMTS) Serving GPRS Support Node (USGSN or SGSN). |

### ATTRIBUTE Gsc explicitDetachPurge (expDetPurge)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Mobile Subscriber (MS) Purge requests initiated due to an explicit mobile detach. Mobile Subscriber Purge requests are initiated upon explicit detach when the *purgeOnExplicitDetach* attribute in (U) SGSN MobileSubscriberPurge is enabled.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc operatorInitiatedPurge (opInitPurge)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Mobile Subscriber (MS) Purge requests initiated by the operator.<br><br>An operator initiated the Mobile Subscriber Purge request by issuing the *clear* command on an (U) SGSN *Imsi* component.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc contextReusePurge (crPurge)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Mobile Subscriber (MS) Purge requests initiated due to context reuse.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc periodicAuditPurge (auditPurge)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Mobile Subscriber (MS) Purge requests initiated due to periodic audit. During a periodic audit, Mobile Subscribers whose age is greater than the value specified by the auditPurgeMinimumInactiveAge attribute in (U) SGSN MobileSubscriberPurge are considered candidates for purge.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Gsc msPurgeAckFailures (ackFail)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Mobile Subscriber (MS) Purge Acknowledgement Failures received from the Home Location Register (HLR).<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc msPurgeSendFailures (sendFail)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Mobile Subscriber (MS) Purge requests that were not sent from the (UMTS) Serving GPRS Support Node (USGSN or SGSN) due to network related faults such as SIG failure.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Gsc OvldScOper

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for overload controls for the *Gsc* and *Usc* components. |

### ATTRIBUTE Gsc cpuOvldAttachesDiscarded (cpuOvldAttDisc)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the number of GPRS Mobility Management (GMM) attach request messages that are discarded due to a CPU overload condition on the GSC and USC applications.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc cpuOvldActivationsDiscarded (cpuOvldActDisc)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of Session Management (SM) session activate request messages that are discarded due to CPU overload on the GSC and USC applications.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc subCountOvldAttachesDiscarded (subOvldAttDisc)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of GPRS Mobility Management (GMM) attach request messages that are discarded due to subscriber count overload, which occurs when the value of the *currentlyAttached* attribute is equal to the value of the *maxAttachedSubscribers* attribute.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Gsc OvldOper

| | |
|---|---|
| Properties | Operational |

| | |
|---|---|
| Description | This group contains the operational attributes for overload controls. |

### ATTRIBUTE Gsc cpuOvldMovingAvg (cpuOvldAvg)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the CPU moving average calculated from within the defined moving window, the size of which is determined by the value of *cpuOvldWindowSize attribute*. |
| Values | Decimal (0..100) |
| Units | % |
| Default | No default |

### ATTRIBUTE Gsc cpuOvldWindowSize (cpuOvldWinSz)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the CPU moving average window size. The window size is the duration over which the CPU usage measurements are taken before the average CPU usage is calculated. CPU measurements are separated by a fixed interval. |
| Values | Decimal (0..4294967295) |
| Units | seconds |
| Default | 60 |

### GROUP Gsc WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Gsc customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## COLLECTED STATS GprsSubscriberControl

| | |
|---|---|
| Description | The statistics record generated by the GprsSubscriberControl component. |

### ATTRIBUTE Gsc cpuOvldAttachesDiscarded (cpuOvldAttDisc)

| | |
|---|---|
| Description | This attribute counts the number of GPRS Mobility Management (GMM) attach request messages that are discarded due to a CPU |

overload condition on the GSC and USC applications.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc cpuOvldActivationsDiscarded (cpuOvldActDisc)

Description This attribute counts the number of Session Management (SM) session activate request messages that are discarded due to CPU overload on the GSC and USC applications.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc subCountOvldAttachesDiscarded (subOvldAttDisc)

Description This attribute counts the number of GPRS Mobility Management (GMM) attach request messages that are discarded due to subscriber count overload, which occurs when the value of the *currentlyAttached* attribute is equal to the value of the *maxAttachedSubscribers* attribute.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc cpuOvldMovingAvg (cpuOvldAvg)

Description This attribute indicates the CPU moving average calculated from within the defined moving window, the size of which is determined by the value of *cpuOvldWindowSize* attribute.

The value of the attribute is set at the end of the collection interval.

Values Decimal (0..100)

Units %

### ATTRIBUTE Gsc explicitDetachPurge

Description This attribute counts the Mobile Subscriber (MS) Purge requests initiated due to an explicit mobile detach. Mobile Subscriber

Purge request are initiated upon explicit detach when the *purgeOnExplicitDetach* attribute in (U) SGSN MobileSubscriberPurge is enabled.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc operatorInitiatedPurge

Description This attribute counts the number of Mobile Subscriber (MS) Purge requests initiated by the operator.

An operator initiates the Mobile Subscriber Purge request by issuing the *clear* command on an (U) SGSN *Imsi* component.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc contextReusePurge

Description This attribute counts the number of Mobile Subscriber (MS) Purge requests initiated due to memory reuse.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc periodicAuditPurge

Description This attribute counts the number of Mobile Subscriber (MS) Purge requests initiated due to periodic. During a periodic audit, detached Mobile Subscribers whose age is greater than the value specified by the auditPurgeMinimumInactiveAge attribute in (U) SGSN MobileSubscriberPurge are considered candidates for purge.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc msPurgeAckFailures

Description: This attribute counts the Mobile Subscriber (MS) Purge Acknowledgement Failures received by the (UMTS) Serving GPRS Support Node (USGSN or SGSN) from the Home Location Register (HLR).

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc msPurgeSendFailures

Description: This attribute counts the Mobile Subscriber (MS) Purge requests that were not sent from the (UMTS) Serving GPRS Support Node (USGSN or SGSN) due to network related faults such as SIG failure and so on.

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### COMPONENT Gsc MapClient (Mc)

Groups:
"GROUP Gsc Mc Provisioned (Prov)"
"GROUP Gsc Mc Statistics (Stats)"
"GROUP Gsc Mc MapClientSccpUserInfo (McSccpUI)"
"GROUP Gsc Mc OsiState (State)"
"GROUP Gsc Mc WlcCustomCounters (WlcCustomCntr)"

"COLLECTED STATS GprsSubscriberControl MapClient"

Scope: Application

Description: *Gsc/n MapClient*

This component represents the *MapClient* functionality of the *GprsSubscriberControl (Gsc)*. The *MapClient* component provides the Mobile Application Part (MAP) over SS7 to interact with the Home Location Register (HLR) via the SS7-IP Gateway.

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display |

## GROUP Gsc Mc Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisionable attributes to specify the Port Number and the SS7-IP Gateway information that this *MapClient* uses. |

## ATTRIBUTE Gsc Mc mscE164Address (mscEAddr)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute supplies the E.164 number associated with the local MSC SCCP subsystem on the SGSN. This E.164 number will be used in the global title address field of the Calling Party Address (CgPA) when the USC MAP Client attribute *mapCgpaRoutingIndicator* is set to ***globalTitle***.<br><br>If this attribute is changed after the MAP Client has registered with the MAP Stack, the MAP Client will need to deregister with the MAP Stack and then re-register. Any outstanding MAP transactions will be lost as a result of the re-registration.<br><br>If this attribute is empty, the value of the USC's or GSC's E.164 address specified in the *sgsnNumber* attribute is used for the MAP Client's E.164 address. |
| Values | String (0..17, NativeAddress) |
| Default | No default |

## ATTRIBUTE Gsc Mc linkToMapStack (mapLink)

| | |
|---|---|
| Access | Read: All<br>Write: All |

| | |
|---|---|
| Description | This attribute specifies the *MapStack* used by this *MapClient*. |
| Values | Link (Service, linkToMapStackUsers) |
| Default | No default |

### GROUP Gsc Mc Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistical attributes of the *MapClient* application. |

### ATTRIBUTE Gsc Mc currentTransactions (curTr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates how many MAP transactions are currently being handled by the MAP Client. *currentTransactions* is expressed as a percentage utilization of the number of MAP transactions the MAP Client is capable of handling concurrently.<br><br>A SET alarm is generated by the MAP Client when the percentage utilization reaches a high threshold. A CLEAR alarm is generated by the MAP Client when the percentage utilization reaches a low threshold and an outstanding SET alarm exists. |
| Values | Decimal (0..100) |
| Units | % |
| Default | No default |

### ATTRIBUTE Gsc Mc uglMsgs

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the MAP-UPDATE GPRS LOCATION messages sent to the Home Location Register (HLR). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mc uglResponseMsgs (uglResp)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the successful MAP-UPDATE GPRS LOCATION RESPONSE messages received from the Home Location Register (HLR). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mc isdMsgs

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the MAP-INSERT SUBSCRIBER DATA messages received from the Home Location Register (HLR). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mc isdResponseMsgs (isdResp)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the MAP-INSERT SUBSCRIBER DATA RESPONSE messages sent to the Home Location Register (HLR). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mc dsdMsgs

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute indicates the MAP-DELETE SUBSCRIBER DATA messages received from the Home Location Register (HLR). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mc dsdResponseMsgs (dsdResp)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the MAP-DELETE SUBSCRIBER DATA RESPONSE messages sent to the Home Location Register (HLR). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mc clMsgs

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the MAP-CANCEL LOCATION messages received from the Home Location Register (HLR). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mc clResponseMsgs (clResp)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the MAP-CANCEL LOCATION RESPONSE messages sent to the Home Location Register (HLR). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Gsc Mc rstMsgs

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the MAP-RESET messages received from the Home Location Register (HLR). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mc saiMsgs

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the MAP-SEND AUTHENTICATION INFO messages sent to the Home Location Register (HLR). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mc saiResponseMsgs (saiResp)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the MAP-SEND AUTHENTICATION INFO ACK messages received from the Home Location Register (HLR). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mc transLimitDiscards (trDisc)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute indicates the transactions rejected by the MAP Client when the maximum number of concurrent MAP transactions supported by the MAP Client has been exceeded. The maximum number of MAP transactions is constrained by the MAP Client internal memory available to store the transactions. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mc tmrExpiries (tmrEx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the times the *mcTimer* (defined in component *Sgsn GprsSubscriberControl* and *Usgsn UmtsSubscriberControl*) expires before receiving a response from the Home Location Register (HLR). This can be used to determine if the provisionable attribute *mcTimer* must be changed, or a problem exists between the Serving GPRS Support Node (SGSN) or Umts Serving General Support Node (USGSN) and the Home Location Register (HLR). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mc ofsmMsgs

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the MAP-MO-FORWARD-SHORT-MESSAGE messages received by the Inter-working Mobile Switching Center (IWMSC) from the MAP Client. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mc ofsmResMsgs

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the MAP-MO-FORWARD-SHORT-MESSAGE response messages received by the MAP Client from the Inter-working Mobile Switching Center (IWMSC). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mc tfsmMsgs

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the MAP-MT-FORWARD-SHORT-MESSAGE messages received by the MAP Client from the Inter-working Mobile Switching Center (IWMSC). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mc tfsmResMsgs

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the MAP-MT-FORWARD-SHORT-MESSAGE response messages received by the Inter-working Mobile Switching Center (IWMSC) from the MAP Client. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mc rsmMsgs

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute indicates the MAP-READY-FOR-SM messages received by the Home Location Register (HLR) from the MAP Client. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mc rsmResMsgs

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the MAP-READY-FOR-SM response messages received by the MAP Client from the Home Location Register (HLR). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mc sccpServiceRequestTimeouts

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the MAP Stack Service request timeouts. This could occur if the MAP Stack was not responding to Service requests from the MAP Clients, or if there was an SS7-IP Gateway (SIG) or IP network problem.<br><br>Retries of the Service request are infinite since the MAP Client can not send or receive MAP messages until it is successfully registered with the MAP Stack. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mc decodeErrors

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute indicates the number of MAP messages received from the peer nodes that are not decodable. The inability to decode the MAP message is caused by the MAP Client receiving a message with invalid data. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mc dataMissingRespSent

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of “data missing” error responses sent to the peer nodes. This error may occur when optional data is missing from a MAP message received, when required data is missing from a MAP message received, or when an internal data structure is missing data. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mc unexpectedDataValuesRespSent (unexpDataRespSent)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of “unexpected data value” error responses sent to the peer nodes. This error may occur when the parameter type is correct in the MAP message received but contains data which is not relevant for the type of MAP service being invoked. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mc systemFailuresRespSent (sysFailRespSent)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of “system failure” error responses sent to the peer nodes. This error may occur when a task specified in MAP message received cannot be performed because of a problem with another entity. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mc unidentifiedSubscribersRespSent (unidentSubRespSent)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of “unidentified subscriber” error responses sent to the peer nodes. This error may occur when the subscriber is not contained in the subscriber database resulting in the failure to establish a call. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mc facilityNotSupportedRespSent (facNotSuppRespSent)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of “facility not supported” error responses sent to the peer nodes. This error may occur when the requested facility, such as SMS, is not supported. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mc smDeliveryFailuresRespSent (smDelFailRespSent)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of “short message delivery failure” error responses sent to the SMSC. This error may occur when the mobile runs out of memory to store short messages. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mc illegalSubscribersRespSent (illegalSubRespSent)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of “illegal subscriber” error responses sent to the peer nodes. This error may occur when an illegal access attempt is determined during the authentication process. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mc illegalEquipmentRespSent

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of “illegal equipment” error responses sent to the peer nodes. This error may occur when the International Mobile station Equipment Identity (IMEI) is either blacklisted or not whitelisted. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mc subscriberBusyForMtSmsRespSent (subBusyMtSmsRespSent)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of “subscriber busy for mobile-terminated short message service” error responses sent to the SMSC. This error may occur when mobile terminated short messages cannot be completed. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mc absentSubscriberSmRespSent (absentSubSmRespSent)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of “absent subscriber short message service” error responses sent to the SMSC. This error may occur when the mobile terminated short message transfer cannot be completed because the network cannot contact the subscriber. This may be caused by the mobile being turned off. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mc dataMissingRespRecv

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of data missing errors received from the peer nodes. This error may occur when optional data is missing from a MAP message sent, when required data is missing from a MAP message sent, or when an internal data structure is missing data. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Gsc Mc unexpectedDataValuesRespRecv (unexpDataRespRecv)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of “unexpected data value” error responses received from the peer nodes. This error may occur when the parameter type is correct in the MAP message sent but contains data which is not relevant for the type of MAP service being invoked. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mc systemFailuresRespRecv (sysFailRespRecv)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of “system failure” error responses received from the peer nodes. This error may occur when a task specified in a MAP message sent cannot be performed because of a problem with another entity. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mc unknownSubscribersRespRecv (unkSubRespRecv)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of “unknown subscriber” error responses received from the peer nodes. This error may occur when a message sent is processed for a subscription that does not exist. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Gsc Mc roamingNotAllowedRespRecv (noRoamRespRecv)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of “roaming not allowed” error responses received from the peer nodes. This error may occur when a location update attempt is made in an area not covered by the subscription. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mc facilityNotSupportedRespRecv (facNotSuppRespRecv)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of “facility not supported” error responses received from the peer nodes. This error may occur when the requested facility, such as SMS, is not supported. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mc smDeliveryFailuresRespRecv (smDelFailRespRecv)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of “short message delivery failure” error responses received from the SMSC. This error may occur when the Short Message Service Center returns a delivery error indication in response to a message sent by the MAP Client. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mc invalidMessages

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of invalid messages received by the MAP Client. This may occur if the MAP Client receives an unsolicited message, a message with an invalid header, or an invalid dialogue ID. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mc isdMsgsUpdateLocation (isdMsgsUpdLoc)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of MAP-INSERT SUBSCRIBER DATA messages received from the Home Location Register (HLR) during a GPRS Update Location procedure. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mc isdMsgsHlrSubUpdate (isdMsgsHlrSubUp)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of MAP-INSERT SUBSCRIBER DATA messages received from the Home Location Register (HLR) due to an HLR operator intervention. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mc isdFailures (isdFail)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of MAP-INSERT SUBSCRIBER DATA messages sent to the Home Location Register (HLR) that could not be processed due to one of the following errors:<br><br>Data Missing<br>Unexpected Data Value<br>Unidentified Subscriber<br>Decode errors<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mc clMsgsHlrDetach (clMsgsHlrDetach)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of MAP-CANCEL LOCATION messages received from the Home Location Register (HLR) due to an HLR initiated Detach. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mc clMsgsSgsnChange (clMsgsSgsnChg)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of MAP-CANCEL LOCATION messages received from the Home Location Register (HLR) due to a Service GPRS Support Node (SGSN) change. The counter wraps to zero when it exceeds the maximum value. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mc clMsgsHlrOther (clMsgsHlrOther)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of MAP-CANCEL LOCATION messages received from the Home Location Register (HLR) with a cancellation type other than a Service GPRS Support Node (SGSN) change or an HLR initiated Detach. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mc clFailures (clFail)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the MAP-CANCEL LOCATION messages received from the Home Location Register (HLR) that could not be processed due to one of the following errors:<br><br>Data Missing<br>Unexpected Data Value<br>Decode errors<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mc dsdFailures (dsdFail)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of MAP-DELETE SUBSCRIBER DATA messages sent to the Home Location |

| | |
|---|---|
| | Register (HLR) that could not be processed due to one of the following errors:<br><br>Data Missing<br>Unexpected Data Value<br>Unidentified Subscriber<br>Decode errors<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mc uAbortMsgSent

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of MAP USER ABORT messages sent by the MAP Client to the peer nodes. This message may be sent as a result of a resource limitation caused by congestion or as a result of the unavailability of resources. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mc pAbortMsgRecv

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of MAP PROVIDER ABORT messages received by the MAP Client from the peer nodes. This message indicates to the MAP service-user to abort a MAP dialogue. This message may be received due to a MAP service-provider malfunction, supporting dialogue/transaction release, resource limitation, maintenance activity, version incompatibility, or an abnormal MAP dialogue. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Gsc Mc uAbortMsgRecv

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of MAP USER ABORT messages received by the MAP Client from the peer nodes. This message indicates to the MAP service-provider to abort a MAP dialogue. This message may be received due to a resource limitation caused by congestion or by unavailability of resources. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mc pmsMsgs

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of Mobile Subscriber Purge messages sent to the Home Location Register (HLR).<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mc pmsResponseMsgs (pmsRes)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of Mobile Subscriber Purge MS Response messages received from the Home Location Register (HLR).<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mc pslMsgs

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the MAP-PROVIDE SUBSCRIBER LOCATION messages received by the MAP Client from the Gateway Mobile Location Center (GMLC).<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mc pslRespMsgs

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the MAP-PROVIDE SUBSCRIBER LOCATION response messages sent by the MAP Client to the Gateway Mobile Location Center (GMLC).<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mc unauthorizedReqNetworkRespSent (unauthReqNetRespSent)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of “Unauthorized Requested Network” error responses sent to the Gateway Mobile Location Center (GMLC). This error may occur when a Location Request is denied due to the GMLC not being in the home country.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mc unauthorizedLcsClientRespSent (unauthLcsCliRespSent)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of “Unauthorized LCS Client” error responses sent to the Gateway Mobile Location Center (GMLC). This error may occur when a Location Request is denied due to privacy restrictions.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mc positionMethodFailureRespSent (posMethFailRespSent)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of “Positioning Method Failure” error responses sent to the Gateway Mobile Location Center (GMLC). This error may occur when the position of the mobile cannot be retrieved.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mc absentSubscriberRespSent (absentSubRespSent)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of “Absent Subscriber” error responses sent to the Gateway Mobile Location Center (GMLC). This error may occur when the subscriber is International Mobile Subscriber Identity (IMSI) detached, in a restricted area, or does not respond to paging.<br><br>The counter wraps to zero when it exceeds the maximum value. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Gsc Mc MapClientSccpUserInfo (McSccpUI)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisionable attributes of the Sccp User Information of the *MapClient* application |

### ATTRIBUTE Gsc Mc mapCgpaRoutingIndicator (mapRtInd)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies routing by global title or point code. If set to ***globalTitle*** the MAP Client sets the CgPA routing indicator to route on global title and supply global title information. If set to ***pointCode*** the MAP Client sets the CgPA routing indicator to route on SSN and supply point code and subsystem number in the CgPA. |
| Values | globalTitle (gt)<br>pointCode (pc) |
| Default | globalTitle |

### ATTRIBUTE Gsc Mc mapSgsnSubsystemNumber (msssn)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the MAP SGSN SSN. This SSN is used by SCCP for subsystem routing. |
| Values | Decimal (1..255) |
| Default | 149 |

### ATTRIBUTE Gsc Mc sccpServiceRequestTimer

| | |
|---|---|
| Access | Read: All<br>Write: All |

| | |
|---|---|
| Description | This attribute specifies the amount of time the MAP Client waits for a response after sending a Service Request primitive to the MAP Protocol Stack.<br><br>The count of timeouts is available in the *sccpServiceRequestTimeouts* attribute.<br><br>Retries of the Service request are infinite since the MAP Client can not send or receive MAP messages until it is successfully registered with the MAP Stack. |
| Values | Decimal (0..60) |
| Units | seconds |
| Default | 10 |

### ATTRIBUTE Gsc Mc sccpVariant

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the SCCP variant used by the MAP Client on this SS7 network for the SCCP Called Party Address that is based on the E.212 or E.214 Mobile Subscriber number. |
| Values | itu<br>ansi<br>ituChinese |
| Default | itu |

### GROUP Gsc Mc OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Gsc Mc adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Gsc Mc operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |

| | |
|---|---|
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Gsc Mc usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Gsc Mc WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Gsc Mc customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Gsc Mc customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mc customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## COLLECTED STATS GprsSubscriberControl MapClient

| | |
|---|---|
| Description | The statistics record generated by the GprsSubscriberControl MapClient component. |

### ATTRIBUTE Gsc Mc uglMsgs

| | |
|---|---|
| Description | This attribute indicates the MAP-UPDATE GPRS LOCATION messages sent to the Home Location Register (HLR) in the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Gsc Mc uglResponseMsgs (uglResp)

Description This attribute indicates the successful MAP-UPDATE GPRS LOCATION RESPONSE messages received from the Home Location Register (HLR) in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Mc isdMsgs

Description This attribute indicates the MAP-INSERT SUBSCRIBER DATA messages received from the Home Location Register (HLR) in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Mc isdResponseMsgs (isdResp)

Description This attribute indicates the MAP-INSERT SUBSCRIBER DATA RESPONSE messages sent to the Home Location Register (HLR) in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Mc dsdMsgs

Description This attribute indicates the MAP-DELETE SUBSCRIBER DATA messages received from the Home Location Register (HLR) in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Mc dsdResponseMsgs (dsdResp)

Description This attribute indicates the MAP-DELETE SUBSCRIBER DATA RESPONSE messages sent to the Home Location Register (HLR) in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Mc clMsgs

Description This attribute indicates the MAP-CANCEL LOCATION messages received from the Home Location Register (HLR) in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Mc clResponseMsgs (clResp)

Description This attribute indicates the MAP-CANCEL LOCATION RESPONSE messages sent to the Home Location Register (HLR) in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Mc rstMsgs

Description This attribute indicates the MAP-RESET messages received from the Home Location Register (HLR) in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Mc saiMsgs

Description This attribute indicates the MAP-SEND AUTHENTICATION INFO messages sent to the Home Location Register (HLR) in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Mc saiResponseMsgs (saiResp)

Description This attribute indicates the MAP-SEND AUTHENTICATION INFO RESPONSE messages received from the Home Location Register (HLR) in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Mc transLimitDiscards (trDisc)

Description This attribute indicates the number of transactions rejected by the MAP Client when the maximum number of concurrent MAP transactions supported by the MAP Client has been exceeded. The maximum number of MAP transactions is constrained by the MAP Client internal memory available to store the transactions. This counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Mc tmrExpiries (tmrEx)

Description: This attribute indicates the times the *mcTimer* (defined in component *Sgsn GprsSubscriberControl* and *Usgsn UmtsSubscriberControl*) expires before receiving a response from the Home Location Register (HLR). This can be used to determine if the provisionable attribute *mcTimer* must be changed, or a problem exists between the Serving GPRS Support Node (SGSN) or the UMTS Serving General Support Node (USGSN) and the Home Location Register (HLR). This counter counts the value in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc Mc ofsmMsgs

Description: This attribute indicates the MAP-MO-FORWARD-SHORT-MESSAGE messages received by the Inter-working Mobile Switching Center (IWMSC) from the MAP Client in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc Mc ofsmResMsgs

Description: This attribute indicates the MAP-MO-FORWARD-SHORT-MESSAGE response messages received by the MAP Client from the Inter-working Mobile Switching Center (IWMSC) in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc Mc tfsmMsgs

Description: This attribute indicates the MAP-MT-FORWARD-SHORT-MESSAGE messages received by the MAP Client from the Inter-working Mobile Switching Center (IWMSC) in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc Mc tfsmResMsgs

Description: This attribute indicates the MAP-MT-FORWARD-SHORT-MESSAGE response messages received by the Inter-working

Mobile Switching Center (IWMSC) from the MAP Client in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Mc rsmMsgs

Description This attribute indicates the MAP-READY-FOR-SM messages received by the Home Location Register (HLR) from the MAP Client in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Mc rsmResMsgs

Description This attribute indicates the MAP-READY-FOR-SM response messages received by the MAP Client from the Home Location Register (HLR) in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Mc currentTransactions (curTr)

Description This attribute indicates how many MAP transactions are currently being handled by the MAP Client. *currentTransactions* is expressed as a percentage utilization of the number of MAP transactions the MAP Client is capable of handling concurrently.

A SET alarm is generated by the MAP Client when the percentage utilization reaches a high threshold. A CLEAR alarm is generated by the MAP Client when the percentage utilization reaches a low threshold and an outstanding SET alarm exists.

The value reported is the value at the end of the collection interval.

Values Decimal (0..100)

### ATTRIBUTE Gsc Mc sccpServiceRequestTimeouts

Description This attribute indicates the MAP Stack Service request timeouts in the collection interval. This could occur if the MAP Stack was not responding to Service requests from the MAP Clients, or if there was an SS7-IP Gateway (SIG) or IP network problem.

Retries of the Service request are infinite since the MAP Client can not send or receive MAP messages until it is successfully registered with the MAP Stack.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Mc decodeErrors

Description This attribute indicates, over the collection interval, the number of MAP messages received from the peer nodes that are not decodable. The inability to decode the MAP message is caused by the MAP Client receiving a message with invalid data.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Mc dataMissingRespSent

Description This attribute indicates, over the collection interval, the number of “data missing” error responses sent to the peer nodes. This error may occur when optional data is missing from a MAP message received, when required data is missing from a MAP message received, or when an internal data structure is missing data.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Mc unexpectedDataValuesRespSent (unexpDataRespSent)

Description This attribute indicates, over the collection interval, the number of “unexpected data value” error responses sent to the peer nodes. This error may occur when the parameter type is correct in a MAP message received but contains data which is not relevant for the type of MAP service being invoked.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Mc systemFailuresRespSent (sysFailRespSent)

Description This attribute indicates, over the collection interval, the number of “system failure” error responses sent to the peer nodes. This error may occur when a task specified by a MAP message received cannot be performed because of a problem with another entity.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Mc unidentifiedSubscribersRespSent (unidentSubRespSent)

Description: This attribute indicates, over the collection interval, the number of “unidentified subscriber” error responses sent to the peer nodes. This error may occur when the subscriber is not contained in the subscriber database resulting in the failure to establish a call.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc Mc facilityNotSupportedRespSent (facNotSuppRespSent)

Description: This attribute indicates, over the collection interval, the number of “facility not supported” error responses sent to the peer nodes. This error may occur when the requested facility, such as SMS, is not supported.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc Mc smDeliveryFailuresRespSent (smDelFailRespSent)

Description: This attribute indicates, over the collection interval, the number of “short message delivery failure” error responses sent to the SMSC. This error may occur when the mobile runs out of memory to store short messages.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc Mc illegalSubscribersRespSent (illegalSubRespSent)

Description: This attribute indicates, over the collection interval, the number of “illegal subscriber” error responses sent to the peer nodes. This error may occur when an illegal access attempt is determined during the authentication process.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc Mc illegalEquipmentRespSent

Description: This attribute indicates, over the collection interval, the number of “illegal equipment” error responses sent to the peer nodes. This error may occur when the International Mobile station Equipment Identity (IMEI) is either blacklisted or not whitelisted.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc Mc subscriberBusyForMtSmsRespSent (SubBusyMtSmsRespSent)

Description: This attribute indicates, over the collection interval, the number of “subscriber busy for mobile-terminated short message service” error responses sent to the SMSC. This error may occur when mobile terminated short messages cannot be completed.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc Mc absentSubscriberSmRespSent (absentSubSmRespSent)

Description: This attribute indicates, over the collection interval, the number of “absent subscriber short message service” error responses sent to the SMSC. This error may occur when the mobile terminated short message transfer cannot be completed because the network cannot contact the subscriber. This may be caused by the mobile being turned off.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc Mc dataMissingRespRecv

Description: This attribute indicates, over the collection interval, the number of “data missing” error responses received from the peer nodes. This error may occur when optional data is missing from a MAP message sent, when required data is missing from a MAP message sent, or when an internal data structure is missing data.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc Mc unexpectedDataValuesRespRecv (unexpDataRespRecv)

Description: This attribute indicates, over the collection interval, the number of “unexpected data value” error responses received from the peer nodes. This error may occur when the parameter type is correct in a MAP message sent but contains data which is not relevant for the type of MAP service being invoked.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc Mc systemFailuresRespRecv (sysFailRespRecv)

Description: This attribute indicates, over the collection interval, the number of “system failure” error responses received from the peer nodes. This error may occur when a task specified by a MAP message

sent cannot be performed because of a problem with another entity.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Mc unknownSubscribersRespRecv (unkSubRespRecv)

Description This attribute indicates, over the collection interval, the number of “unknown subscriber” error responses received from the peer nodes. This error may occur when a message sent is processed for a subscription that does not exist.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Mc roamingNotAllowedRespRecv (noRoamRespRecv)

Description This attribute indicates, over the collection interval, the number of “roaming not allowed” error responses received from the HLR or SMSC. This error may occur when a location update attempt is made in an area not covered by the subscription.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Mc facilityNotSupportedRespRecv (facNotSuppRespRecv)

Description This attribute indicates, over the collection interval, the number of “facility not supported” error responses received from the HLR or SMSC. This error may occur when the requested facility, such as SMS, is not supported.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Mc smDeliveryFailuresRespRecv (smDelFailRespRecv)

Description This attribute indicates, over the collection interval, the number of “short message delivery failure” error responses received from the SMSC. This error may occur when the Short Message Service Center returns a delivery error indication in response to a message sent by the MAP Client.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Mc invalidMessages

Description This attribute indicates, over the collection interval, the number of invalid messages received by the MAP Client. This may occur

if the MAP Client receives an unsolicited message, a message with an invalid header, or an invalid dialogue ID.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Mc isdMsgsUpdateLocation (isdMsgsUpdLoc)

Description This attribute indicates, over the collection interval, the number of MAP-INSERT SUBSCRIBER DATA messages received from the Home Location Register (HLR) during a GPRS Update Location procedure.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Mc isdMsgsHlrSubUpdate (isdMsgsHlrSubUp)

Description This attribute indicates, over the collection interval, the number of MAP-INSERT SUBSCRIBER DATA messages received from the Home Location Register (HLR) due to an updated mobile subscription.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Mc isdFailures (isdFail)

Description This attribute indicates the number of MAP-INSERT SUBSCRIBER DATA messages sent to the Home Location Register (HLR) that could not be processed due to one of the following errors:

Data Missing
Unexpected Data Value
Unidentified Subscriber
Decode errors

This counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Mc clMsgsHlrDetach (clMsgsHlrDetach)

Description This attribute indicates, over the collection interval, the number of MAP-CANCEL LOCATION messages received from the Home Location Register (HLR) due to an HLR initiated Detach.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Mc clMsgsSgsnChange (clMsgsSgsnChg)

Description This attribute indicates, over the collection interval, the number of MAP-CANCEL LOCATION messages received from the Home Location Register (HLR) due to a Service GPRS Support Node (SGSN) change.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Mc clMsgsHlrOther (clMsgsHlrOther)

Description This attribute indicates, over the collection interval, the number of MAP-CANCEL LOCATION messages received from the Home Location Register (HLR) with a cancellation type other than a Service GPRS Support Node (SGSN) change or an HLR initiated Detach.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Mc clFailures (clFail)

Description This attribute indicates the number of MAP-CANCEL LOCATION messages received from the Home Location Register (HLR) that could not be processed due to one of the following errors:

Data Missing
Unexpected Data Value
Decode errors

This counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Mc dsdFailures (dsdFail)

Description This attribute indicates the number of MAP-DELETE SUBSCRIBER DATA messages sent to the Home Location Register (HLR) that could not be processed due to one of the following errors:

Data Missing

Unexpected Data Value
Unidentified Subscriber
Decode errors

This counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Mc uAbortMsgSent

Description This attribute indicates, over the collection interval, the number of MAP USER ABORT messages sent by the MAP Client to the peer nodes. This message may be sent as a result of a resource limitation caused by congestion or as a result of the unavailability of resources.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Mc pAbortMsgRecv

Description This attribute indicates, over the collection interval, the number of MAP PROVIDER ABORT messages received by the MAP Client from the peer nodes. This message indicates to the MAP service-user to abort a MAP dialogue. This message may be received due to a MAP service-provider malfunction, supporting dialogue/transaction release, resource limitation, maintenance activity, version incompatibility, or an abnormal MAP dialogue.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Mc uAbortMsgRecv

Description This attribute indicates, over the collection interval, the number of MAP USER ABORT messages received by the MAP Client from the peer nodes. This message indicates to the MAP service-provider to abort a MAP dialogue. This message may be received due to a resource limitation caused by congestion or by unavailability of resources.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Mc pmsMsgs

Description This attribute indicates the number of Mobile Subscriber Purge messages sent to the Home Location Register (HLR).

This counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Mc pmsResponseMsgs (pmsRes)

Description This attribute indicated the number of Mobile Subscriber Purge Response messages received from the Home Location Register (HLR).

This counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Mc pslMsgs

Description This attribute counts the MAP-PROVIDE SUBSCRIBER LOCATION messages received by the MAP Client from the Gateway Mobile Location Center (GMLC).

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Mc pslRespMsgs

Description This attribute counts the MAP-PROVIDE SUBSCRIBER LOCATION response messages sent by the MAP Client to the Gateway Mobile Location Center (GMLC).

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Mc unauthorizedReqNetworkRespSent (unauthReqNetRespSent)

Description This attribute counts the number of “Unauthorized Requested Network” error responses sent to the Gateway Mobile Location Center (GMLC). This error may occur when a Location Request is denied due to the GMLC not being in the home country.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Mc unauthorizedLcsClientRespSent (unauthLcsCliRespSent)

Description: This attribute counts the number of “Unauthorized LCS Client” error responses sent to the Gateway Mobile Location Center (GMLC). This error may occur when a Location Request is denied due to privacy restrictions.

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc Mc positionMethodFailureRespSent (posMethFailRespSent)

Description: This attribute counts the number of “Positioning Method Failure” error responses sent to the Gateway Mobile Location Center (GMLC). This error may occur when the position of the mobile cannot be retrieved.

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc Mc absentSubscriberRespSent (absentSubRespSent)

Description: This attribute counts the number of “Absent Subscriber” error responses sent to the Gateway Mobile Location Center (GMLC). This error may occur when the subscriber is International Mobile Subscriber Identity (IMSI) detached, in a restricted area, or does not respond to paging.

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### COMPONENT Gsc GtpMgmt (GtpM)

Groups:
"GROUP Gsc GtpM Provisioned (Prov)"
"GROUP Gsc GtpM Operational (Oper)"
"GROUP Gsc GtpM WlcCustomCounters (WlcCustomCntr)"
"GROUP Gsc GtpM OsiState (State)"

"COLLECTED STATS GprsSubscriberControl GtpMgmt"

Scope: Application

| | |
|---|---|
| Description | *Gsc/n GtpMgmt*<br><br>This component represents the signaling part of the GPRS Tunneling Protocol (GTP) protocol layer which is used to send the control messages. |
| Dyn. Subcomp. | "COMPONENT Gsc GtpM GtpPath (Path)" |
| Common Verbs | Help<br>List<br>Display |

## GROUP Gsc GtpM Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisionable attribute of the GPRS Tunneling Protocol (GTP) protocol layer. |

## ATTRIBUTE Gsc GtpM maxTransactions (maxTr)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the maximum number of outstanding GPRS Tunneling Protocol (GTP) messages that can be simultaneously waiting for responses or acknowledgments from the peer GPRS Support Nodes (GSNs).<br><br>The peak number of transactions can be obtained from the attribute *peakTransactions*. |
| Values | Decimal (10..65535) |
| Default | 100 |

## ATTRIBUTE Gsc GtpM maxIncomingRequests (maxInReq)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |

| | |
|---|---|
| Description | This attribute specifies the maximum number of outstanding incoming GPRS Tunnelling Protocol (GTP) requests that can be handled. Changing the value changes the amount of memory allocated for these requests. Requests rejected because this maximum is reached are counted by the attribute *incomingRequestsRejected*. |
| Values | Decimal (10..100) |
| Default | 56 |

### ATTRIBUTE Gsc GtpM linkToPort (lToPort)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the IP address and the UDP port numbers that the GPRS Tunneling Protocol (GTP) version 0 and version 1 use to communicate with the Gateway GPRS Support Node (GGSN).<br><br>The IP address and UDP ports are specified by setting this attribute to link to the correct *Gips IpAddress Udp Port* components.<br><br>The standards recommend the value of one member of this list (used by GTP Version 0) to be set to *Gips/n IpAddress/ <ipaddress> Udp Port/3386.*<br><br>The standards recommend the value of the other member of this list (used by GTP Version 1) to be set to *Gips/n IpAddress/ <ipaddress> Udp Port/2123.* |
| List of | Link (Service, linkToApplication) |
| List Size | 2 |
| Default | No default |

### GROUP Gsc GtpM Operational (Oper)

| | |
|---|---|
| Properties | Operational |

| | |
|---|---|
| Description | This group contains the operational data of the GPRS Tunneling Protocol (GTP) protocol layer. |

### ATTRIBUTE Gsc GtpM peakTransactions (peakTr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the peak number of concurrent transactions of the GPRS Tunneling Protocol (GTP).<br><br>The maximum value is provisioned in the attribute *maxTransactions*. |
| Values | Decimal (0..65535) |
| Default | No default |

### ATTRIBUTE Gsc GtpM peakGgsnPaths (peakGgsnP)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the peak number of managed paths that have been setup between this Serving GPRS Support Node (SGSN)<br>and the Gateway GPRS Support Nodes (GGSNs).<br><br>The maximum value is provisioned in the attribute *maxGgsnPaths* (defined in *Sgsn GprsSubscriberControl*). |
| Values | Decimal (0..65535) |
| Default | No default |

### ATTRIBUTE Gsc GtpM sgsnContextReqAttempts (sgsnCntxReqAtt)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the SGSN CONTEXT REQUEST messages sent from the new Serving GPRS Support Node (SGSN) to the old SGSN. This counter is incremented in the SGSN acting as the new SGSN. |

The counter wraps to zero when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Gsc GtpM sgsnContextReqExhaust (sgsnCntxReqE)

Access: Read: All
Write: Illegal

Description: This attribute counts the number of times *n3SgsnContextRequest* is exhausted and the SGSN CONTEXT REQUEST message is not successful. This attribute is incremented in the Serving GPRS Support Node (SGSN) acting as the new SGSN.

The counter wraps to zero when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Gsc GtpM updatePdpReqAttempts (uPdpReq)

Access: Read: All
Write: Illegal

Description: This attribute counts the number of UPDATE PDP CONTEXT REQUEST messages that are sent from this Serving GPRS Support Node (SGSN), acting as the new SGSN, to the GGSN.

The counter wraps to zero when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Gsc GtpM updatePdpReqExhaust (uPdpReqRetE)

Access: Read: All
Write: Illegal

Description: This attribute counts the number of times the retry attribute, *n3UpdatePdpRequest*, is exhausted and the UPDATE PDP CONTEXT REQUEST message is not successful. This attribute

is incremented in the Serving GPRS Support Node (SGSN) acting as the new SGSN.

The counter wraps to zero when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Gsc GtpM sgsnContextRespAttempts (sgsnCnxtRespAtt)

Access: Read: All
Write: Illegal

Description: This attribute counts the number of SGSN CONTEXT RESPONSE messages which are sent to the new Serving GPRS Support Node (SGSN). This counter is incremented in the SGSN which is acting as the old SGSN. This counter is incremented only the first time the message is sent out per SGSN CONTEXT REQUEST received.

The counter wraps to zero when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Gsc GtpM sgsnContextRespExhaust (sgsnCntxRespExh)

Access: Read: All
Write: Illegal

Description: This attribute counts the number of times *n3SgsnContextRequest* is exhausted and the SGSN CONTEXT RESPONSE message is not successful. This attribute is incremented in the Serving GPRS Support Node (SGSN) acting as the old SGSN.

The counter wraps to zero when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Gsc GtpM sgsnContextAcks (sgsnCntxAcks)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of SGSN CONTEXT ACK messages sent from the new Serving GPRS Support Node (SGSN) to the old SGSN. This counter is incremented in the SGSN acting as the new SGSN.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc GtpM echoRequestsTransmitted (echoReqTx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of Echo Request Messages sent over the Gn interface. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc GtpM echoResponsesTransmitted (echoRspTx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of Echo Response Messages sent over the Gn interface. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc GtpM pathFailures (pathFail)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the path failures detected by the GPRS Tunnelling Protocol (GTP), based on the attribute *strictPathSupervision*, provisioned in the *Sgsn Gsc* component.<br><br>If the attribute *strictPathSupervision* has a value ***enabled***, failure of the remote end to respond to any GTP request will result in a path failure being declared.<br><br>If the attribute *strictPathSupervision* has a value ***disabled***, then failure of the remote end to respond to an echo request will be marked as a path failure, but all other failures will not be detected.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc GtpM incomingRequestsRejected (inReqReject)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of the incoming GPRS Tunnelling Protocol (GTP) requests that were rejected because the maximum number of outstanding incoming requests was exceeded. This maximum is based on the attribute *maxIncomingRequests*.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Gsc GtpM WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Gsc GtpM customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc GtpM customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc GtpM customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Gsc GtpM OsiState (State)

| | |
|---|---|
| Properties | Operational |

Description

This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Gsc GtpM adminState (osiAdmin)

Access

Read only

Description

This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values

locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default

unlocked

### ATTRIBUTE Gsc GtpM operationalState (osiOper)

Access

Read only

Description

This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be

providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Gsc GtpM usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

## COLLECTED STATS GprsSubscriberControl GtpMgmt

Description
The statistics record generated by the GprsSubscriberControl GtpMgmt component.

### ATTRIBUTE Gsc GtpM echoRequestsTransmitted (echoReqTx)

Description
This attribute counts the number of Echo Request Messages sent over the collection interval.

The count is taken at the end of the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc GtpM echoResponsesTransmitted (echoRspTx)

Description This attribute counts the number of Echo Response Messages sent on the Gn Interface over the collection interval.

The count is taken at the end of the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc GtpM pathFailures

Description This attribute counts the number of path failures detected by the GPRS Tunnelling Protocol (GTP), based on the attribute *strictPathSupervision*, provisioned in the *Sgsn Gsc* component, over the collection interval.

If the attribute *strictPathSupervision* has a value ***enabled***, failure of the remote end to respond to any GTP request will result in path failure being declared.

If the attribute *strictPathSupervision* has a value ***disabled***, then failure of the remote end to respond to an echo request will be marked as a path failure, but all other failures will not be detected.

The count is taken at the end of the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc GtpM incomingRequestsRejected (inReqReject)

Description This attribute counts the number of the incoming GPRS Tunnelling Protocol (GTP) requests that were rejected during the collection interval because the maximum number of outstanding incoming requests was exceeded. This maximum is based on the attribute *maxIncomingRequests*.

The count is taken at the end of the collection interval.

Values Decimal (0..4294967295)

## COMPONENT Gsc GtpM GtpPath (Path)

| | |
|---|---|
| Instance | IP address |
| Groups | "GROUP Gsc GtpM Path OsiState (State)"<br>"GROUP Gsc GtpM Path WlcCustomCounters (WlcCustomCntr)" |
| Scope | Application |
| Description | *Usc/n GtpC GtpPath/<ipaddress>*<br>*Gsc/n GtpMgmt GtpPath/<ipaddress>*<br><br>This component represents paths managed by the signaling part of the GPRS Tunneling Protocol (GTP) protocol layer. Paths are set up between this (UMTS) Serving GPRS Support Node ((U) SGSN) and the GPRS Support Nodes (GSNs). |
| Common Verbs | Help<br>List<br>Display |

## GROUP Gsc GtpM Path OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

## ATTRIBUTE Gsc GtpM Path adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. |

When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Gsc GtpM Path operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Gsc GtpM Path usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Gsc GtpM Path WlcCustomCounters (WlcCustomCntr)

Properties
Operational

Description
This group contains the spare counters that can be dynamically patched.

### ATTRIBUTE Gsc GtpM Path customCounter1 (customCntr1)

Access
Read: All
Write: Illegal

Description
This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch.

Values
Decimal (0..4294967295)

Default
No default

### ATTRIBUTE Gsc GtpM Path customCounter2 (customCntr2)

Access
Read: All
Write: Illegal

Description
This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch.

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc GtpM Path customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT Gsc GprsMobilityManagement (Gmm)

| | |
|---|---|
| Groups | "GROUP Gsc Gmm Provisioned (Prov)"<br>"GROUP Gsc Gmm GmmStatistics (GmmStats)"<br>"GROUP Gsc Gmm StatusRxStatistics (StStats)"<br>"GROUP Gsc Gmm GmmCircuitSwStats (CktSwStats)"<br>"GROUP Gsc Gmm GmmAttRejStatistics (GmmAttRejStats)"<br>"GROUP Gsc Gmm WlcCustomCounters (WlcCustomCntr)" |

"COLLECTED STATS GprsSubscriberControl GprsMobilityManagement"

| | |
|---|---|
| Scope | Application |
| Description | *Gsc/n GprsMobilityManagement*<br><br>This component represents the GPRS Mobility Management (GMM) protocol layer of the GPRS. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Gsc Gmm Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |

| | |
|---|---|
| Description | This group contains provisionable attribute of GPRS Mobility Management (GMM). |

### ATTRIBUTE Gsc Gmm radioPriorityLevel (rpLevel)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the priority level that the Mobile Station (MS) uses for transmission of data related to Mobile Originated Short Message Service (SMS) transmission.<br><br>The Radio Priority Level ***1*** represents the highest priority and ***4*** represents the lowest priority. |
| Values | Decimal (1..4) |
| Default | 4 |

### GROUP Gsc Gmm GmmStatistics (GmmStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistical attributes of the *GprsMobilityManagement (Gmm)*. |

### ATTRIBUTE Gsc Gmm authenticationRequests (authReqs)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the AUTHENTICATION AND CIPHERING REQUEST messages sent to the MS requiring only authentication and messages requiring both authentication and ciphering. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Gmm cipheringRequests (ciphReqs)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the AUTHENTICATION AND CIPHERING REQUEST messages sent to the Mobile Stations (MS) requiring only ciphering. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Gmm identityRequests (idReqs)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the IDENTITY REQUEST messages sent to the Mobile Stations (MS). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Gmm ptmsiReallocationRequests (relReqs)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the implicit and explicit P-TMSI REALLOCATION messages sent to the Mobile Stations (MS). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Gmm bssgpSuspendMsgs (bssgpSus)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the SUSPEND messages received by the Serving GPRS Support Node (SGSN) from the Base Station System (BSS). The BSS sends this message when a mobile subscriber switches from the packet-switched mode to the circuit-switched mode. The counter wraps to zero when it exceeds the maximum value. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Gmm bssgpResumeMsgs (bssgpRes)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the RESUME messages received by the Serving GPRS Support Node (SGSN) from the Base Station System (BSS). The BSS sends this message when a mobile subscriber switches from the circuit-switched mode to the packet-switched mode. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Gmm readyStateSubscribers (readySub)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the mobile subscribers that are GPRS-attached and in Ready state. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Gmm currentlyAttached (curAtt)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the Mobile Stations (MS) that are currently GPRS-attached and in Ready or Standby state.<br><br>The maximum subscribers that can be GPRS-attached is provisioned in the *maxAttachedSubscribers* attribute of the parent *GprsSubscriberControl (Gsc) component*.<br><br>This attribute together with maxAttachedSubscribers are used to |

| | |
|---|---|
| | determine when subscriber count overload occurs (Refer to Gsc subCountOvldAttachesDiscarded). |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Gmm attachesSuccessful (attSuc)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the GPRS-attaches to this Serving GPRS Support Node (SGSN) that were successful. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Gmm attachesWithKnownTlli (knownTlliAtt)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the ATTACH REQUEST messages received with a Temporary Logical Link Identifier (TLLI) previously assigned by this Serving GPRS Support Node (SGSN). This includes all successful and unsuccessful attempts. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Gmm attachesWithUnknownTlli (unkTlliAtt)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the ATTACH REQUEST messages received with a Temporary Logical Link Identifier (TLLI) not assigned by this Serving GPRS Support Node (SGSN). This includes all successful and unsuccessful attempts. The counter wraps to zero when it exceeds the maximum value. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Gmm attachesWithImsi (attWithImsi)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the ATTACH REQUEST messages received with an International Mobile Subscriber Identity (IMSI) as an identifier. This includes all successful and unsuccessful attempts. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Gmm attachesWithInfoAttempts (attWithInfo)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the ATTACH attempts by mobile subscribers with the GPRS Mobility Management (GMM) context held in the Serving GPRS Support Node (SGSN). This includes all successful and unsuccessful attempts. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Gmm detachesSuccessful (detSuc)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the successful DETACHes that are either mobile or network initiated. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Gmm msDetachRequests (msDetReqs)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Mobile Station (MS) initiated DETACH REQUEST messages received by this Serving GPRS Support Node (SGSN). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Gmm msDetachRejected (msDetRej)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Mobile Station (MS) initiated GPRS-DETACH REQUEST messages which have been rejected by this Serving GPRS Support Node (SGSN). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Gmm nwkDetachRequests (nwkDetReqs)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the network initiated DETACH REQUEST messages sent to a mobile subscriber. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Gmm authenticationsRejected (authRej)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the AUTHENTICATION AND CIPHERING REJECT messages sent to the Mobile Station (MS) due to authentication failures. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Gmm normalIntraSgsnRaUpdate (norIntraSgsnRau)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the normal intra-Serving GPRS Support Node (SGSN) ROUTING AREA UPDATE REQUEST messages received from the Mobile Station (MS). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Gmm periodicIntraSgsnRaUpdate (perIntraSgsnRau)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the periodic intra-Serving GPRS Support Node (SGSN) ROUTING AREA UPDATE REQUEST messages from the Mobile Station (MS). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Gmm normalInterSgsnRaUpdate (interSgsnRau)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the inter-Serving GPRS Support Node (SGSN) ROUTING AREA UPDATE REQUEST messages from the Mobile Station (MS). The counter wraps to zero when it exceeds the maximum value. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Gmm intraRaCellChange (intraRaCellCh)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the intra-Serving GPRS Support Node (SGSN) intra-Routing Area Update cell changes performed by the Mobile Station (MS). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Gmm initialPsPageRequests (initPgReq)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the initial PS (Packet-Switched) PAGE REQUEST messages sent to the Mobile Station (MS). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Gmm reattemptPsPageRequests (rePgReq)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the re-attempt PS (Packet-Switched) PAGE REQUEST messages sent to the Mobile Station (MS) after the initial page request. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Gmm interSgsnRaUpdateAccepts (irauAccepts)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the ROUTING AREA UPDATE ACCEPT messages sent from this SGSN, while acting as the new SGSN, to the Mobile Station (MS). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Gmm t3Timeouts (t3To)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of times the *t3TunnelTimer* (defined in *Sgsn GprsSubscriberControl*) expires in this SGSN, while acting as the old SGSN, and the CANCEL LOCATION message has been received. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Gmm msPresentAttempts (msPresentAtt)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of times the SGSN detects that the Mobile Station (MS) has recovered operation such as responded to a paging request via the SGSN. If the MS has alerted the SGSN and the HLR that its memory has exceeded, then the HLR will not notify the Service Center that the MS is ready for Short Message Services (SMS).<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Gsc Gmm nwkDetachReachableTimer (nwkDetReach)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of network initiated detaches due to the expiration of reachable timer. The *mobileReachableTimer* attribute is provisioned in the *Sgsn Gsc* component.<br><br>The counter counts the events in the collection interval. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Gmm nwkDetachCancelLocation (nwkDetCancelLoc)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of network initiated detaches in the specified cell due to the receipt of CANCEL LOCATION Messages from the Home Location Register (HLR).<br><br>This counter counts the events in the collection interval. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Gmm nwkDetachDuplicateAttach (nwkDetDupAtt)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of network initiated detaches due to mobile reattaches with a new random Packet Temporary (PTMSI) without first performing a detach. This is an implicit detach and no detach message is sent to the mobile.<br><br>The counter counts the events in the collection interval. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Gmm nwkDetachTempNetworkFailure (nwkDetNetFail)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of network initiated detaches in this cell due to temporary network problems.<br><br>The counter counts the events in the collection interval. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Gmm nwkDetachForReattach (nwkDetReatt)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of network initiated detaches with a detach type of "reattach required".<br><br>The counter counts the events in the collection interval. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Gsc Gmm StatusRxStatistics (StStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistical attributes of the *GprsMobilityManagement (Gmm)*. |

### ATTRIBUTE Gsc Gmm retriesUponEntry (nEntry)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of times the Serving GPRS Support Node (SGSN) received a status message from a Mobile |

| | |
|---|---|
| | Station (MS) to indicate a retry upon entry into a new cell. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Gmm incorrectMsgs (incorrMsgs)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of times the Serving GPRS Support Node (SGSN) received a status message from a Mobile Station (MS) indicating that a semantically incorrect message was received by the MS. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Gmm invalidMandatoryInfos (invMandInfos)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of mobile originated messages containing invalid mandatory information that are received by the Serving GPRS Support Node (SGSN).<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Gmm unimplementedMsgs (uniMsgs)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of times the Serving GPRS Support Node (SGSN) received a status message from a Mobile Station (MS) indicating an unimplemented or unrecognized |

| | |
|---|---|
| | message was received by the MS. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Gmm incompatibleMsgsType (incMsgsT)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of times the Serving GPRS Support Node (SGSN) received a status message from a Mobile Station (MS) indicating a message type received by the MS was not compatible with the protocol state of the MS. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Gmm unimplementedInfos (uniInfos)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of times the Serving GPRS Support Node (SGSN) received a status message from a Mobile Station (MS) indicating an unimplemented or unrecognized information element inside a message was received by the MS. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Gmm conditionalIeErrors (condIeErrs)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of times the Serving GPRS Support Node (SGSN) received a status message from a Mobile Station (MS) indicating that a message containing a conditional |

| | |
|---|---|
| | information element error was received by the MS. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Gmm incompatibleMsgs (incMsgs)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of times the Serving GPRS Support Node (SGSN) received a status message from a Mobile Station (MS) indicating a message received by the MS was not compatible with the protocol state of the MS. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Gmm unspecifiedProtocolErrors (unPerrs)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of times the Serving GPRS Support Node (SGSN) received a status message from the Mobile Station (MS) indicating that the MS received a message containing an unspecified protocol error. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Gmm miscStatusRx (mStRx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of times the Serving GPRS Support Node (SGSN) received a miscellaneous status message from a Mobile Station (MS). The counter wraps to zero when it exceeds the maximum value. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Gsc Gmm GmmCircuitSwStats (CktSwStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistical attributes of the *GprsMobilityManagement (Gmm) circuit switched services*. |

### ATTRIBUTE Gsc Gmm circuitAttachedCurrent (cktAttCur)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of Mobile Stations (MSs) that are currently attached to the *GprsSubscriberControl* for circuit switched services. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Gmm circuitAttachTotal (cktAttTot)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the successful mobile attaches to the *GprsSubscriberControl* for circuit switched services. Every time a mobile attaches (or re-attaches) for circuit switched services, the count is incremented.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Gmm vlrUnreliableMobileCurrent (vlrUnMobCur)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute indicates the number of Mobile Stations (MSs) currently attached for circuit switched services that have set *vlrReliable* (defined in *Sgsn Imsi/<imsi> Bssap* or *Gsc/n Imsi/<imsi> Bssap*) to ***false***. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Gsc Gmm GmmAttRejStatistics (GmmAttRejStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistical attributes of the Attach rejects for *GprsMobilityManagement (Gmm)*. |

### ATTRIBUTE Gsc Gmm attachRejIllegalMs (attRejIllMs)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the GPRS-attaches to this Serving GPRS Support Node (SGSN) that were rejected because of the reject cause Illegal Ms. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Gmm attachRejGprsServNotAllowed (attRejGprsServ)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the GPRS-attaches to this Serving GPRS Support Node (SGSN) that were rejected because of the reject cause Gprs Service not allowed. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Gmm attachRejGprsServNotAllowedInPlmn (attRejGprsServPlmn)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the GPRS-attaches to this Serving GPRS Support Node (SGSN) that were rejected because of the reject cause "Gprs Service not allowed in this PLMN".<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Gmm attachRejPlmnNotAllowed (attRejPlmn)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the GPRS-attaches to this Serving GPRS Support Node (SGSN) that were rejected because of the reject cause PLMN not allowed. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Gmm attachRejPacketNetworkFailure (attRejNetFail)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the GPRS-attaches to this Serving GPRS Support Node (SGSN) that were rejected because of the reject cause Network Failure. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Gmm attachRejSgsnCongestion (attRejCongest)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the GPRS-attaches to this Serving GPRS Support Node (SGSN) that were rejected because of the reject cause Congestion. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Gmm attachRejMsgError (attRejMsgErr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the GPRS-attaches to this Serving GPRS Support Node (SGSN) that were rejected because of one of the following reject causes:<br>Semantically incorrect message,<br>Invalid mandatory information,<br>Message type non-existence or not implemented,<br>Message type not compatible with the protocol state,<br>Information element non-existent or not implemented,<br>Conditional IE error,<br>Message not compatible with the protocol state,<br>Protocol error, unspecified.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Gmm attachRejRoamNotAllowedInLocArea (attRejRoam)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the GPRS-attaches to this Serving GPRS Support Node (SGSN) that were rejected because of the reject cause "roaming not allowed in location area". |

| | |
|---|---|
| | This counter is incremented when a Unit Data Transfer Service message (UDTS) is received from the SS7/IP Gateway (SIG) for a Update GPRS Location (UGL) or a Send Authentication Info (SAI), or when the global title translation failure occurs in the MapClient component.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Gsc Gmm WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Gsc Gmm customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Gmm customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |

Default No default

### ATTRIBUTE Gsc Gmm customCounter3 (customCntr3)

Access Read: All
Write: Illegal

Description This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch.

Values Decimal (0..4294967295)

Default No default

## COLLECTED STATS GprsSubscriberControl GprsMobilityManagement

Description The statistics record generated by the GprsSubscriberControl GprsMobilityManagement component.

### ATTRIBUTE Gsc Gmm authenticationRequests (authReqs)

Description This attribute counts the AUTHENTICATION AND CIPHERING REQUEST messages sent to the MS requiring only authentication and messages requiring both authentication and ciphering. The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Gmm cipheringRequests (ciphReqs)

Description This attribute counts the AUTHENTICATION AND CIPHERING REQUEST messages sent to the Mobile Stations (MS) requiring only ciphering in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Gmm identityRequests (idReqs)

Description This attribute counts the IDENTITY REQUEST messages sent to the Mobile Stations (MS) in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Gmm ptmsiReallocationRequests (relReqs)

| | |
|---|---|
| Description | This attribute counts the implicit and explicit P-TMSI REALLOCATION messages sent to the Mobile Stations (MS) in the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Gsc Gmm bssgpSuspendMsgs (bssgpSus)

| | |
|---|---|
| Description | This attribute counts the SUSPEND messages received by the Serving GPRS Support Node (SGSN) from the Base Station System (BSS). The BSS sends this message when a mobile subscriber switches from packet-switched mode to circuit-switched mode. This counter counts the events in the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Gsc Gmm bssgpResumeMsgs (bssgpRes)

| | |
|---|---|
| Description | This attribute counts the RESUME messages received by the Serving GPRS Support Node (SGSN) from the Base Station System (BSS). The BSS sends this message when a mobile subscriber switches from circuit-switched mode to packet-switched mode. This counter counts the events in the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Gsc Gmm readyStateSubscribers (readySub)

| | |
|---|---|
| Description | This attribute indicates the mobile subscribers that are GPRS-attached and in Ready state. This value reported is the value at the end of the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Gsc Gmm currentlyAttached (curAtt)

| | |
|---|---|
| Description | This attribute indicates the Mobile Stations (MS) that are currently GPRS-attached and in Ready or Standby state. This value reported is the value at the end of the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Gsc Gmm attachesSuccessful (attSuc)

Description: This attribute counts the GPRS-attaches to this Serving GPRS Support Node (SGSN) that were successful in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc Gmm attachesWithKnownTlli (knownTlliAtt)

Description: This attribute counts the ATTACH REQUEST messages received with a Temporary Logical Link Identifier (TLLI) previously assigned by this Serving GPRS Support Node (SGSN). This includes all successful and unsuccessful attempts. This counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc Gmm attachesWithUnknownTlli (unkTlliAtt)

Description: This attribute counts the ATTACH REQUEST messages received with a Temporary Logical Link Identifier (TLLI) not assigned by this Serving GPRS Support Node (SGSN). This includes all successful and unsuccessful attempts. This counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc Gmm attachesWithImsi (attWithImsi)

Description: This attribute counts the ATTACH REQUEST messages received with an International Mobile Subscriber Identity (IMSI) as an identifier. This includes all successful and unsuccessful attempts. This counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc Gmm attachesWithInfoAttempts (attWithInfo)

Description: This attribute counts the ATTACH attempts by mobile subscribers with the GPRS Mobility Management (GMM) context held in the Serving GPRS Support Node (SGSN). This includes all successful and unsuccessful attempts. This counter counts the events in the collection interval.

| | |
|---|---|
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Gsc Gmm detachesSuccessful (detSuc)

| | |
|---|---|
| Description | This attribute counts the successful mobile or network initiated DETACHes in the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Gsc Gmm msDetachRequests (msDetReqs)

| | |
|---|---|
| Description | This attribute counts the Mobile Station (MS) initiated DETACH REQUEST messages received by this Serving GPRS Support Node (SGSN) in the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Gsc Gmm msDetachRejected (msDetRej)

| | |
|---|---|
| Description | This attribute counts the Mobile Station (MS) initiated GPRS-DETACH REQUEST messages which have been rejected by this Serving GPRS Support Node (SGSN) in the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Gsc Gmm nwkDetachRequests (nwkDetReqs)

| | |
|---|---|
| Description | This attribute counts the network initiated DETACH REQUEST messages sent to a mobile subscriber in the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Gsc Gmm authenticationsRejected (authRej)

| | |
|---|---|
| Description | This attribute counts the AUTHENTICATION AND CIPHERING REJECT messages sent to the Mobile Station (MS) due to authentication failures in the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Gsc Gmm normalIntraSgsnRaUpdate (norIntraSgsnRau)

| | |
|---|---|
| Description | This attribute counts the normal intra-Serving GPRS Support Node (SGSN) ROUTING AREA UPDATE REQUEST messages received from the Mobile Station (MS) in the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Gsc Gmm periodicIntraSgsnRaUpdate (perIntraSgsnRau)

Description This attribute counts the periodic intra-Serving GPRS Support Node (SGSN) ROUTING AREA UPDATE REQUEST messages from the Mobile Station (MS) in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Gmm normalInterSgsnRaUpdate (interSgsnRau)

Description This attribute counts the inter-Serving GPRS Support Node (SGSN) ROUTING AREA UPDATE REQUEST messages from the Mobile Station (MS) in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Gmm intraRaCellChange (intraRaCellCh)

Description This attribute counts the intra-Serving GPRS Support Node (SGSN) intra-Routing Area cell changes performed by the Mobile Station (MS) in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Gmm initialPsPageRequests (initPgReq)

Description This attribute counts the initial PS (Packet-Switched) PAGE REQUEST messages sent to the Mobile Station (MS) in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Gmm reattemptPsPageRequests (rePgReq)

Description This attribute counts the re-attempt PS (Packet-Switched) PAGE REQUEST messages sent to the Mobile Station (MS) after the initial page request in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Gmm interSgsnRaUpdateAccepts (irauAccepts)

Description This attribute counts the ROUTING AREA UPDATE ACCEPT messages sent from this SGSN, while acting as the new SGSN, to the Mobile Station (MS) in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Gmm t3Timeouts (t3To)

Description This attribute counts the number of times the *t3TunnelTimer* (defined in *Sgsn GprsSubscriberControl*) expires in this SGSN, while acting as the old SGSN, and the CANCEL LOCATION message has been received. The counter wraps to zero when it exceeds the maximum value.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Gmm msPresentAttempts (msPresentAtt)

Description This attribute indicates, for the collection interval, the number of times the SGSN detects that the Mobile Station (MS) has recovered operation such as responded to a paging request via the SGSN. If the MS has alerted the SGSN and the HLR that its memory has exceeded, then the HLR will not notify the Service Center that the MS is ready for Short Message Services (SMS).

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Gmm nwkDetachReachableTimer (nwkDetReach)

Description This attribute counts the number of network initiated detaches due to the expiration of reachable timer. The *mobileReachableTimer* attribute is provisioned in the *Sgsn Gsc* component.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Gmm nwkDetachCancelLocation (nwkDetCancelLoc)

Description This attribute counts the number of network initiated detaches due to the receipt of CANCEL LOCATION Messages from the Home Location Register (HLR).

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Gmm nwkDetachDuplicateAttach (nwkDetDupAtt)

| | |
|---|---|
| Description | This attribute counts the number of network initiated detaches due to mobile reattaches with a new random Packet Temporary Mobile Subscriber Identity (PTMSI) without first performing a detach.<br><br>The counter counts the events in the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Gsc Gmm nwkDetachTempNetworkFailure (nwkDetNetFail)

| | |
|---|---|
| Description | This attribute counts the number of network initiated detaches due to temporary network problems.<br><br>The counter counts the events in the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Gsc Gmm nwkDetachForReattach (nwkDetReatt)

| | |
|---|---|
| Description | This attribute counts the number of network initiated detaches with a detach type of "reattach required".<br><br>The counter counts the events in the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Gsc Gmm attachRejIllegalMs (attRejIllMs)

| | |
|---|---|
| Description | This attribute counts the GPRS-attaches to this Serving GPRS Support Node (SGSN) that were rejected during the collection interval because of the reject cause “Illegal Ms”. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Gsc Gmm attachRejGprsServNotAllowed (attRejGprsServ)

| | |
|---|---|
| Description | This attribute counts the GPRS-attaches to this Serving GPRS Support Node (SGSN) that were rejected during the collection interval because of the reject cause “Gprs Service not allowed”. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Gsc Gmm attachRejGprsServNotAllowedInPlmn (attRejGprsServPlmn)

Description: This attribute counts the GPRS-attaches to this Serving GPRS Support Node (SGSN) that were rejected because of the reject cause "Gprs Service not allowed in this PLMN".

This counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc Gmm attachRejPlmnNotAllowed (attRejPlmn)

Description: This attribute counts the GPRS-attaches to this Serving GPRS Support Node (SGSN) that were rejected during the collection interval because of the reject cause “PLMN not allowed”.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc Gmm attachRejPacketNetworkFailure (attRejNetFail)

Description: This attribute counts the GPRS-attaches to this Serving GPRS Support Node (SGSN) that were rejected during the collection interval because of the reject cause “Network Failure”.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc Gmm attachRejSgsnCongestion (attRejCongest)

Description: This attribute counts the GPRS-attaches to this Serving GPRS Support Node (SGSN) that were rejected during the collection interval because of the reject cause “Congestion”.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc Gmm attachRejMsgError (attRejMsgErr)

Description: This attribute counts the GPRS-attaches to this Serving GPRS Support Node (SGSN) that were rejected during the collection interval because of one of the following reject causes:
Semantically incorrect message,
Invalid mandatory information,
Message type non-existence or not implemented,
Message type not compatible with the protocol state,
Information element non-existent or not implemented,
Conditional IE error,

Message not compatible with the protocol state,
Protocol error, unspecified.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Gmm attachRejRoamNotAllowedInLocArea (attRejRoam)

Description This attribute counts the GPRS-attaches to this Serving GPRS Support Node (SGSN) that were rejected because of the reject cause "roaming not allowed in location area".

This counter is incremented when a Unit Data Transfer Service message (UDTS) is received from the SS7/IP Gateway (SIG) for a Update GPRS Location (UGL) or a Send Authentication Info (SAI), or when the global title translation failure occurs in the MapClient component.

This counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### COMPONENT Gsc SessionManagement (Sm)

Groups "GROUP Gsc Sm Provisioned (Prov)"
"GROUP Gsc Sm SmStatistics (SmStats)"
"GROUP Gsc Sm MsInitPdpCfailStats (MsInitStats)"
"GROUP Gsc Sm NwkInitPdpCdeactStats (NwkInitStats)"
"GROUP Gsc Sm WlcCustomCounters (WlcCustomCntr)"
"GROUP Gsc Sm PdpModOper"

"COLLECTED STATS GprsSubscriberControl SessionManagement"

Scope Application

Description *Gsc/n SessionManagement*

This component represents the Session Management (SM) protocol layer of the GPRS.

Common Verbs Help
List
Display

### GROUP Gsc Sm Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisionable attribute to specify the *DnsAgent* that this S*essionManagement (Sm)* uses. |

### ATTRIBUTE Gsc Sm linkToDnsAgent (lToDns)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the *DnsAgent* to be used by the *SessionManagement*. |
| Values | Link (Service, linkToDnsClient) |
| Default | No default |

### GROUP Gsc Sm SmStatistics (SmStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistical attributes of the *SessionManagement (Sm) protocol layer.* |

### ATTRIBUTE Gsc Sm currentPdpContexts (curPdpc)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of currently active Packet Data<br>Protocol (PDP) contexts. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Sm mobileInitActivations (mia)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the successful Mobile-Initiated Packet Data Protocol (PDP) context activations for this *SessionManagement* |

| | |
|---|---|
| | *(Sm)* component. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Sm mobileInitDeacts (mid)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Packet Data Protocol (PDP) context deactivations initiated by the Mobile Station (MS). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Sm ggsnInitDeacts (nwkD)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Packet Data Protocol (PDP) context deactivations initiated by the Gateway GPRS Support Node (GGSN). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Sm sgsnInitDeacts (sgsnD)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Packet Data Protocol (PDP) context deactivations initiated locally from the Serving GPRS Support Node (SGSN) (for example, an implicit session deactivation as a result of a Gateway GPRS Support Node (GGSN) restart or path failure).<br><br>The counter wraps to zero when it exceeds the maximum value. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Sm hlrInitDeacts (hlrD)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Packet Data Protocol (PDP) context deactivations initiated by the Home Location Register (HLR), for example, Delete Subscriber Data (DSD) withdrawing subscription for an active session. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Sm currentRoamers (curR)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates the current roamers that are currently being serviced by the SGSN. A roamer is a mobile that is not in its H-PLMN. This attribute is incremented whenever a PDP context is activated and is decremented whenever a PDP context is de-activated. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Sm nwkPdpModifyInitiated (nwkPdpMi)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the NWK PDP MODIFY CONTEXT REQUEST messages sent to the Mobile Station (MS). This counter is incremented in the SGSN acting as the new SGSN. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |

Default No default

### ATTRIBUTE Gsc Sm nwkPdpModifyRetriesExhausted (nwkPdpMRetE)

Access Read: All
Write: Illegal

Description This attribute counts the number of times the *nwkPdpModifyRetires* attribute is exhausted. This counter is incremented in the SGSN acting as the new SGSN. The counter wraps to zero when it exceeds the maximum value.

Values Decimal (0..4294967295)

Default No default

### ATTRIBUTE Gsc Sm currentQosReliability (curQosRel)

Access Read: All
Write: Illegal

Description This attribute indicates the currently active Packet Data Protocol (PDP) contexts for each Quality of Service (QoS) Reliability Class.

The Reliability values have the following meaning:

| RelClass | GTP | LLC | RLC | Data |
|---|---|---|---|---|
| 1 | Acked | Acked | Acked | Protected |
| 2 | UnAcked | Acked | Acked | Protected |
| 3 | UnAcked | UnAcked | Acked | Protected |
| 4 | UnAcked | UnAcked | UnAcked | Protected |
| 5 | UnAcked | UnAcked | UnAcked | UnProtected |

where GTP is GPRS Tunnelling Protocol, LLC is Logical Link Control, and RLC is Radio Link Control.

Vector of Decimal (0..4294967295)

Index Decimal (0..5)

Default No default

### ATTRIBUTE Gsc Sm totalQosReliability (totQosRel)

Access
Read: All
Write: Illegal

Description
This attribute counts the Packet Data Protocol (PDP) contexts that were activated for each Quality of Service (QoS) Reliability Class. The counter wraps to zero when it exceeds the maximum value.

The Reliability values have the following meaning:

| RelClass | GTP | LLC | RLC | Data |
|---|---|---|---|---|
| 1 | Acked | Acked | Acked | Protected |
| 2 | UnAcked | Acked | Acked | Protected |
| 3 | UnAcked | UnAcked | Acked | Protected |
| 4 | UnAcked | UnAcked | UnAcked | Protected |
| 5 | UnAcked | UnAcked | UnAcked | UnProtected |

where GTP is GPRS Tunnelling Protocol, LLC is Logical Link Control, and RLC is Radio Link Control.

Vector of
Decimal (0..4294967295)

Index
Decimal (0..5)

Default
No default

### GROUP Gsc Sm MsInitPdpCfailStats (MsInitStats)

Properties
Operational

Description
This group contains the statistical attributes that display the Mobile
Station (MS) initiated Packet Data Protocol (PDP) Context activations rejected by the Serving GPRS Support Node (SGSN).

### ATTRIBUTE Gsc Sm insufficientResources (insufRes)

Access
Read: All
Write: Illegal

Description
This attribute counts the Mobile Station (MS) initiated activations rejected by the Serving GPRS Support Node (SGSN) due to the cause code NO RESOURCES AVAILABLE. This counter is

| | |
|---|---|
| | incremented either due to the SGSN having insufficient resources for the session, or the Gateway GPRS Support Node (GGSN) returning a cause code of NO RESOURCES AVAILABLE in the CREATE PDP CONTEXT RESPONSE message. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Sm missingOrUnknownApn (mOrUn)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of times the Serving GPRS Support Node (SGSN) rejected a Mobile Station (MS) initiated activation due to the requested service being rejected by the external packet data network. The service is rejected because the Access Point Name (APN) was not included although required or if the APN was not resolved. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Sm unknownPdpAddrOrPdpType (unPdpAorT)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of times a CREATE PDP CONTEXT RESPONSE message was received from the Gateway GPRS Support Node (GGSN) with the cause code SERVICE NOT SUPPORTED. This can be due to the requested service being rejected by the external packet data network because the Packet Data Protocol (PDP) address or the PDP type was not recognized. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Sm userAuthenticationsFailed (userAuthFail)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of times a CREATE PDP CONTEXT REQUEST message was received from the Gateway GPRS Support Node (GGSN) with the cause code USER AUTHENTICATION FAILED. This can be due to the requested service being rejected by the external packet data network due to a failed user authentication. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Sm activationsRejectedByGgsn (actRej)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of times the Serving GPRS Support Node (SGSN) rejected a Mobile Station (MS) initiated activation due to the requested service being rejected by the Gateway GPRS Support Node (GGSN) with a cause code that is not mappable to a cause code in the ACTIVATE PDP CONTEXT REJECT message. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Sm activationsRejectedUnspecified (actRejUn)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of times the Serving GPRS Support Node (SGSN) rejected a Mobile Station (MS) initiated activation due to unspecified reasons. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Gsc Sm reqServiceOptionsNotSubscribed (reqOp)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of times the Serving GPRS Support Node (SGSN) rejected a Mobile Station (MS) initiated activation due to the MS requesting a service for which it has no subscription. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Sm serviceOptionsTempOutOfOrder (serOp)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of times the Serving GPRS Support Node (SGSN) rejected a Mobile Station (MS) initiated activation due to temporary outage of one or more functions required for supporting the service. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Sm nsapiAlreadyUsed (nsapiUsed)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of times the Serving GPRS Support Node (SGSN) rejected a Mobile Station (MS) initiated activation due to the MS requesting a Network-Service Access Point Identifier (N-SAPI) in the Packet Data Protocol (PDP) context activation, which is already used by another active PDP context of this MS. The counter wraps to zero when it exceeds the maximum value. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Sm semanticallyIncorrectMesages (inMsg)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of times the Serving GPRS Support Node (SGSN) rejected a Mobile Station (MS) initiated activation due to the receipt of a message with semantically incorrect contents. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Sm invalidMandatoryInfoElements (invInfo)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of times the Serving GPRS Support Node (SGSN) rejected a Mobile Station (MS) initiated activation due to the receipt of a message with errors in a mandatory Information Element (IE). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Sm msgTypeNotCompWithProtState (notComp)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of times the Serving GPRS Support Node (SGSN) rejected a Mobile Station (MS) initiated activation due to the receipt of a message type not compatible with the current protocol state. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |

Default No default

### ATTRIBUTE Gsc Sm protocolErrorUnspecified (proErr)

Access Read: All
Write: Illegal

Description This attribute counts the number of times the Serving GPRS Support Node (SGSN) rejected a Mobile Station (MS) initiated activation due to a protocol error event which does not fit into any specific protocol error class. The counter wraps to zero when it exceeds the maximum value.

Values Decimal (0..4294967295)

Default No default

### GROUP Gsc Sm NwkInitPdpCdeactStats (NwkInitStats)

Properties Operational

Description This group contains statistical attributes that display the abnormal Network-initiated Packet Data Protocol (PDP) context deactivations sent to the Mobile Station (MS).

### ATTRIBUTE Gsc Sm networkFailures (nwkFail)

Access Read: All
Write: Illegal

Description This attribute counts the number of times the Serving GPRS Support Node (SGSN) sent a Packet Data Protocol (PDP) CONTEXT DEACTIVATION REQUEST message to the Mobile Station (MS) with a cause code of NETWORK FAILURE. This cause code is sent due to an error situation in the network. The counter wraps to zero when it exceeds the maximum value.

Values Decimal (0..4294967295)

Default No default

### ATTRIBUTE Gsc Sm reactivationsRequested (reactReq)

Access Read: All
Write: Illegal

| | |
|---|---|
| Description | This attribute counts the number of times the Serving GPRS Support Node (SGSN) sent a Packet Data Protocol (PDP) CONTEXT DEACTIVATION REQUEST message to the Mobile Station (MS) with a cause code of REACTIVATE REQUEST. This<br>cause code is sent to MS to request session reactivation. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Gsc Sm WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Gsc Sm customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Sm customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Sm customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Gsc Sm PdpModOper

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational attributes of the Session Management (SM) protocol layer associated with the Packet Data Protocol (PDP) context modification. |

### ATTRIBUTE Gsc Sm sgsnInitModifyAttempts (sgsnInitMod)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of Packet Data Protocol (PDP) context modifications initiated by the Serving GPRS Support Node (SGSN), for example, as a result of QoS renegotiations with the Mobile Station (MS). This counter is pegged only during SGSN Initiated PDP Context Modification.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Sm sgsnInitFailAtMs (sgsnInitMsFail)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the unsuccessful Packet Data Protocol (PDP) context modifications initiated by the Serving GPRS |

Support Node (SGSN) that failed at the Mobile Station (MS).

The counter wraps to zero when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Gsc Sm sgsnInitFailAtGgsn (sgsnInitGgsnFail)

Access: Read: All
Write: Illegal

Description: This attribute counts the unsuccessful Packet Data Protocol (PDP) context modifications initiated by the Serving GPRS Support Node (SGSN) that failed at the Gateway GPRS Support Node (GGSN).

The counter wraps to zero when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Gsc Sm sgsnInitFailAtSgsn (sgsnInitSgsnFail)

Access: Read: All
Write: Illegal

Description: This attribute counts the unsuccessful Packet Data Protocol (PDP) context modifications initiated by the Serving GPRS Support Node (SGSN) that failed at the SGSN.

The counter wraps to zero when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Gsc Sm msInitModifyAttempts (msInitMod)

Access: Read: All
Write: Illegal

Description: This attribute counts the number of Packet Data Protocol (PDP) context modifications initiated by the Mobile Station (MS).

The counter wraps to zero when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Gsc Sm msInitFailAtGgsn (msInitGgsnFail)

Access: Read: All
Write: Illegal

Description: This attribute counts the unsuccessful Packet Data Protocol (PDP) context modifications initiated by the Mobile Station (MS) that failed at the Gateway GPRS Support Node (GGSN).

The counter wraps to zero when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Gsc Sm msInitFailAtSgsn (msInitSgsnFail)

Access: Read: All
Write: Illegal

Description: This attribute counts the unsuccessful Packet Data Protocol (PDP) context modifications initiated by the Mobile Station (MS) that failed at the Serving GPRS Support Node (SGSN).

The counter wraps to zero when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: No default

## COLLECTED STATS GprsSubscriberControl SessionManagement

Description: The statistics record generated by the GprsSubscriberControl SessionManagement component.

### ATTRIBUTE Gsc Sm currentPdpContexts (curPdpc)

Description: This attribute indicates the number of currently active Packet Data Protocol (PDP) contexts in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc Sm mobileInitActivations (mia)

Description: This attribute counts the successful Mobile-initiated Packet Data Protocol (PDP) context activations for this *SessionManagement (Sm)* component in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc Sm mobileInitDeacts (mid)

Description: This attribute counts the Packet Data Protocol (PDP) context deactivations initiated by the Mobile Station (MS) in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc Sm ggsnInitDeacts (nwkD)

Description: This attribute counts the Packet Data Protocol (PDP) context deactivations initiated by the Gateway GPRS Support Node (GGSN) in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc Sm sgsnInitDeacts (sgsnD)

Description: This attribute counts the Packet Data Protocol (PDP) context deactivations initiated locally from the Serving GPRS Support Node (SGSN) (for example, an implicit session deactivation as a result of a Gateway GPRS Support Node (GGSN) restart or path failure).

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc Sm hlrInitDeacts (hlrD)

Description

This attribute counts the Packet Data Protocol (PDP) context deactivations initiated by the Home location Register (HLR), for example, Delete Subscriber Data (DSD) withdrawing subscription for an active session. This counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

### ATTRIBUTE Gsc Sm currentQosReliability (curQosRel)

Description

This attribute indicates the currently active Packet Data Protocol (PDP) contexts for each Quality of Service (QoS) Reliability Class. This value reported is the value at the end of the collection interval.

The Reliability values have the following meaning:

| RelClass | GTP | LLC | RLC | Data |
|---|---|---|---|---|
| 1 | Acked | Acked | Acked | Protected |
| 2 | UnAcked | Acked | Acked | Protected |
| 3 | UnAcked | UnAcked | Acked | Protected |
| 4 | UnAcked | UnAcked | UnAcked | Protected |
| 5 | UnAcked | UnAcked | UnAcked | UnProtected |

where GTP is GPRS Tunnelling Protocol, LLC is Logical Link Control, and RLC is Radio Link Control.

Vector of

Decimal (0..4294967295)

Index

Decimal (0..5)

### ATTRIBUTE Gsc Sm totalQosReliability (totQosRel)

Description

This attribute counts the Packet Data Protocol (PDP) contexts that were activated for each Quality of Service (QoS) Reliability Class. This counter counts the events in the collection interval.

The Reliability values have the following meaning:

| RelClass | GTP | LLC | RLC | Data |
|---|---|---|---|---|
| 1 | Acked | Acked | Acked | Protected |
| 2 | UnAcked | Acked | Acked | Protected |

| | | | | |
|---|---|---|---|---|
| 3 | UnAcked | UnAcked | Acked | Protected |
| 4 | UnAcked | UnAcked | UnAcked | Protected |
| 5 | UnAcked | UnAcked | UnAcked | UnProtected |

where GTP is GPRS Tunnelling Protocol, LLC is Logical Link Control, and RLC is Radio Link Control.

Vector of Decimal (0..4294967295)

Index Decimal (0..5)

### ATTRIBUTE Gsc Sm currentRoamers (curR)

Description This attribute indicates the current number of roamer sessions that are currently being serviced by the SGSN. A roamer is a mobile that is not in its H-PLMN. This attribute is incremented whenever a PDP context is activated and is decremented whenever a PDP context is de-activated. This counter counts the events at the end of the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Sm nwkPdpModifyInitiated (nwkPdpMi)

Description This attribute counts the NWK PDP MODIFY CONTEXT REQUEST messages sent to the Mobile Station (MS). This counter is incremented in the SGSN acting as the new SGSN. The counter wraps to zero when it exceeds the maximum value.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Sm nwkPdpModifyRetriesExhausted (nwkPdpMRetE)

Description This attribute counts the number of times the *nwkPdpModifyRetires* attribute is exhausted. This counter is incremented in the SGSN acting as the new SGSN. The counter wraps to zero when it exceeds the maximum value.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Sm insufficientResources (insufRes)

Description This attribute counts the Mobile Station (MS) initiated activations rejected by the Serving GPRS Support Node (SGSN) due to

insufficient resources. This counter is incremented either due to the SGSN having insufficient resources for the session, or the Gateway GPRS Support Node (GGSN) returning a cause code of “No resources available” in the CREATE PDP CONTEXT RESPONSE message. The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Sm missingOrUnknownApn (mOrUn)

Description This attribute counts the number of times the Serving GPRS Support Node (SGSN) rejected a Mobile Station (MS) initiated activation due to the requested service being rejected by the external packet data network because the Access Point Name (APN) was not included although required or if the APN was not resolved. The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Sm unknownPdpAddrOrPdpType (unPdpAorT)

Description This attribute counts the number of times a CREATE PDP CONTEXT RESPONSE message was received from the Gateway GPRS Support Node (GGSN) with the cause “Service not supported”. This can be due to the requested service being rejected by the external packet data network because the Packet Data Protocol (PDP) address or the PDP type was not recognized. The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Sm userAuthenticationsFailed (userAuthFail)

Description This attribute counts the number of times the Serving GPRS Support Node (SGSN) rejected a Mobile Station (MS) initiated activation due to the requested service being rejected by the external packet data network due to a failed user authentication. The SGSN increments this counter when a cause code of “User Authentication Failed” is received from the Gateway GPRS Support Node (GGSN) in the CREATE PDP CONTEXT REQUEST message. The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Sm activationRejectedByGgsn (actRej)

Description This attribute counts the number of times the Serving GPRS Support Node (SGSN) rejected a Mobile Station (MS) initiated activation due to the requested service being rejected by the Gateway GPRS Support Node (GGSN) with a cause code that is not mappable to a cause code in the ACTIVATE PDP CONTEXT REJECT message. The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Sm activationRejectedUnspecified (actRejUn)

Description This attribute counts the number of times the Serving GPRS Support Node (SGSN) rejected a Mobile Station (MS) initiated activation due to unspecified reasons. The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Sm reqServiceOptionNotSubscribed (reqOp)

Description This attribute counts the number of times the Serving GPRS Support Node (SGSN) rejected a Mobile Station (MS) initiated activation due to the MS requesting a service for which it has no subscription. The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Sm serviceOptionTempOutOfOrder (serOp)

Description This attribute counts the number of times the Serving GPRS Support Node (SGSN) rejected a Mobile Station (MS) initiated activation due to temporary outage of one or more functions required for supporting the service. The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Sm nsapiAlreadyUsed (nsapiUsed)

Description: This attribute counts the number of times the Serving GPRS Support Node (SGSN) rejected a Mobile Station (MS) initiated activation due to the MS requesting a Network-Service Access Point Identifier (N-SAPI) in the Packet Data Protocol (PDP) context activation, which is already used by another active PDP context of this MS. The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc Sm semanticallyIncorrectMesage (inMsg)

Description: This attribute counts the number of times the Serving GPRS Support Node (SGSN) rejected a Mobile Station (MS) initiated activation due to the receipt of a message with semantically incorrect contents. The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc Sm invalidMandatoryInfoElement (invInfo)

Description: This attribute counts the number of times the Serving GPRS Support Node (SGSN) rejected a Mobile Station (MS) initiated activation due to the receipt of a of a message with errors in a mandatory Information Element (IE). The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc Sm msgTypeNotCompWithProtState (notComp)

Description: This attribute counts the number of times the Serving GPRS Support Node (SGSN) rejected a Mobile Station (MS) initiated activation due to the receipt of a message type not compatible with the current protocol state. The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc Sm protocolErrorUnspecified (proErr)

Description: This attribute counts the number of times the Serving GPRS Support Node (SGSN) rejected a Mobile Station (MS) initiated activation due to a protocol error event which does not fit into any specific protocol error class values. The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc Sm networkFailure (nwFail)

Description: This attribute counts the number of times the Serving GPRS Support Node (SGSN) sent a Packet Data Protocol (PDP) CONTEXT DEACTIVATION REQUEST message to the Mobile Station (MS) with a cause code of NETWORK FAILURE. This cause code is sent due to an error situation in the network. The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc Sm reactivationRequested (reactReq)

Description: This attribute counts the number of times the Serving GPRS Support Node (SGSN) sent a Packet Data Protocol (PDP) CONTEXT DEACTIVATION REQUEST message to the Mobile Station (MS) with a cause code of REACTIVATE REQUEST. This
cause code is sent to MS to request session reactivation. The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc Sm sgsnInitModifyAttempts

Description: This attribute counts the number of Packet Data Protocol (PDP) context modifications initiated by the Serving GPRS Support Node (SGSN), for example, as a result of QoS renegotiations with the Mobile Station (MS). This counter is pegged only during SGSN Initiated PDP Context Modification.

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc Sm sgsnInitFailAtMs

Description: This attribute counts the unsuccessful Packet Data Protocol (PDP) context modifications initiated by the Serving GPRS Support Node (SGSN) that failed at the Mobile Station (MS).

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc Sm sgsnInitFailAtGgsn

Description: This attribute counts the unsuccessful Packet Data Protocol (PDP) context modifications initiated by the Serving GPRS Support Node (SGSN) that failed at the Gateway GPRS Support Node (GGSN).

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc Sm sgsnInitFailAtSgsn

Description: This attribute counts the unsuccessful Packet Data Protocol (PDP) context modifications initiated by the Serving GPRS Support Node (SGSN) that failed at the SGSN.

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc Sm msInitModifyAttempts

Description: This attribute counts the number of Packet Data Protocol (PDP) context modifications initiated by the Mobile Station (MS).

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc Sm msInitFailAtGgsn

Description: This attribute counts the unsuccessful Packet Data Protocol (PDP) context modifications initiated by the Mobile Station (MS) that failed at the Gateway GPRS Support Node (GGSN).

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Sm msInitFailAtSgsn

Description This attribute counts the unsuccessful Packet Data Protocol (PDP) context modifications initiated by the Mobile Station (MS) that failed at the SGSN.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### COMPONENT Gsc HlrCache (HlrC)

Groups "GROUP Gsc HlrC Provisioned (Prov)"
"GROUP Gsc HlrC Statistics (Stats)"
"GROUP Gsc HlrC WlcCustomCounters (WlcCustomCntr)"

"COLLECTED STATS GprsSubscriberControl HlrCache"

Scope Application

Description *Gsc/n HlrCache*

This component represents the Home Location Register (HLR) cache functionality.

Subcomponents "COMPONENT Gsc HlrC RefreshAudit"

Common Verbs
Help
List
Display

### GROUP Gsc HlrC Provisioned (Prov)

Properties Provisioned

Description This group contains provisionable attributes to provide the *HlrCache* functionality.

### ATTRIBUTE Gsc HlrC avgPdpContextPerRecord (pdpPerRec)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the average number of Packet Data Protocol (PDP) context subscription data records that can be stored with an *HlrCache* record. This value can be different from the value of the *avgActivePdpCPerActiveSub* attribute *(*defined in the parent *GprsSubscriberControl* component) since the value of the *maxRecords* attribute can be greater than the value of the *maxAttachedSubscribers* attribute and is computed by the HlrcCache process after receiving the value of the *maxAttachedSubscribers* attribute.<br><br>Changing the value of this attribute causes the card to be reset and all outstanding transactions will be affected. |
| Values | Decimal (0..50) |
| Default | 1 |

### GROUP Gsc HlrC Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistical attributes of the *HlrCache*. |

### ATTRIBUTE Gsc HlrC cacheHits

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of times the *HlrCache* had the subscriber information locally and did not need to retrieve information from the Home Location Register (HLR). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc HlrC cacheMisses (cacheMiss)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of times the *HlrCache* does not have the subscriber information locally and must retrieve information from the HLR. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Gsc HlrC WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Gsc HlrC customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc HlrC customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |

Default No default

### ATTRIBUTE Gsc HlrC customCounter3 (customCntr3)

Access Read: All
Write: Illegal

Description This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch.

Values Decimal (0..4294967295)

Default No default

## COLLECTED STATS GprsSubscriberControl HlrCache

Description The statistics record generated by the GprsSubscriberControl HlrCache component.

### ATTRIBUTE Gsc HlrC cacheHits

Description This attribute counts the number of times the *HlrCache* had the subscriber information locally and did not need to retrieve information from the Home Location Register (HLR). This counter counts the value in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc HlrC cacheMisses (cacheMiss)

Description This attribute counts the number of times the *HlrCache* does not have the subscriber information locally and must retrieve information from the HLR. This counter counts the value in the collection interval.

Values Decimal (0..4294967295)

### COMPONENT Gsc HlrC RefreshAudit

Groups "GROUP Gsc HlrC RefreshAudit WlcRefreshAuditProv (AuditProv)"
"GROUP Gsc HlrC RefreshAudit WlcRefreshAuditOper (AuditOper)"

| | |
|---|---|
| Scope | Application |
| Description | *Gsc/n Hlrc RefreshAudit*<br>*Usc/n Hlrc RefreshAudit*<br><br>This component represents the subscriber refresh audit functionality of the *HlrCache (HlrC)* component. The purpose of the audit is to request new subscriber profile data from the Home Location Register (HLR). The audit initiates the Update GPRS Location Dialogue to the HLR for all attached subscribers. |
| Common Verbs | Help<br>List<br>Display |

### VERB START Gsc HlrC RefreshAudit

| | |
|---|---|
| Impact | Service |
| Description | *start Gsc/n Hlrc RefreshAudit*<br>*start Usc/n Hlrc RefreshAudit*<br><br>This command starts the refresh audit to request subscriber information from the Home Location Register for all the attached subscribers. |

### VERB STOP Gsc HlrC RefreshAudit

| | |
|---|---|
| Impact | Service |
| Description | *stop Gsc/n Hlrc RefreshAudit*<br>*stop Usc/n Hlrc RefreshAudit*<br><br>This command stops the refresh audit in progress. If the audit is currently running, it is immediately stopped. If the audit has not started or has already finished running, this command does nothing. |

### GROUP Gsc HlrC RefreshAudit WlcRefreshAuditProv (AuditProv)

| | |
|---|---|
| Properties | Provisioned |

Description This group contains the provisionable attributes for the *RefreshAudit* component.

### ATTRIBUTE Gsc HlrC RefreshAudit autoStart

Access Read: All
Write: All

Description This attribute specifies whether the refresh audit function is ***enabled*** or ***disabled.*** When enabled, the *HlrCache* component will automatically initiate a process to refresh subscriber profiles whenever certain optional supplementary services, such as Location Services and Short Message Services, are provisioned. When disabled, the *HlrCache* component will not start the audit automatically.

Values enabled
disabled

Default enabled

### GROUP Gsc HlrC RefreshAudit WlcRefreshAuditOper (AuditOper)

Properties Operational

Description This group contains the operational attributes for the *RefreshAudit* component.

### ATTRIBUTE Gsc HlrC RefreshAudit auditPercentComplete (percentComplete)

Access Read: All
Write: Illegal

Description This attribute indicates the current completion percentage of the refresh audit.

A value of ***0%*** means the refresh audit is not currently running but may need to run due to recent activation of a feature that normally triggers the audit. The refresh audit is not running because the value of the *autoStart* attribute is ***disabled*** or the audit was manually interrupted by the *stop* command.
A value of ***1-99%*** means the refresh audit is currently running.
A value of ***100%*** means the refresh audit has been completed.

Values Decimal (0..100)

| | |
|---|---|
| Units | % |
| Default | No default |

## COMPONENT Gsc MemoryPoolManager (Mpm)

| | |
|---|---|
| Scope | Application |
| Description | *Gsc/n MemoryPoolManager*<br>*Gsd/n MemoryPoolManager*<br>*Gtl/n MemoryPoolManager*<br>*DnsAgent/<vr>,n MemoryPoolManager*<br><br>This component represents the memory resources of a given GPRS application that are managed as pools of objects. |
| Dyn. Subcomp. | "COMPONENT Gsc Mpm MemoryPoolClient (Mpc)" |
| Common Verbs | Help<br>List<br>Display |

## COMPONENT Gsc Mpm MemoryPoolClient (Mpc)

| | |
|---|---|
| Instance | String (1..30, ASCII) |
| Scope | Application |
| Description | *Gsc/n Mpm MemoryPoolClient/<name>*<br>*Gsd/n Mpm MemoryPoolClient/<name>*<br>*SgGtl/n Mpm MemoryPoolClient/<name>*<br>*DnsAgent/<vr>,n Mpm MemoryPoolClient/<name>*<br><br>This component represents a pool of objects of a particular class that a GPRS application currently owns as well as all the objects that could be owned by that application. All the objects in the pool are of the same class. The instance value of this component is a string which is the class name of the objects in the pool. |
| Common Verbs | Help<br>List<br>Display |

## COMPONENT Gsc InternationalMobileSubscriberId (Imsi)

| | |
|---|---|
| Instance | BCD (5..15) |
| Groups | "GROUP Gsc Imsi WlcCustomCounters (WlcCustomCntr)" |
| Scope | Application |
| Description | *Gsc/n InternationalMobileSubscriberId/<imsi>*<br><br>This component represents an instance of the International Mobile Subscriber Identity (IMSI). The information includes subscription context, mobility management context and session contexts. Each instance is indexed by the IMSI of the mobile subscriber. A list of all current IMSI instances is not possible, but it is possible to display a specific instance of IMSI. |
| Dyn. Subcomp. | "COMPONENT Gsc Imsi MobilityContext (Mc)"<br>"COMPONENT Gsc Imsi SessionContext (Sc)"<br>"COMPONENT Gsc Imsi HlrCacheRecord (HlrcRec)"<br>"COMPONENT Gsc Imsi Bssap" |
| Common Verbs | Help<br>List<br>Display |

## GROUP Gsc Imsi WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

## ATTRIBUTE Gsc Imsi customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Gsc Imsi customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Imsi customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT Gsc Imsi MobilityContext (Mc)

| | |
|---|---|
| Groups | "GROUP Gsc Imsi Mc Operational (Oper)"<br>"GROUP Gsc Imsi Mc WlcCustomCounters (WlcCustomCntr)" |
| Scope | Application |
| Description | *Sgsn Tlli/<tlli> MobilityContext*<br>*Sgsn Imsi/<imsi> MobilityContext*<br>*Gsc/n Tlli/<tlli> MobilityContext*<br>*Gsc/n Imsi/<imsi> MobilityContext*<br><br>This component represents the GPRS Mobility Management (GMM) context created for each mobile subscriber that is GPRS-Attached. The Mobility Context is an instance of the |

*InternationalMobileSubscriberId (Imsi)* and the *TemporaryLogicalLinkId (Tlli)* of the Serving GPRS Support Node (SGSN).

Common Verbs

Help
List
Display

## GROUP Gsc Imsi Mc Operational (Oper)

Properties: Operational

Description: This group contains the GPRS Mobility Management (GMM) information for a subscriber.

## ATTRIBUTE Gsc Imsi Mc temporaryLogicalLinkId (tlli)

Access: Read: All
Write: Illegal

Description: This attribute indicates the Temporary Logical Link Identifier (TLLI) used to identify the context of the Mobile Station (MS) within the Serving GPRS Support Node (SGSN). This is one of the main reference keys that is used to identify an MS in the SGSN.

Values: String (4, Hex)

Default: No default

## ATTRIBUTE Gsc Imsi Mc gmmState (gmmSt)

Access: Read: All
Write: Illegal

Description: This attribute indicates the GPRS Mobility Management (GMM) state for a mobile. Upon initialization, this attribute value is in ***idle*** state. The states have the following meaning:
***idle*** - The Mobile Station (MS) is not attached to the GPRS Mobility Management (GMM). The MS and the SGSN context hold no valid location or routing area information for the mobile.
***standby*** - The MS is attached to the GMM.
***ready*** - MS is attached and can be sending or receiving the Point To Point Protocol Data Units (PTP PDUs).

| | |
|---|---|
| Values | idle<br>standby<br>ready |
| Default | No default |

### ATTRIBUTE Gsc Imsi Mc routingAreaIdentifier (rai)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the current routing area of the Mobile Station (MS). The routing area is transmitted to the Serving GPRS Support Node (SGSN) during a Routing Area Update procedure or Attach procedure. The routing area identifier includes the Mobile Country Code (MCC as first 3 digits), the Mobile Network Code (MNC as next 2 digits), the Location Area Code (LAC as next 4 digits), and the Routing Area Code (RAC as last 2 digits). |
| Values | String (5..6, Hex) |
| Default | No default |

### ATTRIBUTE Gsc Imsi Mc cellId

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the current cell location of the Mobile Station (MS). |
| Values | String (2, Hex) |
| Default | No default |

### ATTRIBUTE Gsc Imsi Mc cellEntryTime (cellEntry)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates when the Mobile Station (MS) entered the cell indicated by the *cellId*. |
| Values | Time (DHMS) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Gsc Imsi Mc sgsnClassmark (sgsnCm)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the network portion of the Mobile Station (MS) classmark. The classmark contains specific information about a Mobile Station (MS). |
| Values | String (1..2, Hex) |
| Default | No default |

### ATTRIBUTE Gsc Imsi Mc drxParameters (drxParms)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates if the Mobile Station (MS) supports discontinuous reception or not. The DRX parameter is transmitted by the MS during an Attach Request procedure and a Routing Area Update procedure. |
| Values | supported<br>unsupported |
| Default | No default |

### ATTRIBUTE Gsc Imsi Mc readyTimer (t3314)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the negotiated value of the Ready Timer (T3314) for the GPRS Mobility Management (GMM) state transition. The Ready Timer is restarted whenever a signaling or a data Protocol Data Unit (PDU) is received from the Mobile Station (MS). In the event of the Ready Timer expiry, the attribute *gmmState* changes to ***standby***.<br><br>The negotiation of this value is based on the *readyTimer* provisioned in the *Sgsn GprsSubscriberControl* component. |

| | |
|---|---|
| Values | Decimal (1..11160)<br>forceStandby |
| Units | seconds |
| Default | No default |

### ATTRIBUTE Gsc Imsi Mc pagingProceedFlag (ppf)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the paging proceed flag. The flag indicates whether paging can be initiated. |
| Values | false<br>true |
| Default | No default |

### GROUP Gsc Imsi Mc WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Gsc Imsi Mc customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Imsi Mc customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Imsi Mc customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT Gsc Imsi SessionContext (Sc)

| | |
|---|---|
| Instance | Decimal (0..15) |
| Groups | "GROUP Gsc Imsi Sc SessionContextOp (ScOp)"<br>"GROUP Gsc Imsi Sc WlcCustomCounters (WlcCustomCntr)" |
| Scope | Application |
| Description | *Gsc/n Tlli/<tlli> SessionContext/<nsapi>*<br>*Gsc/n Imsi/<imsi> SessionContext/<nsapi>*<br><br>This component represents the Session Context information for a subscriber. The Session Contexts are created for each activated Packet Data Protocol (PDP) context of a subscriber. The instance value identifies a session for a mobile subscriber. |

| | |
|---|---|
| Dyn. Subcomp. | "COMPONENT Gsc Imsi Sc RequestedQos (ReqQos)"<br>"COMPONENT Gsc Imsi Sc NegotiatedQos (NegQos)" |
| Common Verbs | Help<br>List<br>Display |

### GROUP Gsc Imsi Sc SessionContextOp (ScOp)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the Session Context information for a subscriber. The Session Contexts are created for each activated Packet Data Protocol (PDP) context of a subscriber. |

### ATTRIBUTE Gsc Imsi Sc selectedApnNetworkId (selApnNwkId)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the selected Access Point Name (APN) Network Identifier.<br><br>The APN Network Identifier can be the one received from the mobile as part of the ACTIVATE PDP CONTEXT REQUEST message or it can be selected from the subscription record against which this session has been activated or it can be the *defaultApnNetworkId* (defined in *Sgsn Gsc*) for the requested PDP type provisioned on the Serving GPRS Support Node (SGSN). |
| Values | String (1..63, ASCII) |
| Default | No default |

### ATTRIBUTE Gsc Imsi Sc selectedApnOperatorId (selApnOpId)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute indicates the selected Access Point Name (APN) Operator Identifier.<br><br>The APN Operator Identifier can be the one received from the Mobile Station (MS) as part of the ACTIVATE PDP CONTEXT REQUEST message or it can be the one constructed from the subscriber's IMSI as mnc<3 MNC digits>.mcc<3 MCC digits>.gprs. |
| Values | String (1..37, ASCII) |
| Default | No default |

### ATTRIBUTE Gsc Imsi Sc dataPathGgsnAddress (dGgsnAddr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the IP address of the Gateway GPRS Support Node (GGSN) for the data path that is currently used by the activated Packet Data Protocol (PDP) context. |
| Values | IP address |
| Default | No default |

### ATTRIBUTE Gsc Imsi Sc signalingGgsnAddress (sGgsnAddr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the IP address of the Gateway GPRS Support Node (GGSN) for the signaling path that is currently used by the activated Packet Data Protocol (PDP) context. |
| Values | IP address |
| Default | No default |

### ATTRIBUTE Gsc Imsi Sc pdpContextIdentifier (pdpCid)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the subscription record against which this session has been activated. |

| | |
|---|---|
| Values | Decimal (1..255) |
| Default | No default |

### ATTRIBUTE Gsc Imsi Sc pdpType (pdpT)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute defines the end user protocol to be used between the external packet data network and the Mobile Station (MS) such as, X.25, IP, PPP.<br>For X.25 currently defined address format is X.121, for IP protocol currently defined address formats are IPV4, IPV6, and PPP protocol has no address format. |
| Values | x25<br>ip<br>ppp |
| Default | No default |

### ATTRIBUTE Gsc Imsi Sc ipv4PdpAddress (ipv4Addr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the network layer address of the packet data network. This attribute is displayed when the Packet Data Protocol (PDP) address is IPv4. The address conforms to the standard addressing scheme of the IP version 4 address. |
| Values | IP address |
| Default | No default |

### ATTRIBUTE Gsc Imsi Sc x121PdpAddress (x121Addr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the network layer address of the packet data network. This attribute is displayed when the Packet Data Protocol (PDP) address is X.121. |
| Values | BCD (1..14) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Gsc Imsi Sc otherPdpAddress (otherAddr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the network layer address of the packet data network. The Packet Data Protocol (PDP) protocol type for the *otherPdpAddress* can be obtained from the attribute *pdpType* and the addressing type from *pdpAddressFormat*. |
| Values | String (1..16, Hex) |
| Default | No default |

### ATTRIBUTE Gsc Imsi Sc pdpAddressFormat (pdpTnum)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the addressing type, such as, X.121, IPv4, IPv6. |
| Values | x121<br>ipv4<br>ipv6 |
| Default | No default |

### ATTRIBUTE Gsc Imsi Sc ggsnRemoteTeid (ggsnRemTeid)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the Tunnel End point Identifier that is associated with a tunnel leg that originates at the GPRS Serving GPRS Support Node (SGSN) and terminates at the Gateway GPRS Support Node (GGSN). |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Imsi Sc ggsnLocalTeid (ggsnLocTeid)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the Tunnel End point Identifier that is associated with a tunnel leg that originates at the Gateway GPRS Support Node (GGSN) and terminates at the GPRS Serving GPRS Support Node (SGSN). |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Imsi Sc signallingGgsnTeid (sGgsnTeid)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the Tunnel End point Identifier that is associated with a tunnel leg endpoint of the control tunnel that runs between the GPRS Serving GPRS Support Node (SGSN) and the Gateway GPRS Support Node (GGSN). |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Gsc Imsi Sc WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Gsc Imsi Sc customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |

Default No default

### ATTRIBUTE Gsc Imsi Sc customCounter2 (customCntr2)

Access Read: All
Write: Illegal

Description This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch.

Values Decimal (0..4294967295)

Default No default

### ATTRIBUTE Gsc Imsi Sc customCounter3 (customCntr3)

Access Read: All
Write: Illegal

Description This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch.

Values Decimal (0..4294967295)

Default No default

### COMPONENT Gsc Imsi Sc RequestedQos (ReqQos)

Groups "GROUP Gsc Imsi Sc ReqQos QosProfile (Qos)"

Scope Application

Description *Sgsn Imsi/<imsi> SessionContext/<nsapi> RequestedQos*
*Gsc/n Imsi/<imsi> SessionContext/<nsapi> RequestedQos*

This component represents the Quality of Service (QoS) profile requested by a mobile subscriber for this session.

Common Verbs Help
List
Display

### GROUP Gsc Imsi Sc ReqQos QosProfile (Qos)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the Quality of Service (QoS) profile. It contains either the requested QoS, the negotiated QoS, or the subscribed QoS based on which component contains this group. |

### ATTRIBUTE Gsc Imsi Sc ReqQos deliveryOrder (delOrd)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates whether the Signalling Data Units' (SDUs) order of delivery is guaranteed. |
| Values | withDeliveryOrder<br>withoutDeliveryOrder |
| Default | No default |

### ATTRIBUTE Gsc Imsi Sc ReqQos deliveryOfErroneousSdus (delErrSdus)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates how erroneous Signaling Data Units (SDUs) are handled by the network.<br><br>The erroneous SDUs can be handled in one of the following ways:<br><br>***noDetect:*** The Signalling Data Units (SDUs) are delivered without considering error detection.<br><br>***errSdusDelivered:*** The erroneous Signalling Data Units (SDUs) are delivered together with an error indication.<br><br>***errSdusNotDelivered:*** The erroneous Signalling Data Units (SDUs) are discarded. |
| Values | noDetect<br>errSdusDelivered<br>errSdusNotDelivered |

Default No default

### ATTRIBUTE Gsc Imsi Sc ReqQos trafficClass (traffClass)

Access
Read: All
Write: Illegal

Description
This attribute indicates the type of application for which the bearer service is optimized. By including the traffic class itself as an attribute, GPRS can make assumptions about the traffic source and optimize the transport for that traffic type.

The different traffic classes are:
***conversational -*** This class includes real time conversation, characterized by low transfer delay and a strict preservation of the time relation between information entities of the stream. Examples of this class are telephony speech and video conferencing.

***streaming -*** This class consists of real time video/audio applications, characterized by a strict preservation of the time relation between the information entities of the stream, but not necessarily a low transfer delay.

***interactive -*** This class includes applications where a human or machine requests data from remote equipment, characterized by a request-response pattern of the end-user and the preservation of payload content.

***background -*** This class includes applications where the end-user, typically a computer, sends and receives data files in the background (for example: emails, SMS and database downloads). This is characterized by the destination not expecting the data within a certain time.

Values
conversational (conv)
streaming (strm)
interactive (int)
background (bkgr)

Default No default

### ATTRIBUTE Gsc Imsi Sc ReqQos maxSduSize (maxSduSize)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the maximum allowed size of the Signalling Data Unit (SDU). It is used for admission control and policing. |
| Values | Decimal (1..1502) |
| Units | octets |
| Default | No default |

### ATTRIBUTE Gsc Imsi Sc ReqQos maxUplinkBitRate (maxUpBr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the maximum number of bits delivered to GPRS in the uplink direction within a period of time, divided by the duration of the period. This is the upper limit in kilobits per second allowed for a specific context. |
| Values | Decimal (0..8640) |
| Units | kbit/s |
| Default | No default |

### ATTRIBUTE Gsc Imsi Sc ReqQos maxDownlinkBitRate (maxDnBr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the maximum number of bits delivered by GPRS in the downlink direction within a period of time, divided by the duration of the period. This is the upper limit in kilobits per second allowed for a specific context. |
| Values | Decimal (0..8640) |
| Units | kbit/s |
| Default | No default |

### ATTRIBUTE Gsc Imsi Sc ReqQos residualBitErrorRate (resBer)

Access
Read: All
Write: Illegal

Description
This attribute indicates the undetected bit error ratio in the delivered Signalling Data Units (SDUs). If no error detection is requested, this attribute indicates the bit error ratio in the delivered SDUs.

This attribute can take up values ranging from 1 through 9, representing:

***1*** -> 5*10 -2
***2*** -> 1*10 -2
***3*** -> 5*10 -3
***4*** -> 4*10 -3
***5*** -> 1*10 -3
***6*** -> 1*10 -4
***7*** -> 1*10 -5
***8*** -> 1*10 -6
***9*** -> 6*10 -8

Values
Decimal (1..9)

Default
No default

### ATTRIBUTE Gsc Imsi Sc ReqQos sduErrorRatio (sduErrRatio)

Access
Read: All
Write: Illegal

Description
This attribute indicates the fraction of Signalling Data Units (SDUs) lost or detected as erroneous. It is defined only for conforming traffic.

This attribute can take up values between the numbers 1 - 7 representing the following:
1 -> 1*10 -2
2 -> 7*10 -3
3 -> 1*10 -3
4 -> 1*10 -4

5 -> 1*10 -5
6 -> 1*10 -6
7 -> 1*10 -1

Values Decimal (1..7)

Default No default

### ATTRIBUTE Gsc Imsi Sc ReqQos trafficHandlingPriority (traffHndlPr)

Access Read: All
Write: Illegal

Description This attribute indicates the traffic handling priority. The traffic handling priority attribute is used to prioritize the traffic when the *trafficClass* attribute has the value ***interactive.***

A value of ***0*** is reserved when this attribute is displayed for the negotiated Quality of Service (QoS) and the subscribed QoS. When displayed for the requested QoS, it indicates that the value in the subscribed QoS is to be used. Values of ***1***, ***2***, or ***3*** indicate the traffic priority, with ***1*** indicating the highest priority and ***3*** the lowest.

Values Decimal (0..3)

Default No default

### ATTRIBUTE Gsc Imsi Sc ReqQos transferDelay (transfDelay)

Access Read: All
Write: Illegal

Description This attribute indicates the maximum delay for 95th percentile of the distribution of delay for all delivered Signalling Data Units (SDUs) during the lifetime of a bearer service, where delay for an SDU is defined as the time from a request to transfer data from one Service Access Point (SAP) to another SAP.

Values Decimal (10..4100)

Units msec

Default No default

### ATTRIBUTE Gsc Imsi Sc ReqQos guaranteedUplinkBitRate (guarUpBr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the guaranteed number of bits delivered at a Service Access Point (SAP) in the uplink (Mobile Station to network) direction within a period of time, divided by the duration of the period.<br><br>The value of this attribute is ignored if the *trafficClass* attribute has one of the following values: ***interactive*** or ***background***, or if the *maxUplinkBitRate* is set to ***0*** kbits/s. |
| Values | Decimal (0..8640) |
| Default | No default |

### ATTRIBUTE Gsc Imsi Sc ReqQos guaranteedDownlinkBitRate (guarDnBr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the guaranteed number of bits delivered at a Service Access Point (SAP) in the downlink (network to Mobile Station) direction within a period of time, divided by the duration of the period.<br><br>The value of this attribute is ignored if the *trafficClass* attribute has one of the following values: ***interactive*** or ***background***, or if the *maxDownlinkBitRate* is set to ***0*** kbits/s. |
| Values | Decimal (0..8640) |
| Default | No default |

### COMPONENT Gsc Imsi Sc NegotiatedQos (NegQos)

| | |
|---|---|
| Groups | "GROUP Gsc Imsi Sc NegQos QosProfile (Qos)" |
| Scope | Application |
| Description | *Sgsn Imsi/<imsi> SessionContext/<nsapi> NegotiatedQos*<br>*Gsc/n Imsi/<imsi> SessionContext/<nsapi> NegotiatedQos* |

This component represents the negotiated Quality of Service (QoS) profile received by a mobile subscriber for this session.

Common Verbs

Help
List
Display

## GROUP Gsc Imsi Sc NegQos QosProfile (Qos)

Properties: Operational

Description: This group contains the Quality of Service (QoS) profile. It contains either the requested QoS, the negotiated QoS, or the subscribed QoS based on which component contains this group.

## ATTRIBUTE Gsc Imsi Sc NegQos deliveryOrder (delOrd)

Access: Read: All
Write: Illegal

Description: This attribute indicates whether the Signalling Data Units' (SDUs) order of delivery is guaranteed.

Values: withDeliveryOrder
withoutDeliveryOrder

Default: No default

## ATTRIBUTE Gsc Imsi Sc NegQos deliveryOfErroneousSdus (delErrSdus)

Access: Read: All
Write: Illegal

Description: This attribute indicates how erroneous Signaling Data Units (SDUs) are handled by the network.

The erroneous SDUs can be handled in one of the following ways:

***noDetect:*** The Signalling Data Units (SDUs) are delivered without considering error detection.

***errSdusDelivered:*** The erroneous Signalling Data Units (SDUs) are delivered together with an error indication.

***errSdusNotDelivered:*** The erroneous Signalling Data Units (SDUs) are discarded.

Values
noDetect
errSdusDelivered
errSdusNotDelivered

Default
No default

### ATTRIBUTE Gsc Imsi Sc NegQos trafficClass (traffClass)

Access
Read: All
Write: Illegal

Description
This attribute indicates the type of application for which the bearer service is optimized. By including the traffic class itself as an attribute, GPRS can make assumptions about the traffic source and optimize the transport for that traffic type.

The different traffic classes are:
***conversational -*** This class includes real time conversation, characterized by low transfer delay and a strict preservation of the time relation between information entities of the stream. Examples of this class are telephony speech and video conferencing.

***streaming -*** This class consists of real time video/audio applications, characterized by a strict preservation of the time relation between the information entities of the stream, but not necessarily a low transfer delay.

***interactive -*** This class includes applications where a human or machine requests data from remote equipment, characterized by a request-response pattern of the end-user and the preservation of payload content.

***background -*** This class includes applications where the end-user, typically a computer, sends and receives data files in the background (for example: emails, SMS and database downloads). This is characterized by the destination not expecting the data within a certain time.

| | |
|---|---|
| Values | conversational (conv)<br>streaming (strm)<br>interactive (int)<br>background (bkgr) |
| Default | No default |

### ATTRIBUTE Gsc Imsi Sc NegQos maxSduSize (maxSduSize)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the maximum allowed size of the Signalling Data Unit (SDU). It is used for admission control and policing. |
| Values | Decimal (1..1502) |
| Units | octets |
| Default | No default |

### ATTRIBUTE Gsc Imsi Sc NegQos maxUplinkBitRate (maxUpBr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the maximum number of bits delivered to GPRS in the uplink direction within a period of time, divided by the duration of the period. This is the upper limit in kilobits per second allowed for a specific context. |
| Values | Decimal (0..8640) |
| Units | kbit/s |
| Default | No default |

### ATTRIBUTE Gsc Imsi Sc NegQos maxDownlinkBitRate (maxDnBr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the maximum number of bits delivered by GPRS in the downlink direction within a period of time, divided by the duration of the period. This is the upper limit in kilobits per second allowed for a specific context. |

| | |
|---|---|
| Values | Decimal (0..8640) |
| Units | kbit/s |
| Default | No default |

### ATTRIBUTE Gsc Imsi Sc NegQos residualBitErrorRate (resBer)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the undetected bit error ratio in the delivered Signalling Data Units (SDUs). If no error detection is requested, this attribute indicates the bit error ratio in the delivered SDUs.<br><br>This attribute can take up values ranging from 1 through 9, representing:<br><br>***1*** -> 5*10 -2<br>***2*** -> 1*10 -2<br>***3*** -> 5*10 -3<br>***4*** -> 4*10 -3<br>***5*** -> 1*10 -3<br>***6*** -> 1*10 -4<br>***7*** -> 1*10 -5<br>***8*** -> 1*10 -6<br>***9*** -> 6*10 -8 |
| Values | Decimal (1..9) |
| Default | No default |

### ATTRIBUTE Gsc Imsi Sc NegQos sduErrorRatio (sduErrRatio)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the fraction of Signalling Data Units (SDUs) lost or detected as erroneous. It is defined only for conforming traffic.<br><br>This attribute can take up values between the numbers 1 - 7 |

representing the following:
1 -> 1*10 -2
2 -> 7*10 -3
3 -> 1*10 -3
4 -> 1*10 -4
5 -> 1*10 -5
6 -> 1*10 -6
7 -> 1*10 -1

Values: Decimal (1..7)

Default: No default

### ATTRIBUTE Gsc Imsi Sc NegQos trafficHandlingPriority (traffHndlPr)

Access: Read: All
Write: Illegal

Description: This attribute indicates the traffic handling priority. The traffic handling priority attribute is used to prioritize the traffic when the *trafficClass* attribute has the value ***interactive.***

A value of ***0*** is reserved when this attribute is displayed for the negotiated Quality of Service (QoS) and the subscribed QoS. When displayed for the requested QoS, it indicates that the value in the subscribed QoS is to be used. Values of ***1***, ***2***, or ***3*** indicate the traffic priority, with ***1*** indicating the highest priority and ***3*** the lowest.

Values: Decimal (0..3)

Default: No default

### ATTRIBUTE Gsc Imsi Sc NegQos transferDelay (transfDelay)

Access: Read: All
Write: Illegal

Description: This attribute indicates the maximum delay for 95th percentile of the distribution of delay for all delivered Signalling Data Units (SDUs) during the lifetime of a bearer service, where delay for an SDU is defined as the time from a request to transfer data from one Service Access Point (SAP) to another SAP.

| | |
|---|---|
| Values | Decimal (10..4100) |
| Units | msec |
| Default | No default |

### ATTRIBUTE Gsc Imsi Sc NegQos guaranteedUplinkBitRate (guarUpBr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the guaranteed number of bits delivered at a Service Access Point (SAP) in the uplink (Mobile Station to network) direction within a period of time, divided by the duration of the period.<br><br>The value of this attribute is ignored if the *trafficClass* attribute has one of the following values: ***interactive*** or ***background***, or if the *maxUplinkBitRate* is set to ***0*** kbits/s. |
| Values | Decimal (0..8640) |
| Default | No default |

### ATTRIBUTE Gsc Imsi Sc NegQos guaranteedDownlinkBitRate (guarDnBr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the guaranteed number of bits delivered at a Service Access Point (SAP) in the downlink (network to Mobile Station) direction within a period of time, divided by the duration of the period.<br><br>The value of this attribute is ignored if the *trafficClass* attribute has one of the following values: ***interactive*** or ***background***, or if the *maxDownlinkBitRate* is set to ***0*** kbits/s. |
| Values | Decimal (0..8640) |
| Default | No default |

## COMPONENT Gsc Imsi HlrCacheRecord (HlrcRec)

| | |
|---|---|
| Groups | "GROUP Gsc Imsi HlrcRec Operational (Oper)"<br>"GROUP Gsc Imsi HlrcRec WlcCustomCounters (WlcCustomCntr)" |
| Scope | Application |
| Description | *Sgsn Tlli/<tlli> HlrCacheRecord*<br>*Sgsn Imsi/<imsi> HlrCacheRecord*<br>*Gsc/n Tlli/<tlli> HlrCacheRecord*<br>*Gsc/n Imsi/<imsi> HlrCacheRecord*<br><br>This component represents a subscription record downloaded from the Home Location Register (HLR). The *HlrCache* on the *GprsSubscriberControl (Gsc)* contains the active subscriber data. |
| Dyn. Subcomp. | "COMPONENT Gsc Imsi HlrcRec PdpContext (PdpC)" |
| Common Verbs | Help<br>List<br>Display |

## GROUP Gsc Imsi HlrcRec Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains subscription information downloaded from the Home Location Register (HLR). |

## ATTRIBUTE Gsc Imsi HlrcRec internationalMobileSubscriberId (imsi)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the International Mobile Subscriber Identity (IMSI) of the Mobile Station (MS). |
| Values | BCD (5..15) |
| Default | No default |

### ATTRIBUTE Gsc Imsi HlrcRec hlrNumber (hlrNo)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the HLR Number of the Home Location Register (HLR) to which the *HlrCache* record is currently associated. It is used to retrieve the *HlrCache* records to be restored after receipt of the RESET message from the HLR. |
| Values | String (1..17, NativeAddress) |
| Default | No default |

### ATTRIBUTE Gsc Imsi HlrcRec msIsdnNumber (msIsdn)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the Integrated Service Digital Network (ISDN) number of the mobile subscriber. This is represented as an E.164 number in international format. |
| Values | String (1..17, NativeAddress) |
| Default | No default |

### ATTRIBUTE Gsc Imsi HlrcRec subscriptionConfirmedByHlr (subsCByHlr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates whether the subscription information in the Serving GPRS Support Node (SGSN) is known to be in agreement with the Home Location Register (HLR) when the SGSN successfully performs an UPDATE GPRS LOCATION to the HLR. |
| Values | no<br>yes |
| Default | No default |

### ATTRIBUTE Gsc Imsi HlrcRec locationInfoConfirmedInHlr (locCInHlr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates whether the Home Location Register (HLR) record of the Serving GPRS Support Node (SGSN) address for the Mobile Station (MS) has been confirmed by radio contact.<br><br>It is initially set to, ***no***, when the SGSN receives a ROUTING AREA UPDATE REQUEST, or an IMSI and a GPRS ATTACH-REQUEST, or if a RESET message is received from the HLR with which the MS is registered. The indicator is set to, ***yes***, when a successful UPDATE GPRS LOCATION is performed for the MS. |
| Values | no<br>yes |
| Default | No default |

### GROUP Gsc Imsi HlrcRec WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Gsc Imsi HlrcRec customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Imsi HlrcRec customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Imsi HlrcRec customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT Gsc Imsi HlrcRec PdpContext (PdpC)

| | |
|---|---|
| Instance | Decimal (0..50) |
| Groups | "GROUP Gsc Imsi HlrcRec PdpC Operational (Oper)"<br>"GROUP Gsc Imsi HlrcRec PdpC WlcCustomCounters (WlcCustomCntr)" |
| Scope | Application |
| Description | *Sgsn Tlli/<tlli> HlrcRec PdpContext/n*<br>*Sgsn Imsi/<imsi> HlrcRec PdpContext/n*<br>*Gsc/n Tlli/<tlli> HlrcRec PdpContext/n*<br>*Gsc/n Imsi/<imsi> HlrcRec PdpContext/n*<br><br>This component represents the Packet Data Protocol (PDP) context data downloaded from the Home Location Register |

(HLR). It indicates the different PDP profiles (that is, Quality of Service) the subscriber has.

Dyn. Subcomp. "COMPONENT Gsc Imsi HlrcRec PdpC SubscribedQos (SubsQos)"

Common Verbs
Help
List
Display

### GROUP Gsc Imsi HlrcRec PdpC Operational (Oper)

Properties Operational

Description This group contains the Packet Data Protocol (PDP) subscription data downloaded from the Home Location Register (HLR).

### ATTRIBUTE Gsc Imsi HlrcRec PdpC pdpContextIdentifier (pdpCid)

Access
Read: All
Write: Illegal

Description This attribute indicates a Packet Data Protocol (PDP) Context in a subscription record.

Values Decimal (1..255)

Default No default

### ATTRIBUTE Gsc Imsi HlrcRec PdpC pdpType (pdpT)

Access
Read: All
Write: Illegal

Description This attribute defines the end user protocol to be used between the external packet data network and the Mobile Station (MS) such as, X.25, IP, PPP.
For X.25 currently defined address format is X.121, for IP protocol currently defined address formats are IPV4, IPV6, and PPP protocol has no address format.

Values
x25
ip
ppp

Default No default

### ATTRIBUTE Gsc Imsi HlrcRec PdpC ipv4PdpAddress (ipv4Addr)

Access Read: All
Write: Illegal

Description This attribute indicates the network layer address of the packet data network. This attribute is displayed when the Packet Data Protocol (PDP) address is IPv4. The address conforms to the standard addressing scheme of the IP version 4 address.

Values IP address

Default No default

### ATTRIBUTE Gsc Imsi HlrcRec PdpC x121PdpAddress (x121Addr)

Access Read: All
Write: Illegal

Description This attribute indicates the network layer address of the packet data network. This attribute is displayed when the Packet Data Protocol (PDP) address is X.121.

Values BCD (1..14)

Default No default

### ATTRIBUTE Gsc Imsi HlrcRec PdpC otherPdpAddress (otherAddr)

Access Read: All
Write: Illegal

Description This attribute indicates the network layer address of the packet data network. The Packet Data Protocol (PDP) protocol type for the *otherPdpAddress* can be obtained from the attribute *pdpType* and the addressing type from *pdpAddressFormat*.

Values String (1..16, Hex)

Default No default

### ATTRIBUTE Gsc Imsi HlrcRec PdpC pdpAddressFormat (pdpTnum)

Access Read: All
Write: Illegal

| | |
|---|---|
| Description | This attribute indicates the addressing type, such as, X.121, IPv4, IPv6. |
| Values | x121<br>ipv4<br>ipv6 |
| Default | No default |

### ATTRIBUTE Gsc Imsi HlrcRec PdpC apnNetworkIdentifier (apnNwkId)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates an Access Point Name (APN) Network Identifier which is the Logical Name of the access point to the external packet data network. A Logical Name is a label or a fully qualified domain name according to the Domain Name System (DNS) naming conventions. |
| Values | String (1..63, ASCII) |
| Default | No default |

### ATTRIBUTE Gsc Imsi HlrcRec PdpC vplmnAddressAllowed (vplmnAddr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates whether the Mobile Station (MS) is allowed to use the Access Point Name (APN) in the Visiting Public Land Mobile Network (VPLMN). |
| Values | no<br>yes |
| Default | No default |

### GROUP Gsc Imsi HlrcRec PdpC WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Gsc Imsi HlrcRec PdpC customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Imsi HlrcRec PdpC customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Imsi HlrcRec PdpC customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT Gsc Imsi HlrcRec PdpC SubscribedQos (SubsQos)

| | |
|---|---|
| Groups | "GROUP Gsc Imsi HlrcRec PdpC SubsQos QosProfile (Qos)" |
| Scope | Application |

Description

*Sgsn Imsi/<imsi> HlrcRec PdpContext/n SubscribedQos*
*Gsc/n Imsi/<imsi> HlrcRec PdpContext/n SubscribedQos*

This component represents the Quality of Service (QoS) profile of the subscriber downloaded from the Home Location Register (HLR).

Common Verbs

Help
List
Display

### GROUP Gsc Imsi HlrcRec PdpC SubsQos QosProfile (Qos)

Properties: Operational

Description: This group contains the Quality of Service (QoS) profile. It contains either the requested QoS, the negotiated QoS, or the subscribed QoS based on which component contains this group.

### ATTRIBUTE Gsc Imsi HlrcRec PdpC SubsQos deliveryOrder (delOrd)

Access: Read: All
Write: Illegal

Description: This attribute indicates whether the Signalling Data Units' (SDUs) order of delivery is guaranteed.

Values: withDeliveryOrder
withoutDeliveryOrder

Default: No default

### ATTRIBUTE Gsc Imsi HlrcRec PdpC SubsQos deliveryOfErroneousSdus (delErrSdus)

Access: Read: All
Write: Illegal

Description: This attribute indicates how erroneous Signaling Data Units (SDUs) are handled by the network.

The erroneous SDUs can be handled in one of the following ways:

***noDetect:*** The Signalling Data Units (SDUs) are delivered without considering error detection.

***errSdusDelivered:*** The erroneous Signalling Data Units (SDUs) are delivered together with an error indication.

***errSdusNotDelivered:*** The erroneous Signalling Data Units (SDUs) are discarded.

Values
noDetect
errSdusDelivered
errSdusNotDelivered

Default
No default

## ATTRIBUTE Gsc Imsi HlrcRec PdpC SubsQos trafficClass (traffClass)

Access
Read: All
Write: Illegal

Description
This attribute indicates the type of application for which the bearer service is optimized. By including the traffic class itself as an attribute, GPRS can make assumptions about the traffic source and optimize the transport for that traffic type.

The different traffic classes are:
***conversational -*** This class includes real time conversation, characterized by low transfer delay and a strict preservation of the time relation between information entities of the stream. Examples of this class are telephony speech and video conferencing.

***streaming -*** This class consists of real time video/audio applications, characterized by a strict preservation of the time relation between the information entities of the stream, but not necessarily a low transfer delay.

***interactive -*** This class includes applications where a human or machine requests data from remote equipment, characterized by a request-response pattern of the end-user and the preservation of payload content.

***background -*** This class includes applications where the end-user, typically a computer, sends and receives data files in the background (for example: emails, SMS and database downloads).

| | |
|---|---|
| | This is characterized by the destination not expecting the data within a certain time. |
| Values | conversational (conv)<br>streaming (strm)<br>interactive (int)<br>background (bkgr) |
| Default | No default |

### ATTRIBUTE Gsc Imsi HlrcRec PdpC SubsQos maxSduSize (maxSduSize)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the maximum allowed size of the Signalling Data Unit (SDU). It is used for admission control and policing. |
| Values | Decimal (1..1502) |
| Units | octets |
| Default | No default |

### ATTRIBUTE Gsc Imsi HlrcRec PdpC SubsQos maxUplinkBitRate (maxUpBr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the maximum number of bits delivered to GPRS in the uplink direction within a period of time, divided by the duration of the period. This is the upper limit in kilobits per second allowed for a specific context. |
| Values | Decimal (0..8640) |
| Units | kbit/s |
| Default | No default |

### ATTRIBUTE Gsc Imsi HlrcRec PdpC SubsQos maxDownlinkBitRate (maxDnBr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute indicates the maximum number of bits delivered by GPRS in the downlink direction within a period of time, divided by the duration of the period. This is the upper limit in kilobits per second allowed for a specific context. |
| Values | Decimal (0..8640) |
| Units | kbit/s |
| Default | No default |

### ATTRIBUTE Gsc Imsi HlrcRec PdpC SubsQos residualBitErrorRate (resBer)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the undetected bit error ratio in the delivered Signalling Data Units (SDUs). If no error detection is requested, this attribute indicates the bit error ratio in the delivered SDUs.<br><br>This attribute can take up values ranging from 1 through 9, representing:<br><br>***1*** -> 5*10 -2<br>***2*** -> 1*10 -2<br>***3*** -> 5*10 -3<br>***4*** -> 4*10 -3<br>***5*** -> 1*10 -3<br>***6*** -> 1*10 -4<br>***7*** -> 1*10 -5<br>***8*** -> 1*10 -6<br>***9*** -> 6*10 -8 |
| Values | Decimal (1..9) |
| Default | No default |

### ATTRIBUTE Gsc Imsi HlrcRec PdpC SubsQos sduErrorRatio (sduErrRatio)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

Description

This attribute indicates the fraction of Signalling Data Units (SDUs) lost or detected as erroneous. It is defined only for conforming traffic.

This attribute can take up values between the numbers 1 - 7 representing the following:
1 -> 1*10 -2
2 -> 7*10 -3
3 -> 1*10 -3
4 -> 1*10 -4
5 -> 1*10 -5
6 -> 1*10 -6
7 -> 1*10 -1

Values

Decimal (1..7)

Default

No default

### ATTRIBUTE Gsc Imsi HlrcRec PdpC SubsQos trafficHandlingPriority (traffHndlPr)

Access

Read: All
Write: Illegal

Description

This attribute indicates the traffic handling priority. The traffic handling priority attribute is used to prioritize the traffic when the *trafficClass* attribute has the value ***interactive.***

A value of ***0*** is reserved when this attribute is displayed for the negotiated Quality of Service (QoS) and the subscribed QoS. When displayed for the requested QoS, it indicates that the value in the subscribed QoS is to be used. Values of ***1***, ***2***, or ***3*** indicate the traffic priority, with ***1*** indicating the highest priority and ***3*** the lowest.

Values

Decimal (0..3)

Default

No default

### ATTRIBUTE Gsc Imsi HlrcRec PdpC SubsQos transferDelay (transfDelay)

Access

Read: All
Write: Illegal

| | |
|---|---|
| Description | This attribute indicates the maximum delay for 95th percentile of the distribution of delay for all delivered Signalling Data Units (SDUs) during the lifetime of a bearer service, where delay for an SDU is defined as the time from a request to transfer data from one Service Access Point (SAP) to another SAP. |
| Values | Decimal (10..4100) |
| Units | msec |
| Default | No default |

### ATTRIBUTE Gsc Imsi HlrcRec PdpC SubsQos guaranteedUplinkBitRate (guarUpBr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the guaranteed number of bits delivered at a Service Access Point (SAP) in the uplink (Mobile Station to network) direction within a period of time, divided by the duration of the period.<br><br>The value of this attribute is ignored if the *trafficClass* attribute has one of the following values: ***interactive*** or ***background***, or if the *maxUplinkBitRate* is set to ***0*** kbits/s. |
| Values | Decimal (0..8640) |
| Default | No default |

### ATTRIBUTE Gsc Imsi HlrcRec PdpC SubsQos guaranteedDownlinkBitRate (guarDnBr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the guaranteed number of bits delivered at a Service Access Point (SAP) in the downlink (network to Mobile Station) direction within a period of time, divided by the duration of the period.<br><br>The value of this attribute is ignored if the *trafficClass* attribute has one of the following values: ***interactive*** or ***background***, or if the *maxDownlinkBitRate* is set to ***0*** kbits/s. |
| Values | Decimal (0..8640) |

| | |
|---|---|
| Default | No default |

## COMPONENT Gsc Imsi Bssap

| | |
|---|---|
| Groups | "GROUP Gsc Imsi Bssap Operational (Oper)"<br>"GROUP Gsc Imsi Bssap WlcCustomCounters (WlcCustomCntr)" |
| Scope | Application |
| Description | *Sgsn Imsi/<imsi> Bssap*<br>*Gsc/n Imsi/<imsi> Bssap*<br><br>This component represents the Base Station System Application Part + (BSSAP+) context information for each mobile subscriber that is IMSI attached to both GPRS and non-GPRS services.<br><br>The BSSAP+ layer is responsible for co-ordinating the location information for a mobile subscriber and conveying some Circuit Switched related procedures via the SGSN. |
| Common Verbs | Help<br>List<br>Display |

## GROUP Gsc Imsi Bssap Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the GPRS Base Station System Application Part+ (BSSAP+) context information. |

## ATTRIBUTE Gsc Imsi Bssap vlrNumber (vlrNo)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the E.164 number of the VLR that the Mobile Station (MS) uses for non-GPRS services. If there is no associated VLR, the value is empty. |
| Values | BCD (0..15) |
| Default | No default |

### ATTRIBUTE Gsc Imsi Bssap gsState

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the state of the Gs interface in the SGSN. The states have the following meaning:<br>***null*** - There is no associated VLR for the Mobile station (MS).<br>***laUpdate*** - The SGSN has sent a BSSAP+_LOCATION_UPDATE_REQUEST to the VLR.<br>***associated*** - The MS is attached to both GPRS and non-GPRS services. |
| Values | null<br>laUpdate<br>associated |
| Default | No default |

### ATTRIBUTE Gsc Imsi Bssap vlrReliable (vlrRel)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the reset status of the VLR that provides non-GPRS services to the MS.<br><br>If the value is ***false***, upon reception of any Routing Area Update or Combined Routing and Location Update, the SGSN requests the mobile to re-attach to non-GPRS services. If the value is ***true***, the SGSN proceeds with the Routing Area Update or Combined Routing and Location Update.<br><br>This value is set to ***true*** when the SGSN receives a BSSAP+_LOCATION_UPDATE_ACCEPT from the VLR. It is set to ***false***, when the SGSN has received a reset indication from the VLR. |
| Values | false<br>true |
| Default | No default |

### ATTRIBUTE Gsc Imsi Bssap nonGprsAlertFlag (ngaf)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the non-GPRS alert flag. If the value is ***true***, the VLR is notified of any activity on the mobile and if the value is ***false***, the VLR is not notified.<br><br>This value is set to ***true*** when the SGSN replies to a BSSAP+-ALERT-REQUEST with an ACK. It is set to ***false***, when the SGSN sends an BSSAP+-MS_ACTIVITY_INDICATION message to the VLR. |
| Values | false<br>true |
| Default | No default |

### GROUP Gsc Imsi Bssap WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Gsc Imsi Bssap customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Imsi Bssap customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Imsi Bssap customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT Gsc TemporaryLogicalLinkId (Tlli)

| | |
|---|---|
| Instance | String (4, Hex) |
| Groups | "GROUP Gsc Tlli WlcCustomCounters (WlcCustomCntr)" |
| Scope | Application |
| Description | *Gsc/n TemporaryLogicalLinkId/<tlli>*<br><br>This component represents an instance of the Temporary Logical Link Identity (TLLI). The information includes subscription context, mobility management context and session contexts. Each instance is indexed by the TLLI of the mobile subscriber. A list of all current TLLI instances is not possible, but it is possible to display a specific instance of TLLI. |

| | |
|---|---|
| Dyn. Subcomp. | "COMPONENT Gsc Tlli MobilityContext (Mc)"<br>"COMPONENT Gsc Tlli SessionContext (Sc)"<br>"COMPONENT Gsc Tlli HlrCacheRecord (HlrcRec)" |
| Common Verbs | Help<br>List<br>Display |

### GROUP Gsc Tlli WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Gsc Tlli customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Tlli customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## ATTRIBUTE Gsc Tlli customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## COMPONENT Gsc Tlli MobilityContext (Mc)

| | |
|---|---|
| Groups | "GROUP Gsc Tlli Mc Operational (Oper)"<br>"GROUP Gsc Tlli Mc WlcCustomCounters (WlcCustomCntr)" |
| Scope | Application |
| Description | *Sgsn Tlli/<tlli> MobilityContext*<br>*Sgsn Imsi/<imsi> MobilityContext*<br>*Gsc/n Tlli/<tlli> MobilityContext*<br>*Gsc/n Imsi/<imsi> MobilityContext*<br><br>This component represents the GPRS Mobility Management (GMM) context created for each mobile subscriber that is GPRS-Attached. The Mobility Context is an instance of the *InternationalMobileSubscriberId (Imsi)* and the *TemporaryLogicalLinkId (Tlli)* of the Serving GPRS Support Node (SGSN). |
| Common Verbs | Help<br>List<br>Display |

## GROUP Gsc Tlli Mc Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the GPRS Mobility Management (GMM) information for a subscriber. |

### ATTRIBUTE Gsc Tlli Mc temporaryLogicalLinkId (tlli)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the Temporary Logical Link Identifier (TLLI) used to identify the context of the Mobile Station (MS) within the Serving GPRS Support Node (SGSN). This is one of the main reference keys that is used to identify an MS in the SGSN. |
| Values | String (4, Hex) |
| Default | No default |

### ATTRIBUTE Gsc Tlli Mc gmmState (gmmSt)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the GPRS Mobility Management (GMM) state for a mobile. Upon initialization, this attribute value is in ***idle*** state. The states have the following meaning:<br>***idle*** - The Mobile Station (MS) is not attached to the GPRS Mobility Management (GMM). The MS and the SGSN context hold no valid location or routing area information for the mobile.<br>***standby*** - The MS is attached to the GMM.<br>***ready*** - MS is attached and can be sending or receiving the Point To Point Protocol Data Units (PTP PDUs). |
| Values | idle<br>standby<br>ready |
| Default | No default |

### ATTRIBUTE Gsc Tlli Mc routingAreaIdentifier (rai)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the current routing area of the Mobile Station (MS). The routing area is transmitted to the Serving GPRS Support Node (SGSN) during a Routing Area Update procedure or Attach procedure. The routing area identifier |

| | |
|---|---|
| | includes the Mobile Country Code (MCC as first 3 digits), the Mobile Network Code (MNC as next 2 digits), the Location Area Code (LAC as next 4 digits), and the Routing Area Code (RAC as last 2 digits). |
| Values | String (5..6, Hex) |
| Default | No default |

### ATTRIBUTE Gsc Tlli Mc cellId

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the current cell location of the Mobile Station (MS). |
| Values | String (2, Hex) |
| Default | No default |

### ATTRIBUTE Gsc Tlli Mc cellEntryTime (cellEntry)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates when the Mobile Station (MS) entered the cell indicated by the *cellId*. |
| Values | Time (DHMS) |
| Default | No default |

### ATTRIBUTE Gsc Tlli Mc sgsnClassmark (sgsnCm)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the network portion of the Mobile Station (MS) classmark. The classmark contains specific information about a Mobile Station (MS). |
| Values | String (1..2, Hex) |
| Default | No default |

### ATTRIBUTE Gsc Tlli Mc drxParameters (drxParms)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates if the Mobile Station (MS) supports discontinuous reception or not. The DRX parameter is transmitted by the MS during an Attach Request procedure and a Routing Area Update procedure. |
| Values | supported<br>unsupported |
| Default | No default |

### ATTRIBUTE Gsc Tlli Mc readyTimer (t3314)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the negotiated value of the Ready Timer (T3314) for the GPRS Mobility Management (GMM) state transition. The Ready Timer is restarted whenever a signaling or a data Protocol Data Unit (PDU) is received from the Mobile Station (MS). In the event of the Ready Timer expiry, the attribute *gmmState* changes to ***standby***.<br><br>The negotiation of this value is based on the *readyTimer* provisioned in the *Sgsn GprsSubscriberControl* component. |
| Values | Decimal (1..11160)<br>forceStandby |
| Units | seconds |
| Default | No default |

### ATTRIBUTE Gsc Tlli Mc pagingProceedFlag (ppf)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the paging proceed flag. The flag indicates whether paging can be initiated. |

| | |
|---|---|
| Values | false<br>true |
| Default | No default |

### GROUP Gsc Tlli Mc WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Gsc Tlli Mc customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Tlli Mc customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Tlli Mc customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## COMPONENT Gsc Tlli SessionContext (Sc)

| | |
|---|---|
| Instance | Decimal (0..15) |
| Groups | "GROUP Gsc Tlli Sc SessionContextOp (ScOp)"<br>"GROUP Gsc Tlli Sc WlcCustomCounters (WlcCustomCntr)" |
| Scope | Application |
| Description | *Gsc/n Tlli/<tlli> SessionContext/<nsapi>*<br>*Gsc/n Imsi/<imsi> SessionContext/<nsapi>*<br><br>This component represents the Session Context information for a subscriber. The Session Contexts are created for each activated Packet Data Protocol (PDP) context of a subscriber. The instance value identifies a session for a mobile subscriber. |
| Dyn. Subcomp. | "COMPONENT Gsc Tlli Sc RequestedQos (ReqQos)"<br>"COMPONENT Gsc Tlli Sc NegotiatedQos (NegQos)" |
| Common Verbs | Help<br>List<br>Display |

## GROUP Gsc Tlli Sc SessionContextOp (ScOp)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the Session Context information for a subscriber. The Session Contexts are created for each activated Packet Data Protocol (PDP) context of a subscriber. |

### ATTRIBUTE Gsc TIli Sc selectedApnNetworkId (selApnNwkId)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the selected Access Point Name (APN) Network Identifier.<br><br>The APN Network Identifier can be the one received from the mobile as part of the ACTIVATE PDP CONTEXT REQUEST message or it can be selected from the subscription record against which this session has been activated or it can be the *defaultApnNetworkId* (defined in *Sgsn Gsc*) for the requested PDP type provisioned on the Serving GPRS Support Node (SGSN). |
| Values | String (1..63, ASCII) |
| Default | No default |

### ATTRIBUTE Gsc TIli Sc selectedApnOperatorId (selApnOpId)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the selected Access Point Name (APN) Operator Identifier.<br><br>The APN Operator Identifier can be the one received from the Mobile Station (MS) as part of the ACTIVATE PDP CONTEXT REQUEST message or it can be the one constructed from the subscriber's IMSI as mnc<3 MNC digits>.mcc<3 MCC digits>.gprs. |
| Values | String (1..37, ASCII) |
| Default | No default |

### ATTRIBUTE Gsc TIli Sc dataPathGgsnAddress (dGgsnAddr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute indicates the IP address of the Gateway GPRS Support Node (GGSN) for the data path that is currently used by the activated Packet Data Protocol (PDP) context. |
| Values | IP address |
| Default | No default |

### ATTRIBUTE Gsc Tlli Sc signalingGgsnAddress (sGgsnAddr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the IP address of the Gateway GPRS Support Node (GGSN) for the signaling path that is currently used by the activated Packet Data Protocol (PDP) context. |
| Values | IP address |
| Default | No default |

### ATTRIBUTE Gsc Tlli Sc pdpContextIdentifier (pdpCid)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the subscription record against which this session has been activated. |
| Values | Decimal (1..255) |
| Default | No default |

### ATTRIBUTE Gsc Tlli Sc pdpType (pdpT)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute defines the end user protocol to be used between the external packet data network and the Mobile Station (MS) such as, X.25, IP, PPP.<br>For X.25 currently defined address format is X.121, for IP protocol currently defined address formats are IPV4, IPV6, and PPP protocol has no address format. |

| | |
|---|---|
| Values | x25<br>ip<br>ppp |
| Default | No default |

### ATTRIBUTE Gsc Tlli Sc ipv4PdpAddress (ipv4Addr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the network layer address of the packet data network. This attribute is displayed when the Packet Data Protocol (PDP) address is IPv4. The address conforms to the standard addressing scheme of the IP version 4 address. |
| Values | IP address |
| Default | No default |

### ATTRIBUTE Gsc Tlli Sc x121PdpAddress (x121Addr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the network layer address of the packet data network. This attribute is displayed when the Packet Data Protocol (PDP) address is X.121. |
| Values | BCD (1..14) |
| Default | No default |

### ATTRIBUTE Gsc Tlli Sc otherPdpAddress (otherAddr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the network layer address of the packet data network. The Packet Data Protocol (PDP) protocol type for the *otherPdpAddress* can be obtained from the attribute *pdpType* and the addressing type from *pdpAddressFormat*. |
| Values | String (1..16, Hex) |
| Default | No default |

### ATTRIBUTE Gsc Tlli Sc pdpAddressFormat (pdpTnum)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the addressing type, such as, X.121, IPv4, IPv6. |
| Values | x121<br>ipv4<br>ipv6 |
| Default | No default |

### ATTRIBUTE Gsc Tlli Sc ggsnRemoteTeid (ggsnRemTeid)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the Tunnel End point Identifier that is associated with a tunnel leg that originates at the GPRS Serving GPRS Support Node (SGSN) and terminates at the Gateway GPRS Support Node (GGSN). |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Tlli Sc ggsnLocalTeid (ggsnLocTeid)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the Tunnel End point Identifier that is associated with a tunnel leg that originates at the Gateway GPRS Support Node (GGSN) and terminates at the GPRS Serving GPRS Support Node (SGSN). |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Tlli Sc signallingGgsnTeid (sGgsnTeid)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute indicates the Tunnel End point Identifier that is associated with a tunnel leg endpoint of the control tunnel that runs between the GPRS Serving GPRS Support Node (SGSN) and the Gateway GPRS Support Node (GGSN). |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Gsc TIli Sc WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Gsc TIli Sc customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc TIli Sc customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Tlli Sc customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT Gsc Tlli Sc RequestedQos (ReqQos)

| | |
|---|---|
| Groups | "GROUP Gsc Tlli Sc ReqQos QosProfile (Qos)" |
| Scope | Application |
| Description | *Sgsn Imsi/<imsi> SessionContext/<nsapi> RequestedQos*<br>*Gsc/n Imsi/<imsi> SessionContext/<nsapi> RequestedQos*<br><br>This component represents the Quality of Service (QoS) profile requested by a mobile subscriber for this session. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Gsc Tlli Sc ReqQos QosProfile (Qos)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the Quality of Service (QoS) profile. It contains either the requested QoS, the negotiated QoS, or the subscribed QoS based on which component contains this group. |

### ATTRIBUTE Gsc Tlli Sc ReqQos deliveryOrder (delOrd)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates whether the Signalling Data Units' (SDUs) order of delivery is guaranteed. |

| | |
|---|---|
| Values | withDeliveryOrder<br>withoutDeliveryOrder |
| Default | No default |

### ATTRIBUTE Gsc TIli Sc ReqQos deliveryOfErroneousSdus (delErrSdus)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates how erroneous Signaling Data Units (SDUs) are handled by the network.<br><br>The erroneous SDUs can be handled in one of the following ways:<br><br>***noDetect:*** The Signalling Data Units (SDUs) are delivered without considering error detection.<br><br>***errSdusDelivered:*** The erroneous Signalling Data Units (SDUs) are delivered together with an error indication.<br><br>***errSdusNotDelivered:*** The erroneous Signalling Data Units (SDUs) are discarded. |
| Values | noDetect<br>errSdusDelivered<br>errSdusNotDelivered |
| Default | No default |

### ATTRIBUTE Gsc TIli Sc ReqQos trafficClass (traffClass)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the type of application for which the bearer service is optimized. By including the traffic class itself as an attribute, GPRS can make assumptions about the traffic source and optimize the transport for that traffic type.<br><br>The different traffic classes are:<br>***conversational -*** This class includes real time conversation, characterized by low transfer delay and a strict preservation of |

the time relation between information entities of the stream. Examples of this class are telephony speech and video conferencing.

***streaming -*** This class consists of real time video/audio applications, characterized by a strict preservation of the time relation between the information entities of the stream, but not necessarily a low transfer delay.

***interactive -*** This class includes applications where a human or machine requests data from remote equipment, characterized by a request-response pattern of the end-user and the preservation of payload content.

***background -*** This class includes applications where the end-user, typically a computer, sends and receives data files in the background (for example: emails, SMS and database downloads). This is characterized by the destination not expecting the data within a certain time.

| | |
|---|---|
| Values | conversational (conv)<br>streaming (strm)<br>interactive (int)<br>background (bkgr) |
| Default | No default |

### ATTRIBUTE Gsc Tlli Sc ReqQos maxSduSize (maxSduSize)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the maximum allowed size of the Signalling Data Unit (SDU). It is used for admission control and policing. |
| Values | Decimal (1..1502) |
| Units | octets |
| Default | No default |

### ATTRIBUTE Gsc Tlli Sc ReqQos maxUplinkBitRate (maxUpBr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the maximum number of bits delivered to GPRS in the uplink direction within a period of time, divided by the duration of the period. This is the upper limit in kilobits per second allowed for a specific context. |
| Values | Decimal (0..8640) |
| Units | kbit/s |
| Default | No default |

### ATTRIBUTE Gsc Tlli Sc ReqQos maxDownlinkBitRate (maxDnBr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the maximum number of bits delivered by GPRS in the downlink direction within a period of time, divided by the duration of the period. This is the upper limit in kilobits per second allowed for a specific context. |
| Values | Decimal (0..8640) |
| Units | kbit/s |
| Default | No default |

### ATTRIBUTE Gsc Tlli Sc ReqQos residualBitErrorRate (resBer)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the undetected bit error ratio in the delivered Signalling Data Units (SDUs). If no error detection is requested, this attribute indicates the bit error ratio in the delivered SDUs.<br><br>This attribute can take up values ranging from 1 through 9, representing:<br><br>***1*** -> 5*10 -2 |

***2*** -> 1*10 -2
***3*** -> 5*10 -3
***4*** -> 4*10 -3
***5*** -> 1*10 -3
***6*** -> 1*10 -4
***7*** -> 1*10 -5
***8*** -> 1*10 -6
***9*** -> 6*10 -8

Values — Decimal (1..9)

Default — No default

### ATTRIBUTE Gsc Tlli Sc ReqQos sduErrorRatio (sduErrRatio)

Access — Read: All
Write: Illegal

Description — This attribute indicates the fraction of Signalling Data Units (SDUs) lost or detected as erroneous. It is defined only for conforming traffic.

This attribute can take up values between the numbers 1 - 7 representing the following:
1 -> 1*10 -2
2 -> 7*10 -3
3 -> 1*10 -3
4 -> 1*10 -4
5 -> 1*10 -5
6 -> 1*10 -6
7 -> 1*10 -1

Values — Decimal (1..7)

Default — No default

### ATTRIBUTE Gsc Tlli Sc ReqQos trafficHandlingPriority (traffHndlPr)

Access — Read: All
Write: Illegal

| | |
|---|---|
| Description | This attribute indicates the traffic handling priority. The traffic handling priority attribute is used to prioritize the traffic when the *trafficClass* attribute has the value ***interactive.***<br><br>A value of ***0*** is reserved when this attribute is displayed for the negotiated Quality of Service (QoS) and the subscribed QoS. When displayed for the requested QoS, it indicates that the value in the subscribed QoS is to be used. Values of ***1***, ***2***, or ***3*** indicate the traffic priority, with ***1*** indicating the highest priority and ***3*** the lowest. |
| Values | Decimal (0..3) |
| Default | No default |

### ATTRIBUTE Gsc Tlli Sc ReqQos transferDelay (transfDelay)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the maximum delay for 95th percentile of the distribution of delay for all delivered Signalling Data Units (SDUs) during the lifetime of a bearer service, where delay for an SDU is defined as the time from a request to transfer data from one Service Access Point (SAP) to another SAP. |
| Values | Decimal (10..4100) |
| Units | msec |
| Default | No default |

### ATTRIBUTE Gsc Tlli Sc ReqQos guaranteedUplinkBitRate (guarUpBr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the guaranteed number of bits delivered at a Service Access Point (SAP) in the uplink (Mobile Station to network) direction within a period of time, divided by the duration of the period.<br><br>The value of this attribute is ignored if the *trafficClass* attribute has one of the following values: ***interactive*** or ***background***, or if the *maxUplinkBitRate* is set to ***0*** kbits/s. |

| | |
|---|---|
| Values | Decimal (0..8640) |
| Default | No default |

### ATTRIBUTE Gsc Tlli Sc ReqQos guaranteedDownlinkBitRate (guarDnBr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the guaranteed number of bits delivered at a Service Access Point (SAP) in the downlink (network to Mobile Station) direction within a period of time, divided by the duration of the period.<br><br>The value of this attribute is ignored if the *trafficClass* attribute has one of the following values: ***interactive*** or ***background***, or if the *maxDownlinkBitRate* is set to ***0*** kbits/s. |
| Values | Decimal (0..8640) |
| Default | No default |

### COMPONENT Gsc Tlli Sc NegotiatedQos (NegQos)

| | |
|---|---|
| Groups | "GROUP Gsc Tlli Sc NegQos QosProfile (Qos)" |
| Scope | Application |
| Description | *Sgsn Imsi/<imsi> SessionContext/<nsapi> NegotiatedQos*<br>*Gsc/n Imsi/<imsi> SessionContext/<nsapi> NegotiatedQos*<br><br>This component represents the negotiated Quality of Service (QoS) profile received by a mobile subscriber for this session. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Gsc Tlli Sc NegQos QosProfile (Qos)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the Quality of Service (QoS) profile. It contains either the requested QoS, the negotiated QoS, or the subscribed QoS based on which component contains this group. |

### ATTRIBUTE Gsc Tlli Sc NegQos deliveryOrder (delOrd)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates whether the Signalling Data Units' (SDUs) order of delivery is guaranteed. |
| Values | withDeliveryOrder<br>withoutDeliveryOrder |
| Default | No default |

### ATTRIBUTE Gsc Tlli Sc NegQos deliveryOfErroneousSdus (delErrSdus)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates how erroneous Signaling Data Units (SDUs) are handled by the network.<br><br>The erroneous SDUs can be handled in one of the following ways:<br><br>***noDetect:*** The Signalling Data Units (SDUs) are delivered without considering error detection.<br><br>***errSdusDelivered:*** The erroneous Signalling Data Units (SDUs) are delivered together with an error indication.<br><br>***errSdusNotDelivered:*** The erroneous Signalling Data Units (SDUs) are discarded. |
| Values | noDetect<br>errSdusDelivered<br>errSdusNotDelivered |
| Default | No default |

### ATTRIBUTE Gsc Tlli Sc NegQos trafficClass (traffClass)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

Description

This attribute indicates the type of application for which the bearer service is optimized. By including the traffic class itself as an attribute, GPRS can make assumptions about the traffic source and optimize the transport for that traffic type.

The different traffic classes are:
***conversational -*** This class includes real time conversation, characterized by low transfer delay and a strict preservation of the time relation between information entities of the stream. Examples of this class are telephony speech and video conferencing.

***streaming -*** This class consists of real time video/audio applications, characterized by a strict preservation of the time relation between the information entities of the stream, but not necessarily a low transfer delay.

***interactive -*** This class includes applications where a human or machine requests data from remote equipment, characterized by a request-response pattern of the end-user and the preservation of payload content.

***background -*** This class includes applications where the end-user, typically a computer, sends and receives data files in the background (for example: emails, SMS and database downloads). This is characterized by the destination not expecting the data within a certain time.

Values

conversational (conv)
streaming (strm)
interactive (int)
background (bkgr)

Default

No default

## ATTRIBUTE Gsc Tlli Sc NegQos maxSduSize (maxSduSize)

Access

Read: All
Write: Illegal

Description

This attribute indicates the maximum allowed size of the Signalling Data Unit (SDU). It is used for admission control and policing.

| | |
|---|---|
| Values | Decimal (1..1502) |
| Units | octets |
| Default | No default |

### ATTRIBUTE Gsc Tlli Sc NegQos maxUplinkBitRate (maxUpBr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the maximum number of bits delivered to GPRS in the uplink direction within a period of time, divided by the duration of the period. This is the upper limit in kilobits per second allowed for a specific context. |
| Values | Decimal (0..8640) |
| Units | kbit/s |
| Default | No default |

### ATTRIBUTE Gsc Tlli Sc NegQos maxDownlinkBitRate (maxDnBr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the maximum number of bits delivered by GPRS in the downlink direction within a period of time, divided by the duration of the period. This is the upper limit in kilobits per second allowed for a specific context. |
| Values | Decimal (0..8640) |
| Units | kbit/s |
| Default | No default |

### ATTRIBUTE Gsc Tlli Sc NegQos residualBitErrorRate (resBer)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the undetected bit error ratio in the delivered Signalling Data Units (SDUs). If no error detection is requested, this attribute indicates the bit error ratio in the delivered SDUs. |

This attribute can take up values ranging from 1 through 9, representing:

***1*** -> 5*10 -2
***2*** -> 1*10 -2
***3*** -> 5*10 -3
***4*** -> 4*10 -3
***5*** -> 1*10 -3
***6*** -> 1*10 -4
***7*** -> 1*10 -5
***8*** -> 1*10 -6
***9*** -> 6*10 -8

Values — Decimal (1..9)

Default — No default

### ATTRIBUTE Gsc Tlli Sc NegQos sduErrorRatio (sduErrRatio)

Access — Read: All
Write: Illegal

Description — This attribute indicates the fraction of Signalling Data Units (SDUs) lost or detected as erroneous. It is defined only for conforming traffic.

This attribute can take up values between the numbers 1 - 7 representing the following:
1 -> 1*10 -2
2 -> 7*10 -3
3 -> 1*10 -3
4 -> 1*10 -4
5 -> 1*10 -5
6 -> 1*10 -6
7 -> 1*10 -1

Values — Decimal (1..7)

Default — No default

### ATTRIBUTE Gsc Tlli Sc NegQos trafficHandlingPriority (traffHndlPr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the traffic handling priority. The traffic handling priority attribute is used to prioritize the traffic when the *trafficClass* attribute has the value ***interactive.***<br><br>A value of ***0*** is reserved when this attribute is displayed for the negotiated Quality of Service (QoS) and the subscribed QoS. When displayed for the requested QoS, it indicates that the value in the subscribed QoS is to be used. Values of ***1***, ***2***, or ***3*** indicate the traffic priority, with ***1*** indicating the highest priority and ***3*** the lowest. |
| Values | Decimal (0..3) |
| Default | No default |

### ATTRIBUTE Gsc Tlli Sc NegQos transferDelay (transfDelay)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the maximum delay for 95th percentile of the distribution of delay for all delivered Signalling Data Units (SDUs) during the lifetime of a bearer service, where delay for an SDU is defined as the time from a request to transfer data from one Service Access Point (SAP) to another SAP. |
| Values | Decimal (10..4100) |
| Units | msec |
| Default | No default |

### ATTRIBUTE Gsc Tlli Sc NegQos guaranteedUplinkBitRate (guarUpBr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the guaranteed number of bits delivered at a Service Access Point (SAP) in the uplink (Mobile Station to network) direction within a period of time, divided by the duration of the period. |

The value of this attribute is ignored if the *trafficClass* attribute has one of the following values: ***interactive*** or ***background***, or if the *maxUplinkBitRate* is set to ***0*** kbits/s.

Values: Decimal (0..8640)

Default: No default

### ATTRIBUTE Gsc Tlli Sc NegQos guaranteedDownlinkBitRate (guarDnBr)

Access: Read: All
Write: Illegal

Description: This attribute indicates the guaranteed number of bits delivered at a Service Access Point (SAP) in the downlink (network to Mobile Station) direction within a period of time, divided by the duration of the period.

The value of this attribute is ignored if the *trafficClass* attribute has one of the following values: ***interactive*** or ***background***, or if the *maxDownlinkBitRate* is set to ***0*** kbits/s.

Values: Decimal (0..8640)

Default: No default

### COMPONENT Gsc Tlli HlrCacheRecord (HlrcRec)

Groups: "GROUP Gsc Tlli HlrcRec Operational (Oper)"
"GROUP Gsc Tlli HlrcRec WlcCustomCounters (WlcCustomCntr)"

Scope: Application

Description: *Sgsn Tlli/<tlli> HlrCacheRecord*
*Sgsn Imsi/<imsi> HlrCacheRecord*
*Gsc/n Tlli/<tlli> HlrCacheRecord*
*Gsc/n Imsi/<imsi> HlrCacheRecord*

This component represents a subscription record downloaded from the Home Location Register (HLR). The *HlrCache* on the *GprsSubscriberControl (Gsc)* contains the active subscriber data.

| | |
|---|---|
| Dyn. Subcomp. | "COMPONENT Gsc Tlli HlrcRec PdpContext (PdpC)" |
| Common Verbs | Help<br>List<br>Display |

### GROUP Gsc Tlli HlrcRec Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains subscription information downloaded from the Home Location Register (HLR). |

### ATTRIBUTE Gsc Tlli HlrcRec internationalMobileSubscriberId (imsi)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the International Mobile Subscriber Identity (IMSI) of the Mobile Station (MS). |
| Values | BCD (5..15) |
| Default | No default |

### ATTRIBUTE Gsc Tlli HlrcRec hlrNumber (hlrNo)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the HLR Number of the Home Location Register (HLR) to which the *HlrCache* record is currently associated. It is used to retrieve the *HlrCache* records to be restored after receipt of the RESET message from the HLR. |
| Values | String (1..17, NativeAddress) |
| Default | No default |

### ATTRIBUTE Gsc TIli HlrcRec msIsdnNumber (msIsdn)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the Integrated Service Digital Network (ISDN) number of the mobile subscriber. This is represented as an E.164 number in international format. |
| Values | String (1..17, NativeAddress) |
| Default | No default |

### ATTRIBUTE Gsc TIli HlrcRec subscriptionConfirmedByHlr (subsCByHlr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates whether the subscription information in the Serving GPRS Support Node (SGSN) is known to be in agreement with the Home Location Register (HLR) when the SGSN successfully performs an UPDATE GPRS LOCATION to the HLR. |
| Values | no<br>yes |
| Default | No default |

### ATTRIBUTE Gsc TIli HlrcRec locationInfoConfirmedInHlr (locCInHlr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates whether the Home Location Register (HLR) record of the Serving GPRS Support Node (SGSN) address for the Mobile Station (MS) has been confirmed by radio contact.<br><br>It is initially set to, ***no***, when the SGSN receives a ROUTING AREA UPDATE REQUEST, or an IMSI and a GPRS ATTACH-REQUEST, or if a RESET message is received from the HLR with which the MS is registered. The indicator is set to, ***yes***, when a successful UPDATE GPRS LOCATION is performed for the MS. |

| | |
|---|---|
| Values | no<br>yes |
| Default | No default |

### GROUP Gsc Tlli HlrcRec WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Gsc Tlli HlrcRec customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Tlli HlrcRec customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Tlli HlrcRec customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## COMPONENT Gsc Tlli HlrcRec PdpContext (PdpC)

| | |
|---|---|
| Instance | Decimal (0..50) |
| Groups | "GROUP Gsc Tlli HlrcRec PdpC Operational (Oper)"<br>"GROUP Gsc Tlli HlrcRec PdpC WlcCustomCounters (WlcCustomCntr)" |
| Scope | Application |
| Description | *Sgsn Tlli/<tlli> HlrcRec PdpContext/n*<br>*Sgsn Imsi/<imsi> HlrcRec PdpContext/n*<br>*Gsc/n Tlli/<tlli> HlrcRec PdpContext/n*<br>*Gsc/n Imsi/<imsi> HlrcRec PdpContext/n*<br><br>This component represents the Packet Data Protocol (PDP) context data downloaded from the Home Location Register (HLR). It indicates the different PDP profiles (that is, Quality of Service) the subscriber has. |
| Dyn. Subcomp. | "COMPONENT Gsc Tlli HlrcRec PdpC SubscribedQos (SubsQos)" |
| Common Verbs | Help<br>List<br>Display |

## GROUP Gsc Tlli HlrcRec PdpC Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the Packet Data Protocol (PDP) subscription data downloaded from the Home Location Register (HLR). |

### ATTRIBUTE Gsc Tlli HlrcRec PdpC pdpContextIdentifier (pdpCid)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates a Packet Data Protocol (PDP) Context in a subscription record. |
| Values | Decimal (1..255) |
| Default | No default |

### ATTRIBUTE Gsc Tlli HlrcRec PdpC pdpType (pdpT)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute defines the end user protocol to be used between the external packet data network and the Mobile Station (MS) such as, X.25, IP, PPP.<br>For X.25 currently defined address format is X.121, for IP protocol currently defined address formats are IPV4, IPV6, and PPP protocol has no address format. |
| Values | x25<br>ip<br>ppp |
| Default | No default |

### ATTRIBUTE Gsc Tlli HlrcRec PdpC ipv4PdpAddress (ipv4Addr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the network layer address of the packet data network. This attribute is displayed when the Packet Data Protocol (PDP) address is IPv4. The address conforms to the standard addressing scheme of the IP version 4 address. |
| Values | IP address |
| Default | No default |

### ATTRIBUTE Gsc Tlli HlrcRec PdpC x121PdpAddress (x121Addr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the network layer address of the packet data network. This attribute is displayed when the Packet Data Protocol (PDP) address is X.121. |
| Values | BCD (1..14) |
| Default | No default |

### ATTRIBUTE Gsc Tlli HlrcRec PdpC otherPdpAddress (otherAddr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the network layer address of the packet data network. The Packet Data Protocol (PDP) protocol type for the *otherPdpAddress* can be obtained from the attribute *pdpType* and the addressing type from *pdpAddressFormat*. |
| Values | String (1..16, Hex) |
| Default | No default |

### ATTRIBUTE Gsc Tlli HlrcRec PdpC pdpAddressFormat (pdpTnum)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the addressing type, such as, X.121, IPv4, IPv6. |
| Values | x121<br>ipv4<br>ipv6 |
| Default | No default |

### ATTRIBUTE Gsc Tlli HlrcRec PdpC apnNetworkIdentifier (apnNwkId)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute indicates an Access Point Name (APN) Network Identifier which is the Logical Name of the access point to the external packet data network. A Logical Name is a label or a fully qualified domain name according to the Domain Name System (DNS) naming conventions. |
| Values | String (1..63, ASCII) |
| Default | No default |

### ATTRIBUTE Gsc Tlli HlrcRec PdpC vplmnAddressAllowed (vplmnAddr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates whether the Mobile Station (MS) is allowed to use the Access Point Name (APN) in the Visiting Public Land Mobile Network (VPLMN). |
| Values | no<br>yes |
| Default | No default |

### GROUP Gsc Tlli HlrcRec PdpC WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Gsc Tlli HlrcRec PdpC customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Tlli HlrcRec PdpC customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Tlli HlrcRec PdpC customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT Gsc Tlli HlrcRec PdpC SubscribedQos (SubsQos)

| | |
|---|---|
| Groups | "GROUP Gsc Tlli HlrcRec PdpC SubsQos QosProfile (Qos)" |
| Scope | Application |
| Description | *Sgsn Imsi/<imsi> HlrcRec PdpContext/n SubscribedQos*<br>*Gsc/n Imsi/<imsi> HlrcRec PdpContext/n SubscribedQos*<br><br>This component represents the Quality of Service (QoS) profile of the subscriber downloaded from the Home Location Register (HLR). |
| Common Verbs | Help<br>List<br>Display |

### GROUP Gsc Tlli HlrcRec PdpC SubsQos QosProfile (Qos)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the Quality of Service (QoS) profile. It contains either the requested QoS, the negotiated QoS, or the subscribed QoS based on which component contains this group. |

### ATTRIBUTE Gsc Tlli HlrcRec PdpC SubsQos deliveryOrder (delOrd)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates whether the Signalling Data Units' (SDUs) order of delivery is guaranteed. |
| Values | withDeliveryOrder<br>withoutDeliveryOrder |
| Default | No default |

### ATTRIBUTE Gsc Tlli HlrcRec PdpC SubsQos deliveryOfErroneousSdus (delErrSdus)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates how erroneous Signaling Data Units (SDUs) are handled by the network.<br><br>The erroneous SDUs can be handled in one of the following ways:<br><br>***noDetect:*** The Signalling Data Units (SDUs) are delivered without considering error detection.<br><br>***errSdusDelivered:*** The erroneous Signalling Data Units (SDUs) are delivered together with an error indication.<br><br>***errSdusNotDelivered:*** The erroneous Signalling Data Units (SDUs) are discarded. |
| Values | noDetect<br>errSdusDelivered<br>errSdusNotDelivered |
| Default | No default |

## ATTRIBUTE Gsc Tlli HlrcRec PdpC SubsQos trafficClass (traffClass)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the type of application for which the bearer service is optimized. By including the traffic class itself as an attribute, GPRS can make assumptions about the traffic source and optimize the transport for that traffic type.<br><br>The different traffic classes are:<br>***conversational -*** This class includes real time conversation, characterized by low transfer delay and a strict preservation of the time relation between information entities of the stream. Examples of this class are telephony speech and video conferencing.<br><br>***streaming -*** This class consists of real time video/audio applications, characterized by a strict preservation of the time relation between the information entities of the stream, but not necessarily a low transfer delay.<br><br>***interactive -*** This class includes applications where a human or machine requests data from remote equipment, characterized by a request-response pattern of the end-user and the preservation of payload content.<br><br>***background -*** This class includes applications where the end-user, typically a computer, sends and receives data files in the background (for example: emails, SMS and database downloads). This is characterized by the destination not expecting the data within a certain time. |
| Values | conversational (conv)<br>streaming (strm)<br>interactive (int)<br>background (bkgr) |
| Default | No default |

### ATTRIBUTE Gsc Tlli HlrcRec PdpC SubsQos maxSduSize (maxSduSize)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the maximum allowed size of the Signalling Data Unit (SDU). It is used for admission control and policing. |
| Values | Decimal (1..1502) |
| Units | octets |
| Default | No default |

### ATTRIBUTE Gsc Tlli HlrcRec PdpC SubsQos maxUplinkBitRate (maxUpBr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the maximum number of bits delivered to GPRS in the uplink direction within a period of time, divided by the duration of the period. This is the upper limit in kilobits per second allowed for a specific context. |
| Values | Decimal (0..8640) |
| Units | kbit/s |
| Default | No default |

### ATTRIBUTE Gsc Tlli HlrcRec PdpC SubsQos maxDownlinkBitRate (maxDnBr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the maximum number of bits delivered by GPRS in the downlink direction within a period of time, divided by the duration of the period. This is the upper limit in kilobits per second allowed for a specific context. |
| Values | Decimal (0..8640) |
| Units | kbit/s |
| Default | No default |

### ATTRIBUTE Gsc Tlli HlrcRec PdpC SubsQos residualBitErrorRate (resBer)

Access
Read: All
Write: Illegal

Description
This attribute indicates the undetected bit error ratio in the delivered Signalling Data Units (SDUs). If no error detection is requested, this attribute indicates the bit error ratio in the delivered SDUs.

This attribute can take up values ranging from 1 through 9, representing:

***1*** -> 5*10 -2
***2*** -> 1*10 -2
***3*** -> 5*10 -3
***4*** -> 4*10 -3
***5*** -> 1*10 -3
***6*** -> 1*10 -4
***7*** -> 1*10 -5
***8*** -> 1*10 -6
***9*** -> 6*10 -8

Values
Decimal (1..9)

Default
No default

### ATTRIBUTE Gsc Tlli HlrcRec PdpC SubsQos sduErrorRatio (sduErrRatio)

Access
Read: All
Write: Illegal

Description
This attribute indicates the fraction of Signalling Data Units (SDUs) lost or detected as erroneous. It is defined only for conforming traffic.

This attribute can take up values between the numbers 1 - 7 representing the following:
1 -> 1*10 -2
2 -> 7*10 -3
3 -> 1*10 -3
4 -> 1*10 -4
5 -> 1*10 -5

6 -> 1*10 -6
7 -> 1*10 -1

Values: Decimal (1..7)

Default: No default

### ATTRIBUTE Gsc Tlli HlrcRec PdpC SubsQos trafficHandlingPriority (traffHndlPr)

Access: Read: All
Write: Illegal

Description: This attribute indicates the traffic handling priority. The traffic handling priority attribute is used to prioritize the traffic when the *trafficClass* attribute has the value ***interactive.***

A value of ***0*** is reserved when this attribute is displayed for the negotiated Quality of Service (QoS) and the subscribed QoS. When displayed for the requested QoS, it indicates that the value in the subscribed QoS is to be used. Values of ***1***, ***2***, or ***3*** indicate the traffic priority, with ***1*** indicating the highest priority and ***3*** the lowest.

Values: Decimal (0..3)

Default: No default

### ATTRIBUTE Gsc Tlli HlrcRec PdpC SubsQos transferDelay (transfDelay)

Access: Read: All
Write: Illegal

Description: This attribute indicates the maximum delay for 95th percentile of the distribution of delay for all delivered Signalling Data Units (SDUs) during the lifetime of a bearer service, where delay for an SDU is defined as the time from a request to transfer data from one Service Access Point (SAP) to another SAP.

Values: Decimal (10..4100)

Units: msec

Default: No default

### ATTRIBUTE Gsc Tlli HlrcRec PdpC SubsQos guaranteedUplinkBitRate (guarUpBr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the guaranteed number of bits delivered at a Service Access Point (SAP) in the uplink (Mobile Station to network) direction within a period of time, divided by the duration of the period.<br><br>The value of this attribute is ignored if the *trafficClass* attribute has one of the following values: ***interactive*** or ***background***, or if the *maxUplinkBitRate* is set to ***0*** kbits/s. |
| Values | Decimal (0..8640) |
| Default | No default |

### ATTRIBUTE Gsc Tlli HlrcRec PdpC SubsQos guaranteedDownlinkBitRate (guarDnBr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the guaranteed number of bits delivered at a Service Access Point (SAP) in the downlink (network to Mobile Station) direction within a period of time, divided by the duration of the period.<br><br>The value of this attribute is ignored if the *trafficClass* attribute has one of the following values: ***interactive*** or ***background***, or if the *maxDownlinkBitRate* is set to ***0*** kbits/s. |
| Values | Decimal (0..8640) |
| Default | No default |

### COMPONENT Gsc BaseStationSystemApplPart (Bssap)

| | |
|---|---|
| Groups | "GROUP Gsc Bssap Provisioned (Prov)"<br>"GROUP Gsc Bssap OsiState (State)"<br>"GROUP Gsc Bssap SigRegistrationOp"<br>"GROUP Gsc Bssap Statistics (Stats)"<br>"GROUP Gsc Bssap WlcCustomCounters (WlcCustomCntr)" |

"COLLECTED STATS GprsSubscriberControl BaseStationSystemApplPart"

| | |
|---|---|
| Scope | Application |
| Description | *Gsc/n BaseStationSystemApplPart*<br><br>This component represents the Base Station System Application Part+ (BSSAP+) protocol layer of the SGSN. The BSSAP+ layer is responsible for encoding and decoding the BSSAP messages to the VLR. |
| Subcomponents | "COMPONENT Gsc Bssap Ss7IpInterface (Ss7IpIf)" |
| Common Verbs | Help<br>List<br>Display |

## GROUP Gsc Bssap Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisionable attributes to provide the Base Station System Application Part+ (BSSAP+) functionality. |

## ATTRIBUTE Gsc Bssap globalTitle (gt)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute supplies the E.164 number associated with the local Signaling Connection Control Part (SCCP) subsystem on the Serving GPRS Support Node (SGSN). This E.164 number will be used in the global title address field of the Calling Party Address (CgPA) when the value of the *bssapCgpaRoutingIndicator* attribute of the *Sgsn Gsc* component is ***gt***.<br><br>A distinct E.164 number for Base Station System Application Part (BSSAP) is mandatory. If this attribute is empty, the value of the *sgsnNumber* attribute of the *Gsc* component will be used as the global title for BSSAP messages. |
| Values | String (0..17, NativeAddress) |
| Default | No default |

### ATTRIBUTE Gsc Bssap vlrSubsystemNumber (vlrSsn)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the subsystem number used by BSSAP to address the Visitor Location Register (VLR). By default BSSAP uses the standard subsystem number of 7 to address the VLR. The operator may desire to change this value if the VLR in his network is configured with a subsystem number other than the standard subsystem number of 7. The value set here must match the subsystem number specified by the VLR. |
| Values | Decimal (7; 151..254) |
| Default | 7 |

### GROUP Gsc Bssap OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Gsc Bssap adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down. |

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Gsc Bssap operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Gsc Bssap usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Gsc Bssap SigRegistrationOp

Properties
Operational

Description
This group contains operational attributes for any component that monitors SS7 IP Gateway (SIG) registration statistics.

### ATTRIBUTE Gsc Bssap sigRegisterAttempts (regAttempts)

Access
Read: All
Write: Illegal

Description
This attribute counts the number of SCIP registrations attempted with the SIG. The counter wraps to 0 when it exceeds its maximum value.

Values
Decimal (0..4294967295)

Default
No default

### ATTRIBUTE Gsc Bssap sigRegisterSuccessAcks (regAcks)

Access
Read: All
Write: Illegal

Description
This attribute counts the number of successful registration responses received from the SIG. The counter wraps to 0 when it exceeds its maximum value.

Values
Decimal (0..4294967295)

Default
No default

### ATTRIBUTE Gsc Bssap sigRegisterFailures (regFail)

Access
Read: All
Write: Illegal

| | |
|---|---|
| Description | This attribute counts the number of unsuccessful registration responses received from the SIG. The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Bssap sigDeregisterAttempts (deregAttempts)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of SCIP deregistrations attempted with the SIG. The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Bssap sigDeregisterSuccessAcks (deregAcks)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of successful deregistration responses received from the SIG. The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Bssap sigDeregisterFailures (deregFail)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of unsuccessful deregistration responses received from the SIG. The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Bssap sigSccpNoticeIndications (sccpNotice)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of SCCP Notice Indications that have been received from the SIG. SCCP Notice Indications are received from the SIG when there are errors in the messages being sent to it. The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Gsc Bssap Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistical attributes of the *BaseStationSystemApplPart*. |

### ATTRIBUTE Gsc Bssap gsAssociatedCurrent (gsAss)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates how many Mobile Stations (MSs) are currently in the Gs Associated state. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Bssap gsAssociatedTotal (gsassTot)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts successful Gs association attempts from all the<br>Mobile Stations (MSs).<br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Gsc Bssap csPage

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the BSSAP+_PAGING_REQUEST messages received by the BSSAP+ entity from all the VLRs.<br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Bssap csPageRejects (csPgRejs)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the BSSAP+_PAGING_REJECT messages sent by the BSSAP+ entity to all the VLRs.<br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Bssap csPageMsUnreachable (csPgMsUnr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the BSSAP+_MS_UNREACHABLE messages sent by the BSSAP+ entity to all the VLRs.<br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Bssap locationUpdateRequests (luReqs)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the BSSAP+_LOCATION_UPDATE_REQUEST messages sent by the BSSAP+ entity to all the VLRs.<br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Bssap locationUpdateRejects (luRejs)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the BSSAP+_LOCATION_UPDATE_REJECT messages received by the BSSAP+ entity from all the VLRs.<br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Bssap alertRequests (alertReqs)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the BSSAP+_ALERT_REQUEST messages received by the BSSAP+ entity from all the VLRs.<br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Bssap alertRejects (alertRejs)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the BSSAP+ALERT_REJECT messages sent by the BSSAP+ entity to all the VLRs.<br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Gsc Bssap gprsDetachIndications (gprsDetInds)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the BSSAP+_GPRS_DETACH_INDICATION messages sent by the BSSAP+ entity to all the VLRs.<br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Bssap t8Timeouts (t8Touts)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of times the *explicitGprsDetachTimer* (defined in *Sgsn GprsSubscriberControl*) expires before receiving a response from the VLR.<br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Bssap gprsDetachMaxAttempts (n8MaxAtts)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of times the BSSAP+ entity stopped retransmitting the explicit BSSAP+_GPRS_DETACH_INDICATIONs because the maximum number of retries *n8* (defined in S*gsn GprsSubscriberControl*) was reached.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Gsc Bssap imsiDetachIndications (imsiDetInds)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of BSSAP+_IMSI_DETACH_INDICATION messages sent by the BSSAP+ entity to all the VLRs.<br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Bssap t9Timeouts (t9Touts)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of times the *explicitImsiDetachTimer* (defined in *Sgsn GprsSubscriberControl*) expires before receiving a response from the VLR.<br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Bssap explicitImsiDetachMaxAttempts (n9MaxAtts)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number times the BSSAP+ entity stopped retransmitting the explicit the BSSAP+_IMSI_DETACH_INDICATIONs because the maximum number of retries *n9* (defined in S*gsn GprsSubscriberControl*) was reached.<br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Bssap t10Timeouts (t10Touts)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of times the *implicitImsiDetachTimer* (defined in *Sgsn GprsSubscriberControl*) expires before receiving a response from the VLR.<br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Bssap implicitImsiDetachMaxAttempts (n10MaxAtts)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of times the BSSAP+ entity stopped retransmitting the implicit BSSAP+_IMSI_DETACH_INDICATIONs because the maximum number of retries *n10* (defined in S*gsn GprsSubscriberControl*) was reached.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Bssap vlrFailures (vlrF)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of BSSAP+_RESET_INDICATION messages received by the BSSAP+ entity from all the VLRs.<br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Bssap sgsnResetsSent (sgsnRsts)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of BSSAP+_RESET_INDICATION messages (including retransmissions) sent by the BSSAP+ entity to the VLRs. This type of message is sent to each associated VLR when a *Gsc* recovers following a card failure.<br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Bssap t12Timeouts (t12Touts)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of times the *sgsnResetTimer* (defined in *Sgsn GprsSubscriberControl*) expires before receiving a response from the VLR.<br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Bssap sgsnResetMaxAttempts (n12MaxAtts)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of times the BSSAP+ entity stopped retransmitting the BSSAP+_RESET_INDICATIONs because the maximum number of retries *n12* (defined in Sgsn GprsSubscriberControl) was reached.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Bssap msInfoRequests (msInfoReqs)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of BSSAP+_MS_INFORMATION_REQUEST messages received by the BSSAP+ entity from all the VLRs.<br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Bssap mmInfoRequests (mmInfoReqs)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of BSSAP+_MM_INFORMATION_REQUEST messages received by the BSSAP+ entity from all the VLRs.<br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Bssap statusFromVlr (stFrVlr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of BSSAP+_MOBILE_STATUS messages received by the BSSAP+ entity from all the VLRs.<br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Bssap statusToVlr (stToVlr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the number of BSSAP+_MOBILE_STATUS messages sent by the BSSAP+ entity to all the VLRs.<br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Bssap msActivityIndications (msActInds)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the BSSAP+_MS-ACTIVITY-INDICATION messages sent by the BSSAP+ entity to all the VLRs.<br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Bssap sccpRegistrationRequestTimeouts (regTimeouts)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of timeouts that have occurred while waiting for a REGISTRATION_ACK message from the SCCP layer. The *serviceRequestTimer* attribute of the *Sgsn Gsc* component specifies the length of time to wait for a REGISTRATION_ACK after sending a REGISTRATION_REQUEST to the SCCP layer.<br><br>This counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### GROUP Gsc Bssap WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Gsc Bssap customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Bssap customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Bssap customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## COLLECTED STATS GprsSubscriberControl BaseStationSystemApplPart

Description The statistics record generated by the GprsSubscriberControl BaseStationSystemApplPart component.

### ATTRIBUTE Gsc Bssap registerAttempts (regAttempts)

Description This attribute indicates the number of SCIP registrations attempted with the SIG during the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Bssap registerSuccessAcks (regAcks)

Description This attribute indicates the number of successful registration responses received from the SIG during the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Bssap registerFailures (regFail)

Description This attribute indicates the number of unsuccessful registration responses received from the SIG during the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Bssap deregisterAttempts (deregAttempts)

Description This attribute indicates the number of SCIP deregistrations attempted with the SIG during the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Bssap deregisterSuccessAcks (deregAcks)

Description This attribute indicates the number of successful deregistration responses received from the SIG during the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Bssap deregisterFailures (deregFail)

Description This attribute indicates the number of unsuccessful deregistration responses received from the SIG during the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Gsc Bssap sigSccpNoticeIndications (sccpNotice)

| | |
|---|---|
| Description | This attribute indicates the number of SCCP Notice Indications that have been received from the SIG during the collection interval. SCCP Notice Indications are received from the SIG when there are errors in the messages being sent to it. |
| Values | Decimal (0..4294967295) |

## COMPONENT Gsc Bssap Ss7IpInterface (Ss7IpIf)

| | |
|---|---|
| Instance | Decimal (1..1) |
| Groups | "GROUP Gsc Bssap Ss7IpIf Provisioned (Prov)"<br>"GROUP Gsc Bssap Ss7IpIf OsiState (State)"<br>"GROUP Gsc Bssap Ss7IpIf WlcCustomCounters (WlcCustomCntr)" |
| Scope | Application |
| Description | *Tcap/n Ss7IpIf/n*<br>*Gsc/n Bssap Ss7IpIf/n*<br><br>This component represents an interface to the HP or USP SS7-IP Gateway (SIG). The HP SIG and Universal Signalling Point (USP) SIG are referred to generically as the SIG.<br><br>The SIG is a “stateless” message routing gateway used by many wireless components to communicate with other SS7 nodes in the wireless network such as the Home Location Register (HLR) and Visitor Location Register (VLR).<br><br>A single instance of the *Ss7IpIf* provides connectivity to the SIG, but an additional instance can be added for redundancy. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Gsc Bssap Ss7Ipif Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisionable attributes for the *Ss7IpIf* component. |

### ATTRIBUTE Gsc Bssap Ss7Ipif linkToPort (lToPort)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies a link to a *Gips/n Ip/address Tcp Port/n* component. This determines the IP Address and port used by this component for communication with the SIG. |
| Values | Link (Service, linkToApplication) |
| Default | No default |

### ATTRIBUTE Gsc Bssap Ss7Ipif ss7IpGatewayAddress (sigIpAddr)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the SS7-IP Gateway (SIG) IP address.<br><br>The value must match the IP address specified on the SIG and must not be set to 0.0.0.0.<br><br>Changing this value causes the *Ss7IpIf* to redirect data using the new IP address. Current transactions being processed using this interface may be affected. |
| Values | IP address |
| Default | No default |

### ATTRIBUTE Gsc Bssap Ss7Ipif ss7IpGatewayTcpPort (sigTcpPort)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the SS7-IP Gateway (SIG) TCP port number. |

The value must match the TCP port number specified on the SIG.

Changing this value causes the *Ss7IpIf* to redirect data using the new TCP Port number. Current transactions being processed using this interface may be affected.

Values: Decimal (0..65535)

Default: No default

### ATTRIBUTE Gsc Bssap Ss7Ipif heartbeatTimer (heartBTmr)

Access: Read: All
Write: All

Description: This attribute specifies the amount of time between heartbeat messages sent to the SIG by the *Ss7IpIf*. Specifying ***disabled*** indicates that the heartbeat timer is disabled, that is, heartbeat messages are not sent to the SIG.

The value specified by this attribute should be less than the keep-alive timer specified on the SIG. It is recommended that this attribute specify a value that is one-third the value of that specified by the keep-alive timer on the SIG.

Values: Decimal (1..100)
disabled

Units: seconds

Default: 20

### ATTRIBUTE Gsc Bssap Ss7Ipif keepAliveTimer (keepAliveTmr)

Access: Read: All
Write: All

Description: This attribute specifies the amount of time the *Ss7IpIf* waits to receive heartbeat messages from the USP SIG before timing out. If the *Ss7IpIf* does not receive a heartbeat message from the SIG within the amount of time specified, it transitions into the OSI ***disabled*** operational state until connectivity with the SIG can be reestablished.

If the *Ss7IpIf* is provisioned to connect to an HP SIG, this attribute should be set to ***disabled***. Setting this attribute to ***disabled*** indicates that the *Ss7IpIf* will not monitor heartbeat messages from the SIG.

This attribute should specify a value greater than that specified by the heartbeat timer on the SIG. It is recommended that this attribute specify a value that is three times the value specified by the heartbeat timer on the SIG.

| | |
|---|---|
| Values | Decimal (1..300)<br>disabled |
| Units | seconds |
| Default | 60 |

## GROUP Gsc Bssap Ss7Iplf OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

## ATTRIBUTE Gsc Bssap Ss7Iplf adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down. |

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Gsc Bssap Ss7Iplf operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Gsc Bssap Ss7Iplf usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Gsc Bssap Ss7Iplf WlcCustomCounters (WlcCustomCntr)

Properties
Operational

Description
This group contains the spare counters that can be dynamically patched.

### ATTRIBUTE Gsc Bssap Ss7Iplf customCounter1 (customCntr1)

Access
Read: All
Write: Illegal

Description
This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch.

Values
Decimal (0..4294967295)

Default
No default

### ATTRIBUTE Gsc Bssap Ss7Iplf customCounter2 (customCntr2)

Access
Read: All
Write: Illegal

Description
This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch.

Values
Decimal (0..4294967295)

Default
No default

## ATTRIBUTE Gsc Bssap Ss7Iplf customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## COMPONENT Gsc RemoteApplicationConnection (RaConn)

| | |
|---|---|
| Instance | appType [String (1..8, ASCII)]<br>shelfId [Decimal (0..50)]<br>instance (n) [Decimal (1..15)] |
| Groups | "GROUP Gsc RaConn OsiState (State)"<br>"GROUP Gsc RaConn WlcCustomCounters (WlcCustomCntr)" |
| Scope | Application |
| Description | ... *RemoteApplicationConnection/<appType, shelfId, n>*<br><br>This component represents the Remote Application Connection information of an application that talks to applications on other shelves. For each application that it can communicate with, one of these connection components is created and is instantiated with the name of the remote application, the Id of the shelf on which the application runs, and the instance number of the application. ShelfId ***0*** represents the Master shelf. |
| Dyn. Subcomp. | "COMPONENT Gsc RaConn AtmConnection (AtmCon)" |
| Common Verbs | Help<br>List<br>Display |

## GROUP Gsc RaConn OsiState (State)

| | |
|---|---|
| Properties | Operational |

Description — This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Gsc RaConn adminState (osiAdmin)

Access — Read only

Description — This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values — locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default — unlocked

### ATTRIBUTE Gsc RaConn operationalState (osiOper)

Access — Read only

Description — This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be

providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Gsc RaConn usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Gsc RaConn WlcCustomCounters (WlcCustomCntr)

Properties
Operational

Description
This group contains the spare counters that can be dynamically patched.

### ATTRIBUTE Gsc RaConn customCounter1 (customCntr1)

Access
Read: All
Write: Illegal

| | |
|---|---|
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc RaConn customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc RaConn customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT Gsc RaConn AtmConnection (AtmCon)

| | |
|---|---|
| Groups | "GROUP Gsc RaConn AtmCon Operational (Oper)" |
| Scope | Device |
| Description | An AtmConnection component is created for each ATM connection established by an application. It shows where the data traffic for this connection is directed. |

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display |

### GROUP Gsc RaConn AtmCon Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains the operational attributes for the *NapAtmConnection* component. |

### ATTRIBUTE Gsc RaConn AtmCon nextHop

| | |
|---|---|
| Access | Read only |
| Description | This attribute shows the component name of the *AtmIf Vcc Ep* or *AtmCon* component to which this switched connection is established. |
| Values | The name of the component |
| Default | No default |

### COMPONENT Gsc ShortMessageService (Sms)

| | |
|---|---|
| Groups | "GROUP Gsc Sms Statistics (Stats)"<br>"GROUP Gsc Sms WlcCustomCounters (WlcCustomCntr)" |

"COLLECTED STATS GprsSubscriberControl ShortMessageService"

| | |
|---|---|
| Scope | Application |
| Description | *Gsc/n ShortMessageService*<br><br>This component represents the Short Message Service (SMS) functionality of the Serving GPRS Support Node (SGSN). |
| Common Verbs | Help<br>List<br>Display |

## GROUP Gsc Sms Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistical attributes of the *ShortMessageService (Sms).* |

## ATTRIBUTE Gsc Sms cpResponseExhaust (cpRespExh)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of times the *cpResponseTimer* expires and the *cpResponseRetries* has been reached before receiving a CP-ACK or CP-ERROR message from the Mobile Station (MS).<br><br>This counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## ATTRIBUTE Gsc Sms rpResponseTimeouts (rpRespTouts)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of times the *rpResponseTimer* expires before receiving a RP-ACK or RP-ERROR message from the Mobile Station (MS).<br><br>This counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## ATTRIBUTE Gsc Sms iwmscResponseTimeouts (iwmscRespTouts)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of times the *iwmscResponseTimer* expires before receiving a MOBILE ORIGINATED FORWARD SHORT MESSAGE ACK message |

from the Service Center.

This counter wraps to zero when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Gsc Sms moAttempts (moAtt)

Access: Read: All
Write: Illegal

Description: This attribute counts the MOBILE ORIGINATED FORWARD SHORT MESSAGE messages received by the *ShortMessageService (Sms)* component from the Mobile Station (MS).

The counter wraps to zero when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Gsc Sms mtAttempts (mtAtt)

Access: Read: All
Write: Illegal

Description: This attribute counts the MOBILE TERMINATED FORWARD SHORT MESSAGE messages sent to the *ShortMessageService (Sms) component* from the Service Center.

The counter wraps to zero when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Gsc Sms mmaAttempts (mmaAtt)

Access: Read: All
Write: Illegal

Description: This attribute counts the MORE MEMORY AVAILABLE messages sent to the *ShortMessageService (Sms)* from the Mobile

Station (MS). The value includes the failures counted by *mmaFailures*.

The counter wraps to zero when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Gsc Sms mmaFailures (mmaFail)

Access: Read: All
Write: Illegal

Description: This attribute counts the MORE MEMORY AVAILABLE messages sent to the *ShortMessageService (Sms)* from the Mobile Station (MS) that failed due to one of the following conditions:

Network Out of Order
Protocol Error
Congestion
Unidentified Subscriber
Unknown Subscriber
Invalid Transaction Identifier Value
Message Type non-existence
Invalid mandatory information
Invalid short message transfer reference value
Message not compatible with short message protocol state
Requested Facility not implemented

The counter wraps to zero when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Gsc Sms moFailUnidentifiedSubscriber (moFailUnidSub)

Access: Read: All
Write: Illegal

Description: This attribute counts the number of MOBILE ORIGINATED FORWARD SHORT MESSAGE messages received by the *ShortMessageService (Sms)* from the Mobile Station (MS) that

failed because the MS is not registered in the Public Land Mobile Network (PLMN), the MS is not subscribed in a Service Center (SC) or the MS Prepaid Mobile Originated SMS account is depleted.

This counter is incremented when the SGSN sends a CP-Data(RP-Error) message to the MS with error cause "unidentifiedSubscriber" selected. The value of this attribute is included in the count of *moFailures*.

The counter wraps to zero when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Gsc Sms moFailNetworkFailures (moFailNetFailures)

Access: Read: All
Write: Illegal

Description: This attribute counts the number of MOBILE ORIGINATED FORWARD SHORT MESSAGE messages received by the *ShortMessageService (Sms)* from the Mobile Station (MS) that failed because the network is not functioning correctly, a task cannot be performed because of a problem with the network, Prepaid Service Control Point (SCP) does not respond to the *Sms*, *iwmscResponseTimer* expired or an equipment protocol error occurs. The value of this attribute is included in the count of *moFailures.*

The counter wraps to zero when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Gsc Sms moFailFacilityNotSupp (moFailFaciNoSupp)

Access: Read: All
Write: Illegal

Description: This attribute counts the number of MOBILE ORIGINATED FORWARD SHORT MESSAGE messages received by the

*ShortMessageService (Sms)* from the Service Center (SC) that failed because the network is unable to provide the requested short message services.

This counter is incremented when the SGSN receives a MOForwardMessageAckRsp message with "facilityNotSupported" error cause selected. The value of this attribute is included in the count of *moFailures*.

The counter wraps to zero when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Gsc Sms moFailCongestion (moFailCong)

Access: Read: All
Write: Illegal

Description: This attribute counts the number of MOBILE ORIGINATED FORWARD SHORT MESSAGE messages received by the *ShortMessageService (Sms)* from the Mobile Station (MS) that failed because the short message service cannot be serviced because of high traffic.

This counter is incremented when the SGSN receives a Mobile Originated message with "SC-congestion" error cause selected from the SMS-IWMSC (Short Message Service-InterWorking MSC). The value of this attribute is included in the count of the *moFailures*.

The counter wraps to zero when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Gsc Sms moFailUnknownServiceCenter (moFailUnkServC)

Access: Read: All
Write: Illegal

| | |
|---|---|
| Description | This attribute counts the number of MOBILE ORIGINATED FORWARD SHORT MESSAGE messages sent from the *ShortMessageService (Sms)* to the Mobile Station (MS) that failed because the destination requested by the MS is not currently assigned or allocated.<br><br>This counters is incremented when the SGSN receives a MOForwardShortMessageAckRsp message with “unknownServiceCenter” error cause selected. The value of this attribute is included in the count of the *moFailures*.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Sms moFailInvalidSmeAddress (moFailInvSmeAdd)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of MOBILE ORIGINATED FORWARD SHORT MESSAGE messages received by the *ShortMessageService (Sms)* from the Mobile Station (MS) that failed because the Service Center (SC) received an invalid Short Message Entity address.<br><br>This counter is incremented when the SGSN receives a MOForwardShortMessageAckRsp message with "invalidSMEAddress” error cause selected. The value of this attribute is included in the count of the *moFailures*.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Sms moFailMissingSmsSubscription (moFailMissSmsSub)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the number of MOBILE ORIGINATED FORWARD SHORT MESSAGE messages sent from the *ShortMessageService (Sms)* to the Mobile Station (MS) that failed because the Mobile Subscriber subscription information does not include Mobile Originated Short Message Services.<br><br>This counter is incremented when the SGSN sends a CP-Data (RP-Error) message to the MS with error cause “RequestedFacilityNotSubscribed” selected. The value of this attribute is included in the count of the *moFailures*.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Sms moFailOdbSubscriber (moFailOdbSub)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of MOBILE ORIGINATED FORWARD SHORT MESSAGE messages sent from the ShortMessageService (Sms) to the Mobile Station (MS) that failed because the MS is forbidden from originating Short Message Services (SMS) messages.<br><br>This counter is incremented when the SGSN sends a CP-Data (RP-Error) message to the MS with error cause “Operator Determined Barring” selected. The value of this attribute is included in the count of the *moFailures*.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Sms mtFailUnidentifiedSubscriber (mtFailUnidSub)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the number of MOBILE TERMINATED FORWARD SHORT MESSAGE messages sent from the *ShortMessageService (Sms)* to the Service Center that failed because the Mobile Station (MS) is not known within the SGSN or the MS location is not confirmed in the HLR.<br><br>This counter is incremented when the SGSN sends a negative MTForwardShortMessageAckRsp message to the SIG (SS7 Ip Gateway) with “unidentified Subscriber” error cause selected. The value of this attribute is included in the count of *mtFailures*.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Sms mtFailSubscriberAbsent (mtFailSubAbs)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of MOBILE TERMINATED FORWARD SHORT MESSAGE messages sent from the *ShortMessageService (Sms)* to the Service Center that failed because a Mobile Station (MS) did not respond to a Packet Paging Request or a MS is detached from the network.<br><br>This counter is incremented when the SGSN sends a negative MTForwardShortMessageAckRsp message to the SIG (SS7 IP Gateway) with “Absent Subscriber_SM” error cause and “Gprs Detached” or “No Paging Response from GPRS” diagnostic information selected. The value of this attribute is included in the count of the *mtFailures*.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Sms mtFailSubscriberBusy (mtFailSubBusy)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of MOBILE TERMINATED FORWARD SHORT MESSAGE messages sent from the *ShortMessageService (Sms)* to the Service Center that failed because an another mobile terminated short message transfer is going on and the Mobile Terminated SMS Message Buffer Queue has reached its capacity limit, the message was buffered but it is not possible to deliver the message before the expiry of the buffering time or the Mobile Station (MS) is performing an inter SGSN routing area update. The value of this attribute is included in the *mtFailures*.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Sms mtFailSubscriberNotSmEquipped (mtFailSubNotSmEquip)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of MOBILE TERMINATED FORWARD SHORT MESSAGE messages sent from the *ShortMessageService (Sms)* to the Service Center that failed because the Mobile Station did not support Short Message Services (SMS) messages.<br><br>This counter is incremented when the SGSN sends a negative MTForwardShortMessageAckRsp message to the SIG (SS7 Ip Gateway) with “equipmentNotSM-Equipped” user error selected. The value of this attribute is included in the count of *mtfailures*.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Sms mtFailNetworkFailures (mtFailNetFailures)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of MOBILE TERMINATED FORWARD SHORT MESSAGE messages sent from the *ShortMessageService (Sms)* to the Service Center that failed because the network is not functioning correctly, a task cannot be performed because of a problem with the network or an equipment protocol error occurs. The value of this attribute is included in the count of *mtFailures.*<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Sms mtFailMemCapExceed (mtFailMemCapExc)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of MOBILE TERMINATED FORWARD SHORT MESSAGE messages sent from the *ShortMessageService (Sms)* to the Mobile Subscriber (MS) that failed because the MS cannot store the incoming short message due to lack of storage capacity.<br><br>This counter is incremented when the SGSN sends a negative MTForwardShortMessageAckRsp message to the SIG (SS7 Ip Gateway) with “SM-DeliveryFailure cause: MemoryCapacityExceeded” user error selected. The value of this attribute is included in the count of *mtFailures*.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## ATTRIBUTE Gsc Sms moFailOthers

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the MOBILE ORIGINATED FORWARD SHORT MESSAGE messages received by the *ShortMessageService (Sms)* component from the Mobile Station (MS) that failed due to one of the following conditions:<br><br>Unknown Subscriber<br>Invalid Transaction Identifier Value<br>Message Type non-existence<br>Invalid mandatory information<br>Invalid short message transfer reference value<br>Message not compatible with short message protocol state<br>Unassigned number<br>Short Message transfer reject<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## ATTRIBUTE Gsc Sms mtFailOthers

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the MOBILE TERMINATED FORWARD SHORT MESSAGE messages sent from the *ShortMessageService (Sms)* component to the Service Center that failed due to one of the following conditions:<br><br>Unexpected Data Value<br>Data Missing<br>Message Type non-existence<br>Invalid mandatory information<br>Invalid short message transfer reference value<br>Message not compatible with short message protocol state<br>Semantically incorrect message<br>System Failures |

| | |
|---|---|
| | The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Gsc Sms WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Gsc Sms customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Sms customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Sms customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

Description — This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch.

Values — Decimal (0..4294967295)

Default — No default

## COLLECTED STATS GprsSubscriberControl ShortMessageService

Description — The statistics record generated by the GprsSubscriberControl ShortMessageService component.

### ATTRIBUTE Gsc Sms cpResponseExhaust (cpRespExh)

Description — This attribute indicates the number of times the *cpResponseTimer* expires and the *cpResponseRetries* has been reached before receiving a CP-ACK or CP-ERROR message from the Mobile Station (MS) in the collection interval.

Values — Decimal (0..4294967295)

### ATTRIBUTE Gsc Sms rpResponseTimeouts (rpRespTouts)

Description — This attribute indicates the number of times the *rpResponseTimer* expires before receiving a RP-ACK or RP-ERROR message from the Mobile Station (MS) in the collection interval.

Values — Decimal (0..4294967295)

### ATTRIBUTE Gsc Sms iwmscResponseTimeouts (iwmscRespTouts)

Description — This attribute indicates the number of times the *iwmscResponseTimer* expires before receiving a MOBILE ORIGINATED FORWARD SHORT MESSAGE message from the Service Center in the collection interval.

Values — Decimal (0..4294967295)

### ATTRIBUTE Gsc Sms moAttempts (moAtt)

Description — This attribute indicates the MOBILE ORIGINATED FORWARD SHORT MESSAGE messages received by the

*ShortMessageService (Sms)* component from the Mobile Station (MS) in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc Sms mtAttempts (mtAtt)

Description: This attribute indicates the MOBILE TERMINATED FORWARD SHORT MESSAGE messages sent to the *ShortMessageService (Sms) component* from the Service Center in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc Sms mmaAttempts (mmaAtt)

Description: This attribute indicates the MORE MEMORY AVAILABLE messages sent to the *ShortMessageService (Sms)* from the Mobile Station (MS) in the collection interval. The value includes the failures counted by *mmaFailures*.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc Sms mmaFailures (mmaFail)

Description: This attribute indicates the MORE MEMORY AVAILABLE messages sent to the *ShortMessageService (Sms)* from the Mobile Station (MS) that failed due to one of the following conditions:

Network Out of Order
Protocol Error
Congestion
Unidentified Subscriber
Unknown Subscriber
Invalid Transaction Identifier Value
Message Type non-existence
Invalid mandatory information
Invalid short message transfer reference value
Message not compatible with short message protocol state
Requested Facility not implemented

This counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc Sms moFailUnidentifiedSubscriber (moFailUnidSub)

Description: This attribute indicates, for the collection interval, the number of MOBILE ORIGINATED FORWARD SHORT MESSAGE messages received by the *ShortMessageService (Sms)* from the Mobile Station (MS) that failed because the MS is not registered in the Public Land Mobile Network (PLMN), the MS is not subscribed in a Service Center (SC) or the MS Prepaid Mobile Originated SMS account is depleted. The value of this attribute is included in the count of *moFailures*.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc Sms moFailNetworkFailures (moFailNetFailures)

Description: This attribute indicates, for the collection interval, the number of MOBILE ORIGINATED FORWARD SHORT MESSAGE messages received by the *ShortMessageService (Sms)* from the Mobile Station (MS) that failed because the network is not functioning correctly, a task cannot be performed because of a problem with the network, Prepaid Service Control Point (SCP) does not respond to the *Sms*, *iwmscResponseTimer* expires or an equipment protocol error occurs. The value of this attribute is included in the count of *moFailures.*

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc Sms moFailFacilityNotSupp (moFailFaciNoSupp)

Description: This attribute indicates, for the collection interval, the number of MOBILE ORIGINATED FORWARD SHORT MESSAGE messages received by the *ShortMessageService (Sms)* from the Service Center (SC) that failed because the network is unable to provide the requested short message services. The value of this attribute is included in the count of *moFailures*.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc Sms moFailCongestion (moFailCong)

Description: This attribute indicates, for the collection interval, the number of MOBILE ORIGINATED FORWARD SHORT MESSAGE messages received by the *ShortMessageService (Sms)* from the Mobile Station (MS) that failed because the short message

service cannot be serviced because of high traffic. The value of this attribute is included in the count of *moFailures*.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Sms moFailUnknownServiceCenter (moFailUnkServC)

Description This attribute indicates, for the collection interval, the number of MOBILE ORIGINATED FORWARD SHORT MESSAGE messages sent from the *ShortMessageService (Sms)* to the Mobile Station (MS) that failed because the destination requested by the MS is not currently assigned or allocated. The value of this attribute is included in the count of *moFailures*.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Sms moFailInvalidSmeAddress (moFailInvSmeAdd)

Description This attribute indicates, for the collection interval, the number of MOBILE ORIGINATED FORWARD SHORT MESSAGE messages received by the *ShortMessageService (Sms)* from the Mobile Station (MS) that failed because the Service Center (SC) received an invalid Short Message Entity address. The value of this attribute is included in the count of *moFailures*.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Sms moFailMissingSmsSubscription (moFailMissSmsSub)

Description This attribute indicates, for the collection interval, the number of MOBILE ORIGINATED FORWARD SHORT MESSAGE messages sent from the *ShortMessageService (Sms)* to the Mobile Station (MS) that failed because the Mobile Subscriber subscription information did not include Mobile Originated Short Message Services. The value of this attribute is included in the count of *moFailures*.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Sms moFailOdbSubscriber (moFailOdbSub)

Description This attribute indicates, for the collection interval, the number of MOBILE ORIGINATED FORWARD SHORT MESSAGE messages sent from the ShortMessageService (Sms) to the Mobile Station (MS) that failed because the MS is forbidden

from originating short message services (SMS) messages. The value of this attribute is included in the count of *moFailures*.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Sms mtFailUnidentifiedSubscriber (mtFailUnidSub)

Description This attribute indicates, for the collection interval, the number of MOBILE TERMINATED FORWARD SHORT MESSAGE messages sent from the *ShortMessageService (Sms)* to the Service Center that failed because the Mobile Station (MS) is not known within the SGSN or the MS location is not confirmed in the HLR. The value of this attribute is included in the count of *mtFailures*.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Sms mtFailSubscriberAbsent (mtFailSubAbs)

Description This attribute indicates, for the collection interval, the number of MOBILE TERMINATED FORWARD SHORT MESSAGE messages sent from the *ShortMessageService (Sms)* to the Service Center that failed because a Mobile Station (MS) did not respond to a Packet Paging Request or a MS is detached from the network. The value of this attribute is included in the count of *mtFailures*.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Sms mtFailSubscriberBusy (mtFailSubBusy)

Description This attribute indicates, for the collection interval, the number of MOBILE TERMINATED FORWARD SHORT MESSAGE messages sent from the *ShortMessageService (Sms)* to the Service Center that failed because another mobile terminated short message transfer is going on and the Mobile Terminated SMS Message Buffer Queue has reached its capacity limit, the message was buffered but it is not possible to deliver the message before the expiry of the buffering time or the Mobile Station (MS) is performing an inter SGSN routing area update. The value of this attribute is included in the count of *mtFailures*.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Sms mtFailSubscriberNotSmEquipped (mtFailSubNotSmEquip)

Description: This attribute indicates, for the collection interval, the number of MOBILE TERMINATED FORWARD SHORT MESSAGE messages sent from the *ShortMessageService (Sms)* to the Service Center that failed because the Mobile Station does not support Short Message Service messages. The value of this attribute is included in the count of *mtFailures.*

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc Sms mtFailNetworkFailures (mtFailNetFailures)

Description: This attribute indicates, for the collection interval, the number of MOBILE TERMINATED FORWARD SHORT MESSAGE messages sent from the *ShortMessageService (Sms)* to the Service Center that failed because the network is not functioning correctly, a task cannot be performed because of a problem with the network or an equipment protocol error occurs. The value of this attribute is included in the count of *mtFailures.*

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc Sms mtFailMemCapExceed (mtFailMemCapExc)

Description: This attribute indicates, for the collection interval, the number of MOBILE TERMINATED FORWARD SHORT MESSAGE messages sent from the *ShortMessageService (Sms)* to the Mobile Subscriber (MS) that failed because the MA cannot store the incoming short message due to lack of storage capacity. The value of this attribute is not included in the count of *mtFailures.*

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc Sms moFailOthers

Description: This attribute indicates the MOBILE ORIGINATED FORWARD SHORT MESSAGE messages received by the *ShortMessageService (Sms)* component from the Mobile Station (MS) that failed due to one of the following conditions:

Unknown Subscriber
Invalid Transaction Identifier Value
Message Type non-existence

Invalid mandatory information
Invalid short message transfer reference value
Message not compatible with short message protocol state
Unassigned number
Short Message transfer reject

This counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc Sms mtFailOthers

Description: This attribute indicates the MOBILE TERMINATED FORWARD SHORT MESSAGE messages sent from the *ShortMessageService (Sms)* component to the Service Center that failed due to one of the following conditions:

Unexpected Data Value
Data Missing
Message Type non-existence
Invalid mandatory information
Invalid short message transfer reference value
Message not compatible with short message protocol state
Semantically incorrect message
System Failures

This counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### COMPONENT Gsc PrepaidShortMessageService (PSms)

Groups: "GROUP Gsc PSms Statistics (Stats)"
"GROUP Gsc PSms WlcCustomCounters (WlcCustomCntr)"

"COLLECTED STATS GprsSubscriberControl PrepaidShortMessageService"

Scope: Application

Description: *Gsc/n PrepaidShortMessageService*

This component represents the Prepaid Short Message Service (PSMS) functionality of the Serving GPRS Support Node

(SGSN). This component is to be added if PSMS feature is required.

Opt. Subcomp. "COMPONENT Gsc PSms ServiceControlPoint (Scp)"

Common Verbs
Help
List
Display
Add
DELete

## GROUP Gsc PSms Statistics (Stats)

Properties Operational

Description This group contains statistical attributes of the *PrepaidShortMessageService (PSms)*.

## ATTRIBUTE Gsc PSms peakConcurrentTransactions (peakCTran)

Access Read: All
Write: Illegal

Description This attribute indicates the peak number of concurrent Prepaid Short Message Service (PSMS) transactions that have occurred on this *GprsSubscriberControl (Gsc)*.

Values Decimal (0..4294967295)

Default No default

## ATTRIBUTE Gsc PSms activeConnections (actCon)

Access Read: All
Write: Illegal

Description This attribute indicates the connections that are currently active between the *GprsSubscriberControl (Gsc)* and the external Service Control Points (SCPs). This reflects only those connections that are currently in the Network Connection Control Protocol (NCCP) data exchange state.

Values Decimal (0..4294967295)

Default No default

### ATTRIBUTE Gsc PSms totalSuccessfulConnections (sucCon)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total connections between the *GprsSubscriberControl (Gsc)* and the external Service Control Points (SCPs) that have successfully reached the Network Connection Control Protocol (NCCP) data exchange state. This counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc PSms totalFailedConnections (failCon)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total connection attempts between the *GprsSubscriberControl (Gsc)* and the external Service Control Points (SCPs) that have failed to reach the Network Connection Control Protocol (NCCP) data exchange state. This counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc PSms totalTransactionSuccesses (succTran)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total Prepaid Short Message Service (PSMS) transactions that have successfully completed between the *GprsSubscriberControl (Gsc)* and the external Service Control Points (SCPs). Specifically, this indicates the Prepaid-CTP INCREMENT DECREMENT RESPONE messages that have been successfully received before *transactionTimer* has expired.<br><br>This counter wraps to zero when it exceeds the maximum value. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc PSms totalTransactionFailures (failTran)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total Prepaid Short Message Service (PSMS) transactions that have failed between the *GprsSubscriberControl (Gsc)* and the external Service Control Points (SCPs). This includes failures due to failed connections, late responses, resource limitations and protocol errors. This counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc PSms totNwkRelatedTransactionFailures (netTranFail)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total Prepaid Short Message Service (PSMS) transactions that have failed due to network related events. This includes transactions rejected due to connection failures, network congestion, and local network resource limitations. This counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Gsc PSms WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Gsc PSms customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc PSms customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc PSms customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## COLLECTED STATS GprsSubscriberControl PrepaidShortMessageService

Description The statistics record generated by the GprsSubscriberControl PrepaidShortMessageService component.

### ATTRIBUTE Gsc PSms peakConcurrentTransactions (peakCTran)

Description This attributes indicates the peak number of concurrent Prepaid Short Message Service (PSMS) transactions that have occurred on this *GprsSubscriberControl (Gsc)*.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc PSms activeConnections (actCon)

Description This attribute indicates the connections that are currently active between the *GprsSubscriberControl (Gsc)* and the external Service Control Points (SCPs). This reflects only those connections that are currently in the Network Connection Control Protocol (NCCP) data exchange state.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc PSms totalSuccessfulConnections (totCon)

Description This attribute counts the total connections between the *GprsSubscriberControl (Gsc)* and the external Service Control Points (SCPs) that have successfully reached the Network Connection Control Protocol (NCCP) data exchange state. This counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc PSms totalFailedConnections (failCon)

Description This attribute counts the total connection attempts between the *GprsSubscriberControl (Gsc)* and the external Service Control Points (SCPs) that have failed to reach the Network Connection Control Protocol (NCCP) data exchange state. This counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc PSms totalTransactionSuccesses (succTran)

Description: This attribute counts the total Prepaid Short Message Service (PSMS) transactions that have successfully completed between the *GprsSubscriberControl (Gsc)* and the external Service Control Points (SCPs). Specifically, this indicates the Prepaid-CTP INCREMENT DECREMENT RESPONSE messages that have been successfully received before *transactionTimer* has expired.

This counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc PSms totalTransactionFailures (failTran)

Description: This attribute counts the total Prepaid Short Message Service (PSMS) transactions that have failed between the *GprsSubscriberControl (Gsc)* and the external Service Control Points (SCPs). This includes failures due to failed connections, late responses, resource limitations and protocol errors.

This counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc PSms totNwkRelatedTransactionFailures (netTranFail)

Description: This attribute counts the total Prepaid Short Message Service (PSMS) transactions that have failed between the GprsSubscriberControl (Gsc) and this external Service Control Point (SCP) due to network related events. This includes transactions rejected due to connection failures, network congestion, and local network resource limitations. This counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### COMPONENT Gsc PSms ServiceControlPoint (Scp)

Instance: Decimal (1..32)

| | |
|---|---|
| Groups | "GROUP Gsc PSms Scp Provisioned (Prov)"<br>"GROUP Gsc PSms Scp Operational (Oper)"<br>"GROUP Gsc PSms Scp WlcCustomCounters (WlcCustomCntr)" |

"COLLECTED STATS GprsSubscriberControl PrepaidShortMessageService ServiceControlPoint"

| | |
|---|---|
| Scope | Application |
| Description | *Gsc/n PSms ServiceControlPoint*<br><br>This component represents the Service Control Point (SCP) to which the *GprsSubscriberControl (Gsc)* of the Serving GPRS Support Node (SGSN) connects. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Gsc PSms Scp Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisionable attributes of the external Service Control Point (SCP) to which the *GprsSubscriberControl (Gsc)* connects. |

## ATTRIBUTE Gsc PSms Scp clusterId (cId)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the Cluster Identifier which is used by the *GprsSubscriberControl (Gsc)* when it connects to the external Service Control Point (SCP). This value must be unique within the domain of the SCP. |
| Values | Decimal (0..255)<br>undefined |
| Default | No default |

### ATTRIBUTE Gsc PSms Scp linkToPort (lToPort)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies a link to the *GprsIpServer IpAddress TcpPort* component. The IP address specified becomes the source IP address and the TCP port specified becomes the source port used for communication with this external Service Control Point (SCP).<br><br>Changing this value causes the SGSN to reset its communication links with the *GprsIpServer*. Transactions being processed may be affected. |
| Values | Link (Service, linkToApplication) |
| Default | No default |

### GROUP Gsc PSms Scp Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistical attributes of the *ServiceControlPoint (Scp)*. |

### ATTRIBUTE Gsc PSms Scp transactionSuccesses (succTran)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total Prepaid Short Message Service (PSMS) transactions that have successfully completed between the *GprsSubscriberControl (Gsc)* and this external Service Control Point (SCP). Specifically, this indicates the number of Prepaid-CTP INCREMENT DECREMENT TRANSACTION RESPONSE messages that have been successfully received before *transactionTimer* has expired.<br><br>This counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc PSms Scp transactionFailures (failTran)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total Prepaid Short Message Service (PSMS) transactions that have failed between the *GprsSubscriberControl (Gsc)* and this external Service Control Point (SCP). This includes failures due to failed connections, late responses, resource limitations and protocol errors. This counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc PSms Scp networkRelatedTransactionFailures (netTranFail)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total Prepaid Short Message Service (PSMS) transactions that have failed between the GprsSubscriberControl (Gsc) and this external Service Control Point (SCP) due to network related events. This includes transactions rejected due to connection failures, network congestion, and local network resource limitations. This counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc PSms Scp prepaidCtpLocalProtocolErrors (locPErr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total Prepaid-CTP protocol errors that have been committed locally that the external Service Control Point (SCP) has detected and has reported back to the *GprsSubscriberControl (Gsc)*.<br><br>The count consists of the transaction portion, component portion, |

and parameter error categories. This counter wraps to zero when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Gsc PSms Scp prepaidCtpRemoteGeneralErrors (remGErr)

Access: Read: All
Write: Illegal

Description: This attribute counts the total Prepaid-CTP general errors that have occurred on the external Service Control Point (SCP) and that have been reported back to the *GprsSubscriberControl (Gsc)*. The count consists of the general error category as described in the Prepaid-CTP specification. This counter wraps to zero when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Gsc PSms Scp prepaidCtpRemoteProtocolErrors (remPErr)

Access: Read: All
Write: Illegal

Description: This attribute counts the total Prepaid-CTP protocol errors that have been committed remotely by the external Service Control Point (SCP) that have been detected by the *GprsSubscriberControl (Gsc)*. The count consists of the transaction portion, component portion, and parameter error categories as described in the Prepaid-CTP specification. This counter wraps to zero when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Gsc PSms Scp nccpState

Access: Read: All
Write: Illegal

| | |
|---|---|
| Description | This attribute contains the current Network Connection Control Protocol (NCCP) state of the connection as described in the NCCP protocol specification. |
| Values | null<br>idle<br>connecting<br>dataExchange<br>releasing |
| Default | No default |

### ATTRIBUTE Gsc PSms Scp nccpLoginSuccesses (nccpLiSucc)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total Network Connection Control Protocol (NCCP) logins that have successfully completed between the *GprsSubscriberControl (Gsc)* and this external Service Control Point (SCP). Specifically, this indicates the NCCP LOGIN RESPONSE messages received from this SCP before the *nccpLoginResponseTimer* has expired. This counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc PSms Scp nccpLoginFailures (nccpLiFail)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total Network Connection Control Protocol (NCCP) logins that have failed between the *GprsSubscriberControl (Gsc)* and this external Service Control Point (SCP). This count includes failures due to rejected logins as well as late or lost responses. This counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc PSms Scp nccpLoginResponseTimeouts (nccpRTo)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the *nccpLoginResponseTimer* expiries before receiving a response from the external Service Control Point (SCP) for the Network Connection Control Protocol (NCCP) LOGIN REQUEST message sent. This counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc PSms Scp nccpLogoutSuccesses (nccpLoSucc)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total Network Connection Control Protocol (NCCP) logouts that have successfully completed between the *GprsSubscriberControl (Gsc)* and this external Service Control Point (SCP). Specifically, this indicates the NCCP LOGOUT RESPONSE messages received from this SCP before the *nccpLogoutResponseTimer* has expired. This counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc PSms Scp nccpLogoutFailures (nccpLoFail)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total Network Connection Control Protocol (NCCP) logouts that have failed between the *GprsSubscriberControl (Gsc)* and this external Service Control Point (SCP). Specifically, this counts the *nccpLogoutResponseTimer* expirations that have occurred. This counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Gsc PSms Scp nccpRemoteAborts (nccpRemAbt)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total Network Connection Control Protocol (NCCP) ABORT messages that have been received from this external Service Control Point (SCP). This counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc PSms Scp nccpLocalAborts (nccpLocAbt)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total Network Connection Control Protocol (NCCP) ABORT messages that have been sent to this external Service Control Point (SCP). This counter also includes the NCCP ABORT messages sent due to the aborts caused by the expiration of the NCCP KeepAlive timer. This counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc PSms Scp nccpKeepAliveTimeouts (nccpKpAlTo)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total Network Connection Control Protocol (NCCP) KeepAlive timer expirations that have occurred while communicating with this external Service Control Point (SCP). This counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc PSms Scp nccpKeepAliveAborts (nccpKpAlAbt)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total aborts caused by the Network Connection Control Protocol (NCCP) KeepAlive timer expiry. Specifically, this counts the number of NCCP Abort messages that have been sent to this external Service Control Point (SCP) due to aborts caused by KeepAlive timer expirations. This counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc PSms Scp nccpRoundRobinTimeouts (nccpRrTo)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts number of times the *nccpRoundRobinTimer* expires before the SGSN could establish a connection with any of the Service Processors (SPs) of this external Service Control Point (SCP). This counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc PSms Scp nccpReconnectTimeouts (nccpRecTo)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total *nccpReconnectTimer* expirations that have occurred while communicating with this external Service Control Point (SCP). This counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc PSms Scp nccpLocalProtocolErrors (nccpLocPErr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Network Connection Control Protocol (NCCP) protocol errors that have been committed locally that this external Service Control Point (SCP) has detected and has reported back to the *GprsSubscriberControl (Gsc)*. This counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc PSms Scp nccpRemoteProtocolErrors (nccpRemPErr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total Network Connection Control Protocol (NCCP) protocol errors that have been committed remotely by this external Service Control Point (SCP) that have been detected by the *GprsSubscriberControl (Gsc)*. This counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc PSms Scp tcpRemoteIpAddress (tcpRemIpAddr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute reflects the IP address on this external Service Control Point (SCP) that the *GprsSubscriberControl (Gsc)* has established or is currently attempting to establish a connection. This address will be one of the two provisioned addresses of the Service Processors (*spAddress1* and *spAddress2*). |
| Values | IP address |
| Default | No default |

### ATTRIBUTE Gsc PSms Scp tcpConnectSuccesses (tcpConnSucc)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total TCP connections that have been successfully established between the *GprsSubscriberControl (Gsc)* and this Service Control Point (SCP). This counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc PSms Scp tcpConnectFailures (tcpConnFail)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total TCP connections that have failed to successfully establish between the *GprsSubscriberControl (Gsc)* and this external Service Control Point (SCP). This counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Gsc PSms Scp WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Gsc PSms Scp customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |

Default No default

### ATTRIBUTE Gsc PSms Scp customCounter2 (customCntr2)

Access Read: All
Write: Illegal

Description This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch.

Values Decimal (0..4294967295)

Default No default

### ATTRIBUTE Gsc PSms Scp customCounter3 (customCntr3)

Access Read: All
Write: Illegal

Description This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch.

Values Decimal (0..4294967295)

Default No default

## COLLECTED STATS GprsSubscriberControl PrepaidShortMessageService ServiceControlPoint

Description The statistics record generated by the GprsSubscriberControl PrepaidShortMessageService ServiceControlPoint component.

### ATTRIBUTE Gsc PSms Scp transactionSuccesses (succTran)

Description This attribute counts the total prepaid Prepaid Short Message Service (PSMS) transactions that have successfully completed between the *GprsSubscriberControl (Gsc)* and this external Service Control Point (SCP). Specifically, this indicates the number of Prepaid-CTP INCREMENT DECREMENT TRANSACTION RESPONSE messages that have been successfully received before *transactionTimer* has expired.

This counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc PSms Scp transactionFailures (failTran)

Description This attribute counts the total Prepaid Short Message Service (PSMS) transactions that have failed between the *GprsSubscriberControl (Gsc)* and this external Service Control Point (SCP). This includes failures due to failed connections, late responses, resource limitations and protocol errors. This counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc PSms Scp networkRelatedTransactionFailures (netTranFail)

Description This attribute counts the total Prepaid Short Message Service (PSMS) transactions that have failed between the GprsSubscriberControl (Gsc) and this external Service Control Point (SCP) due to network related events. This includes transactions rejected due to connection failures, network congestion, and local network resource limitations. This counter wraps to zero when it exceeds the maximum value.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc PSms Scp prepaidCtpLocalProtocolErrors (locPErr)

Description This attribute counts the total Prepaid-CTP protocol errors that have been committed locally that the external Service Control Point (SCP) has detected and has reported back to the *GprsSubscriberControl (Gsc)*.

This count consists of the transaction portion, component portion, and parameter error categories. This counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc PSms Scp prepaidCtpRemoteGeneralErrors (remGErr)

Description This attribute counts the total Prepaid-CTP general errors that have occurred on the external Service Control Point (SCP) and

that have been reported back to the *GprsSubscriberControl (Gsc)*. This count consists of the general error category as described in the Prepaid-CTP specification. This counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc PSms Scp prepaidCtpRemoteProtocolErrors (remPErr)

Description: This attribute counts the total Prepaid-CTP protocol errors that have been committed remotely by the external Service Control Point (SCP) that have been detected by the *GprsSubscriberControl (Gsc)*. This count consists of the transaction portion, component portion, and parameter error categories as described in the Prepaid-CTP specification. This counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc PSms Scp nccpLoginSuccesses (nccpLiSucc)

Description: This attribute counts the total Network Connection Control Protocol (NCCP) logins that have successfully completed between the *GprsSubscriberControl (Gsc)* and this external Service Control Point (SCP). Specifically, this indicates the NCCP LOGIN RESPONSE messages received from this SCP before the *nccpLoginResponseTimer* has expired. This counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc PSms Scp nccpLoginFailures (nccpLiFail)

Description: This attribute counts the total Network Connection Control Protocol (NCCP) logins that have failed between the *GprsSubscriberControl (Gsc)* and this external Service Control Point (SCP). This count includes failures due to rejected logins as well as late or lost responses. This counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc PSms Scp nccpLoginResponseTimeouts (nccpRTo)

Description: This attribute counts the *nccpLoginResponseTimer* expiries before receiving a response from the external Service Control Point (SCP) for the Network Connection Control Protocol (NCCP) LOGIN REQUEST message sent. This counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc PSms Scp nccpLogoutSuccesses (nccpLoSucc)

Description: This attribute counts the total Network Connection Control Protocol (NCCP) logouts that have successfully completed between the *GprsSubscriberControl (Gsc)* and this external Service Control Point (SCP). Specifically, this indicates the NCCP LOGOUT RESPONSE messages received from this SCP before the *nccpLogoutResponseTimer* has expired. This counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc PSms Scp nccpLogoutFailures (nccpLoFail)

Description: This attribute counts the total Network Connection Control Protocol (NCCP) logouts that have failed between the *GprsSubscriberControl (Gsc)* and this external Service Control Point (SCP). Specifically, this counts the *nccpLogoutResponseTimer* expirations that have occurred. This counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc PSms Scp nccpRemoteAborts (nccpRemAbt)

Description: This attribute counts the total Network Connection Control Protocol (NCCP) ABORT messages that have been received from this external Service Control Point (SCP). This counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc PSms Scp nccpLocalAborts (nccpLocAbt)

Description: This attribute counts the total Network Connection Control Protocol (NCCP) NCCP ABORT messages that have been sent to this external Service Control Point (SCP). This counter also includes the NCCP ABORT messages sent due to the aborts caused by the expiration of the NCCP KeepAlive timer. This counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc PSms Scp nccpKeepAliveTimeouts (nccpKpAlTo)

Description: This attribute counts the total Network Connection Control Protocol (NCCP) KeepAlive timer expirations that have occurred while communicating with this external Service Control Point (SCP). This counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc PSms Scp nccpKeepAliveAborts (nccpKpAlAbt)

Description: This attribute counts the total aborts caused by the Network Connection Control Protocol (NCCP) KeepAlive timer expiry. Specifically, this counts the number of NCCP Abort messages that have been sent to this external Service Control Point (SCP) due to aborts caused by KeepAlive timer expirations. This counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc PSms Scp nccpRoundRobinTimeouts (nccpRrTo)

Description: This attribute counts number of times the *nccpRoundRobinTimer* expires before the SGSN could establish a connection with any of the Service Processors (SPs) of this external Service Control Point (SCP). This counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc PSms Scp nccpReconnectTimeouts (nccpRecTo)

Description: This attribute counts the total *nccpReconnectTimer* expirations that have occurred while communicating with this external

Service Control Point (SCP). This counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc PSms Scp nccpLocalProtocolErrors (nccpLocPErr)

Description This attribute counts the Network Connection Control Protocol (NCCP) protocol errors that have been committed locally that the external Service Control Point (SCP) has detected and has reported back to the *GprsSubscriberControl (Gsc)*. This counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc PSms Scp nccpRemoteProtocolErrors (nccpRemPErr)

Description This attribute counts the total Network Connection Control Protocol (NCCP) protocol errors that have been committed remotely by the external Service Control Point (SCP) that have been detected by the *GprsSubscriberControl (Gsc)*. This counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc PSms Scp tcpConnectSuccesses (tcpConnSucc)

Description This attribute counts the total TCP connections that have been successfully established between the *GprsSubscriberControl (Gsc)* and this external Service Control Point (SCP). This counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc PSms Scp tcpConnectFailures (tcpConnFail)

Description This attribute counts the total TCP connections that have failed to successfully establish between the *GprsSubscriberControl (Gsc)* and this external Service Control Point (SCP). This counter counts the events in the collection interval.

Values Decimal (0..4294967295)

## COMPONENT Gsc ServiceSwitchingFunction (Ssf)

Groups
"GROUP Gsc Ssf Provisioned (SsfProv)"
"GROUP Gsc Ssf OsiState (State)"
"GROUP Gsc Ssf Operational (SsfOp)"
"GROUP Gsc Ssf WlcCustomCounters (WlcCustomCntr)"

"COLLECTED STATS GprsSubscriberControl ServiceSwitchingFunction"

Scope
Application

Description
*Gsc/n ServiceSwitchingFunction*
*Usc/n ServiceSwitchingFunction*

This component represents the Service Switching Function (SSF) functionality of the SGSN (2G) and USGSN (3G). The Service Switching Function is responsible for handling communication between the SGSN (2G and 3G) and one or more Service Control Points (SCP). An SCP is an external entity present in a wireless network supporting CAMEL (Customized Application for Mobile Network Enhanced Logic). It provides prepaid services.

The SSF maintains the state of the CAMEL dialogues between the SGSN and the external SCPs with which it communicates.

Common Verbs
Help
List
Display

## GROUP Gsc Ssf Provisioned (SsfProv)

Properties
Provisioned

Description
This group contains provisioning data for the *Ssf* component.

## ATTRIBUTE Gsc Ssf maxCamelDialogues (maxDialogues)

Access
Read: All
Write: All

Criticality
Process

Description
This attribute specifies the maximum number of CAMEL dialogs that can be active at any time.

The current number of active CAMEL dialogs is indicated by the *currentCamelDialogues* attribute, and the total number of dialogues created since the creation of this component is counted by *totalCamelDialogues*.

Values: Decimal (1..150000)

Default: 20000

### ATTRIBUTE Gsc Ssf linkToTcapStack (tcapLink)

Access: Read: All
Write: All

Description: This attribute specifies the TCAP (Transaction Capabilities Application Part) Stack used by this *Ssf*. The TCAP Stack provides services to the CAMEL Application Part (CAP) and facilitates network communication required by CAMEL.

Values: Link (Service, linkToTcapStackUsers)

Default: No default

### GROUP Gsc Ssf OsiState (State)

Properties: Operational

Description: This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Gsc Ssf adminState (osiAdmin)

Access: Read only

Description: This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component.

When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Gsc Ssf operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Gsc Ssf usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Gsc Ssf Operational (SsfOp)

Properties
Operational

Description
This group contains the operational data of the *Ssf* component.

### ATTRIBUTE Gsc Ssf currentCamelDialogues (currDialogues)

Access
Read: All
Write: Illegal

Description
This attribute indicates the number of CAMEL dialogues that are currently active.

Values
Decimal (0..4294967295)

Default
No default

### ATTRIBUTE Gsc Ssf pdpContextsRedirected (pdpRedir)

Access
Read: All
Write: Illegal

Description
This attribute counts the number of PDP (Packet Data Protocol) Contexts redirected to a different APN (Access Point Name) by the SCP (Service Control Point).

If the counter is increasing rapidly, the operator may want to examine the network configuration to determine why so many PDP contexts are being redirected. It is possible that the current

network configuration is not optimal and that the SCP is redirecting PDP contexts to avoid undesirable or expensive network access paths.

The counter wraps to zero when its maximum value is exceeded.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Gsc Ssf attemptedCamelDialogues (attDialogues)

Access: Read: All
Write: Illegal

Description: This attribute counts the total number of CAMEL dialogue establishments attempted by this *Ssf* component. The counter wraps to zero when it exceeds its maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Gsc Ssf unsuccessfulCamelDialogues (unsuccDialogues)

Access: Read: All
Write: Illegal

Description: This attribute counts the total number of unsuccessful CAMEL dialogue establishment attempts caused by errors or reject messages received from an SCP. The counter wraps to zero when it exceeds it maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Gsc Ssf totalTssfTimeouts (totTssfTimeouts)

Access: Read: All
Write: Illegal

Description: This attribute counts the total number of Tssf timeouts for this *Ssf* component. The timeout period is specified by the *ssfTimer* attribute of the *Sgsn Gsc* component.

The counter wraps to zero when it exceeds its maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Gsc Ssf totalDefaultGprsHandlings (totDefHand)

Access: Read: All
Write: Illegal

Description: This attribute counts the total number of times the SSF (Service Switching Function) detected an error and had to refer to the Default Gprs Handing field of the related mobile's CAMEL Subscriber Information (CSI) to determine whether to continue or fail the PDP (Packet Data Protocol) Context.

If this counter is rapidly increasing, the *totalProtocolErrors* and *totalNoCopFailures* attributes can be examined for information about why the Default Gprs Handling field is so often referenced. The counter wraps to zero when it exceeds its maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Gsc Ssf totalProtocolErrors (totProtoErr)

Access: Read: All
Write: Illegal

Description: This attribute counts the total number of protocol errors detected in CAP (CAMEL Application Part) messages from the SCP (Service Control Point).

If this counter is rapidly increasing, there may be a mismatch in the protocol version being used by the SCP and the version being used by the SGSN. The counter wraps to zero when it exceeds its maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Gsc Ssf totalNoCopFailures (totNoCopFail)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of PDP (Packet Data Protocol) Contexts that have failed because an IRAU (Inter Routing Area Updates) occurred when the Change Of Position (COP) trigger was not in the TDP (Trigger Detection Point) list of the subscriber for which the PDP Context was requested.<br><br>If this value is rapidly increasing, it may indicate that roaming should be disabled for CAMEL users or that Camel Subscriber Information (CSI) is not properly specified in the HLR for some users. The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Gsc Ssf WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Gsc Ssf customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Ssf customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Ssf customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## COLLECTED STATS GprsSubscriberControl ServiceSwitchingFunction

| | |
|---|---|
| Description | The statistics record generated by the GprsSubscriberControl ServiceSwitchingFunction component. |

### ATTRIBUTE Gsc Ssf pdpContextsRedirected (pdpRedir)

Description

This attribute indicates the number of PDP (Packet Data Protocol) Contexts that have been redirected to a different APN (Access Point Name) by an SCP (Service Control Point) during the collection interval.

If this attribute is continuously reporting a high value during each collection interval, the operator may want to examine the network configuration to determine why so many PDP contexts are being redirected. It is possible that the current network configuration is

not optimal and that the SCP is redirecting PDP contexts to avoid undesirable or expensive network access paths.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Ssf attemptedCamelDialogues (attDialogues)

Description This attribute indicates the total number of CAMEL dialogues that this *Ssf* component has attempted to establish during the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Ssf unsuccessfulCamelDialogues (unsuccDialogues)

Description This attribute indicates the total number of unsuccessful CAMEL dialogues establishment attempts caused by errors or reject messages received from an SCP during the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Ssf totalTssfTimeouts (totTssfTimeouts)

Description This attribute indicates the total number of Tssf timeouts during the collection interval. The timeout period is specified by the *ssfTimer* attribute of the *Sgsn Gsc* component.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Ssf totalDefaultGprsHandlings (totDefHand)

Description This attribute indicates the number of times during the collection interval the SSF (Service Switching Function) detected an error and had to refer to the Default Gprs Handing field of the related mobile's CAMEL Subscriber Information (CSI) to determine whether to continue or fail the PDP (Packet Data Protocol) Context.

If this attribute is continuously reporting a high value during each collection interval, the *totalProtocolErrors* and *totalNoCopFailures* attributes can be examined for information about why the Default Gprs Handling field is so often referenced.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Ssf totalProtocolErrors (totProtoErr)

Description: This attribute indicates the total number of protocol errors detected in CAP (CAMEL Application Part) messages from an SCP (Service Control Point) during the collection interval.

If this attribute is continuously reporting a high number of errors during each collection interval, there may be a mismatch in the protocol version being used by the SCP and the version being used by the SGSN.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc Ssf totalNoCopFailures (totNoCopFail)

Description: This attribute indicates the total number of PDP (Packet Data Protocol) Contexts that have failed during the collection interval because an IRAU (Inter Routing Area Updates) occurred when the Change Of Position (COP) trigger was not in the TDP (Trigger Detection Point) list of the subscriber for which the PDP Context was requested.

If this attribute is continuously reporting a high number of errors during each collection interval, it may indicate that roaming should be disabled for CAMEL users or that Camel Subscriber Information (CSI) is not properly specified in the HLR for some users.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc Ssf currentCamelDialogues (currDialogues)

Description: This attribute indicates the number of CAMEL dialogues active at the end of the collection interval.

Values: Decimal (0..4294967295)

### COMPONENT Gsc MobileCountryCode (Mcc)

Instance: BCD (3)

Scope: Application

Description: *Gsc/n MobileCountryCode/<Mcc>*

This component represents a Mobile Country Code (MCC) where mobile station is present. The instance value is the 3 digit MCC.

Dyn. Subcomp. "COMPONENT Gsc Mcc MobileNetworkCode (Mnc)"

Common Verbs
Help
List
Display

## COMPONENT Gsc Mcc MobileNetworkCode (Mnc)

Instance BCD (2..3)

Scope Application

Description *GSC/n Mcc/<Mcc> MobileNetworkCode/<Mnc>*

This component represents a Mobile Network Code (MNC) where mobile station is present. The instance value is the 2 or 3 digit MNC.

Dyn. Subcomp. "COMPONENT Gsc Mcc Mnc LocationAreaCode (Lac)"

Common Verbs
Help
List
Display

## COMPONENT Gsc Mcc Mnc LocationAreaCode (Lac)

Instance String (4, ASCII)

Scope Application

Description *GSC/n Mcc/<Mcc> Mnc/<Mnc> LocationAreaCode/<Lac>*

This component represents a Location Area Code (LAC) where mobile station is present. The instance value is the 4 digit LAC.

| | |
|---|---|
| Dyn. Subcomp. | "COMPONENT Gsc Mcc Mnc Lac RoutingAreaCode (Rac)" |
| Common Verbs | Help<br>List<br>Display |

### COMPONENT Gsc Mcc Mnc Lac RoutingAreaCode (Rac)

| | |
|---|---|
| Instance | String (2, ASCII) |
| Scope | Application |
| Description | *GSC/n Mcc/<Mcc> Mnc/<Mnc> Lac/<Lac> RoutingAreaCode/ <Rac>*<br><br>This component represents a Routing Area Code (RAC) where mobile station is present. The instance value is the 2 digit RAC. |
| Dyn. Subcomp. | "COMPONENT Gsc Mcc Mnc Lac Rac CellId (Cid)" |
| Common Verbs | Help<br>List<br>Display |

### COMPONENT Gsc Mcc Mnc Lac Rac CellId (Cid)

| | |
|---|---|
| Instance | Decimal (0..65535) |
| Groups | "GROUP Gsc Mcc Mnc Lac Rac Cid GmmCellOper (GmmCellOper)"<br>"GROUP Gsc Mcc Mnc Lac Rac Cid SmCellOper (SmCellStats)" |

"COLLECTED STATS GprsSubscriberControl MobileCountryCode MobileNetworkCode LocationAreaCode RoutingAreaCode CellId"

| | |
|---|---|
| Scope | Application |
| Description | *Gsc/n Mcc/<Mcc> Mnc/<Mnc> Lac/<Lac> Rac/<Rac> CellId/<cid>*<br><br>This component represents a cell in this routing area where a |

mobile station is present. It is indexed by Cell Id number. The information includes statistic values per cell.

Common Verbs

Help
List
Display

## GROUP Gsc Mcc Mnc Lac Rac Cid GmmCellOper (GmmCellOper)

Properties: Operational

Description: This group contains statistical attributes of attaches and activations Packet Data Protocol (PDP) contexts per cell.

## ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid msAttachAttemptsPerCell (attAtt)

Access: Read: All
Write: Illegal

Description: This attribute counts the number of attach requests received from the mobile subscribers in this cell.

The counter wraps to zero when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: No default

## ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid attachRejIllegalMsPerCell (attRejIllMs)

Access: Read: All
Write: Illegal

Description: This attribute counts the GPRS-attaches to this cell that were rejected because of the reject cause "Illegal Ms".

The counter wraps to zero when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid attachRejGprsSvcNotAllowedPerCell (attRejGprsSvc)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the GPRS-attaches to this cell that were rejected because of the reject cause “Gprs Service not allowed”.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid attachRejPlmnNotAllowedPerCell (attRejPlmn)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the GPRS-attaches to this cell that were rejected because of the reject cause “PLMN not allowed”.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid attachRejPacketNetFailurePerCell (attRejNetFail)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the GPRS-attaches to this cell that were rejected because of the reject cause “Network Failure”.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid attachRejSgsnCongestionPerCell (attRejCongest)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the GPRS-attaches to this cell that were rejected because of the reject cause “Congestion”.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid attachRejMsgErrorPerCell (attRejMsgErr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the GPRS-attaches to this cell that were rejected during the collection interval because of one of the following reject causes:<br>Semantically incorrect message,<br>Invalid mandatory information,<br>Message type non-existence or not implemented,<br>Message type not compatible with the protocol state,<br>Information element non-existent or not implemented,<br>Conditional IE error,<br>Message not compatible with the protocol state,<br>Protocol error, unspecified.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid nwkDetachReachableTimerPerCell (nwkDetTmr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of network initiated detaches in this cell due to the expiration of reachable timer. The *mobileReachableTimer* attribute is provisioned in the *Sgsn Gsc* component.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid nwkDetachCancelLocationPerCell (nwkDetCanLoc)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of network initiated detaches in the specified cell due to the receipt of CANCEL LOCATION Messages from the HLR.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid nwkDetachDuplicateAttachPerCell (nwkDetDupAtt)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of network initiated detaches in this cell due to mobile reattaches with a new random Packet Temporary (PTMSI) without first performing a detach. This is an implicit detach and no detach message is sent to the mobile.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid nwkDetachTempNwkFailurePerCell (nwkDetTNwkFail)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of network initiated detaches or termination of mobility contexts in this cell due to temporary network problems.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid nwkDetachForReattachPerCell (nwkDetReatt)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of network initiated detaches in this cell with a detach cause of "reattach required".<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid attachRejSvcNotAllowInPlmnPerCell (attRejGprsSvcPlmn)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the GPRS-attaches to this cell that were rejected because of the reject cause "Gprs Service not allowed in this PLMN".<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid attachRejRoamNotAllowedInLocAreaPerCell (attRejRoam)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the GPRS-attaches to this cell that were rejected because of the reject cause “roaming not allowed in location area”.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Gsc Mcc Mnc Lac Rac Cid SmCellOper (SmCellStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistical attributes for activation of Packet Data Protocol (PDP) contexts per cell. |

### ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid msActivationAttemptsPerCell (msAttAct)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of Activate PDP context request message received by this SGSN from Mobile Station (MS) in this cell. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid insufficientResourcesPerCell (insufRes)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of PDP activations rejected by this SGSN in this cell due to reject cause “insufficient resources”. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid missingOrUnknownApnPerCell (mOrUn)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of PDP activations rejected by this SGSN in this cell due to reject cause “missing or unknown APN”. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid unkPdpAddrOrPdpTypePerCell (unPdpAorT)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of PDP activations rejected by this SGSN in this cell due to reject cause “unknown PDP address or PDP type". The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid activationsRejByGgsnPerCell (actRejGgsn)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of Packet Data Protocol (PDP) activations rejected by this SGSN in this cell due to reject cause "activation rejected by GGSN". The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid activationRejUnspecifiedPerCell (actRejUnsp)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of Packet Data Protocol (PDP) activations rejected by this SGSN in this cell due to reject cause "unspecified reason". The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid serviceOptionNotSupportedPerCell (servOp)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the number of Packet Data Protocol (PDP) activations rejected by this SGSN in this cell due to reject cause "service option not supported". The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid reqSvcOptionNotSubscribedPerCell (reqOpt)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of Packet Data Protocol (PDP) activations rejected by this SGSN in this cell due to reject cause "requested service option not subscribed". The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid svcOptionTempOutOfOrderPerCell (serOp)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of Packet Data Protocol (PDP) activations rejected by this SGSN in this cell due to reject cause "service option temporarily out of order". The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid protocolErrorPerCell (protErr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attributes counts the number of Packet Data Protocol (PDP) activations rejected by this SGSN in this cell currently because of one of the following reject causes:<br>Semantically incorrect message, |

| | |
|---|---|
| | Invalid mandatory information,<br>Message not compatible with the protocol state,<br>Protocol error, unspecified.<br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid currentPdpContextPerCell (curPdpCtx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of currently active Packet Data Protocol (PDP) contexts in this cell. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |
| Default | COLLECTED STATS GprsSubscriberControl MobileCountryCode MobileNetworkCode LocationAreaCode RoutingAreaCode CellId |
| Description | The statistics record generated by the GprsSubscriberControl MobileCountryCode MobileNetworkCode LocationAreaCode RoutingAreaCode CellId component. |

### ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid msAttachAttemptsPerCell (attAtt)

| | |
|---|---|
| Description | This attribute counts the number of attach requests received from the mobile subscribers in this cell.<br><br>The counter counts the events in the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid attachRejIllegalMsPerCell (attRejIllMs)

| | |
|---|---|
| Description | This attribute counts the GPRS-attaches to this cell that were rejected because of the reject cause "Illegal Ms".<br><br>The counter counts the events in the collection interval. |

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid attachRejGprsSvcNotAllowedPerCell (attRejGprsSvc)

Description This attribute counts the GPRS-attaches to this cell that were rejected because of the reject cause “Gprs Service not allowed”.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid attachRejPlmnNotAllowedPerCell (attRejPlmn)

Description This attribute counts the GPRS-attaches to this cell that were rejected because of the reject cause “PLMN not allowed”.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid attachRejPacketNetFailurePerCell (attRejNetFail)

Description This attribute counts the GPRS-attaches to this cell that were rejected because of the reject cause “Network Failure”.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid attachRejSgsnCongestionPerCell (attRejCongest)

Description This attribute counts the GPRS-attaches to this cell that were rejected because of the reject cause “Congestion”.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid attachRejMsgErrorPerCell (attRejMsgErr)

Description This attribute counts the GPRS-attaches to this cell that were rejected during the collection interval because of one of the following reject causes:
Semantically incorrect message,
Invalid mandatory information,

Message type non-existence or not implemented,
Message type not compatible with the protocol state,
Information element non-existent or not implemented,
Conditional IE error,
Message not compatible with the protocol state,
Protocol error, unspecified.

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid nwkDetachReachableTimerPerCell (nwkDetTmr)

Description: This attribute counts the number of network initiated detaches in this cell due to the expiration of reachable timer. The *mobileReachableTimer* attribute is provisioned in the *Sgsn Gsc* component.

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid nwkDetachCancelLocationPerCell (nwkDetCanLoc)

Description: This attribute counts the number of network initiated detaches in the specified cell due to the receipt of CANCEL LOCATION Messages from the HLR.

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid nwkDetachDuplicateAttachPerCell (nwkDetDupAtt)

Description: This attribute counts the number of network initiated detaches in this cell due to mobile reattaches with a new random Packet Temporary (PTMSI) without first performing a detach. This is an implicit detach and no detach message is sent to the mobile.

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid nwkDetachTempNwkFailurePerCell (nwkDetTNwkFail)

Description: This attribute counts the number of network initiated detaches or termination of mobility contexts in this cell due to temporary network problems.

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid nwkDetachForReattachPerCell (nwkDetReatt)

Description: This attribute counts the number of network initiated detaches in this cell with a detach cause of "reattach required".

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid attachRejSvcNotAllowInPlmnPerCell (attRejGprsSvcPlmn)

Description: This attribute counts the GPRS-attaches to this cell that were rejected because of the reject cause "Gprs Service not allowed in this PLMN".

This counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid attachRejRoamNotAllowedInLocAreaPerCell (attRejRoam)

Description: This attribute counts the GPRS-attaches to this cell that were rejected because of the reject cause “roaming not allowed in location area”.

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid msActivationAttemptsPerCell (msAttAct)

Description: This attribute counts the number of Activate PDP context request message received by this SGSN from Mobile Station (MS) in this

cell.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid insufficientResourcesPerCell (insufRes)

Description This attribute counts the number of PDP activations rejected by this SGSN in this cell due to reject cause “insufficient resources”.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid missingOrUnknownApnPerCell (mOrUn)

Description This attribute counts the number of PDP activations rejected by this SGSN in this cell due to reject cause “missing or unknown APN”.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid unkPdpAddrOrPdpTypePerCell (unPdpAorT)

Description This attribute counts the number of PDP activations rejected by this SGSN in this cell due to reject cause "unknown PDP address or PDP type".

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid activationsRejByGgsnPerCell (actRejGgsn)

Description This attribute counts the number of Packet Data Protocol (PDP) activations rejected by this SGSN in this cell due to reject cause "activation rejected by GGSN".

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid activationRejUnspecifiedPerCell (actRejUnsp)

Description: This attribute counts the number of Packet Data Protocol (PDP) activations rejected by this SGSN in this cell due to reject cause "unspecified reason".

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid serviceOptionNotSupportedPerCell (servOp)

Description: This attribute counts the number of Packet Data Protocol (PDP) activations rejected by this SGSN in this cell due to reject cause "service option not supported".

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid reqSvcOptionNotSubscribedPerCell (reqOpt)

Description: This attribute counts the number of Packet Data Protocol (PDP) activation rejected by this SGSN in this cell due to reject cause "requested service option not subscribed".

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid svcOptionTempOutOfOrderPerCell (serOp)

Description: This attribute counts the number of Packet Data Protocol (PDP) activation reject by this SGSN in this cell due to reject cause "service option temporarily out of order".

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid protocolErrorPerCell (protErr)

Description: This attributes counts the number of Packet Data Protocol (PDP) activation reject by this SGSN in this cell currently because of one of the following reject causes:
Semantically incorrect message,

Invalid mandatory information,
Message not compatible with the protocol state,
Protocol error, unspecified.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid currentPdpContextPerCell (curPdpCtx)

Description This attribute counts the number of currently active Packet Data Protocol (PDP) contexts in this cell.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### COMPONENT Gsc LocationServices (Lcs)

Groups "GROUP Gsc Lcs WlcLcsProv (Prov)"
"GROUP Gsc Lcs OsiState (State)"
"GROUP Gsc Lcs WlcLcsOper (Oper)"
"GROUP Gsc Lcs GprsLcsOper (GprsOper)"

"COLLECTED STATS GprsSubscriberControl LocationServices"

Scope Application

Description *Gsc/n LocationServices*

This component represents the *LocationServices* functionality of the *GprsSubscriberControl (Gsc)* component. The LCS functions include LCS coordination, managing the location request, and authorization and operation of the LCS services. LCS furnishes its clients with information about the physical location of a mobile terminal. This positioning information is typically used for value-added services, charging, law enforcement, or emergency services.

The LCS function is not available for all LCS-enabled subscribers until the audit represented by the *Gsc/n Hlrc RefreshAudit* component has completed.

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Gsc Lcs WlcLcsProv (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the *LocationServices* component. |

### ATTRIBUTE Gsc Lcs maxLcsSubscribers (maxLcsSubs)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the maximum number of subscribers that can have Location Services capabilities.<br><br>When this attribute is set to a lower value, the new value will not take effect until the card is reset.<br><br>This attribute value must be less than or equal to the value specified by the *maxAttachedSubscribers* attribute. |
| Values | Decimal (1..1000000) |
| Default | No default |

### ATTRIBUTE Gsc Lcs privacyProfileAlarmsThreshold (priProfileThreshold)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the percentage threshold at which the warning PrivacyProfileUsage alarm is set. The memory for storing the privacy profile information is allocated based on the value of the *maxLcsSubscribers* attribute. |

A SET major PrivacyProfileUsage alarm is set when the memory usage for privacy profile information reaches 100%. This alarm is cleared when the usage drops by 5%.

A SET warning PrivacyProfileUsage alarm is set when the memory usage for privacy profile information reaches the value of the *privacyProfileAlarmsThreshold* attribute. This alarm is cleared when the usage drops by 5% below the value of the *privacyProfileAlarmsThreshold* attribute.

Values: Decimal (50..95)

Units: %

Default: 90

### ATTRIBUTE Gsc Lcs maxCurrentTransactions (maxlcsTrans)

Access: Read: All
Write: All

Description: This attribute specifies the number of maximum Location Services (LCS) subscribers that can concurrently use the LCS functionality on the SGSN/USGSN.

When this attribute is set to a lower value, the new value will not take effect until the card is reset.

This attribute value must be less than or equal to the value specified by *maxLcsSubscribers* attribute.

Values: Decimal (1..1000000)

Default: No default

### ATTRIBUTE Gsc Lcs lcsContextAlarmsThreshold (lcsContextThreshold)

Access: Read: All
Write: All

Description: This attribute specifies the percentage threshold at which the warning LcsContextUsage alarm is set. The memory for storing the location services context information is allocated based on the value of the *maxCurrentTransactions* attribute.

A SET major LcsContextUsage alarm is set when the memory usage for location services context information reaches 100%. This alarm is cleared when the usage drops by 5%.

A SET warning LcsContextUsage alarm is set when the memory usage for location services context information reaches the value of the *lcsContextAlarmsThreshold* attribute. This alarm is cleared when the usage drops by 5% below the value of the *lcsContextAlarmsThreshold* attribute.

Values: Decimal (50..95)

Units: %

Default: 90

### ATTRIBUTE Gsc Lcs maxLcsExternalClientBlocks (maxlcsExtClientBk)

Access: Read: All
Write: All

Description: This attribute specifies the maximum number of memory blocks used for storing lists of external clients in the Subscriber Location Privacy Profiles. Each block holds data for up to five external clients. A minimum of one block is needed per list (session related or session unrelated) per Location Services (LCS) subscriber.

When this attribute is set to a lower value, the new value will not take effect until the card is reset.

This attribute value must be less than or equal to 14 times the value specified by the *maxLcsSubscribers* attribute.

Values: Decimal (1..14000000)

Default: No default

### ATTRIBUTE Gsc Lcs externalClientAlarmsThreshold (extClientThreshold)

Access: Read: All
Write: All

| | |
|---|---|
| Description | This attribute specifies the percentage threshold at which the warning ExternalClientUsage alarm is set. The memory for storing the external client index information is allocated based on the value of the *maxLcsExternalClientBlocks* attribute.<br><br>A SET major ExternalClientUsage alarm is set when the memory usage for external client index information reaches 100%. This alarm is cleared when the usage drops by 5%.<br><br>A SET warning ExternalClientUsage alarm is set when the memory usage for external client index information reaches the value of the *externalClientAlarmsThreshold* attribute. This alarm is cleared when the usage drops by 5% below the value of the *externalClientAlarmsThreshold* attribute. |
| Values | Decimal (50..95) |
| Units | % |
| Default | 90 |

### GROUP Gsc Lcs OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Gsc Lcs adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***. |

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Gsc Lcs operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Gsc Lcs usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Gsc Lcs WlcLcsOper (Oper)

Properties
Operational

Description
This group contains the operational attributes for the *LocationServices* component.

### ATTRIBUTE Gsc Lcs lcsCurrentEnabledSubscribers (enabledSubs)

Access
Read: All
Write: Illegal

Description
This attribute indicates the current number of location services enabled subscribers.

Values
Decimal (0..4294967295)

Default
No default

### ATTRIBUTE Gsc Lcs lcsCurrentTransactions (currentTrans)

Access
Read: All
Write: Illegal

Description
This attribute indicates the current number of location transactions that are being processed.

Values
Decimal (0..4294967295)

Default
No default

### ATTRIBUTE Gsc Lcs lcsCurrentExternalClientBlocks (currentExtClientBks)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the current number of external client blocks that are being utilized for storing the external client index information. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Lcs lcsMtRequests (mtReq)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total mobile terminated location requests.<br><br>The counter wraps to 0 when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Lcs lcsMtFailures (mtFail)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total unsuccessful mobile terminated location requests.<br><br>The counter wraps to 0 when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Lcs lcsPagingRequests (pagingReq)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the total paging requests sent by the *LocationServices* component.<br><br>The counter wraps to 0 when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Lcs lcsPagingFailures (pagingFail)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total unsuccessful paging requests sent by the *LocationServices* component.<br><br>The counter wraps to 0 when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Lcs lcsRequestTypeNotSupported (reqTypeNotSupp)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total failed location requests due to a requested location that is not supported.<br><br>The counter wraps to 0 when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Lcs lcsDataMissing (dataMiss)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total failed location requests due to missing information. For example, Imsi or Msisdn is missing in the location request message. |

The counter wraps to 0 when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Gsc Lcs lcsSubscriberNotAttached (subNotAttach)

Access: Read: All
Write: Illegal

Description: This attribute counts the total failed location requests due to the subscriber not currently attached.

The counter wraps to 0 when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Gsc Lcs lcsUnauthorizedGmlc (unauthGmlc)

Access: Read: All
Write: Illegal

Description: This attribute counts the total failed location requests due to location requests messages received from an unauthorized Gateway Mobile Location Center.

The counter wraps to 0 when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Gsc Lcs lcsUnauthorizedClient (unauthClient)

Access: Read: All
Write: Illegal

Description: This attribute counts the total failed location requests due to location requests messages received from an unauthorized client.

The counter wraps to 0 when it exceeds the maximum value.

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Lcs lcsServiceBusy (servBusy)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total failed location requests due to another location request already in progress for the same subscriber.<br><br>The counter wraps to 0 when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Lcs lcsNotificationNotPossible (notifyNotPossible)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total failed location requests due to the reason that it is impossible to send a notification message to the mobile.<br><br>The counter wraps to 0 when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Lcs lcsGadShapeNotSupported (gadShapeNotSupp)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total failed location requests due to the obtained location estimates using a Geographical Area Description (GAD) shape, that is not supported in the Location Request message.<br><br>The counter wraps to 0 when it exceeds the maximum value. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Lcs lcsInterrupted (interrupted)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total failed location requests due to information received from the Radio Network Controller (RNC) showing that the Location Services (LCS) entity has been interrupted. For example, LCS can be interrupted by an Inter-SGSN Routing Area Update (IRAU).<br><br>The counter wraps to 0 when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsc Lcs lcsQosNotAttained (qosNotAttained)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total failed location requests due to the quality of service information not matching the requested quality of service in the Provide Subscriber Location (PSL) message from the Gateway Mobile Location Center (GMLC).<br><br>The counter wraps to 0 when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Gsc Lcs GprsLcsOper (GprsOper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for the *LocationServices* component of the *GprsSubscriberControl* component. |

### ATTRIBUTE Gsc Lcs lcsCellInfoMissing (cellInfoMissing)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total unsuccessful location requests due to the cell information missing in the local cell database.<br><br>The counter wraps to 0 when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## COLLECTED STATS GprsSubscriberControl LocationServices

| | |
|---|---|
| Description | The statistics record generated by the GprsSubscriberControl LocationServices component. |

### ATTRIBUTE Gsc Lcs lcsMaxCurrentEnabledSubscribers (maxEnabledSubs)

| | |
|---|---|
| Description | This attribute indicates the current number of location services enabled subscribers.<br><br>The value reported is the peak value for the duration of the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Gsc Lcs lcsMtRequests (mtReq)

| | |
|---|---|
| Description | This attribute counts the total mobile terminated location requests.<br><br>The counter counts the events in the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Gsc Lcs lcsMtFailures (mtFail)

| | |
|---|---|
| Description | This attribute counts the total unsuccessful mobile terminated location requests.<br><br>The counter counts the events in the collection interval. |

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Lcs lcsPagingRequests (pagingReq)

Description This attribute counts the total paging requests sent by the *LocationServices* component.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Lcs lcsPagingFailures (pagingFail)

Description This attribute counts the total unsuccessful paging requests sent by the *LocationServices* component.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Lcs lcsRequestTypeNotSupported (reqTypeNotSupp)

Description This attribute counts the total failed location requests due to a requested location that is not supported.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Lcs lcsDataMissing (dataMiss)

Description This attribute counts the total failed location requests due to missing information. For example, Imsi or Msisdn is missing in the location request message.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Lcs lcsSubscriberNotAttached (subNotAttach)

Description This attribute counts the total failed location requests due to the subscriber not currently attached.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Lcs lcsUnauthorizedGmlc (unauthGmlc)

Description This attribute counts the total failed location requests due to location requests messages received from an unauthorized Gateway Mobile Location Center.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Lcs lcsUnauthorizedClient (unauthClient)

Description This attribute counts the total failed location requests due to location requests messages received from an unauthorized client.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Lcs lcsServiceBusy (servBusy)

Description This attribute counts the total failed location requests due to another location request already in progress for the same subscriber.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Lcs lcsNotificationNotPossible (notifyNotPossible)

Description This attribute counts the total failed location requests due to the reason that it is impossible to send a notification message to the mobile.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Lcs lcsGadShapeNotSupported (gadShapeNotSupp)

Description This attribute counts the total failed location requests due to the obtained location estimates using a Geographical Area

Description (GAD) shape that are not supported in the Location Request message.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Lcs lcsInterrupted (interrupted)

Description This attribute counts the total failed location requests due to information received from the Radio Network Controller (RNC) showing that the Location Services (LCS) entity has been interrupted. For example, LCS can be interrupted by an Inter-SGSN Routing Area Update (IRAU).

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Lcs lcsQosNotAttained (qosNotAttained)

Description This attribute counts the total failed location requests due to the quality of service information not matching the requested quality of service in the Provide Subscriber Location (PSL) message from the Gateway Mobile Location Center (GMLC).

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsc Lcs lcsCellInfoMissing (cellInfoMissing)

Description This attribute counts the total unsuccessful location requests due to the cell information missing in the local cell database.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

Passport 7400, 15000, 20000

# Component Gsc

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component Gsd

241-5701-060

Passport 7400, 15000, 20000

# Component Gsd

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT GprsSubscriberDataPath (Gsd)

| | |
|---|---|
| Instance | Decimal (1..15) |
| Groups | "GROUP Gsd Provisioned (Prov)"<br>"GROUP Gsd Operational (Oper)"<br>"GROUP Gsd OsiState (State)"<br>"GROUP Gsd WlcCustomCounters (WlcCustomCntr)" |
| Scope | Application |
| Description | *GprsSubscriberDataPath/n*<br><br>This component represents the related data path layers such as the Logical Link Control (LLC), the SubNetwork Data Convergence Protocol (SNDCP), and the GPRS Tunneling Protocol (GTP). Only one *Gsd* root component can be provisioned on a Logical Processor. |

| | |
|---|---|
| Subcomponents | "COMPONENT Gsd LogicalLinkControl (Llc)"<br>"COMPONENT Gsd SubNetworkDataConvergenceProtocol (Sndcp)"<br>"COMPONENT Gsd GprsTunnelingProtocol (Gtp)"<br>"COMPONENT Gsd MemoryPoolManager (Mpm)" |
| Opt. Subcomp. | "COMPONENT Gsd DownlinkBuffer (DBuff)" |
| Dyn. Subcomp. | "COMPONENT Gsd TemporaryLogicalLinkId (Tlli)"<br>"COMPONENT Gsd RemoteApplicationConnection (RaConn)"<br>"COMPONENT Gsd TieredSubscription (Ts)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Gsd Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisionable attributes of the *GprsSubscriberDataPath (Gsd)*. |

## ATTRIBUTE Gsd linkToLogicalProcessor (lp)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the IP Address and the UDP port number that the *GprsSubscriberDataPath (Gsd)* associates with. Changing this value causes the outstanding transactions to be affected. |
| Values | Link (Hardware, linkToApplications) |
| Default | No default |

### ATTRIBUTE Gsd maxLlcActiveSubscribers (maxLlcActSubs)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the maximum number of Mobile Stations (MS) that can be attached for this instance of *GprsSubscriberDataPath (Gsd)*. This gives the number of mobile subscribers that the *LogicalLinkControl (Llc)* and the *SubNetworkDataConvergenceProtocol (Sndcp)* is to support per *Gsd*.<br><br>The current attached subscribers can be obtained from the attribute *currentLlcActiveSubscribers*. Currently attached subscribers are unaffected by changes to this value.<br><br>Changing the value of this parameter requires a reset of the card that has a Gsd. |
| Values | Decimal (1..50000) |
| Default | 100 |

### GROUP Gsd Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data of *GprsSubscriberDataPath (Gsd)*. |

### ATTRIBUTE Gsd currentLlcActiveSubscribers (curLlcActSubs)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the Mobile Stations (MS) with an active Logical Link Control layer that are currently attached on the *GprsSubscriberDataPath (Gsd)*.<br><br>The maximum value is provisioned in the attribute *maxLlcActiveSubscribers.* |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### GROUP Gsd OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Gsd adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

## ATTRIBUTE Gsd operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

## ATTRIBUTE Gsd usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |

| | |
|---|---|
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### ATTRIBUTE Gsd availabilityStatus (osiAvail)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.<br><br>The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.<br><br>The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.<br><br>The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.<br><br>The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***. |

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

### ATTRIBUTE Gsd proceduralStatus (osiProc)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the

user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.

The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of: initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default: No default

### ATTRIBUTE Gsd controlStatus (osiCntrl)

Access: Read only

| | |
|---|---|
| Description | If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.<br><br>The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.<br><br>The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.<br><br>The value ***suspended*** indicates that the service has been administratively suspended. |
| Set of | subjectToTest (subTst)<br>partOfServicesLocked (partLk)<br>reservedForTest (rsrvd)<br>suspended (suspnd) |
| Default | No default |

### ATTRIBUTE Gsd alarmStatus (osiAlarm)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions |

described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE Gsd standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and

thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values
hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

Default
notSet

### ATTRIBUTE Gsd unknownStatus (osiUnknw)

Access
Read only

Description
This attribute indicates the OSI Unknown status of the component.

The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.

The value ***true*** indicates that the actual state of the component is not known for sure.

Values
false
true

Default
false

### GROUP Gsd WlcCustomCounters (WlcCustomCntr)

Properties
Operational

| | |
|---|---|
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Gsd customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsd customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsd customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## COMPONENT Gsd LogicalLinkControl (Llc)

| | |
|---|---|
| Groups | "GROUP Gsd Llc LleStatistics (LleStats)"<br>"GROUP Gsd Llc LlcStatistics (LlcStats)"<br>"GROUP Gsd Llc WlcCustomCounters (WlcCustomCntr)" |

"COLLECTED STATS GprsSubscriberDataPath LogicalLinkControl"

| | |
|---|---|
| Scope | Application |
| Description | *Gsd/n LogicalLinkControl*<br><br>This component represents the Logical Link Control (LLC) protocol layer. |
| Common Verbs | Help<br>List<br>Display |

## GROUP Gsd Llc LleStatistics (LleStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes of the Logical Link Entity (LLE) of *LogicalLinkControl (Llc)*. |

## ATTRIBUTE Gsd Llc uiFramesToMs (uiFrTx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Unconfirmed Information (UI) frames sent to the Mobile Station (MS). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## ATTRIBUTE Gsd Llc uiFramesFromMs (uiFrRx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the Unconfirmed Information (UI) frames received from the Mobile Station (MS). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsd Llc iFramesToMs (iFrTx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the confirmed Information (I) frames sent to the Mobile Station (MS). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsd Llc iFramesFromMs (iFrRx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the confirmed Information (I) frames received from the Mobile Station (MS). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsd Llc iFramesRetransmittedToMs (iFrRetx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the confirmed Information (I) frames retransmitted to the Mobile Station (MS). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsd Llc framesProtectedToMs (frProtTx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the protected frames sent to the Mobile Station (MS). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsd Llc framesProtectedFromMs (frProtRx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the protected frames received from the Mobile Station (MS). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsd Llc framesCipheredToMs (frCiphTx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the ciphered frames sent to the Mobile Station (MS). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsd Llc framesCipheredFromMs (frCiphRx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the ciphered frames received from the Mobile Station (MS). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsd Llc crcErrorsFromMs (crcErrsRx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the frames received from Mobile Station (MS) that contained Cyclic Redundancy Check (CRC) errors. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Gsd Llc LlcStatistics (LlcStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the statistical attributes of the Logical Link Control (LLC) protocol layer. |

### ATTRIBUTE Gsd Llc unknownTllis (unTllis)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the frames received from the Mobile Station (MS) for an unmapped Temporary Logical Link Identity (TLLI). An unmapped TLLI is one for which no Logical Link Context (LLC) mobile context exists on the TLLI specified in the Protocol Data Unit (PDU).The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Gsd Llc WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Gsd Llc customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsd Llc customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsd Llc customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |

Default No default

## COLLECTED STATS GprsSubscriberDataPath LogicalLinkControl

Description The statistics record generated by the GprsSubscriberDataPath LogicalLinkControl component.

### ATTRIBUTE Gsd Llc currentLlesForUserData (curLles)

Description This attribute indicates the current number of Logical Link Entities (LLEs) used to handle the user data SAPs (Service Access Points) for the *GprsSubscriberDataPath (Gsd)*. This value reported is the peak value in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsd Llc unknownTllis (unTllis)

Description This attribute counts the frames received from the Mobile Station (MS) for an unmapped Temporary Logical Link Identity (TLLI). An unmapped TLLI is one for which no Logical Link Context (LLC) mobile context exists. This counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsd Llc currentLlesForSms

Description This attribute indicates the current number of Logical Link Entities (LLEs) used to handle the Short Message Service (SMS) Service Access Points (SAPs) for the *GprsSubscriberDatapath (Gsd)*. This value reported is the peak value in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsd Llc framesRetransmitted (frRetx)

Description This attribute counts the number of total frames retransmitted by the LLC layer.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsd Llc crcErrorsFromMs (crcErrsRx)

Description: This attribute counts the frames received from the Mobile Station (MS) that contained Cyclic Redundancy Check (CRC) errors.

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### COMPONENT Gsd SubNetworkDataConvergenceProtocol (Sndcp)

Groups: "GROUP Gsd Sndcp Provisioned (Prov)"
"GROUP Gsd Sndcp Statistics (Stats)"
"GROUP Gsd Sndcp WlcCustomCounters (WlcCustomCntr)"

"COLLECTED STATS GprsSubscriberDataPath SubNetworkDataConvergenceProtocol"

Scope: Application

Description: *Gsd/n SubNetworkDataConvergenceProtocol*

This component represents the Sub Network Data Convergence Protocol (SNDCP) protocol layer.

Common Verbs:
Help
List
Display

### GROUP Gsd Sndcp Provisioned (Prov)

Properties: Provisioned

Description: This group contains provisionable attributes for the SubNetwork Data Convergence Protocol (SNDCP) protocol layer.

### ATTRIBUTE Gsd Sndcp maxRfc1144Entities (maxRfc1144)

Access: Read: All
Write: All

Criticality: Process

Description: This attribute specifies the maximum number of RFC 1144 header compression entities for this instance of GprsSubscriberDataPath (Gsd).If the value is 0, RFC 1144

compression is not performed. The current RFC 1144 entities can be obtained from the attribute currentRfc1144Entities.

Values: Decimal (0..65535)

Default: 0

### ATTRIBUTE Gsd Sndcp maxV42bisEntities (maxV42bis)

Access: Read: All
Write: All

Criticality: Process

Description: This attribute specifies the maximum number of V.42bis compression entities for this instance of GprsSubscriberDataPath (Gsd).If the value is 0, V.42bis compression is not performed. The current V.42bis entities can be obtained from the attribute currentV42bisEntities.

Values: Decimal (0..65535)

Default: 0

### ATTRIBUTE Gsd Sndcp v42bisCompressionDirection (p0)

Access: Read: All
Write: All

Description: This attribute specifies the V.42bis data compression direction to be supported. The value for compression direction is negotiated at link setup by the data link protocol by way of the Exchange Identification (XID) negotiation of parameter P0 (compression direction).
During XID negotiation of parameter P0, both sides (the SGSN to the Mobile Station (MS) or the Mobile Station (MS) to the SGSN) agree on the compression direction.
Valid values are:
***none***, No compression is present.
***fromMs***, The data received from the other entity is compressed.
***toMs***, The data sent to the other entity is compressed.
***both***, The data sent and received by the SGSN is compressed.

The negotiated value can be viewed in the component *SessionContext* attribute *v42bisCompressionDirection.*

Values
none
fromMs
toMs
both

Default
both

## GROUP Gsd Sndcp Statistics (Stats)

Properties
Operational

Description
This group contains the statistical attributes of the SubNetwork Data Convergence Protocol (SNDCP) layer.

## ATTRIBUTE Gsd Sndcp snPdusToMs (snPdusTx)

Access
Read: All
Write: Illegal

Description
This attribute counts the SNDCP-Protocol Data Units (SN-PDUs) sent to the Mobile Station (MS). The counter wraps to zero when it exceeds the maximum value.

Values
Decimal (0..4294967295)

Default
No default

## ATTRIBUTE Gsd Sndcp snPdusFromMs (snPdusRx)

Access
Read: All
Write: Illegal

Description
This attribute counts the SNDCP-Protocol Data Units (SN-PDUs) received from the Mobile Station (MS), that is, the total number of LL-UNITDATA-PDU and LL-DATA-PDU received from the Logical Link Context (LLC). The counter wraps to zero when it exceeds the maximum value.

Values
Decimal (0..4294967295)

Default
No default

### ATTRIBUTE Gsd Sndcp discardedNpdusFromMs (discNpdusRx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Network-Protocol Data Units (N-PDUs) that originated from the Mobile Station (MS) which could not be re-assembled. This could result from N-PDUs lost or re-ordered. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Gsd Sndcp WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Gsd Sndcp customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsd Sndcp customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |

Default No default

### ATTRIBUTE Gsd Sndcp customCounter3 (customCntr3)

Access Read: All
Write: Illegal

Description This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch.

Values Decimal (0..4294967295)

Default No default

## COLLECTED STATS GprsSubscriberDataPath SubNetworkDataConvergenceProtocol

Description The statistics record generated by the GprsSubscriberDataPath SubNetworkDataConvergenceProtocol component.

### ATTRIBUTE Gsd Sndcp currentNsapis (curNsapis)

Description This attribute indicates the current number of Network-Service Access Point Identifiers (N-SAPIs) for this instance of *GprsSubscriberDataPath (Gsd)*. This value reported is the peak value in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsd Sndcp currentV42bisEntities (curV42bis)

Description This attribute indicates the current number of RFC 1144 header compression entities in the last collection interval for this instance of *GprsSubscriberDataPath (Gsd)*. This value reported is the peak
value in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsd Sndcp currentRfc1144Entities (curRfc1144)

Description This attribute indicates the current number of V.42bis compression entities in the last collection interval for this

instance of *GprsSubscriberDataPath (Gsd)*. This value reported is the peak
value in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsd Sndcp snPdusToMs (snPdusTx)

Description This attribute counts the SNDCP-Protocol Data Units (SN-PDUs) sent to the Mobile Station (MS) in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsd Sndcp snPdusFromMs (snPdusRx)

Description This attribute counts the SNDCP-Protocol Data Units (SN-PDUs) received from the Mobile Station (MS), that is, the total number of LL- UNITDATA-PDU and LL-DATA-PDU received from the Logical Link Context (LLC) in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Gsd Sndcp discardedNpdusFromMs (discNpdusRx)

Description This attribute counts the Network-Protocol Data Units (N-PDUs) that originated from the Mobile Station (MS) which could not be re-assembled. This could result from N-PDUs lost or re-ordered. This counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### COMPONENT Gsd GprsTunnelingProtocol (Gtp)

Groups "GROUP Gsd Gtp Provisioned (Prov)"
"GROUP Gsd Gtp Statistics (Stats)"
"GROUP Gsd Gtp WlcCustomCounters (WlcCustomCntr)"

"COLLECTED STATS GprsSubscriberDataPath GprsTunnelingProtocol"

Scope Application

Description *Gsd/n GprsTunnelingProtocol*

This component represents the data traffic part of the GPRS Tunneling Protocol (GTP) protocol layer.

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display |

## GROUP Gsd Gtp Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisionable data of the GPRS Tunneling Protocol (GTP) layer. |

## ATTRIBUTE Gsd Gtp linkToPort (lToPort)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the IP address and the UDP port numbers that the GPRS Tunneling Protocol User Plane (GTP-U) version 0 and version 1 use to communicate with the Gateway GPRS Support Node (GGSN).<br><br>The IP address and UDP Ports are specified by setting this attribute to link to the correct *Gips IpAddress Udp Port* components.<br><br>The standards recommend the value of one member of this list (used by GTP Version 0) to be set to *Gips/n Ip/<ipaddress> Udp Port/3386.*<br><br>The standards recommend the value of the other member of this list (used by GTP Version 1) to be set to *Gips/n Ip/<ipaddress> Udp Port/2152.*. |
| List of | Link (Service, linkToApplication) |
| List Size | 2 |
| Default | No default |

## GROUP Gsd Gtp Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the statistical attributes of a Packet Data Protocol (PDP) context in the Serving GPRS Support Node (SGSN). |

## ATTRIBUTE Gsd Gtp pdusToNetwork (pdusTxNwk)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the GPRS Tunneling Protocol (GTP) Protocol Data Units (PDU) transmitted to the Gateway GPRS Support Node (GGSN). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## ATTRIBUTE Gsd Gtp pdusFromNetwork (pdusRxNwk)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the GPRS Tunneling Protocol (GTP) Protocol Data Units (PDU) received from the Gateway GPRS Support Node (GGSN). This includes PDUs counted in *discPdusFromNetwork*. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## ATTRIBUTE Gsd Gtp discPdusFromNetwork (discPdus)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the incoming GPRS Tunneling Protocol (GTP) Protocol Data Units (PDUs) discarded because of traffic congestion or because no Packet Data Protocol (PDP) Context |

| | |
|---|---|
| | has been established. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsd Gtp octetsToNetwork (octToNet)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total octets of the GPRS Tunneling Protocol (GTP) transmitted in Packet Data Unit (PDU) to Gateway GPRS Support Node (GGSN). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsd Gtp octetsFromNetwork (octFrNet)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total octets of the GPRS Tunneling Protocol (GTP) received in Packet Data Unit (PDU) from the Gateway GPRS Support Node (GGSN). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Gsd Gtp WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Gsd Gtp customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsd Gtp customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsd Gtp customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## COLLECTED STATS GprsSubscriberDataPath GprsTunnelingProtocol

| | |
|---|---|
| Description | The statistics record generated by the GprsSubscriberDataPath GprsTunnelingProtocol component. |

### ATTRIBUTE Gsd Gtp octetsToNetwork (octToNet)

Description: This attribute counts the total octets of the GPRS Tunneling Protocol (GTP) transmitted in Packet Data Unit (PDU) to Gateway GPRS Support Node (GGSN).

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsd Gtp octetsFromNetwork (octFrNet)

Description: This attribute counts the total octets of the GPRS Tunneling Protocol (GTP) received in Packet Data Unit (PDU) from the Gateway GPRS Support Node (GGSN).

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsd Gtp pdusToNetwork (pduToNet)

Description: This attribute counts the GPRS Tunneling Protocol (GTP) Data Units (PDU) transmitted to the Gateway GPRS Support Node (GGSN).

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsd Gtp pdusFromNetwork (pduFrNet)

Description: This attribute counts the GPRS Tunneling Protocol (GTP) Data Units (PDU) received from the Gateway GPRS Support Node (GGSN).

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Gsd Gtp discPdusFromNetwork (discPdus)

Description: This attribute counts the incoming GPRS Tunneling Protocol (GTP) Protocol Data Units (PDUs) discarded because of traffic congestion or because no Packet Data Protocol (PDP) Context

has been established.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

## COMPONENT Gsd MemoryPoolManager (Mpm)

Scope Application

Description *Gsc/n MemoryPoolManager*
*Gsd/n MemoryPoolManager*
*Gtl/n MemoryPoolManager*
*DnsAgent/<vr>,n MemoryPoolManager*

This component represents the memory resources of a given GPRS application that are managed as pools of objects.

Dyn. Subcomp. "COMPONENT Gsd Mpm MemoryPoolClient (Mpc)"

Common Verbs
Help
List
Display

## COMPONENT Gsd Mpm MemoryPoolClient (Mpc)

Instance String (1..30, ASCII)

Scope Application

Description *Gsc/n Mpm MemoryPoolClient/<name>*
*Gsd/n Mpm MemoryPoolClient/<name>*
*SgGtl/n Mpm MemoryPoolClient/<name>*
*DnsAgent/<vr>,n Mpm MemoryPoolClient/<name>*

This component represents a pool of objects of a particular class that a GPRS application currently owns as well as all the objects that could be owned by that application. All the objects in the pool are of the same class. The instance value of this component is a string which is the class name of the objects in the pool.

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display |

## COMPONENT Gsd TemporaryLogicalLinkId (Tlli)

| | |
|---|---|
| Instance | String (4, Hex) |
| Groups | "GROUP Gsd Tlli WlcCustomCounters (WlcCustomCntr)" |
| Scope | Application |
| Description | *Gsd/n TemporaryLogicalLinkId/<tlli>*<br><br>This component represents an instance of Temporary Logical Link Identity (TLLI). The information includes session contexts and logical link context. Each instance is indexed by the TLLI of the mobile subscriber. A list of all current *Tlli* instances is not possible, but it is possible to display a specific instance of *Tlli*. |
| Dyn. Subcomp. | "COMPONENT Gsd Tlli SessionContext (Sc)"<br>"COMPONENT Gsd Tlli LogicalLinkContext (Llc)" |
| Common Verbs | Help<br>List<br>Display |

## GROUP Gsd Tlli WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

## ATTRIBUTE Gsd Tlli customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsd Tlli customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsd Tlli customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT Gsd Tlli SessionContext (Sc)

| | |
|---|---|
| Instance | Decimal (0..15) |
| Groups | "GROUP Gsd Tlli Sc V42bisOp (V42bis)"<br>"GROUP Gsd Tlli Sc SndcpRfc1144Op (SndcpRfc1144)"<br>"GROUP Gsd Tlli Sc GprsSndcpRfc1144Stats (SndcpRfc1144Stats)" |

"GROUP Gsd Tlli Sc SndcpStatistics (SndcpStats)"
"GROUP Gsd Tlli Sc WlcCustomCounters (WlcCustomCntr)"

Scope: Application

Description: *Gsd/n Tlli/<tlli> SessionContext/<nsapi>*

This component represents the Session Context information for a subscriber. Session Contexts are created for each activated Packet Data Protocol (PDP) context of a subscriber. The instance value identifies a session for a mobile subscriber.

Common Verbs:
Help
List
Display

## GROUP Gsd Tlli Sc V42bisOp (V42bis)

Properties: Operational

Description: This group contains operational attributes that measure the performance of V.42bis.

## ATTRIBUTE Gsd Tlli Sc protocolModeEncoder (modeEncoder)

Access: Read: All
Write: Illegal

Description: This attribute indicates the current mode of the V.42bis encoder. This mode can be either:
***transparent*** - A mode of operation in which compression has been selected but data is being transmitted in uncompressed form. Transparent mode command sequences can be inserted into the data stream.
***compressed*** - A mode of operation in which data is transmitted in codewords.
The encoder switches between the two modes depending on whether the data coming from the Mobile Station (MS) is suitable for compression. The data compression function periodically determines the compressibility of the data based on a comparison of the number of bits required to represent a segment of the data stream before and after compression.

Values
transparent
compressed

Default
No default

### ATTRIBUTE Gsd Tlli Sc protocolModeDecoder (modeDecoder)

Access
Read: All
Write: Illegal

Description
This attribute indicates the current mode of the V.42bis decoder. This mode can be either:
***transparent*** - A mode of operation in which compression has been selected but data is being transmitted in uncompressed form. Transparent mode command sequences can be inserted into the data stream.
***compressed*** - A mode of operation in which data is transmitted in codewords.
The encoder (at the Mobile Station (MS) or at the Public Switched Telephone Network) switches between the two modes depending on whether the data coming from the SGSN is suitable for compression. The data compression function periodically determines the compressibility of the data based on a comparison of the number of bits required to represent a segment of the data stream before and after compression.

Values
transparent
compressed

Default
No default

### ATTRIBUTE Gsd Tlli Sc v42bisCompressionDirection (p0)

Access
Read: All
Write: Illegal

Description
This attribute indicates the direction in which V.42bis is active, negotiated at link setup by the data link protocol through Exchange Identification (XID) negotiation of parameter P0 (compression direction). The value used for XID negotiations can be provisioned in component *SubNetworkDataConvergenceProtocol* attribute *v42bisCompressionDirection*.
Valid values are:

***none***, No compression is present.
***fromMs***, The data received from the other entity is compressed.
***toMs***, The data sent to the other entity is compressed.
***both***, The data sent and received by the SGSN is compressed.

Values
none
fromMs
toMs
both

Default
No default

### ATTRIBUTE Gsd Tlli Sc v42bisDictionary (p1)

Access
Read: All
Write: Illegal

Description
This attribute indicates the maximum number of V.42bis codewords in the dictionary, as determined by the Exchange Identification (XID) negotiation of parameter P1 (number of codewords). The value used for XID negotiation can be provisioned in component *Sgsn GprsSubscriberDatapath* attribute *v42bisDictionary.*

Values
Decimal (512..4096)

Default
No default

### ATTRIBUTE Gsd Tlli Sc v42bisMaxStringSize (p2)

Access
Read: All
Write: Illegal

Description
This attribute indicates the maximum number of characters allowed in a string represented by a codeword, as determined by the Exchange Identification (XID) negotiation of parameter P2 (maximum string size). The value used for XID negotiation can be provisioned by component Sgsn *GprsSubscriberDatapath* attribute *v42bisMaxStringSize.*

Values
Decimal (6..250)

Default
No default

## ATTRIBUTE Gsd Tlli Sc lastDecodeError (lastDecodeErr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates last error found by the decoder. Error values are:<br>***none***, No errors found.<br>***badStepup***, Receipt of STEPUP (step up codeword size) codeword when it can cause C2 (current code word size) to exceed N1 (maximum code word size).<br>***codewordEqC1***, Receipt of a codeword, at any time, equal to C1 (next empty dictionary entry).<br>***emptyCodeword***, Receipt of a codeword representing an empty dictionary entry.<br>***reservedCommand***, Receipt of a reserved command code.<br>***generalError***, Receipt of any other error. |
| Values | none<br>badStepup<br>codewordEqC1<br>emptyCodeword<br>reservedCommand<br>generalError |
| Default | none |

## ATTRIBUTE Gsd Tlli Sc compRatioEncoder (cre)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of uncompressed bytes divided by the number of compressed bytes. A value greater than one means that the data is being compressed. This is the compression ratio achieved by the V.42bis encoder running on the Passport. This attribute is relevant for both protocol modes transparent and compressed as the encoder switches between the two modes. |
| Values | Decimal (0.00..300.00) |
| Default | No default |

### ATTRIBUTE Gsd Tlli Sc compRatioDecoder (crd)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of uncompressed bytes divided by the number of compressed bytes. A value greater than one means that the data is being compressed. This is the compression ratio achieved by the V.42bis encoder at the Mobile Station (MS) or at the Public Switched Telephone Network (PSTN). This attribute is relevant for both protocol modes transparent and compressed as the encoder switches between the two modes. |
| Values | Decimal (0.00..300.00) |
| Default | No default |

### GROUP Gsd Tlli Sc SndcpRfc1144Op (SndcpRfc1144)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational attributes for the RFC1144 header compression algorithm. |

### ATTRIBUTE Gsd Tlli Sc compPcomp (cPcomp)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the negotiated PCOMP value for the COMPRESSED_TCP packets. PCOMP is the identifier of the protocol control information compression algorithm used for the Network Protocol Data Unit (N-PDU). The value is dynamically assigned as part of the XID negotiation with the mobile. |
| Values | Decimal (0..15) |
| Default | No default |

### ATTRIBUTE Gsd Tlli Sc unCompPcomp (uncPcomp)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute indicates the negotiated PCOMP value for the UNCOMPRESSED_TCP packets. PCOMP is the identifier of the protocol control information compression algorithm used for the Network Protocol Data Unit (N-PDU). The value is dynamically assigned as part of the XID negotiation with the mobile. |
| Values | Decimal (0..15) |
| Default | No default |

### ATTRIBUTE Gsd Tlli Sc slots (s0)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of TCP state slots being used by the RFC1144 compression entity for the Mobile Station (MS). The value is negotiated as part of the XID negotiation with the mobile.<br>The value proposed by the SNDCP in the negotiation is ***16*** and may be reduced during negotiation. |
| Values | Decimal (1..256) |
| Default | No default |

### ATTRIBUTE Gsd Tlli Sc applicableNsapis (appNsapis)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the Network Service Access Point Identifiers (NSAPIs) that use the RFC1144 compression entity. The set of NSAPIs using compression may be determined by XID negotiation with the mobile; if no such negotiation occurs, no NSAPIs use compression.<br><br>If there is no negotiation, the value is empty. If a number is present then the corresponding NSAPI uses the compression entity otherwise it does not. |
| Set of | Decimal (0..15) |
| Default | No default |

### GROUP Gsd Tlli Sc GprsSndcpRfc1144Stats (SndcpRfc1144Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the statistical attributes of the RFC1144 header compression algorithm. |

### ATTRIBUTE Gsd Tlli Sc uncompressedTcpSent (uncTcpSent)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of UNCOMPRESSED_TCP packets sent to the Mobile Station (MS) by the compressor. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsd Tlli Sc compressedTcpSent (cTcpSent)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of COMPRESSED_TCP packets sent to the Mobile Station (MS) by the compressor. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsd Tlli Sc outboundSearches (outbSearches)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of outbound searches of a compression state for a Mobile Station (MS). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsd Tlli Sc outboundMisses (outbMisses)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of misses while searching for a compression state for the Mobile Station (MS). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsd Tlli Sc uncompressedTcpReceived (uncTcpRecd)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of UNCOMPRESSED_TCP packets received from the Mobile Station (MS) by the decompressor. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsd Tlli Sc compressedTcpReceived (cTcpRecd)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of COMPRESSED_TCP packets received from the Mobile Station (MS) by the decompressor. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsd Tlli Sc errorsReceived (errsRecd)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the number of errored packets received from the Mobile Station (MS) by the decompressor. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsd Tlli Sc tossedPktsReceived (tossPkts)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of packets discarded by the decompressor because of an error that occurred before this packet. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Gsd Tlli Sc SndcpStatistics (SndcpStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the per Session Context statistical attributes. |

### ATTRIBUTE Gsd Tlli Sc discardedNpdusFromMs (discNpdusRxMs)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Network-Protocol Data Units (N-PDUs) that originated from the Mobile Station (MS) which could not be re-assembled. This could result from N-PDUs lost or re-ordered. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Gsd Tlli Sc snPdusToMs (snPdusTxMs)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the SNDCP-Protocol Data Units (SN-PDU) sent to the Mobile Station (MS). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Gsd Tlli Sc snPdusFromMs (snPdusRxMs)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of SNDCP-Protocol Data Unit (SN-PDU) received from the Mobile Station (MS), that is, the total number of LL-UNITDATA PDU and LL-DATA PDU received from the Logical Link Context (LLC). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Gsd Tlli Sc octetsToMs (octsTxMs)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the payload octets sent to the Mobile Station (after compression is applied). The counter wraps to zero when it exceeds the maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Gsd Tlli Sc octetsFromMs

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the payload octets received from the Mobile Station (before decompression is applied). The counter wraps to zero when it exceeds the maximum value. |
| Values | Long Integer |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Gsd Tlli Sc octetsToNetwork (octsTxNwk)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the payload octets sent to the network. The counter wraps to zero when it exceeds the maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Gsd Tlli Sc octetsFromNetwork (octsRxNwk)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the payload octets received from the network. The counter wraps to zero when it exceeds the maximum value. |
| Values | Long Integer |
| Default | No default |

### GROUP Gsd Tlli Sc WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Gsd Tlli Sc customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsd Tlli Sc customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsd Tlli Sc customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT Gsd Tlli LogicalLinkContext (Llc)

| | |
|---|---|
| Groups | "GROUP Gsd Tlli Llc Operational (Oper)"<br>"GROUP Gsd Tlli Llc Statistics (Stats)"<br>"GROUP Gsd Tlli Llc WlcCustomCounters (WlcCustomCntr)" |
| Scope | Application |
| Description | *Sgsn Tlli/<tlli> LogicalLinkContext*<br>*Gsd/n Tlli/<tlli> LogicalLinkContext*<br><br>This component represents the logical link context information of Logical Link Control (LLC) protocol layer of GPRS. |

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display |

### GROUP Gsd Tlli Llc Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes of the Logical Link Management Entity (LLME). |

### ATTRIBUTE Gsd Tlli Llc tlli

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | When *newTlli* is empty, this attribute indicates the Temporary Logical Link Identity (TLLI) currently in use. When *newTlli* is not empty a new TLLI is being assigned. This attribute indicates the old value of the TLLI. |
| Values | String (4, Hex) |
| Default | No default |

### ATTRIBUTE Gsd Tlli Llc newTlli (newTlli)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the new value of the Temporary Logical Link Identity (TLLI). The value is empty when no assignment is taking place. |
| Values | String (4, Hex) |
| Default | No default |

### ATTRIBUTE Gsd Tlli Llc bucketLeakRate (buckLeRate)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute indicates the Flow Control bucket leak rate. This indicates the rate at which data is sent to the Packet Control Unit (PCU) for this mobile. The unit is 100 bits/s. |
| Values | Decimal (0..65535) |
| Default | No default |

### ATTRIBUTE Gsd Tlli Llc bucketSize (buckSz)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the Flow Control bucket size. The value indicates how much data is queued for a mobile to the Packet Control Unit (PCU). The unit is 100 bytes. |
| Values | Decimal (0..65535) |
| Units | octets |
| Default | No default |

### ATTRIBUTE Gsd Tlli Llc bucketFullRatio (buckflRt)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the percentage of the bucket that is filled with data for a mobile.<br><br>This attribute is used by the bucket flow control algorithm for the mobile, if the Current Bucket Level feature is negotiated between the Packet Control Unit (PCU) and the Serving GPRS Support Node (SGSN). The result of this negotiation is reflected in the *currentBucketLevelFeature* attribute, defined in *SgGtl Nse PtpBvc*.<br><br>A value of ***0*** means that the bucket is empty, while a value of ***100*** means that the bucket is exactly full. A value greater than ***100*** means that the bucket is full and overflowing by that percentage. For example, a value of ***150*** means the bucket is full and overflowing by 50%. A value of ***disabled*** means that this attribute |

| | |
|---|---|
| | is not used by the flow control algorithm because the Current Bucket Level feature is not negotiated. |
| Values | Decimal (0..255)<br>disabled |
| Units | % |
| Default | No default |

### ATTRIBUTE Gsd Tlli Llc dataSapsUtilized (dSaps)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates which Service Access Points (SAPs) have been used by this Mobile Station (MS) since being attached. |
| Set of | Decimal (0..15) |
| Default | No default |

### GROUP Gsd Tlli Llc Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the statistical attributes of the Logical Link Management Entity (LLME). |

### ATTRIBUTE Gsd Tlli Llc uiFramesToMs (uiFrTx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Unconfirmed Information (UI) frames sent to the Mobile Station (MS). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsd Tlli Llc uiFramesFromMs (uiFrRx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the Unconfirmed Information (UI) frames received from the Mobile Station (MS). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsd Tlli Llc iFramesToMs (iFrTx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the confirmed Information (I) frames sent to the Mobile Station (MS). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsd Tlli Llc iFramesFromMs (iFrRx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the confirmed Information (I) frames received from the Mobile Station (MS). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsd Tlli Llc iFramesRetransmittedToMs (iFrRetx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the confirmed Information (I) frames retransmitted to the Mobile Station (MS). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsd Tlli Llc framesProtectedToMs (frProtTx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the protected frames sent to the Mobile Station (MS). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsd Tlli Llc framesProtectedFromMs (frProtRx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the protected frames received from the Mobile Station (MS). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsd Tlli Llc framesCipheredToMs (frCiphTx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the ciphered frames sent to the Mobile Station (MS). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsd Tlli Llc framesCipheredFromMs (frCiphRx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the ciphered frames received from the Mobile Station (MS). The counter wraps to zero when it exceeds |

the maximum value.

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsd Tlli Llc crcErrorsFromMs (crcErrsRx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the frames received from Mobile Station (MS)<br>that contained Cyclic Redundancy Check (CRC) errors. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsd Tlli Llc congestionDiscardsToMs (congDiscsTxMs)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Protocol Data Units (PDU) that have been discarded at the *GprsSubscriberDatapath* due to Mobile Station (MS) Flow Control, BSS GPRS Virtual Connection (BVC) blockage, or there not being any available room in the sliding window of the Logical Link Entity (LLE) to service the PDU. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Gsd Tlli Llc WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Gsd Tlli Llc customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsd Tlli Llc customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsd Tlli Llc customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## COMPONENT Gsd RemoteApplicationConnection (RaConn)

| | |
|---|---|
| Instance | appType [String (1..8, ASCII)]<br>shelfId [Decimal (0..50)]<br>instance (n) [Decimal (1..15)] |
| Groups | "GROUP Gsd RaConn OsiState (State)"<br>"GROUP Gsd RaConn WlcCustomCounters (WlcCustomCntr)" |
| Scope | Application |
| Description | *... RemoteApplicationConnection/<appType, shelfId, n>*<br><br>This component represents the Remote Application Connection information of an application that talks to applications on other shelves. For each application that it can communicate with, one of these connection components is created and is instantiated with the name of the remote application, the Id of the shelf on which the application runs, and the instance number of the application. ShelfId ***0*** represents the Master shelf. |
| Dyn. Subcomp. | "COMPONENT Gsd RaConn AtmConnection (AtmCon)" |
| Common Verbs | Help<br>List<br>Display |

## GROUP Gsd RaConn OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

## ATTRIBUTE Gsd RaConn adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component. |

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Gsd RaConn operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Gsd RaConn usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Gsd RaConn WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Gsd RaConn customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsd RaConn customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsd RaConn customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT Gsd RaConn AtmConnection (AtmCon)

| | |
|---|---|
| Groups | "GROUP Gsd RaConn AtmCon Operational (Oper)" |
| Scope | Device |
| Description | An AtmConnection component is created for each ATM connection established by an application. It shows where the data traffic for this connection is directed. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Gsd RaConn AtmCon Operational (Oper)

| | |
|---|---|
| Properties | Operational |

Description This attribute group contains the operational attributes for the *NapAtmConnection* component.

### ATTRIBUTE Gsd RaConn AtmCon nextHop

Access Read only

Description This attribute shows the component name of the *AtmIf Vcc Ep* or *AtmCon* component to which this switched connection is established.

Values The name of the component

Default No default

### COMPONENT Gsd TieredSubscription (Ts)

Groups "GROUP Gsd Ts Statistics (Stats)"
"GROUP Gsd Ts WlcCustomCounters (WlcCustomCntr)"

"COLLECTED STATS GprsSubscriberDataPath TieredSubscription"

Scope Application

Description *Gsd/n TieredSubscription*
*Usd/n TieredSubscription*

This component represents the differentiated tiers of service on the (UMTS) Serving GPRS Support Node (SGSN or USGSN) per Packet Data Protocol (PDP) context basis for downlink traffic. The maximum average bandwidth associated with each tier is not guaranteed at all times but indicates the upper bound on the average data rate for the service.

Common Verbs Help
List
Display

### GROUP Gsd Ts Statistics (Stats)

Properties Operational

Description This group contains the statistical attributes of this component.

### ATTRIBUTE Gsd Ts activePdpCServiced (actPdpCSer)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the active PDP contexts for each tier. The value is incremented on a PDP context activation for a tier and decremented when a PDP context is deactivated for the tier. |
| Vector of | Decimal (0..4294967295) |
| Index | Decimal (1..9) |
| Default | No default |

### GROUP Gsd Ts WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Gsd Ts customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsd Ts customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Gsd Ts customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## COLLECTED STATS GprsSubscriberDataPath TieredSubscription

| | |
|---|---|
| Description | The statistics record generated by the GprsSubscriberDataPath TieredSubscription component. |

### ATTRIBUTE Gsd Ts pktsPerTierToMobile (pktsToM)

| | |
|---|---|
| Description | This attribute counts the number of packets successfully sent by the SGSN or USGSN for each tier in the down link direction in the collection interval. |
| Vector of | Decimal (0..4294967295) |
| Index | Decimal (1..9) |

### ATTRIBUTE Gsd Ts octetsPerTierToMobile (octToM)

| | |
|---|---|
| Description | This attribute counts the number of octets successfully sent by the SGSN or USGSN for each tier in the down link direction in the collection interval. |
| Vector of | Decimal (0..4294967295) |
| Index | Decimal (1..9) |

### ATTRIBUTE Gsd Ts pktsDropped (pktsDr)

| | |
|---|---|
| Description | This attribute counts the packets dropped by the Tiered Subscription of the SGSN or USGSN for each tier in the collection interval.<br><br>For example, if the peak throughput for a context is 56kbit/s and there is a burst of downlink data packets exceeding 56kbit/s, then the excess packets will be dropped, and the *pktsDropped* attribute is incremented every time a packet is dropped. |
| Vector of | Decimal (0..4294967295) |
| Index | Decimal (1..9) |

### ATTRIBUTE Gsd Ts activePdpCServiced (actPdpCSer)

| | |
|---|---|
| Description | This attribute indicates the current number of PDP contexts that are active for each tier. The value is incremented on a PDP context activation for a tier and decremented when a PDP context is deactivated for the tier.<br>This value reported is the value at the end of the collection interval. |
| Vector of | Decimal (0..4294967295) |
| Index | Decimal (1..9) |

### ATTRIBUTE Gsd Ts peakPdpCServiced (peakPdpCSer)

| | |
|---|---|
| Description | This attribute indicates the maximum number of PDP contexts serviced for the tier during the collection interval. The value is incremented every time *currentPdpCServiced* for that tier exceeds the current value of *peakPdpCServiced* for that tier. It is reset to<br>*currentPdpCServiced* after every data collection. |
| Vector of | Decimal (0..4294967295) |
| Index | Decimal (1..9) |

### COMPONENT Gsd DownlinkBuffer (DBuff)

| | |
|---|---|
| Groups | "GROUP Gsd DBuff Provisioned (Prov)" |

Scope: Application

Description: *Gsd/n DownlinkBuffer*

This component represents the optional Downlink Buffer that can be enabled on the *Gsd*. If the operator desires to enable Downlink Buffering on a given *Gsd* component, the *DBuff* component is added.

Adding or deleting this component will cause a loss of service for the parent *Gsd* component.

Common Verbs:
- Help
- List
- Display
- Add
- DELete

## GROUP Gsd DBuff Provisioned (Prov)

Properties: Provisioned

Description: This group contains the provisionable attributes of the *Gsd/n DownlinkBuffer* component.

## ATTRIBUTE Gsd DBuff maxMsWithBuff (maxBuffMs)

Access: Read: All
Write: All

Description: This attribute specifies the maximum number of mobiles for which a single GPRS Subscriber Data (GSD) application may concurrently buffer downlink data.

The value for this parameter should be carefully considered based on the number of mobiles predicted to be served by a single GSD at any given time, and on the predicted data arrival rate for those mobiles. It is safe to say that not all mobiles will require buffering concurrently, but rather some small percentage.

Depending on the value of *buffCheckInterval*, some capacity degradation may be incurred.

| | |
|---|---|
| Values | Decimal (0..10000) |
| Default | 1000 |

### ATTRIBUTE Gsd DBuff maxPacketsBuffPerMs (maxBuffPkts)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the maximum number of downlink packets that may be buffered for a single mobile at any given time, regardless of packet size. Packets received beyond this limit are discarded by the Serving GPRS Support Node (SGSN).<br><br>This parameter does not guarantee that each mobile will be able to buffer a particular number of packets; rather, it is intended to serve as a maximum for any one mobile at any given point in time. |
| Values | Decimal (0..100) |
| Default | 12 |

### ATTRIBUTE Gsd DBuff maxBytesBuffPerMs (maxBuffBytes)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the maximum number of bytes that may be buffered for a single mobile at any given time, regardless of the number of packets buffered. Packets received beyond this limit are discarded by the Serving GPRS Support Node (SGSN).<br><br>This parameter does not guarantee that each mobile will be able to buffer a particular number of bytes; rather, it is intended to serve as a maximum for any one mobile at any given point in time. |
| Values | Decimal (0..102400) |
| Units | bytes |
| Default | 10486 |

### ATTRIBUTE Gsd DBuff pduLifetimeInBuff (pduBuffLife)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the maximum amount of time that a single packet may be buffered. After expiry of this time period, if the buffered packet has not been sent to the mobile, the packet is discarded by the Serving GPRS Support Node (SGSN). |
| Values | Decimal (0..120) |
| Units | seconds |
| Default | 20 |

### ATTRIBUTE Gsd DBuff buffCheckInterval (buffInt)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the time interval that the Serving GPRS Support Node (SGSN) waits before examining the buffer contents to determine if the reason for buffering still exists.<br><br>The value for this parameter must be selected very carefully. It should be selected based on buffer space provided by the Packet Control Unit (PCU) and the expected data rate for the mobiles attached to the PCU. However, if this value is set too low, depending on the number of mobiles allowed to do buffering concurrently (determined by *maxMsWithBuff*),a non-negligible impact to system capacity may result.<br><br>Changing this value will result in loss of service for this *Gsd* component. |
| Values | Decimal (0.1..120.0) |
| Units | seconds |
| Default | 2.0 |

### ATTRIBUTE Gsd DBuff numSmallBlocks (numSmBlk)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the number of small memory blocks that will be allocated for buffering of downlink Packet Data Units (PDUs). A small memory block is approximately 256 octets.<br><br>The maximum amount of memory that may be allocated for buffering in a given GPRS Subscriber Data (GSD) is 10Mb. The total memory computed from values specified for *numSmallBlocks*, *numMediumBlocks*, *numLargeBlocks* and *numXlargeBlocks* must not exceed 10Mb.<br><br>Example: (*numSmallBlocks* * 256) + (*numMediumBlocks* * 512) + (*numLargeBlocks* * 1024) + (*numXLargeBlocks* * 1792) must be less than or equal to 10,485,760.<br><br>Changing this value will result in loss of service for this *Gsd* component. |
| Values | Decimal (0..40000) |
| Default | 5500 |

### ATTRIBUTE Gsd DBuff numMediumBlocks (numMeBlk)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the number of medium memory blocks that will be allocated for buffering of downlink Packet Data Units (PDUs). A medium memory block is approximately 512 octets.<br><br>The maximum amount of memory that may be allocated for buffering in a given GPRS Subscriber Data (GSD) is 10Mb. The total memory computed from values specified for *numSmallBlocks*, *numMediumBlocks*, *numLargeBlocks* and *numXlargeBlocks* must not exceed 10Mb. |

Example: (*numSmallBlocks* * 256) + (*numMediumBlocks* * 512) + (*numLargeBlocks* * 1024) + (*numXLargeBlocks* * 1792) must be less than or equal to 10,485,760.

Changing this value will result in loss of service for this *Gsd* component.

Values: Decimal (0..20000)

Default: 1000

### ATTRIBUTE Gsd DBuff numLargeBlocks (numLaBlk)

Access: Read: All
Write: All

Criticality: Process

Description: This attribute specifies the number of large memory blocks that will be allocated for buffering of downlink Packet Data Units (PDUs). A medium memory block is approximately 1024 octets.

The maximum amount of memory that may be allocated for buffering in a given GPRS Subscriber Data (GSD) is 10Mb. The total memory computed from values specified for *numSmallBlocks*, *numMediumBlocks*, *numLargeBlocks* and *numXlargeBlocks* must not exceed 10Mb.

Example: (*numSmallBlocks* * 256) + (*numMediumBlocks* * 512) + (*numLargeBlocks* * 1024) + (*numXLargeBlocks* * 1792) must be less than or equal to 10,485,760.

Changing this value will result in loss of service for this *Gsd* component.

Values: Decimal (0..10000)

Default: 2590

### ATTRIBUTE Gsd DBuff numXlargeBlocks (numXlBlk)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the number of extra-large memory blocks that will be allocated for buffering of downlink Packet Data Units (PDUs). An extra-large memory block is approximately 1792 octets.<br><br>The maximum amount of memory that may be allocated for buffering in a given GPRS Subscriber Data (GSD) is 10Mb.The total memory computed from values specified for *numSmallBlocks*, *numMediumBlocks*, *numLargeBlocks* and *numXlargeBlocks* must not exceed 10Mb.<br><br>Example: (*numSmallBlocks* * 256) + (*numMediumBlocks* * 512) + (*numLargeBlocks* * 1024) + (*numXLargeBlocks* * 1792) must be less than or equal to 10,485,760.<br><br>Changing this value will result in loss of service for this *Gsd* component. |
| Values | Decimal (0..5714) |
| Default | 3300 |

### ATTRIBUTE Gsd DBuff buffOnFcBucketFull (buffFcBFull)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies whether downlink data should be buffered if the downlink flow control bucket is full. Refer to “GSM TS 08.18” for a detailed description of the downlink flow control mechanisms.<br><br>If ***enabled***, downlink data is buffered when the flow control bucket is full. |
| Values | enabled<br>disabled |

| | |
|---|---|
| Default | enabled |

### ATTRIBUTE Gsd DBuff buffOnLlcSuspended (buffLlcSuspd)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies whether downlink data should be buffered if the Logical Link Control (LLC) layer is suspended. Refer to “GSM TS 04.08” and “GSM TS 04.64” for a description of the LLC layer and its behavior.<br><br>If ***enabled*** downlink data is buffered when the LLC layer is suspended. |
| Values | enabled<br>disabled |
| Default | enabled |

Passport 7400, 15000, 20000

# Component Gsd

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component GsmBc

241-5701-060

Passport 7400, 15000, 20000

# Component GsmBc

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT GsmIwfBearerChannel (GsmBc)

| | |
|---|---|
| Instance | trunkGrp [Decimal (1..8191)]<br>cic [Decimal (1..2047)] |
| Groups | "GROUP GsmBc Operational (Oper)"<br>"GROUP GsmBc CustomerIdentifierData (CidData)"<br>"GROUP GsmBc OsiState (State)" |
| Scope | Application |
| Description | *GsmBc/<trunkGrp>,<cic>*<br>This component represents an individual bearer channel resource for a given *GsmIwfCallServer*. Depending on the call type requested, the *GsmIwfCallServer* links one or more *GsmIwfBearerChannel*s in a single GSM InterWorking Function (IWF) call. Each *GsmIwfBearerChannel* is linked to a channel on a DS1 or E1 port on a logical processor (one *GsmIwfBearerChannel* per channel).<br>The instance value *trunkGrp* is the external identifier for the trunk group configured at the Mobile Services-switching Center (MSC) connected to this node and associated with this *GsmIwfBearerChannel* instance.<br>The instance value *cic* is the external identifier for the trunk group member. It is referred to as the circuit identifier code (cic) and is the same index used when configuring the channel at the Mobile Services-switching Center (MSC).<br><br>This component is specific to the ***gsmIwfBearerChannel*** feature of the ***wirelessIwf*** application. Refer to NTP 411-5221-520 “GPP Interworking Function Data Guide” for details on its usage. |

| | |
|---|---|
| Subcomponents | "COMPONENT GsmBc Framer" |
| Dyn. Subcomp. | "COMPONENT GsmBc Layer1"<br>"COMPONENT GsmBc Modem"<br>"COMPONENT GsmBc V110"<br>"COMPONENT GsmBc Fax"<br>"COMPONENT GsmBc RadioLinkProtocol (Rlp)"<br>"COMPONENT GsmBc V42"<br>"COMPONENT GsmBc V42bis"<br>"COMPONENT GsmBc Layer2RelayCop (L2RCop)"<br>"COMPONENT GsmBc UpperRelay" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP GsmBc Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational attributes concerning the operation of this particular *GsmIwfBearerChannel* for the current or most recent call. |

## ATTRIBUTE GsmBc mipState

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the current state of the MSC/IWF Interface Protocol (MIP) for an IWF element. Valid values are:<br>***idle***, Startup state of IWF element.<br>***pendingSetup***, Pending initial state of IWF element.<br>***setup***, Initial state of IWF element.<br>***pendingActivation***, Synchronization has been requested, but the IWF element is not yet in the Synchronization state. |

***activated***, Synchronization state.
***holdDisconnect***, Flush buffer state, during call clearing the MSC is responsible for holding the network connection towards the disconnected party while the IWF completes the data transmission (flushing any buffered data towards the disconnected party; any buffered data towards the disconnecting party is discarded.)
***currentlySuspended***, The call is temporarily switched to speech phase during a dual services call.

Values
idle
pendingSetup (pendSet)
setup
pendingActivation (pendAct)
activated (act)
holdDisconnect (holdDisc)
suspended (susp)

Default
idle

## ATTRIBUTE GsmBc maxUserDataRate (maxUserRate)

Access
Read: All
Write: Illegal

Description
This attribute indicates the user rate which is in affect between the IWF and the fixed network. A user rate of ***1200_75*** is 75 bit/s in the receive direction 1200 bit/s in the transmit direction.

Values
300
600
1200
1200_75
2400
4800
7200
9600
12000
14400
16800
19200
21600
24000

| | |
|---|---|
| | 26400<br>28800<br>31200<br>32000<br>33600<br>38400<br>43200<br>48000<br>56000<br>57600<br>64000<br>none |
| Units | bit/s |
| Default | none |

### ATTRIBUTE GsmBc connectionType (connType)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the connection types between the terminal equipment or terminal adaptor and mobile and between the IWF and the network. Valid connection types are:<br>***asynchronous***, Transmission of data which does not require clocking of the data signal.<br>***synchronous***, Transmission of data which requires clocking of the data signal. |
| Values | synchronous (sync)<br>asynchronous (async) |
| Default | No default |

### ATTRIBUTE GsmBc dataBits

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of data bits encoded between start and stop bits in an asynchronous data call connection data stream. This attribute is set to ***notApplicable*** for a synchronous data call. |

| | |
|---|---|
| Values | 7<br>8<br>notApplicable (na) |
| Default | notApplicable |

### ATTRIBUTE GsmBc stopBits

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of stop bits (a mark (binary 1) placed at the end of each data byte) inserted between the data bits in an asynchronous data call connection data stream, this marks the end of the character. This attribute is set to ***notApplicable*** for a synchronous data call. |
| Values | 1<br>2<br>notApplicable (na) |
| Default | notApplicable |

### ATTRIBUTE GsmBc parity

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the type of parity for the data bits in an asynchronous data call connection data stream. Parity is a redundant bit that is added to each data byte to aid in error detection. If odd parity is used, all data bytes have an odd number of 1s, and if even parity is used, all data bytes have an even number of 1s. Also parity may be forced to 0, forced to 1, or may not be used at all (required for sending 8-bit data). This attribute will be set to ***notApplicable*** for a synchronouse data call. Valid values are:<br>***none***, No parity.<br>***odd,*** Odd parity.<br>***even***, Even parity.<br>***forced0***, Parity forced to 0.<br>***forced1***, Parity forced to 1.<br>***notApplicable***, Parity not applicable. |

| | |
|---|---|
| Values | none<br>odd<br>even<br>forced0<br>forced1<br>notApplicable (na) |
| Default | none |

### ATTRIBUTE GsmBc flowControl

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the current flow control status of this *GsmIwfBearerChannel* for an asynchronous call. For a synchronous data call this attribute will be set to ***noFlowControlActive***. Valid values are:<br>***noFlowControlActive***, There is no flow control active over the air interface and network interfaces. The applications at the end points handle flow control.<br>***inband***, Embedded characters in the data stream indicate flow control.<br>***v110FlowCtnrl***, Utilization of V.110 flow control.<br>***errorCntrl***, Flow control is handle by datalink protocols. |
| Values | noFlowControlActive (noFlow)<br>inband<br>v110FlowCntrl (v110Flow)<br>errorCntrl (errCntrl) |
| Default | noFlowControlActive |

### ATTRIBUTE GsmBc callType

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the current call type. Valid values are:<br>***faxG3***, group 3 fax calls<br>***cda31khz***, asynchronous 3.1kHz modem<br>***cdaUdi***, asynchronous unrestricted digital data call |

***cdsUdi***, synchronous unrestricted digital data call
***cds31khz***, synchronous 3.1kHz modem

Values
faxG3
cda31khz
cdaUdi
cdsUdi
cds31khz

Default
No default

## ATTRIBUTE GsmBc lastResponseCode (respCode)

Access
Read: All
Write: Illegal

Description
This attribute indicates the MSC/IWF Interface Protocol (MIP) response code returned for the last call which was active on this particular *GsmIwfBearerChannel*. Valid values are:
***requestDone***, the call was terminated normally.
***systemError***, the call was terminated due to a base system problem.
***applicationError***, the call was terminated due to an application level problem.
***noResources***, the call was terminated due to a lack of available resources.
***msgSizeMismatch***, Message length does not match length defined by the MSC/IWF Interface Protocol for the particular message type.
***protocolViolation***, Failed to perform the request because the coding of the request message was invalid; message was not understood.
***requestNotSupported***, Message was understood but not supported by the IWF or MSC.
***requestDenied***, Message was understood and supported by the IWF or MSC but the request is denied.
***invalidMessage***, Message received is invalid for the current state of the IWF's state machine or the MSC data call state machine. The message is ignored.
***bufferNotFlushed***, Message from the Iwf to the MSC indicating that the buffers are not flushed as requested by the MSC.

***notApplicable***, this attribute is not applicable for this call. This is the default value for this attribute.

Values
requestDone (reqDone)
systemError (sysErr)
applicationError (applErr)
noResources
msgSizeMismatch (msgSzMismatch)
protocolViolation
requestNotSupported (reqNotSupp)
requestDenied (reqDenied)
invalidMessage (invldMsg)
bufferNotFlushed (bufsUnflushed)
notApplicable (na)

Default
notApplicable

### ATTRIBUTE GsmBc mateBearerChannel (mateBc)

Access
Read: All
Write: Illegal

Description
This attribute contains the name of the mate *GsmIwfBearerChannel* that this *GsmIwfBearerChannel* is involved with in the currently active call.

Values
The name of the component

Default
No default

### GROUP GsmBc CustomerIdentifierData (CidData)

Properties
Provisioned

Description
This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs.

### ATTRIBUTE GsmBc customerIdentifier (cid)

Access
Read and write

Description
This attribute holds the Customer Identifier (CID).

Every component has a CID. If a component has a *cid* attribute,

the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.

Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.

An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to "basic CIDs" in DPN) may be assigned to specific customers.

Values: Decimal (0; 1..8191)

Default: 0

### GROUP GsmBc OsiState (State)

Properties: Operational

Description: This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE GsmBc adminState (osiAdmin)

Access: Read only

Description: This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is

administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE GsmBc operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE GsmBc usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

## COMPONENT GsmBc Framer

Groups
"GROUP GsmBc Framer Provisioned (Prov)"
"GROUP GsmBc Framer Statistics (Stats)"
"GROUP GsmBc Framer LinkOptions (Link)"
"GROUP GsmBc Framer OsiState (State)"

Scope
Device

Description
*GsmBc/<trunkGrp>,<cic> Framer*
The *Framer* component controls link layer framing for application components sending and receiving data on a link interface. The *Framer* component also associates an application component with a specific hardware link interface. The *Framer* component provides provisionable attributes related to datapath aspects of the hardware interface rather than interface specific attributes which are associated with hardware components. The *Framer* component also provides a provisionable attribute which binds the application component to a specific hardware component.

Common Verbs
Help
List
Display

## GROUP GsmBc Framer Provisioned (Prov)

Properties
Provisioned

Description
This group contains the base provisioning data for the *Framer* component. Application or hardware interface specific

provisioning data is contained in other provisionable *Framer* groups.

### ATTRIBUTE GsmBc Framer interfaceName

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute contains a hardware component name.<br><br>The attribute associates the application with a specific link. This defines the module processor on which *Framer*'s parent component (as well as *Framer* itself) will run. |
| Values | Link (Hardware, applicationFramerName) |
| Default | No default |

### GROUP GsmBc Framer Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational statistics data for a *Framer* component. |

### ATTRIBUTE GsmBc Framer frmToIf

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames transmitted to the link interface by *Framer*. The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE GsmBc Framer frmFromIf

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames received from the link interface by *Framer*. The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE GsmBc Framer octetFromIf

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of bytes received from the link interface by *Framer*. The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE GsmBc Framer crcErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute coutns the the total number of frames with CRC errors, occurring in the receive direction from the link. The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE GsmBc Framer lrcErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames with LRC errors, occurring in the Tx link prior to transmission onto the link. The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE GsmBc Framer nonOctetErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames that were non octet aligned. The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE GsmBc Framer overruns

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames received from the link for which overruns occurred. The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE GsmBc Framer underruns

| | |
|---|---|
| Access | Read only |
| Description | This attributecounts the total number of frames transmitted to the link for which underruns occurred. The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### GROUP GsmBc Framer LinkOptions (Link)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisionable attributes for the GsmIwfFramer<br>which controls link layer framing for application components sending and receiving data on a link interface for this particular GsmIwfBearerChannel. |

### ATTRIBUTE GsmBc Framer framingType

| | |
|---|---|
| Access | Read: All<br>Write: Service |
| Criticality | Process |
| Description | This attribute indicates the type of framing for the link layer data received and transmitted on this channel. Valid values are:<br>***BtdsFraming***, bit transparent framing required for the |

*GsmIwfBearerChannel* components on MVP cards.
***GsmFraming***, GSM framing for the *GsmIwfBearerChannel* components on DS1C/E1C cards.

Values
btdsFraming
gsmFraming

Default
gsmFraming

## GROUP GsmBc Framer OsiState (State)

Properties
Operational

Description
This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

## ATTRIBUTE GsmBc Framer adminState (osiAdmin)

Access
Read only

Description
This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

| | |
|---|---|
| Default | unlocked |

### ATTRIBUTE GsmBc Framer operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE GsmBc Framer usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

## COMPONENT GsmBc Layer1

| | |
|---|---|
| Groups | "GROUP GsmBc Layer1 Operational (Oper)"<br>"GROUP GsmBc Layer1 Statistics (Stats)" |
| Scope | Application |
| Description | *GsmBc/<trunkGrp>,<cic> Layer1*<br>This component represents the group of measurements for the GSM Layer 1 protocol established for a GSM IWF call (on the mobile station to IWF link) on this particular *GsmIwfBearerChannel.*<br>Note that this component is present only if the current (or most recent call) involved this protocol. |
| Common Verbs | Help<br>List<br>Display |

## GROUP GsmBc Layer1 Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains physical layer operational attributes concerning the operation of this particular *GsmIwfBearerChannel*. |

## ATTRIBUTE GsmBc Layer1 activeMode (mode)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the active physical layer protocol between the mobile and the IWF. Valid values are:<br>***v110***, GSM V.110 rate adaptation scheme for interworking V-series connections to an Integrated Services Digital Network (ISDN).<br>***aTrau***, GSM A-Transcoder/Rate Adaptor (A-TRAU). |
| Values | v110<br>aTrau |
| Default | No default |

### ATTRIBUTE GsmBc Layer1 connection (conn)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the connection between the mobile and the IWF. Valid values are:<br>***transparent***, Constant throughput, constant transit delay, and variable error rate (does not use Radio Link Protocol).<br>***nonTransparent***, Improved error rate with variable transit delay and variable throughput (uses Radio Link Protocol). |
| Values | transparent (trans)<br>nonTransparent (nonTrans) |
| Default | No default |

### ATTRIBUTE GsmBc Layer1 dataRate

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the layer 1 user data rate for the currently active call for this *GsmIwfBearerChannel*. This is the data rate between the mobile and IWF. |
| Values | Decimal (0..64000) |
| Units | bit/s |
| Default | No default |

### ATTRIBUTE GsmBc Layer1 intermediateRate (iRate)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the intermediate rate used in the physical layer rate adaptation process. This field is valid between the mobile and the IWF. For user data rates of 300 bit/s - 4800 bit/s the intermediate rate is 8 kbit/s. For user data rates 9600 bit/s and above the intermediate rate is 16 kbit/s. |
| Values | Decimal (8; 16) |
| Units | kbit/s |

| | |
|---|---|
| Default | No default |

### GROUP GsmBc Layer1 Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains physical layer statistics concerning the operation of this particular *GsmIwfBearerChannel*. |

### ATTRIBUTE GsmBc Layer1 framesTx

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of frames transmitted on the link. The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE GsmBc Layer1 framesRx

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of frames received on the link. Discarded frames are not included in this count. The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE GsmBc Layer1 bytesTx

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts number of bytes transmitted on the link. The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE GsmBc Layer1 bytesRx

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of bytes received on the link. Bytes from discarded frames are not included in this count. The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE GsmBc Layer1 underRunsTx

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts number of underruns, on a per-call basis, in the transmit direction reported by the hardware on the mobile-side.. These frames are not counted towards the number of frames transmitted (*framesTx*). The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE GsmBc Layer1 overRunsRx

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts number of overruns, on a per-call basis, in the receive direction reported by the hardware on the mobile-side. These frames are discarded. These frames are not counted towards the number of frames received (*framesRx)*. The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE GsmBc Layer1 nonOctetErrorsRx

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of non-octet synchronous frame errors, on a per-call basis, received on the link reported by the hardware. This is when a frame whose bit content was not divisible by eight was detected. These frames are discarded. These frames are not counted towards the number of frames received (*framesRx*). The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE GsmBc Layer1 largeFrameErrorsRx (lrgFrmErrRx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of frames, on a per-call basis, received on the link that exceeded internal buffer limits reported by the hardware. A large number of these errors could indicate a bad physical medium. These frames are discarded. These frames are not counted towards the number of frames received (*framesRx*). The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE GsmBc Layer1 framesDiscarded (frmDisc)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of frames discarded, on a per-call basis, in the receive direction by software due to frame errors. The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE GsmBc Layer1 lrcErrorsTx

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of corrupted frames, on a per-call basis, due to memory inconsistencies found by Longitude Redundancy Check (LRC) checks at the IWF. These frames are not counted towards the number of frames transmitted (*framesTx*). The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT GsmBc Modem

| | |
|---|---|
| Groups | "GROUP GsmBc Modem Operational (Oper)"<br>"GROUP GsmBc Modem Statistics (Stats)" |
| Scope | Application |
| Description | *GsmBc/<trunkGrp>,<cic> Modem*<br>This component represents the group of measurements for the modem protocol established for a GSM IWF call (on the IWF to Public Switched Telephone Network (PSTN) modem link) on this particular *GsmIwfBearerChannel.*<br>Note that this component is present only if the current (or most recent call) involved this protocol. |
| Common Verbs | Help<br>List<br>Display |

### GROUP GsmBc Modem Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational attributes that measure performance of the *modem* component for this particular *GsmIwfBearerChannel*. |

## ATTRIBUTE GsmBc Modem rate

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the transmission rate of the current modem in use. A rate of ***1200_75*** is 75 bit/s in the transmit direction and 1200 bit/s in the receive direction. All other rates are the same in both the transmit and receive directions. |
| Values | 300<br>600<br>1200<br>1200_75<br>2400<br>4800<br>7200<br>9600<br>12000<br>14400<br>16800<br>19200<br>21600<br>24000<br>26400<br>28800<br>31200<br>32000<br>33600<br>38400<br>43200<br>48000<br>56000<br>57600<br>64000 |
| Units | bit/s |
| Default | No default |

## ATTRIBUTE GsmBc Modem algorithmInUse (algorithm)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the current modem algorithm(s) active for the channel. Valid values are:<br>***v17,*** V.17 is active.V.17 is an ITU-T 14400bit/s modem standard.<br>***v27ter***, V.27ter is active. V.27ter is an ITU-T 7200bit/s modem standard.<br>***v29***, V.29 is active. V.29 an ITU-T 9600bit/s modem standard.<br>***v21***, V.21 active. V.21 is an ITU-4 300bit/s modem standard.<br>***v22bis***, V.22 or V.22bis active. V.22 ia an ITU-T modem standard that operates at 1200bit/s and 600 baud. V.22bis is an ITU-T modem standard that operates at 2400bit/s and 600 baud.<br>***v23***, V.23 active. V.23 is an ITU-T modem standard that operates at a speed of 1200bit/s.<br>***v26ter,*** V.26ter active. V.26ter is an ITU-T modem standard that operates at a speed of 2400bit/s.<br>***v32bis***, V.32 or V.32bis active. V.32 is an ITU-T modem standard that operates at 9600bit/s and 2400 baud. V.32bis is an ITU-T modem standard that operates at a speed of 14.4kbit/s.<br>***v34***, V.34 active. V.34 is an ITU-T modem standard that operates at a speed of up to 28.8kbit/s. |
| Set of | v17<br>v29<br>v27ter<br>v21<br>v22bis<br>v23<br>v26ter<br>v32bis<br>v34 |
| Default | No default |

## ATTRIBUTE GsmBc Modem protocolState (state)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

Description
This attribute indicates the active protocol state of the modem in use.Valid values are:
***idle***, Modem is in an inactive state and has no current connection established.
***training***, Modem is attempting to establish a connection with the far end modem via handshaking.
***connected***, Modem has establish a connection with the far end modem.

Values
idle
training
connected

Default
No default

### ATTRIBUTE GsmBc Modem receiverTransmitter (rxTx)

Access
Read: All
Write: Illegal

Description
This attribute indicates whether the fax data modem is in receive or transmit mode. If this is not a fax data modem call, then the value is set to ***notApplicable***. Valid values are:
***notApplicable***, Not an applicable field.
***rxOnTxOff***, Receiver is on, transmitter is off.
***rxOffTxOn***, Receiver is off, transmitter is on.
***rxTxOn***, Reciever is on, transmitter is on.

Values
notApplicable (na)
rxOnTxOff
rxOffTxOn
rxTxOn

Default
notApplicable

### ATTRIBUTE GsmBc Modem training

Access
Read: All
Write: Illegal

Description
This attribute indicates the training procedure used by the V.17 modems. ITU-T defines two training procedures. A longer training procedure used at call setup, and a short training procedure is used during the fax call when switching from the

V.21 modem to the V.17 modem. A value of ***notApplicable*** indicates that the attribute is not applicable for the modem.

Values
short
long
notApplicable (na)

Default
notApplicable

### ATTRIBUTE GsmBc Modem toUpperFlowControlActive (upperFlow)

Access
Read: All
Write: Illegal

Description
This attribute indicates whether flow control was requested and an indication was sent to an upper layer protocol.

Values
on
off

Default
No default

### ATTRIBUTE GsmBc Modem toDspFlowControlActive (lowerFlow)

Access
Read: All
Write: Illegal

Description
This attribute indicates whether an upper layer protocol requested flow control and an indication was sent to the Digital Signal Processor.

Values
on
off

Default
No default

### ATTRIBUTE GsmBc Modem asyncMode (async)

Access
Read: All
Write: Illegal

Description
This attribute indicates whether conversion between synchronous and asynchronous data format (specifacally, the stripping or insertion of start and stop bits) is being performed. The value will be ***on*** unless the V.42 layer is active or it is a fax call.

| | |
|---|---|
| Values | on<br>off |
| Default | No default |

### ATTRIBUTE GsmBc Modem autoHdlcMode (autoHdlc)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates whether High-Level Data Link Control (HDLC) functions are being performed by the modem to support HDLC applications (V.42 for example). |
| Values | on<br>off |
| Default | No default |

### ATTRIBUTE GsmBc Modem outbandFlowControl (outbandFlow)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates whether inband or outband flow control conversions are being performed. The modem performs either inband or outband flow control unless V.42 layer is active, it is a fax call, or no flow control was specified by the MSC. |
| Values | on<br>off |
| Default | No default |

### ATTRIBUTE GsmBc Modem outbandBreak (outbandBrk)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates whether inband or outband break control conversions are being performed. This is when the modem detects a break condition as defined by ITU-T X.28 and reports it. When a break condition is discovered all subsequent incoming data is discarded until a start bit is received. |

| | |
|---|---|
| Values | on<br>off |
| Default | No default |

### ATTRIBUTE GsmBc Modem autobaud

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates whether autobaud is active.<br>The modem is instructed at call setup time by the MSC on:<br>What is the initial modem data rate value and<br>Whether a modem is allowed to perform autobauding (***on***) or not (***off***). With Autobauding ***on***, the modem is allowed to connect using a valid modem data rate less than or equal to the initial rate specified to the modem by the MSC. If a modem can not perform autobauding and the carrier can not be established at the initial data rate, the modem is disabled. |
| Values | on<br>off |
| Default | No default |

### GROUP GsmBc Modem Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational attributes that measure performance of the modem component for this particular *GsmIwfBearerChannel*. |

### ATTRIBUTE GsmBc Modem bytesTx

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of payload bytes transmitted. The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE GsmBc Modem bytesRx

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of payload bytes received. The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE GsmBc Modem framingErrors (frmErr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of framing errors detected by the hardware. This is the absence of a stop bit after a start bit and eight bits of data. All incoming data is discarded until the next start bit is received. The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT GsmBc V110

| | |
|---|---|
| Groups | "GROUP GsmBc V110 Operational (Oper)"<br>"GROUP GsmBc V110 Statistics (Stats)" |
| Scope | Application |
| Description | *GsmBc/<trunkGrp>,<cic> V110*<br>This component represents the group of measurements for the ITU-T V.110 rate adaptation protocol established for a GSM IWF call (on the IWF to Integrated Services Digital Network (ISDN) terminal adapter link) on this particular *GsmIwfBearerChannel.* Note that this component is present only if the current (or most recent call) involved this protocol. |

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display |

## GROUP GsmBc V110 Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational attributes that measure the performance of *V110*. |

## ATTRIBUTE GsmBc V110 dataRate

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute contains the layer 1 user data rate for the currently active call for this *GsmIwfBearerChannel*. This is the data rate between the IWF and the fixed network. |
| Values | Decimal (0..65000) |
| Units | bit/s |
| Default | No default |

## ATTRIBUTE GsmBc V110 intermediateRate (iRate)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the intermediate rate used in the physical layer rate adaptation process. This field is valid between the network and the IWF. For user data rates of 300 bit/s to 4800 bit/s the intermediate rate is 8 kbit/s. For a user data rate of 9600 bit/s the intermediate rate is 16 kbit/s. For user data rates of 1200 bit/s to 19200 bit/s the intermediate rate is 32 kbit/s. Data rates above this have no intermediate rate. |
| Values | 8 kbit/s<br>16 kbit/s |

| | |
|---|---|
| | 32 kbit/s<br>notApplicable (na) |
| Default | No default |

### GROUP GsmBc V110 Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistical attributes which measure the performance of V110. |

### ATTRIBUTE GsmBc V110 framesTx

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of frames transmitted on the link. The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE GsmBc V110 framesRx

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of frames received on the link. Discarded frames are not included in this count. The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE GsmBc V110 bytesTx

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of bytes transmitted on the link. The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE GsmBc V110 bytesRx

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of bytes received on the link. Bytes from discarded frames are not included in this count. The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE GsmBc V110 underRunsTx

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of underruns, on a per-call basis, in the transmit direction reported by the hardware on the network side. These frames are not counted towards the number of frames transmitted (*framesTx*). The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE GsmBc V110 overRunsRx

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of overruns, on a per-call basis, in the receive direction reported by the hardware on the network side. These frames are discarded. These frames are not counted towards the number of frames received (*framesRx*). The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE GsmBc V110 nonOctetErrorsRx

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of non-octet synchronous frame errors, on a per-call basis, received on the link reported by the hardware. These frames are discarded. These frames are not counted towards the number of frames received (*framesRx*). The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE GsmBc V110 largeFrameErrorsRx (lrgFrmErrRx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of frames received on the link that exceeded internal buffer limits reported by the hardware, on a per-call basis. These frames are discarded. These frames are not counted towards the number of frames received (*framesRx*). The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE GsmBc V110 framesDiscarded (frmDisc)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of frames discarded, on a per-call basis, in the receive direction by software due to frame errors. The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## ATTRIBUTE GsmBc V110 lrcErrorsTx (lrcErrTx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of corrupted frames, on a per-call basis, due to memory inconsistencies found by Longitude Redundancy Check (LRC) checks at the IWF. The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## COMPONENT GsmBc Fax

| | |
|---|---|
| Groups | "GROUP GsmBc Fax Operational (Oper)"<br>"GROUP GsmBc Fax Statistics (Stats)" |
| Scope | Application |
| Description | *GsmBc/<trunkGrp>,<cic> Fax*<br>This component represents the group of measurements for the fax protocol established for a GSM IWF call (on the mobile station to IWF link or the IWF to Public Switched Telephone Network (PSTN) fax modem/machine link) on this particular *GsmIwfBearerChannel.*<br>Note that this component is present only if the current (or most recent call) involved this protocol. |
| Common Verbs | Help<br>List<br>Display |

## GROUP GsmBc Fax Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational attributes which measure the performance of the fax protocol. |

## ATTRIBUTE GsmBc Fax activeMode (mode)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the mode of the fax T.30 protocol, determined during Exchange Identification (XID) negotiations. The following modes are supported:<br>***normal***, normal T.30 protocol, Error Correction Mode (ECM) not used<br>***ecm***, Error Correction Mode used. Fax error correction is done using a half-duplex page selective repeat technique. |
| Values | normal<br>ecm |
| Default | normal |

## ATTRIBUTE GsmBc Fax protocolState (state)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the protocol state of the fax adaptor. The values are:<br>***setup,*** call setup state<br>***idle,*** idle state only transmitting Synchronize (SYNC) frames<br>***bcsRx,*** receiving Binary Coded Signal (BCS) packet from modem<br>***bcsTx,*** transmitting BCS packet to modem<br>***msgRx,*** receiving fax message from modem<br>***msgTx,*** transmitting fax message to modem |
| Values | setup<br>idle<br>bcsRx<br>bcsTx<br>msgRx<br>msgTx |
| Default | idle |

### ATTRIBUTE GsmBc Fax messageRate (msgRate)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the fax message rate used for sending fax documents. |
| Values | Decimal (0..65000) |
| Units | bit/s |
| Default | No default |

### GROUP GsmBc Fax Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistical attributes which measure the performance of the fax protocol. |

### ATTRIBUTE GsmBc Fax messageFramesRx (msgFrmRx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of fax message frames received from the mobile. One fax message frame is an eight byte DATA frame defined in GSM 3.45. The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE GsmBc Fax messageFramesTx (msgFrmTx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of fax message frames transmitted to the mobile. One fax message frame is an eight byte DATA frame defined in GSM 3.45. The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE GsmBc Fax bcsFramesRx (bcsFrmRx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of fax Binary Coded Signal (BCS) frames received from the mobile. A fax BCS frame is an 8-byte STATUS frame, which carries T.30 BCS data as defined in GSM 3.45. The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE GsmBc Fax bcsFramesTx (bcsFrmTx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of fax Binary Coded Signal (BCS) frames transmitted to the mobile. A fax BCS frame is an 8-byte STATUS frame, which carries T.30 BCS data as defined in GSM 3.45. The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE GsmBc Fax pagesRxFromMobile (pagesRx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of fax pages received from the mobile. The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE GsmBc Fax pagesTxToMobile (pagesTx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | The attribute counts the number of fax pages transmitted to the mobile. The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE GsmBc Fax channelModeModify (cmm)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of Channel Mode Modify (CMM) requests initiated by the IWF.<br>For transparent fax calls, the transmission speed is determined by the two fax machines at call setup. The speed may change during the transmission to satisfy the T.30 protocol. The CMM request is used by the GSM IWF to request that the T.30 requested speed change can be propagated throughout the network. The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE GsmBc Fax bcsFrameErrors (bcsFrmErr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of fax Binary Coded Signal (BCS) frames in error. This attribute indicates the count of corrupted fax BCS frames over the GSM radio channel. The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## COMPONENT GsmBc RadioLinkProtocol (Rlp)

| | |
|---|---|
| Groups | "GROUP GsmBc Rlp Operational (Oper)"<br>"GROUP GsmBc Rlp Statistics (Stats)" |
| Scope | Application |
| Description | *GsmBc<trunkGrp>,<cic> RadioLinkProtocol/<rlp-type>*<br>This component represents the group of measurements for the Radio Link Protocol (RLP) established for a GSM IWF call (on the mobile station to IWF link) on this particular *GsmIwfBearerChannel.*<br>Note that this component is present only if the current (or most recent call) involved this protocol. |
| Common Verbs | Help<br>List<br>Display |

## GROUP GsmBc Rlp Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational attributes that measure performance of the *GsmIwfBearerChannel*. |

## ATTRIBUTE GsmBc Rlp protocolState (state)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the last Radio Link Protocol (RLP) state before call take down. The following are the states:<br>***detached,*** Initial State. The call has not even started.<br>***disconnected***, Asynchronous Disconnected Mode (ADM).<br>***connPending***, In ADM, but sent Set Asynchronous Balanced Mode (SABM) and waiting for a response.<br>***discPending***, Sent Disconnect (DISC), waiting for a response.<br>***connectEstablished***, In Asynchronous Balanced Mode (ABM), Information frames can be exchanged.<br>***synchronized***, Synchronization state entered after a change of channel coding. Handles REMAP procedure. |

| | |
|---|---|
| Values | detached (detach)<br>disconnected (disc)<br>connPending (connPend)<br>discPending (discPend)<br>connectEstablished (connEst)<br>synchronized (sync) |
| Default | detached |

### ATTRIBUTE GsmBc Rlp frameSize

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the current Radio Link Protocol (RLP) frame size transmitted. The size of the frame depends on the radio channel type. The frames can be 240 bits long for 12 kbit/s and 6 kbit/s or 576 bits long for 14.5 kbit/s. |
| Values | Decimal (0..65000) |
| Default | No default |

### ATTRIBUTE GsmBc Rlp highestVersion (highVer)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the current highest version of the Radio Link Protocol (RLP) protocol negotiated by the Radio Link Protocol (RLP), during Exchange Information (XID). Valid values are:<br>***0***, Single-link basic version.<br>***1***, Single-link extended version (for example, extended by data compression).<br>The value used for XID negotiations can be provisioned by component *GsmIwfRadioLinkProtocol* attribute *highestVersion*. |
| Values | Decimal (0..1) |
| Default | No default |

### ATTRIBUTE GsmBc Rlp iwfToMsWindowSize (iwfMsWs)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the current IWF to mobile window size negotiated by the Radio Link Protocol (RLP) during Exchange Information (XID). The window size is the maximum number of sequentially numbered Information (I) frames that may be unacknowledged at any given time. GSM specification 4.22 defines the range as 0 to 61. The value used for XID negotiations can be provisioned by component *GsmIwfRadioLinkProtocol* attribute *iwftoMsWindowSize*. |
| Values | Decimal (0..61) |
| Default | No default |

### ATTRIBUTE GsmBc Rlp msToIwfWindowSize (msIwfWs)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the current mobile to IWF window size negotiated by the Radio Link Protocol (RLP), during Exchange Information (XID). The window size is the maximum number of sequentially numbered Information (I) frames that may be unacknowledged at any given time. GSM specification 4.22 defines the range as 0 to 61. The value used for XID negotiations can be provisioned by component *GsmIwfRadioLinkProtocol* attribute *msToIwfWindowSize*. |
| Values | Decimal (0..61) |
| Default | No default |

### ATTRIBUTE GsmBc Rlp t1AckTimer (t1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the current T1 timer negotiated by the Radio Link Protocol (RLP), during Exchange Information (XID). This is the period in milliseconds within which an acknowledgment of a sent frame must be received. Once this |

| | |
|---|---|
| | timer expires, the transmitting RLP entity shall assume that the frame was lost. The value used for XID negotiations can be provisioned by component *GsmIwfRadioLinkProtocol* attribute *t1AckTimer.* |
| Values | Decimal (380..1020) |
| Units | msec |
| Default | No default |

### ATTRIBUTE GsmBc Rlp t2AckDelayTimer (t2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the current T2 timer negotiated by the Radio Link Protocol (RLP), during Exchange Information (XID). This is the maximum period in milliseconds the receiving RLP entity shall wait before sending an acknowledgment for a received in sequenced frame. The value used for XID negotiations can be provisioned by component *GsmIwfRadioLinkProtocol* attribute *t2AckDelayTimer.* |
| Values | Decimal (10..70) |
| Units | msec |
| Default | No default |

### ATTRIBUTE GsmBc Rlp n2RetransmitCount (n2)

| | |
|---|---|
| Access | Read: All<br>Write: Service |
| Description | This attribute indicates the current value of N2 negotiated by the Radio Link Protocol (RLP), during Exchange Information (XID). This is the maximum number of times a RLP entity shall retransmit an individual frame following the expiry of timer T1. The value used for XID negotiations can be provisioned by component *GsmIwfRadioLinkProtocol* attribute *n2RetransmitCount*. |
| Values | Decimal (0..255) |

| | |
|---|---|
| Default | No default |

### GROUP GsmBc Rlp Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational attributes that measure performance of the *GsmIwfBearerChannel.* |

### ATTRIBUTE GsmBc Rlp iFramesTx

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of valid Information frames transmitted. This count does not include the Information frames discarded. The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE GsmBc Rlp iFramesRx

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attributes counts the number of valid Information (I) frames received. The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE GsmBc Rlp framesRetransmitted (frmRetrans)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of frames retransmitted. Frames that are not acknowledged within the T1 timer are retransmitted. The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE GsmBc Rlp t1AckTimeouts (t1Timeout)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of T1 timer time-outs. Retransmission of all unacknowledged frames is started after T1 timer expiry. The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE GsmBc Rlp invalidFrames (invldFrm)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of invalid frames received. These invalid frames are frames received from the mobile which contain errors in the header information. This count does not include the number of frames with Cyclic Redundancy Check (CRC) errors or out-of-sequence Frame Errors. The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE GsmBc Rlp crcErrorsRx (crcErrRx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of frames with Cyclic Redundancy Check (CRC) errors received by the IWF Radio Link Protocol (RLP) entity. CRC is a type of block check character that is very effective in detecting communications errors. CRCs are commonly 16 or 32 bits long (though, in GSM non-transparent services, a 24-bit CRC is used). The counter wraps when it exceeds the maximum value. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE GsmBc Rlp outOfSequenceFrames (outOfSeqFrm)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of out-of-sequence Information frames received by the IWF Radio Link Protocol (RLP) entity. The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE GsmBc Rlp remoteBusyIndications (remoteBusy)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of times the mobile Radio Link Protocol (RLP) entity is busy (that is, it is in Asynchronous Balanced Mode (ABM) and is not ready to receive Information frames). The RLP entity is considered to be not ready to receive information frames if the mobile sends a flow control indication RNR (Receive Not Ready). A Receive Ready is sent to the RLP entity when the mobile is ready to receive data. The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE GsmBc Rlp localBusyIndications (localBusy)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of times the IWF RLP entity is busy (that is it is in Asynchronous Balanced Mode (ABM) and is not ready to receive Information frames). When the network side introduces flow control towards the mobile and a Receive Not Ready (RNR) is sent to the mobile to stop the mobile from |

| | |
|---|---|
| | sending any more data frames. A Receive Ready (RR) is sent to the mobile when the RLP entity is ready to receive data. The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE GsmBc Rlp iFramesTxDiscarded (iFrmTxDisc)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of frames discarded by the IWF. Untransmitted and unacknowledged frames are discarded when a Set Asynchronous Balanced Mode (SABM) or Disconnect (DISC) is received or sent in Asynchronous Balanced Mode (ABM) mode. The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE GsmBc Rlp resetsRx

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of resets sent by the mobile. Loss of information may occur when a reset is issued. A reset is issued by the mobile on failure of checkpoint recovery. That is if the mobile does not receive acknowledgment for its information frame, it does checkpoint recovery (it sends a supervisory frame requesting the status of the other entity. If the responding entity fails to respond to N2 of this checkpoint frame a reset is initiated by the originating entity. A reset can also be issued by the mobile during handover where a loss of connection or synchronization occurs. The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## COMPONENT GsmBc V42

| | |
|---|---|
| Groups | "GROUP GsmBc V42 Operational (Oper)"<br>"GROUP GsmBc V42 Statistics (Stats)" |
| Scope | Application |
| Description | *GsmBc/<trunkGrp>,<cic> V42*<br>This component represents the group of measurements for the ITU-T V.42 error correcting protocol established for a GSM IWF call (on the IWF to Public Switched Telephone Network (PSTN) modem link) on this particular *GsmIwfBearerChannel*.<br>Note that this component is present only if the current (or most recent call) involved this protocol. |
| Common Verbs | Help<br>List<br>Display |

## GROUP GsmBc V42 Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational attributes which measure V.42 error detection and correction performance. |

## ATTRIBUTE GsmBc V42 protocolState (state)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the state of V.42. Valid states are:<br><br>***notActive***, The V.42 link connection with the Public Switched Telephoned Network) PSTN modem is not established. None of the V.42 functions including the error detection, error correction, and flow control is provided to the data call. This is the initial state of V.42.<br>***disconnected***, This means that the V42 link is disconnected.<br>***linksetup***, The V.42 operation enters this state from the disconnected state after the V.42 sends to the PSTN modem a Set Asynchronous Balanced Mode Extended (SABME) frame in an attempt to establish the error control connection with the PSTN |

modem.
***frameReject***, The V.42 operation enters into this state after it identifies an invalid frame sent by the peer and it sends back a frame reject (FRMR) frame to the peer.
***disconnectRequest***, The V.42 operation enters into this state after it sends to the peer a disconnect (DISC) frame with the attempt to disconnect the V.42 error control link.
***informationTransfer***, The V.42 enters into this state after it receives a UA (unnumbered acknowledgment) frame which the peer sent upon receipt of the SAMBE frame from IWF V.42. Once in this state, the V.42 can exchange data and supervisory information with its peer.
***waitingAck,*** The V.42 enters this state after it sends polling enquiry to its peer. The V.42 sends the polling enquiry when it receives a reject frame (REJ) from its peer or either its acknowledgment timer or inactivity timer timed out on the information frames sent out.

Values
notActive
disconnected (disc)
linksetup
frameReject (frmRej)
disconnectRequest (discReq)
informationTransfer (infoXfer)
waitingAck (waitAck)

Default
notActive

### ATTRIBUTE GsmBc V42 txN401FrameSize (txN401)

Access
Read: All
Write: Illegal

Description
This attribute indicates the current value of parameter N401 for V.42 which is negotiated during Exchange Information (XID). This is the maximum number of octets that can be carried in the information field of an information frame that the IWF V.42 transmits to the Public Switched Telephone Network (PSTN) modem. The IWF V.42 puts this or even smaller size of data into the outgoing information frame. The value used for XID negotiations can be provisioned by component *GsmIwfV42* attribute *txN401FrameSize.*

| | |
|---|---|
| Values | Decimal (0..65355) |
| Default | No default |

### ATTRIBUTE GsmBc V42 rxN401FrameSize (rxN401)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the current value of N401, that is negotiated during Exchange Identification (XID). This is the maximum number of octets that can be carried in the information field of an information frame received from the Public Switched Telephone Network (PSTN) modem. An incoming information frame carrying data octets more than this size shall be rejected by the IWF V.42. The value used for XID negotiations can be provisioned by component *GsmIwfV42* attribute *rxN401FrameSize.* |
| Values | Decimal (1..255) |
| Default | No default |

### ATTRIBUTE GsmBc V42 txKwindowSize (txK)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the current value of k, that is negotiated during Exchange Identification (XID). This is the size of flow control sliding window used for the information frames that the V.42 transmits to the Public Switched Telephone Network (PSTN) modem. This size governs the maximum number of information frames that the IWF V.42 error-correcting entity can have outstanding (that is, unacknowledged). The value used for XID negotiations can be provisioned by component *GsmIwfV42* attribute *txKwindowSize.* |
| Values | Decimal (0..127) |
| Default | No default |

### ATTRIBUTE GsmBc V42 rxKwindowSize (rxK)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the current value of k that is negotiated during Exchange Identification (XID). This is the size of flow control sliding window used for information frames transmitted from the Public Switched Telephone Network (PSTN) modem. This size governs the maximum number of information frames that the peer of the IWF V.42 error-correcting entity can have outstanding (that is, unacknowledged). The value used for XID negotiations can be provisioned by component *GsmIwfV42* attribute *rxKwindowSize*. |
| Values | Decimal (1..127) |
| Default | No default |

### GROUP GsmBc V42 Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistical attributes that measure the V.42 error detection and correction performance. |

### ATTRIBUTE GsmBc V42 iBytesRx

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of bytes that the V.42 actually received from the Public Switched Telephone Network (PSTN) modem in a data call. The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE GsmBc V42 iBytesTx

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the total number of bytes that the V.42 transmitted to the Public Switched Telephone Network (PSTN) modem in a data call. The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE GsmBc V42 iFramesRx

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of Information (I) frames that the V.42 received from the Public Switched Telephone Network (PSTN) modem in a data call. The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE GsmBc V42 iFramesTx

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of information frames that the V.42 transmitted to the Public Switched Telephone Network (PSTN) modem in a data call. The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE GsmBc V42 framesRetransmitted (frmRetrans)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of frames retransmitted by the IWF V.42 entity in a data call. The V.42 retransmits the same frame when the associated T401 acknowledgment timer time-outs or when a Reject (REJ) supervisory frame has been received from |

| | |
|---|---|
| | the Public Switched Telephone Network (PSTN) modem. The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE GsmBc V42 t1AckTimeouts (t1Timeout)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of times that the T401 timer has timed out within a data call. If this timer times-out frequently, the operator may need to adjust the provisional parameter T401 acknowledgment timer to a larger time amount, since every time that V.42 sends out a frame it sets the T401 timer to wait for the peer's acknowledgment of the frame. When the timer times-out and no acknowledgment has been received, the V.42 sends the same frame to its peer. The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE GsmBc V42 remoteBusyIndications (remoteBusy)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of times the Public Switched Telephone Network (PSTN) modem enters a busy state (the IWF has received a Receive Not Ready message) and asks the IWF V.42 not to send Information (I) frames to it until it is ready to receive information frames again (indicated by receipt of a Receive Ready message or a data message). The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE GsmBc V42 localBusyIndications (localBusy)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of times the IWF V.42 enters in a busy condition and asks the peer to stop sending information frames until it has cleared up from the busy condition. The V.42 enters busy condition when its data buffer is about to be overflowed by the incoming Information (I) frames. The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE GsmBc V42 badFramesRx (badFrmRx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of bad frames the IWF V.42 has received from the Public Switched Telephone Network (PSTN) remote modem within the data call. In this instance, “bad frames” refer to the V.42 protocol error frames other than the check sequence error frames. The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE GsmBc V42 crcErrorsRx (crcErrRx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of frames received from the remote Public Switched Telephone Network (PSTN) modem that contain incorrect frame check sequence. A high value signifies the condition of the physical medium is poor. The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |

Default No default

## COMPONENT GsmBc V42bis

Groups "GROUP GsmBc V42bis Operational (Oper)"
"GROUP GsmBc V42bis Statistics (Stats)"

Scope Application

Description *GsmBc<trunkGrp>,<cic> V42bis*
This component represents the group of measurements for the ITU-T V.42bis data compression protocol established for a GSM IWF call (on the mobile station to the IWF link or the IWF to Public Switched Telephone Network (PSTN) fax modem link) on this particular *GsmIwfBearerChannel.*
Note that this component is present only if the current (or most recent call) involved this protocol.

Common Verbs
Help
List
Display

## GROUP GsmBc V42bis Operational (Oper)

Properties Operational

Description This group contains operational attributes that measure the performance of *V.42bis*.

## ATTRIBUTE GsmBc V42bis protocolModeEncoder (modeEncoder)

Access Read: All
Write: Illegal

Description This attribute indicates the current mode of the V.42bis encoder. This mode can be either:
***transparent*** - A mode of operation in which compression has been selected but data is being transmitted in uncompressed form. Transparent mode command sequences may be inserted into the data stream.
***compressed*** - A mode of operation in which data is transmitted in codewords.
The encoder switches between the two modes depending on

whether the data coming from the Date Terminal Equipment (DTE) is suitable for compression. The data comression function periodically determines the compressibility of the data based on a comparison of the number of bits required to represent a segment of the data stream before and after compression.

Values
transparent
compressed

Default
No default

### ATTRIBUTE GsmBc V42bis protocolModeDecoder (modeDecoder)

Access
Read: All
Write: Illegal

Description
This attribute indicates the current mode of the V.42bis decoder. This mode can be either:
***transparent*** - A mode of operation in which compression has been selected but data is being transmitted in uncompressed form. Transparent mode command sequences may be inserted into the data stream.
***compressed*** - A mode of operation in which data is transmitted in codewords.
The encoder (at the mobile or Public Switched Telephone Network) switches between the two modes depending on whether the data coming from the Date Terminal Equipment (DTE) is suitable for compression. The data comression function periodically determines the compressibility of the data based on a comparison of the number of bits required to represent a segment of the data stream before and after compression.

Values
transparent
compressed

Default
No default

### ATTRIBUTE GsmBc V42bis compressionDirection (p0)

Access
Read: All
Write: Illegal

Description
This attribute indicates the direction in which V.42bis is active, negotiated at link setup by the data link protocol through

Exchange Identification (XID) negotiation of parameter P0 (compression direction). The value used for XID negotiations can be provisioned by component *GsmIwfV42bisProv* attribute *compressionDirection*. Valid values are:
***none***, No compression is present.
***encode***, The data sent by the IWF to the other entity is compressed.
***decode***, The data received by the IWF from the other entity is compressed.
***both***, The data sent and received by the IWF is compressed.

Values
none
encode
decode
both

Default
No default

### ATTRIBUTE GsmBc V42bis maximumCodewords (p1)

Access
Read: All
Write: Illegal

Description
This attribute indicates the maximum number of codewords in the dictionary negotiated at link setup by the data link protocol by way of the Exchange Identification (XID) negotiation of parameter P1 (number of codewords). The value used for XID negotiations can be provisioned by component *GsmIwfV42bisProv* attribute *maximumCodewords*.

Values
Decimal (0..4096)

Default
No default

### ATTRIBUTE GsmBc V42bis maximumStringSize (p2)

Access
Read: All
Write: Illegal

Description
This attribute indicates the maximum number of characters allowed in a string represented by a codeword negotiated at link setup by the data link protocol by way of the Exchange Identification (XID) negotiation of parameter P2 (maximum string size). The value used for XID negotiations can be

provisioned by component *GsmIwfV42bisProv* attribute *maximumStringSize*.

Values: Decimal (6..250)

Default: No default

### ATTRIBUTE GsmBc V42bis lastDecodeError (lastDecodeErr)

Access: Read: All
Write: Illegal

Description: This attribute indicates last error found by the decoder. Error values are:
***none***, No errors found.
***badStepup***, Receipt of STEPUP (step up codeword size) codeword when it would cause C2 (current code word size) to exceed N1 (maximum code word size).
***codewordEqC1***, Receipt of a codeword, at any time, equal to C1 (next empty dictionary entry).
***emptyCodeword***, Receipt of a codeword representing an empty dictionary entry.
***reservedCommand***, Receipt of a reserved command code.
***generalError***, Receipt of any other error.
The action taken by V.42bis on detecting an error is provisioned by component *GsmIwfV42bis* attribute *actionOnError*.

Values:
none
badStepup
codewordEqC1
emptyCodeword
reservedCommand
generalError

Default: none

### ATTRIBUTE GsmBc V42bis compRatioEncoder

Access: Read: All
Write: Illegal

Description: This attribute indicates the number of uncompressed bytes divided by the number of compressed bytes. A value greater than one means that the data is being compressed. This is the

compression ratio achieved by the V.42bis encoder running on the Passport. This attribute is relevant for both protocol modes transparent and compressed as the encoder switches between the two modes.

Values: Decimal (0.00..300.00)

Default: No default

### ATTRIBUTE GsmBc V42bis compRatioDecoder

Access: Read: All
Write: Illegal

Description: This attribute indicates the number of uncompressed bytes divided by the number of compressed bytes. A value greater than one means that the data is being compressed. This is the compression ratio achieved by the V.42bis encoder at the mobile or Public Switched Telephone Network (PSTN). This attribute is relevant for both protocol modes transparent and compressed as the encoder switches between the two modes.

Values: Decimal (0.00..300.00)

Default: No default

### GROUP GsmBc V42bis Statistics (Stats)

Properties: Operational

Description: This group contains operational attributes that measure the performance of *V.42bis*.

### ATTRIBUTE GsmBc V42bis modeChangesEncode (modeChgEncode)

Access: Read: All
Write: Illegal

Description: This attribute counts the number of mode changes (from transparent to compressed or from compressed to transparent) by the encoder. The counter wraps when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE GsmBc V42bis modeChangesDecode (modeChgDecode)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of mode changes (from transparent to compressed or from compressed to transparent) by the decoder. The mode changes are determined by the encoder at the mobile or the Public Switched Telephone Network (PSTN). The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE GsmBc V42bis resetsEncode

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of resets sent by the encoder. A reset is a command code sent by the encoder to force dictionary reinitialization. The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE GsmBc V42bis resetsDecode

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of resets received by the decoder. A reset is a command code sent by the encoder to force dictionary reinitialization. The resets of the decoder are determined by the encoder at the mobile or Public Switched Telephone Network (PSTN). The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE GsmBc V42bis reInitializations (reInit)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of times V.42bis is reinitialized because of a destructive break (a destructive break is a break that causes data to be discarded) occurring on the error-corrected connection initiatated by either the mobile or Public Switched Telephone Network (PSTN). The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE GsmBc V42bis errorsInDecode (errDecode)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of errors found by the decoder. The errors could be any of the following:<br>1.Receipt of STEPUP (step up codeword size) codeword when it would cause C2 (current code word size) to exceed N1 (maximum code word size).<br>2. Receipt of a codeword, at any time, equal to C1 (next empty dictionary entry).<br>3. Receipt of a codeword representing an empty dictionary entry.<br>4. Receipt of a reserved command code.<br>5. Receipt of any other error.<br>The counter wraps when it exceeds the maximum value.<br>The action taken by V.42bis on detecting any of these errors is provisioned by component *GsmIwfV42bis* attribute *actionOnError*. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT GsmBc Layer2RelayCop (L2RCop)

| | |
|---|---|
| Groups | "GROUP GsmBc L2RCop Operational (Oper)"<br>"GROUP GsmBc L2RCop Statistics (Stats)" |

| | |
|---|---|
| Scope | Application |
| Description | *GsmBc/<trunkGrp>,<cic> Layer2RelayCop*<br>This component represents the group of measurements for the GSM Layer 2 Relay Character Oriented Protocol (L2RCOP) established for a GSM IWF call (on the mobile station to the IWF link) on this particular *GsmIwfBearerChannel*.<br>Note that this component is present only if the current (or most recent call) involved this protocol. |
| Common Verbs | Help<br>List<br>Display |

## GROUP GsmBc L2RCop Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational attributes that measure the performance of *L2RCop*. |

## ATTRIBUTE GsmBc L2RCop flowControlStateTx (flowControlTx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates whether flow control is active in the transmit direction (towards the network side) for Layer2 Relay. |
| Values | active<br>inactive |
| Default | inactive |

## ATTRIBUTE GsmBc L2RCop flowControlStateRx (flowControlRx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates whether flow control is active in the receive direction (towards the mobile) for Layer2 Relay. |
| Values | active<br>inactive |

| | |
|---|---|
| Default | inactive |

### GROUP GsmBc L2RCop Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational attributes that measure the performance of *L2RCop*. |

### ATTRIBUTE GsmBc L2RCop bytesTx

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of data bytes relayed by Layer2 Relay in the transmit direction (towards the network). The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE GsmBc L2RCop bytesRx

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of data bytes relayed by Layer2 Relay in the receive direction (towards the mobile). The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE GsmBc L2RCop breakCountRx (breakRx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of breaks received from the mobile. A break received from the mobile results in the V.42bis function being reset and the break condition forwarded to the network. The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE GsmBc L2RCop breakCountTx (breakTx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of breaks transmitted to the mobile (a break was received from the network). A break received from the network results in the V.42bis function being reset and the break condition forwarded to the mobile. The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT GsmBc UpperRelay

| | |
|---|---|
| Groups | "GROUP GsmBc UpperRelay Operational (Oper)"<br>"GROUP GsmBc UpperRelay Statistics (Stats)" |
| Scope | Application |
| Description | *GsmBc/<trunkGrp>,<cic> UpperRelay*<br>This component represents the group of measurements for the Upper Relay function established for a GSM IWF call (internally between the two *GsmIwfBearerChannel*s involved in a call) from this particular *GsmIwfBearerChannel* perspective.<br>Note that this component is present only if the current (or most recent call) involved this protocol. |
| Common Verbs | Help<br>List<br>Display |

### GROUP GsmBc UpperRelay Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational attributes that measure the performance of the *UpperRelay.* |

### ATTRIBUTE GsmBc UpperRelay bufferSize

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the size of the transmit and receive flow control buffers. |
| Values | Decimal (0..65535) |
| Default | No default |

### ATTRIBUTE GsmBc UpperRelay flowControlStateTx (flowControlTx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates whether the transmit flow control is active or not. |
| Values | active<br>inactive |
| Default | inactive |

### ATTRIBUTE GsmBc UpperRelay flowControlStateRx (flowControlRx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates whether the receive flow control is active or not. |
| Values | active<br>inactive |
| Default | inactive |

### GROUP GsmBc UpperRelay Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational attributes that measure the performance of the *UpperRelay*. |

### ATTRIBUTE GsmBc UpperRelay framesTx

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of frames that are sent in the transmit direction. The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE GsmBc UpperRelay framesRx

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of frames that are sent in the receive direction. The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE GsmBc UpperRelay unacknowledgedFrames (unackFrm)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of current frames sent that have not been acknowledged. |
| Values | Decimal (0..4294967295) |
| Default | No default |

Passport 7400, 15000, 20000

# Component GsmBc

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component GsmCs

241-5701-060

Passport 7400, 15000, 20000

# Component GsmCs

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT GsmIwfCallServer (GsmCs)

| | |
|---|---|
| Instance | Decimal (1..8191) |
| Groups | "GROUP GsmCs Provisioned (Prov)"<br>"GROUP GsmCs CustomerIdentifierData (CidData)"<br>"GROUP GsmCs OsiState (State)"<br>"GROUP GsmCs Statistics (Stats)" |
| Scope | Application |
| Description | *GsmCs/<trunkGrp>*<br>The *GsmIwfCallServer* component represents an instance of a call manager for Global System for Mobile communications (GSM) InterWorking Function (IWF) calls on this node. The *GsmIwfCallServer* provides a mechanism to segregate call resources (*GsmIwfBearerChannels)* and maintenance activities for the *GsmIwfBearerChannels* associated with that *GsmIwfCallServer.* The instance value *trunkGrp* is an external identifier for the trunk group configured at the Mobile Services-switching Center (MSC) connected to this node and associated with this *GsmIwfCallServer* instance.<br><br>This component is specific to the ***gsmIwfCallServer*** feature of the ***wirelessIwf*** application. Refer to NTP 411-5221-520 “GPP Interworking Function Data Guide” for details on its usage. |

| | |
|---|---|
| Subcomponents | "COMPONENT GsmCs RadioLinkProtocol (Rlp)"<br>"COMPONENT GsmCs Fax"<br>"COMPONENT GsmCs V42"<br>"COMPONENT GsmCs V42bis" |
| Opt. Subcomp. | "COMPONENT GsmCs LogicalProcessor (Lp)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP GsmCs Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains general provisioning data for the *GsmIwfCallServer* that does not fit within other provisioning groups. |

## ATTRIBUTE GsmCs commentText

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | Use of this attribute is at the discretion of the system administrator. Typically, this attribute specifies the name of the trunk group at the Mobile Services-switching Center (MSC) configured for this *GsmIwfCallServer* plus any other commentary information. |
| Values | String (0..40, ASCII) |
| Default | "" |

### ATTRIBUTE GsmCs mscIpAddress (ipAddr)

| | |
|---|---|
| Access | Read: All<br>Write: Configuration |
| Description | This attribute specifies the Internetwork Protocol (IP) Address of the Mobile Services-switching Center (MSC) Control Module (CM) that is permitted to set up GSM InterWorking Function (IWF) calls using this *GsmIwfCallServer*. This address must be specified in order for this *GsmIwfCallServer* to provide service. If call setups are attempted from an MSC which does not have this address, those calls are rejected.<br>The *callsRequested* statistic of this *GsmIwfCallServer* is incremented, but the *callsSetup* statistic of this *GsmIwfCallServer* is not, when call setup attempts are rejected. Also, at the MSC, appropriate call failure logs are generated. |
| Values | IP address |
| Default | 0.0.0.0 |

### ATTRIBUTE GsmCs virtualRouterName (vr)

| | |
|---|---|
| Access | Read: All<br>Write: Configuration |
| Criticality | Component |
| Description | This attribute specifies the *VirtualRouter* that this *GsmIwfCallServer* uses to transmit signaling messages to and receive signaling messages from the Mobile Services-switching Center (MSC) that utilizes this *GsmIwfCallServer*. |
| Values | The name of the component |
| Default | No default |

### ATTRIBUTE GsmCs voiceLaw (encoding)

| | |
|---|---|
| Access | Read: All<br>Write: Configuration |
| Description | This attribute specifies the voice law to be established for the IWF to Public Switched Telephone Network (PSTN) modem link for calls established by this *GsmIwfCallServer*. Valid values are: |

***aLaw***, a protocol for encoding voice-band audio, Pulse Code Modulation (PCM).
***muLaw***, a protocol for encoding voice-band audio, PCM.

Note that this value must match the voice law used at the Mobile Services-switching Center (MSC) connected to this *GsmIwfCallServer.*

Values: aLaw, muLaw

Default: aLaw

## GROUP GsmCs CustomerIdentifierData (CidData)

Properties: Provisioned

Description: This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs.

## ATTRIBUTE GsmCs customerIdentifier (cid)

Access: Read and write

Description: This attribute holds the Customer Identifier (CID).

Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.

Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.

An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to "basic CIDs" in DPN) may be assigned to specific customers.

Values: Decimal (0; 1..8191)

Default 0

### GROUP GsmCs OsiState (State)

Properties Operational

Description This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE GsmCs adminState (osiAdmin)

Access Read only

Description This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default unlocked

### ATTRIBUTE GsmCs operationalState (osiOper)

Access Read only

| | |
|---|---|
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE GsmCs usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP GsmCs Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational attributes that measure the performance of this particular *GsmIwfCallServer.* |

### ATTRIBUTE GsmCs currentCalls (currCall)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of active calls currently serviced by this particular *GsmIwfCallServer.* |
| Values | Decimal (0..2047) |
| Default | 0 |

### ATTRIBUTE GsmCs callsRequested (callsReq)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of IWF call setup requests received at this particular *GsmIwfCallServer* from the Mobile Services-switching Center (MSC). The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE GsmCs callsSetup (callsSet)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of IWF calls successfully setup by this particular *GsmIwfCallServer.* A call is considered setup when the IWF-Setup-Request message is received, indicating a request for a data communications service, and the IWF has successfully allocated the necessary resources to fulfill the request. The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE GsmCs callsActivated (callsAct)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the number of IWF calls successfully activated by this particular *GsmIwfCallServer.* A call is considered activated when the IWF receives an IWF-Activate-Request, indicating that the call parties are connected and that data communications must begin. The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE GsmCs callsReleasedNormal (callsRlsdNor)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of IWF calls that have completed successfully on this particular *GsmIwfCallServer.* The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE GsmCs callsReleasedAbnormal (callsRlsdAbnor)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of IWF calls that have been released due to error conditions at this particular *GsmIwfCallServer* or one if its *GsmIwfBearerChannel*s. The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE GsmCs channelConfigChanges (chanConfig)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of channel configuration requests from the Mobile-services Switching Center (MSC) that have been received at this *GsmIwfCallServer* and have resulted in |

| | |
|---|---|
| | successful responses. The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE GsmCs channelModeModifyRequests (cmm)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of channel mode modify requests that have been generated by fax calls serviced by this particular *GsmIwfCallServer*. The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE GsmCs statusMessagesRx (statusMsgRx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of status messages received from the Mobile Services-switching Center (MSC). The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE GsmCs erroredMipFrames (errMipFrm)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of MSC/IWF Interface Protocol (MIP) messages received from the Mobile Services-switching Center (MSC) that were in error. The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

## COMPONENT GsmCs RadioLinkProtocol (Rlp)

| | |
|---|---|
| Instance | half6kRate (half6k)<br>full6kRate (full6k)<br>full12kRate (full12k)<br>full14k5Rate (full14k5) |
| Groups | "GROUP GsmCs Rlp Provisioned (Prov)" |
| Scope | Application |
| Description | *GsmCs/<trunkGrp> RadioLinkProtocol/<radio-channel-type>*<br>This component represents a group of Radio Link Protocol (RLP) instances, indexed by radio channel type. Valid radio channel types are:<br><br>***half6kRate***, Half rate channel at 6 kbit/s.<br>***full6kRate***, Full rate channel at 6 kbit/s.<br>***full12kRate***, Full rate channel at 12 kbit/s.<br>***full14k5Rate***, Full rate channel at 14.5 kbit/s.<br><br>Many RLP attributes are dependent on the frame rate and frame size, that is dictated by the radio channel type. When a *GsmIwfCallServer* is added, a *RadioLinkProtocol* instance is added automatically for each possible instance value. The attributes are set to default values, dependent on the radio channel type of the component instance. |
| Common Verbs | Help<br>List<br>Display |

## GROUP GsmCs Rlp Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisionable attributes for the Radio Link Protocol (RLP) parameters used for the call set up by this particular *GsmIwfCallServer*. Changes to these attributes do not effect existing calls. |

### ATTRIBUTE GsmCs Rlp highestVersion (highVer)

| | |
|---|---|
| Access | Read: All<br>Write: Service |
| Description | This attribute specifies the highest version of the Radio Link Protocol (RLP) protocol supported on this *GsmIwfCallServer.*<br>Valid values are:<br>***0***, Single-link basic version.<br>***1***, Single-link extended version (for example, extended by data compression).<br>During the Exchange Information (XID) negotiation at the start of the call, both RLP entities (mobile station and IWF) can agree to use a particular RLP version. The IWF attempts to negotiate the value specified by this attribute.<br>Note that if V.42bis data compression is be established between the mobile station and IWF, both entities must agree to use version 1 (or higher).<br>The default value for *highestVersion* is 1 to enable support for V.42bis data compression. The negotiated value can be viewed in the component *GsmIwfRlpOp* attribute *highestVersion*.<br>Changes to this attribute do not effect existing calls. |
| Values | Decimal (0..1) |
| Default | 1 |

### ATTRIBUTE GsmCs Rlp iwfToMsWindowSize (iwfMsWs)

| | |
|---|---|
| Access | Read: All<br>Write: Service |
| Description | This attribute specifies the maximum number of sequentially numbered Information (I) frames that may be outstanding (that is, unacknowledged) at any given time from the IWF to the mobile station. GSM specification 4.22 defines the range as 0 to 61.<br>During the Exchange Information (XID) negotiation, both Radio Link Protocol (RLP) entities (mobile station and IWF) can agree to use a specific window size. The IWF attempts to negotiate to the value specified by this attribute.<br>The negotiated value can be viewed in the component *GsmIwfRlpOp* attribute *iwfToMsWindowSize.*<br>Changes to this attribute do not effect existing calls. |

| | |
|---|---|
| Values | Decimal (0..61) |
| Default | 61 |

### ATTRIBUTE GsmCs Rlp msToIwfWindowSize (msIwfWs)

| | |
|---|---|
| Access | Read: All<br>Write: Service |
| Description | This attribute specifies the maximum number of sequentially numbered Information (I) frames that may be outstanding (that is, unacknowledged) at any given time from the mobile station to IWF.<br>GSM specification 4.22 defines the range as 0-61.<br>During the Exchange Information (XID) negotiation, both Radio Link Protocol (RLP) entities (mobile station and IWF) can agree to use a specific window size. The IWF attempts to negotiate to the value specified by this attribute.<br>The negotiated value can be viewed in the component GsmIwf*RlpOp* attribute *msToIwfWindowSize*. Changes to this attribute do not effect existing calls. |
| Values | Decimal (0..61) |
| Default | 61 |

### ATTRIBUTE GsmCs Rlp t1AckTimer (t1)

| | |
|---|---|
| Access | Read: All<br>Write: Service |
| Description | This attribute specifies the time in milliseconds within which an acknowledgment of a sent frame must be received. Once this timer expires, the transmitting Radio Link Protocol (RLP) entity shall assume that the frame was lost.<br>During the Exchange Information (XID) negotiation, both RLP entities (mobile station and IWF) can agree to use specific value for this timer (T1). The IWF attempts to negotiate to the value specified by this attribute.<br>The default value for *t1AckTimer* is 520 msec for the ***full14k5Rate*** instance of this component, 480 msec for ***full12kRate,*** 540 msec for ***full6kRate***, and 780 msec for ***half6kRate***. The negotiated value can be viewed in the |

component *GsmIwfRlpOp* attribute *t1AckTimer*.
Changes to this attribute do not effect existing calls.

Values: Decimal (380..1020)

Units: msec

Default: No default

### ATTRIBUTE GsmCs Rlp t2AckDelayTimer (t2)

Access: Read: All
Write: Service

Description: This attribute specifies the maximum time in milliseconds the receiving Radio Link Protocol (RLP) entity shall wait before sending an acknowledgment for a received information frame. During the Exchange Information (XID) negotiation, both RLP entities (mobile station and IWF) can agree to use specific value for this timer (T2). The IWF attempts to negotiate to the value specified by this attribute.
The negotiated value can be viewed in the component *GsmIwfRlpOp* attribute *t2AckDelayTimer.*
Changes to this attribute do not effect existing calls.

Values: Decimal (10..79)

Units: msec

Default: 50

### ATTRIBUTE GsmCs Rlp n2RetransmitCount (n2)

Access: Read: All
Write: Service

Description: This attribute specifies the maximum number of times a Radio Link Protocol (RLP) entity shall retransmit an individual frame following the expiry of timer T1.

During the Exchange Information (XID) negotiation, both RLP entities (mobile station and InterWorking Function (IWF)) can agree to use specific value for N2 (Retransmit Count). The IWF attempts to negotiate to the value specified by this attribute.
The negotiated value can be viewed in the component

| | |
|---|---|
| | *GsmIwfRlpOp* attribute *n2RetransmitCount*.<br>Changes to this attribute do not effect existing calls. |
| Values | Decimal (1..255) |
| Default | 6 |

### COMPONENT GsmCs Fax

| | |
|---|---|
| Groups | "GROUP GsmCs Fax Provisioned (Prov)" |
| Scope | Application |
| Description | *GsmCs/<trunkGrp> Fax*<br>This component represents a group of fax provisioning attributes. These attributes specify various default settings for aspects of the fax protocol, which may be used for a GSM IWF call. |
| Common Verbs | Help<br>List<br>Display |

### GROUP GsmCs Fax Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the fascimile protocol (T.30 and GSM 03.45) for this particular *GsmIwfCallServer*. Changes to these attributes do not effect existing calls. |

### ATTRIBUTE GsmCs Fax t1CalledToneTimer (t1)

| | |
|---|---|
| Access | Read: All<br>Write: Configuration |
| Description | This attribute specifies the delay to generate a Called (CED) tone at the IWF after the called station is connected to the line for mobile terminated calls. Changes to this attribute do not effect existing calls. |
| Values | Decimal (1.50..3.00) |
| Units | seconds |

| | |
|---|---|
| Default | 1.80 |

## COMPONENT GsmCs V42

| | |
|---|---|
| Groups | "GROUP GsmCs V42 Provisioned (Prov)" |
| Scope | Application |
| Description | *GsmCs/<trunkGrp> V42*<br>This component represents a group of ITU-T V.42 error correcting data link protocol provisioning attributes. These attributes specify various default settings for aspects of the V.42 protocol, that may be used for a GSM IWF call for the IWF to Public Switched Telephone Network (PSTN) modem link. |
| Common Verbs | Help<br>List<br>Display |

## GROUP GsmCs V42 Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the V.42 protocol for this particular *GsmIwfCallServer*. Changes to these attributes do not effect existing calls. |

## ATTRIBUTE GsmCs V42 t400DetectTimer (t400)

| | |
|---|---|
| Access | Read: All<br>Write: Service |
| Description | This attribute specifies the maximum amount of time that the IWF waits for an Originator Detection Pattern (ODP) or Answerer Detection Pattern (ADP). ODP/ADP is a series of special bit patterns used during the call setup procedures.<br>If the IWF is the Originator of the call, it starts sending ODP patterns and waits for an ADP for the duration of T400 milliseconds from the answerer at call setup time.<br>If the IWF is the Answerer of the call, it waits for an ODP for T400 seconds from the originator and if it receives during that time it sends an ADP pattern to the originator at the call setup time. Since both sides operate with different values of T400 |

timer, a higher value increases the chance of a successful call setup.
Changes to this attribute do not effect existing calls.

Values: Decimal (0.75..2.54)

Units: seconds

Default: 2.00

### ATTRIBUTE GsmCs V42 t401AckTimer (t401)

Access: Read: All
Write: Service

Description: This attribute specifies the maximum amount of time that the IWF waits for an acknowledgment before retransmitting a frame. Since information about the T401 timer is not carried in the Exchange Identification (XID) negotiations at call setup time, both sides operate with different timer values. The value for T401 depends on many factors, such as propagation delay or frame processing time. A frame is retransmitted up to N400 times if the timer T401 expires before an acknowledgment for a frame is actually received. The performance of the data link layer can be impacted by the value of this timer as retransmissions of frames occur on expiry of timer T401.
Changes to this attribute do not effect existing calls.

Values: Decimal (0.50..9.00)

Units: seconds

Default: 4.00

### ATTRIBUTE GsmCs V42 t402AckDelayTimer (t402)

Access: Read: All
Write: Service

Description: This attribute specifies the maximum amount of time that the IWF may wait following the receipt of any frame requiring a reply before it initiates transmission of an appropriate reply in order to ensure that the reply frame is received by the remote error-correcting entity prior to expiration of the T401 timer of the remote error-correcting entity. Since information about the T402

timer is not carried in the Exchange Identification (XID) negotiations at call setup, both sides operate with different timer values. If this timer expires, then the reply that would have been returned prior to its expiration is not sent. The performance of the data link layer can be impacted by the value of this timer as retransmissions of frames occur on expiry of timer T401. For better performance, a value of *t402AckDelayTimer* (T402) equal to half the value of *t401AckTimer* (T401) is recommended. Changes to this attribute do not effect existing calls.

Values: Decimal (0.25..4.50)

Units: seconds

Default: 2.00

### ATTRIBUTE GsmCs V42 t403IdleProbeTimer (t403)

Access: Read: All
Write: Service

Description: This attribute specifies the maximum amount of time that the IWF allows to elapse without frames being exchanged. The link is permitted to remain idle with no frames being exchanged on the data link. Upon expiry of this timer, the IWF polls its peer for status. Since information about the T403 timer is not carried in the Exchange Identification (XID) negotiations at call setup time, both sides operate with different timer values.
Changes to this attribute do not effect existing calls.

Values: Decimal (30..90)

Units: seconds

Default: 60

### ATTRIBUTE GsmCs V42 txN401FrameSize (txN401)

Access: Read: All
Write: Service

Description: This attribute specifies the maximum number of octets that can be carried in the information field of an Information (I) frame, Exchange Identification (XID) frame, and a Unnumbered Information (UI) frame from the IWF to the remote entity. The

default value is 128 octets, and no XID negotiations required for *txN401FrameSize*. If the value for *txN401FrameSize* value is set to other than 128 octets, then XID frames are exchanged to negotiate a value. The value provided for *txN401FrameSize* sets up the bounds during XID negotiations. The IWF performs XID negotiations with this value as a minimum or maximum value. If a value greater than 128 is specified, then the IWF negotiates or attempts to negotiate a value between the 128 (as a minimum) and the given value (as a maximum). If a value less than 128 is specified, then the IWF attempts to negotiate a value between the given value (as a minimum) and 128 (as a maximum). Any value can be specified as long as it is within the provisionable limits. However, a value equal to or close to 128 is recommended. The negotiated value can be viewed in the component *GsmIwfV42Op* attribute *txN401FrameSize*. Changes to this attribute do not effect existing calls.

Values: Decimal (1..255)

Units: octets

Default: 128

### ATTRIBUTE GsmCs V42 rxN401FrameSize (rxN401)

Access: Read: All
Write: Service

Description: This attribute specifies the maximum number of octets that can be carried in the information field of an Information (I) frame, Exchange Identification (XID) frame, and a Unnumbered Information (UI) frame from the remote entity to the IWF. The default value is 128 octets, and no XID negotiations are required for *rxN401FrameSize*. If the value set for *rxN401FrameSize* is other than 128, XID frames are exchanged to negotiate a value. The value provided for *rxN401FrameSize* sets up the bounds during XID negotiations. The IWF performs XID negotiations with this value as a minimum or maximum value. If a value greater than 128 is specified, then the IWF attempts to negotiate for a value between 128 (as a minimum) and the given value (as a maximum). If a value less than 128 value is specified, then the IWF attempts to negotiate for a value between the given value (as a minimum) and 128 (as a maximum). Any value can be specified

| | |
|---|---|
| | as long as it is within the provisionable limits. However, a value equal to or close to the default is recommended.<br>The negotiated value can be viewed in the component *GsmIwfV42Op* attribute *rxN401FrameSize*. Changes to this attribute do not effect existing calls. |
| Values | Decimal (1..255) |
| Units | octets |
| Default | 128 |

### ATTRIBUTE GsmCs V42 txKwindowSize (txK)

| | |
|---|---|
| Access | Read: All<br>Write: Service |
| Description | This attribute specifies the maximum number of outstanding unacknowledged sequenced Information (I) frames from the IWF to the remote entity. The default value is 15 frames, and if this value is used then no Exchange Identification (XID) negotiations are required for *txKwindowSize*. If the value set for *txKwindowSize* is other than 15, then XID frames are exchanged to negotiate a value. The value provided for *txKwindowSize* sets up the bounds during XID negotiations. The IWF performs XID negotiations with this value as a minimum or maximum value. If a value greater than 15 is specified, then the IWF attempts to negotiate a value between 15 (as a minimum) and the given value (as a maximum). If a value less than 15 is specified, then the IWF attempts to negotiate for a value between the given value (as a minimum) and 15 (as a maximum). Any value can be specified as long at it is within the provisionable limits. However, a value equal to or close to the default is recommended.<br>The negotiated value can be viewed in the component *GsmIwfV42Op* attribute *txKwindowSize*. Changes to this attribute do not effect existing calls. |
| Values | Decimal (1..255) |
| Default | 15 |

### ATTRIBUTE GsmCs V42 rxKwindowSize (rxK)

| | |
|---|---|
| Access | Read: All<br>Write: Service |
| Description | This attribute specifies the maximum number of outstanding unacknowledged sequenced Information (I) frames from the remote entity to the IWF. The default value is 15 frames, and if this value is used then no Exchange Identification (XID) negotiations are required for *rxKwindowSize*. If the value set for rxKwindowSize is other than 15, then XID frames are exchanged to negotiate a value. The value provided for *rxKwindowSize* sets up the bounds during XID negotiations. The IWF performs XID negotiations with this value as a minimum or maximum value. If a value greater than 15 is specified, then the IWF attempts to negotiate a value between 15 (as a minimum) and the given value (as a maximum). If a value less than 15 is specified, then the IWF attempts to negotiate for a value between the given value (as a minimum) and 15 (as a maximum). Any value can be specified as long as it is within the provisionable limits. However, a value equal to or close to the default is recommended.<br>The negotiated value can be viewed in the component *GsmIwfV42Op* attribute *rxKwindowSize*. Changes to this attribute do not effect existing calls. |
| Values | Decimal (1..255) |
| Default | 15 |

### ATTRIBUTE GsmCs V42 n400RetransLimit (n400)

| | |
|---|---|
| Access | Read: All<br>Write: Service |
| Description | This attribute specifies the maximum number of times the IWF retransmits a frame upon expiry of *t401AckTimer* before appropriate recovery action is taken. Information about N400 (Retransmission Limit) is not carried in the Exchange Identification (XID) negotiation at call setup time so both sides operate with different N400 values.<br>Changes to this attribute do not effect existing calls. |
| Values | Decimal (0..255) |

Default 10

## COMPONENT GsmCs V42bis

Groups "GROUP GsmCs V42bis Provisioned (Prov)"

Scope Application

Description *GsmCs/<trunkGrp> V42bis*
This component represents a group of ITU-T V.42bis data compression protocol provisioning attributes. These attributes specify various default settings for aspects of the V.42bis protocol, which may be used in a GSM IWF call on the mobile station to IWF link and/or the IWF to Public Switched Telephone Network (PSTN) modem link.

Common Verbs
Help
List
Display

## GROUP GsmCs V42bis Provisioned (Prov)

Properties Provisioned

Description This group contains the provisionable attributes for the V.42bis data compression protocol parameters used for the calls set up by this particular *GsmIwfCallServer*. Changes to these attributes do not effect existing calls.

## ATTRIBUTE GsmCs V42bis compressionDirection (p0)

Access Read: All
Write: Service

Description This attribute specifies the V.42bis data compression direction to be supported. The value for compression direction is negotiated at link setup by the data link protocol by way of the Exchange Identification (XID) negotiation of parameter P0 (compression direction).
During XID negotiation of parameter P0, both sides (IWF and mobile or IWF and Public Switched Telephone Network (PSTN)) agree on the compression direction.
Valid values are:

***none***, No compression is present.
***encode***, The data sent by the IWF to the other entity is compressed.
***decode***, The data received by the IWF from the other entity is compressed.
***both***, The data sent and received by the IWF is compressed.
The negotiated value can be viewed in the component GsmIwf*V42bisOp* attribute *compressionDirection*. Changes to this attribute do not effect existing calls.

Values
none
encode
decode
both

Default
both

### ATTRIBUTE GsmCs V42bis maximumCodewords (p1)

Access
Read: All
Write: Service

Description
This attribute specifies the maximum number of V.42bis codewords the IWF supports. A codeword is a binary number that represents a string of characters in compressed form. V.42bis keeps a dictionary of codewords for each compression direction. During Exchange Identification (XID) negotiation of parameter P1 (number of codewords), both sides (IWF and mobile or IWF and Public Switched Telephone Network (PSTN)) agree on the total number of codewords in the dictionaries. Changes to this attribute impact the compression ratio for the encoder (component *GsmV42BisOp* attribute *compRatioEncoder*). Changes also impact the amount of memory used (more memory is used when increasing the attribute). The gain in performance obtained from the selection of a larger dictionary may be offset by the larger codeword size needed, and for certain types of data, better performance may be obtained by using a smaller dictionary.
The negotiated value can be viewed in the component GsmIwf*V42bisOp* attribute *maximumCodewords* . Changes to this attribute do not effect existing calls.

Values
Decimal (512; 1024; 2048; 4096)

Default 2048

### ATTRIBUTE GsmCs V42bis maximumStringSize (p2)

Access
Read: All
Write: Service

Description
This attribute specifies the maximum number of characters allowed in a string represented by a codeword that the IWF supports. Each codeword in a V.42bis dictionary represents a string of characters. During Exchange Identification (XID) negotiation of parameter P2 (maximum string size), both sides (IWF and mobile or IWF and Public Switched Telephone Network (PSTN)) agree on the maximum string length to be used in the dictionaries. Changes to this attribute impact the compression ratio for the encoder (component *GsmIwfV42bisOp* attribute *compRatioEncoder*).
The negotiated value can be viewed in the component GsmIwf*V42bisOp* attribute *maximumStringSize*. Changes to this attribute do not effect existing calls.

Values Decimal (6..250)

Default 20

### ATTRIBUTE GsmCs V42bis actionOnError (actOnErr)

Access
Read: All
Write: Service

Description
This attribute specifies whether or not V.42bis takes down the call or resets the link when any of the following errors occur:
1.Receipt of STEPUP (step up codeword size) codeword when it would cause C2 (current code word size) to exceed N1 (maximum code word size).
2. Receipt of a codeword, at any time, equal to C1 (next empty dictionary entry).
3. Receipt of a codeword representing an empty dictionary entry.
4. Receipt of a reserved command code.
5. Receipt of any other error.
If the value is ***resetLink***, the error corrected connection and V.42bis dictionaries are reset. Some data is lost but the call

continues. If the value is ***takeDownCall***, the call is taken down. Changes to this attribute do not effect existing calls.

Values
resetLink
takeDownCall

Default
resetLink

## COMPONENT GsmCs LogicalProcessor (Lp)

Instance
Decimal (0..15)

Groups
"GROUP GsmCs Lp Operational (Oper)"

Scope
Application

Description
*GsmCs/<trunkGrp> LogicalProcessor/n*
The *LogicalProcessor* component represents a logical processor that may be linked to this *GsmIwfCallServer.* A *GsmIwfBearerChannel* is indirectly linked to this *LogicalProcessor* by way of the *Framer component.* This component must be added to the *GsmIwfCallServer* (and the change activated) prior to adding the *GsmIwfBearerChannel*s.

Common Verbs
Help
List
Display
Add
DELete

## GROUP GsmCs Lp Operational (Oper)

Properties
Operational

Description
This group contains operational attributes pertaining to information about *GsmIwfBearerChannels* and logical processors associated with a *GsmIwfCallServer* from a high-level view.

## ATTRIBUTE GsmCs Lp configuredBearerChannels (configBc)

Access
Read: All
Write: Illegal

| | |
|---|---|
| Description | This attribute indicates the number of *GsmIwfBearerChannel* components provisioned for the Logical Processor represented by this component. |
| Values | Decimal (0..124) |
| Default | No default |

### ATTRIBUTE GsmCs Lp activeCalls (actCalls)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of *GsmIwfBearerChannel* components currently active on this *LogicalProcessor*. |
| Values | Decimal (0..124) |
| Default | No default |

### ATTRIBUTE GsmCs Lp assignedCapacity (assgnCap)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates what percentage (0 to 100%) of a given *LogicalProcessor* has been reserved for the data calls which are currently active. When the *assignedCapacity* reaches 100%, no new calls are established on the given *LogicalProcessor*. During the life of a call, the compute requirements will vary. The compute capacity required for a given call type depends on the type of call established including such factors as connection type, data compression, user rate, error correction, flow control; therefore, at call establishment the compute capacity is added to the *assignedCapacity* for a *LogicalProcessor*. When the call is released, it's compute capacity is subtracted from the assigned capacity for the Lp.The *GsmIwfCallServer* uses this information to balance the distribution of data calls across the logical processors. |
| Values | Decimal (0..100) |
| Default | No default |

## ATTRIBUTE GsmCs Lp modemsSupported (modemSup)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates if modems are supported with this *LogicalProcessor.* |
| Values | yes<br>no |
| Default | No default |

Passport 7400, 15000, 20000

# Component GsmCs

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component Hg

241-5701-060

Passport 7400, 15000, 20000

# Component Hg

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT HuntGroup (Hg)

| | |
|---|---|
| Instance | Decimal (1..65535) |
| Groups | "GROUP Hg CustomerIdentifierData (CidData)"<br>"GROUP Hg NsapAddress"<br>"GROUP Hg Provisioned (Prov)"<br>"GROUP Hg OsiState (State)"<br>"GROUP Hg Operational" |
| Scope | Application |
| Description | *HuntGroup/n*<br>The *HuntGroup* component provides a hunt group capability for switched calls (SVCs).<br>A hunt group is a single DNA used to represent a group of service DNAs. A customer calling the DNA of the hunt group receives the benefits of higher capacity and availability as calls are spread across several lines. |
| Subcomponents | "COMPONENT Hg HuntGroupMember (HgM)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP Hg CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |

| | |
|---|---|
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

### ATTRIBUTE Hg customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.<br><br>Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.<br><br>An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to "basic CIDs" in DPN) may be assigned to specific customers. |
| Values | Decimal (0; 1..8191) |
| Default | 0 |

### GROUP Hg NsapAddress

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains attributes common to all NSAP format addresses. |

### ATTRIBUTE Hg address

| | |
|---|---|
| Access | Read and write |
| Description | The *address* attribute specifies the numbering plan and digits which form a unique DNA identifier of the hunt group. The format of the *address* attribute is <numberingPlan>.<digits> |

| | |
|---|---|
| | where numbering plan is x for X.121 and e for E.164. An example X.121 address is x.12345678. |
| Values | String (1..17, NativeAddressWith15DigitX121) |
| Default | No default |

### GROUP Hg Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | The *Provisioned* group contains the provisioned attributes of the hunt group. |

### ATTRIBUTE Hg logicalProcessor (lp)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the logical processor on which the hunt group process will execute. The *Lp/n Eng Hgs* component contains statistics for all hunt groups on the LP. |
| Values | Link (Hardware, linkToApplications) |
| Default | No default |

### ATTRIBUTE Hg selectionPolicy

| | |
|---|---|
| Access | Read and write |
| Description | The *selectionPolicy* attribute specifies the algorithm used to select a hunt group member.<br><br>A value of ***startFromZero*** means that on a new call, the first available member starting from the member with the lowest instance value is selected. Subsequent hunts for the same call select the first available member starting from the previously chosen member. This algorithm is used when it is desirable to have the first member receive the majority of the calls and subsequent members only receive calls in overflow situations.<br><br>A value of ***rotary*** means that on a new call, the first available member is selected starting from the member which received the |

last new call. Subsequent hunts for the same call select the first available member starting from the previously chosen member. This algorithm is used when it is desirable to loadspread the calls equally across the members.

A value of ***mostAvailable*** means that on a new call, the most available member is selected based on the availability information received from the member. Subsequent hunts for the same call select the most available member starting from the previously chosen member. This algorithm is used when it is desirable to send each call to the member which has the highest probability of connecting it.

Values: startFromZero
rotary
mostAvailable

Default: mostAvailable

### ATTRIBUTE Hg maxHuntAttempts

Access: Read and write

Description: The *maxHuntAttempts* attribute specifies the maximum attempts allowed to hunt the call. Hunting ceases if either this maximum is exceeded or the member list is exhausted.

Values: Decimal (1..63)

Default: 63

### ATTRIBUTE Hg appendSuffixDigits

Access: Read and write

Description: The *appendSuffixDigits* attribute specifies how suffix called address digits are handled. Suffix called address digits are any trailing digits, signalled in a call, beyond the provisioned hunt group *address*. If this attribute is set to ***yes***, suffix digits are appended to the member *address* before the call is forwarded to the member. If it is set to ***no***, suffix digits are not appended to the member *address*.

| | |
|---|---|
| Values | no<br>yes |
| Default | yes |

### GROUP Hg OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Hg adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

## ATTRIBUTE Hg operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

## ATTRIBUTE Hg usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

## GROUP Hg Operational

| | |
|---|---|
| Properties | Operational |
| Description | The *Operational* group contains the operational attributes of the hunt group. |

## ATTRIBUTE Hg huntAttempts

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of hunt attempts made by the hunt group. The count includes both initial and subsequent hunt attempts. This count is contained within the *huntAttempts* attribute of the *Lp/n Eng Hgs* component. This counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## ATTRIBUTE Hg failedCalls

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of calls which could not be connected by any of the hunt group members. This could occur if the hunt group is locked or has exhausted its member list. If a call cannot be connected by the hunt group it is sent to call redirection. This counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## ATTRIBUTE Hg initialHuntAttempts

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of new (non-hunted) calls received by the hunt group which are forwarded to a member. This counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE Hg availabilityUpdates

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of availability update packets received by the hunt group from its members. This counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Hg maxAddrLenExceeded

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times a member could not be selected to receive a call with suffix address digits because its DNA length would exceed the maximum of 14 digits with the suffix digits appended. This counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Hg badPackets

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of unrecognizable packets received by the hunt group and discarded. This counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT Hg HuntGroupMember (HgM)

| | |
|---|---|
| Instance | Decimal (1..63) |
| Groups | "GROUP Hg HgM Provisioned (Prov)"<br>"GROUP Hg HgM OsiState (State)"<br>"GROUP Hg HgM Operational" |

| | |
|---|---|
| Scope | Application |
| Description | *Hg/n HuntGroupMember/n*<br>The *HuntGroupMember* component defines an instance of a hunt group member. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

### GROUP Hg HgM Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | The *Provisioned* group contains the provisioned attributes of the hunt group member. |

### ATTRIBUTE Hg HgM address

| | |
|---|---|
| Access | Read and write |
| Description | The *address* attribute specifies the numbering plan and digits which form a unique DNA identifier of the hunt group member. The format of the *address* attribute is <numberingPlan>.<digits> where numbering plan is x for X.121 and e for E.164. An example X.121 address is x.12345678. |
| Values | String (1..17, NativeAddressWith15DigitX121) |
| Default | No default |

### GROUP Hg HgM OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component |

which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Hg HgM adminState (osiAdmin)

Access: Read only

Description: This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values: locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default: unlocked

### ATTRIBUTE Hg HgM operationalState (osiOper)

Access: Read only

Description: This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the

component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Hg HgM usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Hg HgM Operational

Properties
Operational

Description
The *Operational* group defines operational attributes associated with the *HuntGroupMember* component.

### ATTRIBUTE Hg HgM availability

Access
Read and write

Description
This attribute indicates the current availability of the member. The higher the value, the more available the member is perceived to be. A value of ***0*** indicates the member is unavailable.

A member must be considered ‘available’ by the hunt group in

order to receive a call, regardless of the selection policy in use. The hunt group members report whether or not they are available to receive calls to the hunt group. Some services base their availability on unused logical channels, others on bandwidth or memory capacity.

During initialization, the hunt group assumes all of its members are equally available and sets their *availability* value to the maximum of ***4095***. Similarly, a new hunt group member added to an existing hunt group has its *availability* value initialized to ***4095***. This ensures that members which have not reported their availability to the hunt group are tried in order to trigger the member to report its true availability.

The *availability* of a member can change in the following ways:
- Hunt group members can report their availability to the hunt group using a DPRS availability packet.
- A network operator can temporarily change the value by the *Set* command. This change remains in effect until changed again by any of these ways.
- The hunt group resets a member's *availability* to the maximum of ***4095*** if it has been ***0*** for at least 2.5 hours. This ensures that 'lost' availability information does not prevent a member from returning to service.

Values: Decimal (0..4095)

Default: 4095

### ATTRIBUTE Hg HgM availabilityUpdates

Access: Read only

Description: This attribute counts the number of availability update packets received by the hunt group member. This counter wraps to 0 when it exceeds its maximum value.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE Hg HgM callsRefused

Access: Read only

| | |
|---|---|
| Description | This attribute counts the number of call packets which were returned to the hunt group by the member because it could not connect the call. If this counter increments frequently, it could indicate a problem with the member's reporting of its availability to the hunt group or an incompatibility in the call options. This counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

Passport 7400, 15000, 20000

# Component Hg

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component HlrSim

241-5701-060

Passport 7400, 15000, 20000

# Component HlrSim

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT HlrSimulator (HlrSim)

| | |
|---|---|
| Groups | "GROUP HlrSim Operational (Oper)" |
| Scope | Application |
| Description | *HlrSimulator*<br><br>This component represents a sub-set of the Home Location Register (HLR) functionality. *HlrSim* is used to simulate the HLR to communicate the provisioned subscriber data to the *MapClient* processes (defined in *GprsSubscriberControl*). The *HlrSim* and all its subcomponents are to be used by Nortel Networks personnel. This is not a supported customer HLR tool. |
| Opt. Subcomp. | "COMPONENT HlrSim Subscriber (Subs)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP HlrSim Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational attributes of the *HlrSim* component. |

## ATTRIBUTE HlrSim currentActiveSubscribers (curActSubs)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the active subscribers that are currently supported by the HlrSim. |
| Values | Decimal (0..1000) |
| Default | No default |

## ATTRIBUTE HlrSim totalSubscribers (totSubs)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the total subscribers that are currently supported by the HlrSim. |
| Values | Decimal (0..1000) |
| Default | No default |

## COMPONENT HlrSim Subscriber (Subs)

| | |
|---|---|
| Instance | BCD (5..15) |
| Scope | Application |
| Description | *HlrSim Subscriber/<imsi>*<br><br>This component represents the GPRS subscription and authentication information of a single subscriber. The instance value is the International Mobile Subscriber Identity (IMSI) for a Mobile Station (MS). |

| | |
|---|---|
| Opt. Subcomp. | "COMPONENT HlrSim Subs AuthenticationTriplet (AuthTrip)"<br>"COMPONENT HlrSim Subs PdpContext (PdpC)"<br>"COMPONENT HlrSim Subs AuthenticationQuintet (AuthQuint)"<br>"COMPONENT HlrSim Subs CamelSubscriberInformation (Csi)"<br>"COMPONENT HlrSim Subs LcsTermination (LcsTerm)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## COMPONENT HlrSim Subs AuthenticationTriplet (AuthTrip)

| | |
|---|---|
| Instance | Decimal (1..3) |
| Scope | Application |
| Description | *HlrSim Subs/<imsi> AuthenticationTriplet/n*<br><br>This component represents an authentication triplet to be used by the Serving GPRS Support Node (SGSN) for subscriber authentication. The authentication triplet is sent by the *HlrSim* in response to the MAP-SEND AUTHENTICATION INFORMATION (SAI) request from the SGSN.<br><br>The *mobileStationType* attribute in the *HlrSim Subscriber* component must be set to ***r97*** when this component is provisioned. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## COMPONENT HlrSim Subs PdpContext (PdpC)

| | |
|---|---|
| Instance | Decimal (1..3) |
| Scope | Application |
| Description | *HlrSim Subs/<imsi> PdpContext/n*<br><br>This component represents the Packet Data Protocol (PDP) context information of the subscriber. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## COMPONENT HlrSim Subs AuthenticationQuintet (AuthQuint)

| | |
|---|---|
| Instance | Decimal (1..3) |
| Scope | Application |
| Description | *HlrSim Subs/<imsi> AuthenticationQuintet/n*<br>This component represents the authentication quintets to be used by the UMTS Serving GPRS Support Node (USGSN) for subscriber authentication.<br><br>The *mobileStationType* attribute in the *HlrSim Subscriber* component must be set to ***r99*** when this component is provisioned. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## COMPONENT HlrSim Subs CamelSubscriberInformation (Csi)

| | |
|---|---|
| Scope | Application |

Description *HlrSim Subs/<imsi> CamelSubscriberInformation*

This component represents the CAMEL (Customized Application for Mobile network Enhanced Logic) Subscriber Information (CSI) used by the SGSN or USGSN for a subscriber requiring CAMEL support.

When the SGSN receives Subscriber Information from the HLR, the CSI is included.

Subcomponents "COMPONENT HlrSim Subs Csi TriggerDetectionPoint (Tdp)"

Common Verbs
- Help
- List
- Display
- Add
- DELete

## COMPONENT HlrSim Subs Csi TriggerDetectionPoint (Tdp)

Instance Decimal (1..5)

Scope Application

Description *HlrSim Subs/<imsi> Csi TriggerDetectionPoint/n*

This component represents a CAMEL Trigger Detection Point (TDP). A TDP represents an SGSN event that is detected and acted upon. If a given TDP is set for a subscriber, the occurrence of that event causes a change in state of the CAMEL dialogues being maintained by the SGSN for that subscriber.

Common Verbs
- Help
- List
- Display
- Add
- DELete

## COMPONENT HlrSim Subs LcsTermination (LcsTerm)

Scope Application

| | |
|---|---|
| Description | *HlrSim Subs/<imsi> LcsTermination*<br><br>This component represents the information associated with a Mobile Terminated Location Request (MT_LR). |
| Opt. Subcomp. | "COMPONENT HlrSim Subs LcsTerm PrivacyClass (PrivCl)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## COMPONENT HlrSim Subs LcsTerm PrivacyClass (PrivCl)

| | |
|---|---|
| Instance | Decimal (1..4) |
| Scope | Application |
| Description | *HlrSim Subs/<imsi> LcsTerm PrivCl/n*<br><br>This component represents the privacy requirements for the Location Services subscriber. |
| Opt. Subcomp. | "COMPONENT HlrSim Subs LcsTerm PrivCl ExternalClient (ExtClient)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## COMPONENT HlrSim Subs LcsTerm PrivCl ExternalClient (ExtClient)

| | |
|---|---|
| Instance | Decimal (1..35) |
| Scope | Application |
| Description | *HlrSim Subs/<imsi> LcsTerm PrivCl/n ExtClient/n* |

This component represents the external client information that is associated with the Location Services subscriber's privacy class.

Common Verbs

Help
List
Display
Add
DELete

Passport 7400, 15000, 20000

# Component HlrSim

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component Htds

241-5701-060

Passport 7400, 15000, 20000

# Component Htds

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT HdlcTransparentDataService (Htds)

| | |
|---|---|
| Instance | Decimal (1..65535) |
| Groups | "GROUP Htds CustomerIdentifierData (CidData)"<br>"GROUP Htds IfEntryProv (IfEntry)"<br>"GROUP Htds OperationalStatus (OperStatus)"<br>"GROUP Htds OsiState (State)" |
| Scope | Application |
| Description | *HTDS/<n>*<br>The HDLC Transparent Data Service (HTDS) component defines the characteristics of an instance of the HDLC transparent data service.<br>One instance of this component is required by each DS1, E1, V35 or V11 channel which is offering HDLC transparent traffic.<br>The instance number is arbitrary. |
| Subcomponents | "COMPONENT Htds Framer (Framer)"<br>"COMPONENT Htds PermanentLogicalConnection (Plc)" |
| Dyn. Subcomp. | "COMPONENT Htds LogicalConnection (LCo)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

### GROUP Htds CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

### ATTRIBUTE Htds customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.<br><br>Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.<br><br>An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to "basic CIDs" in DPN) may be assigned to specific customers. |
| Values | Decimal (0; 1..8191) |
| Default | 0 |

### GROUP Htds IfEntryProv (IfEntry)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the ifEntry. |

### ATTRIBUTE Htds ifAdminStatus (ifState)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE Htds ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP Htds OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

### ATTRIBUTE Htds snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |

| | |
|---|---|
| Default | up |

### GROUP Htds OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Htds adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Htds operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Htds usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |

| | |
|---|---|
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### ATTRIBUTE Htds availabilityStatus (osiAvail)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.<br><br>The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.<br><br>The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.<br><br>The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.<br><br>The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***. |

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

### ATTRIBUTE Htds proceduralStatus (osiProc)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the

user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.

The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

| | |
|---|---|
| Set of | initializationRequired (initRq)<br>notInitialized (notInit)<br>initializing (init)<br>reporting (report)<br>terminating (term) |
| Default | No default |

### ATTRIBUTE Htds controlStatus (osiCntrl)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.<br><br>The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.<br><br>The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.<br><br>The value ***suspended*** indicates that the service has been administratively suspended. |
| Set of | subjectToTest (subTst)<br>partOfServicesLocked (partLk)<br>reservedForTest (rsrvd)<br>suspended (suspnd) |
| Default | No default |

### ATTRIBUTE Htds alarmStatus (osiAlarm)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions |

described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE Htds standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and

thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values
hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

Default
notSet

### ATTRIBUTE Htds unknownStatus (osiUnknw)

Access
Read only

Description
This attribute indicates the OSI Unknown status of the component.

The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.

The value ***true*** indicates that the actual state of the component is not known for sure.

Values
false
true

Default
false

## COMPONENT Htds Framer (Framer)

Groups
"GROUP Htds Framer Provisioned (Prov)"
"GROUP Htds Framer LinkOptions (Link)"
"GROUP Htds Framer OsiState (State)"
"GROUP Htds Framer Statistics (Stats)"
"GROUP Htds Framer LinkUtilization (Util)"

"COLLECTED STATS HdlcTransparentDataService Framer"

Scope
Application

Description
*Htds/n Framer*

The *Framer* component controls link layer framing for application components sending and receiving data on a link interface. It is also through *Framer*, that an application component is associated with a specific hardware link interface.

The *Framer* component provides provisionable attributes related to datapath aspects of the hardware interface (such as crc and frame length) rather than interface specific attributes (such as modem leads and clocking) which are associated with specific hardware components (such as *V35/n* or *DS1/n*). The *Framer* component also provides a provisionable attribute which binds the application component to a specific hardware component.

The *Framer* component contains operational attributes for link interface datapath statistics (such as frame counts and aborts).

Common Verbs
Help
List
Display

## GROUP Htds Framer Provisioned (Prov)

Properties
Provisioned

Description
This group contains the base provisioning data for the *Framer* component. Application or hardware interface specific

provisioning data is contained in other provisionable *Framer* groups.

### ATTRIBUTE Htds Framer interfaceName

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute contains a hardware component name.<br><br>The attribute associates the application with a specific link. This defines the module processor on which *Framer*'s parent component (as well as *Framer* itself) will run. |
| Values | Link (Hardware, applicationFramerName) |
| Default | No default |

### GROUP Htds Framer LinkOptions (Link)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains attributes defining the framing of data on the link interface. |

### ATTRIBUTE Htds Framer dataInversion

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute determines whether data bits are to be inverted (1 to 0 and 0 to 1) before transmission of frames to the interface. If the value of this attribute is On, the incoming data bits will also be inverted when frames are received from the link before being processed.<br><br>This option is typically used in ***hdlc*** framing mode when inversion is used to guarantee 1's density.<br><br>Note that aborts (in ***hdlc*** and ***interrupting*** modes) are corrupted when data is inverted. |

| | |
|---|---|
| Values | off<br>on |
| Default | off |

### ATTRIBUTE Htds Framer nonOctetData

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute determines whether the data being received has the potential to be non-octet aligned. If it is set to yes, then neither crc checking and generation or abort detection will be functional. |
| Values | no<br>yes |
| Default | no |

### ATTRIBUTE Htds Framer frameCrcType

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute defines the type of CRC used.<br><br>The CRC value calculated is appended to the end of the frames transmitted to the link. The CRC value is removed from the end of frames received from the link and checked for correctness. NoCrc means that CRC is not used. |
| Values | crc16<br>crc32<br>noCrc |
| Default | crc16 |

### ATTRIBUTE Htds Framer flagsBetweenFrames

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |

| | |
|---|---|
| Description | This attribute defines the number of flags that are inserted between frames sent to the link interface. |
| Values | Decimal (1..16) |
| Default | 1 |

### ATTRIBUTE Htds Framer lineSignalTransport (lst)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute determines how modem status lead information on a V35 or V11 port is handled. When the value of the attribute is set to ***on***, line signal changes are passed transparently through the network to the remote end of the connection, where they are passed out on that end's outgoing leads. When the value of the attribute is set to ***off***, line signal changes are not transparently passed through the network. Both ends must be provisioned to support this function for line signal transport to work. It is highly recommended that line signal interpretation is set to "don't care" on the associated vport component (ie. vport attributes *readyLineState* and *dataTransferLineState)*. |
| Values | off<br>on |
| Default | off |

### GROUP Htds Framer OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Htds Framer adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |

Description

This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values

locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default

unlocked

### ATTRIBUTE Htds Framer operationalState (osiOper)

Access

Read only

Description

This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values

enabled (ena)
disabled (dis)

Default

disabled

### ATTRIBUTE Htds Framer usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Htds Framer Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational statistics data for a Framer component. |

### ATTRIBUTE Htds Framer aborts

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of aborts received.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Htds Framer crcErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames with CRC errors.<br>This count wraps to zero after reaching its maximum value. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Htds Framer lrcErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames with LRC errors.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Htds Framer nonOctetErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames that were non octet aligned.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Htds Framer overruns

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames received from the link for which overruns occurred.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Htds Framer underruns

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames transmitted to the link for which underruns occurred.<br>This count wraps to zero after reaching its maximum value. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Htds Framer largeFrmErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames received which were too large. The frame was longer than 8 kbytes or it contained more than the 255 block hardware limit.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Htds Framer frmToIf

| | |
|---|---|
| Access | Read only |
| Description | The number of frames transmitted to the link interface by Framer.<br><br>Note: This does not include the number of frames transmitted directly to the hardware queue, thus bypassing the Framer component. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Htds Framer frmFromIf

| | |
|---|---|
| Access | Read only |
| Description | The number of frames received from the link interface by Framer. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Htds Framer octetFromIf

| | |
|---|---|
| Access | Read only |
| Description | The number of bytes received from the link interface by Framer. |

| | |
|---|---|
| Values | Long Integer |
| Default | No default |

### GROUP Htds Framer LinkUtilization (Util)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the link utilization operational data for a Framer component. |

### ATTRIBUTE Htds Framer normPrioLinkUtilToIf

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the utilization of the normal priority data sent to the link as a percentage of the available bandwidth allocated for the service on the link. The utilization is the average for the last minute. |
| Values | Decimal (0..100) |
| Units | % |
| Default | 0 |

### ATTRIBUTE Htds Framer normPrioLinkUtilFromIf

| | |
|---|---|
| Access | Read only |
| Description | aThis attribute is the utilization of the normal priority data received from the link as a percentage of the available bandwidth allocated for the service on the link. The utilization is the average for the last minute. |
| Values | Decimal (0..100) |
| Units | % |
| Default | 0 |

## COLLECTED STATS HdlcTransparentDataService Framer

| | |
|---|---|
| Description | The statistics record generated by the HdlcTransparentDataService Framer component. |

### ATTRIBUTE Htds Framer rxBytes

| | |
|---|---|
| Description | This attribute provides the number of bytes received on the link by the Framer in the last collection interval. |
| Values | Long Integer |

### ATTRIBUTE Htds Framer rxFrames

| | |
|---|---|
| Description | This attribute provides the number of frames received on the link interface by the Framer in the last collection interval. |
| Values | Long Integer |

### ATTRIBUTE Htds Framer txBytes

| | |
|---|---|
| Description | This attribute provides the number of bytes transmitted to the link by the Framer in the last collection interval. This value could be zero if the application sends the frames directly to the link. |
| Values | Long Integer |

### ATTRIBUTE Htds Framer txFrames

| | |
|---|---|
| Description | This attribute provides the number of frames transmitted to the link interface by the Framer in the last collection interval. This value could be zero if the application sends the frames directly to the link. |
| Values | Long Integer |

### ATTRIBUTE Htds Framer rxTotalLinkUtil

| | |
|---|---|
| Description | This attribute provides the average total link utilization computed based on the total number of bytes received on the link in the last collection interval. |
| Values | Decimal (0..100) |

## COMPONENT Htds PermanentLogicalConnection (Plc)

| | |
|---|---|
| Groups | "GROUP Htds Plc Provisioning (Prov)" |
| Scope | Application |

| | |
|---|---|
| Description | *Htds/n PLC*<br>This is the description of the PLC Component for the Htds service. |
| Common Verbs | Help<br>List<br>Display |

## GROUP Htds Plc Provisioning (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all provisionable attributes for a permanent logical connection. Note that all of the attributes are valid and provisionable on both ends of a connection. However with the exception of *remoteName*, all operational attributes are derived from the originating end provisioning, which may be either end unless *remoteName* is not provisioned on one end. |

## ATTRIBUTE Htds Plc remoteName (rName)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute is the *PLC*'s remote end point's address in the format of a Passport component name. The syntax of a component is:<br>"em/node type/instance". For an alternative representation of end point's addresses, see *addressToCall* and l*ocalAddress PLC* attributes. When using Passport component name representation, end points are identified using a node name and a service name. As an example, the end point component for a third Htds service on node MoonBase is: "*EM/MoonBase HTDS/3*". If the *remoteName* is provisioned, it must match the name of the remote end or the connection will not be established even if the remote end is provisioned correctly. If no *remoteName* is provisioned, then this *LC* will accept connections from any other remote *LC* and it will not originate calls. Connections establish faster and are unique if both ends are provisioned with *remoteName*. *RemoteName* should be used when the remote end of the connection resides within the same topology region. If it resides |

in a different topology region, then *addressToCall* and *localAddress PLC* attributes should be used. When both *remoteName* and *addressToCall* are provisioned, *addressToCall* takes precedence. That is, connection will be established to the service specified by *addressToCall*.
These strings are case insensitive, but the complete component name must be input.

Values: String (0..40, ASCII)

Default: ""

### ATTRIBUTE Htds Plc setupPriority (spri)

Access: Read and write

Criticality: Process

Description: This attribute gives the priority at which a path is established. Zero(0) is the highest priority and four(4) is the lowest. When PORS establishes a path through the network, it uses the *setupPriority* attribute to determine its potential for bumping established paths to acquire their bandwidth. The *holdingPriority*, a complementary attribute of this component, indicates the priority a path maintains once it is established. A new path can bump an existing path if the new path's *setupPriority* is higher (numerically less) than the existing path's *holdingPriority.*

Values: Decimal (0..4)

Default: 2

### ATTRIBUTE Htds Plc holdingPriority (hpri)

Access: Read and write

Criticality: Process

Description: This attribute gives the priority that a path holds once it is established. Zero(0) is the highest priority and four(4) is the lowest. A path's *holdingPriority* determines its likelihood of being bumped by a new path to acquire its bandwidth. The *setupPriority*, a complementary attribute, indicates the priority of a path at establishment time. A new path can bump an existing

| | |
|---|---|
| | path if the new path's *setupPriority* is higher (numerically less) than the existing path's *holdingPriority.* |
| Values | Decimal (0..4) |
| Default | 2 |

### ATTRIBUTE Htds Plc requiredTxBandwidth (tbw)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute gives the bandwidth (in bits per second) reserved by a path on each of the trunks of its route. This attribute represents the bandwidth for traffic outgoing to the remote end point. This value should be chosen to achieve the amount of statistical bandwidth sharing that is desired by the network administration. This reservation is not enforced and is used to determine how many paths can be supported on a trunk. Both ends should be provisioned with the correct values allowing for the fact that Transmit at this end represents Receive at the remote end. Note that when the values do not correspond the originating end of the connection determines the value. |
| Values | Decimal (0..4294967295) |
| Units | bit/s |
| Default | 64000 |

### ATTRIBUTE Htds Plc requiredRxBandwidth (rbw)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute gives the bandwidth (in bits per second) reserved by a path on each of trunks of its route. This attribute represents the bandwidth for traffic incoming from the remote end point. This value should be chosen to achieve the amount of statistical bandwidth sharing that is desired by the network administration. This reservation is not enforced and is used to determine how many paths can be supported on a trunk. Both ends should be provisioned with the correct values allowing for the fact that |

| | |
|---|---|
| | Transmit at this end represents Receive at the remote end. Note that when the values do not correspond the originating end of the connection determines the value. |
| Values | Decimal (0..4294967295) |
| Units | bit/s |
| Default | 64000 |

### ATTRIBUTE Htds Plc requiredTrafficType (rttyp)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute indicates the type of traffic transmitted over the path. There are eight(8) possible traffic types, and the path can transmit only one of them. The originating end of the connection determines the type. These are arbitrary designations for traffic type. The ***voice***, ***data*** and ***video*** traffic types are defined, and five(5) other arbitrary traffic types can be defined by the network administration. This attribute is used in the route selection process to restrict the route to trunks that support this traffic type. The *supportedTrafficType* trunk attribute lists all the types of traffic allowed on the trunk. For example, if *requiredTrafficType* is specified as ***trafficType1*** then only trunks that include ***trafficType1*** in *supportedTrafficType***,** will be candidates for this connection. |
| Values | voice<br>data<br>video<br>trafficType1 (tt1)<br>trafficType2 (tt2)<br>trafficType3 (tt3)<br>trafficType4 (tt4)<br>trafficType5 (tt5) |
| Default | data |

## ATTRIBUTE Htds Plc permittedTrunkTypes (pttyp)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute lists up to eight(8) types of trunk that can be used on the route. The ***terrestrial*** and ***satellite*** trunk types have been defined, leaving six(6) remaining arbitrary types that can be defined by the network administration. The trunk's type is indicated in the *trunkType* attribute of the Trunk component. When selecting a route, PORS only chooses trunks whose *trunkType* are in the *permittedTrunkTypes* for the path. |
| Set of | terrestrial<br>satellite<br>trunkType1 (tt1)<br>trunkType2 (tt2)<br>trunkType3 (tt3)<br>trunkType4 (tt4)<br>trunkType5 (tt5)<br>trunkType6 (tt6) |
| Default | (terrestrial, satellite, trunkType1, trunkType2, trunkType3) |

## ATTRIBUTE Htds Plc requiredSecurity (rsec)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute indicates the required minimum level of security of the trunks on the route. Zero(0) represents the most secure and seven(7) represents the least secure. The trunk's security is indicated by the *trunkSecurity* attribute of the Trunk component, and has values identical in range and meaning to the *requiredSecurity* attribute. PORS ensures that any route selected does not contain a trunk whose *trunkSecurity* attribute is numerically greater than the *requiredSecurity.* |
| Values | Decimal (0..7) |
| Default | 4 |

### ATTRIBUTE Htds Plc requiredCustomerParm (rcparm)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute indicates the allowed customer defined parameter of the trunks on the route. Its value, a number from zero(0) to seven(7), is chosen by a network administration to have a meaning specific to their network, thus allowing them to customize the use of their trunks. A complementary trunk attribute, *customerParameter*, also has a value from zero(0) to seven(7). The route selection process does not consider trunks whose *customerParameter* is greater than the *requiredCustomerParameter* of the path. |
| Values | Decimal (0..7) |
| Default | 4 |

### ATTRIBUTE Htds Plc pathAttributeToMinimize (pamin)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute indicates whether a route is selected on the basis of minimizing the cost or the delay. Each trunk has a cost and a delay metric associated with it. The cost or delay of a route is the sum of the cost or delay metrics of all the trunks on the route. The route selection algorithm uses this attribute as the minimization criteria. If more than one route is found while using this attribute as the minimization criteria, then the route with the smallest non-minimization metric is chosen amongst the equivalent routes. |
| Values | cost<br>delay |
| Default | cost |

### ATTRIBUTE Htds Plc maximumAcceptableCost (maxCost)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute indicates an upper bound on the cost metric of a route, which is the sum of the cost metrics of all trunks on the route. The cost metric is the *trunkCost* attribute of the Trunk component. This attribute is used to accept or reject a path after the route selection algorithm has been applied, regardless of the minimization criteria. It is possible that there may not be a route with an acceptable cost. |
| Values | Decimal (0..65535) |
| Default | 1280 |

### ATTRIBUTE Htds Plc maximumAcceptableDelay (maxDelay)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute indicates an upper bound on the delay of a route, which is the sum of the delay of all trunks on the route. It should be provisioned with a reasonable maximum acceptable delay for the end to end one way delay of a 512 byte packet.<br>Note that the delay for a trunk can be a provisioned (with override) or measured value on the trunk. PORs does not recommend using override for the delay on a trunk since this has little added value for PORs traffic.<br>Remember, that the trunk *measuredRoundTripDelay* (ms) discovered through the Trunk staging protocols, divided by two and truncated, to provide the one way delay, is used to populate the topological database. The value includes emission, propagation, and queuing delays. A 512 byte data packet is used to perform the measurement. This value is updated periodically by Trunks and reflects the operating delay of the trunk. PORs uses this attribute to accept or reject a path after the route selection algorithm has been applied, regardless of the minimization criteria. |
| Values | Decimal (0..100000) |

| | |
|---|---|
| Units | msec |
| Default | 100000 |

### ATTRIBUTE Htds Plc emissionPriority (epri)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute indicates the urgency with which packets on the path are emitted by the trunks on the route. *EmissionPriority* of Zero(0) indicates the highest emission priority, while two (2) indicates the lowest emission priority. Packets with a higher *emissionPriority* (or numerically less) are serviced and sent out before the packets of lower *emissionPriority* (or numerically higher). |
| Values | Decimal (1..2) |
| Default | 1 |

### ATTRIBUTE Htds Plc discardPriority (dpri)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute indicates the importance of the packets on the path. One(1) is used for paths carrying the most important traffic, and three(3) is used for paths carrying the least important traffic. Packets with lower *discardPriority*(numerically) are discarded after packets with a higher *discardPriority*(numerically). |
| Values | Decimal (1..3) |
| Default | 2 |

### ATTRIBUTE Htds Plc pathType (pType)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies if the path for this PLC is determined automatically or by static provisioning. The default (***normal***) is to |

automatically choose a route with Route Selection. ***Normal*** *pathTypes* require less provisioning and can dynamically handle path failures. The other *pathTypes* are both manual *pathTypes* where the operator must specify, through provisioning, a static route termed the *manualPath*. A manual *pathType* connection is nearly identical to a normal path type connection with the exception that the route is pre-provisioned. For a manual *pathType*, bandwidth reservations are respected along the path exactly as in a normal path. The last type, the ***forced*** *pathType*, is also a manual path but regardless of the bandwidth available the route is granted provided the trunks are operational and there are sufficient Logical Channels (LChs).
The ***forced*** *pathType* could result in over committing the reserved bandwidth allowed on a trunk. A better way to achieve the effects of a ***forced*** *pathType* is to use a ***manual*** *pathType* with *setupPriority* = ***0*** and *holdingPriority* = ***0***. In this manner the path will reserve correct bandwidth and it will bump other paths if required while not being bumped itself.

Values
normal
manual
forced

Default
normal

## ATTRIBUTE Htds Plc pathFailureAction (pfa)

Access
Read and write

Criticality
Process

Description
This attribute is used to specify whether the application can tolerate momentary interruption of a path while a new path is selected. If ***disconnectConnection*** is chosen, the application is informed as soon as possible about a failure by disconnection. If the attribute is set to ***reRoutePath***, the path may attempt an immediate reroute, provided the failure is a recoverable failure. If rerouting fails the application is informed of the failure.
With this option set to ***reRoutePath*** the LCo may wait up to 30 seconds before informing the service of complete disconnection in order to allow both ends to attempt to reconnect. Note that if PLC components are different at both ends only the calling end is allowed to reconnect.

| | |
|---|---|
| | All *pathTypes* respect this attribute. Also on a *manualPath* with both ends provisioned with independent paths (at least with respect to the failure) this option will have the desired effect that the path is rerouted without complete disconnection at both ends. |
| Values | reRoutePath<br>disconnectConnection |
| Default | reRoutePath |

### ATTRIBUTE Htds Plc bumpPreference (bpref)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute controls when bumping occurs in the route selection process. A connection with higher (numerically less) *setupPriority* may bump a connection with lower (numerically higher) *holdingPriority* in order to acquire its bandwidth and be established. By default, bumping occurs only when it is necessary. That is, a connection will bump another connection only if there is no other way for the connection to be established. A connection may be set to always bump in order to find the best route it may have. |
| Values | bumpWhenNecessary<br>bumpToObtainBestRoute |
| Default | bumpWhenNecessary |

### ATTRIBUTE Htds Plc optimization (opt)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute is used to specify whether this connection should attempt to optimize its path when requested by the routing PORS component. Every path is as optimal as it can be when it is established, but as network traffic patterns and configurations change this path may no longer be as optimal as it could be. The PORS connection manager on a module requests circuits to optimize at the optimization interval. |

| | |
|---|---|
| Values | disabled<br>enabled |
| Default | enabled |

### ATTRIBUTE Htds Plc addressToCall (addrToCall)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute is the *PLC*'s remote end point's address in the format of a NSAP address. As such it must consist of a string of hex digits although not all 40 digits must be specified. For an alternative representation of end point's addresses, see *remoteName* attribute. If the *addressToCall* is provisioned, it must match *localAddress* provisioned on the remote end or the connection will not be established. Connections establish faster and are unique if both ends are provisioned with *addressToCall*. *AddressToCall* must be used when the remote end of the connection resides in different topology region. If it resides in the same topology region, then *remoteName* may be used. When both *remoteName* and *addressToCall* are provisioned, *addressToCall* takes precedence. That is, connection will be established to the service specified by *addressToCall*. |
| Values | String (0..40, ASCII) |
| Default | "" |

### ATTRIBUTE Htds Plc localAddress (localAddr)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute is the *PLC*'s end point address in the format of an NSAP address. As such it must consist of a string of hex digits although not all 40 digits must be specified. *LocalAddress* must share a prefix with MOD nodePrefix or one of MOD alternatePorsPrefixes for this node, otherwise PORS will not be able to route calls to this service. *LocalAddress* is used in conjunction with *addressToCall*. That is, the end responsible for originating calls must have *addressToCall* provisioned, while the |

| | |
|---|---|
| | end responsible for terminating calls must have *localAddress* provisioned. In such a case, *addressToCall* on the originating end must match exactly the *localAddress* of the terminating end. Note that both ends may be originating and terminating at the same time. That is, both ends may have *addressToCall* and *localAddress* provisioned as long as *addressToCall* and *localAddress* on different ends are identical. |
| Values | String (0..40, ASCII) |
| Default | "" |

### ATTRIBUTE Htds Plc maximumAcceptableGatewayCost (maxGateCost)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute indicates an upper bound on the gateway cost metric of a route, which is the sum of the gateway cost metrics of all gateway links on the route. It has the same semantics as the *maximumAcceptableCost* except that gateway cost metrics are used instead of trunk cost metrics. Gateway cost metrics are provisioned under *Trunk Address* component of a gateway link specifying a gateway costs of reaching an address through the link. |
| Values | Decimal (0..65535) |
| Default | 2048 |

### ATTRIBUTE Htds Plc manualPath (mpath)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute is optional and specifies the sequence of trunks to be used as the route for the path, thus bypassing PORS' automatic route selection. If the path fails the validation, no other path can be selected[1]. This attribute should only be used in special cases since the route selection algorithm is able to find and maintain the best routes. A related path attribute, the *pathType*, determines if this route will be used as a manual or forced path type. |

As an example, the trunk component name for the third trunk on node MoonBase is "*EM/MoonBase Trk/3*". Note that only the first end of the trunk that the packet would encounter is provisioned. These strings are case insensitive but the complete component name must be input.

Note 1: the trunk designation must be a 3-letter form, e.g., 'trk'. Note 2: only the outbound trunks component names are used to provision the ***manualPath***.

Note 3: It is recommended to have two independent routes specified for a manual path by specifying a different ***manualPath*** (non-symmetric) for each end. In this case, there is no way to select which route will be used (first up wins) but if one path is torn down due to a failure then the other ***manualPath*** may be used to reroute the path.

| | |
|---|---|
| Vector of | String (0..40, ASCII) |
| Index | Decimal (0..9) |
| Default | ([10] "") |

## COMPONENT Htds LogicalConnection (LCo)

| | |
|---|---|
| Groups | "GROUP Htds LCo PathData"<br>"GROUP Htds LCo Statisitics (Stats)" |
| Scope | Application |
| Description | ...*Lc*<br>This component contains all of the operation attributes for a Path Oriented Logical Connection. |
| Common Verbs | Help<br>List<br>Display |

### VERB RERoute Htds LCo

| | |
|---|---|
| Impact | Service |
| Description | RERoute ..Lc<br>This command is used to request a *LogicalConnection (LCo)* to attempt a reroute. A new path will be established if it is better than the current path. The current path will not be interrupted if the *RERoute* command is not completely successful. The connection must not be attempting rerouting at present. This command is only valid on components with the *PLC remoteName* specified.<br>This command is intended to be used on the calling end of a connection. For a single region call, it may be used on the called end of a connection if all the *PLC* parameters match. Note that the calling end or the called end of a connection means the *end* attribute of an *LCo* is equal to the value of ***calling*** or ***called*** respectively.<br><br>When used on an *LCo* with *pathType* attribute set to ***manual*** or ***forced,*** this command can be used to re-setup the path.<br><br>If this command is attempted on a connection that is not up but its *state* attribute is equal to ***pathDownRetrying,*** an immediate route request is sent. |

### GROUP Htds LCo PathData

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all operational attributes for the path oriented LCo. |

### ATTRIBUTE Htds LCo state

| | |
|---|---|
| Access | Read only |
| Description | This attribute reflects the current state of the connection. The ***pathDown*** state indicates a connection that has no remote end provisioned or the application has not yet signaled for a path. The ***selectingRoute*** state occurs when a request has been sent to route selector and it has not yet responded. The ***connectingState*** occurs while a path is being established. The ***pathUp*** state is the normal |

operational state of a path. The ***pathDownRetrying*** state indicates a path that attempted route selection but received no route and is now waiting to retry route selection again.

Values
pathDown
selectingRoute
connecting
pathUp
pathDownRetrying

Default
No default

### ATTRIBUTE Htds LCo overrideRemoteName (orn)

Access
Read: All
Write: All

Description
If set ***and*** the current PLC remoteName is blank this remoteName will override the blank PLC remoteName. Usually you would set this attribute and then lock/unlock the service component which will result in this new overrideRemoteName being used as if it had been provisioned into the PLC remoteName. The advantage of this attribute is that the connection's remoteName can be changed immediately without having to "activate prov" but the disadvantage is that the overrideRemoteName is not permanent and if the card or switch is reset the override will be lost.

Values
String (0..40, ASCII)

Default
""

### ATTRIBUTE Htds LCo end

Access
Read only

Description
This attribute identifies whether this is the calling or called end of the path.

Values
calling
called

Default
No default

### ATTRIBUTE Htds LCo costMetric (cost)

| | |
|---|---|
| Access | Read only |
| Description | This attribute gives the route's total cost metric. It is calculated as the sum of the cost metric of all trunks in the path at the time the connection was established. The cost metric of a trunk is defined by the *trunkCost* attribute of the Trunk component. The *costMetric* for an LCo that is originated and terminated on the same module is 0. |
| Values | Decimal (0..65535) |
| Default | No default |

### ATTRIBUTE Htds LCo delayMetric (delay)

| | |
|---|---|
| Access | Read only |
| Description | This attribute gives the total delay of the route as the one way delay for a 512 byte packet. It is calculated as the sum of the delays of all trunks in the path stored in topology at the time the connection was established. The delay for an LCo that is originated and terminated on the same module is 0. |
| Values | Decimal (0..100000) |
| Units | msec |
| Default | No default |

### ATTRIBUTE Htds LCo roundTripDelay (rtd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the time taken for a packet (cell) of 44 bytes to be transmitted inband to the remote *LCo* and return to this LCo. The value reported is rounded to the nearest millisecond.<br>For Unack PORS trunks and AAL5 MUX PORS trunks, the test packet is sent inband and receives the same treatment as regular data packets, giving a round trip delay which corresponds to regular data traffic.<br>For SPO MUX PORS trunks and MAP PORS trunks, the test packet is sent along the parent trunk's VCC, giving a round trip |

| | |
|---|---|
| | delay which corresponds to the parent trunk's round trip delay. The round trip delay does not directly reflect the round trip delay of data packets travelling on the non-parent VCC.<br>When the *LCo* is originated and terminated on the same module, a value of 1 millisecond is reported. The value of 1 millisecond is the minimum reported time even though the delay may be less than 1 millisecond. |
| Values | Decimal (0..200000) |
| Units | msec |
| Default | No default |

### ATTRIBUTE Htds LCo setupPriority (spri)

| | |
|---|---|
| Access | Read only |
| Description | This attribute gives the priority at which the current path is established. Zero is the highest priority and four is the lowest. The *holdingPriority*, a complementary attribute of this component, indicates the priority a path maintains once it is established. |
| Values | Decimal (0..4) |
| Default | No default |

### ATTRIBUTE Htds LCo holdingPriority (hpri)

| | |
|---|---|
| Access | Read only |
| Description | This attribute gives the priority at which a path holds its current path once the path is established. Zero is the highest priority and four is the lowest. The *setupPriority*, a complementary attribute, indicates the priority of a path at establishment time. |
| Values | Decimal (0..4) |
| Default | No default |

### ATTRIBUTE Htds LCo requiredTxBandwidth (tbw)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute gives the actual bandwidth (in bits per second) reserved by this path on each of the trunks of its route. This attribute represents the bandwidth for traffic outgoing to the remote end point. The originating end of the connection determines this value. |
| Values | Decimal (0..4294967295) |
| Units | bit/s |
| Default | No default |

### ATTRIBUTE Htds LCo requiredRxBandwidth (rbw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute gives the actual bandwidth (in bits per second) reserved by this path on each of trunks of its route. This attribute represents the bandwidth for traffic incoming from the remote end point. The originating end of the connection determines this value |
| Values | Decimal (0..4294967295) |
| Units | bit/s |
| Default | No default |

### ATTRIBUTE Htds LCo requiredTrafficType (rttyp)

| | |
|---|---|
| Access | Read only |
| Description | This operational attribute indicates the type of traffic transmitted over the path. There are eight possible traffic types, and the path can transmit only one of them. The originating end of the connection determines the type. These are arbitrary designations for traffic type. The ***voice***, ***data*** and ***video*** traffic types are defined, and five other arbitrary traffic types can be defined by the network administration. This attribute is used in the route selection process to restrict the route to trunks that support this traffic type. The *supportedTrafficType* trunk attribute lists all the types of traffic allowed on the trunk. For example, if *requiredTrafficType* is specified as ***trafficType1*** then only trunks that include ***trafficType1*** in *supportedTrafficType***,** will be candidates for this connection. |

| | |
|---|---|
| Values | voice<br>data<br>video<br>trafficType1 (tt1)<br>trafficType2 (tt2)<br>trafficType3 (tt3)<br>trafficType4 (tt4)<br>trafficType5 (tt5) |
| Default | No default |

### ATTRIBUTE Htds LCo permittedTrunkTypes (pttyp)

| | |
|---|---|
| Access | Read only |
| Description | This operational attribute lists up to eight types of trunk that can be used on the route. The originating end of the connection determines the types. The ***terrestrial*** and ***satellite*** trunk types have been defined, leaving six remaining arbitrary types that can be defined by the network administration. The trunk's type is indicated in the *trunkType* attribute of the Trunk component. When selecting a route, PORS only chooses trunks whose *trunkType* are in the *permittedTrunkTypes* for the path. |
| Set of | terrestrial<br>satellite<br>trunkType1 (tt1)<br>trunkType2 (tt2)<br>trunkType3 (tt3)<br>trunkType4 (tt4)<br>trunkType5 (tt5)<br>trunkType6 (tt6) |
| Default | No default |

### ATTRIBUTE Htds LCo requiredSecurity (rsec)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the required minimum level of security of the trunks on the route. Zero represents the most secure and seven represents the least secure. The trunk's security is indicated by the *trunkSecurity* attribute of the Trunk component, and has values identical in range and meaning to the *requiredSecurity* |

attribute. PORS ensures that any route selected does not contain a trunk whose *trunkSecurity* attribute is numerically greater than the *requiredSecurity.*

Values — Decimal (0..7)

Default — No default

### ATTRIBUTE Htds LCo requiredCustomerParameter (rcparm)

Access — Read only

Description — This attribute indicates the allowed customer defined parameter of the trunks on the route.The originating end of the connection determines the customer defined parameter. Its value, a number from zero to seven, is chosen by a network administration to have a meaning specific to their network, thus allowing them to customize the use of their trunks. A complementary trunk attribute, *customerParameter*, also has a value from zero to seven. The route selection process does not consider trunks whose *customerParameter* is greater than the *requiredCustomerParameter* of the path.

Values — Decimal (0..7)

Default — No default

### ATTRIBUTE Htds LCo emissionPriority (epri)

Access — Read only

Description — This attribute indicates the urgency with which packets on the path are emitted by the trunks on the route. The originating end of the connection selects the *emissionPriority. EmissionPriority* of zero indicates the highest emission priority, while two indicates the lowest emission priority. Packets with a higher *emissionPriority* (or numerically less) are serviced and sent out before the packets of lower *emissionPriority* (or numerically higher).

Values — Decimal (0..2)

Default — No default

### ATTRIBUTE Htds LCo discardPriority (dpri)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the importance of the packets on the path. The originating end of the connection sets *discardPriority.* One is used for paths carrying the most important traffic, and three is used for paths carrying the least important traffic. Packets with lower *discardPriority*(numerically) are discarded after packets with a higher *discardPriority*(numerically). |
| Values | Decimal (1..3) |
| Default | No default |

### ATTRIBUTE Htds LCo pathType (pType)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether the path for this PLC was determined automatically or by static provisioning. ***Normal*** *pathTypes* are selected automatically by Route Selector.The other *pathTypes* are both manual *pathTypes* where the operator must specify, through provisioning, a static route termed the *manualPath*. A manual *pathType* connection is nearly identical to a normal path type connection with the exception that the route is pre-provisioned. For a manual *pathType*, bandwidth reservations are respected along the path exactly as in a normal path. The last type, the ***forced*** *pathType*, is also a manual path but regardless of the bandwidth available the route is granted provided the trunks are operational and there are sufficient Logical Channels (LChs).<br><br>The ***forced*** *pathType* could result in over committing the reserved bandwidth allowed on a trunk. A better way to achieve the effects of a ***forced*** *pathType* is to use a ***manual*** *pathType* with *setupPriority* = ***0*** and *holdingPriority* = ***0***. In this manner the path will reserve correct bandwidth and it will bump other paths if required while not being bumped itself. |
| Values | normal<br>manual<br>forced |
| Default | No default |

### ATTRIBUTE Htds LCo retryCount (rcount)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the count of the number of times the path chosen during route selection could not be instantiated. This count should be three or below if the network is performing adequately. A high value indicates that the route selection is often performed using an out-of-date view of available network bandwidth and/or topology.<br>This attribute will only increase at the calling end of an un-segmented connection. The attribute should be ignored for segmented connections.This attribute is reset each time a path reconnects and stops counting when it reaches its maximum value. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE Htds LCo pathFailureCount (pfcount)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the count of the number of times the path has successfully connected. It is set to zero the first time the path is up. If a path fails anytime after connecting this count will be incremented when the path is up again. Failed route requests do not count in this statistic. See *retryCount* above. This attribute stops counting at its maximum value. |
| Values | Decimal (0..65535) |
| Default | No default |

### ATTRIBUTE Htds LCo reasonForNoRoute (rnr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the route selection's *reasonForNoRoute* and provides a brief reason for which a route was not selected. The reasons are essentially self-explanatory. Perhaps two reasons for no route require some explanation. The reason ***unknownRemoteNodeName*** is issued when the remote node name is not in the topological database. The reason |

***plcAttributesNotMet*** is issued when there is no network connectivity at a level specified by the PLC attributes. This reason is also issued when there is no physical connectivity between two end nodes.

Values

none
destinationNameTooLong
destinationNotSpecified
unknownDestinationName
incorrectDestination
incorrectDestinationEndPoint
unknownSource
unknownDestination
sameNode
routeCostTooMuch
routesDelayTooLong
attributesNotMet
anError
attributeProfileProblem
manualPathIndexProblem

Default

none

### ATTRIBUTE Htds LCo lastTearDownReason

Access

Read only

Description

This attribute reflects the last tear down reason for a connection (LCo). In many cases this displays the reason for a momentary service interruption. This attribute applies to the last path failure only. If a path is no longer up, this may give an indication to the reason that the path has failed. In many cases an alarm will also be generated with more specific information. The following is a brief description of the reasons:
***none*** - This path has no information for the teardown this is typical of a path provisioned with no *remoteName* that has not been up.
***normalShutDown*** - This path has gone down due to normal call termination.
***insufficientTxLcOrBandwidth*** - At present there is either no available bandwidth or logical channel numbers available on one or more of the trunks for this path in the transmit direction.

***insufficientRxLcOrBandwidth*** - At present there is either no available bandwidth or logical channel numbers available on one or more of the trunks for this path in the receive direction.
***trunkFailure***- A trunk on the path has failed or has gone down due to a provisioning change of a critical attribute.
***trunkCardFailure***- A trunk FP card has failed along the path.
***accessCardFailure***- The FP on which the peer access service was running has failed.
***operatorForced***- The path has terminated due to the operator locking a trunk along the path.
***lostLcnClash***- The path has terminated because the PA's at both ends of an intermediate trunk have allocated the same LC to different calls. When this happens both calls must go down and then try to come up again a fraction of a second later (effectively ensuring that they will now be assigned different LC's). It is normal to get the odd clash especially when the PA's usedLC is approaching the PA's maxLC.
***networkCongestion*** - The path has failed due to control information being lost and not recoverable.
***trunkNotFound*** - Occurs on a ***manual*** path usually. Check for trunks not up or names provisioned incorrectly.
***farEndNotFound*** - The far end is not provisioned or is not up. Check remote Name.
***wrongModuleReached*** - This may occur on a ***manual*** path. Check provisioning for correct trunk and service names. For a ***normal*** path, the network Topology may be changing check *remoteName*.
***farEndBusy*** - The far end has been reached but it is busy. Check *remoteName* and remote end provisioning.
***callLoopedBack*** - This LCo is provisioned to call itself. Re-provision since this is invalid.
***unknownReason*** - The failure was not resolved.
***farEndNotReady*** - The remote end was reached but the connection was refused due to the remote end not being enabled.
***remoteNameMismatch*** - The remote end has alarmed and rejected this setup due to remoteName provisioning.
***serviceTypeMismatch*** - The remote Service Type does not match this service type. Check provisioning.
***reconnectFromFarEnd*** - The remote end re-established this connection. Check the remote end *lastTearDownReason* to determine the real reason.

***bumped*** - Another call bumped this path from a trunk to get bandwidth (or an LC) which it required to come up. This other path had a higher *setupPriority* than this path's *holdingPriority* hence it was allowed to steal the bandwidth (or LC) from this path.
***optimized*** - This call has been rerouted due to the optimization feature. The call is still active this just indicates why the path changed.
***trunkOrFarEndDidNotSupportMode*** - This call was unable to complete because a mode required by the service was not supported by one of the trunks the route went through or by the far end service it connected to. Currently the only mode that this applies to is the map/mux mode on TRUNK PA ATM component. Map mode was required by the application (CES/FrAtm etc.) but was not available on the TRUNK PA ATM component through which the call was routed or the far end CES/FrAtm component did not specify the same mode.

Values

none
normalShutDown
insufficientTxLcOrBandwidth
insufficientRxLcOrBandwidth
trunkFailure
trunkCardFailure
operatorForced
lostLcnClash
networkCongestion
trunkNotFound
farEndNotFound
wrongModuleReached
farEndBusy
callLoopedBack
unknownReason
farEndNotReady
remoteNameMismatch
serviceTypeMismatch
reconnectFromFarEnd
bumped
accessCardFailure
optimized

| | |
|---|---|
| | overrideRemoteName<br>trunkOrFarEndDidNotSupportMode |
| Default | none |

### ATTRIBUTE Htds LCo pathFailureAction

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays whether the application is set to tolerate momentary interruption of a path while a new path is selected. If ***disconnectConnection*** is displayed, the application is informed as soon as possible about a failure by disconnection. If the attribute displays ***reRoutePath***, the path may attempt an immediate reroute, provided the failure is a recoverable failure. If rerouting fails the application is informed of the failure.<br>With this option set to ***reRoutePath*** the LCo may wait up to 30 seconds before informing the service of complete disconnection in order to allow both ends to attempt to reconnect. Note that if PLC components are different at both ends only the calling end is allowed to reconnect.<br><br>All *pathTypes* respect this attribute. Also on a *manualPath* with both ends provisioned with independent paths (at least with respect to the failure) this option will have the desired effect that the path is rerouted without complete disconnection at both ends |
| Values | reRoutePath<br>disconnectConnection |
| Default | No default |

### ATTRIBUTE Htds LCo bumpPreference (bpref)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies when bumping will occur during route selection process. Bumping may occur when necessary or always. It will be necessary for a connection to bump if there is not enough resources for the connection to be established and these resources are occupied by a connection whose *setupPriority* is lower (numerically higher) than the connection's *setupPriority*. A connection may also always bump in order to obtain the best route. |

| | |
|---|---|
| Values | bumpWhenNecessary<br>bumpToObtainBestRoute |
| Default | No default |

### ATTRIBUTE Htds LCo optimization (opt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is used to specify whether this connection should attempt to optimize its path when requested by the routing PORS component. Every path is as optimal as it can be when it is established, but as network traffic patterns and configurations change this path may no longer be as optimal as it could be. The PORS connection manager on a module requests circuits to optimize at the optimization interval. |
| Values | disabled<br>enabled |
| Default | No default |

### ATTRIBUTE Htds LCo pathUpDateTime

| | |
|---|---|
| Access | Read: Service<br>Write: Illegal |
| Description | This is the time stamp when the current path was established or reestablished. |
| Values | Time (DHMS) |
| Default | No default |

### ATTRIBUTE Htds LCo path

| | |
|---|---|
| Access | Read only |
| Description | This attribute contains the trunk component names over which the path has been instantiated and the remote end point name terminating the path. |
| List of | String (0..40, ASCII) |
| List Size | 21 |

| | |
|---|---|
| Default | No default |

### GROUP Htds LCo Statisitics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational statistics attributes for the path oriented LCo. |

### ATTRIBUTE Htds LCo pktsToNetwork

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of packets transmitted to the network over this Logical Connection. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Htds LCo bytesToNetwork

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of bytes sent to the network over this Logical Connection. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Htds LCo pktsFromNetwork

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of packets received from the remote LCo via the network. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Htds LCo bytesFromNetwork

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of bytes received from the remote LCo via the network. |

| | |
|---|---|
| Values | Long Integer |
| Default | No default |

Passport 7400, 15000, 20000

# Component Htds

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component IpDlciGr

241-5701-060

Passport 7400, 15000, 20000

# Component IpDlciGr

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT IpDlciGroup (IpDlciGrp)

| | |
|---|---|
| Instance | Decimal (1..4294967295) |
| Groups | "GROUP IpDlciGrp CustomerIdentifierData (CidData)"<br>"GROUP IpDlciGrp IfEntryProv (IfEntry)"<br>"GROUP IpDlciGrp Provisioned (Prov)"<br>"GROUP IpDlciGrp MediaProv (Mp)"<br>"GROUP IpDlciGrp OsiState (State)"<br>"GROUP IpDlciGrp OperationalStatus (OperStatus)" |
| Scope | Application |
| Description | *IpDlciGroup/n*<br>This component represents a logical interface between a Virtual Router and a FrameRelay Interface (*FrUni*).<br><br>An *IpDlciGroup* associates multiple frame relay *DataLinkConnectionIdentifer*s (*Dlci*) with a single *VirtualRouter ProtocolPort*. The *IpDlciGroup* component is associated with a *ProtocolPort* using the *linkToProtcolPort* attribute and to frame relay *Dlci*s using the *linkToFrDlci* attribute in each *FrConnection* subcomponent. |
| Subcomponents | "COMPONENT IpDlciGrp FrConnection (Frc)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

### GROUP IpDlciGrp CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

### ATTRIBUTE IpDlciGrp customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.<br><br>Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.<br><br>An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to "basic CIDs" in DPN) may be assigned to specific customers. |
| Values | Decimal (0; 1..8191) |
| Default | 0 |

### GROUP IpDlciGrp IfEntryProv (IfEntry)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the ifEntry. |

### ATTRIBUTE IpDlciGrp ifAdminStatus (ifState)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE IpDlciGrp ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP IpDlciGrp Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioned attributes for the *IpDlciGroup* component. |

### ATTRIBUTE IpDlciGrp maxTransmissionUnit (mtuSize)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the size of the largest datagram (including the frame relay header) which can be sent on the interface. |
| Values | Decimal (262..9190) |
| Units | octets |
| Default | 1604 |

### GROUP IpDlciGrp MediaProv (Mp)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the base provisioning data for the Media Application component. |

### ATTRIBUTE IpDlciGrp linkToProtocolPort (pp)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute contains a protocol port component name. The attribute associates the application with a protocol port. |
| Values | Link (Service, linkToMedia) |
| Default | No default |

### GROUP IpDlciGrp OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE IpDlciGrp adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users |

only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE IpDlciGrp operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE IpDlciGrp usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has

spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP IpDlciGrp OperationalStatus (OperStatus)

Properties
Operational

Description
This group includes the Operational Status attribute. This attribute defines the current operational state of this component.

### ATTRIBUTE IpDlciGrp snmpOperStatus

Access
Read only

Description
The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed.

Values
up
down
testing

Default
up

### COMPONENT IpDlciGrp FrConnection (Frc)

Instance
Decimal (1..255)

Groups
"GROUP IpDlciGrp Frc Provisioned (Prov)"
"GROUP IpDlciGrp Frc OsiState (State)"
"GROUP IpDlciGrp Frc Statistics (Stats)"

Scope
Application

| | |
|---|---|
| Description | *IpDlciGrp/n FrConnection/n*<br>This component represents a virtual connection over which internetworking frames are relayed between IP and frame relay. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP IpDlciGrp Frc Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioned attributes for the *FrConnection* component. |

## ATTRIBUTE IpDlciGrp Frc linkToFrDlci (frDlci)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the frame relay *Dlci IpConn* component that this connection is associated with. |
| Values | Link (Hardware, linkToIpDlciGrp) |
| Default | No default |

## ATTRIBUTE IpDlciGrp Frc ipCos

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the IP connection class of the Frame Relay connection. This value is used to distinguish the connection from others for the purpose of IP forwarding and IP accounting. IP connection class values vary in range from ***0*** to ***3*** allowing up to four connections to be distinguished on each next hop between IP routers.<br><br>If an IP packet is forwarded to a *ProtocolPort* or *Interface* |

configured to use more than one Frame Relay connection, then one of the connections is selected for transmitting the packet. The selection is made according to the connection class assigned to the packet.

An explanation of how an IP packet is assigned a connection class is found in the description of the *connectionClass* operational attribute of the *DifferentiatedServicesDomain PerHopBehavior* component, and in the description of *Vr Ip CosPolicyGroup* component.

Modifying this attribute will reset the *FrConnection*.

The remainder of this description applies only to an *FrConnection* used by a *VirtualRouter ProtocolPort* and not to an *FrConnection* used by a *Router Interface* or *VpnRouteForwarder Interface* component.

If the *VirtualRouter* does not have a *DifferentiatedServicesDomain* subcomponent, then *ipCos* also specifies the initial CoS value assigned to an IP packet received on the Frame Relay connection. See the description of *Vr Ip CosPolicyGroup* for more information.

Values: Decimal (0..3)

Default: 0

### ATTRIBUTE IpDlciGrp Frc ipDscp

Access: Read and write

Criticality: Component

Description: This attribute specifies the value marked into the Differentiated Services Code Point (DSCP) field of an IP packet received at an *IpPort* over the Frame Relay connection. This DSCP marking is applied only if one of the following conditions is true:

1) the *IpPort* is linked by its *diffServAssignment* attribute to a *Vr Ip DifferentiatedServices* interface configuration where the *baMode* attribute of the *IngressServices* subcomponent is set to ***link***, or

2) the *Ip* is linked by its *diffServAssignment* attribute to a *Vr Ip DifferentiatedServices* interface configuration where the *baMode* attribute of the *IngressServices* subcomponent is set to ***link***, and the *IpPort* does not have the *diffServAssignment* attribute set.

If one of these conditions is true, then the *ipDscp* value must match a *Virtual Router DifferentiatedServicesDomain PerHopBehavior* subcomponent instance value. See the description of *Vr Ip DifferentiatedServices* interface configuration for more information.

If the *VirtualRouter* does not have a *DifferentiatedServicesDomain* subcomponent, then *ipDscp* must be set to ***na***.

This attribute is not applicable to a Frame Relay connection associated with a *Router Interface* or *VpnRouteForwarder Interface* component.

Modifying this attribute will reset the *FrConnection*.

Values

Decimal (0..63)
df
ef
af11
af12
af13
af21
af22
af23
af31
af32
af33
af41
af42
af43
cs0
cs1
cs2

cs3
cs4
cs5
cs6
cs7
na

Default na

### ATTRIBUTE IpDlciGrp Frc linkToIpLogicalInterface (ipIf)

Access Read and write

Description This attribute specifies the IP logical interface, *Vr/m Pp/n IpPort LogicalIf/ipAddress*, that this connection is associated with.

When set, the value of this attribute must be consistent with the *linkToProtocolPort* attribute value of the parent *IpDlciGroup* component. That is, they must both point to the same *ProtocolPort* component.

Values Link (Service, linkToMediaConnection)

Default No default

### GROUP IpDlciGrp Frc OsiState (State)

Properties Operational

Description This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE IpDlciGrp Frc adminState (osiAdmin)

Access Read only

Description This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or

*Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

## ATTRIBUTE IpDlciGrp Frc operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

## ATTRIBUTE IpDlciGrp Frc usageState (osiUsage)

Access
Read only

| | |
|---|---|
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP IpDlciGrp Frc Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the packet based statistics maintained for the *FrConnection* component. |

### ATTRIBUTE IpDlciGrp Frc inUnknownProtocol

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the packets received on this connection which are discarded because they contain an unknown protocol. This counter wraps around to ***0*** when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE IpDlciGrp Frc inUnsupportedProtocol

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the packets received on this connection which are discarded because they contain an unsupported protocol. This includes packets received for protocols not |

| | |
|---|---|
| | currently bound to the associated *ProtocolPort* component. This counter wraps around to ***0*** when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE IpDlciGrp Frc inLastDiscardedProtocolHeader

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the first eight octets of the most recent packet that was received from the interface with an unknown or unsupported protocol. |
| Values | String (1..8, Hex) |
| Default | No default |

Passport 7400, 15000, 20000

# Component IpDlciGr

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component IpiFr

241-5701-060

Passport 7400, 15000, 20000

# Component IpiFr

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT IpInterfaceOverFrameRelay (IpiFr)

| | |
|---|---|
| Groups | "GROUP IpiFr Provisioned (Prov)" |
| Scope | Application |
| Description | *IP Interface over Frame Relay*<br><br>The *IP interface over Frame Relay* component allows external Network Management Stations using Frame Relay PVC connections to perform the network management functions on the Passport module.<br><br>Network Management Stations can be directly connected to a Passport module with a FrameRelay PVC connection, or indirectly connected via an IP routing capable device which has a FrameRelay PVC connection to the Passport module. |
| Subcomponents | "COMPONENT IpiFr DataNetworkAddress (Dna)" |
| Opt. Subcomp. | "COMPONENT IpiFr LogicalChannelNumber (Lcn)"<br>"COMPONENT IpiFr StaticRoute (Sr)" |
| Dyn. Subcomp. | "COMPONENT IpiFr Route (R)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP IpiFr Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group provides the provisionable attributes for the IpiFr component. |

## ATTRIBUTE IpiFr ipAddress (ipa)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the unique Internet Protocol (IP) Address that represents the IP address of the IPI service. |
| Values | IP address |
| Default | 0.0.0.0 |

## ATTRIBUTE IpiFr maximumNumberOfLcn (maxLcn)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the maximum number of LCNs that are supported on this service. It specifies the maximum number of connections from external network management sites to this IpiFr service. |
| Values | Decimal (24) |
| Default | 24 |

## ATTRIBUTE IpiFr subnetMask (sm)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the subnetwork mask for the IPI service. |
| Values | IP address |
| Default | 255.0.0.0 |

## COMPONENT IpiFr DataNetworkAddress (Dna)

| | |
|---|---|
| Groups | "GROUP IpiFr Dna Address"<br>"GROUP IpiFr Dna OutgoingOptions"<br>"GROUP IpiFr Dna IncomingOptions"<br>"GROUP IpiFr Dna CallOptions" |

| | |
|---|---|
| Scope | Application |
| Description | *IpiFr Dna*<br>This is the description of the Ipi Frame Relay *Dna* component. It is offers a subset of the generic *Dna* component attributes |
| Opt. Subcomp. | "COMPONENT IpiFr Dna ClosedUserGroup (Cug)" |
| Common Verbs | Help<br>List<br>Display |

## GROUP IpiFr Dna Address

| | |
|---|---|
| Properties | Provisioned |
| Description | *Address* group contains attributes common to all *Dna's*. Every *Dna* used in the network is defined with this group of 2 attributes. String of address digits is complemented by type of address and Npi. These attributes are used to interpret format of the address digits. |

## ATTRIBUTE IpiFr Dna numberingPlanIndicator (npi)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute indicates the Numbering Plan Indicator (NPI) of the *Dna* that is entered. Address may belong to X.121 or E.164 plans. X.121 is used in packet switched data networks. |
| Values | x121<br>e164 |
| Default | x121 |

## ATTRIBUTE IpiFr Dna dataNetworkAddress (dna)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | *Dna* attribute contains digits which form unique identifier of the customer interface. It can be compared (approximation only) to |

telephone number where phone number identifies unique telephone set. *Dna* digits are selected and assigned by network operators. *MaximumLenOfDna* is 15digits.

Values BCD (1..15)

Default No default

### GROUP IpiFr Dna OutgoingOptions

Properties Provisioned

Description *OutgoingOptions* group defines call options of a *Dna* for calls which are made out of the interface represented by *Dna*. All these options are not used for calls arriving to the interface represented by *Dna*.

### ATTRIBUTE IpiFr Dna outCalls (ouc)

Access Read only

Description This attribute, if set to a value of ***allowed*** indicates that outgoing calls (from the DTE to the network) can be made using this particular *D*na. If set to a value of ***disallowed*** , then outgoing calls cannot be made using this *Dna* - such calls will be cleared by the local DCE. This attribute corresponds to the CCITT 'Outgoing Calls Barred' feature for *Dnas* in that outgoing calls are barred if this attribute is set to a value of ***disallowed***. Either *outCalls*, or *incCalls* (or both) must be set to a value of ***allowed*** for this *Dna* to be usable.

Values disallowed
allowed

Default disallowed

### ATTRIBUTE IpiFr Dna outDefaultPriority (odf)

Access Read only

Criticality Component

Description This attribute, if set to ***normal*** indicates that the default priority for outgoing calls (from the DTE to the network) using this particular *Dna* is normal priority - if the priority is not specified

by the DTE. If this attribute is set to ***high*** then the default priority for outgoing calls using this particular *Dna* is high priority.

It can be overridden by the *discardPriority* under *DLCI Direct Call* subcomponent.

Values
normal
high

Default
high

### ATTRIBUTE IpiFr Dna defaultTransferPriority (dtp)

Access
Read and write

Criticality
Component

Description
This attribute specifies the default transfer priority to network for all outgoing calls using this particular *Dna*. It is overRidden by the transferPriority provisioned in the *DLCI* Direct Call sub-component.

The transfer priority is a preference specified by an application according to its delay-sensitivity requirement. Frames with high transfer priority are served by the network before the frames with normal priority.

Each transfer priority contains a predetermined setting for trunk queue (interrupting, delay or throughput), routing metric (delay or throughput).

When the transfer priority is set at ***high***, the trunk queue is set to high, the routing metric is set to delay.

When the transfer priority is set at ***normal***, the trunk queue is set to normal, the routing metric is set to throughput.

The default of *defaultTransferPriority* is ***high.***

Values
normal
high

| | |
|---|---|
| Default | high |

### ATTRIBUTE IpiFr Dna transferPriorityOverRide (tpor)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | When this attribute is set to ***yes***, the called end will use the calling end provisioning data on transfer priority to override its own provisioning data. If it is set ***no***, the called end will use its own provisioning data on transfer priority.<br><br>For more information about transfer priority, please refer to the previous attribute *defaultTransferPriority.*<br><br>The default of *transferPriorityOverRide* is ***yes***. |
| Values | yes<br>no |
| Default | yes |

### GROUP IpiFr Dna IncomingOptions

| | |
|---|---|
| Properties | Provisioned |
| Description | *IncomingOptions* defines set of options for incoming calls. These options are used for calls arriving to the interface represented by *Dna*. For calls originated from the interface, *IncomingOptions* attributes are not used. |

### ATTRIBUTE IpiFr Dna incCalls (inc)

| | |
|---|---|
| Access | Read only |
| Criticality | Component |
| Description | This attribute, if set to a value of ***allowed*** indicates that incoming calls (from the network to the DTE) can be made to this *Dna*. If set to a value of ***disallowed***, then incoming calls cannot be made to this *Dna* - such calls will be cleared by the local DCE. This attribute corresponds to the CCITT 'Incoming Calls Barred' feature for *Dna's* in that incoming calls are barred if this attribute is set to a value of ***disallowed***. |

| | |
|---|---|
| | Either *outCalls*, or *incCalls* (or both) must be set to a value of ***allowed*** for this *Dna* to be usable. |
| Values | disallowed<br>allowed |
| Default | allowed |

### ATTRIBUTE IpiFr Dna incAccess (ina)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute is an extension of the Closed User Group (CUG) facility, as follows:<br>This attribute, if set to a value of ***allowed*** indicates that incoming calls (from the network to the DTE) from the open (non-CUG) part of the network are permitted. It also permits incoming calls from DTEs that have Outgoing Access capabilities. If set to a value of ***disallowed***, then such calls cannot be made to this *Dna* - such calls will be cleared by the local DCE.<br>This attribute corresponds to the CCITT 'Closed User Group with Incoming Access' feature for *Dnas* in that incoming access is granted if this attribute is set to a value of ***allowed***. |
| Values | disallowed<br>allowed |
| Default | disallowed |

### GROUP IpiFr Dna CallOptions

| | |
|---|---|
| Properties | Provisioned |
| Description | *CallOptions* group defines additional options for calls not related directly to direction of a call. |

### ATTRIBUTE IpiFr Dna serviceCategory (cat)

| | |
|---|---|
| Access | Read only |
| Criticality | Component |

| | |
|---|---|
| Description | This attribute is assigned for each different type of service within which this *Dna* is configured. It is placed into the Service Category attribute in the accounting record by both ends of the *Vc*. |
| Values | gsp<br>x25<br>enhancedIti<br>ncs<br>mlti<br>sm<br>ici<br>dsp3270<br>iam<br>mlhi<br>term3270<br>iti<br>bsi<br>hostIti<br>x75<br>hdsp3270<br>api3201<br>sdlc<br>snaMultiHost<br>redirectionServ<br>trSnaTpad<br>offnetNui<br>gasServer<br>vapServer<br>vapAgent<br>frameRelay<br>ipiVc<br>ipiFr |
| Default | ipiFr |

### ATTRIBUTE IpiFr Dna accountClass (acl)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |

| | |
|---|---|
| Description | This attribute specifies the accounting class which is reserved for network operations usage. Its value is returned in the accounting record in the local and remote service type attributes. Use of this attribute is decided by network operator and it is an arbitrary number. |
| Values | Decimal (0..255) |
| Default | 0 |

### ATTRIBUTE IpiFr Dna serviceExchange (sre)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute is an arbitrary number, entered by the network operator. It is included in the accounting record created by *Vc*. |
| Values | Decimal (0..255) |
| Default | 0 |

### COMPONENT IpiFr Dna ClosedUserGroup (Cug)

| | |
|---|---|
| Instance | Decimal (0..255) |
| Groups | "GROUP IpiFr Dna Cug CugOptions" |
| Scope | Application |
| Description | *IpiFr Dna ClosedUserGroup*<br>This group defines options associated with national or international *CUG* Identifier. Other *DNAs* in the network can have *CUGs* defined which groups these *DNAs* by *CUG interlockCode*. If *DNAs* are defined with *CUGs*, calls from *DNAs* which do not have the same *interlockCode* defined are refused. Attributes *incAccess* and *outAccess* can override this rule. *IpiFr* handles only incoming calls. Therefore, Closed User Group for |

this interface is defined for validation of incoming PVC calls only.

Common Verbs

Help
List
Display
Add
DELete

## GROUP IpiFr Dna Cug CugOptions

Properties: Provisioned

Description: This group defines options for a CUG. Attributes in this group define *ClosedUserGroup* options associated with *interlockCode*. *DNA's* with the same *CUG* (*interlockCode*) can make calls within this group. Various combinations which permit or prevent calls in the same *CUG* group are defined here.

## ATTRIBUTE IpiFr Dna Cug type

Access: Read and write

Description: This attribute specifies the CUG type - the CUG is either a national CUG, or an international CUG. International closed user groups are usually established between DTEs for which there is an X.75 Gateway between; whereas national closed user groups are usually established between DTEs for which there is no X.75 Gateway between. (National CUGs cannot normally traverse an X.75 Gateway).
If this attribute is set to ***national***, then the *CUG* is a national *CUG*, in which case, the *dnic* should be left at its default value since it is not part of a national *CUG*. If this attribute is set to ***international***, then the *CUG* is an international *CUG*, in which case, the *dnic* should be set appropriately as part of the *CUG interlockCode*.

Values: national
international

Default: national

### ATTRIBUTE IpiFr Dna Cug dnic

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the *dnic* (Data Network ID Code) of the *CUG* by which packet networks are identified. This attribute is not applicable if the *CUG* is a ***national*** *CUG*, as specified by the CUG *type* attribute. There are usually 1 or 2 *dnics* assigned per country, for public networks. The U.S. is an exception where each BOC has a *dnic*. Also, a group of private networks can have its own *dnic*.<br><br>*dnic* value is not an arbitrary number. It is assigned by international agreement and controlled by CCITT. |
| Values | BCD (4) |
| Default | 0000 |

### ATTRIBUTE IpiFr Dna Cug interlockCode (ilc)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the *CUG* identifier of a national or international *CUG* call. It is an arbitrary number and it also can be called CUG in some descriptions. Interfaces (*DNA's*) defined with this number can make calls to *DNA's* with the same *interlockCode*. |
| Values | Decimal (0..65535) |
| Default | 65535 |

### ATTRIBUTE IpiFr Dna Cug incCalls (inc)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute, if set to ***allowed*** indicates that incoming calls (from the network to the DTE) can be made using this particular CUG. If set to ***disallowed***, then incoming calls cannot be made using this CUG - such calls will be cleared by the local DCE. This attribute corresponds to the CCITT 'Incoming Calls Barred' feature for CUGs in that incoming calls are barred if this attribute is set to a value of ***disallowed***. |

| | |
|---|---|
| Values | disallowed<br>allowed |
| Default | allowed |

## COMPONENT IpiFr LogicalChannelNumber (Lcn)

| | |
|---|---|
| Instance | Decimal (16..39) |
| Groups | "GROUP IpiFr Lcn OsiState (State)"<br>"GROUP IpiFr Lcn Operational (Oper)"<br>"GROUP IpiFr Lcn Provisioned (Prov)" |
| Scope | Application |
| Description | *IpiFr Lcn/n*<br><br>This component represents one *Logical Channel Number* responsible for logical connection with the PVC. There can be up to 24 instances of *Lcn* on the *IpiFr* component. |
| Subcomponents | "COMPONENT IpiFr Lcn DirectCall (Dc)" |
| Dyn. Subcomp. | "COMPONENT IpiFr Lcn Vc" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP IpiFr Lcn OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE IpiFr Lcn adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE IpiFr Lcn operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the |

component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values: enabled (ena)
disabled (dis)

Default: disabled

### ATTRIBUTE IpiFr Lcn usageState (osiUsage)

Access: Read only

Description: This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values: idle
active (activ)
busy

Default: idle

### ATTRIBUTE IpiFr Lcn availabilityStatus (osiAvail)

Access: Read only

Description: If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.

The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.

The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.

The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.

The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The

*operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

### ATTRIBUTE IpiFr Lcn proceduralStatus (osiProc)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.

The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been

initiated. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

## ATTRIBUTE IpiFr Lcn controlStatus (osiCntrl)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is

***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

Set of

subjectToTest (subTst)
partOfServicesLocked (partLk)
reservedForTest (rsrvd)
suspended (suspnd)

Default

No default

### ATTRIBUTE IpiFr Lcn alarmStatus (osiAlarm)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE IpiFr Lcn standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

| | |
|---|---|
| Values | hotStandby (hot)<br>coldStandby (cold)<br>providingService (serv)<br>notSet (nSet) |
| Default | notSet |

### ATTRIBUTE IpiFr Lcn unknownStatus (osiUnknw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Unknown status of the component.<br><br>The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.<br><br>The value ***true*** indicates that the actual state of the component is not known for sure. |
| Values | false<br>true |
| Default | false |

### GROUP IpiFr Lcn Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains status of the internal IP network interface. |

### ATTRIBUTE IpiFr Lcn ipInterfaceDevice (ipIfD)

| | |
|---|---|
| Access | Read only |
| Description | The status of the internal IP network interface is *inactive* until either the remoteIpAddress attribute is provisioned, or an IP packet is exchanged between a Network Management Station and the internal IP network interface (via the LCN). At this point, the status changes to *active*. |
| Values | inactive<br>active |
| Default | inactive |

### ATTRIBUTE IpiFr Lcn opRemoteIpAddress (opRmtIpa)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the IP address of the remote network device connected to this interface. The value is either 0.0.0.0 until the first data packet is received from the remote end, or is the value provisioned in *remoteIpAddress*. |
| Values | IP address |
| Default | 0.0.0.0 |

### ATTRIBUTE IpiFr Lcn packetsSent (pktS)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of IP packets sent from this interface. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE IpiFr Lcn packetsReceived (pktRx)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of IP packets received from the remote network device. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE IpiFr Lcn discardTxPackets (discTxPkt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of IP packets destined to the remote end which were discarded by this interface. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE IpiFr Lcn discardRcvPackets (discRxPkt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of IP packets received from the remote end which were discarded by this interface. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP IpiFr Lcn Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group provides the provisionable attributes for the *IpiFR Lcn* component. |

### ATTRIBUTE IpiFr Lcn remoteIpAddress (rmtIpa)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the IP address of the remote device connected to this *Lcn* interface. This device can be a host, and / or a gateway. If the device is a gateway, and *StaticRoute*s are defined using this gateway, it is recommended that this attribute be set. It is also recommended to set this attribute, if management applications such as Software Download and SNMP, which can initiate IP traffic with Network Management Stations, are potentially using this *Lcn* interface. IP routing information within IpiFr is not known or activated for this *Lcn* interface until the remoteIpAddress is known.<br><br>When the destination IpAddress is left at its default value of 0.0.0.0, the calling IP address is learnt from the first data packet received. |
| Values | IP address |
| Default | 0.0.0.0 |

### COMPONENT IpiFr Lcn DirectCall (Dc)

| | |
|---|---|
| Groups | "GROUP IpiFr Lcn Dc Options" |

| | |
|---|---|
| Scope | Application |
| Description | *IPIFR Lcn/x DC*<br>This component defines direct call options for calls issued without operator intervention. Connection is complete and can be initiated automatically. |
| Common Verbs | Help<br>List<br>Display |

## GROUP IpiFr Lcn Dc Options

| | |
|---|---|
| Properties | Provisioned |
| Description | Options group defines attributes associated with direct call. It defines complete connection in terms of path and call options. This connection can be permanent (pvc) or, in future release, switched (svc). It can have facilities. The total number of bytes of facilities including the facility codes, and all of the facility data from all of the four classes of facilities:<br>CCITT_Facilities<br>DTE_Facilities<br>National_Facilities<br>International_Facilities<br>must not exceed 512 bytes. |

## ATTRIBUTE IpiFr Lcn Dc remoteNpi (rnpi)

| | |
|---|---|
| Access | Read and write |
| Description | RemoteNumbering Plan Indicator (Npi) indicates the numbering plan used in the *remoteDna*. |
| Values | x121<br>e164 |
| Default | x121 |

## ATTRIBUTE IpiFr Lcn Dc remoteDna (rdna)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute specifies the Data Network Address (*Dna*) of the remote. This is the called (destination) DTE address (*Dna*) to which this direct call will be sent. Initially, the called DTE address attribute must be present, that is, there must be a valid destination address. However, it may be possible in the future to configure the direct call with a mnemonic address, in which case, this attribute will contain a zero-length *Dna*, and the mnemonic address will be carried as one of the facilities. |
| Values | BCD (1..15) |
| Default | No default |

### ATTRIBUTE IpiFr Lcn Dc remoteDlci (rdlci)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute provides the value of the remote DLCI (Data Link Connection Identifier) |
| Values | Decimal (16..1007) |
| Default | No default |

### ATTRIBUTE IpiFr Lcn Dc type

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the type of *Vc* call:<br>***permanentMaster***,<br>***permanentSlave***,<br><br>If the value is set to ***permanentMaster,*** then a permanent connection will be established between 2 ends. The remote end must be defined as a ***permanentSlave, permanentBackupSlave*** or ***permanentSlaveWithBackup***. The connection cannot be established if the remote end is defined as anything else. The end defined as ***permanentMaster*** always initiates the calls. It will attempt to call once per minute.<br><br>If the value is set to ***permanentSlave*** then a permanent connection will be established between 2 ends. The remote end must be defined as a ***permanentMaster.*** The connection cannot |

be established if the remote end is defined as anything else. The ***permanentSlave*** *end* will attempt to call once per minute.

Values
permanentMaster (master)
permanentSlave (slave)

Default
permanentSlave

### ATTRIBUTE IpiFr Lcn Dc transferPriority (tp)

Access
Read and write

Description
This attribute specifies the transfer priority to network for the outgoing calls using this particular *DLCI*. It overRides the *defaultTransferPriority* provisioned in its associated *Dna* component.

The transfer priority is a preference specified by an application according to its delay-sensitivity requirement. Frames with high transfer priority are served by the network before the frames with normal priority.

Each transfer priority contains a predetermined setting for trunk queue (interrupting, delay or throughput), routing metric (delay or throughput).

When the transfer priority is set at ***high***, the trunk queue is set to high, the routing metric is set to delay.

When the transfer priority is set at ***normal***, the trunk queue is set to normal, the routing metric is set to throughput.

The default of *transferPriority* is ***useDnaDefTP***. It means using the provisioning value under *defaultTransferPriority* of its associated *Dna* for this *DLCI*.

Values
normal
high
useDnaDefTP

Default
useDnaDefTP

## ATTRIBUTE IpiFr Lcn Dc discardPriority (dp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the discard priority for outgoing call using this *DLCI*.<br><br>The discard priority has three provisioning values: ***normal***, ***high***, and ***useDnaDefPriority***. Traffic with normal priority are discarded<br>first than the traffic with high priority. The *Dna* default value (provisioned by *outDefaultPriority*) is taken if this attribute is set to the value ***useDnaDefPriority***.<br><br>The default of *discardPriority* is ***useDnaDefPriority***. |
| Values | normal<br>high<br>useDnaDefPriority |
| Default | useDnaDefPriority |

## COMPONENT IpiFr Lcn Vc

| | |
|---|---|
| Groups | "GROUP IpiFr Lcn Vc CallData (Cad)"<br>"GROUP IpiFr Lcn Vc IntervalData (Intd)"<br>"GROUP IpiFr Lcn Vc FrameRelayData (Frd)" |
| Scope | Application |
| Description | This component defines attributes collected by Frame Relay *Vc*. |
| Common Verbs | Help<br>List<br>Display |

## VERB Ping IpiFr Lcn Vc

Impact: Passive

Description: *Ping [-roundTripDelay] [-sendPktDataSize(octets)] [-returnPktDataSize(octets)] FrUni/<n> Dlci/<n> Vc*

*Ping* causes a query packet to be sent to the destination module where the Frame Relay DLCI VC terminates. It can be used to either display the path of the VC being used by the Frame Relay DLCI or to measure the round trip delay of the Frame Relay DLCI connection. Since the query packet carries the same path selector as the Frame Relay data packets and the Frame Relay VC's transfer priority (TP) is used to set the RCOS, reliability and emission priority of the query packet, the path taken by the *ping* query packet will be the same as that of the Frame Relay data except at the source and destination module. The *ping* packets originate from the CP rather than the Frame Relay DLCI's FP. At the far end, it is also the CP that receives the ping packets and returns them, rather than the Frame Relay FP.

Note that this command does not provide any information regarding the status of the far end VC process. If, however, the destination module is unreachable or the VC path is congested, the operator will be notified.

The *ping* command can be issued with or without options. If no options are specified, the command reports the path of the VC associated with the Frame Relay DLCI. When the command is used to find the VC path, it displays the RID and MID of each module that the query packet passes through on its way to the destination. If the *roundTripDelay* option is specified, the command reports the time taken to reach the destination and back. For the *roundTripDelay* option, the path taken by the query packets in both directions (from the source to the destination and from the destination back to the source) is the same as that of the Frame Relay data except at the source and destination where the *ping* packets are generated and bounced back by the CP rather than the Frame Relay DLCI's FP.

The *ping* command supports the following options:

*-roundTripDelay (-rtd):* If this option is selected, the round trip delay time to reach the destination and back will be reported. The round trip delay is calculated by timing how long it takes to send five packets to the destination node and back. The packet size can be specified using the *sendPktSize* and *returnPktSize* options. The minimum, maximum and average time taken by the returned packets are reported. If this option is not selected, the path taken to the destination is displayed.

*-sendPktDataSize:* This option specifies the number of data octets to be included in the round trip delay query packet. The rtd query packet consists of the Passport common header (2 octets), the subnet header (11 octets), plus the data. The minimum data size is 12, since 12 octets are required to carry the ping control information. If the value specified for this option is less than 12, 12 octets are sent to the destination. The actual number of data octets sent is displayed in the ping response. Note that the total packet size (headers plus data) is identical to that of a Frame Relay packet carrying the same number of octets of data.

If this option is not selected the default value is 64 octets if *transferPriority* of the *Frame Relay DLCI Dc* is 11, and 128 octets otherwise. This option is ignored if the *-rtd* option is not specified. If the specified packet data size exceeds the capability of some facilities on the path, the packet will be discarded and the operator will get the timeout response.

*-returnPktDataSize:* This option specifies the number of data octets to be included in the round trip delay acknowledge packet. The rtd acknowledge packet consists of the Passport common header (2 octets), the subnet header (11 octets), plus the data. The minimum data size is 12, since 12 octets are required to carry the ping control information. If the value specified for this option is

less than 12, 12 octets are returned to the source. The actual number of data octets returned is displayed in the ping response. Note that the total packet size (headers plus data) is identical to that of a Frame Relay packet carrying the same number of octets of data.

If this option is not selected the default value is 64 octets if *transferPriority* of the *Frame Relay DLCI Dc* is 11, and 128 octets otherwise. This option is ignored if the *-rtd* option is not specified. If the specified packet data size exceeds the capability of some facilities on the path, the packet will be discarded and the operator will get the timeout response.

### GROUP IpiFr Lcn Vc CallData (Cad)

| | |
|---|---|
| Properties | Operational |
| Description | This group represents operational call data related to Frame Relay *Vc*. It can be displayed only for Frame Relay *Vc* which is created by application. |

### ATTRIBUTE IpiFr Lcn Vc type

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the type of call, ***pvc***, ***svc, spvc*** or ***frf10spvc***. |
| Values | pvc<br>svc<br>spvc<br>frf10spvc |
| Default | No default |

### ATTRIBUTE IpiFr Lcn Vc state

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the state of call control. P5 state is not supported but is listed for completeness. Transitions from one state to another take very short time. *state* most often displayed is ***dataTransferP4***. |

| | |
|---|---|
| Values | creating<br>readyP1<br>dteWaitingP2<br>dceWaitingP3<br>dataTransferP4<br>unsupportedP5<br>dteClearRequestP6<br>dceClearIndicationP7<br>termination |
| Default | No default |

### ATTRIBUTE IpiFr Lcn Vc previousState

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the previous state of call control. This is a valuable field to determine how the processing is progressing. |
| Values | creating<br>readyP1<br>dteWaitingP2<br>dceWaitingP3<br>dataTransferP4<br>unsupportedP5<br>dteClearRequestP6<br>dceClearIndicationP7<br>termination |
| Default | No default |

### ATTRIBUTE IpiFr Lcn Vc diagnosticCode

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the internal substate of call control. It is used to further refine *state* of call processing. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE IpiFr Lcn Vc previousDiagnosticCode

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute displays the internal substate of call control. It is used to further refine *state* of call processing. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE IpiFr Lcn Vc calledNpi

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the Numbering Plan Indicator (NPI) of the called end. |
| Values | x121<br>e164 |
| Default | No default |

### ATTRIBUTE IpiFr Lcn Vc calledDna

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the Data Network Address (*Dna*) of the called (destination) DTE to which this call is sent. This address if defined at receiving end will complete *Vc* connection. |
| Values | BCD (1..15) |
| Default | No default |

### ATTRIBUTE IpiFr Lcn Vc calledLcn

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the Logical Channel Number of the called end. It is valid only after both ends of *Vc* exchanged relevant information. |
| Values | Decimal (1..65535) |
| Default | No default |

### ATTRIBUTE IpiFr Lcn Vc callingNpi

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute displays the Numbering Plan Indicator (NPI) of the calling end. |
| Values | x121<br>e164 |
| Default | No default |

### ATTRIBUTE IpiFr Lcn Vc callingDna

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the Data Network Address (*Dna*) of the calling end. |
| Values | BCD (1..15) |
| Default | No default |

### ATTRIBUTE IpiFr Lcn Vc callingLcn

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the Logical Channel Number of the calling end. |
| Values | Decimal (1..65535) |
| Default | No default |

### ATTRIBUTE IpiFr Lcn Vc accountingEnabled

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates that this optional section of accounting record is suppressed or permitted. If *accountingEnabled* is ***yes***, conditions for generation of accounting record were met. These conditions include billing options, vc recovery conditions and Module wide accounting data options. |
| Values | yes<br>no |
| Default | No default |

### ATTRIBUTE IpiFr Lcn Vc fastSelectCall

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays that this is a fast select call. |
| Values | yes<br>no |
| Default | No default |

### ATTRIBUTE IpiFr Lcn Vc pathReliability

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the path reliability. |
| Values | high<br>normal |
| Default | No default |

### ATTRIBUTE IpiFr Lcn Vc accountingEnd

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates if this end should generate an accounting record. Normally, ***callingEnd*** is the end to generate an accounting record. |
| Values | callingEnd<br>calledEnd |
| Default | No default |

### ATTRIBUTE IpiFr Lcn Vc priority

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays whether the call is a ***normal*** or a ***high*** priority call. |
| Values | normal<br>high |
| Default | No default |

### ATTRIBUTE IpiFr Lcn Vc segmentSize

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the segment size (in bytes) used on the call. It is used to calculate the number of segments transmitted and received. |
| Values | Decimal (0..4096) |
| Default | No default |

### ATTRIBUTE IpiFr Lcn Vc maxSubnetPktSize

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the maximum packet size allowed on the *Vc*. |
| Values | Decimal (0..4096) |
| Default | No default |

### ATTRIBUTE IpiFr Lcn Vc rcosToNetwork (rcosto)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the routing metric routing class of service to<br>the network. |
| Values | throughput<br>delay<br>multimedia |
| Default | No default |

### ATTRIBUTE IpiFr Lcn Vc rcosFromNetwork (rcosfrom)

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the routing metric Routing Class of Service from the Network. |
| Values | throughput<br>delay<br>multimedia |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE IpiFr Lcn Vc emissionPriorityToNetwork (epto)

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the network internal emission priority to the network. |
| Values | normal<br>high<br>interrupting |
| Default | No default |

### ATTRIBUTE IpiFr Lcn Vc emissionPriorityFromNetwork (epfrom)

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the network internal emission priority from the network. |
| Values | normal<br>high<br>interrupting |
| Default | No default |

### ATTRIBUTE IpiFr Lcn Vc dataPath (dapa)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the data path used by the connection. The data path is provisioned in *Dna* and *DirectCall* components. The displayed value of this attribute can be different from the provisioned value.<br><br>If the connection is using ***dprsOnly*** data path, the string ***dprsOnly*** is displayed. (dynamic packet routing system)<br><br>If the connection is using ***dprsMcsOnly*** data path, the string ***dprsMcsOnly*** is displayed. |

| | |
|---|---|
| | If the connection is using ***dprsMcsFirst*** data path, the string ***dprsMcsFirst*** is displayed. |
| Values | String (0..32, ASCII) |
| Default | No default |

### ATTRIBUTE IpiFr Lcn Vc dprsMcsEndPoint (dmep)

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the data path used by the connection. Data path is provisioned in *Dna* and *DirectCall* components.<br><br>If the connection is using ***dprsOnly*** data path, this attribute is empty.<br><br>If the connection is using ***dprsMcsOnly*** or ***dprsMcsFirst*** data path, this attribute displays component name of the dprsMcsEndPoint. |
| List of | The name of the component |
| Default | No default |

### GROUP IpiFr Lcn Vc IntervalData (Intd)

| | |
|---|---|
| Properties | Operational |
| Description | This group defines display of interval data collected by *Vc*. Data in this group is variable and may depend on time when this *display* command is issued. |

### ATTRIBUTE IpiFr Lcn Vc elapsedTimeTillNow

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the elapsed time representing the period of this interval data. It is elapsed time in 0.1 second increments since *Vc* started. |
| Values | Decimal (0..16777215) |
| Default | No default |

### ATTRIBUTE IpiFr Lcn Vc segmentsRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of segments received at the time command was issued. This is the segment received count maintained by accounting at each end of the *Vc*. This counter is updated only when the packet cannot be successfully delivered out of the sink *Vc* and to the sink AP Conditions in which packets may be discarded by the sink *Vc* include: missing packets due to subnet discards, segmentation protocol violations due to subnet discard, duplicated and out-of-ranged packets and packets that arrive while *Vc* is in path recovery state. |
| Values | Decimal (0..16777215) |
| Default | No default |

### ATTRIBUTE IpiFr Lcn Vc segmentsSent

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of segments sent at the time command was issued. This is the segment sent count maintained by accounting at the source *Vc*. *Vc* only counts packets that *Vc* thinks can be delivered successfully into the subnet. In reality, these packets may be dropped by trunking, for instance. This counter is not updated when splitting fails, when *Vc* is in a path recovery state, when packet forwarding fails to forward this packet and when subsequent packets have to be discarded as we want to minimize the chance of out-of-sequence and do not intentionally send out-of-sequenced packets into the subnet. |
| Values | Decimal (0..16777215) |
| Default | No default |

### ATTRIBUTE IpiFr Lcn Vc startTime

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the start time of this interval period. If *Vc* spans 12 hour time or time of day change *startTime* reflects new time as recorded at 12 hour periods or time of day changes. |

| | |
|---|---|
| Values | Time (DHMS) |
| Default | No default |

### ATTRIBUTE IpiFr Lcn Vc callReferenceNumber

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the call reference number which is a unique number generated by the switch.The same Call Reference Number is stored in the interval data (accounting record) at both ends of the call. It can be used as one of the attributes in matching duplicate records generated at each end of the call. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP IpiFr Lcn Vc FrameRelayData (Frd)

| | |
|---|---|
| Properties | Operational |
| Description | This group defines Frame Relay attributes collected by Frame Relay *Vc*.<br>The purpose of *Vc* attributes is to aid end users and verification people to understand the *Vc* internal behavior. This is particularly useful when the network has experienced abnormality and we want to isolate problems and pinpoint trouble spots.<br>Attributes are collected on a per *Vc* basis. Until a need is identified, statistics are not collected at a processor level. Each attribute is stored in a 32 bit field and is initialized to zero when a *Vc* enters into the data transfer state. When a PVC is disconnected and then connected again, the attributes will be reset. Attributes cannot be reset through other methods.<br>Frame Relay *Vc* uses a best effort data packet delivery protocol and a different packet segmentation and combination methods from the General *Vc*. The Frame Relay *Vc* uses the same call setup and control mechanism (e.g. the support of non-flow control data packets) as in a General *Vc*. Most General *Vc* statistics and internal variables are used in a Frame Relay *Vc* and are displayed by software developers |

### ATTRIBUTE IpiFr Lcn Vc frmCongestedToSubnet

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of frames from link discarded due to lack of resources. It keeps track of the number of frames from link that have to be discarded. The discard reasons include insufficient memory for splitting the frame into smaller subnet packet size. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE IpiFr Lcn Vc cannotForwardToSubnet

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of discarded packets that can not be forwarded into the subnet because of subnet congestion. Number of frames from link discarded due to failure in forwarding a packet from *Vc* into the subnet.- This attribute is increased when packet forwarding fails to forward a packet into the subnet. If a frame is split into multiple subnet packets and a partial packet has to be discarded, all subsequent partial packets that have not yet been delivered to the subnet will be discarded as well. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE IpiFr Lcn Vc notDataXferToSubnet

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the number of frames from link discarded when the *Vc* tries to recover from internal path failure. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE IpiFr Lcn Vc outOfRangeFrmFromSubnet

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute displays the number of frames from subnet discarded due to out of sequence range for arriving too late. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE IpiFr Lcn Vc combErrorsFromSubnet

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the number of subnet packets discarded at the sink *Vc* due to the *Vc* segmentation and combination protocol error. Usually, this occurs when the subnet discards packets and thus this statistics can be used to guest the number of subnet packets that are not delivered to the *Vc*. It cannot be used as an actual measure because some subnet packets may have been delivered to *Vc* but have to be discarded because these are partial packets to a frame in which some other partial packets have not been properly delivered to *Vc* |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE IpiFr Lcn Vc duplicatesFromSubnet

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of subnet packets discarded due to duplication. Although packets are not retransmitted by the Frame Relay *Vc*, it is possible for the subnet to retransmit packets. When packets are out-of-sequenced and copies of the same packets arrive, then this attribute is increased. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE IpiFr Lcn Vc notDataXferFromSubnet

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of subnet packets discarded when data transfer is suspended in *Vc* recovery. |

| | |
|---|---|
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE IpiFr Lcn Vc frmLossTimeouts

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of lost frame timer expiries. When this count is excessive, the network is very congested and packets have been discarded in the subnet. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE IpiFr Lcn Vc ooSeqByteCntExceeded

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number times that the out of sequence byte threshold is exceeded. When the threshold is exceeded, this condition is treated as if the loss frame timer has expired and all frames queued at the sink *Vc* are delivered to the AP. We need to keep this count to examine if the threshold is engineered properly. This should be used in conjunction with the peak value of out-of-sequenced queue and the number of times the loss frame timer has expired. This count should be relatively small when compared with loss frame timer expiry count. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE IpiFr Lcn Vc peakOoSeqPktCount

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the frame relay peak packet count of the out of sequence queue. This attribute records the maximum queue length of the out-of-sequenced queue. The counter can be used to deduce the message buffer requirement on a *Vc*. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE IpiFr Lcn Vc peakOoSeqFrmForwarded

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the frame relay peak size of the sequence packet queue. The subnet may deliver packets out-of-sequenced. These packets are then queued in an out-of-sequenced queue, waiting for a packet with the expected sequence number to come. When that packet arrives, this attribute records the maximum number of packets that were out-of-sequenced, but now have become in-sequenced. The statistics is used to measure expected queue size due to normal subnet packet disorder (not due to subnet packet discard). Current implementation also uses this statistics to set a maximum size for the out-of-sequenced queue. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE IpiFr Lcn Vc sendSequenceNumber

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the Vc internal packet's send sequence number. Note that a "packet" in this context, may be either a user data packet, or an OAM frame. |
| Values | Decimal (0..1048575) |
| Default | No default |

### ATTRIBUTE IpiFr Lcn Vc pktRetryTimeouts

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of packets which have retransmission time-outs. When this count is excessive, the network is very congested and packets have been discarded in the subnet. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE IpiFr Lcn Vc peakRetryQueueSize

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the peak size of retransmission queue. This attribute is used as an indicator of the acknowledgment behavior across the subnet. Records the largest body of unacknowledged packets. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE IpiFr Lcn Vc subnetRecoveries

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of successful *Vc* recovery attempts. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE IpiFr Lcn Vc ooSeqPktCntExceeded

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number times that the out of sequence packet threshold is exceeded. When the threshold is exceeded, this condition is treated as if the loss frame timer has expired and all frames queued at the sink *Vc* are delivered to the AP. We need to keep this count to examine if the threshold is engineered properly. This should be used in conjunction with the peak value of out-of-sequenced queue and the number of times the loss frame timer has expired. This count should be relatively small when compared with loss frame timer expiry count. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE IpiFr Lcn Vc peakOoSeqByteCount

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute displays the frame relay peak byte count of the out of sequence queue. This attribute records the maximum queue length of the out-of-sequenced queue. The counter can be used to deduce the message buffer requirement on a *Vc*. |
| Values | Decimal (0..50000) |
| Default | No default |

## COMPONENT IpiFr StaticRoute (Sr)

| | |
|---|---|
| Instance | IP address |
| Groups | "GROUP IpiFr Sr Provisioned (Prov)" |
| Scope | Application |
| Description | *IpiFr StaticRoute/destIpAddress*<br><br>This component contains information for setting up a static routes on the IpiFr service. These provisioned static IP routes allow the ability to specify IP routes to Network Management Stations which are not directly connected to the Passport module. The component is indexed by a destination IP Address. It represents the static IP route to a particular IP host, subnetwork, or network. The default route IP address is indexed by 0.0.0.0 .<br><br>Note that subnetwork routes are identified using IpiFr's provisioned subnetMask. This subnetMask only applies to the IP network for which IpiFr's IP Address belongs. Therefore, subnetwork routes are only supported for this local IP network. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP IpiFr Sr Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |

| | |
|---|---|
| Description | This group provides the provisionable parameters for setting up a static route. |

### ATTRIBUTE IpiFr Sr gatewayIpAddress (gtyIpa)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | The attribute specifies the IP Address of the next hop in this route to the destination IP Address. For this static route to be active, the value of this attribute must match the *opRemoteIpAddress* attribute of one of the *Lcn* components. |
| Values | IP address |
| Default | 0.0.0.0 |

### ATTRIBUTE IpiFr Sr backupGatewayIpAddress (bGtyIpa)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | The attribute specifies an ordered list of alternative gateways to use for the route to the destination IP Address. This attribute is only supported for the default route.<br><br>If the *Lcn* interface of the current gateway IP Address fails, then the *backupGatewayIpAddress*es, listed in this attribute, are searched, in order, for a gatewayIpAddress with an enabled *Lcn*. If found, the static route to this destination IP Address is updated to use the found gateway IP Address.<br><br>Note that an *Lcn* interface can fail due to either the *Vc* through the Passport Network failing, or an *Lmi* indication that the far-end link is failed. |
| Values | IP address |
| Replication | Decimal (1..23) |
| Default | No default |

## COMPONENT IpiFr Route (R)

| | |
|---|---|
| Instance | IP address |
| Groups | "GROUP IpiFr R Operational (Oper)" |
| Scope | Application |
| Description | *IpiFr Route/destIpAddress*<br><br>This dynamic component represents an active IP route within the IpiFr service. The component is indexed by the destination IP Address of the IP route. It represents the IP route to a particular IP host, subnetwork, or network. The default route IP address is indexed by 0.0.0.0 .<br><br>Note that only an active route is shown as an *IpiFr Route/ <IP_Address>* . A provisioned static route (i.e. *IpiFr StaticRoute/ <IP_Address>*) will be listed as an active route only if it's Lcn interface is enabled (i.e. the associated *Vc* through the Passport network is up, and the FrameRelay *Lmi* is reporting the far-end link is up ) . |
| Common Verbs | Help<br>List<br>Display |

## GROUP IpiFr R Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational status of the static route |

## ATTRIBUTE IpiFr R gtyIpAddr (gtyIpa)

| | |
|---|---|
| Access | Read only |
| Description | The attribute specifies the IP Address of the next hop in this route to the destination IP Address. |
| Values | IP address |
| Default | 0.0.0.0 |

### ATTRIBUTE IpiFr R lcnIf (lcnIf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the *Lcn* interface used by this IP route. |
| Values | Decimal (16..39) |
| Default | No default |

### ATTRIBUTE IpiFr R type

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether a route is going to a host or a subnet or a network. |
| Values | host<br>subnet<br>network |
| Default | No default |

Passport 7400, 15000, 20000

# Component IpiFr

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component Ipivc

241-5701-060

Passport 7400, 15000, 20000

# Component Ipivc

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT IpInterfaceOverVc (Ipivc)

| | |
|---|---|
| Groups | "GROUP Ipivc Provisioned (Prov)" |
| Scope | Application |
| Description | IpiVc<br><br>The IP interface over VC allows access to the module for external network management. |
| Subcomponents | "COMPONENT Ipivc DataNetworkAddress (Dna)" |
| Opt. Subcomp. | "COMPONENT Ipivc DefaultRoute (Dr)" |
| Dyn. Subcomp. | "COMPONENT Ipivc LogicalChannelNumber (Lcn)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Ipivc Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the IpiVc component. |

## ATTRIBUTE Ipivc ipAddress (ipa)

| | |
|---|---|
| Access | Read and write |
| Description | This IP Address represents the IP address of the IP interface. |

| | |
|---|---|
| Values | IP address |
| Default | 0.0.0.0 |

### ATTRIBUTE Ipivc maximumNumberOfLcn (maxLcn)

| | |
|---|---|
| Access | Read only |
| Description | This attribute contains the maximum number of LCNs that can be setup to the IP Interface over Vc. It defines the maximum number of calls that the external network management systems can setup to IpiVc simultaneously. |
| Values | Decimal (24) |
| Default | 24 |

### COMPONENT Ipivc DataNetworkAddress (Dna)

| | |
|---|---|
| Groups | "GROUP Ipivc Dna Address"<br>"GROUP Ipivc Dna OutgoingOptions"<br>"GROUP Ipivc Dna IncomingOptions"<br>"GROUP Ipivc Dna CallOptions" |
| Scope | Application |
| Description | *IpiVc Dna*<br>This is the description of the generic Vc Dna Component. It includes the superset of all attributes which may apply to a VC. Particular applications will typically offer only a subset of these attributes by providing a definition of their own Dna subcomponent. |
| Subcomponents | "COMPONENT Ipivc Dna ClosedUserGroup (Cug)" |
| Common Verbs | Help<br>List<br>Display |

### GROUP Ipivc Dna Address

| | |
|---|---|
| Properties | Provisioned |
| Description | DnaAddress group contains attributes common to all Dna’s. Every Dna used in the network is defined with this group 0f 2 |

attributes. String of address digits is complemented by type of address and Npi. These attributes are used to interpret format of the address digits.

### ATTRIBUTE Ipivc Dna numberingPlanIndicator (npi)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute indicates the Numbering Plan Indicator (NPI) of the Dna that is entered. Address may belong to X.121 or E.164 plans. X.121 is used in packet switched data networks. |
| Values | x121<br>e164 |
| Default | x121 |

### ATTRIBUTE Ipivc Dna dataNetworkAddress (dna)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | *Dna* attribute contains digits which form unique identifier of the customer. It is the equivalent of the telephone number in the telephone network. MaximumLenOfDna is 15digits. |
| Values | BCD (1..15) |
| Default | No default |

### GROUP Ipivc Dna OutgoingOptions

| | |
|---|---|
| Properties | Provisioned |
| Description | DnaOutOptionsProv group defines call options of a Dna for calls which are made out of the interface represented by Dna. All these options are not used for calls arriving to the interface represented by Dna. |

### ATTRIBUTE Ipivc Dna outCalls (ouc)

| | |
|---|---|
| Access | Read only |
| Criticality | Component |

| | |
|---|---|
| Description | This attribute, if set to a value of ***allowed*** indicates that outgoing calls (from the DTE to the network) can be made using this particular DNA. If set to a value of ***disallowed***, then outgoing calls cannot be made using this DNA - such calls will be cleared by the local DCE. This attribute corresponds to the CCITT 'Outgoing Calls Barred' feature for DNAs in that outgoing calls are barred if this attribute is set to a value of ***disallowed***. Either *outCalls*, or *incCalls* (or both) must be set to a value of ***allowed*** for this DNA to be usable. |
| Values | disallowed<br>allowed |
| Default | disallowed |

### ATTRIBUTE Ipivc Dna defaultTransferPriority (dtp)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the default transfer priority to network for all outgoing calls using this particular *Dna*. It is overRidden by the transferPriority provisioned in the *DLCI* Direct Call sub-component.<br><br>The transfer priority is a preference specified by an application according to its delay-sensitivity requirement. Frames with high transfer priority are served by the network before the frames with normal priority.<br><br>Each transfer priority contains a predetermined setting for trunk queue (interrupting, delay or throughput), routing metric (delay or throughput).<br><br>When the transfer priority is set at ***high***, the trunk queue is set to high, the routing metric is set to delay.<br><br>When the transfer priority is set at ***normal***, the trunk queue is set to normal, the routing metric is set to throughput.<br><br>The default of *defaultTransferPriority* is ***normal***. |

| | |
|---|---|
| Values | normal<br>high |
| Default | normal |

### ATTRIBUTE Ipivc Dna transferPriorityOverRide (tpor)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | When this attribute is set to ***yes***, the called end will use the calling end provisioning data on transfer priority to override its own provisioning data. If it is set ***no***, the called end will use its own provisioning data on transfer priority.<br><br>For more information about transfer priority, please refer to the previous attribute *defaultTransferPriority.*<br><br>The default of *transferPriorityOverRide* is ***no***. |
| Values | yes<br>no |
| Default | no |

### GROUP Ipivc Dna IncomingOptions

| | |
|---|---|
| Properties | Provisioned |
| Description | DnaIncOptions defines a set of options for incoming calls. These options are used for calls arriving to the interface represented by Dna. For calls originated from the interface, IncomingOptions attributes are not used. |

### ATTRIBUTE Ipivc Dna incCalls (inc)

| | |
|---|---|
| Access | Read only |
| Criticality | Component |
| Description | This attribute, if set to a value of ***allowed*** indicates that incoming calls (from the network to the DTE) can be made to this DNA. If set to a value of ***disallowed***, then incoming calls cannot be made to this DNA - such calls will be cleared by the local DCE. This |

attribute corresponds to the CCITT 'Incoming Calls Barred' feature for DNAs in that incoming calls are barred if this attribute is set to a value of ***disallowed***.

Either *outCalls*, or *incCalls* (or both) must be set to a value of ***allowed*** for this DNA to be usable.

Values: disallowed
allowed

Default: allowed

### ATTRIBUTE Ipivc Dna incHighPriorityReverseCharge (ihp)

Access: Read only

Criticality: Component

Description: This attribute, if set to a value of ***allowed*** indicates that incoming high priority, reverse charged calls (from the network to the DTE) can be made to this DNA. If set to a value of ***disallowed***, then such calls cannot be made to this DNA - such calls will be cleared by the local DCE.
This attribute, together with the *incNormalPriorityReverseChargeCalls* attribute corresponds to the CCITT 'Reverse Charging Acceptance' feature for DNAs in that reverse charged calls are accepted if both attributes are set to a value of ***allowed***.
This attribute is ignored if the corresponding attribute, incCalls is set to a value of ***disallowed***.

Values: disallowed
allowed

Default: allowed

### ATTRIBUTE Ipivc Dna incNormalPriorityReverseCharge (inp)

Access: Read only

Criticality: Component

Description: This attribute, if set to a value of ***allowed*** indicates that incoming normal priority, reverse charged calls (from the network to the DTE) can be made to this DNA. If set to a value of ***disallowed***,

then such calls cannot be made to this DNA - such calls will be cleared by the local DCE.
This attribute, together with the *incHighPriorityReverseChargeCalls* attribute corresponds to the CCITT 'Reverse Charging Acceptance' feature for DNAs in that reverse charged calls are accepted if both attributes are set to a value of ***allowed***.
This attribute is ignored if the corresponding attribute, *incCalls* is set to a value of ***disallowed***.

Values: disallowed
allowed

Default: allowed

### ATTRIBUTE Ipivc Dna incIntlNormalCharge (iin)

Access: Read only

Criticality: Component

Description: This attribute, if set to a value of ***allowed*** indicates that incoming international normal charged calls (from the network to the DTE) can be made to this DNA. If set to a value of ***disallowed***, then such calls cannot be made to this DNA - such calls will be cleared by the local DCE.
This attribute also currently controls access to/from the E.164 numbering plan, and if set to a value of ***allowed***, then cross-numbering plan calls (also normal charged) are allowed.
This attribute is ignored if the corresponding attribute, *incCalls* is set to a value of ***disallowed***.

Values: disallowed
allowed

Default: allowed

### ATTRIBUTE Ipivc Dna incIntlReverseCharge (iir)

Access: Read only

Criticality: Component

Description: This attribute, if set to a value of ***allowed*** indicates that incoming international reverse charged calls (from the network to the DTE)

can be made to this DNA. If set to a value of ***disallowed***, then such calls cannot be made to this DNA - such calls will be cleared by the local DCE.
This attribute also currently controls access to/from the E.164 numbering plan, and if set to a value of ***allowed***, then cross-numbering plan calls (also normal charged) are ***allowed***.
This attribute is ignored if the corresponding attribute, *incCalls* is set to a value of ***disallowed***.

Values: disallowed
allowed

Default: allowed

### ATTRIBUTE Ipivc Dna incFastSelect (ifs)

Access: Read only

Criticality: Component

Description: This attribute specifies whether fast select calls may be received. This attribute, if set to a value of ***allowed*** indicates that incoming fast select calls (from the network to the DTE) can be made to this DNA. If set to a value of ***disallowed***, then such calls cannot be made to this DNA - such calls will be cleared by the local DCE.
This attribute corresponds to the CCITT 'Fast Select Acceptance' feature for DNAs in that incoming fast select calls are accepted if this attribute is set to a value of ***allowed***.
This attribute is ignored if the corresponding attribute, *incCalls* is set to a value of ***disallowed***.

Values: disallowed
allowed

Default: disallowed

### ATTRIBUTE Ipivc Dna incSameService (iss)

Access: Read only

Criticality: Component

Description: This attribute, if set to a value of ***allowed*** indicates that incoming calls from the same service type (eg: X.25, ITI, SNA) (from the

network to the DTE) can be made to this DNA. If set to a value of ***disallowed***, then such calls cannot be made to this DNA - such calls will be cleared by the local DCE.
This attribute is ignored if the corresponding attribute, *incCalls* is set to a value of ***disallowed***.

Values: disallowed
allowed

Default: allowed

### ATTRIBUTE Ipivc Dna incChargeTransfer (ict)

Access: Read only

Criticality: Component

Description: This attribute, if set to a value of ***yes*** indicates that the charges for incoming normal charged calls from a DTE with the same NIC (calls from the network to the DTE) will be transferred to the called DTE. If set to a value of ***no***, then charges will not be transferred.
This attribute is ignored if the corresponding attribute, *incCalls* is set to a value of ***disallowed***.

Values: no
yes

Default: no

### ATTRIBUTE Ipivc Dna incAccess (ina)

Access: Read only

Criticality: Component

Description: This attribute is an extension of the Closed User Group (CUG) facility, as follows:
This attribute, if set to a value of ***allowed*** indicates that incoming calls (from the network to the DTE) from the open (non-CUG) part of the network are permitted. It also permits incoming calls from DTEs that have Outgoing Access capabilities. If set to a value of ***disallowed***, then such calls cannot be made to this DNA - such calls will be cleared by the local DCE.
This attribute corresponds to the CCITT 'Closed User Group with

| | |
|---|---|
| | Incoming Access' feature for DNAs in that incoming access is granted if this attribute is set to a value of ***allowed***. |
| Values | disallowed<br>allowed |
| Default | disallowed |

## GROUP Ipivc Dna CallOptions

| | |
|---|---|
| Properties | Provisioned |
| Description | DnaCallOptions group defines additional options for calls not related directly to direction of a call. |

## ATTRIBUTE Ipivc Dna serviceCategory (cat)

| | |
|---|---|
| Access | Read only |
| Criticality | Component |
| Description | This attribute is computed based on the type of service within which this DNA is configured. It is placed into the Service Category attributes in the accounting record by both ends of the VC. |
| Values | gsp<br>x25<br>enhancedIti<br>ncs<br>mlti<br>sm<br>ici<br>dsp3270<br>iam<br>mlhi<br>term3270<br>iti<br>bsi<br>hostIti<br>x75<br>hdsp3270<br>api3201<br>sdlc |

snaMultiHost
redirectionServ
trSnaTpad
offnetNui
gasServer
vapServer
vapAgent
frameRelay
ipiVc

Default: ipiVc

### ATTRIBUTE Ipivc Dna packetSizes (pks)

Access: Read only

Criticality: Component

Description: This attribute indicates the allowable packet sizes supported for calls setup using this DNA. To set a given packet size to be allowed on the DNA, the packet size is entered, and the corresponding bit in the structure is set to a value of 1. To set a given packet size to be disallowed on the DNA, the packet size is entered preceded with the '~' character, and the corresponding bit in the structure is set to a value of 0. CCITT recommends that packet size 128 always be supported.

Set of:
16
32
64
128
256
512
1024
2048
4096

Default: (2048)

### ATTRIBUTE Ipivc Dna defaultRecvFrmNetworkPacketSize (rps)

Access: Read only

Criticality: Component

| | |
|---|---|
| Description | This attribute indicates the default local receive packet size from network to DTE for all calls using this particular DNA. |
| Values | 16<br>32<br>64<br>128<br>256<br>512<br>1024<br>2048<br>4096 |
| Default | 2048 |

### ATTRIBUTE Ipivc Dna defaultSendToNetworkPacketSize (sps)

| | |
|---|---|
| Access | Read only |
| Criticality | Component |
| Description | This attribute indicates the default local send packet size from DTE to network for all calls using this particular DNA. |
| Values | 16<br>32<br>64<br>128<br>256<br>512<br>1024<br>2048<br>4096 |
| Default | 2048 |

### ATTRIBUTE Ipivc Dna defaultRecvFrmNetworkThruputClass (drt)

| | |
|---|---|
| Access | Read only |
| Criticality | Component |
| Description | This attribute indicates the default receive throughput class for all calls using this particular DNA. |

| | |
|---|---|
| Values | Decimal (0..15) |
| Default | 10 |

### ATTRIBUTE Ipivc Dna defaultSendToNetworkThruputClass (dst)

| | |
|---|---|
| Access | Read only |
| Criticality | Component |
| Description | This attribute indicates the default send throughput class for all calls using this particular DNA. |
| Values | Decimal (0..15) |
| Default | 10 |

### ATTRIBUTE Ipivc Dna defaultRecvFrmNetworkWindowSize (rws)

| | |
|---|---|
| Access | Read only |
| Criticality | Component |
| Description | This attribute indicates the default number of data packets that can be received by the DTE from the DCE before more packets can be received. This view is oriented with respect to the DTE. |
| Values | Decimal (1..7) |
| Default | 2 |

### ATTRIBUTE Ipivc Dna defaultSendToNetworkWindowSize (sws)

| | |
|---|---|
| Access | Read only |
| Criticality | Component |
| Description | This attribute indicates the number of data packets that can be transmitted from the DTE to the DCE and must be acknowledged before more packets can be transmitted. |
| Values | Decimal (1..7) |
| Default | 2 |

### ATTRIBUTE Ipivc Dna packetSizeNegotiation (psn)

| | |
|---|---|
| Access | Read only |
| Criticality | Component |
| Description | This attribute, if set to a value of ***local*** indicates that packet sizes can be negotiated locally at the interface irrespective of the remote interface. If set to a value of ***endtoEnd***, then local negotiation is not permitted and packet sizes are negotiated between 2 ends of Vc. |
| Values | endToEnd<br>local |
| Default | local |

### ATTRIBUTE Ipivc Dna accountClass (acl)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the accounting class which is reserved for network operations usage. Its value is returned in the accounting record in the local and remote service type attributes. Use of this attribute is decided by network operator.<br>This attribute is returned by the local VC in the accounting record for all calls setup using this particular DNA. |
| Values | Decimal (0..255) |
| Default | 0 |

### ATTRIBUTE Ipivc Dna serviceExchange (sre)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute is an arbitrary number, Data Service Exchange, as entered by the network operator and reported in accounting record. It is converted into an internal 8-bit integer value for use in the accounting record as well as in various X.25 and X.75 Tariff utilities. |

| | |
|---|---|
| Values | Decimal (0..255) |
| Default | 0 |

### ATTRIBUTE Ipivc Dna cugFormat (cft)

| | |
|---|---|
| Access | Read only |
| Criticality | Component |
| Description | This attribute specifies which cug format is used when DTE signals CUG indices, basic or extended.<br>This attribute, if set to a value of ***extended*** indicates that the DTE signals and receives CUG indices in extended CUG format. If set to a value of ***basic***, then the DTE signals and receives CUG indices in the basic CUG format. |
| Values | basic<br>extended |
| Default | basic |

### ATTRIBUTE Ipivc Dna cug0AsNonCugCall (cnc)

| | |
|---|---|
| Access | Read only |
| Criticality | Component |
| Description | This attribute, if set to a value of ***allowed*** indicates that when a CUG index of 0 is signaled in a call request packet, the call is treated as a non-CUG call. If this attribute is set to a value of ***disallowed***, then a CUG index of 0 is treated as an index, and an attempt is made to find the particular CUG corresponding with the DNA. |
| Values | disallowed<br>allowed |
| Default | disallowed |

### ATTRIBUTE Ipivc Dna fastSelectCallsOnly (fso)

| | |
|---|---|
| Access | Read only |
| Criticality | Component |

| | |
|---|---|
| Description | This attribute, if set to a value of ***yes***, indicates that the service is permitted restricted fast select calls only in both the incoming and the outgoing directions using this DNA. If set to a value of ***no***, then non fast select calls are permitted as well. |
| Values | no<br>yes |
| Default | no |

## COMPONENT Ipivc Dna ClosedUserGroup (Cug)

| | |
|---|---|
| Groups | "GROUP Ipivc Dna Cug CugOptions" |
| Scope | Application |
| Description | *IpiVc Dna Cug*<br>ClosedUserGroup options defines options associated with national or international Cug Identifier. Other Dna's in the network can have Cug's defined which groups these Dna's by Cug InterlockCode. If Dna's are defined with Cugs, calls from Dna's which do not have the same interlockCode defined are refused. Attributes *incAccess* and *outAccess* can override this rule. |
| Common Verbs | Help<br>List<br>Display |

## GROUP Ipivc Dna Cug CugOptions

| | |
|---|---|
| Properties | Provisioned |
| Description | This group defines options for Dna closed user group. Attributes in this group define options associated with interlockCode. Dna's with the same Cug (interlockCode) can make calls within this group. Various combinations which permit or prevent calls in the same Cug group are defined here. |

## ATTRIBUTE Ipivc Dna Cug type

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute specifies the CUG type - the CUG is either a national CUG, or an international CUG. International closed user groups are usually established between DTEs for which there is an X.75 Gateway between; whereas national closed user groups are usually established between DTEs for which there is no X.75 Gateway between. (National CUGs cannot normally traverse an X.75 Gateway).<br>If this attribute is set to ***national***, then the CUG is a national CUG, in which case, the DNIC should be left at its default value of BCD.0000 since it is not part of a national CUG. If this attribute is set to ***international***, then the CUG is an international CUG, in which case, the DNIC should be set appropriately as part of the CUG interlock code. |
| Values | national<br>international |
| Default | national |

### ATTRIBUTE Ipivc Dna Cug dnic

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the DNIC (Data Network ID Code) of the Cug by which packet networks are identified if the Cug is an International Cug - it is specified as 4 BCD digits. This attribute is not applicable if the Cug is a National Cug, as specified by the Cug TYPE attribute. There are usually 1 or 2 DNICs assigned per country, for public networks. The U.S. is an exception where each BOC has a DNIC. Also, a group of private networks can have its own DNIC.<br><br>DNIC value is not an arbitrary number. It is assigned by international agreement and controlled by CCITT. |
| Values | BCD (4) |
| Default | 0000 |

### ATTRIBUTE Ipivc Dna Cug interlockCode (ilc)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute specifies the Cug Identifier of a national or international Cug call. It is an arbitrary number and it also can be called Cug in some descriptions. Interfaces (Dna's) defined with this number can make calls to Dna's with the same interlockCode. |
| Values | Decimal (0..65535) |
| Default | 0 |

### ATTRIBUTE Ipivc Dna Cug outCalls (ouc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute, if set to a value of ***allowed*** indicates that outgoing calls (from the DTE into the network) can be made using this particular CUG. If set to a value of ***disallowed***, then outgoing calls cannot be made using this CUG - such calls will be cleared by the local DCE.<br>This attribute corresponds to the CCITT 'Outgoing Calls Barred' feature for CUGs in that outgoing calls are barred if this attribute is set to a value of ***disallowed***. |
| Values | disallowed<br>allowed |
| Default | disallowed |

### ATTRIBUTE Ipivc Dna Cug incCalls (inc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute, if set to a value of ***allowed*** indicates that incoming calls (from the network to the DTE) can be made using this particular CUG. If set to a value of ***disallowed***, then incoming calls cannot be made using this CUG - such calls will be cleared by the local DCE.<br>This attribute corresponds to the CCITT 'Incoming Calls Barred' feature for CUGs in that incoming calls are barred if this attribute is set to a value of ***disallowed***. |
| Values | disallowed<br>allowed |
| Default | allowed |

## ATTRIBUTE Ipivc Dna Cug privileged (pri)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute, if set to a value of ***yes*** indicates that this CUG is a privileged CUG. In DPN, at least one side of a call setup within a CUG must have the CUG as a privileged CUG. If set to a value of ***no***, then the CUG is not privileged.<br>If both the local DTE and the remote DTE subscribe to the CUG, but it is not privileged, then the call will be cleared. This attribute is typically used for a host DTE which must accept calls from many other DTEs in which case the other DTEs cannot call one another, but can call the host. In this example, the host would have the privileged CUG, and the other DTEs would belong to the same CUG, but it would not be privileged. |
| Values | no<br>yes |
| Default | yes |

## COMPONENT Ipivc DefaultRoute (Dr)

| | |
|---|---|
| Groups | "GROUP Ipivc Dr Provisioned (Prov)" |
| Scope | Application |
| Description | IpiVc DefaultRoute<br><br>This component contains information for setting up a default route on the IpiVc service.The default route feature permits establishment of a TCP/IP connection to the Software Distribution (SDS). |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Ipivc Dr Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for setting up a default route on the IpiVc service. |

## ATTRIBUTE Ipivc Dr callingIpAddress (ipa)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | The field specifies the IP Address of the remote end, which issues the X.25 call. |
| Values | IP address |
| Default | 0.0.0.0 |

## ATTRIBUTE Ipivc Dr callingNumberingPlanIndicator (npi)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This field specifies the numbering plan of the address. |
| Values | x121<br>e164 |
| Default | x121 |

## ATTRIBUTE Ipivc Dr callingDataNetworkAddress (dna)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This field specifies the address (in Binary Coded Decimal BCD format) assigned to the remote end. |
| Values | BCD (1..15) |
| Default | No default |

## COMPONENT Ipivc LogicalChannelNumber (Lcn)

| | |
|---|---|
| Instance | Decimal (16..39) |
| Groups | "GROUP Ipivc Lcn OsiState (State)"<br>"GROUP Ipivc Lcn Operational (Oper)" |
| Scope | Application |
| Description | IpiVc Lcn/<n><br><br>The Logical Channel Number responsible for the logical connection with the VC. There can be up to 24 instances of Lcn on the IpiVc component. |
| Dyn. Subcomp. | "COMPONENT Ipivc Lcn Vc" |
| Common Verbs | Help<br>List<br>Display<br>LOCK<br>Unlock |

## GROUP Ipivc Lcn OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

## ATTRIBUTE Ipivc Lcn adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or |

*Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Ipivc Lcn operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
enabled (ena)
disabled (dis)

| | |
|---|---|
| Default | disabled |

### ATTRIBUTE Ipivc Lcn usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### ATTRIBUTE Ipivc Lcn availabilityStatus (osiAvail)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can |

be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.

The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.

The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.

The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.

The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

| | |
|---|---|
| Set of | inTest<br>failed<br>dependency (depend)<br>powerOff (pwrOff)<br>offLine<br>offDuty<br>degraded (degrad)<br>notInstalled (notIn)<br>logFull<br>migrating |
| Default | No default |

### ATTRIBUTE Ipivc Lcn proceduralStatus (osiProc)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.<br><br>The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.<br><br>The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***. |

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

## ATTRIBUTE Ipivc Lcn controlStatus (osiCntrl)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

Set of

subjectToTest (subTst)
partOfServicesLocked (partLk)
reservedForTest (rsrvd)
suspended (suspnd)

Default

No default

### ATTRIBUTE Ipivc Lcn alarmStatus (osiAlarm)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE Ipivc Lcn standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values

hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

| | |
|---|---|
| Default | notSet |

### ATTRIBUTE Ipivc Lcn unknownStatus (osiUnknw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Unknown status of the component.<br><br>The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.<br><br>The value ***true*** indicates that the actual state of the component is not known for sure. |
| Values | false<br>true |
| Default | false |

### GROUP Ipivc Lcn Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains status of the internal IP network interface. |

### ATTRIBUTE Ipivc Lcn ipInterfaceDevice (ioIfD)

| | |
|---|---|
| Access | Read only |
| Description | The status of the internal IP network interface is *inactive* until an IP packet is exchanged between a Network Management Station and the internal IP network interface (via the LCN). At this point, the status changes to *active*. |
| Values | inactive<br>active |
| Default | inactive |

### ATTRIBUTE Ipivc Lcn remoteIpAddress (rmtIpa)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the IP address of the remote network device connected to this interface. The destinationIpAddress |

| | |
|---|---|
| | default is 0.0.0.0, until the first data packet is received from the remote end. |
| Values | IP address |
| Default | 0.0.0.0 |

### ATTRIBUTE Ipivc Lcn packetsSent (pktS)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of IP packets sent from this interface. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Ipivc Lcn packetsReceived (pktRx)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of IP packets received from the remote network device. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Ipivc Lcn discardTxPackets (discTxPkt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of IP packets destined to the remote end which were discarded by the interface. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Ipivc Lcn discardRcvPackets (discRxPkt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts number of IP packets received from the remote end which were discarded by this interface. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### COMPONENT Ipivc Lcn Vc

| | |
|---|---|
| Groups | "GROUP Ipivc Lcn Vc CallData (Cad)"<br>"GROUP Ipivc Lcn Vc IntervalData (Intd)"<br>"GROUP Ipivc Lcn Vc Statistics (Stats)" |
| Scope | Application |
| Description | ... *Vc()*<br>This component defines display of general Vc dynamic attributes |
| Common Verbs | Help<br>List<br>Display |

### GROUP Ipivc Lcn Vc CallData (Cad)

| | |
|---|---|
| Properties | Operational |
| Description | This group represents operational call data related to General *Vc*. It can be displayed only for General *Vc* which is created by application. |

### ATTRIBUTE Ipivc Lcn Vc type

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the type of call, ***pvc*** or ***svc***. *type* is provided at provisioning time. |
| Values | pvc<br>svc |
| Default | No default |

### ATTRIBUTE Ipivc Lcn Vc state

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the state of call control. P5 state is not supported but is listed for completeness. Transitions from one state to another take very short time. *state* most often displayed is |

***dataTransferP4***.

| | |
|---|---|
| Values | creating<br>readyP1<br>dteWaitingP2<br>dceWaitingP3<br>dataTransferP4<br>unsupportedP5<br>dteClearRequestP6<br>dceClearIndicationP7<br>termination |
| Default | No default |

### ATTRIBUTE Ipivc Lcn Vc previousState

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the previous state of call control. This is a valuable field to determine how the processing is progressing. |
| Values | creating<br>readyP1<br>dteWaitingP2<br>dceWaitingP3<br>dataTransferP4<br>unsupportedP5<br>dteClearRequestP6<br>dceClearIndicationP7<br>termination |
| Default | No default |

### ATTRIBUTE Ipivc Lcn Vc diagnosticCode

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the internal substate of call control. It is used to further refine *state* of call processing. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE Ipivc Lcn Vc previousDiagnosticCode

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the internal substate of call control. It is used to further refine *state* of call processing. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE Ipivc Lcn Vc calledNpi

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the Numbering Plan Indicator (NPI) of the called end. |
| Values | x121<br>e164 |
| Default | No default |

### ATTRIBUTE Ipivc Lcn Vc calledDna

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the Data Network Address (*Dna*) of the called (destination) DTE to which this call is sent. This address if defined at receiving end will complete *Vc* connection. |
| Values | BCD (1..15) |
| Default | No default |

### ATTRIBUTE Ipivc Lcn Vc calledLcn

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the Logical Channel Number of the called end. It is valid only after both ends of *Vc* exchanged relevant information. |
| Values | Decimal (1..65535) |
| Default | No default |

### ATTRIBUTE Ipivc Lcn Vc callingNpi

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the Numbering Plan Indicator (NPI) of the calling end. |
| Values | x121<br>e164 |
| Default | No default |

### ATTRIBUTE Ipivc Lcn Vc callingDna

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the Data Network Address (*Dna*) of the calling end. |
| Values | BCD (1..15) |
| Default | No default |

### ATTRIBUTE Ipivc Lcn Vc callingLcn

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the Logical Channel Number of the calling end. |
| Values | Decimal (1..65535) |
| Default | No default |

### ATTRIBUTE Ipivc Lcn Vc accountingEnabled

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates that this optional section of accounting record is suppressed or permitted. If *accountingEnabled* is ***yes***, conditions for generation of accounting record were met. These conditions include billing options, vc recovery conditions and Module wide accounting data options. |
| Values | yes<br>no |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Ipivc Lcn Vc fastSelectCall

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays that this is a fast select call. |
| Values | yes<br>no |
| Default | No default |

### ATTRIBUTE Ipivc Lcn Vc localRxPktSize

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the locally negotiated size of send packets. |
| Values | unknown<br>16<br>32<br>64<br>128<br>256<br>512<br>1024<br>2048<br>4096 |
| Default | No default |

### ATTRIBUTE Ipivc Lcn Vc localTxPktSize

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the locally negotiated size of send packets. |
| Values | unknown<br>16<br>32<br>64<br>128<br>256<br>512 |

| | |
|---|---|
| | 1024<br>2048<br>4096 |
| Default | No default |

### ATTRIBUTE Ipivc Lcn Vc localTxWindowSize

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the send window size provided on incoming call packets or the default when a call request packet does not explicitly provide the window size. |
| Values | Decimal (0..127) |
| Default | No default |

### ATTRIBUTE Ipivc Lcn Vc localRxWindowSize

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the receive window size provided on incoming call packets or the default when a call request does not explicitly provide the window sizes. |
| Values | Decimal (0..127) |
| Default | No default |

### ATTRIBUTE Ipivc Lcn Vc pathReliability

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the path reliability. |
| Values | high<br>normal |
| Default | No default |

### ATTRIBUTE Ipivc Lcn Vc accountingEnd

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates if this end should generate an accounting record. Normally, ***callingEnd*** is the end to generate an accounting record. |
| Values | callingEnd<br>calledEnd |
| Default | No default |

### ATTRIBUTE Ipivc Lcn Vc priority

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays whether the call is a ***normal*** or a ***high*** priority call. |
| Values | normal<br>high |
| Default | No default |

### ATTRIBUTE Ipivc Lcn Vc segmentSize

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the segment size (in bytes) used on the call. It is used to calculate the number of segments transmitted and received. |
| Values | Decimal (0..4096) |
| Default | No default |

### ATTRIBUTE Ipivc Lcn Vc subnetTxPktSize

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the locally negotiated size of the data packets on this *Vc*. |
| Values | unknown<br>16<br>32<br>64<br>128<br>256 |

| | |
|---|---|
| | 512<br>1024<br>2048<br>4096 |
| Default | No default |

### ATTRIBUTE Ipivc Lcn Vc subnetTxWindowSize

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the current send window size of *Vc*. |
| Values | Decimal (0..4096) |
| Default | No default |

### ATTRIBUTE Ipivc Lcn Vc subnetRxPktSize

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the locally negotiated size of receive packets. |
| Values | unknown<br>16<br>32<br>64<br>128<br>256<br>512<br>1024<br>2048<br>4096 |
| Default | No default |

### ATTRIBUTE Ipivc Lcn Vc subnetRxWindowSize

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the receive window size provided on incoming call packets and to the default when a call request does not explicitly provide the window sizes. |
| Values | Decimal (0..4096) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Ipivc Lcn Vc maxSubnetPktSize

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the maximum packet size allowed on *Vc*. |
| Values | Decimal (0..4096) |
| Default | No default |

### ATTRIBUTE Ipivc Lcn Vc transferPriorityToNetwork

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the priority in which data is transferred to the network.<br><br>The transfer priority is a preference specified by an application according to its delay-sensitivity requirement. Frames with high transfer priority are served by the network before the frames with normal priority.<br><br>Each transfer priority contains a predetermined setting for trunk queue (interrupting, delay or throughput), and routing metric (delay or throughput).<br><br>When the transfer priority is set at ***high***, the trunk queue is set to high, the routing metric is set to delay.<br><br>When the transfer priority is set at ***normal***, the trunk queue is set to normal, the routing metric is set to throughput. |
| Values | normal<br>high |
| Default | No default |

### ATTRIBUTE Ipivc Lcn Vc transferPriorityFromNetwork

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the priority in which data is transferred from the network. |

The transfer priority is a preference specified by an application according to its delay-sensitivity requirement. Frames with high transfer priority are served by the network before the frames with normal priority.

Each transfer priority contains a predetermined setting for trunk queue (interrupting, delay or throughput), and routing metric (delay or throughput).

When the transfer priority is set at ***high***, and the trunk queue is set to high, the routing metric is set to delay.

When the transfer priority is set at ***normal***, the trunk queue is set to normal, and the routing metric is set to throughput.

Values: normal
high

Default: No default

### GROUP Ipivc Lcn Vc IntervalData (Intd)

Properties: Operational

Description: This group defines display of interval data collected by *Vc*. Data in this group is variable and may depend on time when this *display* command is issued.

### ATTRIBUTE Ipivc Lcn Vc elapsedTimeTillNow

Access: Read only

Description: This attribute displays the elapsed time representing the period of this interval data. It is elapsed time in 0.1 second increments since *Vc* started.

Values: Decimal (0..16777215)

Default: No default

### ATTRIBUTE Ipivc Lcn Vc segmentsRx

Access: Read only

| | |
|---|---|
| Description | This attribute displays the number of segments received at the time command was issued. This is the segment received count maintained by accounting at each end of the *Vc*. This counter is updated only when the packet cannot be successfully delivered out of the sink *Vc* and to the sink AP Conditions in which packets may be discarded by the sink *Vc* include: missing packets due to subnet discards, segmentation protocol violations due to subnet discard, duplicated and out-of-ranged packets and packets that arrive while *Vc* is in path recovery state. |
| Values | Decimal (0..16777215) |
| Default | No default |

### ATTRIBUTE Ipivc Lcn Vc segmentsSent

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of segments sent at the time command was issued. This is the segment sent count maintained by accounting at the source *Vc*. *Vc* only counts packets that *Vc* thinks can be delivered successfully into the subnet. In reality, these packets may be dropped by trunking, for instance. This counter is not updated when splitting fails, when *Vc* is in a path recovery state, when packet forwarding fails to forward this packet and when subsequent packets have to be discarded as we want to minimize the chance of out-of-sequence and do not intentionally send out-of-sequenced packets into the subnet. |
| Values | Decimal (0..16777215) |
| Default | No default |

### ATTRIBUTE Ipivc Lcn Vc startTime

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the start time of this interval period. If *Vc* spans 12 hour time or time of day change *startTime* reflects new time as recorded at 12 hour periods or time of day changes. |
| Values | Time (DHMS) |
| Default | No default |

### ATTRIBUTE Ipivc Lcn Vc callReferenceNumber

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the call reference number which is a unique number generated by the switch.The same Call Reference Number is stored in the interval data (accounting record) at both ends of the call. It can be used as one of the attributes in matching duplicate records generated at each end of the call. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Ipivc Lcn Vc Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | ... *Statistics(Stats)*<br>This group defines general attributes collected by general *Vc*. The purpose of *Vc* attributes is to aid end users and verification people to understand the *Vc* internal behavior. This is particularly useful when the network has experienced abnormality and we want to isolate problems and pinpoint trouble spots.<br>Attributes are collected on a per *Vc* basis. Until a need is identified, statistics are not collected at a processor level. Each attribute is stored in a 32 bit field and is initialized to zero when a *Vc* enters into the data transfer state. When a PVC is disconnected and then connected again, the attributes will be reset. Attributes cannot be reset through other methods. |

### ATTRIBUTE Ipivc Lcn Vc ackStackingTimeouts

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of ack stacking timer expiries. It is used as an indicator of the acknowledgment behavior across the subnet when ack stacking is in effect. If it expires often, usually this means end users will experience longer delay.<br>The ack stacking timer specifies how long the *Vc* will wait before finally sending the subnet acknowledgment. if this attribute is set to a value of 0, then the *Vc* will automatically return acknowledgment packets without delay. If this attribute is set to a value other than zero, then the *Vc* will wait for this amount of |

time in an attempt to piggyback the acknowledgment packet on another credit or data packet. If the *Vc* cannot piggyback the acknowledgment packet within this time, then the packet is returned without piggybacking.

Values: Decimal (0..5000)

Default: No default

### ATTRIBUTE Ipivc Lcn Vc outOfRangeFrmFromSubnet

Access: Read only

Description: This attribute counts the number of subnet frames discarded due to the sequence number being out of range.
Two Categories apply for the General *Vc*
1) lost Acks (previous Range)
2) unexpected Packets (next Range)
*Vc* internally maintains its own sequence number of packet order and sequencing. Due to packet retransmission, *Vc* may receive duplicate packets that have the same *Vc* internal sequence number. Only 1 copy is accepted by the *Vc* and other copies of the same packets are detected through this count. This attribute can be used to record the frequency of packet retransmission due to *Vc* and other part of the subnet.

Values: Decimal (0..5000)

Default: No default

### ATTRIBUTE Ipivc Lcn Vc duplicatesFromSubnet

Access: Read only

Description: This attribute counts the number of subnet packets discarded due to duplication. It is used to detect software error fault or duplication caused by retransmitting.

Values: Decimal (0..5000)

Default: No default

### ATTRIBUTE Ipivc Lcn Vc frmRetryTimeouts

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames which have retransmission time-out.<br>If packets from *Vc* into the subnet are discarded by the subnet, the source *Vc* will not receive any acknowledgment. The retransmission timer then expires and packets will be retransmitted again. Note that the *Vc* idle probe may be retransmitted and is included in this count. This statistics does not show the distribution of how many times packets are retransmitted (e.g. first retransmission results in successful packet forwarding). |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE Ipivc Lcn Vc peakRetryQueueSize

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the peak size of the retransmission queue. This attribute is used as an indicator of the acknowledgment behavior across the subnet. It records the largest body of unacknowledged packets. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE Ipivc Lcn Vc peakOoSeqQueueSize

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the peak size of the out of sequence queue.<br>This attribute is used as an indicator of the sequencing behavior across the subnet. It records the largest body of out of sequence packets. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE Ipivc Lcn Vc peakOoSeqFrmForwarded

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the peak size of the sequence packet queue.<br>This attribute is used as an indicator of the sequencing behavior across the subnet. It records the largest body of out of sequence packets, which by the receipt of an expected packet have been transformed to expected packets. The number of times this peak is reached is not recorded as it is traffic dependent. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE Ipivc Lcn Vc peakStackedAcksRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the peak size of wait acks.<br>This attribute is used as an indicator of the acknowledgment behavior across the subnet. It records the largest collective acknowledgment. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE Ipivc Lcn Vc subnetRecoveries

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of successful *Vc* recovery attempts.<br>This attribute is used as an indicator of how many times the *Vc* path is broken but can be recovered. This attribute is useful to record the number of network path failures. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE Ipivc Lcn Vc windowClosuresToSubnet

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the number of window closures to subnet. A packet may have been sent into the subnet but its acknowledgment from the remote *Vc* has not yet been received. This is a 8 bit sequence number.This number is useful in detecting whether the *Vc* is sending any packet into the subnet. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE Ipivc Lcn Vc windowClosuresFromSubnet

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of window closures from subnet. This attribute is useful in detecting whether the *Vc* is receiving any packet from the subnet. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE Ipivc Lcn Vc wrTriggers

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of times the *Vc* stays within the W-R region. The W-R region is a value used to determined the timing of credit transmission. Should the current window size be beneath this value, the credits will be transmitted immediately. Otherwise, they will be transmitted later with actual data. The wrTriggers statistic is therefore used to analyze the flow control and credit mechanism. |
| Values | Decimal (0..5000) |
| Default | No default |

Passport 7400, 15000, 20000

# Component Ipivc

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component IuxIf

241-5701-060

Passport 7400, 15000, 20000

# Component luxlf

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT IuxInterface (IuxIf)

| | |
|---|---|
| Instance | Decimal (1..16383) |
| Groups | "GROUP IuxIf CustomerIdentifierData (CidData)"<br>"GROUP IuxIf Provisioned (Prov)"<br>"GROUP IuxIf OsiState (State)" |
| Scope | Application |
| Description | *IuxInterface/n*<br>This component represents the UTRAN Interface. A particular instance represents either an Iub interface, an Iur Interface, or an Iucs interface.<br>On U-Plane, the *Path* subcomponents represent the individual AAL2 paths within this UTRAN interface.<br>On C-Plane, the *SignallingBearer* components represent the bearers for AAL5 terminated traffic. |
| Opt. Subcomp. | "COMPONENT IuxIf Path"<br>"COMPONENT IuxIf SignallingBearer (Sig)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP IuxIf CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |

| | |
|---|---|
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

### ATTRIBUTE IuxIf customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.<br><br>Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.<br><br>An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to "basic CIDs" in DPN) may be assigned to specific customers. |
| Values | Decimal (0; 1..8191) |
| Default | 0 |

### GROUP IuxIf Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioned attributes for the *IuxIf* component. |

### ATTRIBUTE IuxIf commentText

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies an arbitrary string whose use is left to the discretion of the system administrator. It is not used by the system. For example, this attribute could be used to specify the |

| | |
|---|---|
| | type of interface (for example, Iub, Iur, or Iucs) or the name of the Node B, remote RNC, or SGSN endpoint which is logically connected to this Iu interface. |
| Values | String (0..60, ASCII) |
| Default | "" |

### ATTRIBUTE IuxIf loadBalancingMethod (lb)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the load balancing scheme to be used by the system when distributing the paths of this *IuxIf* component across the protocol converter type '*Lp Ap Rnc*' device. The value ***spread*** means the paths of this *IuxIf* component are assigned to the protocol converter in a round-robin fashion. The value ***weighted*** means the paths of this *IuxIf* component are assigned to the protocol converter based on the expected traffic load of this *IuxIf*. The suggested value for SGSN and remote RNC is ***spread***. The suggested value for Node B is ***weighted***. |
| Values | spread<br>weighted |
| Default | weighted |

### ATTRIBUTE IuxIf weight

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the expected traffic load from the far-end equipment attached to this UTRAN interface relative to other interfaces. It is used by the system for load balancing when using the ***weighted*** method. A larger value represents a larger traffic load. |
| Values | Decimal (0..1000) |
| Default | 500 |

## GROUP IuxIf OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

## ATTRIBUTE IuxIf adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

## ATTRIBUTE IuxIf operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component. |

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE IuxIf usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### COMPONENT IuxIf Path

Instance
Decimal (1..65535)

Groups
"GROUP IuxIf Path Provisioned (Prov)"
"GROUP IuxIf Path OsiState (State)"
"GROUP IuxIf Path Operational (Oper)"

| | |
|---|---|
| Scope | Application |
| Description | *IuxIf/n Path/n*<br>This component represents an ATM AAL2 path within this UTRAN interface. Each path is associated with an ATM PVC endpoint. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP IuxIf Path Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioned attributes for the *Path* component. |

## ATTRIBUTE IuxIf Path atmConnection

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the ATM nailed up endpoint that this path will use. For example, *AtmIf/n Vcc/vpi.vci Nep*. |
| Values | Link (Hardware, applicationName) |
| Default | No default |

## ATTRIBUTE IuxIf Path qos

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the QoS (Quality of Service) for this path. |
| Values | Decimal (0..3) |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE IuxIf Path pathOwner

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute is used to select the owner of the path according to Q.2630.1. On a path between two RNC nodes, this attribute is used to select the order of CID allocation to reduce the probability of collisions. The RNC node which is configured as the owner of this path allocates CIDs from 8 upwards. The RNC node which is not configured as the owner of this path allocates CIDs from 255 downwards.<br>To reduce the probability of CID collision, the RNCs at each end of an Iur interface should have this attribute set to different values. This attribute is only meaningful to the Iur interface. It is not used by other Iu interfaces. |
| Values | yes<br>no |
| Default | yes |

### GROUP IuxIf Path OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE IuxIf Path adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or |

*Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values: locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default: unlocked

### ATTRIBUTE IuxIf Path operationalState (osiOper)

Access: Read only

Description: This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values: enabled (ena)
disabled (dis)

Default: disabled

### ATTRIBUTE IuxIf Path usageState (osiUsage)

Access: Read only

| | |
|---|---|
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP IuxIf Path Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for the *Path* component. |

### ATTRIBUTE IuxIf Path remoteBlockingStatus

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates if this path is remotely blocked or not within this UTRAN interface. The path is remotely blocked if it is locked by the remote node. |
| Values | blocked<br>unblocked |
| Default | No default |

### ATTRIBUTE IuxIf Path localBlockingStatus

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether this path is locally blocked or not within this UTRAN interface. The path is locally blocked if it is locked by the local node. |

| | |
|---|---|
| Values | blocked<br>unblocked |
| Default | No default |

## COMPONENT IuxIf SignallingBearer (Sig)

| | |
|---|---|
| Instance | Decimal (0..6) |
| Scope | Application |
| Description | *IuxIf/n Sig/n*<br>This component represents the C-Plane part of the UTRAN interface. An instance of it can be the SAAL-UNI connection used for the Iub. |
| Opt. Subcomp. | "COMPONENT IuxIf Sig SaalUni" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## COMPONENT IuxIf Sig SaalUni

| | |
|---|---|
| Groups | "GROUP IuxIf Sig SaalUni OsiState (State)" |
| Scope | Application |
| Description | *IuxIf/n Sig/m SaalUni*<br>This component represents an Signalling ATM Adaptation Layer User-Netowrk Interface for a particular Signalling Bearer within this UTRAN interface. |
| Opt. Subcomp. | "COMPONENT IuxIf Sig SaalUni NailedupAccessPoint (Nap)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP IuxIf Sig SaalUni OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE IuxIf Sig SaalUni adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE IuxIf Sig SaalUni operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component. |

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE IuxIf Sig SaalUni usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### COMPONENT IuxIf Sig SaalUni NailedupAccessPoint (Nap)

Groups
"GROUP IuxIf Sig SaalUni Nap Provisioned (Prov)"

Scope
Application

Description
*IuxIf/n Sig/m SaalUni Nap*
This component is used to link AAL5 represents an Signalling

| | |
|---|---|
| | ATM Adaptation Layer User-Netowrk Interface for a particular Signalling Bearer within this UTRAN interface. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP IuxIf Sig SaalUni Nap Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioned attributes for the *NailedupAccessPoint* component. |

## ATTRIBUTE IuxIf Sig SaalUni Nap atmConnection

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the ATM nailed up endpoint that this path will use. For example, *AtmIf/n Vcc/vpi.vci Nep.* |
| Values | Link (Hardware, applicationName) |
| Default | No default |

Passport 7400, 15000, 20000

# Component IuxIf

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component Lac

241-5701-060

Passport 7400, 15000, 20000

# Component Lac

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT Layer2TunnelingProtocolAccessConcentrator (Lac)

| | |
|---|---|
| Instance | Decimal (1..15) |
| Groups | "GROUP Lac Provisioned (Prov)"<br>"GROUP Lac Operational (Oper)"<br>"GROUP Lac CustomerIdentifierData (CidData)" |
| Scope | Application |
| Description | *Layer2TunnelingProtocolAccessConcentrator/n*<br><br>This component represents the Layer 2 Tunneling Protocol (L2TP) functionality on a Logical Processor. This component behaves as an L2TP Access Concentrator (LAC). An instance of this component is provisioned for each Logical Processor that is to have L2TP functionality. |
| Subcomponents | "COMPONENT Lac L2tpNetworkServer (Lns)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Lac Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes of the *Lac* component. |

### ATTRIBUTE Lac linkToUdpPort (lToPort)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies a link to the *GprsIpServer IpAddress Udp Port* component. The IP address specified becomes the source IP address and the UDP port specified becomes the source port for communication with the external LNS. Changing this value causes the *Lac* to reset its communication links with the *GprsIpServer*. Transactions being processed may be affected. |
| Values | Link (Service, linkToApplication) |
| Default | No default |

### ATTRIBUTE Lac linkToLogicalProcessor (lp)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the link to a Logical Processor that this *Lac* is to use. |
| Values | Link (Hardware, linkToApplications) |
| Default | No default |

### ATTRIBUTE Lac hostName (host)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the host name the *Lac* component uses in communication with the external LNS. The host name will be sent in the Host Name Attribute Value Pair (AVP) and may be used by the external LNS for tunnel authentication. It is recommended that all host names be distinct. |
| Values | String (0..80, ASCII) |
| Default | "" |

### GROUP Lac Operational (Oper)

| | |
|---|---|
| Properties | Operational |

| | |
|---|---|
| Description | This group contains operational attributes of the LAC. |

### ATTRIBUTE Lac vendorName (vName)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute identifies the vendor name of the L2TP protocol stack. This information is communicated to the external LNS in the Vendor Name Attribute Value Pair (AVP). |
| Values | String (0..255, ASCII) |
| Default | No default |

### ATTRIBUTE Lac firmwareRev (firmRev)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute identifies defines the firmware or software revision for the L2TP protocol stack. This information is communicated to the external LNS in the Firmware Revision Attribute Value Pair (AVP). |
| Values | Decimal (0..2147483646) |
| Default | No default |

### ATTRIBUTE Lac protocolVersion (protoVers)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the supported L2TP protocol version and revision numbers. Supported versions are identified in the form of version.revision. |
| List of | String (3..7, ASCII) |
| List Size | 10 |
| Default | No default |

### GROUP Lac CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |

| | |
|---|---|
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

### ATTRIBUTE Lac customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.<br><br>Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.<br><br>An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to "basic CIDs" in DPN) may be assigned to specific customers. |
| Values | Decimal (0; 1..8191) |
| Default | 0 |

### COMPONENT Lac L2tpNetworkServer (Lns)

| | |
|---|---|
| Groups | "GROUP Lac Lns Provisioned (Prov)"<br>"GROUP Lac Lns TunnelProv (Tunnel)"<br>"GROUP Lac Lns Operational (Oper)"<br>"GROUP Lac Lns TunnelStatistics (TunStats)" |
| Scope | Application |
| Description | *Lac/n L2tpNetworkServer/n*<br><br>This component represents the external L2TP Network Server (LNS) that communicates with the *Lac* component. |

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display |

## GROUP Lac Lns Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains miscellaneous provisionable attributes of the *Lac Lns* component. |

## ATTRIBUTE Lac Lns ipAddress (ipAddr)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the IP address of the external LNS. The value must not be set to 0.0.0.0. |
| Values | IP address |
| Default | No default |

## ATTRIBUTE Lac Lns udpPort (udpPort)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the UDP port on the external LNS used by this *Lac*. This must match the UDP port provisioned on that LNS. |
| Values | Decimal (0..65535) |
| Default | 1701 |

## ATTRIBUTE Lac Lns useLengthField (useLen)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies if the *Lac* should use a length field in L2TP data messages. The value of ***yes*** should be used when |

compatibility is needed with LNSs that may require the length field to be utilized. Proper operation of L2TP over UDP/IP does not require the length field to be used in data messages.

Values
yes
no

Default
no

### ATTRIBUTE Lac Lns useHiddenAvps (hidAvps)

Access
Read: All
Write: All

Description
This attribute specifies if the *Lac* should use hidden Attribute Value Pairs (AVPs) in the control messages sent to the LNS. The value of ***no*** is used if the LNS does not support hidden AVPs for all control messages. The value of ***yes*** is permitted if *secret* is not empty.

Values
yes
no

Default
no

### ATTRIBUTE Lac Lns snoopAccm (snoop)

Access
Read: All
Write: All

Description
This attribute specifies if the *Lac* should snoop for Asynchronous Control Character Map (ACCM) Link Control Protocol (LCP) packets in the Point-to-Point Protocol (PPP) data stream. Setting this to ***yes*** will allow the L2TP stack to immediately detect any negotiated ACCM changes. This will prevent needlessly dropped PPP packets in the event the LNS's Set Link Info (SLI) message is delayed in transit relative to the time the ACCM negotiation takes effect. Additionally, this option allows operability with LNSs that do not support the L2TP SLI message.

Values
yes
no

Default
yes

### GROUP Lac Lns TunnelProv (Tunnel)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisionable attributes describing the configuration requirements for both incoming and outgoing tunnel connection attempts. |

### ATTRIBUTE Lac Lns hostName (host)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the host name of the external LNS. This is the host name expected to be sent by the external LNS in the Host Name Attribute Value Pair (AVP) and may be used to authenticate the LNS. |
| Values | String (0..80, ASCII) |
| Default | "" |

### ATTRIBUTE Lac Lns authentication (auth)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies how the *Lac* authenticates the LNS. The value ***none*** indicates that no authentication is performed. The value ***simple*** indicates that peers are authenticated simply by their host name as described in the Host Name AVP. The value ***challenge*** indicates that all peers are challenged to prove their identification. This mechanism is described in the L2TP protocol specification. |
| Values | none<br>simple<br>challenge |
| Default | none |

### ATTRIBUTE Lac Lns secret

| | |
|---|---|
| Access | Read: Illegal<br>Write: All |

| | |
|---|---|
| Description | This attribute specifies the shared secret used during the tunnel authentication phase of tunnel establishment. This must match the shared secret provisioned on the LNS. |
| Values | String (0..255, ASCII) |
| Default | "" |

### ATTRIBUTE Lac Lns helloInterval (hello)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the interval in which Hello (or keep-alive) packets are sent by the *Lac* to the external LNS. |
| Values | Decimal (0..3600) |
| Units | seconds |
| Default | 60 |

### ATTRIBUTE Lac Lns idleTimeout (idleTo)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the period of time that an established tunnel between the *Lac* and the external LNS with no active sessions waits before disconnecting the tunnel. A value of zero indicates that the tunnel disconnects immediately after the last session disconnects. A value of -1 leaves the tunnel up indefinitely. |
| Values | Signed (-1..86400) |
| Units | seconds |
| Default | -1 |

### ATTRIBUTE Lac Lns controlRWS (ctlRWS)

| | |
|---|---|
| Access | Read: All<br>Write: All |

| | |
|---|---|
| Description | This attribute specifies the control channel receive window size for tunnels between the *Lac* and the external LNS. It specifies the maximum number of packets the external LNS can send without waiting for an acknowledgement from the *Lac*. |
| Values | Decimal (1..24) |
| Default | 4 |

### ATTRIBUTE Lac Lns maxRetrans (maxReTx)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the maximum number of retransmissions which the *Lac* attempts for tunnels to the external LNS before assuming that the LNS is no longer responding. |
| Values | Decimal (4..32) |
| Default | 5 |

### ATTRIBUTE Lac Lns maxRetransTimeout (maxReTxTo)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the maximum retransmission timeout interval which the *Lac* waits before retransmitting a control packet that has not been acknowledged by the external LNS. |
| Values | Decimal (1..32) |
| Units | seconds |
| Default | 16 |

### ATTRIBUTE Lac Lns payloadSequencing (payldSeq)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies whether session payload packets are requested to be sent with sequence numbers from the external LNS. The value ***never*** indicates that the *Lac* never initiates sequencing but does sequencing if asked by the external LNS. |

| | |
|---|---|
| | The value ***always*** indicates that the *Lac* sends the Sequencing Required Attribute Value Pair (AVP) during session establishment. |
| Values | never<br>always |
| Default | always |

### ATTRIBUTE Lac Lns reassemblyTimeout (reasTo)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the time the *Lac* waits before processing payload packets that were received out of sequence. A low value increases the chance of delayed packets to be discarded (which may cause the PPP decompression engine to reset) while a high value may cause more queueing and possibly degrade throughput if packets are truly lost. The default value is zero which will result in all delayed packets being lost. |
| Values | Decimal (0..2147483646) |
| Units | msec |
| Default | 0 |

### GROUP Lac Lns Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes of the *Lac Lns* component. |

### ATTRIBUTE Lac Lns lastErrors (lastErrs)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute gives textual descriptions of the last five tunnel errors. Each description is displayed with a result code, an error code, and and may include a message describing the reason or error. |

| | |
|---|---|
| Vector of | String (0..255, ASCII) |
| Index | Decimal (1..5) |
| Default | No default |

### GROUP Lac Lns TunnelStatistics (TunStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains attributes that are used to describe the current status and statistics of tunnels. |

### ATTRIBUTE Lac Lns totalTunnels (totTun)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the tunnels between the *Lac* and the external LNS that have successfully reached the established state. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lac Lns failedTunnels (failTun)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the tunnels between the *Lac* and the external LNS that failed to reach the established state. This count includes the failed tunnel authentication attempts as counted by *failedAuthentication.* The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lac Lns failedAuthentication (failAuth)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the failed tunnel connection attempts detected locally by the *Lac* and those reported as failed by the external Lns. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lac Lns activeTunnels (actTun)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the tunnels that are currently active between the *Lac* and the external LNS. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lac Lns totalSessions (totSes)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the sessions that have successfully reached the established state on the tunnels between the *Lac* and the external LNS. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lac Lns failedSessions (failSes)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the sessions that failed to reach the established state on the tunnels between the *Lac* and the external LNS. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lac Lns activeSessions (actSes)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the sessions that are currently active on the tunnels between the *Lac* and the external LNS. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lac Lns controlRecvOctets (ctlRecvOct)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the control channel octets received by the *Lac* from the external LNS. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lac Lns controlRecvPackets (ctlRecvPkt)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the control channel packets received by the *Lac* from the external LNS. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lac Lns controlSendOctets (ctlSndOct)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the contol channel octets that were transmitted by the *Lac* to the external LNS. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lac Lns controlSendPackets (ctlSndPkt)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the control packets that were transmitted by the *Lac* to the external LNS. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lac Lns payloadRecvOctets (payRecvOct)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the payload channel octets that were received by the *Lac* from the external LNS. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lac Lns payloadRecvPackets (payRecvPkt)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the payload channel packets that were received by the *Lac* from the external LNS. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lac Lns payloadRecvDiscards (payRecvDisc)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the received payload packets that were discarded by the *Lac*. The primary reason for payload packet discards is flow control ocurring due to the difference in the data rates between the slower mobile connection and the faster network connection. Other possible reasons for discards are that payload packets are too big, are badly formed, or are out of sequence. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lac Lns payloadSendOctets (paySndOct)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the payload channel octets that were transmitted by the *Lac* to the external LNS. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lac Lns payloadSendPackets (paySndPkt)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the payload packets that were transmitted by the *Lac* to the external LNS. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

Passport 7400, 15000, 20000

# Component Lac

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component Laps

241-5701-060

Passport 7400, 15000, 20000

# Component Laps

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT LineAutomaticProtectionSwitching (Laps)

| | |
|---|---|
| Instance | Decimal (0..15999) |
| Groups | "GROUP Laps CustomerIdentifierData (CidData)"<br>"GROUP Laps Provisioned (Prov)"<br>"GROUP Laps OsiState (State)"<br>"GROUP Laps Operational (Oper)" |
| Scope | Device |
| Description | *AutomaticProtectionSwitching/n*<br>This component manages the line protection of a SONET or SDH interface. Line Automatic Protection Switching (LAPS) can switch traffic from an active line onto a standby line when a failure or degradation occurs on the active line.<br><br>**Note**: The *Lp/n Sonet/m Test* component *or Lp/n Sdh/m Test* component functionality is not supported when that line is provisioned as either working or protection line of the *Laps* component. |

| | |
|---|---|
| Opt. Subcomp. | "COMPONENT Laps Sts"<br>"COMPONENT Laps Vc4" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## VERB PROTECTIONLOCKOUT (PROTLOCK) Laps

| | |
|---|---|
| Impact | Service |
| Description | *ProtectionLockout Laps/n*<br>This command has different behaviors based on the protocol type which is provisioned.<br><br>A) The *protocol* attribute is set to ***standard***:<br><br>This command instructs the *Laps* component to lock out the protection line from being used as the receive active line. If the protection line is active when the *ProtectionLockout* command is entered, the working line is made active even if there is a failure or degradation present on the working line.<br><br>This command is ignored when the following conditions exist:<br><br>1) The *mode* attribute value is set to ***unidirectional*** and a *nearEndRequest* attribute already has a value of ***lockoutOfProtection***.<br>2) The *mode* attribute value is set to ***bidirectional*** and a *nearEndRequest* attribute or *farEndRequest* attribute already has a value of ***lockoutOfProtection***. |

B) The *protocol* attribute is set to ***g841AnnexB***:

This command instructs the *Laps* component to freeze the selector in its current position such that the receive active line cannot be changed. All requests are ignored while this command is in effect. This command is treated as a local request and is not signaled to the far end.

For all protocol types, the command remains in effect until it is cancelled with the *Clear* command. This command can only be issued when the *Laps* component is unlocked.

## VERB SWITCH Laps

| | |
|---|---|
| Impact | Service |
| Description | *Switch [-force] [-workingToProtection] [-protectionToWorking] Laps/n*<br>This command instructs the *Laps* component to switch the *nearEndRxActiveLine* attribute from the working line to the protection line (or vice versa). While this occurring the *nearEndRequest* attribute value is ***manualSwitch***.<br><br>If the *-force* option is specified, the *Laps* component is instructed to switch. The *nearEndRequest* attribute value is ***forcedSwitch.*** The *-force* option must always be used when the *Laps protocol* attribute is set to ***g841AnnexB***.<br><br>The *switch* command, with various options described above, can only be issued if the *Laps* component is unlocked. It remains in effect until it is cancelled either with the *'clear laps/n"* command, or until a higher value for the *nearEndRequest* attribute (or *farEndRequest* attribute if the provisioned *mode* attribute value is set to ***bidirectional***) goes into effect.<br><br>If the *-workingToProtection* option is specified, the *Laps* component switches the *nearEndRxActiveLine* attribute from the working line to the protection line.<br><br>If the *-protectionToWorking* option is specified, the *Laps* component switches the *nearEndRxActiveLine* attribute from the |

protection line to the working line.

This command is ignored when the following conditions exist:

1) An equal or higher priority value for the *nearEndRequest* attribute is already in effect
2) An equal or higher priority value for the *farEndRequest* attribute is already in effect if the provisioned *mode* attribute value is set to ***bidirectional***.
For the list of request priorities refer to the description for the *Laps nearEndRequest* attribute.

This command can only be issued when the *Laps* component is unlocked.

### VERB CLEAR Laps

| | |
|---|---|
| Impact | Service |
| Description | *Clear Laps/n*<br>This command clears the *nearEndRequest* attribute if the value is ***lockoutOfProtection***, ***forcedSwitch***, or ***manualSwitch***.<br><br>This command can only be issued when the *Laps* component is unlocked. |

### GROUP Laps CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

### ATTRIBUTE Laps customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0. |

Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.

An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to "basic CIDs" in DPN) may be assigned to specific customers.

| | |
|---|---|
| Values | Decimal (0; 1..8191) |
| Default | 0 |

### GROUP Laps Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioned attributes for the *Laps* component. |

### ATTRIBUTE Laps workingLine (working)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute is a link to the *Sonet* or *Sdh* component that provides the *Laps* component's working line (working line one in ITU-T G.841 Annex B terms). This attribute must be set.<br><br>The *workingLine* attribute and *protectionLine* attribute pairs must be valid. LAPS (Line Automatic Protection Switching) protection can be configured between paired ports on the card or between corresponding ports on adjacent cards.<br><br>The following semantic checks exist for the *workingLine* and *protectionLine* attributes:<br><br>The *workingLine* and *protectionLine* attributes can link ports on two different LPs (Logical Processor):<br>- the port number must match (that is, port zero on *Lp*/m must |

link to port 0 on *Lp*/n, and so forth).
- the *Sonet* or *Sdh* components specified by the link must not have a *Sts* or *Vc4* component.
- each *Lp* must link to exactly one card (that is, the *spareCard* attribute is not allowed to be set on either *Lp).*
- each *Lp* must link to the same type of card (that is, the *shelf card/n cardType* attribute must be identical for both cards).
- the two cards must be in adjacent slots in the shelf, with the lower-numbered slot being an even number.
- each *Lp* must link to the same *LogicalProcessorType* component.
- if the two lines of the protection pair are on different *Lps*, then the *connectionPoolCapacity* attribute value of the *Lp Eng Arc Ov* components for the two adjacent *Lps* must be the same.

The *workingLine* and *protectionLine* attributes can link to a pair of ports under the same LP (Logical Processor) for the following cards:
- for ***4pOC3SmIrAtm*** and ***4pOC3MmAtm*** cards, the port number pair must be 0-1 or 2-3.
- for the ***1pOC12SmLrAtm*** card, the port number pair must be between the two ports 0-1.

| | |
|---|---|
| Values | Link (Hardware, lineAutomaticProtectionSwitch) |
| Default | No default |

### ATTRIBUTE Laps protectionLine (protection)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute is a link to the *Sonet* or *Sdh* component that provides the *Laps*' component protection line (working line two in ITU-T G.841 Annex B terms). This attribute must be set.<br><br>The same rules apply as described in the *workingLine* attribute. |
| Values | Link (Hardware, lineAutomaticProtectionSwitch) |
| Default | No default |

## ATTRIBUTE Laps mode

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the protection mode to use.<br><br>If set to value of ***unidirectional***, the *Laps* component of the near end (NE) can decide independently of the far end (FE) which channel, either working or protection, is active for receive. For this value, the transmit and receive may be on different channels. Therefore, one end may receive from the protection line while the other end receives from the active line.<br><br>If set to ***bidirectional*** value, it instructs the *Laps* component of the NE to decide jointly with the FE which channel, either working or protection, is to be active for receiving. For this value, the transmit and receive are on the same channel. Therefore both ends receive from the same line.<br><br>Note that if either end of the *Laps* component is set to ***unidirectional***, the *Laps* component operates in ***unidirectional*** mode. In other words, ***bidirectional*** mode takes effect if and only if both ends of the *Laps* components are in ***bidirectional*** mode. |
| Values | unidirectional<br>bidirectional |
| Default | unidirectional |

## ATTRIBUTE Laps revertive

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether revertive switching is to be used.<br><br>When this attribute value is set to ***no***, the *Laps* component will not revert the receive active line from protection back to working when a working line request is cleared.<br><br>When this attribute value is set to ***yes***, the *Laps* component will revert the receive active line from protection back to working when a working line request is cleared and after the provisioned |

value of *waitToRestorePeriod* attribute has expired.

Note that it is acceptable for the near end and far end to be provisioned with a mix of revertive and nonrevertive switching; one end can be revertive and the other nonrevertive.

Values
no
yes

Default
no

### ATTRIBUTE Laps holdOffTime (hoTime)

Access
Read and write

Description
This attribute specifies the delay between the detection of a signal failure or signal degradation on the active line and the initiation of a line switchover.

Values
Decimal (0.0..10.0)

Units
seconds

Default
0.0

### ATTRIBUTE Laps waitToRestorePeriod (wtrPeriod)

Access
Read and write

Description
This attribute has a different meaning based on the protocol type provisioned.

A) The *protocol* attribute is set to ***standard***:

This attribute specifies the time (in minutes) during which the protection line remains the receive active line after the working line recovers from the fault that caused the switch. This attribute is only applicable when the *revertive* attribute value is set to ***yes***.

B) The *protocol* attribute is set to ***g841AnnexB***:

This attribute specifies the time (in minutes) after which a Signal Fail or Signal Degrade condition has cleared, but before which the line with the condition is considered in service. Once this

time reaches zero, traffic continues to be received from the current receive active line by swapping the primary and secondary section labels. No line switch takes place.

Values: Decimal (5..12)

Units: minutes

Default: 5

### ATTRIBUTE Laps signalDegradeRatio (sdRatio)

Access: Read and write

Description: This attribute specifies the minimum bit error ratio (BER) for which a signal degradation failure is declared. Its value is the exponent of the BER, which corresponds to a BER range of 10e-5 through 10e-9.

The switch initiation time for a signal degradation varies depending on the observed BER (***not*** the provisioned *signalDegradeRatio*), as described in the following table.

**BER - Switch Initiation Time (OC-3)**
10e-5 - 1 second
10e-6 - 10 seconds
10e-7 - 100 seconds
10e-8 - 16 minutes 40 seconds
10e-9 - 2 hours 46 minutes 40 seconds

The clearing threshold for a signal degradation is one-tenth the value of the *signalDegradeRatio* attribute. For example, if the provisioned *signalDegradeRatio* attribute is ***-5***, the corresponding clearing threshold is 10e-6. The clearing time varies depending on the clearing threshold (***not*** the observed BER), and can be determined from the above table.

Values: Signed (-9..-5)

Default: -5

## ATTRIBUTE Laps mimicAps

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies whether the Mimic APS protocol should be enabled.<br><br>Mimic APS is a Nortel Networks proprietary protocol to allow for an Automatic Protection Switching variant to be used between Passport 15000 FPs and other non-Passport hardware which supports the Mimic APS protocol.<br><br>It currently only supports the following four-port OC3 multi-mode and single-mode FPs: ***4pOC3SmIrAtm*** and ***4pOC3MmAtm***.<br><br>When the *mimicAps* attribute is set to ***enabled***, the Mimic APS protocol is used. The Mimic APS protocol supports only unidirectional non-revertive modes of APS and as such the *mode* and *revertive* attributes must be set to ***unidirectional*** and ***no*** respectively. |
| Values | disabled<br>enabled |
| Default | disabled |

## ATTRIBUTE Laps protocol

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the protocol used to protect the physical interfaces.<br><br>The value ***standard*** indicates that 1+1 linear APS is used, as described in the standards document GR-253 published by Telcordia and G.841 published by the ITU-T.<br><br>The value ***g841AnnexB*** indicates that optimized 1+1 bidirectional switching is used, as described in the standard |

G.841 Annex B published by the ITU-T. This value is only supported on the ***16pOC3SmIrAtm*** card type.

The *mode* attribute must be set to ***bidirectional***, the *revertive* attribute set to ***no***, and the *holdOffTime* attribute set to ***0*** when the *protocol* attribute is set to ***g841AnnexB***.

Values: standard
g841AnnexB

Default: standard

### ATTRIBUTE Laps primarySectionMismatchTime

Access: Read and write

Description: This attribute specifies the time to wait after a primary section mismatch defect is detected/cleared, before raising/clearing an alarm.

A primary section mismatch occurs when the received and transmitted channels in the K2 byte do not match.

This attribute only applies when the *protocol* attribute is set to ***g841AnnexB***.

Values: Decimal (50..1000)

Units: msec

Default: 50

### GROUP Laps OsiState (State)

Properties: Operational

Description: This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Laps adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Laps operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the |

component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Laps usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
idle
active (activ)
busy

Default
idle

### ATTRIBUTE Laps availabilityStatus (osiAvail)

Access
Read only

Description
If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.

The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.

The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.

The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.

The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The

*operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

### ATTRIBUTE Laps proceduralStatus (osiProc)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.

The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been

initiated. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

### ATTRIBUTE Laps controlStatus (osiCntrl)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is

***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

Set of

subjectToTest (subTst)
partOfServicesLocked (partLk)
reservedForTest (rsrvd)
suspended (suspnd)

Default

No default

### ATTRIBUTE Laps alarmStatus (osiAlarm)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE Laps standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

| | |
|---|---|
| Values | hotStandby (hot)<br>coldStandby (cold)<br>providingService (serv)<br>notSet (nSet) |
| Default | notSet |

### ATTRIBUTE Laps unknownStatus (osiUnknw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Unknown status of the component.<br><br>The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.<br><br>The value ***true*** indicates that the actual state of the component is not known for sure. |
| Values | false<br>true |
| Default | false |

### GROUP Laps Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for the *Laps* component. |

### ATTRIBUTE Laps nearEndRxActiveLine (neRxLine)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates which near end line is active for receiving data from the far end. |
| Values | protection<br>working |
| Default | No default |

## ATTRIBUTE Laps nearEndRequest (neReq)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the request currently being ***transmitted*** to the far end in the SONET/SDH line overhead K1 byte of the protection line. Requests are prioritized so that high priority requests preempt or block those with a lower priority. The possible requests, in order of priority from highest to lowest, are as follows.<br><br>***lockoutOfProtection*** — the working line is prevented from switching to the protection line under any circumstance due to a '*ProtectionLockout Laps/n*' command being in effect.<br><br>***forcedSwitch*** — the line indicated by the attribute *nearEndRequestChannel* has a '*Switch -force laps/n*' command in effect against it. Note that a ***signalFail*** value on the protection line has higher priority than a ***forcedSwitch*** value.<br><br>***signalFail*** — the line indicated by the attribute *nearEndRequestChannel* is experiencing a signal failure (SF). Failures include LOS, LOF, received AIS-L, a signal BER exceeding 10e-3, or a locked *Sonet/Sdh* component. Note that a ***signalFail*** value on the protection line has higher priority than a ***forceSwitch*** value.<br><br>***signalDegrade*** — the line indicated by the attribute *nearEndRequestChannel* is experiencing a signal degradation (SD).<br><br>***manualSwitch*** — the line indicated by the attribute *nearEndRequestChannel* has a *Switch* command in effect against it.<br><br>***waitToRestore*** — the protection line is active, the *revertive* attribute value is ***yes***, and the working line has recovered from a signal failure (SF) or signal degradation (SD). After the period defined by the attribute *waitToRestorePeriod*, the working line automatically reverts to being the receive active line and the *nearEndRequest* attribute value changes to ***noRequest***. |

***reverseRequest*** — the line indicated by the attribute *nearEndRequestChannel* is active due to a request from the far end. This request is only applicable when the provisioned *mode* attribute value is ***bidirectional***.

***doNotRevert*** — the protection line is active, provisioned attribute *revertive* is set to ***no***, and either: (1) the working line has recovered from a *signalFail* or ***signalDegrade***; or (2) a ***forcedSwitch*** or ***manualSwitch*** request has been cleared. The receive active line does not automatically revert to the working line.

***noRequest*** — the working line is active and no other requests are in effect.

Values

lockoutOfProtection
forcedSwitch
signalFail
signalDegrade
manualSwitch
waitToRestore
reverseRequest
doNotRevert
noRequest

Default

No default

### ATTRIBUTE Laps nearEndRequestChannel (neReqChan)

Access

Read only

Description

This attribute indicates to which channel the *nearEndRequest* applies. The protection channel refers to working channel two in ITU-T G.841 Annex B terms.

Values

protection
working

Default

No default

### ATTRIBUTE Laps farEndRequest (feReq)

Access

Read only

Description

This attribute indicates the request currently being ***received*** from the far end in the SONET/SDH line overhead K1 byte of the protection line. Requests are prioritized so that high priority requests preempt or block those with a lower priority. The possible requests, in order of priority from highest to lowest, are as follows.

***lockoutOfProtection*** — indicates the working line is prevented from switching to the protection line under any circumstances due to a *ProtectionLockout* command being in effect in the far end.

***forcedSwitch*** — the line indicated by the attribute *farEndRequestChannel* has a "*Switch -force*" command in effect against it. Note that a ***signalFail*** value on the protection line has higher priority than a ***forcedSwitch*** value.

***signalFail*** — the line indicated by the attribute *farEndRequestChannel* is experiencing a signal failure (SF). Failures include LOS, LOF, received AIS-L, a signal BER exceeding 10e-3, or a locked *Sonet* component. Note that a ***signalFail*** value on the protection line has higher priority than a ***forceSwitch*** value.

***signalDegrade*** — the line indicated by the attribute *farEndRequestChannel* is experiencing a signal degradation (SD).

***manualSwitch*** — the line indicated by the attribute *farEndRequestChannel* has a *Switch* command in effect against it.

***waitToRestore*** — the FE protection line is active, the FE *revertive* attribute value is ***yes***, and the FE working line has recovered from a signal failure (SF) or signal degradation (SD). After the period defined by the attribute *waitToRestorePeriod,* the FE working line automatically reverts to being the receive active line and the *farEndRequest* attribute value changes to ***noRequest***.

***reverseRequest*** — the line indicated by the attribute *farEndRequestChannel* is active due to a request from the far end. This request is only applicable when the provisioned *mode* attribute is set to ***bidirectional***.

***doNotRevert*** — the FE protection line is active, the FE provisioned attribute *revertive* is ***no***, and either: (1) the FE working line has recovered from a *signalFail* or *signalDegrade*; or (2) a *forcedSwitch* or *manualSwitch* request has been cleared in the FE. The receive active line in the will not automatically revert to the working line in the far end.

***noRequest*** — the FE working line is active and no other requests are in effect.

Values
lockoutOfProtection
forcedSwitch
signalFail
signalDegrade
manualSwitch
waitToRestore
reverseRequest
doNotRevert
noRequest

Default
No default

### ATTRIBUTE Laps farEndRequestChannel (feReqChan)

Access
Read only

Description
This attribute indicates to which channel the *farEndRequest* applies. The protection channel refers to working channel two in ITU-T G.841 Annex B terms.

Values
protection
working

Default
No default

### ATTRIBUTE Laps sdOnLines

Access
Read only

Description
This attribute indicates which lines, if any, are currently experiencing a signal degradation (SD).

| | |
|---|---|
| Set of | protection<br>working |
| Default | No default |

### ATTRIBUTE Laps switchovers

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times that a switchover of the active line has occurred since the *Laps* component became active. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Laps timeUntilRestore

| | |
|---|---|
| Access | Read only |
| Description | This attribute has a different meaning based on the protocol type provisioned:<br><br>A) The *protocol* attribute is set to ***standard***:<br><br>This attribute indicates the amount of time until the receive active line is automatically switched back from the protection line to the working line. It is only applicable for a *Laps* component that is provisioned to be revertive, currently has the protection line as the receive active line, and has a *nearEndRequest* attribute value of ***waitToRestore***.<br><br>B) The *protocol* attribute is set to ***g841AnnexB***:<br><br>This attribute indicates the amount of time until the line which previously had a Signal Fail or Signal Degrade condition is considered back in service. Once this time reaches zero, traffic continues to be received from the current receive active line by swapping the primary and secondary section labels. No line switch takes place. |

| | |
|---|---|
| Values | Decimal (0..12) |
| Units | minutes |
| Default | No default |

### ATTRIBUTE Laps protocolFailureAlarm (pfAlarm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether the *Laps* component is experiencing an APS protocol failure alarm. Protocol failure alarms include the protection switching byte mismatch alarm (code 7011 5270) and the channel mismatch failure alarm (code 7011 5271).<br><br>This attribute does not apply to G.841 Annex B APS. It is filtered out when the *protocol* attribute is set to ***g841AnnexB***. |
| Values | on<br>off |
| Default | No default |

### ATTRIBUTE Laps modeMismatchAlarm (mmAlarm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether the *Laps* component is experiencing a LAPS mode mismatch alarm (code 7011 5272). This alarm indicates either:<br><br>(1) that the far end is operating with a 1:n switching architecture (not supported by Passport), as opposed to 1+1; or<br><br>(2) that the value of the *mode* attribute on the far end is different from the value of the mode attribute on the near end.<br><br>When a mode mismatch occurs: (1) if the far end is operating with a 1:n switching architecture it will operate as 1+1; and (2) if either end has a provisioned *mode* attribute value of ***unidirectional*** then both ends will operate unidirectionally. |

This attribute does not apply to G.841 Annex B APS. It is filtered out when the *protocol* attribute is set to ***g841AnnexB***.

Values
on
off

Default
No default

### ATTRIBUTE Laps primarySectionMismatchAlarm (psmAlarm)

Access
Read only

Description
This attribute indicates whether the *Laps* component is experiencing a primary section mismatch alarm (code 7011 5276). This alarm indicates the primary section indicated in the received K2 byte of the SDH line overhead has not matched the primary section transmitted in the K2 byte for 50 milliseconds.

This attribute does not apply, and will be filtered out, when the *protocol* attribute is set to ***standard***.

Values
on
off

Default
No default

### ATTRIBUTE Laps primarySection (ps)

Access
Read only

Description
This attribute indicates which line is currently labelled as the primary section.

This attribute does not apply, and will be filtered out, when the *protocol* attribute is set to ***standard***.

Values
protection
working

Default
No default

### COMPONENT Laps Sts

Instance
Decimal (0..11)

| | |
|---|---|
| Groups | "GROUP Laps Sts Provisioned (Prov)"<br>"GROUP Laps Sts CustomerIdentifierData (CidData)"<br>"GROUP Laps Sts OsiState (State)"<br>"GROUP Laps Sts IfEntryProv (IfEntry)"<br>"GROUP Laps Sts OperationalStatus (OperStatus)"<br>"GROUP Laps Sts Operational (Oper)"<br>"GROUP Laps Sts Statistics (Stats)"<br>"GROUP Laps Sts Provisioned (Prov)" |
| Scope | Device |
| Description | *Lp/n Sonet/n Sts/n*<br>*Laps/n Sts/n*<br>This component controls a path signal that is carried within a SONET signal. The instance number of *Sts* component must be 0 for components on unchannelized cards. On channelized cards, the index of an *Sts* component must be outside the range defined by [j,j+C-1], where j is the index of another *Sts* component (under the same parent *Sonet* component, or if under the *Laps* component, the same working line), and C is the concatenation level defined for that other *Sts* component. On channelized cards, the maximum value of the index of an *Sts* component must be less than or equal to the bandwidth number of the line minus 1. For example, the maximum index value for an *Sts* component under an OC-12 *Sonet* component is 11. On channelized cards, the sum of concatenation values over all *Sts* subcomponents under a *Sonet* component (or the working line if under an *Laps* component) must not be greater than the concatenation level for that *Sonet* component. |
| Opt. Subcomp. | "COMPONENT Laps Sts AtmCell (Cell)"<br>"COMPONENT Laps Sts Vt1dot5" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

### GROUP Laps Sts Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all of the provisioning data for the component. |

### ATTRIBUTE Laps Sts applicationFramerName (framer)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines which application is running on the path. |
| Values | Link |
| Default | No default |

### GROUP Laps Sts CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

### ATTRIBUTE Laps Sts customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.<br><br>Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.<br><br>An operator CID of 0 is used to identify the Network Manager |

(referred to as “NetMan” in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to “basic CIDs” in DPN) may be assigned to specific customers.

Values — Decimal (0; 1..8191)

Default — 0

### GROUP Laps Sts OsiState (State)

Properties — Operational

Description — This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Laps Sts adminState (osiAdmin)

Access — Read only

Description — This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

| | |
|---|---|
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Laps Sts operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Laps Sts usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
idle
active (activ)
busy

Default
idle

### ATTRIBUTE Laps Sts availabilityStatus (osiAvail)

Access
Read only

Description
If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.

The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.

The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.

The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.

The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

| | |
|---|---|
| Set of | inTest<br>failed<br>dependency (depend)<br>powerOff (pwrOff)<br>offLine<br>offDuty<br>degraded (degrad)<br>notInstalled (notIn)<br>logFull<br>migrating |
| Default | No default |

### ATTRIBUTE Laps Sts proceduralStatus (osiProc)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.<br><br>The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.<br><br>The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.<br><br>The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.<br><br>The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***. |
| Set of | initializationRequired (initRq)<br>notInitialized (notInit)<br>initializing (init)<br>reporting (report)<br>terminating (term) |
| Default | No default |

### ATTRIBUTE Laps Sts controlStatus (osiCntrl)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.<br><br>The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.<br><br>The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.<br><br>The value ***suspended*** indicates that the service has been administratively suspended. |
| Set of | subjectToTest (subTst)<br>partOfServicesLocked (partLk)<br>reservedForTest (rsrvd)<br>suspended (suspnd) |
| Default | No default |

### ATTRIBUTE Laps Sts alarmStatus (osiAlarm)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user. |

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE Laps Sts standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not

supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values
hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

Default
notSet

### ATTRIBUTE Laps Sts unknownStatus (osiUnknw)

Access
Read only

Description
This attribute indicates the OSI Unknown status of the component.

The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.

The value ***true*** indicates that the actual state of the component is not known for sure.

Values
false
true

Default
false

### GROUP Laps Sts IfEntryProv (IfEntry)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the ifEntry. |

### ATTRIBUTE Laps Sts ifAdminStatus (ifState)

| | |
|---|---|
| Access | Read and write |
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE Laps Sts ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP Laps Sts OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

### ATTRIBUTE Laps Sts snmpOperStatus

| | |
|---|---|
| Access | Read only |

Description

The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed.

Values

up
down
testing

Default

up

## GROUP Laps Sts Operational (Oper)

Properties

Operational

Description

This group contains the common operational data for the component.

## ATTRIBUTE Laps Sts lopAlarm (lop)

Access

Read only

Description

This attribute displays whether a Loss Of Pointer (LOP) alarm state has been entered. An LOP alarm state is entered when LOP defects have been observed and accumulated for a period of 2.5 seconds +/- 0.5 seconds. An LOP defect occurs when no valid SPE or VC pointer was received in 8 contiguous frames. If the LOP defects are intermittently occurring, the LOP defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.

The component goes into an operational state of *disabled* until the LOP alarm condition is cleared. The condition is cleared when no more invalid pointer has been reported for 10 seconds +/- 0.5 seconds.

The *lopAlarm* attribute is always set to ***off*** when the component has been *Lock*ed and left *offline* by the operator or when the

component has been *Suspend*ed since the parent component has been *Lock*ed.

Values
on
off

Default
No default

### ATTRIBUTE Laps Sts rxAisAlarm (ais)

Access
Read only

Description

This attribute displays whether a Path Alarm Indication Signal (P-AIS) alarm state has been entered. A P-AIS alarm state is entered when P-AIS defects have been observed and accumulated for a period of 2.5 seconds +/- 0.5 seconds. The P-AIS defect is the occurrence of the P-AIS signal in three contiguous valid STS or STM frames (all one's in bytes H1 and H2). If the P-AIS defects are intermittently occurring, the P-AIS defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.

The component goes into an operational state of *disabled* until the P-AIS alarm condition is cleared. The condition is cleared after no P-AIS defect has been detected for 10 seconds +/- 0.5 seconds.
The *rxAisAlarm* attribute is always set to ***off*** when the component has been *Lock*ed and left *offline* by the operator or when the component has been *Suspend*ed since the parent component has been *Lock*ed.

Values
on
off

Default
No default

### ATTRIBUTE Laps Sts rxRfiAlarm (rfi)

Access
Read only

Description

This attribute displays whether the Path Remote Failure

Indication (P-RFI) alarm state has been entered. A P-RFI alarm state is entered when Path Remote Defect Indicator (P-RDI) defects have been observed and accumulated for a period of 2.5 seconds +/- 0.5 seconds. The P-RDI defect is the occurrence of the P-RDI signal in five contiguous valid STS or STM frames (bit 5 of the G1 byte set to 1). If the P-RDI defects are intermittently occurring, the P-RDI defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10)with all measurements based on a 200 ms polling cycle.

The component goes into an operational state of *disabled* until the P-RFI alarm condition is cleared. The condition is cleared after no P-RDI defect has been detected for 10 seconds +/- 0.5 seconds.
The *rxRfiAlarm* attribute is always set to ***off*** when the component has been *Lock*ed and left *offline* by the operator or when the component has been *Suspend*ed since the parent component has been *Lock*ed.

Values

on
off

Default

No default

### ATTRIBUTE Laps Sts signalLabelMismatch (slm)

Access

Read only

Description

This attribute displays whether the Path Signal Label Mismatch (P-SLM) failure condition has been entered. A P-SLM failure condition is entered when P-SLM defects have been observed and accumulated for period of 2.5 seconds +/- 0.5 seconds. A P-SLM defect occurs when detecting an unexpected path signal label. The expected Path signal labels are “Mapping for ATM” or “Equipped - Non Specific Payload”. If the P-SLM defects are intermittently occurring, the P-SLM defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.
The component goes into an operational state of *disabled* until the Path Signal Label Mismatch failure condition is cleared. The

condition is cleared when an expected path signal label is received for 10 seconds +/- 0.5 seconds.

The *signalLabelMismatch* attribute is always set to ***off*** when the component has been *Lock*ed and left *offline* by the operator or when the component has been *Suspend*ed since the parent component has been *Lock*ed.

Values
on
off

Default
No default

### ATTRIBUTE Laps Sts txAis

Access
Read only

Description
This attribute displays whether the Path Alarm Indication Signal (P-AIS) signal is being transmitted on the path. The P-AIS signal is transmitted when the component has been *Lock*ed and left *offline* by the operator or when the component has been *Suspend*ed since the parent component has been *Lock*ed.

Values
on
off

Default
No default

### ATTRIBUTE Laps Sts txRdi

Access
Read only

Description
This attribute displays whether the Path Remote Defect Indicator (P-RDI) signal is being transmitted over the path signal. The P-RDI signal is transmitted over the outgoing line upon detection of LOP, P-AIS or the occurrence of the LCD state. This attribute is always set to ***off*** when the component has been *Lock*ed and left *offline* by the operator or when the component has been *Suspend*ed since the parent component has been *Lock*ed.

Values
on
off

Default No default

### GROUP Laps Sts Statistics (Stats)

Properties Operational

Description

This group contains the statistics data for the component.

### ATTRIBUTE Laps Sts pathErrorFreeSec (pefs)

Access Read only

Description

This attribute counts the one second intervals that the component has been in a near-end error free state.

The counter wraps to 0 when it exceeds its maximum value.

Values Decimal (0..4294967295)

Default 0

### ATTRIBUTE Laps Sts pathCodeViolations (pcv)

Access Read only

Description

This attribute counts the detected Path Code Violations (PCVs). Each PCV corresponds to a path BIP-8 error. PCV counting is inhibited over second intervals where a Path Severely Errored Second (PSES) is counted. Counting of PCVs is also inhibited over second intervals where a Path Unavailable Second (PUAS) is counted.

The counter wraps to 0 when it exceeds its maximum value.

Values Decimal (0..4294967295)

Default 0

### ATTRIBUTE Laps Sts pathErroredSec (pes)

Access Read only

Description

This attribute counts the declared Path Errored Seconds (PESs). A PES is declared for second intervals containing one or more PCVs or one or more LOP or path AIS defects. Counting of PES is inhibited when PUAS is declared over the monitored second.

The counter wraps to 0 when it exceeds its maximum value.

Values Decimal (0..4294967295)

Default 0

### ATTRIBUTE Laps Sts pathSevErroredSec (pses)

Access Read only

Description

This attribute counts the declared Path Severely Errored Seconds (PSESs). A PSES is declared for second intervals containing more than *x* PCVs or one or more LOP or path AIS defects. The value of *x* is 2400 for a 155 Mbit/s interface. Counting of PSES is inhibited when PUAS is declared over the monitored second.

The counter wraps to 0 when it exceeds its maximum value.

Values Decimal (0..4294967295)

Default 0

### ATTRIBUTE Laps Sts pathAisLopSec (pals)

Access Read only

Description

This attribute counts the path AIS and LOP Seconds (PALSs). A PALS is declared for second intervals containing one or more path AIS or LOP defects. Counting of PALS is inhibited when PUAS is declared over the monitored second.

The counter wraps to 0 when it exceeds its maximum value.

Values Decimal (0..4294967295)

Default 0

### ATTRIBUTE Laps Sts pathUnavailSec (puas)

Access: Read only

Description:

This attribute counts the one second intervals during which the STS/STM path is unavailable. The path becomes unavailable at the onset of 10 consecutive PSESs. The 10 PSESs are included in the unavailable time. Once unavailable, the path becomes available at the onset of 10 contiguous seconds with no PSES. The 10 seconds with no PSES are excluded from the unavailable time. For second intervals where a Path Unavailable Second (PUAS) is declared, counting of PCV, PES, PSES and PALS is inhibited.

The counter wraps to 0 when it exceeds its maximum value.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE Laps Sts pathFailures (pf)

Access: Read only

Description:

This attribute counts the declarations of a path failure (LOP, P-AIS or Path Signal Label Mismatch failure).

The counter wraps to 0 when it exceeds its maximum value.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE Laps Sts farEndPathErrorFreeSec (fepefs)

Access: Read only

Description:

This attribute counts the one second intervals that the component has been in a far-end error free state.

The counter wraps to 0 when it exceeds its maximum value.

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Laps Sts farEndPathCodeViolations (fepcv)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the Far-End Path Code Violations (FEPCVs) detected. Each FEPCV corresponds to a path FEBE. FEPCV counting is inhibited over second intervals where a Far-End Path Severely Errored Second (FEPSES) is declared. Counting of PCVs is also inhibited over second intervals where a Far-End Path Unavailable Second (FEPUAS) is declared.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Laps Sts farEndPathErroredSec (fepes)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the Far-End Path Errored Seconds (FEPESs) that have been declared. A FEPES is declared for each one second interval containing one or more FEPCVs or one or more path RDI (P-RDI) defects. Counting of FEPES is inhibited when FEPUAS is declared over the monitored second.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Laps Sts farEndPathSevErroredSec (fepses)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the Far-End Path Severely Errored Seconds |

(FEPSESs) that have been declared. A FEPSES is declared for second intervals containing more than *x* FEPCVs or one or more P-RDI defects. The value of *x* is 2400 for a 155 Mbit/s interface. Counting of FEPSESs is inhibited when FEPUAS is declared over the monitored second.

The counter wraps to 0 when it exceeds its maximum value.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE Laps Sts farEndPathAisLopSec (fepals)

Access: Read only

Description:

This attribute counts the Far-End Path AIS and LOP Seconds (FEPALSs). A FEPALS is declared for each one second interval containing one or more P-RDI defects. Counting of FEPALS is inhibited when FEPUAS is declared over the monitored second.

The counter wraps to 0 when it exceeds its maximum value.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE Laps Sts farEndPathUnavailSec (fepuas)

Access: Read only

Description:

This attribute counts the one second intervals for which the STS/STM far-end path is unavailable. The far-end path becomes unavailable at the onset of 10 consecutive FEPSESs. The 10 FEPSESs are included in the unavailable time. Once unavailable, the far-end path becomes available at the onset of 10 contiguous seconds with no FEPSES. The 10 seconds with no FEPSES are excluded from the unavailable time. For one-second intervals where a Far-End Path Unavailable Second (FEPUAS) is declared, counting of FEPCV, FEPES, FEPSES and FEPALS is inhibited.

The counter wraps to 0 when it exceeds its maximum value.

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Laps Sts farEndPathFailures (fepf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the declarations of STS/STM far-end path failure (P-RFI failure).<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### GROUP Laps Sts Provisioned (ChProv)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioning data for *Sts* components provisioned under *Sonet* components that support channelization.. |

### ATTRIBUTE Laps Sts txPathTrace

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the high order path identifier. The string must be constructed with 7-bit characters only. The path identifier is padded by null characters if necessary to form a 64-octet path trace message transmitted in byte J1 of 64 outgoing SONET frames. At the remote end, the path trace is reassembled, and the message is compared to the *expectedRxPathTrace* attribute. If a mismatch is detected, an alarm is issued.<br><br>The functionality supported by this attribute is not available. |
| Values | String (0..64, ASCII) |
| Default | "" |

### ATTRIBUTE Laps Sts expectedRxPathTrace

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute specifies the expected path trace identifier which is used to identify the high order path. This attribute must match the corresponding *txPathTrace* provisioned at the transmitting equipment end. If it does not, an alarm is issued.<br><br>The functionality supported by this attribute is not available. |
| Values | String (0..64, ASCII) |
| Default | "" |

### ATTRIBUTE Laps Sts concatNumber

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the STS concatenation level for the *Sts* component on channelized cards. It must be set to a concatenation level supported by the FP upon which the *Sts* is defined, except for non-channelized cards, in which case it must be set to 0. For example, a value of 1 in this attribute would represent STS-1 concatenation, while a value of 3 would represent STS-3c, a value of 12 would represent STS-12c, and so forth. *Sts* channelization to the tributary level is supported only if this attribute is set to 1. |
| Values | Decimal (0; 1; 3; 12; 48) |
| Default | No default |

### COMPONENT Laps Sts AtmCell (Cell)

| | |
|---|---|
| Groups | "GROUP Laps Sts Cell Provisioned (Prov)"<br>"GROUP Laps Sts Cell Operational (Oper)"<br>"GROUP Laps Sts Cell Statistics (Stats)" |
| Scope | Device |
| Description | The *AtmCell* component contains provisioning and operational attributes. The provisioning attributes are used to set the Loss of Cell Delineation (LCD) alarm activation delay and to turn cell payload scrambling on or off. The operational attributes are used to report about the quality of the ATM cells received by the |

interface and the cell capacity utilization. The *AtmCell* component appears under all port components running on ATM cards.

Common Verbs

Help
List
Display
Add
DELete

## GROUP Laps Sts Cell Provisioned (Prov)

Properties: Provisioned

Description

This group contains the provisioning attributes for the *AtmCell* component.

## ATTRIBUTE Laps Sts Cell alarmActDelay (act)

Access: Read and write

Description

This attribute specifies the time during which a Loss of Cell Delineation (LCD) defect should be observed before declaring an LCD alarm (alarm 70115501). When the *Cell* component is provisioned under the *Sonet* or *Sdh* component, this attribute defaults to 500 milliseconds. When it is provisioned under the *Laps* component, the default is 2000 milliseconds. This is necessary to ensure that the services bound to the *Sts* or *Vc4* component are not disrupted during short lived LCD defects caused by a line switchover. Setting this attribute to a lower value when the *Laps* component is provisioned may result in a temporary service outage when a line switchover occurs.

Values: Decimal (0..2000)

Units: msec

Default: No default

## ATTRIBUTE Laps Sts Cell scrambleCellPayload (scramble)

Access: Read and write

Description

Cell scrambling, as defined by ITU-T Recommendation I.432., can provide a solution to the problem of transmission equipment which is sensitive to certain bit patterns in the ATM cell payload. This attribute controls whether or not the cell payload is scrambled.
It defaults to ***off*** for *DS1* interfaces, and ***on*** for all other interfaces.
Note that this setting must be the same at both ends of the link.

Values

off
on

Default

No default

### ATTRIBUTE Laps Sts Cell correctSingleBitHeaderErrors

Access

Read and write

Description

This attribute specifies whether the port corrects single bit errors detected in the headers of received cells. If single bit errors are corrected, the affected cells are passed up to the ATM layer according to normal operation. If single bit errors are not corrected, these errored cells are discarded by the physical layer. Note that cells containing multiple bit errors in their headers are always discarded.

Single bit HEC error correction must remain ***off*** for the following card types: 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 2pJ6MAtm, 3pDS3Atm, and 3pE3Atm.

Values

off
on

Default

off

### ATTRIBUTE Laps Sts Cell clearDelay (clear)

Access

Read and write

Description

This attribute specifies the minimum elapsed time between the clearing of the Loss of Cell Delineation (LCD) defect and the

port returning to service. The LCD defect should be absent for the entire period of elapsed time. This attribute value is specified in minutes. If the value of the *clearDelay* attribute is initially 0 (default), the time is actually about 10 seconds.
This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm.

Values: Decimal (0..60)

Units: minutes

Default: 0

### ATTRIBUTE Laps Sts Cell hecSampleInterval (hSample)

Access: Read and write

Description:

This attribute specifies the sampling interval (in seconds) for errors associated with the *uncorrectableHeaderErrors* attribute. When the sum of errors counted by the *uncorrectableHeaderErrors* attribute over the interval time is greater than or equal to the provisioned *hecErrorLimit* attribute, the sample interval is considered errored. If the number of consecutive errored intervals reaches the limit established in the *hecErrorIntervalLimit* attribute, an LCD alarm is declared and the port is disabled. If the attribute *hecSampleInterval* is set to the default, 0, then the attribute *uncorrectableHeaderErrors* cannot be used to bring down the port.
This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm.

Values: Decimal (0..25)

Units: seconds

Default: 0

### ATTRIBUTE Laps Sts Cell hecErrorLimit (hLimit)

Access: Read and write

Description:

This attribute specifies the error threshold for a HEC error sampling interval beyond which a port is brought down. When

the value of the *uncorrectableHeaderErrors* attribute accumulated over the provisioned value of the *hecSampleInterval* attribute is greater than or equal to the provisioned value of the *hecErrorLimit* attribute, the sample interval is considered errored. If the number of consecutive errored intervals reaches the limit established in the *hecErrorIntervalLimit* attribute, an LCD alarm is declared and the port is disabled. (Please note that a *hecErrorInterval* attribute value of 0 (default) disables the mechanism of using the value of the *uncorrectableHeaderErrors* attribute to disable a port.)
This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm.

Values: Decimal (1..250000)

Default: No default

### ATTRIBUTE Laps Sts Cell lcdStateDelay (delay)

Access: Read and write

Description:

This attribute specifies the time during which an Out of Cell Delineation (OCD) defect should be observed before moving to the Loss of Cell Delineation (LCD) defect state. The time is specified in milliseconds. The valid values are 1 to 50 milliseconds if the *AtmCell c*omponent is located under the *Ds1* or *E1* component, and 1 to 5 milliseconds if under a *Ds3* or *E3* component.
This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm.

Values: Decimal (1..50)

Units: msec

Default: No default

### ATTRIBUTE Laps Sts Cell hecErrorIntervalLimit (hIntLimit)

Access: Read and write

Description:

This attribute counts the instances of the *hecSamplingInterval*

attribute for all HEC errors (specified by the *uncorrectableHeaderError* attribute) before an LCD alarm is generated. The alarm is only generated if the value of the *uncorrectableHeaderErrors* attribute in a given interval is greater than the value of the *hecErrorLimit* attribute. For example, if there are 20 HEC errors in 5 seconds, for three times in a row (the number of times in a row is represented by this attribute), an alarm is raised. If there are 24 HEC errors in the 5 seconds, and 14 in the next 5 seconds no alarm is generated because the number of HEC errors should also be more than 20 in the next instances.
This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm.

Values: Decimal (1..25)

Default: 1

## GROUP Laps Sts Cell Operational (Oper)

Properties: Operational

Description:

This group contains the common operational attributes for the *AtmCell* component.

## ATTRIBUTE Laps Sts Cell lcdAlarm (lcd)

Access: Read only

Description:

This attribute displays whether the Loss of Cell Delineation (LCD) failure alarm state has been entered. This state is entered when LCD defects have been observed and accumulated for a period of time specified through the *alarmActDelay* attribute.
In ATM cell direct mapping mode, an LCD defect occurs when Out of Cell Delineation (OCD) anomaly persists for *x* milliseconds, and disappears when the Out of Cell Delineation (OCD) is absent for *x* msec. An OCD anomaly occurs when 7 consecutive incorrect HECs have been detected. An OCD anomaly terminates when 6 consecutive correct HECs have been detected.
For an *AtmCell* component located under a *DS3* or *E3* component

with *mapping* = ***PLCP***, the LCD defect is directly derived from the PLCP LOF defect.
If LCD defects are intermittently occurring, the LCD defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle
The component under which is located the *AtmCell* component goes into an operational state of ***disabled*** until the LCD alarm condition is cleared. The condition is cleared after the LCD defect has not been reported for a period of 10 seconds +/- 0.5 seconds.
The *lcdAlarm* attribute is always set to off when the parent of the *AtmCell* component has been *locked* and left *offline*. This can also happen when the *Path* or *Channel* component has been suspended since its parent has been locked.

Values
on
off

Default
off

## GROUP Laps Sts Cell Statistics (Stats)

Properties
Operational

Description
This group contains the statistics attribute for the *AtmCell* component. Each attribute type is a non-negative integer which monotonically increases until it reaches a maximum value, at which point it wraps around and starts increasing again from zero.

## ATTRIBUTE Laps Sts Cell uncorrectableHeaderErrors (ucErr)

Access
Read only

Description
This attribute indicates the number of uncorrectable ATM cell header errors that have been detected. Counting of *uncorrectableHeaderErrors* is inhibited when an Out of Cell Delineation (OCD) defect is present. An OCD defect occurs when seven consecutive incorrect HECs have been detected. An

OCD defect terminates when six consecutive correct HECs have been detected.

Values Decimal (0..4294967295)

Default 0

### ATTRIBUTE Laps Sts Cell sevErroredSec (ses)

Access Read only

Description

This attribute indicates the total number of ATM Cell Severely Errored Seconds (SESs) that have been counted.

In direct mapping mode, an ATM Cell SES is declared for second intervals containing one or more Out of Cell Delineation (OCD) defects. An OCD defect occurs when seven consecutive incorrect HECs have been detected. An OCD defect terminates when six consecutive correct HECs have been detected.

If the *AtmCell* component is located under a *Ds3* or *E3* component where the *mapping* attribute is set to ***plcp***, an ATM Cell SES is declared for second intervals containing one or more PLCP LOF defects.

Counting of *uncorrectableHeaderErrors* (*ucErr*) and *correctableHeaderErrors* (*cErr*) is inhibited when the OCD defect is present.

Values Decimal (0..4294967295)

Default 0

### ATTRIBUTE Laps Sts Cell receiveCellUtilization (rxutil)

Access Read only

Description

This attribute is the ratio of the number of valid, assigned cells received on the link to the nominal link capacity. The utilization is calculated over a period of one minute.
This attribute is always set to ***0*** when the parent of the *AtmCell* component has been *locked* and left *offline.* This can also happen

when the *Path* or *Channel* component has been *suspended* since its parent has been *locked*.

Values Decimal (0..100)

Units %

Default 0

### ATTRIBUTE Laps Sts Cell transmitCellUtilization (txutil)

Access Read only

Description

This attribute is the ratio of the number of valid, assigned cells transmitted on the link to the nominal link capacity. The utilization is calculated over a period of one minute.
This attribute is always set to ***0*** when the parent of the *AtmCell* component has been *locked* and left *offline*. This can also happen when the *Path* or *Channel* component has been *suspended* since its parent has been *locked*.

Values Decimal (0..100)

Units %

Default 0

### ATTRIBUTE Laps Sts Cell correctableHeaderErrors (cErr)

Access Read only

Description

This attribute indicates the number of correctable ATM cell header errors that have been detected and corrected. Counting of *correctableHeaderErrors* is inhibited when an Out of Cell Delineation (OCD) defect is present. An OCD defect occurs when seven consecutive incorrect HECs have been detected. An OCD defect terminates when six consecutive correct HECs have been detected

Values Decimal (0..4294967295)

Default 0

## COMPONENT Laps Sts Vt1dot5

| | |
|---|---|
| Instance | l [Decimal (1..7)]<br>m [Decimal (1..4)] |
| Groups | "GROUP Laps Sts Vt1dot5 CustomerIdentifierData (CidData)"<br>"GROUP Laps Sts Vt1dot5 OsiState (State)"<br>"GROUP Laps Sts Vt1dot5 IfEntryProv (IfEntry)"<br>"GROUP Laps Sts Vt1dot5 OperationalStatus (OperStatus)"<br>"GROUP Laps Sts Vt1dot5 Operational (Oper)"<br>"GROUP Laps Sts Vt1dot5 Statistics (Stats)" |
| Scope | Device |
| Description | *Lp/n Sonet/n Sts/k Vt1dot5/l,m*<br>This component represents the *Vt1.5* low order path signal that is carried within a SONET signal. |
| Opt. Subcomp. | "COMPONENT Laps Sts Vt1dot5 DS1" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP Laps Sts Vt1dot5 CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

## ATTRIBUTE Laps Sts Vt1dot5 customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; |

otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.

Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.

An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to "basic CIDs" in DPN) may be assigned to specific customers.

Values: Decimal (0; 1..8191)

Default: 0

### GROUP Laps Sts Vt1dot5 OsiState (State)

Properties: Operational

Description: This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Laps Sts Vt1dot5 adminState (osiAdmin)

Access: Read only

Description: This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is

administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values: locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default: unlocked

### ATTRIBUTE Laps Sts Vt1dot5 operationalState (osiOper)

Access: Read only

Description: This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values: enabled (ena)
disabled (dis)

Default: disabled

### ATTRIBUTE Laps Sts Vt1dot5 usageState (osiUsage)

Access: Read only

Description

This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values

idle
active (activ)
busy

Default

idle

### ATTRIBUTE Laps Sts Vt1dot5 availabilityStatus (osiAvail)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.

The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is

***disabled***.

The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.

The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.

The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration

activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

### ATTRIBUTE Laps Sts Vt1dot5 proceduralStatus (osiProc)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.

The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

### ATTRIBUTE Laps Sts Vt1dot5 controlStatus (osiCntrl)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

Set of

subjectToTest (subTst)
partOfServicesLocked (partLk)
reservedForTest (rsrvd)
suspended (suspnd)

Default

No default

## ATTRIBUTE Laps Sts Vt1dot5 alarmStatus (osiAlarm)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE Laps Sts Vt1dot5 standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values

hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

| | |
|---|---|
| Default | notSet |

### ATTRIBUTE Laps Sts Vt1dot5 unknownStatus (osiUnknw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Unknown status of the component.<br><br>The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.<br><br>The value ***true*** indicates that the actual state of the component is not known for sure. |
| Values | false<br>true |
| Default | false |

### GROUP Laps Sts Vt1dot5 IfEntryProv (IfEntry)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the ifEntry. |

### ATTRIBUTE Laps Sts Vt1dot5 ifAdminStatus (ifState)

| | |
|---|---|
| Access | Read and write |
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE Laps Sts Vt1dot5 ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |

| | |
|---|---|
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP Laps Sts Vt1dot5 OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

### ATTRIBUTE Laps Sts Vt1dot5 snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### GROUP Laps Sts Vt1dot5 Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the common operational data for the component. |

### ATTRIBUTE Laps Sts Vt1dot5 rxAisAlarm

| | |
|---|---|
| Access | Read only |

Description

This attribute indicates whether a Tributary Unit Alarm Indication Signal (TU-AIS) alarm state has been entered. A TU-AIS alarm state is entered when TU-AIS defects have been observed and accumulated for a period of 2.5 seconds +/- 0.5 seconds. The TU-AIS defect occurs when three consecutive TU pointers are in the all 1's state. This alarm is cleared after no TU-AIS defect has been detected for 10 seconds +/- 0.5 seconds.

Values

on
off

Default

No default

### ATTRIBUTE Laps Sts Vt1dot5 rxRdiAlarm

Access

Read only

Description

This attribute indicates whether a Low Order Path Remote Defect Indicator (LP-RDI) alarm state has been entered. An LP-RDI alarm state is entered when LP-RDI defects have been observed and accumulated for a period of 2.5 seconds +/- 0.5 seconds. The LP-RDI defect occurs when RDI conditions are detected in five consecutive frames. This alarm is cleared after no LP-RDI defect has been detected for 10 seconds +/- 0.5 seconds.

Values

on
off

Default

No default

### ATTRIBUTE Laps Sts Vt1dot5 rxRfiAlarm

Access

Read only

Description

This attribute indicates whether a Low Order Path Remote Failure Indicator (LP-RFI) alarm state has been entered. An LP-RFI alarm state is entered when LP-RFI defects have been observed and accumulated for a period of 2.5 seconds +/- 0.5 seconds. The LP-RFI defect occurs when a RFI condition is detected. This alarm is cleared after no LP-RFI defect has been detected for 10 seconds +/- 0.5 seconds.

Values
on
off

Default
No default

### ATTRIBUTE Laps Sts Vt1dot5 unequippedAlarm

Access
Read only

Description
This attribute indicates whether a Low Order Path Unequipped (LP-UNEQ) alarm state has been entered. An LP-UNEQ alarm state is entered when LP-UNEQ defects have been observed and accumulated for a period of 2.5 seconds +/- 0.5 seconds. The LP-UNEQ defect occurs when an unequipped condition is detected for five consecutive multi frames. This alarm is cleared after no LP-UNEQ defect has been detected for 10 seconds +/- 0.5 seconds.

Values
on
off

Default
No default

### ATTRIBUTE Laps Sts Vt1dot5 traceIdMismatchAlarm

Access
Read only

Description
This attribute indicates whether a Low Order Path Trace Identification Mismatch (LP-TIM) alarm state has been entered. An LP-TIM alarm state is entered when LP-TIM defects have been observed and accumulated for a period of 2.5 seconds +/- 0.5 seconds. The LP-TIM defect occurs when a TIM condition is detected. This alarm is cleared after no LP-TIM defect has been detected for 10 seconds +/- 0.5 seconds.

Values
on
off

Default
No default

### ATTRIBUTE Laps Sts Vt1dot5 lopAlarm

Access
Read only

Description

This attribute indicates whether a Tributary Unit Loss of Pointer (TU-LOP) alarm state has been entered. An TU-LOP alarm state is entered when TU-LOP defects have been observed and accumulated for a period of 2.5 seconds +/- 0.5 seconds. The TU-LOP defect occurs when eight consecutive invalid pointer values or eight consecutive New Data Flag (NDF) pointers are detected. This alarm is cleared after no TU-LOP defect has been detected for 10 seconds +/- 0.5 seconds.

Values

on
off

Default

No default

### ATTRIBUTE Laps Sts Vt1dot5 txAis

Access

Read only

Description

This attribute indicates whether the Low order Path Alarm Indication Signal (LP-AIS) is being transmitted on the low order path. The LP-AIS signal is transmitted when the component *adminState* is *locked* or *operationalState* is *disabled* and *availabilityStatus* is *dependency.*

Values

on
off

Default

No default

### ATTRIBUTE Laps Sts Vt1dot5 txRdi

Access

Read only

Description

This attribute indicates whether the Low Order Path Remote Defect Indication (LP-RDI) is being transmitted on the low order path. The LP-RDI signal is transmitted upon detection of TU-LOP, TU-AIS, LP-TIM or LP-UNEQ. The value is *off* when the component *adminState* is *locked* or *operationalState* is *disabled* and *availabilityStatus* is *dependency.*

| | |
|---|---|
| Values | on<br>off |
| Default | No default |

### GROUP Laps Sts Vt1dot5 Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the statistics data for the component. |

### ATTRIBUTE Laps Sts Vt1dot5 pathErrorFreeSec (pefs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the one second intervals that the component has been in a near-end error free state.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Laps Sts Vt1dot5 pathCodeViolations (pcv)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the detected Path Code Violations (PCVs). Each PCV corresponds to a path BIP-8 error. PCV counting is inhibited over second intervals where a Path Severely Errored Second (PSES) is counted. Counting of PCVs is also inhibited over second intervals where a Path Unavailable Second (PUAS) is counted.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Laps Sts Vt1dot5 pathErroredSec (pes)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the declared Path Errored Seconds (PESs). A PES is declared for second intervals containing one or more PCVs or one or more LOP or path AIS defects. Counting of PES is inhibited when PUAS is declared over the monitored second.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Laps Sts Vt1dot5 pathSevErroredSec (pses)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the declared Path Severely Errored Seconds (PSESs). A PSES is declared for second intervals containing more than *x* PCVs or one or more LOP or path AIS defects. The value of *x* is 2400 for a 155 Mbit/s interface. Counting of PSES is inhibited when PUAS is declared over the monitored second.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Laps Sts Vt1dot5 pathAisLopSec (pals)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the path AIS and LOP Seconds (PALSs). A PALS is declared for second intervals containing one or more path AIS or LOP defects. Counting of PALS is inhibited when PUAS is declared over the monitored second.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Laps Sts Vt1dot5 pathUnavailSec (puas)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the one second intervals during which the STS/STM path is unavailable. The path becomes unavailable at the onset of 10 consecutive PSESs. The 10 PSESs are included in the unavailable time. Once unavailable, the path becomes available at the onset of 10 contiguous seconds with no PSES. The 10 seconds with no PSES are excluded from the unavailable time. For second intervals where a Path Unavailable Second (PUAS) is declared, counting of PCV, PES, PSES and PALS is inhibited.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Laps Sts Vt1dot5 pathFailures (pf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the declarations of a path failure (LOP, P-AIS or Path Signal Label Mismatch failure).<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Laps Sts Vt1dot5 farEndPathErrorFreeSec (fepefs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the one second intervals that the component has been in a far-end error free state.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Laps Sts Vt1dot5 farEndPathCodeViolations (fepcv)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the Far-End Path Code Violations (FEPCVs) detected. Each FEPCV corresponds to a path FEBE. FEPCV counting is inhibited over second intervals where a Far-End Path Severely Errored Second (FEPSES) is declared. Counting of PCVs is also inhibited over second intervals where a Far-End Path Unavailable Second (FEPUAS) is declared.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Laps Sts Vt1dot5 farEndPathErroredSec (fepes)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the Far-End Path Errored Seconds (FEPESs) that have been declared. A FEPES is declared for each one second interval containing one or more FEPCVs or one or more path RDI (P-RDI) defects. Counting of FEPES is inhibited when FEPUAS is declared over the monitored second.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Laps Sts Vt1dot5 farEndPathSevErroredSec (fepses)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the Far-End Path Severely Errored Seconds (FEPSESs) that have been declared. A FEPSES is declared for second intervals containing more than $x$ FEPCVs or one or more P-RDI defects. The value of $x$ is 2400 for a 155 Mbit/s interface. Counting of FEPSESs is inhibited when FEPUAS is declared over the monitored second.<br><br>The counter wraps to 0 when it exceeds its maximum value. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Laps Sts Vt1dot5 farEndPathAisLopSec (fepals)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the Far-End Path AIS and LOP Seconds (FEPALSs). A FEPALS is declared for each one second interval containing one or more P-RDI defects. Counting of FEPALS is inhibited when FEPUAS is declared over the monitored second.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Laps Sts Vt1dot5 farEndPathUnavailSec (fepuas)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the one second intervals for which the STS/STM far-end path is unavailable. The far-end path becomes unavailable at the onset of 10 consecutive FEPSESs. The 10 FEPSESs are included in the unavailable time. Once unavailable, the far-end path becomes available at the onset of 10 contiguous seconds with no FEPSES. The 10 seconds with no FEPSES are excluded from the unavailable time. For one-second intervals where a Far-End Path Unavailable Second (FEPUAS) is declared, counting of FEPCV, FEPES, FEPSES and FEPALS is inhibited.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Laps Sts Vt1dot5 farEndPathFailures (fepf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the declarations of STS/STM far-end path failure (P-RFI failure). |

The counter wraps to 0 when it exceeds its maximum value.

Values: Decimal (0..4294967295)

Default: 0

## COMPONENT Laps Sts Vt1dot5 DS1

Groups:
"GROUP Laps Sts Vt1dot5 DS1 Provisioned (Prov)"
"GROUP Laps Sts Vt1dot5 DS1 CustomerIdentifierData (CidData)"
"GROUP Laps Sts Vt1dot5 DS1 AdminInfo (AdminInfo)"
"GROUP Laps Sts Vt1dot5 DS1 IfEntryProv (IfEntry)"
"GROUP Laps Sts Vt1dot5 DS1 OperationalStatus (OperStatus)"
"GROUP Laps Sts Vt1dot5 DS1 OsiState (State)"
"GROUP Laps Sts Vt1dot5 DS1 Operational (Oper)"
"GROUP Laps Sts Vt1dot5 DS1 Statistics (Stats)"

Scope: Application

Description:
*Lp/n DS3/n DS1/n*
The *DS1* component controls and monitors a DS1 tributary of a channelized DS3 port on a Function Processor that supports channelization of a DS3.

Subcomponents: "COMPONENT Laps Sts Vt1dot5 DS1 Channel (Chan)"

Dyn. Subcomp.: "COMPONENT Laps Sts Vt1dot5 DS1 Test (Test)"

Common Verbs:
Help
List
Display
Add
DELete
LOCK
Unlock

## GROUP Laps Sts Vt1dot5 DS1 Provisioned (Prov)

Properties: Provisioned

Description: This group contains all of the provisioning data for a *DS1* component.

### ATTRIBUTE Laps Sts Vt1dot5 DS1 lineType (lineType)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the framing of the DS1 tributary.<br>***d4*** defines a framing pattern of 12 frames per multiframe.<br>***esf*** defines a framing pattern of 24 frames per multiframe.<br>***d4Cas*** defines a framing pattern of 12 frames per multiframe with channel associated signalling.<br>***esfCas*** defines a framing pattern of 24 frames per multiframe with channel associated signalling.<br>***unframed*** defines an unknown framing pattern for clear channels.<br><br>For the ***4pDS3ChAtm*** card, only ***d4*** and ***esf*** framing patterns are permitted.<br><br>The ***4pDS3ChAal1*** card supports the ***d4*** and ***esf*** framing patterns, as well as ***unframed***. |
| Values | d4<br>esf<br>d4Cas<br>esfCas<br>unframed |
| Default | esf |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 zeroCoding (zeroCoding)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute defines the zero encoding on the DS1 tributary.<br>***bit7Stuffing*** sets bit 7 of every timeslot to a one to guarantee ones's density. This reduces the available bandwidth of the channel by 1/8.<br>***none*** does no zero encoding, it does not change any value of the bits in the timeslot. The value ***none*** is compatible with any zero coding scheme which transports all 8 data bits in a timeslot (this would include both ***ami*** and ***b8zs*** values of the *DS1 zeroCoding* attribute). |

| | |
|---|---|
| Values | bit7Stuffing<br>none |
| Default | none |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 clockingSource (clockingSource)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the source of the transmit clock for the DS1 tributary.<br>When the clocking source is ***local***, the crystal on the port generates the clocking for the DS1 tributary.<br>When the clocking source is ***line***, the port synchronizes to the clock from the DS1 tributary.<br>When the clocking source is ***module***, the port's clock synchronizes to the clock provided by the oscillator on the active CP.<br>When the clocking source is ***sameAsDs3***, the Ds1 port's clock synchronizes to the same clock source as that of its parent Ds3 port.<br><br>On a ***1pDS3C*** card, if the *NetworkSynchronization (NS)* component is present, the default value of this attribute will be ***module***; otherwise it will be ***line***.<br><br>On a ***2pDS3cAal*** card, the only valid values are ***local*** and ***module***. If the *NS* component is present, the default value of this attribute will be ***module***; otherwise it will be ***local***.<br><br>On the ***4pDS3Ch***, ***4pDS3ChAtm***, and ***4pDS3ChAal1*** cards, the only valid value is ***sameAsDs3***. This is because a DS1 must have the same clocking source as its parent DS3. |
| Values | local<br>line<br>module<br>sameAsDs3 |
| Default | No default |

### GROUP Laps Sts Vt1dot5 DS1 CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |

| | |
|---|---|
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.<br><br>Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.<br><br>An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to "basic CIDs" in DPN) may be assigned to specific customers. |
| Values | Decimal (0; 1..8191) |
| Default | 0 |

### GROUP Laps Sts Vt1dot5 DS1 AdminInfo (AdminInfo)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attributes pertaining to the vendor of the equipment. |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 vendor

| | |
|---|---|
| Access | Read and write |
| Description | This is the name of the vendor supplying the facility. |
| Values | String (0..20, ASCII) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 commentText

| | |
|---|---|
| Access | Read and write |
| Description | Any miscellaneous text about the facility. |
| Values | String (0..60, ASCII) |
| Default | No default |

### GROUP Laps Sts Vt1dot5 DS1 IfEntryProv (IfEntry)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the ifEntry. |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 ifAdminStatus (ifState)

| | |
|---|---|
| Access | Read and write |
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP Laps Sts Vt1dot5 DS1 OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### GROUP Laps Sts Vt1dot5 DS1 OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. |

When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Laps Sts Vt1dot5 DS1 operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Laps Sts Vt1dot5 DS1 usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 availabilityStatus (osiAvail)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present. |

The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.

The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.

The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.

The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

| | |
|---|---|
| Set of | inTest<br>failed<br>dependency (depend)<br>powerOff (pwrOff)<br>offLine<br>offDuty<br>degraded (degrad)<br>notInstalled (notIn)<br>logFull<br>migrating |
| Default | No default |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 proceduralStatus (osiProc)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.<br><br>The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.<br><br>The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***. |

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

### ATTRIBUTE Laps Sts Vt1dot5 DS1 controlStatus (osiCntrl)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

Set of

subjectToTest (subTst)
partOfServicesLocked (partLk)
reservedForTest (rsrvd)
suspended (suspnd)

Default

No default

### ATTRIBUTE Laps Sts Vt1dot5 DS1 alarmStatus (osiAlarm)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE Laps Sts Vt1dot5 DS1 standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values

hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

| | |
|---|---|
| Default | notSet |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 unknownStatus (osiUnknw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Unknown status of the component.<br><br>The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.<br><br>The value ***true*** indicates that the actual state of the component is not known for sure. |
| Values | false<br>true |
| Default | false |

### GROUP Laps Sts Vt1dot5 DS1 Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the common operational data for a component in a digital hierarchy interface. |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 rxAisAlarm (rxAisAlarm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether an AIS (Alarm Indication Signal) alarm state has been entered. The AIS Alarm state is entered when AIS defects have been observed and accumulated for 2.5 seconds<br>+/- 0.5 seconds. An AIS defect is detected after having received less than 3 zeros in a 2048 bit period. If the AIS defects are intermittently occurring, the AIS defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle. This tributary goes into an *operationalState* of ***disabled*** for the duration of an AIS alarm state.<br>The AIS alarm state is cleared when AIS defects are absent for 10 seconds +/- 0.5 seconds. |

| | |
|---|---|
| Values | on<br>off |
| Default | off |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 lofAlarm (lofAlarm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether a LOF (Loss of Frame) alarm state has been entered. The LOF alarm state is entered when LOF defects (2 out of 5 framing bits in error) have been detected for 3 seconds +/- 0.5 seconds. If the LOF defects are intermittently occurring, the LOF defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle. This tributary goes into an *operationalState* of ***disabled*** until the LOF alarm state is cleared. Also, an RAI alarm is transmitted to the far end for the duration of the LOF alarm state<br>The condition is cleared when framing has been achieved for 10 seconds +/- 0.5 seconds. |
| Values | on<br>off |
| Default | off |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 rxRaiAlarm (rxRaiAlarm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether an RAI (Remote Alarm Indication) alarm state has been entered. An RAI alarm state is entered when the RAI defect indicator has been observed and accumulated for 3.5 seconds +/- 0.5 seconds. If the RAI defects are intermittently occurring, the RAI defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.<br>The RAI alarm state is cleared when the RAI defect indicator has been absent for 10 seconds +/- 0.5 seconds. The RAI alarm is usually an indication that the far end facility is unable to gain synchronization. |

| | |
|---|---|
| Values | on<br>off |
| Default | off |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 txAisAlarm (txAisAlarm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether an AIS (Alarm Indication Signal) alarm is being transmitted on the line. An AIS alarm is transmitted when the tributary is in a locked state. |
| Values | on<br>off |
| Default | off |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 txRaiAlarm (txRaiAlarm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether a RAI signal is being sent on the outgoing line. The RAI signal is transmitted when the tributary detects a LOF alarm condition. |
| Values | on<br>off |
| Default | off |

### GROUP Laps Sts Vt1dot5 DS1 Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the common statistical data for a component in a digital hierarchy interface. |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 runningTime (runningTime)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of seconds since the tributary was activated. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 errorFreeSec (efs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of seconds that the tributary has been in an error free state. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 erroredSec (es)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of errored seconds the tributary has counted since it was activated. An errored second is declared when a second with one or more Code Violation Error events, or one or more Out Of Frame events occurs. A code violation error may be a CRC error or a BPV error. An Out Of Frame event occurs when 2 out of 5 framing bits are in error. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 sevErroredSec (ses)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of severely errored seconds the tributary has counted since it was activated. A severely errored second occurs when a second with 320 or more Code Violation Error events or one or more Out Of Frame events occurs. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 sevErroredFrmSec (sefs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of severely errored framing seconds the tributary has counted since it was activated A severely errored framing second occurs when a second with one or more Out Of Frame events occurs. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 unavailSec

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of seconds that the tributary has been in an unavailable signal state. An unavailable signal state occurs at the onset of 10 consecutive Severely Errored Seconds. The state is cleared at the onset of 10 seconds with no Severely Errored Seconds. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 crcErrors (crcErrors)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of CRC-6 errors. These will only be counted when the *lineType* is ***esf***. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 frmErrors (frmErrors)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frame errors. A frame error is an error in the framing bits. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 slipErrors (slipErrors)

| | |
|---|---|
| Access | Read only |
| Description | The total number of times that the line experienced a controlled frame slip. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | 0 |

## COMPONENT Laps Sts Vt1dot5 DS1 Channel (Chan)

| | |
|---|---|
| Instance | Decimal (0..23) |
| Groups | "GROUP Laps Sts Vt1dot5 DS1 Chan Provisioned (Prov)"<br>"GROUP Laps Sts Vt1dot5 DS1 Chan CustomerIdentifierData (CidData)"<br>"GROUP Laps Sts Vt1dot5 DS1 Chan IfEntryProv (IfEntry)"<br>"GROUP Laps Sts Vt1dot5 DS1 Chan OperationalStatus (OperStatus)"<br>"GROUP Laps Sts Vt1dot5 DS1 Chan OsiState (State)"<br>"GROUP Laps Sts Vt1dot5 DS1 Chan Operational (Oper)"<br>"GROUP Laps Sts Vt1dot5 DS1 Chan AdminInfo (AdminInfo)" |
| Scope | Application |
| Description | *Channel*<br>The *Channel* component is configured to control a group of timeslots that form a fractional group on a DS1 or E1 port. Cell-based cards allow only one channel per port, and this is automatically provisioned with all available timeslots. Similarly, the ***1pDS3C*** card type only allows one channel per port, and this is automatically provisioned with all available timeslots. |
| Opt. Subcomp. | "COMPONENT Laps Sts Vt1dot5 DS1 Chan AtmCell (Cell)"<br>"COMPONENT Laps Sts Vt1dot5 DS1 Chan TrunkConditioning (Tc)" |
| Dyn. Subcomp. | "COMPONENT Laps Sts Vt1dot5 DS1 Chan Test (Test)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP Laps Sts Vt1dot5 DS1 Chan Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |

| | |
|---|---|
| Description | This group contains all of the provisional data for a *Channel* component. |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Chan timeslots (ts)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute contains the list of timeslots that are used by the *Channel* component. Valid numbers are 1-24 for a *Channel* used by a *DS1* component, and 1-31 for a *Channel* used by an *E1* component.<br><br>For the ***4pDS3Ch*** card, a timeslot value of ***none*** cannot be combined with other valid timeslot values. When ***none*** is selected, no timeslots are assigned and any service linked to the *Channel* does not function. |
| Set of | none<br>1<br>2<br>3<br>4<br>5<br>6<br>7<br>8<br>9<br>10<br>11<br>12<br>13<br>14<br>15<br>16<br>17<br>18<br>19 |

20
21
22
23
24
25
26
27
28
29
30
31

Default No default

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Chan timeslotDataRate (dataRate)

Access Read and write

Criticality Component

Description This attribute selects the data rate of the timeslots in a channel of a DS1 component. For E1, the data rate of the timeslots will always be 64kbit/s regardless of this attribute.

When ***doNotOverride*** is selected for a channel on a DS1, the data rate of the channel's timeslots are dependant on the *zeroCoding* selection of the DS1 component. If the *zeroCoding* is ***B8ZS*** (where supported on the FP) or ***none***, the timeslot's data rate will be 64kbit/s. If the *zeroCoding* option is ***bit7Stuffing,*** the data rate of a timeslot will be 56kbit/s.

When ***56k*** is selected for a channel on a DS1, the least significant bit of each timeslot of this *Channel* will always be set to 1 and not used for data. The data rate for the timeslots of this channel is therefore restricted to 56kbit/s.

On the ***4pDS3Ch*** cards, the *zeroCoding* attribute is restricted to the value *none*, and so when the *timeslotDataRate* is set to ***doNotOverride***, the timeslot's data rate will be 64kbit/s. Timeslot data rate of ***56k*** is also available on this card.

On the ***4pDS3ChAal1*** card, the only allowed value for this

attribute is ***doNotOverride***.

One application of this attribute is to allow a DS1 line to support mixing channels that originate from lines that use different *zeroCoding* schemes.

| | |
|---|---|
| Values | 56k<br>doNotOverride |
| Default | doNotOverride |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Chan applicationFramerName

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the link to the software stack. It defines which application is running on top of this hardware component. |
| Values | Link (Service, interfaceName) |
| Default | No default |

### GROUP Laps Sts Vt1dot5 DS1 Chan CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Chan customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID). |

Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.

Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.

| | |
|---|---|
| | An operator CID of 0 is used to identify the Network Manager (referred to as “NetMan” in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to “basic CIDs” in DPN) may be assigned to specific customers. |
| Values | Decimal (0; 1..8191) |
| Default | 0 |

### GROUP Laps Sts Vt1dot5 DS1 Chan IfEntryProv (IfEntry)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the ifEntry. |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Chan ifAdminStatus (ifState)

| | |
|---|---|
| Access | Read and write |
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Chan ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP Laps Sts Vt1dot5 DS1 Chan OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |

Description — This group includes the Operational Status attribute. This attribute defines the current operational state of this component.

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Chan snmpOperStatus

Access — Read only

Description — The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed.

Values — up
down
testing

Default — up

### GROUP Laps Sts Vt1dot5 DS1 Chan OsiState (State)

Properties — Operational

Description — This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Chan adminState (osiAdmin)

Access — Read only

Description — This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users

only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Chan operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Chan usageState (osiUsage)

Access
Read only

Description

This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values

idle
active (activ)
busy

Default

idle

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Chan availabilityStatus (osiAvail)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.

The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.

The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.

The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.

The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

| | |
|---|---|
| Set of | inTest<br>failed<br>dependency (depend)<br>powerOff (pwrOff)<br>offLine<br>offDuty<br>degraded (degrad)<br>notInstalled (notIn)<br>logFull<br>migrating |
| Default | No default |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Chan proceduralStatus (osiProc)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.<br><br>The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.<br><br>The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***. |

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Chan controlStatus (osiCntrl)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

Set of

subjectToTest (subTst)
partOfServicesLocked (partLk)
reservedForTest (rsrvd)
suspended (suspnd)

Default

No default

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Chan alarmStatus (osiAlarm)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Chan standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values

hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

| | |
|---|---|
| Default | notSet |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Chan unknownStatus (osiUnknw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Unknown status of the component.<br><br>The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.<br><br>The value ***true*** indicates that the actual state of the component is not known for sure. |
| Values | false<br>true |
| Default | false |

### GROUP Laps Sts Vt1dot5 DS1 Chan Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all of the operational data for a *Channel* component. |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Chan actualChannelSpeed

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the measured link speed of the *Channel* component. |
| Values | Decimal (0..4294967295) |
| Units | bit/s |
| Default | 0 |

### GROUP Laps Sts Vt1dot5 DS1 Chan AdminInfo (AdminInfo)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attributes pertaining to the vendor of the equipment. |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Chan vendor

| | |
|---|---|
| Access | Read and write |
| Description | This is the name of the vendor supplying the facility. |
| Values | String (0..20, ASCII) |
| Default | No default |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Chan commentText

| | |
|---|---|
| Access | Read and write |
| Description | Any miscellaneous text about the facility. |
| Values | String (0..60, ASCII) |
| Default | No default |

### COMPONENT Laps Sts Vt1dot5 DS1 Chan Test (Test)

| | |
|---|---|
| Groups | "GROUP Laps Sts Vt1dot5 DS1 Chan Test OsiState (State)"<br>"GROUP Laps Sts Vt1dot5 DS1 Chan Test Setup (Setup)"<br>"GROUP Laps Sts Vt1dot5 DS1 Chan Test Results (Results)" |
| Scope | Application |
| Description | The *Test* component is configured to control a hardware facility test on a physical (*V*35, *X21, DS1, E1, DS3, E3* etc.) or a logical port. |
| Common Verbs | Help<br>List<br>Display |

### VERB START Laps Sts Vt1dot5 DS1 Chan Test

| | |
|---|---|
| Impact | Service |
| Description | This command invokes a test on the hardware component. Note that some test types requires the parent component (the hardware component) to be locked (using the *Lock* command) before a test can be started. |

### VERB STOP Laps Sts Vt1dot5 DS1 Chan Test

| | |
|---|---|
| Impact | Service |
| Description | This command stops a test running on the hardware component. |

### GROUP Laps Sts Vt1dot5 DS1 Chan Test OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Chan Test adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Chan Test operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Chan Test usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Laps Sts Vt1dot5 DS1 Chan Test Setup (Setup)

| | |
|---|---|
| Properties | Operational |

| | |
|---|---|
| Description | This group contains all of the operational data for a *Test* component. |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Chan Test purpose (purpose)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute records the purpose of the test so that the test results can be associated and properly analyzed. |
| Values | String (0..40, ASCII) |
| Default | No default |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Chan Test type (type)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the type of test to be run. The available test types include the following:<br>***card*** test sets up an internal loop on the board and runs a bit error rate test.<br>***manual*** test assumes the line is looped back externally and a bit error rate test is performed.<br>***localLoop*** test loops back the local modem and performs a bit error rate test.<br>***remoteLoop*** test loops back the remote modem (or CSU) and performs a bit error rate test.<br>***externalLoop*** test loops back the line to the far end.<br>***payloadLoop*** test only loops back the payload data received from the incoming line.<br>***remoteLoopThisTrib*** loops this particular tributary back at the far end, using services provided by the parent.<br>***v54RemoteLoop*** initiates a V.54 Remote Loopback test.<br>***pn127RemoteLoop*** initiates a PN127 Remote Loopback test.<br>***lineBIP8Error*** tests line BIP 8 error generation and detection (B2 byte inverted).<br>***sectionBIP8Error*** tests section BIP 8 error generation and detection (B1 byte inverted).<br>***pathBIP8Error*** tests path BIP 8 error generation and detection (B3 byte inverted).<br>***pathBIP2Error*** tests path BIP 2 error generation and detection (bit 1-2 of V5 byte inverted). |

Note that not all test types are not supported by all function processors.

Values
card
manual
localLoop
remoteLoop
externalLoop
payloadLoop
remoteLoopThisTrib
v54RemoteLoop
pn127RemoteLoop
lineBIP8Error
sectionBIP8Error
pathBIP8Error
pathBIP2Error

Default
card

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Chan Test frmSize (size)

Access
Read and write

Description
This attribute defines the size of the test data frames in number of bytes.
This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame.

Values
Decimal (4..4096)

Units
bytes

Default
1024

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Chan Test frmPatternType (fpt)

Access
Read and write

Description
This attribute defines the type of data pattern generation to use. The following lists the available pattern types:
***ccitt32kBitPattern*** is a pseudo-random sequence of 32 kbit.
***ccitt8MBitPattern*** is a pseudo-random sequence of 8Mbit.
***customizedPattern*** is the pattern defined in the ***customizedPattern*** attribute.

| | |
|---|---|
| Values | ccitt32kBitPattern<br>ccitt8MBitPattern<br>customizedPattern |
| Default | ccitt32kBitPattern |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Chan Test customizedPattern (cp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute allows a customized 32 bit pattern to be defined for use in the test data frames. This attribute is used when the attribute *frmPatternType* is set to ***CustomizedPattern***. Note that a 55 hex pattern is an alternating 1 and 0 pattern. |
| Values | Hex (H.0..H.ffffffff) |
| Units | Hex |
| Default | H.55555555 |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Chan Test dataStartDelay (dsd)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time delay (in seconds) between when the test expects the loop to have been set up, to when the test data actually starts to be transmitted. This attribute is to accommodate some non-standard equipment that requires extra time for setting up a requested loop.<br>This attribute is ignored when the test *type* is set to ***externalLoop***. |
| Values | Decimal (0..1814400) |
| Units | seconds |
| Default | 0 |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Chan Test displayInterval (di)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the interval (in minutes) between which interim test results are to be displayed. Results are displayed at the operator console at which the test was started. When the test *type* is set to ***externalLoop***, this attribute is ignored. There will be |

| | |
|---|---|
| | no display of results if *displayInterval* is set to 0. This attribute can be changed anytime. |
| Values | Decimal (0..30240) |
| Units | minutes |
| Default | 5 |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Chan Test duration

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the duration for which the test data will be transmitted. In the case of an ***externalLoop***, this is the time that the loop is in effect. Note that *dataStartDelay* does not apply to the ***externalLoop*** test type. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 1.00 |

### GROUP Laps Sts Vt1dot5 DS1 Chan Test Results (Results)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all the statistics related attributes of the *Test* component. |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Chan Test causeOfTermination

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates either the status of the test or the cause of the test's termination:<br><br>a value of ***neverStarted*** indicates that the test has not yet been started.<br><br>a value of ***testRunning*** indicates that the test has been started.<br><br>a value of ***stoppedByOperator*** indicates that the operator issued a stop command on a test that was running. |

a value of ***testTimeExpired*** indicates that the test ran for the time specified by the test's *duration*.

a value of ***loopCodeSyncFailed*** indicates that the local end failed to synchronize to the loopCode pattern. The local end transmits the loopCode pattern to cause the remote end to apply a loopback, after which the local end should receive the loopCode pattern. The exact pattern used to request loopCode depends on the test *type*. This failure indicates a high rate of transmission errors, or that the remote end has failed to apply the loopback.

a value of ***patternSyncFailed*** indicates that the local end failed to synchronize to the *frmPatternType* test pattern, that should have been looped back at the remote end. This failure indicates a high rate of transmission errors or the absence of a loopback.

a value of ***patternSyncLost*** indicates that the local end gained and then lost synchronization to the returned *frmPatternType* test pattern. This failure indicates a sudden increase in transmission errors, frame slippage, or the removal of an existing loopback.

a value of ***unknown*** is set when a reason to terminate other than those listed here is encountered.

Note: The *causeOfTermination* attribute values of ***loopCodeSyncFailed***, ***patternSyncFailed*** and ***patternSyncLost*** are supported only on MSA cards. *Test* components located on other cards or under an *Ima* component on an MSA card will never terminate the test under the conditions described by these values.

Values

testTimeExpired
stoppedByOperator
unknown
neverStarted
testRunning
hardwareReconfigured
loopCodeSyncFailed
patternSyncFailed
patternSyncLost

| | |
|---|---|
| Default | neverStarted |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Chan Test bitsTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bits sent during the test period. As long as the line speed of the hardware interface is less than 70 Mbit/s, this counter is not expected to reach the maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Chan Test bytesTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes sent during the test period. This counter is not expected to reach its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Chan Test frmTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames sent during the test period. This counter is not expected to reach its maximum value.<br><br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Chan Test bitsRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bits received during the test period. The counter wraps to zero when it exceeds the maximum value. |
| Values | Long Integer |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Chan Test bytesRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes received during the test period. The counter wraps to zero when it exceeds its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Chan Test frmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received during the test period. The counter wraps to zero when it exceeds its maximum value.<br><br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Chan Test erroredFrmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute is not displayed for ATM and MSA32 cards. For ATM cards, the physical layer drops all errored frames at the controller interface. For MSA32 cards, the test does not generate any frame.<br><br>For all other card types, this attribute counts the errored frames received during the test period. The counter wraps to zero when it exceeds its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Chan Test bitErrorRate

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute is not displayed for ATM cards because the physical layer drops all errored frames at the controller interface. For MSA32 cards, this attribute indicates the link bit error rate, regardless of the *frameSize*, which is not supported<br><br>For all other card types, this attribute is the calculated bit error rate on the link. Test data are generated and sent in frames of a preset size (*frameSize*). The *Test* component will try to estimate the number of bit errors in any errored frame which is identifiable. The statistics will be updated accordingly. A lost frame (may be due to an error on the flag sequence) will be discarded for the bit error rate calculation. The result is presented in the form of xEsyy, where x is the mantissa, syy is the exponent, for example 0E+00, 2E-09.<br>Note that the *bitErrorRate* is an estimate only. For more reliable test results, the test should be done over a long period. Multiple tests would also improve the confidence level of the test results. |
| Values | String (5, ASCII) |
| Default | No default |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Chan Test elapsedTime

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the time elapsed since the test started for an ***externalLoop*** test. For a data test, it indicates time since test data was first transmitted. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 0.00 |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Chan Test timeRemaining

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the length of time remaining before the test stops according to the *duration* attribute. |
| Values | Decimal (0.00..30240.00) |

| | |
|---|---|
| Units | minutes |
| Default | 0.00 |

### COMPONENT Laps Sts Vt1dot5 DS1 Chan AtmCell (Cell)

| | |
|---|---|
| Groups | "GROUP Laps Sts Vt1dot5 DS1 Chan Cell Provisioned (Prov)"<br>"GROUP Laps Sts Vt1dot5 DS1 Chan Cell Operational (Oper)"<br>"GROUP Laps Sts Vt1dot5 DS1 Chan Cell Statistics (Stats)" |
| Scope | Device |
| Description | The *AtmCell* component contains provisioning and operational attributes. The provisioning attributes are used to set the Loss of Cell Delineation (LCD) alarm activation delay and to turn cell payload scrambling on or off. The operational attributes are used to report about the quality of the ATM cells received by the interface and the cell capacity utilization. The *AtmCell* component appears under all port components running on ATM cards. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Laps Sts Vt1dot5 DS1 Chan Cell Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioning attributes for the *AtmCell* component. |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Chan Cell alarmActDelay (act)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time during which a Loss of Cell Delineation (LCD) defect should be observed before declaring an LCD alarm (alarm 70115501). When the *Cell* component is provisioned under the *Sonet* or *Sdh* component, this attribute defaults to 500 milliseconds. When it is provisioned under the *Laps* component, the default is 2000 milliseconds. This is |

| | |
|---|---|
| | necessary to ensure that the services bound to the *Sts* or *Vc4* component are not disrupted during short lived LCD defects caused by a line switchover. Setting this attribute to a lower value when the *Laps* component is provisioned may result in a temporary service outage when a line switchover occurs. |
| Values | Decimal (0..2000) |
| Units | msec |
| Default | No default |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Chan Cell scrambleCellPayload (scramble)

| | |
|---|---|
| Access | Read and write |
| Description | Cell scrambling, as defined by ITU-T Recommendation I.432., can provide a solution to the problem of transmission equipment which is sensitive to certain bit patterns in the ATM cell payload. This attribute controls whether or not the cell payload is scrambled.<br>It defaults to ***off*** for *DS1* interfaces, and ***on*** for all other interfaces.<br>Note that this setting must be the same at both ends of the link. |
| Values | off<br>on |
| Default | No default |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Chan Cell correctSingleBitHeaderErrors

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether the port corrects single bit errors detected in the headers of received cells. If single bit errors are corrected, the affected cells are passed up to the ATM layer according to normal operation. If single bit errors are not corrected, these errored cells are discarded by the physical layer. Note that cells containing multiple bit errors in their headers are always discarded.<br><br>Single bit HEC error correction must remain ***off*** for the following card types: 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 2pJ6MAtm, 3pDS3Atm, and 3pE3Atm. |

| | |
|---|---|
| Values | off<br>on |
| Default | off |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Chan Cell clearDelay (clear)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the minimum elapsed time between the clearing of the Loss of Cell Delineation (LCD) defect and the port returning to service. The LCD defect should be absent for the entire period of elapsed time. This attribute value is specified in minutes. If the value of the *clearDelay* attribute is initially 0 (default), the time is actually about 10 seconds.<br>This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm. |
| Values | Decimal (0..60) |
| Units | minutes |
| Default | 0 |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Chan Cell hecSampleInterval (hSample)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the sampling interval (in seconds) for errors associated with the *uncorrectableHeaderErrors* attribute. When the sum of errors counted by the *uncorrectableHeaderErrors* attribute over the interval time is greater than or equal to the provisioned *hecErrorLimit* attribute, the sample interval is considered errored. If the number of consecutive errored intervals reaches the limit established in the *hecErrorIntervalLimit* attribute, an LCD alarm is declared and the port is disabled. If the attribute *hecSampleInterval* is set to the default, 0, then the attribute *uncorrectableHeaderErrors* cannot be used to bring down the port.<br>This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm. |
| Values | Decimal (0..25) |
| Units | seconds |

Default 0

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Chan Cell hecErrorLimit (hLimit)

Access Read and write

Description This attribute specifies the error threshold for a HEC error sampling interval beyond which a port is brought down. When the value of the *uncorrectableHeaderErrors* attribute accumulated over the provisioned value of the *hecSampleInterval* attribute is greater than or equal to the provisioned value of the *hecErrorLimit* attribute, the sample interval is considered errored. If the number of consecutive errored intervals reaches the limit established in the *hecErrorIntervalLimit* attribute, an LCD alarm is declared and the port is disabled. (Please note that a *hecErrorInterval* attribute value of 0 (default) disables the mechanism of using the value of the *uncorrectableHeaderErrors* attribute to disable a port.)
This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm.

Values Decimal (1..250000)

Default No default

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Chan Cell lcdStateDelay (delay)

Access Read and write

Description This attribute specifies the time during which an Out of Cell Delineation (OCD) defect should be observed before moving to the Loss of Cell Delineation (LCD) defect state. The time is specified in milliseconds. The valid values are 1 to 50 milliseconds if the *AtmCell c*omponent is located under the *Ds1* or *E1* component, and 1 to 5 milliseconds if under a *Ds3* or *E3* component.
This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm.

Values Decimal (1..50)

Units msec

Default No default

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Chan Cell hecErrorIntervalLimit (hIntLimit)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute counts the instances of the *hecSamplingInterval* attribute for all HEC errors (specified by the *uncorrectableHeaderError* attribute) before an LCD alarm is generated. The alarm is only generated if the value of the *uncorrectableHeaderErrors* attribute in a given interval is greater than the value of the *hecErrorLimit* attribute. For example, if there are 20 HEC errors in 5 seconds, for three times in a row (the number of times in a row is represented by this attribute), an alarm is raised. If there are 24 HEC errors in the 5 seconds, and 14 in the next 5 seconds no alarm is generated because the number of HEC errors should also be more than 20 in the next instances.<br>This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm. |
| Values | Decimal (1..25) |
| Default | 1 |

### GROUP Laps Sts Vt1dot5 DS1 Chan Cell Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the common operational attributes for the *AtmCell* component. |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Chan Cell lcdAlarm (lcd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays whether the Loss of Cell Delineation (LCD) failure alarm state has been entered. This state is entered when LCD defects have been observed and accumulated for a period of time specified through the *alarmActDelay* attribute.<br>In ATM cell direct mapping mode, an LCD defect occurs when Out of Cell Delineation (OCD) anomaly persists for *x* milliseconds, and disappears when the Out of Cell Delineation (OCD) is absent for *x* msec. An OCD anomaly occurs when 7 consecutive incorrect HECs have been detected. An OCD anomaly terminates when 6 consecutive correct HECs have been detected. |

For an *AtmCell* component located under a *DS3* or *E3* component with *mapping* = ***PLCP***, the LCD defect is directly derived from the PLCP LOF defect.
If LCD defects are intermittently occurring, the LCD defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle
The component under which is located the *AtmCell* component goes into an operational state of ***disabled*** until the LCD alarm condition is cleared. The condition is cleared after the LCD defect has not been reported for a period of 10 seconds +/- 0.5 seconds.
The *lcdAlarm* attribute is always set to off when the parent of the *AtmCell* component has been *locked* and left *offline*. This can also happen when the *Path* or *Channel* component has been suspended since its parent has been locked.

Values: on
off

Default: off

## GROUP Laps Sts Vt1dot5 DS1 Chan Cell Statistics (Stats)

Properties: Operational

Description: This group contains the statistics attribute for the *AtmCell* component. Each attribute type is a non-negative integer which monotonically increases until it reaches a maximum value, at which point it wraps around and starts increasing again from zero.

## ATTRIBUTE Laps Sts Vt1dot5 DS1 Chan Cell uncorrectableHeaderErrors (ucErr)

Access: Read only

Description: This attribute indicates the number of uncorrectable ATM cell header errors that have been detected. Counting of *uncorrectableHeaderErrors* is inhibited when an Out of Cell Delineation (OCD) defect is present. An OCD defect occurs when seven consecutive incorrect HECs have been detected. An OCD defect terminates when six consecutive correct HECs have been detected.

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Chan Cell sevErroredSec (ses)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of ATM Cell Severely Errored Seconds (SESs) that have been counted.<br><br>In direct mapping mode, an ATM Cell SES is declared for second intervals containing one or more Out of Cell Delineation (OCD) defects. An OCD defect occurs when seven consecutive incorrect HECs have been detected. An OCD defect terminates when six consecutive correct HECs have been detected.<br><br>If the *AtmCell* component is located under a *Ds3* or *E3* component where the *mapping* attribute is set to ***plcp***, an ATM Cell SES is declared for second intervals containing one or more PLCP LOF defects.<br><br>Counting of *uncorrectableHeaderErrors* (*ucErr*) and *correctableHeaderErrors* (*cErr*) is inhibited when the OCD defect is present. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Chan Cell receiveCellUtilization (rxutil)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the ratio of the number of valid, assigned cells received on the link to the nominal link capacity. The utilization is calculated over a period of one minute.<br>This attribute is always set to ***0*** when the parent of the *AtmCell* component has been *locked* and left *offline.* This can also happen when the *Path* or *Channel* component has been *suspended* since its parent has been *locked*. |
| Values | Decimal (0..100) |
| Units | % |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Chan Cell transmitCellUtilization (txutil)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the ratio of the number of valid, assigned cells transmitted on the link to the nominal link capacity. The utilization is calculated over a period of one minute.<br>This attribute is always set to ***0*** when the parent of the *AtmCell* component has been *locked* and left *offline*. This can also happen when the *Path* or *Channel* component has been *suspended* since its parent has been *locked*. |
| Values | Decimal (0..100) |
| Units | % |
| Default | 0 |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Chan Cell correctableHeaderErrors (cErr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of correctable ATM cell header errors that have been detected and corrected. Counting of *correctableHeaderErrors* is inhibited when an Out of Cell Delineation (OCD) defect is present. An OCD defect occurs when seven consecutive incorrect HECs have been detected. An OCD defect terminates when six consecutive correct HECs have been detected |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT Laps Sts Vt1dot5 DS1 Chan TrunkConditioning (Tc)

| | |
|---|---|
| Groups | "GROUP Laps Sts Vt1dot5 DS1 Chan Tc Provisioned (Prov)"<br>"GROUP Laps Sts Vt1dot5 DS1 Chan Tc Operational (Op)" |
| Scope | Device |
| Description | *Lp/n Ds1/n Chan/n Tc*<br>*Lp/n E1/n Chan/n Tc*<br>*Lp/n Ds3/n Ds1/n Chan/n Tc* |

*Lp/n Sdh/n Vc4/n Vc12/k,l,m E1 Chan/n Tc*
*Lp/n Sonet/n Sts/n Vt1dot5/l,m Ds1 Chan/n Tc*
*Laps/n* Vc4/n Vc12/k,l,m E1 Chan/n T*c*
*Laps/n* Sts/n Vt1dot5/l,m Ds1 Chan/n T*c*

The *Tc* component is used to provision and monitor trunk conditioning options. A separate instance of this component is required for each *Chan* on a Port which is offering a structured constant bit rate service.

Under certain failure alarm conditions, trunk conditioning *replacementData* is substituted into the *timeslots* as defined by the *Chan* component. Trunk conditioning signaling is also substituted into the appropriate Channel Associated Signaling (CAS) bits when a *lineType* that uses CAS has been defined.

When used with AAL1 Circuit Emulation Service, trunk conditioning is transmitted towards the ATM network under the following conditions:
lossOfSignal (LOS)
lossOfFrame (LOF)
remoteAlarmIndication (RAI)
alarmIndicationSignal (AIS)
bufferUnderflow (BU)
and in addition for E1:
lossOfMultiframe (LOMF)
receiveMultiframeRemoteAlarmIndication (RMRAI)

When used with AAL1 Circuit Emulation Service, trunk conditioning is transmitted towards the PDH network under the following conditions:
bufferUnderflow (BU)
AAL1 protocol errors.

This component needs to be provisioned on 2pDs3cAal and 32pE1Aal FPs.

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Laps Sts Vt1dot5 DS1 Chan Tc Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all specific provisioning data for a *Tc* component. |

## ATTRIBUTE Laps Sts Vt1dot5 DS1 Chan Tc replacementData (data)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the trunk conditioning data byte to be substituted into the *timeslots* defined by the *Chan* component under fault conditions.<br><br>The attribute *replacementData* can be set to any two digit hexadecimal number. The following are recommended values:<br>DS1 MUX Out Of Service Code = 0x1A<br>E1 MUX Out Of Service Code = 0xFF<br><br>On the ***4pDS3ChAal1*** card, the only allowed value for this attribute is ***0xFF***.<br><br>On the ***4pOC3ChSmIr*** and ***2pOC3ChSmIrVsp3*** cards, the default value for this attribute is ***0x1A*** for DS1 and ***0xFF*** for E1. On all other cards the default value is ***0xFF***. |
| Values | Hex (H.0..H.ff) |
| Units | Hex |
| Default | No default |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Chan Tc signalOneDuration (duration)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time duration in seconds for which *signalOne* is substituted into the appropriate signaling bits, when a *lineType* that uses CAS has been defined. When *signalOneDuration* has expired *signalTwo* is substituted into the appropriate signaling bits.<br><br>If *signalOneDuration* is set to zero then only *signalTwo* is substituted into the appropriate signaling bits during error conditions.<br><br>The *signalOneDuration* attribute can be set to any integer value from 0 to 60 seconds. |
| Values | Decimal (0..60) |
| Units | seconds |
| Default | 0 |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Chan Tc noServiceResponse (resp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the Channel's egress response when it has no service provisioned, or the service provisioned is unavailable due to a near end failure. The following responses are available:<br><br>***autoConfigure*** - automatically configure the channels response.<br>***tc*** - transmit trunk conditioning on all timeslots provisioned in the egress direction.<br>***ais*** - transmit AIS in the egress direction.<br>***noResponse*** - no response is sent in the egress direction.<br><br>A value of ***autoConfigure*** will result in TC being transmitted for all card types. |
| Values | autoConfigure<br>tc<br>ais<br>noResponse |

| | |
|---|---|
| Default | autoConfigure |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Chan Tc signalOne (sigOne)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the value to be substituted into the ABCD signaling bits for the *timeslots* defined by the *Chan* component under fault conditions. The value will be substituted for the duration provisioned in *signalOneDuration* when a *lineType* that uses CAS has been defined.<br><br>For a *lineType* of ***d4Cas*** (Super Frame), signaling bits C and D are required to equal bits A and B respectively. |
| Vector of | Decimal (0..1) |
| Index | D<br>C<br>B<br>A |
| Default | (1, 1, 1, 1) |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Chan Tc signalTwo (sigTwo)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the value to be substituted into the ABCD signaling bits for the *timeslots* defined by the *Chan* component under fault conditions. The value will be substituted after the duration provisioned in *signalOneDuration* has expired and when a *lineType* that uses CAS has been defined.<br><br>For a *lineType* of ***d4Cas*** (Super Frame), signaling bits C and D are required to equal bits A and B respectively. |
| Vector of | Decimal (0..1) |
| Index | D<br>C<br>B<br>A |
| Default | (1, 1, 1, 1) |

### GROUP Laps Sts Vt1dot5 DS1 Chan Tc Operational (Op)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all specific operational data for a *Tc* component. |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Chan Tc ingressConditioning (inCon)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the status of locally generated trunk conditioning towards the ATM network.<br><br>When trunk conditioning is being locally generated towards the ATM network, *ingressConditioning* is set to ***on.***<br><br>When trunk conditioning is not being locally generated towards the ATM network, *ingressConditioning* is set to ***off***.<br><br>Trunk conditioning is transmitted towards the ATM network under the following conditions:<br>lossOfSignal (LOS)<br>lossOfFrame (LOF)<br>remoteAlarmIndication (RAI)<br>alarmIndicationSignal (AIS)<br>bufferUnderflow (BU)<br>and in addition for E1:<br>lossOfMultiframe (LOMF)<br>receiveMultiframeRemoteAlarmIndication (RMRAI) |
| Values | off<br>on |
| Default | off |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Chan Tc egressConditioning (egCon)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the status of locally generated trunk conditioning towards the PDH line.<br><br>When trunk conditioning is being locally generated towards the |

PDH line, *egressConditioning* is set to ***on.***

When trunk conditioning is not being locally generated towards the PDH line, *egressConditioning* is set to ***off***.

Trunk conditioning is transmitted towards the PDH line under the following conditions:
bufferUnderflow (BU)
AAL1 protocol errors.

Values
off
on

Default
off

## COMPONENT Laps Sts Vt1dot5 DS1 Test (Test)

Groups
"GROUP Laps Sts Vt1dot5 DS1 Test OsiState (State)"
"GROUP Laps Sts Vt1dot5 DS1 Test Setup (Setup)"
"GROUP Laps Sts Vt1dot5 DS1 Test Results (Results)"

Scope
Application

Description
The *Test* component is configured to control a hardware facility test on a physical (*V*35, *X21, DS1, E1, DS3, E3* etc.) or a logical port.

Common Verbs
Help
List
Display

## VERB START Laps Sts Vt1dot5 DS1 Test

Impact
Service

Description
This command invokes a test on the hardware component. Note that some test types requires the parent component (the hardware component) to be locked (using the *Lock* command) before a test can be started.

### VERB STOP Laps Sts Vt1dot5 DS1 Test

| | |
|---|---|
| Impact | Service |
| Description | This command stops a test running on the hardware component. |

### GROUP Laps Sts Vt1dot5 DS1 Test OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Test adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Test operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Test usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Laps Sts Vt1dot5 DS1 Test Setup (Setup)

| | |
|---|---|
| Properties | Operational |

| | |
|---|---|
| Description | This group contains all of the operational data for a *Test* component. |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Test purpose (purpose)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute records the purpose of the test so that the test results can be associated and properly analyzed. |
| Values | String (0..40, ASCII) |
| Default | No default |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Test type (type)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the type of test to be run. The available test types include the following:<br>***card*** test sets up an internal loop on the board and runs a bit error rate test.<br>***manual*** test assumes the line is looped back externally and a bit error rate test is performed.<br>***localLoop*** test loops back the local modem and performs a bit error rate test.<br>***remoteLoop*** test loops back the remote modem (or CSU) and performs a bit error rate test.<br>***externalLoop*** test loops back the line to the far end.<br>***payloadLoop*** test only loops back the payload data received from the incoming line.<br>***remoteLoopThisTrib*** loops this particular tributary back at the far end, using services provided by the parent.<br>***v54RemoteLoop*** initiates a V.54 Remote Loopback test.<br>***pn127RemoteLoop*** initiates a PN127 Remote Loopback test.<br>***lineBIP8Error*** tests line BIP 8 error generation and detection (B2 byte inverted).<br>***sectionBIP8Error*** tests section BIP 8 error generation and detection (B1 byte inverted).<br>***pathBIP8Error*** tests path BIP 8 error generation and detection (B3 byte inverted).<br>***pathBIP2Error*** tests path BIP 2 error generation and detection (bit 1-2 of V5 byte inverted).<br>Note that not all test types are not supported by all function |

processors.

Values
card
manual
localLoop
remoteLoop
externalLoop
payloadLoop
remoteLoopThisTrib
v54RemoteLoop
pn127RemoteLoop
lineBIP8Error
sectionBIP8Error
pathBIP8Error
pathBIP2Error

Default
card

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Test frmSize (size)

Access
Read and write

Description
This attribute defines the size of the test data frames in number of bytes.
This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame.

Values
Decimal (4..4096)

Units
bytes

Default
1024

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Test frmPatternType (fpt)

Access
Read and write

Description
This attribute defines the type of data pattern generation to use. The following lists the available pattern types:
***ccitt32kBitPattern*** is a pseudo-random sequence of 32 kbit.
***ccitt8MBitPattern*** is a pseudo-random sequence of 8Mbit.
***customizedPattern*** is the pattern defined in the ***customizedPattern*** attribute.

| | |
|---|---|
| Values | ccitt32kBitPattern<br>ccitt8MBitPattern<br>customizedPattern |
| Default | ccitt32kBitPattern |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Test customizedPattern (cp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute allows a customized 32 bit pattern to be defined for use in the test data frames. This attribute is used when the attribute *frmPatternType* is set to ***CustomizedPattern***. Note that a 55 hex pattern is an alternating 1 and 0 pattern. |
| Values | Hex (H.0..H.ffffffff) |
| Units | Hex |
| Default | H.55555555 |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Test dataStartDelay (dsd)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time delay (in seconds) between when the test expects the loop to have been set up, to when the test data actually starts to be transmitted. This attribute is to accommodate some non-standard equipment that requires extra time for setting up a requested loop.<br>This attribute is ignored when the test *type* is set to ***externalLoop***. |
| Values | Decimal (0..1814400) |
| Units | seconds |
| Default | 0 |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Test displayInterval (di)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the interval (in minutes) between which interim test results are to be displayed. Results are displayed at the operator console at which the test was started. When the test *type* is set to ***externalLoop***, this attribute is ignored. There will be |

| | |
|---|---|
| | no display of results if *displayInterval* is set to 0. This attribute can be changed anytime. |
| Values | Decimal (0..30240) |
| Units | minutes |
| Default | 5 |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Test duration

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the duration for which the test data will be transmitted. In the case of an ***externalLoop***, this is the time that the loop is in effect. Note that *dataStartDelay* does not apply to the ***externalLoop*** test type. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 1.00 |

### GROUP Laps Sts Vt1dot5 DS1 Test Results (Results)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all the statistics related attributes of the *Test* component. |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Test causeOfTermination

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates either the status of the test or the cause of the test's termination:<br><br>a value of ***neverStarted*** indicates that the test has not yet been started.<br><br>a value of ***testRunning*** indicates that the test has been started.<br><br>a value of ***stoppedByOperator*** indicates that the operator issued a stop command on a test that was running.<br><br>a value of ***testTimeExpired*** indicates that the test ran for the time |

specified by the test's *duration*.

a value of ***loopCodeSyncFailed*** indicates that the local end failed to synchronize to the loopCode pattern. The local end transmits the loopCode pattern to cause the remote end to apply a loopback, after which the local end should receive the loopCode pattern. The exact pattern used to request loopCode depends on the test *type*. This failure indicates a high rate of transmission errors, or that the remote end has failed to apply the loopback.

a value of ***patternSyncFailed*** indicates that the local end failed to synchronize to the *frmPatternType* test pattern, that should have been looped back at the remote end. This failure indicates a high rate of transmission errors or the absence of a loopback.

a value of ***patternSyncLost*** indicates that the local end gained and then lost synchronization to the returned *frmPatternType* test pattern. This failure indicates a sudden increase in transmission errors, frame slippage, or the removal of an existing loopback.

a value of ***unknown*** is set when a reason to terminate other than those listed here is encountered.

Note: The *causeOfTermination* attribute values of ***loopCodeSyncFailed***, ***patternSyncFailed*** and ***patternSyncLost*** are supported only on MSA cards. *Test* components located on other cards or under an *Ima* component on an MSA card will never terminate the test under the conditions described by these values.

Values

testTimeExpired
stoppedByOperator
unknown
neverStarted
testRunning
hardwareReconfigured
loopCodeSyncFailed
patternSyncFailed
patternSyncLost

| | |
|---|---|
| Default | neverStarted |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Test bitsTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bits sent during the test period. As long as the line speed of the hardware interface is less than 70 Mbit/s, this counter is not expected to reach the maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Test bytesTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes sent during the test period. This counter is not expected to reach its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Test frmTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames sent during the test period. This counter is not expected to reach its maximum value.<br><br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Test bitsRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bits received during the test period. The counter wraps to zero when it exceeds the maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Test bytesRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes received during the test period. The counter wraps to zero when it exceeds its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Test frmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received during the test period. The counter wraps to zero when it exceeds its maximum value.<br><br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Test erroredFrmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute is not displayed for ATM and MSA32 cards. For ATM cards, the physical layer drops all errored frames at the controller interface. For MSA32 cards, the test does not generate any frame.<br><br>For all other card types, this attribute counts the errored frames received during the test period. The counter wraps to zero when it exceeds its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Test bitErrorRate

| | |
|---|---|
| Access | Read only |
| Description | This attribute is not displayed for ATM cards because the physical layer drops all errored frames at the controller interface. |

For MSA32 cards, this attribute indicates the link bit error rate, regardless of the *frameSize*, which is not supported

For all other card types, this attribute is the calculated bit error rate on the link. Test data are generated and sent in frames of a preset size (*frameSize*). The *Test* component will try to estimate the number of bit errors in any errored frame which is identifiable. The statistics will be updated accordingly. A lost frame (may be due to an error on the flag sequence) will be discarded for the bit error rate calculation. The result is presented in the form of xEsyy, where x is the mantissa, syy is the exponent, for example 0E+00, 2E-09.
Note that the *bitErrorRate* is an estimate only. For more reliable test results, the test should be done over a long period. Multiple tests would also improve the confidence level of the test results.

| | |
|---|---|
| Values | String (5, ASCII) |
| Default | No default |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Test elapsedTime

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the time elapsed since the test started for an ***externalLoop*** test. For a data test, it indicates time since test data was first transmitted. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 0.00 |

### ATTRIBUTE Laps Sts Vt1dot5 DS1 Test timeRemaining

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the length of time remaining before the test stops according to the *duration* attribute. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 0.00 |

## COMPONENT Laps Vc4

| | |
|---|---|
| Instance | Decimal (0..3) |
| Groups | "GROUP Laps Vc4 Provisioned (Prov)"<br>"GROUP Laps Vc4 CustomerIdentifierData (CidData)"<br>"GROUP Laps Vc4 OsiState (State)"<br>"GROUP Laps Vc4 IfEntryProv (IfEntry)"<br>"GROUP Laps Vc4 OperationalStatus (OperStatus)"<br>"GROUP Laps Vc4 Operational (Oper)"<br>"GROUP Laps Vc4 Statistics (Stats)" |
| Scope | Device |
| Description | *Lp/n Sdh/n Vc4/n*<br>*Laps/n Vc4/n*<br>This component controls a *Vc4* path signal that is carried within an SDH signal. The *Vc4* component may only be defined on Passport 15000 cards that support STM and the 2pSTM1eCh card on the Passport 7000. |
| Opt. Subcomp. | "COMPONENT Laps Vc4 AtmCell (Cell)"<br>"COMPONENT Laps Vc4 Vc12" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP Laps Vc4 Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all of the provisioning data for the component. |

## ATTRIBUTE Laps Vc4 applicationFramerName (framer)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines which application is running on the path. |

| | |
|---|---|
| Values | Link |
| Default | No default |

### ATTRIBUTE Laps Vc4 pathTraceLength

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the transmitted path trace message length. The *pathTraceLength* attribute at transmitting and receiving end must match. |
| Values | 16<br>64 |
| Default | 16 |

### ATTRIBUTE Laps Vc4 txPathTrace

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the high order path identifier. The string must be constructed with 7-bit characters only. If *pathTraceLength* is 16, the path identifier is prefixed with a CRC byte and padded by null characters if necessary to form a 16-octet path trace message transmitted in byte J1 of 16 outgoing SDH frames. If *pathTraceLength* is 64, the path identifier is padded by null characters if necessary to form a 64-octet path trace message transmitted in byte J1 of 64 outgoing SDH frames. At the remote end, the path trace is reassembled, the CRC is checked if necessary and the message is compared to the *expectedRxPathTrace* attribute. If a mismatch is detected, an alarm is issued.<br><br>Usage guidelines for path trace message are found in clause 3 of the ITU G.831 standard which defines the Access Point Identifier format.<br><br>The functionality supported by this attribute is not available. |
| Values | String (0..64, Extended ASCII) |
| Default | "" |

### ATTRIBUTE Laps Vc4 expectedRxPathTrace

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the expected path trace identifier which is used to identify the high order path. This attribute must match the corresponding *txPathTrace* provisioned at the transmitting equipment end. If it does not, an alarm is issued.<br><br>The functionality supported by this attribute is not available. |
| Values | String (0..64, Extended ASCII) |
| Default | "" |

### ATTRIBUTE Laps Vc4 concatNumber

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the number of contiguous Administration Unit 4 (AU-4) concatenated together. AU-4s can be concatenated together to form an AU-4-4c or AU-4-16c (4 or 16 concatenated AU-4s) which can transport payloads requiring greater capacity than one Container-4 capacity.<br><br>Only *Vc4/0* can have *concatNumber* set to 16 and only *Vc4/0*, *Vc4/4*, *Vc4/8* or *Vc4/12* can have *concatNumber* set to 4.<br><br>When a *Vc4* uses concatenation, the other concatenated *Vc4* instance number cannot be used. For example, if *Vc4/0 concatNumber* is 4, the next provisionable *Vc4* is *Vc4/4*.<br><br>*Vc4* channelization, indicated by provisioning subcomponents such as *Vc12*, is allowed only if this attribute is set to 1. This value must be set to 0 for card types which do not support the use of this attribute. |
| Values | 0<br>1<br>4<br>16 |

| | |
|---|---|
| Default | No default |

### GROUP Laps Vc4 CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

### ATTRIBUTE Laps Vc4 customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.<br><br>Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.<br><br>An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to "basic CIDs" in DPN) may be assigned to specific customers. |
| Values | Decimal (0; 1..8191) |
| Default | 0 |

### GROUP Laps Vc4 OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every |

component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Laps Vc4 adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Laps Vc4 operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be |

providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Laps Vc4 usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
idle
active (activ)
busy

Default
idle

### ATTRIBUTE Laps Vc4 availabilityStatus (osiAvail)

Access
Read only

Description

If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.

The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.

The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.

The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.

The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is

one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

### ATTRIBUTE Laps Vc4 proceduralStatus (osiProc)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has

not been initiated. The *operationalState* is ***disabled***.

The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

### ATTRIBUTE Laps Vc4 controlStatus (osiCntrl)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but

tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

Set of

subjectToTest (subTst)
partOfServicesLocked (partLk)
reservedForTest (rsrvd)
suspended (suspnd)

Default

No default

## ATTRIBUTE Laps Vc4 alarmStatus (osiAlarm)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE Laps Vc4 standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the

role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values
hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

Default
notSet

### ATTRIBUTE Laps Vc4 unknownStatus (osiUnknw)

Access
Read only

Description
This attribute indicates the OSI Unknown status of the component.

The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.

The value ***true*** indicates that the actual state of the component is not known for sure.

Values
false
true

Default
false

### GROUP Laps Vc4 IfEntryProv (IfEntry)

Properties
Provisioned

Description
This group contains the provisionable attributes for the ifEntry.

### ATTRIBUTE Laps Vc4 ifAdminStatus (ifState)

Access
Read and write

Description
The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed.

| | |
|---|---|
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE Laps Vc4 ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP Laps Vc4 OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

### ATTRIBUTE Laps Vc4 snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### GROUP Laps Vc4 Operational (Oper)

| | |
|---|---|
| Properties | Operational |

Description This group contains the common operational data for the component.

### ATTRIBUTE Laps Vc4 lopAlarm (lop)

Access Read only

Description This attribute displays whether a Loss Of Pointer (LOP) alarm state has been entered. An LOP alarm state is entered when LOP defects have been observed and accumulated for a period of 2.5 seconds +/- 0.5 seconds. An LOP defect occurs when no valid SPE or VC pointer was received in 8 contiguous frames. If the LOP defects are intermittently occurring, the LOP defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.

The component goes into an operational state of *disabled* until the LOP alarm condition is cleared. The condition is cleared when no more invalid pointer has been reported for 10 seconds +/- 0.5 seconds.

The *lopAlarm* attribute is always set to ***off*** when the component has been *Lock*ed and left *offline* by the operator or when the component has been *Suspend*ed since the parent component has been *Lock*ed.

Values on
off

Default No default

### ATTRIBUTE Laps Vc4 rxAisAlarm (ais)

Access Read only

Description This attribute displays whether a Path Alarm Indication Signal (P-AIS) alarm state has been entered. A P-AIS alarm state is entered when P-AIS defects have been observed and accumulated for a period of 2.5 seconds +/- 0.5 seconds. The P-AIS defect is the occurrence of the P-AIS signal in three contiguous valid STS or STM frames (all one’s in bytes H1 and H2). If the P-AIS defects are intermittently occurring, the P-AIS defect

accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.

The component goes into an operational state of *disabled* until the P-AIS alarm condition is cleared. The condition is cleared after no P-AIS defect has been detected for 10 seconds +/- 0.5 seconds.
The *rxAisAlarm* attribute is always set to ***off*** when the component has been *Lock*ed and left *offline* by the operator or when the component has been *Suspend*ed since the parent component has been *Lock*ed.

Values
on
off

Default
No default

### ATTRIBUTE Laps Vc4 rxRfiAlarm (rfi)

Access
Read only

Description
This attribute displays whether the Path Remote Failure Indication (P-RFI) alarm state has been entered. A P-RFI alarm state is entered when Path Remote Defect Indicator (P-RDI) defects have been observed and accumulated for a period of 2.5 seconds +/- 0.5 seconds. The P-RDI defect is the occurrence of the P-RDI signal in five contiguous valid STS or STM frames (bit 5 of the G1 byte set to 1). If the P-RDI defects are intermittently occurring, the P-RDI defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10)with all measurements based on a 200 ms polling cycle.

The component goes into an operational state of *disabled* until the P-RFI alarm condition is cleared. The condition is cleared after no P-RDI defect has been detected for 10 seconds +/- 0.5 seconds.
The *rxRfiAlarm* attribute is always set to ***off*** when the component has been *Lock*ed and left *offline* by the operator or when the component has been *Suspend*ed since the parent component has been *Lock*ed.

| | |
|---|---|
| Values | on<br>off |
| Default | No default |

### ATTRIBUTE Laps Vc4 signalLabelMismatch (slm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays whether the Path Signal Label Mismatch (P-SLM) failure condition has been entered. A P-SLM failure condition is entered when P-SLM defects have been observed and accumulated for period of 2.5 seconds +/- 0.5 seconds. A P-SLM defect occurs when detecting an unexpected path signal label. The expected Path signal labels are “Mapping for ATM” or “Equipped - Non Specific Payload”. If the P-SLM defects are intermittently occurring, the P-SLM defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.<br>The component goes into an operational state of *disabled* until the Path Signal Label Mismatch failure condition is cleared. The condition is cleared when an expected path signal label is received for 10 seconds +/- 0.5 seconds.<br><br>The *signalLabelMismatch* attribute is always set to ***off*** when the component has been *Lock*ed and left *offline* by the operator or when the component has been *Suspend*ed since the parent component has been *Lock*ed. |
| Values | on<br>off |
| Default | No default |

### ATTRIBUTE Laps Vc4 txAis

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays whether the Path Alarm Indication Signal (P-AIS) signal is being transmitted on the path. The P-AIS signal is transmitted when the component has been *Lock*ed and left *offline* by the operator or when the component has been *Suspend*ed since the parent component has been *Lock*ed. |

| | |
|---|---|
| Values | on<br>off |
| Default | No default |

### ATTRIBUTE Laps Vc4 txRdi

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays whether the Path Remote Defect Indicator (P-RDI) signal is being transmitted over the path signal. The P-RDI signal is transmitted over the outgoing line upon detection of LOP, P-AIS or the occurrence of the LCD state. This attribute is always set to ***off*** when the component has been *Lock*ed and left *offline* by the operator or when the component has been *Suspend*ed since the parent component has been *Lock*ed. |
| Values | on<br>off |
| Default | No default |

### GROUP Laps Vc4 Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the statistics data for the component. |

### ATTRIBUTE Laps Vc4 pathErrorFreeSec (pefs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the one second intervals that the component has been in a near-end error free state.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Laps Vc4 pathCodeViolations (pcv)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the detected Path Code Violations (PCVs). Each PCV corresponds to a path BIP-8 error. PCV counting is inhibited over second intervals where a Path Severely Errored Second (PSES) is counted. Counting of PCVs is also inhibited over second intervals where a Path Unavailable Second (PUAS) is counted.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Laps Vc4 pathErroredSec (pes)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the declared Path Errored Seconds (PESs). A PES is declared for second intervals containing one or more PCVs or one or more LOP or path AIS defects. Counting of PES is inhibited when PUAS is declared over the monitored second.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Laps Vc4 pathSevErroredSec (pses)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the declared Path Severely Errored Seconds (PSESs). A PSES is declared for second intervals containing more than *x* PCVs or one or more LOP or path AIS defects. The value of *x* is 2400 for a 155 Mbit/s interface. Counting of PSES is inhibited when PUAS is declared over the monitored second.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Laps Vc4 pathAisLopSec (pals)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the path AIS and LOP Seconds (PALSs). A PALS is declared for second intervals containing one or more path AIS or LOP defects. Counting of PALS is inhibited when PUAS is declared over the monitored second.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Laps Vc4 pathUnavailSec (puas)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the one second intervals during which the STS/STM path is unavailable. The path becomes unavailable at the onset of 10 consecutive PSESs. The 10 PSESs are included in the unavailable time. Once unavailable, the path becomes available at the onset of 10 contiguous seconds with no PSES. The 10 seconds with no PSES are excluded from the unavailable time. For second intervals where a Path Unavailable Second (PUAS) is declared, counting of PCV, PES, PSES and PALS is inhibited.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Laps Vc4 pathFailures (pf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the declarations of a path failure (LOP, P-AIS or Path Signal Label Mismatch failure).<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE Laps Vc4 farEndPathErrorFreeSec (fepefs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the one second intervals that the component has been in a far-end error free state.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Laps Vc4 farEndPathCodeViolations (fepcv)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the Far-End Path Code Violations (FEPCVs) detected. Each FEPCV corresponds to a path FEBE. FEPCV counting is inhibited over second intervals where a Far-End Path Severely Errored Second (FEPSES) is declared. Counting of PCVs is also inhibited over second intervals where a Far-End Path Unavailable Second (FEPUAS) is declared.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Laps Vc4 farEndPathErroredSec (fepes)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the Far-End Path Errored Seconds (FEPESs) that have been declared. A FEPES is declared for each one second interval containing one or more FEPCVs or one or more path RDI (P-RDI) defects. Counting of FEPES is inhibited when FEPUAS is declared over the monitored second.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |

Default 0

### ATTRIBUTE Laps Vc4 farEndPathSevErroredSec (fepses)

Access Read only

Description This attribute counts the Far-End Path Severely Errored Seconds (FEPSESs) that have been declared. A FEPSES is declared for second intervals containing more than *x* FEPCVs or one or more P-RDI defects. The value of *x* is 2400 for a 155 Mbit/s interface. Counting of FEPSESs is inhibited when FEPUAS is declared over the monitored second.

The counter wraps to 0 when it exceeds its maximum value.

Values Decimal (0..4294967295)

Default 0

### ATTRIBUTE Laps Vc4 farEndPathAisLopSec (fepals)

Access Read only

Description This attribute counts the Far-End Path AIS and LOP Seconds (FEPALSs). A FEPALS is declared for each one second interval containing one or more P-RDI defects. Counting of FEPALS is inhibited when FEPUAS is declared over the monitored second.

The counter wraps to 0 when it exceeds its maximum value.

Values Decimal (0..4294967295)

Default 0

### ATTRIBUTE Laps Vc4 farEndPathUnavailSec (fepuas)

Access Read only

Description This attribute counts the one second intervals for which the STS/STM far-end path is unavailable. The far-end path becomes unavailable at the onset of 10 consecutive FEPSESs. The 10 FEPSESs are included in the unavailable time. Once unavailable, the far-end path becomes available at the onset of 10 contiguous seconds with no FEPSES. The 10 seconds with no FEPSES are excluded from the unavailable time. For one-second intervals

where a Far-End Path Unavailable Second (FEPUAS) is declared, counting of FEPCV, FEPES, FEPSES and FEPALS is inhibited.

The counter wraps to 0 when it exceeds its maximum value.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE Laps Vc4 farEndPathFailures (fepf)

Access: Read only

Description: This attribute counts the declarations of STS/STM far-end path failure (P-RFI failure).

The counter wraps to 0 when it exceeds its maximum value.

Values: Decimal (0..4294967295)

Default: 0

### COMPONENT Laps Vc4 AtmCell (Cell)

Groups:
"GROUP Laps Vc4 Cell Provisioned (Prov)"
"GROUP Laps Vc4 Cell Operational (Oper)"
"GROUP Laps Vc4 Cell Statistics (Stats)"

Scope: Device

Description: The *AtmCell* component contains provisioning and operational attributes. The provisioning attributes are used to set the Loss of Cell Delineation (LCD) alarm activation delay and to turn cell payload scrambling on or off. The operational attributes are used to report about the quality of the ATM cells received by the interface and the cell capacity utilization. The *AtmCell* component appears under all port components running on ATM cards.

Common Verbs:
Help
List
Display
Add
DELete

## GROUP Laps Vc4 Cell Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioning attributes for the *AtmCell* component. |

## ATTRIBUTE Laps Vc4 Cell alarmActDelay (act)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time during which a Loss of Cell Delineation (LCD) defect should be observed before declaring an LCD alarm (alarm 70115501). When the *Cell* component is provisioned under the *Sonet* or *Sdh* component, this attribute defaults to 500 milliseconds. When it is provisioned under the *Laps* component, the default is 2000 milliseconds. This is necessary to ensure that the services bound to the *Sts* or *Vc4* component are not disrupted during short lived LCD defects caused by a line switchover. Setting this attribute to a lower value when the *Laps* component is provisioned may result in a temporary service outage when a line switchover occurs. |
| Values | Decimal (0..2000) |
| Units | msec |
| Default | No default |

## ATTRIBUTE Laps Vc4 Cell scrambleCellPayload (scramble)

| | |
|---|---|
| Access | Read and write |
| Description | Cell scrambling, as defined by ITU-T Recommendation I.432., can provide a solution to the problem of transmission equipment which is sensitive to certain bit patterns in the ATM cell payload. This attribute controls whether or not the cell payload is scrambled.<br>It defaults to ***off*** for *DS1* interfaces, and ***on*** for all other interfaces.<br>Note that this setting must be the same at both ends of the link. |
| Values | off<br>on |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Laps Vc4 Cell correctSingleBitHeaderErrors

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether the port corrects single bit errors detected in the headers of received cells. If single bit errors are corrected, the affected cells are passed up to the ATM layer according to normal operation. If single bit errors are not corrected, these errored cells are discarded by the physical layer. Note that cells containing multiple bit errors in their headers are always discarded.<br><br>Single bit HEC error correction must remain ***off*** for the following card types: 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 2pJ6MAtm, 3pDS3Atm, and 3pE3Atm. |
| Values | off<br>on |
| Default | off |

### ATTRIBUTE Laps Vc4 Cell clearDelay (clear)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the minimum elapsed time between the clearing of the Loss of Cell Delineation (LCD) defect and the port returning to service. The LCD defect should be absent for the entire period of elapsed time. This attribute value is specified in minutes. If the value of the *clearDelay* attribute is initially 0 (default), the time is actually about 10 seconds.<br>This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm. |
| Values | Decimal (0..60) |
| Units | minutes |
| Default | 0 |

### ATTRIBUTE Laps Vc4 Cell hecSampleInterval (hSample)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute specifies the sampling interval (in seconds) for errors associated with the *uncorrectableHeaderErrors* attribute. When the sum of errors counted by the *uncorrectableHeaderErrors* attribute over the interval time is greater than or equal to the provisioned *hecErrorLimit* attribute, the sample interval is considered errored. If the number of consecutive errored intervals reaches the limit established in the *hecErrorIntervalLimit* attribute, an LCD alarm is declared and the port is disabled. If the attribute *hecSampleInterval* is set to the default, 0, then the attribute *uncorrectableHeaderErrors* cannot be used to bring down the port.<br>This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm. |
| Values | Decimal (0..25) |
| Units | seconds |
| Default | 0 |

### ATTRIBUTE Laps Vc4 Cell hecErrorLimit (hLimit)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the error threshold for a HEC error sampling interval beyond which a port is brought down. When the value of the *uncorrectableHeaderErrors* attribute accumulated over the provisioned value of the *hecSampleInterval* attribute is greater than or equal to the provisioned value of the *hecErrorLimit* attribute, the sample interval is considered errored. If the number of consecutive errored intervals reaches the limit established in the *hecErrorIntervalLimit* attribute, an LCD alarm is declared and the port is disabled. (Please note that a *hecErrorInterval* attribute value of 0 (default) disables the mechanism of using the value of the *uncorrectableHeaderErrors* attribute to disable a port.)<br>This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm. |
| Values | Decimal (1..250000) |
| Default | No default |

### ATTRIBUTE Laps Vc4 Cell lcdStateDelay (delay)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time during which an Out of Cell Delineation (OCD) defect should be observed before moving to the Loss of Cell Delineation (LCD) defect state. The time is specified in milliseconds. The valid values are 1 to 50 milliseconds if the *AtmCell c*omponent is located under the *Ds1* or *E1* component, and 1 to 5 milliseconds if under a *Ds3* or *E3* component.<br>This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm. |
| Values | Decimal (1..50) |
| Units | msec |
| Default | No default |

### ATTRIBUTE Laps Vc4 Cell hecErrorIntervalLimit (hIntLimit)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute counts the instances of the *hecSamplingInterval* attribute for all HEC errors (specified by the *uncorrectableHeaderError* attribute) before an LCD alarm is generated. The alarm is only generated if the value of the *uncorrectableHeaderErrors* attribute in a given interval is greater than the value of the *hecErrorLimit* attribute. For example, if there are 20 HEC errors in 5 seconds, for three times in a row (the number of times in a row is represented by this attribute), an alarm is raised. If there are 24 HEC errors in the 5 seconds, and 14 in the next 5 seconds no alarm is generated because the number of HEC errors should also be more than 20 in the next instances.<br>This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm. |
| Values | Decimal (1..25) |
| Default | 1 |

## GROUP Laps Vc4 Cell Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the common operational attributes for the *AtmCell* component. |

## ATTRIBUTE Laps Vc4 Cell lcdAlarm (lcd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays whether the Loss of Cell Delineation (LCD) failure alarm state has been entered. This state is entered when LCD defects have been observed and accumulated for a period of time specified through the *alarmActDelay* attribute.<br>In ATM cell direct mapping mode, an LCD defect occurs when Out of Cell Delineation (OCD) anomaly persists for *x* milliseconds, and disappears when the Out of Cell Delineation (OCD) is absent for *x* msec. An OCD anomaly occurs when 7 consecutive incorrect HECs have been detected. An OCD anomaly terminates when 6 consecutive correct HECs have been detected.<br>For an *AtmCell* component located under a *DS3* or *E3* component with *mapping* = ***PLCP***, the LCD defect is directly derived from the PLCP LOF defect.<br>If LCD defects are intermittently occurring, the LCD defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle<br>The component under which is located the *AtmCell* component goes into an operational state of ***disabled*** until the LCD alarm condition is cleared. The condition is cleared after the LCD defect has not been reported for a period of 10 seconds +/- 0.5 seconds.<br>The *lcdAlarm* attribute is always set to off when the parent of the *AtmCell* component has been *locked* and left *offline*. This can also happen when the *Path* or *Channel* component has been suspended since its parent has been locked. |
| Values | on<br>off |
| Default | off |

## GROUP Laps Vc4 Cell Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the statistics attribute for the *AtmCell* component. Each attribute type is a non-negative integer which monotonically increases until it reaches a maximum value, at which point it wraps around and starts increasing again from zero. |

## ATTRIBUTE Laps Vc4 Cell uncorrectableHeaderErrors (ucErr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of uncorrectable ATM cell header errors that have been detected. Counting of *uncorrectableHeaderErrors* is inhibited when an Out of Cell Delineation (OCD) defect is present. An OCD defect occurs when seven consecutive incorrect HECs have been detected. An OCD defect terminates when six consecutive correct HECs have been detected. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## ATTRIBUTE Laps Vc4 Cell sevErroredSec (ses)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of ATM Cell Severely Errored Seconds (SESs) that have been counted.<br><br>In direct mapping mode, an ATM Cell SES is declared for second intervals containing one or more Out of Cell Delineation (OCD) defects. An OCD defect occurs when seven consecutive incorrect HECs have been detected. An OCD defect terminates when six consecutive correct HECs have been detected.<br><br>If the *AtmCell* component is located under a *Ds3* or *E3* component where the *mapping* attribute is set to ***plcp***, an ATM Cell SES is declared for second intervals containing one or more PLCP LOF defects. |

| | |
|---|---|
| | Counting of *uncorrectableHeaderErrors* (*ucErr*) and *correctableHeaderErrors* (*cErr*) is inhibited when the OCD defect is present. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Laps Vc4 Cell receiveCellUtilization (rxutil)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the ratio of the number of valid, assigned cells received on the link to the nominal link capacity. The utilization is calculated over a period of one minute.<br>This attribute is always set to ***0*** when the parent of the *AtmCell* component has been *locked* and left *offline.* This can also happen when the *Path* or *Channel* component has been *suspended* since its parent has been *locked*. |
| Values | Decimal (0..100) |
| Units | % |
| Default | 0 |

### ATTRIBUTE Laps Vc4 Cell transmitCellUtilization (txutil)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the ratio of the number of valid, assigned cells transmitted on the link to the nominal link capacity. The utilization is calculated over a period of one minute.<br>This attribute is always set to ***0*** when the parent of the *AtmCell* component has been *locked* and left *offline*. This can also happen when the *Path* or *Channel* component has been *suspended* since its parent has been *locked*. |
| Values | Decimal (0..100) |
| Units | % |
| Default | 0 |

## ATTRIBUTE Laps Vc4 Cell correctableHeaderErrors (cErr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of correctable ATM cell header errors that have been detected and corrected. Counting of *correctableHeaderErrors* is inhibited when an Out of Cell Delineation (OCD) defect is present. An OCD defect occurs when seven consecutive incorrect HECs have been detected. An OCD defect terminates when six consecutive correct HECs have been detected |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## COMPONENT Laps Vc4 Vc12

| | |
|---|---|
| Instance | k [Decimal (1..3)]<br>l [Decimal (1..7)]<br>m [Decimal (1..3)] |
| Groups | "GROUP Laps Vc4 Vc12 Provisioned (Prov)"<br>"GROUP Laps Vc4 Vc12 CustomerIdentifierData (CidData)"<br>"GROUP Laps Vc4 Vc12 OsiState (State)"<br>"GROUP Laps Vc4 Vc12 IfEntryProv (IfEntry)"<br>"GROUP Laps Vc4 Vc12 OperationalStatus (OperStatus)"<br>"GROUP Laps Vc4 Vc12 Operational (Oper)"<br>"GROUP Laps Vc4 Vc12 Statistics (Stats)" |
| Scope | Device |
| Description | *Lp/n Sdh/n Vc4/n Vc12/k,l,m*<br>This component controls the *Vc12* low order path signal that is carried within an SDH signal. The *Vc12* component may only be defined on Passport 15000 cards that support STM and the 2pSTM1eCh card on the Passport 7000. |

| | |
|---|---|
| Opt. Subcomp. | "COMPONENT Laps Vc4 Vc12 E1" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP Laps Vc4 Vc12 Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all of the provisioning data for the component. |

## ATTRIBUTE Laps Vc4 Vc12 txPathTrace

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the low order path identifier. The string must be constructed with 7-bit characters only. The path identifier is prefixed with a CRC byte and padded by null characters if necessary to form a 16-octet path trace message transmitted in byte J2 of 16 outgoing SDH frames. At the remote end, the path trace is reassembled, the CRC is checked and the message is compared to the *expectedRxPathTrace* attribute. If a mismatch is detected and the *expectedRxPathTrace* attribute is not an empty string (default value), an alarm is issued.<br><br>Usage guidelines for path trace message are found in clause 3 of the ITU G.831 standard which defines the Access Point Identifier format.<br><br>The functionality supported by this attribute is available on the *4pOC3Ch* functional processor. |
| Values | String (0..15, Extended ASCII) |

Default ""

### ATTRIBUTE Laps Vc4 Vc12 expectedRxPathTrace

Access Read and write

Description This attribute specifies the expected path trace identifier which is used to identify the low order path. This attribute must match the corresponding *txPathTrace* provisioned at the transmitting equipment end. If it does not, an alarm is issued. If an empty string (default value) is provisioned, the Low Order Path Trace Identification Mismatch (LP-TIM) defect is ignored.

The functionality supported by this attribute is available on the *4pOC3Ch* functional processor.

Values String (0..15, Extended ASCII)

Default ""

### GROUP Laps Vc4 Vc12 CustomerIdentifierData (CidData)

Properties Provisioned

Description This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs.

### ATTRIBUTE Laps Vc4 Vc12 customerIdentifier (cid)

Access Read and write

Description This attribute holds the Customer Identifier (CID).

Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.

Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.

An operator CID of 0 is used to identify the Network Manager (referred to as “NetMan” in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to “basic CIDs” in DPN) may be assigned to specific customers.

Values — Decimal (0; 1..8191)

Default — 0

### GROUP Laps Vc4 Vc12 OsiState (State)

Properties — Operational

Description — This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Laps Vc4 Vc12 adminState (osiAdmin)

Access — Read only

Description — This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Laps Vc4 Vc12 operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Laps Vc4 Vc12 usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
idle
active (activ)
busy

Default
idle

### ATTRIBUTE Laps Vc4 Vc12 availabilityStatus (osiAvail)

Access
Read only

Description
If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.

The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.

The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.

The value ***powerOff*** indicates the resource requires power to be

applied and it is not powered on. The *operationalState* is ***disabled***.

The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

## ATTRIBUTE Laps Vc4 Vc12 proceduralStatus (osiProc)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.<br><br>The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.<br><br>The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.<br><br>The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.<br><br>The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***. |
| Set of | initializationRequired (initRq)<br>notInitialized (notInit)<br>initializing (init)<br>reporting (report)<br>terminating (term) |

Default No default

### ATTRIBUTE Laps Vc4 Vc12 controlStatus (osiCntrl)

Access Read only

Description If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

Set of subjectToTest (subTst)
partOfServicesLocked (partLk)
reservedForTest (rsrvd)
suspended (suspnd)

Default No default

### ATTRIBUTE Laps Vc4 Vc12 alarmStatus (osiAlarm)

Access Read only

Description If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is

defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

## ATTRIBUTE Laps Vc4 Vc12 standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values
hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

Default
notSet

### ATTRIBUTE Laps Vc4 Vc12 unknownStatus (osiUnknw)

Access
Read only

Description
This attribute indicates the OSI Unknown status of the component.

The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.

The value ***true*** indicates that the actual state of the component is not known for sure.

Values
false
true

| | |
|---|---|
| Default | false |

### GROUP Laps Vc4 Vc12 IfEntryProv (IfEntry)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the ifEntry. |

### ATTRIBUTE Laps Vc4 Vc12 ifAdminStatus (ifState)

| | |
|---|---|
| Access | Read and write |
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE Laps Vc4 Vc12 ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP Laps Vc4 Vc12 OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

### ATTRIBUTE Laps Vc4 Vc12 snmpOperStatus

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### GROUP Laps Vc4 Vc12 Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the common operational data for the component. |

### ATTRIBUTE Laps Vc4 Vc12 rxAisAlarm

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether a Tributary Unit Alarm Indication Signal (TU-AIS) alarm state has been entered. A TU-AIS alarm state is entered when TU-AIS defects have been observed and accumulated for a period of 2.5 seconds +/- 0.5 seconds. The TU-AIS defect occurs when three consecutive TU pointers are in the all 1's state. This alarm is cleared after no TU-AIS defect has been detected for 10 seconds +/- 0.5 seconds. |
| Values | on<br>off |
| Default | No default |

### ATTRIBUTE Laps Vc4 Vc12 rxRdiAlarm

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether a Low Order Path Remote Defect Indicator (LP-RDI) alarm state has been entered. An LP-RDI alarm state is entered when LP-RDI defects have been observed and accumulated for a period of 2.5 seconds +/- 0.5 seconds. The LP-RDI defect occurs when RDI conditions are detected in five |

consecutive frames. This alarm is cleared after no LP-RDI defect has been detected for 10 seconds +/- 0.5 seconds.

Values
on
off

Default
No default

### ATTRIBUTE Laps Vc4 Vc12 rxRfiAlarm

Access
Read only

Description
This attribute indicates whether a Low Order Path Remote Failure Indicator (LP-RFI) alarm state has been entered. An LP-RFI alarm state is entered when LP-RFI defects have been observed and accumulated for a period of 2.5 seconds +/- 0.5 seconds. The LP-RFI defect occurs when a RFI condition is detected. This alarm is cleared after no LP-RFI defect has been detected for 10 seconds +/- 0.5 seconds.

Values
on
off

Default
No default

### ATTRIBUTE Laps Vc4 Vc12 rxReiAlarm

Access
Read only

Description
This attribute indicates whether a Low Order Path Remote Error Indicator (LP-REI) alarm state has been entered. An LP-REI alarm state is entered when LP-REI defects have been observed and accumulated for a period of 2.5 seconds +/- 0.5 seconds. The LP-REI defect occurs when a REI condition is detected. This alarm is cleared after no LP-REI defect has been detected for 10 seconds +/- 0.5 seconds.

Values
on
off

Default
No default

### ATTRIBUTE Laps Vc4 Vc12 bip2Alarm

Access
Read only

| | |
|---|---|
| Description | This attribute indicates whether a Low Order Path Error Monitoring (BIP-2) alarm state has been entered. An BIP-2 alarm state is entered when BIP-2 defects have been observed and accumulated for a period of 2.5 seconds +/- 0.5 seconds. The BIP-2 defect occurs when a mismatch between the calculated and received BIP-2 is detected. This alarm is cleared after no BIP-2 defect has been detected for 10 seconds +/- 0.5 seconds. |
| Values | on<br>off |
| Default | No default |

### ATTRIBUTE Laps Vc4 Vc12 unequippedAlarm

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether a Low Order Path Unequipped (LP-UNEQ) alarm state has been entered. An LP-UNEQ alarm state is entered when LP-UNEQ defects have been observed and accumulated for a period of 2.5 seconds +/- 0.5 seconds. The LP-UNEQ defect occurs when an unequipped condition is detected for five consecutive multi frames. This alarm is cleared after no LP-UNEQ defect has been detected for 10 seconds +/- 0.5 seconds. |
| Values | on<br>off |
| Default | No default |

### ATTRIBUTE Laps Vc4 Vc12 traceIdMismatchAlarm

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether a Low Order Path Trace Identification Mismatch (LP-TIM) alarm state has been entered. An LP-TIM alarm state is entered when LP-TIM defects have been observed and accumulated for a period of 2.5 seconds +/- 0.5 seconds. The LP-TIM defect occurs when a TIM condition is detected. This alarm is cleared after no LP-TIM defect has been detected for 10 seconds +/- 0.5 seconds. |

| | |
|---|---|
| Values | on<br>off |
| Default | No default |

### ATTRIBUTE Laps Vc4 Vc12 lopAlarm

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether a Tributary Unit Loss of Pointer (TU-LOP) alarm state has been entered. An TU-LOP alarm state is entered when TU-LOP defects have been observed and accumulated for a period of 2.5 seconds +/- 0.5 seconds. The TU-LOP defect occurs when eight consecutive invalid pointer values or eight consecutive New Data Flag (NDF) pointers are detected. This alarm is cleared after no TU-LOP defect has been detected for 10 seconds +/- 0.5 seconds. |
| Values | on<br>off |
| Default | No default |

### ATTRIBUTE Laps Vc4 Vc12 txAis

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether the Low order Path Alarm Indication Signal (LP-AIS) is being transmitted on the low order path. The LP-AIS signal is transmitted when the component *adminState* is ***locked*** or *operationalState* is ***disabled*** and *availabilityStatus* is *dependency.* |
| Values | on<br>off |
| Default | No default |

### ATTRIBUTE Laps Vc4 Vc12 txRdi

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether the Low Order Path Remote Defect Indication (LP-RDI) is being transmitted on the low order path. The LP-RDI signal is transmitted upon detection of TU- |

LOP, TU-AIS, LP-TIM or LP-UNEQ. The value is ***off*** when the component *adminState* is ***locked*** or *operationalState* is ***disabled*** and *availabilityStatus* is ***dependency***.

Values
on
off

Default
No default

## GROUP Laps Vc4 Vc12 Statistics (Stats)

Properties
Operational

Description
This group contains the statistics data for the component.

## ATTRIBUTE Laps Vc4 Vc12 pathErrorFreeSec (pefs)

Access
Read only

Description
This attribute counts the one second intervals that the component has been in a near-end error free state.

The counter wraps to 0 when it exceeds its maximum value.

Values
Decimal (0..4294967295)

Default
0

## ATTRIBUTE Laps Vc4 Vc12 pathCodeViolations (pcv)

Access
Read only

Description
This attribute counts the detected Path Code Violations (PCVs). Each PCV corresponds to a path BIP-8 error. PCV counting is inhibited over second intervals where a Path Severely Errored Second (PSES) is counted. Counting of PCVs is also inhibited over second intervals where a Path Unavailable Second (PUAS) is counted.

The counter wraps to 0 when it exceeds its maximum value.

Values
Decimal (0..4294967295)

Default
0

### ATTRIBUTE Laps Vc4 Vc12 pathErroredSec (pes)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the declared Path Errored Seconds (PESs). A PES is declared for second intervals containing one or more PCVs or one or more LOP or path AIS defects. Counting of PES is inhibited when PUAS is declared over the monitored second.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Laps Vc4 Vc12 pathSevErroredSec (pses)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the declared Path Severely Errored Seconds (PSESs). A PSES is declared for second intervals containing more than *x* PCVs or one or more LOP or path AIS defects. The value of *x* is 2400 for a 155 Mbit/s interface. Counting of PSES is inhibited when PUAS is declared over the monitored second.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Laps Vc4 Vc12 pathAisLopSec (pals)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the path AIS and LOP Seconds (PALSs). A PALS is declared for second intervals containing one or more path AIS or LOP defects. Counting of PALS is inhibited when PUAS is declared over the monitored second.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Laps Vc4 Vc12 pathUnavailSec (puas)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the one second intervals during which the STS/STM path is unavailable. The path becomes unavailable at the onset of 10 consecutive PSESs. The 10 PSESs are included in the unavailable time. Once unavailable, the path becomes available at the onset of 10 contiguous seconds with no PSES. The 10 seconds with no PSES are excluded from the unavailable time. For second intervals where a Path Unavailable Second (PUAS) is declared, counting of PCV, PES, PSES and PALS is inhibited.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Laps Vc4 Vc12 pathFailures (pf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the declarations of a path failure (LOP, P-AIS or Path Signal Label Mismatch failure).<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Laps Vc4 Vc12 farEndPathErrorFreeSec (fepefs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the one second intervals that the component has been in a far-end error free state.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Laps Vc4 Vc12 farEndPathCodeViolations (fepcv)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the Far-End Path Code Violations (FEPCVs) detected. Each FEPCV corresponds to a path FEBE. FEPCV counting is inhibited over second intervals where a Far-End Path Severely Errored Second (FEPSES) is declared. Counting of PCVs is also inhibited over second intervals where a Far-End Path Unavailable Second (FEPUAS) is declared.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Laps Vc4 Vc12 farEndPathErroredSec (fepes)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the Far-End Path Errored Seconds (FEPESs) that have been declared. A FEPES is declared for each one second interval containing one or more FEPCVs or one or more path RDI (P-RDI) defects. Counting of FEPES is inhibited when FEPUAS is declared over the monitored second.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Laps Vc4 Vc12 farEndPathSevErroredSec (fepses)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the Far-End Path Severely Errored Seconds (FEPSESs) that have been declared. A FEPSES is declared for second intervals containing more than *x* FEPCVs or one or more P-RDI defects. The value of *x* is 2400 for a 155 Mbit/s interface. Counting of FEPSESs is inhibited when FEPUAS is declared over the monitored second.<br><br>The counter wraps to 0 when it exceeds its maximum value. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Laps Vc4 Vc12 farEndPathAisLopSec (fepals)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the Far-End Path AIS and LOP Seconds (FEPALSs). A FEPALS is declared for each one second interval containing one or more P-RDI defects. Counting of FEPALS is inhibited when FEPUAS is declared over the monitored second.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Laps Vc4 Vc12 farEndPathUnavailSec (fepuas)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the one second intervals for which the STS/STM far-end path is unavailable. The far-end path becomes unavailable at the onset of 10 consecutive FEPSESs. The 10 FEPSESs are included in the unavailable time. Once unavailable, the far-end path becomes available at the onset of 10 contiguous seconds with no FEPSES. The 10 seconds with no FEPSES are excluded from the unavailable time. For one-second intervals where a Far-End Path Unavailable Second (FEPUAS) is declared, counting of FEPCV, FEPES, FEPSES and FEPALS is inhibited.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Laps Vc4 Vc12 farEndPathFailures (fepf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the declarations of STS/STM far-end path failure (P-RFI failure). |

The counter wraps to 0 when it exceeds its maximum value.

Values: Decimal (0..4294967295)

Default: 0

## COMPONENT Laps Vc4 Vc12 E1

Groups:
"GROUP Laps Vc4 Vc12 E1 Provisioned (Prov)"
"GROUP Laps Vc4 Vc12 E1 CustomerIdentifierData (CidData)"
"GROUP Laps Vc4 Vc12 E1 AdminInfo (AdminInfo)"
"GROUP Laps Vc4 Vc12 E1 IfEntryProv (IfEntry)"
"GROUP Laps Vc4 Vc12 E1 OperationalStatus (OperStatus)"
"GROUP Laps Vc4 Vc12 E1 OsiState (State)"
"GROUP Laps Vc4 Vc12 E1 Operational (Oper)"
"GROUP Laps Vc4 Vc12 E1 E1Operational (E1Oper)"
"GROUP Laps Vc4 Vc12 E1 Statistics (Stats)"

Scope: Device

Description:
*Lp/n E1/n*
*Lp/n Sdh/i Vc4/j Vc12/k,l,m E1*
The *E1* component controls and monitors an E1 port or tributary on a Function Processor. The number of ports supported depends on the type of card, and is usually encoded in the *Shelf Card/n cardType*, for example 4pE1Aal1: 4 port. The lowest instance value is usually ***0***, except for the ***32pE1Aal*** card when it is ***1***. No instance value is used when the E1 is a STM tributary. Multi-Service cards have an instance range 0..31, except that instance values 30 and 31 are not available for an “ATM UNI port”. (An E1 “ATM UNI port” is an *E1* component with a single *Chan* whose *applicationFramerName* attribute is linked to an *AtmIf* component.)

The instance number of an *E1* “ATM UNI port” must not be the same as the instance number of an *IMA* group under the same *Lp*.

Subcomponents "COMPONENT Laps Vc4 Vc12 E1 Channel (Chan)"

Dyn. Subcomp. "COMPONENT Laps Vc4 Vc12 E1 Test (Test)"
"COMPONENT Laps Vc4 Vc12 E1 Dsp"
"COMPONENT Laps Vc4 Vc12 E1 Audio"

Common Verbs
Help
List
Display
Add
DELete
LOCK
Unlock

## GROUP Laps Vc4 Vc12 E1 Provisioned (Prov)

Properties Provisioned

Description This group contains all of the provisioning data for an E1 component.

## ATTRIBUTE Laps Vc4 Vc12 E1 lineType (lineType)

Access Read and write

Description This attribute specifies the framing of the E1 line.
When ***cas*** (channel associated signalling) is selected, timeslot 16 is reserved for multiframe signalling and only 30 timeslots are available for data. The signalling bits are not interpreted.
When ***ccs*** (common channel signalling) is selected, timeslot 16 is not reserved for multiframe signalling and 31 timeslots are available for data. The signalling bits are not interpreted.
When ***unframed*** is selected, a clear channel is defined whereby data from all timeslots including the framing data (in timeslot 0) and timeslot 16 are passed transparently. This value is valid only for AAL1 cards.

For cell-based cards the ATM Forum specifies that timeslot 16 be reserved, leaving 30 timeslots available for data.
The ***8pE1Atm*** and ***1pStm1ChSmIr*** cards support the ***ccs*** value

only. The ***4pOC3ChSmIr*** card only supports the ***ccs*** and ***unframed*** values. For both these cards, the default value is ***ccs***. For all other cards, the default value is ***cas***.

Values
ccs
cas
unframed

Default
No default

### ATTRIBUTE Laps Vc4 Vc12 E1 clockingSource (clockingSource)

Access
Read and write

Description
This attribute defines the source of the transmit clock for the E1 line.

When ***local*** is selected, the crystal on the port generates the clocking for the line.

When ***line*** is selected, the port synchronizes to the clock from the facility.

When ***module*** is selected, the ports clock synchronizes to the clock provided by the oscillator on the active CP.

When ***otherPort*** is selected, the port synchronizes to the port with a clocking source of ***line***.

When ***srtsMode*** is selected, the port transmit frequency depends on the SRTS (Synchronous Residual Time-Stamp) received over the ATM network. SRTS information is also generated sent over the ATM network.

When ***adaptiveMode*** is selected, the port transmit frequency continually adapts to match the egress data received from the ATM network.

A port with ***srtsMode*** or ***adaptiveMode*** must have a single *Chan* which may be linked only to an *Aal1Ces*.service with serviceType ***unstructured***

If the *NetworkSynchronization* component is present, the default

value of this attribute is ***module***, otherwise it defaults to ***line***, except for the ***3pE1Atm*** card, which it defaults to ***local***.
On a ***3pE1Atm*** card all ports must have the same value, and be either ***local*** or ***module***.

***otherPort*** is valid only on AAL1 cards. ***srtsMode*** is valid only on AAL1 and Multi-Service Access cards. ***adaptiveMode*** is valid only on Multi-Service Access cards.

On ***4E1Aal1*** cards either:

all four ports' *clockingSource* values must be ***local*** OR
all four ports' *clockingSource* values must be ***module*** OR
one port's *clockingSource* value must be ***line*** and the other three must be ***otherPort***. A port can only have ***srtsMode*** selected if the other ports are ***module*** or ***srtsMode***.

Values
local
line
module
otherPort
srtsMode
adaptiveMode

Default
No default

## ATTRIBUTE Laps Vc4 Vc12 E1 crc4Mode

Access
Read and write

Description
This attribute defines whether the CRC-4 checking and generation on the E1 line is enabled or disabled.

The default CRC-4 mode is ***off*** except for the cell-based cards which default to ***on*** as per the ATM Forum.

Values
on
off

Default
No default

## ATTRIBUTE Laps Vc4 Vc12 E1 sendRaiOnAis

Access
Read and write

| | |
|---|---|
| Description | This attribute defines whether the Remote Alarm Indicator (RAI) will be sent when receiving an AIS alarm. The value is ***yes*** by default; it can be changed to ***no*** only for ports on J2MV cards. |
| Values | no<br>yes |
| Default | yes |

### ATTRIBUTE Laps Vc4 Vc12 E1 raiDeclareAlarmTime

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the period of time that a Remote Alarm Indicator (RAI) must be present before declaring an RAI alarm. The value of ***auto*** sets the RAI declare time to the default value for E1 and E1C card types which do not have hardware support for RAI response. On E1C card types with hardware support, if the value of ***auto*** is set, RAI response is done according to the standards. If ***auto*** is set, the value of the *raiClearAlarmTime* attribute is ignored and ***auto*** is used. This attribute is for E1 and E1C card types only. For all other card types, the default value must be used. |
| Values | Decimal (1..20000)<br>auto |
| Units | msec |
| Default | 100 |

### ATTRIBUTE Laps Vc4 Vc12 E1 raiClearAlarmTime

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the period of time that a Remote Alarm Indicator (RAI) has been absent before clearing an RAI alarm. The value of ***auto*** sets the RAI clear time to the default value for E1 and E1C card types which do not have hardware support for RAI response. On E1C card types with hardware support, if the value of ***auto*** is set, RAI response is done according to the standards. If ***auto*** is set, the value of the *raiDeclareAlarmTime* attribute is ignored and ***auto*** is used. This attribute is for E1 and E1C card types only. For all other card types, the default value must be used. |

| | |
|---|---|
| Values | Decimal (1..20000)<br>auto |
| Units | msec |
| Default | 100 |

### ATTRIBUTE Laps Vc4 Vc12 E1 ssmE1SaNumber

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies which of the five available Sa bits (Sa4 to Sa8) recommended in ITU G.704 is to be used for Synchronization Status Messages (SSM). If set to ***none***, the transmission of SSM is disabled on this port. |
| Values | Decimal (4..8)<br>none |
| Default | none |

### GROUP Laps Vc4 Vc12 E1 CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

### ATTRIBUTE Laps Vc4 Vc12 E1 customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.<br><br>Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID. |

| | |
|---|---|
| | An operator CID of 0 is used to identify the Network Manager (referred to as “NetMan” in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to “basic CIDs” in DPN) may be assigned to specific customers. |
| Values | Decimal (0; 1..8191) |
| Default | 0 |

### GROUP Laps Vc4 Vc12 E1 AdminInfo (AdminInfo)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attributes pertaining to the vendor of the equipment. |

### ATTRIBUTE Laps Vc4 Vc12 E1 vendor

| | |
|---|---|
| Access | Read and write |
| Description | This is the name of the vendor supplying the facility. |
| Values | String (0..20, ASCII) |
| Default | No default |

### ATTRIBUTE Laps Vc4 Vc12 E1 commentText

| | |
|---|---|
| Access | Read and write |
| Description | Any miscellaneous text about the facility. |
| Values | String (0..60, ASCII) |
| Default | No default |

### GROUP Laps Vc4 Vc12 E1 IfEntryProv (IfEntry)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the ifEntry. |

### ATTRIBUTE Laps Vc4 Vc12 E1 ifAdminStatus (ifState)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE Laps Vc4 Vc12 E1 ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP Laps Vc4 Vc12 E1 OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

### ATTRIBUTE Laps Vc4 Vc12 E1 snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |

Default up

## GROUP Laps Vc4 Vc12 E1 OsiState (State)

Properties Operational

Description This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

## ATTRIBUTE Laps Vc4 Vc12 E1 adminState (osiAdmin)

Access Read only

Description This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default unlocked

## ATTRIBUTE Laps Vc4 Vc12 E1 operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

## ATTRIBUTE Laps Vc4 Vc12 E1 usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |

| | |
|---|---|
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### ATTRIBUTE Laps Vc4 Vc12 E1 availabilityStatus (osiAvail)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.<br><br>The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.<br><br>The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.<br><br>The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.<br><br>The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***. |

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

### ATTRIBUTE Laps Vc4 Vc12 E1 proceduralStatus (osiProc)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.

The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

## ATTRIBUTE Laps Vc4 Vc12 E1 controlStatus (osiCntrl)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the

user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

Set of: subjectToTest (subTst)
partOfServicesLocked (partLk)
reservedForTest (rsrvd)
suspended (suspnd)

Default: No default

### ATTRIBUTE Laps Vc4 Vc12 E1 alarmStatus (osiAlarm)

Access: Read only

Description: If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE Laps Vc4 Vc12 E1 standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the

resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values
hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

Default
notSet

### ATTRIBUTE Laps Vc4 Vc12 E1 unknownStatus (osiUnknw)

Access
Read only

Description
This attribute indicates the OSI Unknown status of the component.

The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.

The value ***true*** indicates that the actual state of the component is not known for sure.

Values
false
true

Default
false

### GROUP Laps Vc4 Vc12 E1 Operational (Oper)

Properties
Operational

Description
This group contains the common operational data for a component in a digital hierarchy interface.

### ATTRIBUTE Laps Vc4 Vc12 E1 losAlarm (losAlarm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays whether a LOS (Loss of Signal) alarm state has been entered. A LOS alarm is declared after LOS defects have been observed and accumulated for a period of 2 seconds +/- 0.5 seconds (for **3pDS1Atm**, **3pE1Atm**, **8pDS1Atm**, and **8pE1Atm** cards: 2.5 seconds +/- 0.5 seconds). A LOS defect is detected upon observing all zeros for 150 ms (for **3pDS1Atm**, **3pE1Atm**, **8pDS1Atm**, and **8pE1Atm** cards: upon observing 175 +/- 75 pulse positions with no pulses of either positive or negative polarity). If the LOS defects are intermittently occurring, the LOS defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.<br>The port goes into an operational state of ***disabled*** until the LOS alarm state is cleared. Also, an RAI alarm is transmitted to the far end for the duration of the LOS alarm state.<br>The LOS alarm state is cleared when LOS defects are absent for 10 seconds +/- 0.5 seconds. |
| Values | on<br>off |
| Default | off |

### ATTRIBUTE Laps Vc4 Vc12 E1 rxAisAlarm (rxAisAlarm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays whether an AIS (Alarm Indication Signal) alarm state has been entered. The AIS Alarm state is entered when AIS defects have been observed and accumulated for 2.5 seconds +/- 0.5 seconds. An AIS defect is detected after having received less than 3 zeros in a 2048 bit period (for **8pDS1Atm** cards: when both an Out Of Frame condition exists and a 1's density of at least 99.9% is present for a time T, where 3 ms ≤ T ≤ 75 ms; for **8pE1Atm** cards: when both an Out Of Frame condition exists and fewer than three 0's have been received in 512 bit periods). If the AIS defects are intermittently occurring, the AIS defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all |

measurements based on a 200 ms polling cycle.
The port goes into an operational state of ***disabled*** for the duration of an AIS alarm state.
The AIS alarm state is cleared when AIS defects are absent for 10 seconds +/- 0.5 seconds.

Values
on
off

Default
off

### ATTRIBUTE Laps Vc4 Vc12 E1 lofAlarm (lofAlarm)

Access
Read only

Description
This attribute displays whether a LOF (Loss of Frame) alarm state has been entered. The LOF alarm state is entered when LOF defects (for DS1: 2 out of 5 framing bits in error; for E1: 3 consecutive frame alignment patterns in error) have been detected for 3 seconds +/- 0.5 seconds (for **3pDS1Atm**, **3pE1Atm**, **8pDS1Atm**, and **8pE1Atm** cards: 2.5 seconds +/- 0.5 seconds).
If the LOF defects are intermittently occurring, the LOF defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.
The port goes into an operational state of ***disabled*** until the LOF alarm state is cleared. Also, an RAI alarm is transmitted to the far end for the duration of the LOF alarm state
The condition is cleared when framing has been achieved for 10 seconds +/- 0.5 seconds.

Values
on
off

Default
off

### ATTRIBUTE Laps Vc4 Vc12 E1 rxRaiAlarm (rxRaiAlarm)

Access
Read only

Description
This attribute displays whether an RAI (Remote Alarm Indication) alarm state has been entered. An RAI alarm state is entered when the RAI defect indicator has been observed and accumulated for 3.5 seconds +/- 0.5 seconds. For **3pDS1Atm**,

and **8pDS1Atm** cards: alarm is declared immediately upon observing the defect is present, with no integration time. For **3pE1Atm**, and **8pE1Atm** cards: alarm state is entered when the RAI defect indicator has been observed and accumulated for 2.5 seconds +/- 0.5 seconds. If the RAI defects are intermittently occurring, the RAI defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.
The RAI alarm state is cleared when the RAI defect indicator has been absent for 10 seconds +/- 0.5 seconds (for **3pDS1Atm**, and **8pDS1Atm** cards: alarm is cleared immediately upon observing the defect is absent, with no integration time).
The RAI alarm is usually an indication that the far end facility is unable to gain synchronization.

Values: on
off

Default: off

### ATTRIBUTE Laps Vc4 Vc12 E1 txAisAlarm (txAisAlarm)

Access: Read only

Description: This attribute displays whether an AIS (Alarm Indication Signal) alarm is being transmitted on the line. An AIS alarm is transmitted when the port is in a locked state.

Values: on
off

Default: off

### ATTRIBUTE Laps Vc4 Vc12 E1 txRaiAlarm (txRaiAlarm)

Access: Read only

Description: This attribute displays whether a RAI signal is being sent on the outgoing line. The RAI signal is transmitted when the port detects a LOF alarm condition (for **3pDS1Atm**, **3pE1Atm**, **8pDS1Atm**, and **8pE1Atm** cards: RAI is transmitted when the port detects a LOS, LOF, or AIS condition).

Values: on
off

Default off

### GROUP Laps Vc4 Vc12 E1 E1Operational (E1Oper)

Properties Operational

Description This group contains all of the operational data for a E1 component that are not defined in the DSCommonOp group.

### ATTRIBUTE Laps Vc4 Vc12 E1 multifrmLofAlarm (multiLofAlarm)

Access Read only

Description This attribute indicates whether a multiframe LOF (loss of frame) alarm state is entered. A multiframe LOF alarm state is entered when a multiframe LOF defect (2 consecutive errors in the multiframe alignment signal) has been detected and accumulated for 2.5 seconds +/- 0.5 seconds. If the multiframe LOF defects are intermittently occurring, the multiframe LOF defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.
The alarm is cleared when the defect is not detected for 10 seconds +/- 0.5 seconds. When the multiframe LOF alarm is on, a multiframe RAI alarm indicator is transmitted on the line.

The ***8pE1Atm*** card does not support the multiframe LOF alarm.

Values on
off

Default off

### ATTRIBUTE Laps Vc4 Vc12 E1 rxMultifrmRaiAlarm (rxMultiRaiAlarm)

Access Read only

Description This attribute displays whether a multiframe RAI (remote alarm indicator) alarm state has been entered. A multiframe RAI alarm state is entered when a multiframe RAI alarm indicator (bit 6 of timeslot 16 in frame 0 is set to a one) is observed and accumulated for 2.5 seconds +/- 0.5 seconds. If the multiframe RAI indicator is intermittently received, the multiframe RAI defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all

measurements based on a 200 ms polling cycle.
The multiframe RAI alarm condition is cleared when the multiframe RAI alarm indication is not received for 10 seconds +/- 0.5 seconds. The multiframe RAI alarm is usually an indication that the far end facility is unable to gain multiframe synchronization.

The ***8pE1Atm*** card does not support the multiframe RAI alarm.

Values: on
off

Default: off

### ATTRIBUTE Laps Vc4 Vc12 E1 txMultifrmRaiAlarm (txMultiRaiAlarm)

Access: Read only

Description: This attribute displays whether a multiframe RAI (remote alarm indicator) alarm is being sent on the E1 line. This is transmitted when the E1 port detects a multiframe LOF condition.

The ***8pE1Atm*** card does not generate the multiframe RAI alarm.

Values: on
off

Default: off

### ATTRIBUTE Laps Vc4 Vc12 E1 ssmE1Tx

Access: Read only

Description: This attribute indicates the current Synchronization Status Message (SSM) transmitted on the E1 port within the Sa byte defined in ITU G.704.
This attribute is filtered when *ssmE1SaNumber* is set to ***none***.

Values: Decimal (0..15)

Default: No default

### ATTRIBUTE Laps Vc4 Vc12 E1 multifrmCRC4LofAlarm (multiCRC4LofAlarm)

Access: Read only

| | |
|---|---|
| Description | This attribute indicates whether E1 CRC-4 multiframe LOF (loss of frame) alarm state is entered. A CRC-4 multiframe LOF alarm state is entered when a CRC-4 multiframe LOF defect (2 consecutive errors in the multiframe alignment signal) has been detected and accumulated for 2.5 seconds +/- 0.5 seconds. If the CRC-4 multiframe LOF defects are intermittently occurring, the CRC-4 multiframe LOF defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.<br>The alarm is cleared when the defect is not detected for 10 seconds +/- 0.5 seconds.<br>The *multifrmCRC4LofAlarm* is not implemented for the ***E1***, ***1pE1V***, ***1pE1Mvp***, ***1pE1Mvpe***, ***4pE1Mvpe***, ***8pE1Atm***, ***E1C*** and ***4pE1Aal1*** cards. |
| Values | on<br>off |
| Default | off |

### GROUP Laps Vc4 Vc12 E1 Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the common statistical data for a component in a digital hierarchy interface. |

### ATTRIBUTE Laps Vc4 Vc12 E1 runningTime (runningTime)

| | |
|---|---|
| Access | Read only |
| Description | The number of seconds since the port component was activated. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Laps Vc4 Vc12 E1 errorFreeSec (efs)

| | |
|---|---|
| Access | Read only |
| Description | The number of seconds that the port has been in an error free state. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE Laps Vc4 Vc12 E1 erroredSec (es)

| | |
|---|---|
| Access | Read only |
| Description | An errored second is declared when a second with one or more Code Violation Error events, or one or more Out Of Frame events occurs. A code violation error may be a CRC error or a BPV error. An Out Of Frame event occurs when 2 out of 5 framing bits are in error. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Laps Vc4 Vc12 E1 sevErroredSec (ses)

| | |
|---|---|
| Access | Read only |
| Description | A severely errored second occurs when a second with 320 or more Code Violation Error events or one or more Out Of Frame events occurs. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Laps Vc4 Vc12 E1 sevErroredFrmSec (sefs)

| | |
|---|---|
| Access | Read only |
| Description | A severely errored framing second occurs when a second with one or more Out Of Frame events occurs. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Laps Vc4 Vc12 E1 unavailSec

| | |
|---|---|
| Access | Read only |
| Description | The total number of seconds that the interface is in an unavailable signal state. An unavailable signal state occurs at the onset of 10 consecutive Severely Errored Seconds. The state is cleared at the onset of 10 seconds with no Severely Errored Seconds. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Laps Vc4 Vc12 E1 bpvErrors (bpvErrors)

| | |
|---|---|
| Access | Read only |
| Description | The current count of Bipolar Violations. A bipolar violation is an error in the alternate mark inversion pattern (AMI) on the line. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Laps Vc4 Vc12 E1 crcErrors (crcErrors)

| | |
|---|---|
| Access | Read only |
| Description | If the interface is a DS1 line, it is the current count of CRC-6 errors. These will only be counted when the lineType is ESF. If the interface is an E1 line, it is the total number of CRC-4 errors. These will only be counted when crc4Mode is on. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Laps Vc4 Vc12 E1 frmErrors (frmErrors)

| | |
|---|---|
| Access | Read only |
| Description | The current count of frame errors. A frame error is an error in the framing bits |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Laps Vc4 Vc12 E1 losStateChanges (losChanges)

| | |
|---|---|
| Access | Read only |
| Description | The total number of times that the line lost signal. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Laps Vc4 Vc12 E1 slipErrors (slipErrors)

| | |
|---|---|
| Access | Read only |
| Description | The total number of times that the line experienced a controlled frame slip. This attribute is incremented for ports on the voice cards (for example the 1pDS1V and the 1pE1V function processors) only. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT Laps Vc4 Vc12 E1 Channel (Chan)

| | |
|---|---|
| Instance | Decimal (0..31) |
| Groups | "GROUP Laps Vc4 Vc12 E1 Chan Provisioned (Prov)"<br>"GROUP Laps Vc4 Vc12 E1 Chan CustomerIdentifierData (CidData)"<br>"GROUP Laps Vc4 Vc12 E1 Chan IfEntryProv (IfEntry)"<br>"GROUP Laps Vc4 Vc12 E1 Chan OperationalStatus (OperStatus)"<br>"GROUP Laps Vc4 Vc12 E1 Chan OsiState (State)"<br>"GROUP Laps Vc4 Vc12 E1 Chan Operational (Oper)"<br>"GROUP Laps Vc4 Vc12 E1 Chan AdminInfo (AdminInfo)" |
| Scope | Application |
| Description | *Channel*<br>The *Channel* component is configured to control a group of timeslots that form a fractional group on a DS1 or E1 port. Cell-based cards allow only one channel per port, and this is automatically provisioned with all available timeslots. |

| | |
|---|---|
| Opt. Subcomp. | "COMPONENT Laps Vc4 Vc12 E1 Chan AtmCell (Cell)"<br>"COMPONENT Laps Vc4 Vc12 E1 Chan TrunkConditioning (Tc)"<br>"COMPONENT Laps Vc4 Vc12 E1 Chan FrameLinkMonitoring (Flm)" |
| Dyn. Subcomp. | "COMPONENT Laps Vc4 Vc12 E1 Chan Test (Test)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP Laps Vc4 Vc12 E1 Chan Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all of the provisional data for a *Channel* component. |

## ATTRIBUTE Laps Vc4 Vc12 E1 Chan timeslots (ts)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute contains the list of timeslots that are used by the *Channel* component. Valid numbers are 1-24 for a *Channel* used by a *DS1* component, and 1-31 for a *Channel* used by an *E1* component.<br><br>For the ***4pDS3Ch*** card, a timeslot value of ***none*** cannot be combined with other valid timeslot values. When ***none*** is selected, no timeslots are assigned and any service linked to the *Channel* does not function. |

| | |
|---|---|
| Set of | none<br>1<br>2<br>3<br>4<br>5<br>6<br>7<br>8<br>9<br>10<br>11<br>12<br>13<br>14<br>15<br>16<br>17<br>18<br>19<br>20<br>21<br>22<br>23<br>24<br>25<br>26<br>27<br>28<br>29<br>30<br>31 |
| Default | No default |

### ATTRIBUTE Laps Vc4 Vc12 E1 Chan timeslotDataRate (dataRate)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |

| | |
|---|---|
| Description | This attribute selects the data rate of the timeslots in a channel of a DS1 component. For E1, the data rate of the timeslots will always be 64kbit/s regardless of this attribute.<br><br>When ***doNotOverride*** is selected for a channel on a DS1, the data rate of the channel's timeslots are dependant on the *zeroCoding* selection of the DS1 component. If the *zeroCoding* is ***B8ZS*** (where supported on the FP) or ***none***, the timeslot's data rate will be 64kbit/s. If the *zeroCoding* option is ***bit7Stuffing,*** the data rate of a timeslot will be 56kbit/s.<br><br>When ***56k*** is selected for a channel on a DS1, the least significant bit of each timeslot of this *Channel* will always be set to 1 and not used for data. The data rate for the timeslots of this channel is therefore restricted to 56kbit/s.<br><br>On the ***4pDS3Ch*** cards, the *zeroCoding* attribute is restricted to the value *none*, and so when the *timeslotDataRate* is set to ***doNotOverride***, the timeslot's data rate will be 64kbit/s. Timeslot data rate of ***56k*** is also available on this card.<br><br>On the ***4pDS3ChAal1*** card, the only allowed value for this attribute is ***doNotOverride***.<br><br>One application of this attribute is to allow a DS1 line to support mixing channels that originate from lines that use different *zeroCoding* schemes. |
| Values | 56k<br>doNotOverride |
| Default | doNotOverride |

### ATTRIBUTE Laps Vc4 Vc12 E1 Chan applicationFramerName

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the link to the software stack. It defines which application is running on top of this hardware component. |
| Values | Link (Service, interfaceName) |
| Default | No default |

### GROUP Laps Vc4 Vc12 E1 Chan CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

### ATTRIBUTE Laps Vc4 Vc12 E1 Chan customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.<br><br>Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.<br><br>An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to "basic CIDs" in DPN) may be assigned to specific customers. |
| Values | Decimal (0; 1..8191) |
| Default | 0 |

### GROUP Laps Vc4 Vc12 E1 Chan IfEntryProv (IfEntry)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the ifEntry. |

### ATTRIBUTE Laps Vc4 Vc12 E1 Chan ifAdminStatus (ifState)

| | |
|---|---|
| Access | Read and write |
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is |

| | |
|---|---|
| | not operational. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE Laps Vc4 Vc12 E1 Chan ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP Laps Vc4 Vc12 E1 Chan OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

### ATTRIBUTE Laps Vc4 Vc12 E1 Chan snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

## GROUP Laps Vc4 Vc12 E1 Chan OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

## ATTRIBUTE Laps Vc4 Vc12 E1 Chan adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

## ATTRIBUTE Laps Vc4 Vc12 E1 Chan operationalState (osiOper)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Laps Vc4 Vc12 E1 Chan usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

## ATTRIBUTE Laps Vc4 Vc12 E1 Chan availabilityStatus (osiAvail)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.<br><br>The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.<br><br>The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.<br><br>The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.<br><br>The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.<br><br>The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.<br><br>The value ***degraded*** indicates the service provided by the |

component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

### ATTRIBUTE Laps Vc4 Vc12 E1 Chan proceduralStatus (osiProc)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***initializationRequired*** indicates (for a resource which

doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.

The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

## ATTRIBUTE Laps Vc4 Vc12 E1 Chan controlStatus (osiCntrl)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

Set of

subjectToTest (subTst)
partOfServicesLocked (partLk)
reservedForTest (rsrvd)
suspended (suspnd)

Default

No default

## ATTRIBUTE Laps Vc4 Vc12 E1 Chan alarmStatus (osiAlarm)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE Laps Vc4 Vc12 E1 Chan standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization

activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values
hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

Default
notSet

### ATTRIBUTE Laps Vc4 Vc12 E1 Chan unknownStatus (osiUnknw)

Access
Read only

Description
This attribute indicates the OSI Unknown status of the component.

The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.

The value ***true*** indicates that the actual state of the component is not known for sure.

Values
false
true

Default
false

### GROUP Laps Vc4 Vc12 E1 Chan Operational (Oper)

Properties
Operational

Description
This group contains all of the operational data for a *Channel* component.

### ATTRIBUTE Laps Vc4 Vc12 E1 Chan actualChannelSpeed

Access
Read only

Description
This attribute displays the measured link speed of the *Channel* component.

Values
Decimal (0..4294967295)

Units
bit/s

| | |
|---|---|
| Default | 0 |

### GROUP Laps Vc4 Vc12 E1 Chan AdminInfo (AdminInfo)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attributes pertaining to the vendor of the equipment. |

### ATTRIBUTE Laps Vc4 Vc12 E1 Chan vendor

| | |
|---|---|
| Access | Read and write |
| Description | This is the name of the vendor supplying the facility. |
| Values | String (0..20, ASCII) |
| Default | No default |

### ATTRIBUTE Laps Vc4 Vc12 E1 Chan commentText

| | |
|---|---|
| Access | Read and write |
| Description | Any miscellaneous text about the facility. |
| Values | String (0..60, ASCII) |
| Default | No default |

### COMPONENT Laps Vc4 Vc12 E1 Chan Test (Test)

| | |
|---|---|
| Groups | "GROUP Laps Vc4 Vc12 E1 Chan Test OsiState (State)"<br>"GROUP Laps Vc4 Vc12 E1 Chan Test Setup (Setup)"<br>"GROUP Laps Vc4 Vc12 E1 Chan Test Results (Results)" |
| Scope | Application |
| Description | The *Test* component is configured to control a hardware facility test on a physical (*V3*5, *X21, DS1, E1, DS3, E3* etc.) or a logical port. |
| Common Verbs | Help<br>List<br>Display |

### VERB START Laps Vc4 Vc12 E1 Chan Test

| | |
|---|---|
| Impact | Service |
| Description | This command invokes a test on the hardware component. Note that some test types requires the parent component (the hardware component) to be locked (using the *Lock* command) before a test can be started. |

### VERB STOP Laps Vc4 Vc12 E1 Chan Test

| | |
|---|---|
| Impact | Service |
| Description | This command stops a test running on the hardware component. |

### GROUP Laps Vc4 Vc12 E1 Chan Test OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Laps Vc4 Vc12 E1 Chan Test adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |

| | |
|---|---|
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Laps Vc4 Vc12 E1 Chan Test operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Laps Vc4 Vc12 E1 Chan Test usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |

| | |
|---|---|
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Laps Vc4 Vc12 E1 Chan Test Setup (Setup)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all of the operational data for a *Test* component. |

### ATTRIBUTE Laps Vc4 Vc12 E1 Chan Test purpose (purpose)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute records the purpose of the test so that the test results can be associated and properly analyzed. |
| Values | String (0..40, ASCII) |
| Default | No default |

### ATTRIBUTE Laps Vc4 Vc12 E1 Chan Test type (type)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the type of test to be run. The available test types include the following:<br>***card*** test sets up an internal loop on the board and runs a bit error rate test.<br>***manual*** test assumes the line is looped back externally and a bit error rate test is performed.<br>***localLoop*** test loops back the local modem and performs a bit error rate test.<br>***remoteLoop*** test loops back the remote modem (or CSU) and performs a bit error rate test.<br>***externalLoop*** test loops back the line to the far end.<br>***payloadLoop*** test only loops back the payload data received from the incoming line.<br>***remoteLoopThisTrib*** loops this particular tributary back at the far end, using services provided by the parent.<br>***v54RemoteLoop*** initiates a V.54 Remote Loopback test.<br>***pn127RemoteLoop*** initiates a PN127 Remote Loopback test. |

***lineBIP8Error*** tests line BIP 8 error generation and detection (B2 byte inverted).
***sectionBIP8Error*** tests section BIP 8 error generation and detection (B1 byte inverted).
***pathBIP8Error*** tests path BIP 8 error generation and detection (B3 byte inverted).
***pathBIP2Error*** tests path BIP 2 error generation and detection (bit 1-2 of V5 byte inverted).
Note that not all test types are not supported by all function processors.

Values
card
manual
localLoop
remoteLoop
externalLoop
payloadLoop
remoteLoopThisTrib
v54RemoteLoop
pn127RemoteLoop
lineBIP8Error
sectionBIP8Error
pathBIP8Error
pathBIP2Error

Default
card

## ATTRIBUTE Laps Vc4 Vc12 E1 Chan Test frmSize (size)

Access
Read and write

Description
This attribute defines the size of the test data frames in number of bytes.
This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame.

Values
Decimal (4..4096)

Units
bytes

Default
1024

### ATTRIBUTE Laps Vc4 Vc12 E1 Chan Test frmPatternType (fpt)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the type of data pattern generation to use. The following lists the available pattern types:<br>***ccitt32kBitPattern*** is a pseudo-random sequence of 32 kbit.<br>***ccitt8MBitPattern*** is a pseudo-random sequence of 8Mbit.<br>***customizedPattern*** is the pattern defined in the ***customizedPattern*** attribute. |
| Values | ccitt32kBitPattern<br>ccitt8MBitPattern<br>customizedPattern |
| Default | ccitt32kBitPattern |

### ATTRIBUTE Laps Vc4 Vc12 E1 Chan Test customizedPattern (cp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute allows a customized 32 bit pattern to be defined for use in the test data frames. This attribute is used when the attribute *frmPatternType* is set to ***CustomizedPattern***. Note that a 55 hex pattern is an alternating 1 and 0 pattern. |
| Values | Hex (H.0..H.ffffffff) |
| Units | Hex |
| Default | H.55555555 |

### ATTRIBUTE Laps Vc4 Vc12 E1 Chan Test dataStartDelay (dsd)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time delay (in seconds) between when the test expects the loop to have been set up, to when the test data actually starts to be transmitted. This attribute is to accommodate some non-standard equipment that requires extra time for setting up a requested loop.<br>This attribute is ignored when the test *type* is set to ***externalLoop***. |
| Values | Decimal (0..1814400) |
| Units | seconds |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE Laps Vc4 Vc12 E1 Chan Test displayInterval (di)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the interval (in minutes) between which interim test results are to be displayed. Results are displayed at the operator console at which the test was started. When the test *type* is set to ***externalLoop***, this attribute is ignored. There will be no display of results if *displayInterval* is set to 0. This attribute can be changed anytime. |
| Values | Decimal (0..30240) |
| Units | minutes |
| Default | 5 |

### ATTRIBUTE Laps Vc4 Vc12 E1 Chan Test duration

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the duration for which the test data will be transmitted. In the case of an ***externalLoop***, this is the time that the loop is in effect. Note that *dataStartDelay* does not apply to the ***externalLoop*** test type. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 1.00 |

### GROUP Laps Vc4 Vc12 E1 Chan Test Results (Results)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all the statistics related attributes of the *Test* component. |

### ATTRIBUTE Laps Vc4 Vc12 E1 Chan Test causeOfTermination

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates either the status of the test or the cause of the test's termination: |

a value of ***neverStarted*** indicates that the test has not yet been started.

a value of ***testRunning*** indicates that the test has been started.

a value of ***stoppedByOperator*** indicates that the operator issued a stop command on a test that was running.

a value of ***testTimeExpired*** indicates that the test ran for the time specified by the test's *duration*.

a value of ***loopCodeSyncFailed*** indicates that the local end failed to synchronize to the loopCode pattern. The local end transmits the loopCode pattern to cause the remote end to apply a loopback, after which the local end should receive the loopCode pattern. The exact pattern used to request loopCode depends on the test *type*. This failure indicates a high rate of transmission errors, or that the remote end has failed to apply the loopback.

a value of ***patternSyncFailed*** indicates that the local end failed to synchronize to the *frmPatternType* test pattern, that should have been looped back at the remote end. This failure indicates a high rate of transmission errors or the absence of a loopback.

a value of ***patternSyncLost*** indicates that the local end gained and then lost synchronization to the returned *frmPatternType* test pattern. This failure indicates a sudden increase in transmission errors, frame slippage, or the removal of an existing loopback.

a value of ***unknown*** is set when a reason to terminate other than those listed here is encountered.

Note: The *causeOfTermination* attribute values of ***loopCodeSyncFailed***, ***patternSyncFailed*** and ***patternSyncLost*** are supported only on MSA cards. *Test* components located on other cards or under an *Ima* component on an MSA card will never terminate the test under the conditions described by these values.

| | |
|---|---|
| Values | testTimeExpired<br>stoppedByOperator<br>unknown<br>neverStarted<br>testRunning<br>hardwareReconfigured<br>loopCodeSyncFailed<br>patternSyncFailed<br>patternSyncLost |
| Default | neverStarted |

### ATTRIBUTE Laps Vc4 Vc12 E1 Chan Test bitsTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bits sent during the test period. As long as the line speed of the hardware interface is less than 70 Mbit/s, this counter is not expected to reach the maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Laps Vc4 Vc12 E1 Chan Test bytesTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes sent during the test period. This counter is not expected to reach its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Laps Vc4 Vc12 E1 Chan Test frmTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames sent during the test period. This counter is not expected to reach its maximum value.<br><br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |
| Values | Long Integer |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Laps Vc4 Vc12 E1 Chan Test bitsRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bits received during the test period. The counter wraps to zero when it exceeds the maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Laps Vc4 Vc12 E1 Chan Test bytesRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes received during the test period. The counter wraps to zero when it exceeds its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Laps Vc4 Vc12 E1 Chan Test frmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received during the test period. The counter wraps to zero when it exceeds its maximum value.<br><br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Laps Vc4 Vc12 E1 Chan Test erroredFrmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute is not displayed for ATM and MSA32 cards. For ATM cards, the physical layer drops all errored frames at the controller interface. For MSA32 cards, the test does not generate any frame. |

For all other card types, this attribute counts the errored frames received during the test period. The counter wraps to zero when it exceeds its maximum value.

Values: Long Integer

Default: No default

### ATTRIBUTE Laps Vc4 Vc12 E1 Chan Test bitErrorRate

Access: Read only

Description: This attribute is not displayed for ATM cards because the physical layer drops all errored frames at the controller interface. For MSA32 cards, this attribute indicates the link bit error rate, regardless of the *frameSize*, which is not supported

For all other card types, this attribute is the calculated bit error rate on the link. Test data are generated and sent in frames of a preset size (*frameSize*). The *Test* component will try to estimate the number of bit errors in any errored frame which is identifiable. The statistics will be updated accordingly. A lost frame (may be due to an error on the flag sequence) will be discarded for the bit error rate calculation. The result is presented in the form of xEsyy, where x is the mantissa, syy is the exponent, for example 0E+00, 2E-09.
Note that the *bitErrorRate* is an estimate only. For more reliable test results, the test should be done over a long period. Multiple tests would also improve the confidence level of the test results.

Values: String (5, ASCII)

Default: No default

### ATTRIBUTE Laps Vc4 Vc12 E1 Chan Test elapsedTime

Access: Read only

Description: This attribute indicates the time elapsed since the test started for an ***externalLoop*** test. For a data test, it indicates time since test data was first transmitted.

Values: Decimal (0.00..30240.00)

Units: minutes

| | |
|---|---|
| Default | 0.00 |

### ATTRIBUTE Laps Vc4 Vc12 E1 Chan Test timeRemaining

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the length of time remaining before the test stops according to the *duration* attribute. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 0.00 |

### COMPONENT Laps Vc4 Vc12 E1 Chan AtmCell (Cell)

| | |
|---|---|
| Groups | "GROUP Laps Vc4 Vc12 E1 Chan Cell Provisioned (Prov)"<br>"GROUP Laps Vc4 Vc12 E1 Chan Cell Operational (Oper)"<br>"GROUP Laps Vc4 Vc12 E1 Chan Cell Statistics (Stats)" |
| Scope | Device |
| Description | The *AtmCell* component contains provisioning and operational attributes. The provisioning attributes are used to set the Loss of Cell Delineation (LCD) alarm activation delay and to turn cell payload scrambling on or off. The operational attributes are used to report about the quality of the ATM cells received by the interface and the cell capacity utilization. The *AtmCell* component appears under all port components running on ATM cards. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Laps Vc4 Vc12 E1 Chan Cell Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioning attributes for the *AtmCell* component. |

### ATTRIBUTE Laps Vc4 Vc12 E1 Chan Cell alarmActDelay (act)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time during which a Loss of Cell Delineation (LCD) defect should be observed before declaring an LCD alarm (alarm 70115501). When the *Cell* component is provisioned under the *Sonet* or *Sdh* component, this attribute defaults to 500 milliseconds. When it is provisioned under the *Laps* component, the default is 2000 milliseconds. This is necessary to ensure that the services bound to the *Sts* or *Vc4* component are not disrupted during short lived LCD defects caused by a line switchover. Setting this attribute to a lower value when the *Laps* component is provisioned may result in a temporary service outage when a line switchover occurs. |
| Values | Decimal (0..2000) |
| Units | msec |
| Default | No default |

### ATTRIBUTE Laps Vc4 Vc12 E1 Chan Cell scrambleCellPayload (scramble)

| | |
|---|---|
| Access | Read and write |
| Description | Cell scrambling, as defined by ITU-T Recommendation I.432., can provide a solution to the problem of transmission equipment which is sensitive to certain bit patterns in the ATM cell payload. This attribute controls whether or not the cell payload is scrambled.<br>It defaults to ***off*** for *DS1* interfaces, and ***on*** for all other interfaces.<br>Note that this setting must be the same at both ends of the link. |
| Values | off<br>on |
| Default | No default |

### ATTRIBUTE Laps Vc4 Vc12 E1 Chan Cell correctSingleBitHeaderErrors

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether the port corrects single bit errors detected in the headers of received cells. If single bit errors are |

corrected, the affected cells are passed up to the ATM layer according to normal operation. If single bit errors are not corrected, these errored cells are discarded by the physical layer. Note that cells containing multiple bit errors in their headers are always discarded.

Single bit HEC error correction must remain ***off*** for the following card types: 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 2pJ6MAtm, 3pDS3Atm, and 3pE3Atm.

Values: off
on

Default: off

### ATTRIBUTE Laps Vc4 Vc12 E1 Chan Cell clearDelay (clear)

Access: Read and write

Description: This attribute specifies the minimum elapsed time between the clearing of the Loss of Cell Delineation (LCD) defect and the port returning to service. The LCD defect should be absent for the entire period of elapsed time. This attribute value is specified in minutes. If the value of the *clearDelay* attribute is initially 0 (default), the time is actually about 10 seconds.
This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm.

Values: Decimal (0..60)

Units: minutes

Default: 0

### ATTRIBUTE Laps Vc4 Vc12 E1 Chan Cell hecSampleInterval (hSample)

Access: Read and write

Description: This attribute specifies the sampling interval (in seconds) for errors associated with the *uncorrectableHeaderErrors* attribute. When the sum of errors counted by the *uncorrectableHeaderErrors* attribute over the interval time is greater than or equal to the provisioned *hecErrorLimit* attribute, the sample interval is considered errored. If the number of consecutive errored intervals reaches the limit established in the

*hecErrorIntervalLimit* attribute, an LCD alarm is declared and the port is disabled. If the attribute *hecSampleInterval* is set to the default, 0, then the attribute *uncorrectableHeaderErrors* cannot be used to bring down the port.
This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm.

Values: Decimal (0..25)

Units: seconds

Default: 0

### ATTRIBUTE Laps Vc4 Vc12 E1 Chan Cell hecErrorLimit (hLimit)

Access: Read and write

Description: This attribute specifies the error threshold for a HEC error sampling interval beyond which a port is brought down. When the value of the *uncorrectableHeaderErrors* attribute accumulated over the provisioned value of the *hecSampleInterval* attribute is greater than or equal to the provisioned value of the *hecErrorLimit* attribute, the sample interval is considered errored. If the number of consecutive errored intervals reaches the limit established in the *hecErrorIntervalLimit* attribute, an LCD alarm is declared and the port is disabled. (Please note that a *hecErrorInterval* attribute value of 0 (default) disables the mechanism of using the value of the *uncorrectableHeaderErrors* attribute to disable a port.)
This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm.

Values: Decimal (1..250000)

Default: No default

### ATTRIBUTE Laps Vc4 Vc12 E1 Chan Cell lcdStateDelay (delay)

Access: Read and write

Description: This attribute specifies the time during which an Out of Cell Delineation (OCD) defect should be observed before moving to the Loss of Cell Delineation (LCD) defect state. The time is specified in milliseconds. The valid values are 1 to 50 milliseconds if the *AtmCell c*omponent is located under the *Ds1*

| | |
|---|---|
| | or *E1* component, and 1 to 5 milliseconds if under a *Ds3* or *E3* component.<br>This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm. |
| Values | Decimal (1..50) |
| Units | msec |
| Default | No default |

### ATTRIBUTE Laps Vc4 Vc12 E1 Chan Cell hecErrorIntervalLimit (hIntLimit)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute counts the instances of the *hecSamplingInterval* attribute for all HEC errors (specified by the *uncorrectableHeaderError* attribute) before an LCD alarm is generated. The alarm is only generated if the value of the *uncorrectableHeaderErrors* attribute in a given interval is greater than the value of the *hecErrorLimit* attribute. For example, if there are 20 HEC errors in 5 seconds, for three times in a row (the number of times in a row is represented by this attribute), an alarm is raised. If there are 24 HEC errors in the 5 seconds, and 14 in the next 5 seconds no alarm is generated because the number of HEC errors should also be more than 20 in the next instances.<br>This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm. |
| Values | Decimal (1..25) |
| Default | 1 |

### GROUP Laps Vc4 Vc12 E1 Chan Cell Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the common operational attributes for the *AtmCell* component. |

### ATTRIBUTE Laps Vc4 Vc12 E1 Chan Cell lcdAlarm (lcd)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute displays whether the Loss of Cell Delineation (LCD) failure alarm state has been entered. This state is entered when LCD defects have been observed and accumulated for a period of time specified through the *alarmActDelay* attribute.<br>In ATM cell direct mapping mode, an LCD defect occurs when Out of Cell Delineation (OCD) anomaly persists for *x* milliseconds, and disappears when the Out of Cell Delineation (OCD) is absent for *x* msec. An OCD anomaly occurs when 7 consecutive incorrect HECs have been detected. An OCD anomaly terminates when 6 consecutive correct HECs have been detected.<br>For an *AtmCell* component located under a *DS3* or *E3* component with *mapping* = ***PLCP***, the LCD defect is directly derived from the PLCP LOF defect.<br>If LCD defects are intermittently occurring, the LCD defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle<br>The component under which is located the *AtmCell* component goes into an operational state of ***disabled*** until the LCD alarm condition is cleared. The condition is cleared after the LCD defect has not been reported for a period of 10 seconds +/- 0.5 seconds.<br>The *lcdAlarm* attribute is always set to off when the parent of the *AtmCell* component has been *locked* and left *offline*. This can also happen when the *Path* or *Channel* component has been suspended since its parent has been locked. |
| Values | on<br>off |
| Default | off |

## GROUP Laps Vc4 Vc12 E1 Chan Cell Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the statistics attribute for the *AtmCell* component. Each attribute type is a non-negative integer which monotonically increases until it reaches a maximum value, at which point it wraps around and starts increasing again from zero. |

### ATTRIBUTE Laps Vc4 Vc12 E1 Chan Cell uncorrectableHeaderErrors (ucErr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of uncorrectable ATM cell header errors that have been detected. Counting of *uncorrectableHeaderErrors* is inhibited when an Out of Cell Delineation (OCD) defect is present. An OCD defect occurs when seven consecutive incorrect HECs have been detected. An OCD defect terminates when six consecutive correct HECs have been detected. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Laps Vc4 Vc12 E1 Chan Cell sevErroredSec (ses)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of ATM Cell Severely Errored Seconds (SESs) that have been counted.<br><br>In direct mapping mode, an ATM Cell SES is declared for second intervals containing one or more Out of Cell Delineation (OCD) defects. An OCD defect occurs when seven consecutive incorrect HECs have been detected. An OCD defect terminates when six consecutive correct HECs have been detected.<br><br>If the *AtmCell* component is located under a *Ds3* or *E3* component where the *mapping* attribute is set to ***plcp***, an ATM Cell SES is declared for second intervals containing one or more PLCP LOF defects.<br><br>Counting of *uncorrectableHeaderErrors* (*ucErr*) and *correctableHeaderErrors* (*cErr*) is inhibited when the OCD defect is present. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Laps Vc4 Vc12 E1 Chan Cell receiveCellUtilization (rxutil)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute is the ratio of the number of valid, assigned cells received on the link to the nominal link capacity. The utilization is calculated over a period of one minute.<br>This attribute is always set to ***0*** when the parent of the *AtmCell* component has been *locked* and left *offline.* This can also happen when the *Path* or *Channel* component has been *suspended* since its parent has been *locked*. |
| Values | Decimal (0..100) |
| Units | % |
| Default | 0 |

### ATTRIBUTE Laps Vc4 Vc12 E1 Chan Cell transmitCellUtilization (txutil)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the ratio of the number of valid, assigned cells transmitted on the link to the nominal link capacity. The utilization is calculated over a period of one minute.<br>This attribute is always set to ***0*** when the parent of the *AtmCell* component has been *locked* and left *offline*. This can also happen when the *Path* or *Channel* component has been *suspended* since its parent has been *locked*. |
| Values | Decimal (0..100) |
| Units | % |
| Default | 0 |

### ATTRIBUTE Laps Vc4 Vc12 E1 Chan Cell correctableHeaderErrors (cErr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of correctable ATM cell header errors that have been detected and corrected. Counting of *correctableHeaderErrors* is inhibited when an Out of Cell Delineation (OCD) defect is present. An OCD defect occurs when seven consecutive incorrect HECs have been detected. An OCD defect terminates when six consecutive correct HECs have been detected |
| Values | Decimal (0..4294967295) |

Default 0

## COMPONENT Laps Vc4 Vc12 E1 Chan TrunkConditioning (Tc)

Groups "GROUP Laps Vc4 Vc12 E1 Chan Tc Provisioned (Prov)"
"GROUP Laps Vc4 Vc12 E1 Chan Tc Operational (Op)"

Scope Device

Description *Lp/n Ds1/n Chan/n Tc*
*Lp/n E1/n Chan/n Tc*
*Lp/n Ds3/n Ds1/n Chan/n Tc*
*Lp/n Sdh/n Vc4/n Vc12/k,l,m E1 Chan/n Tc*
*Lp/n Sonet/n Sts/n Vt1dot5/l,m Ds1 Chan/n Tc*
*Laps/n* Vc4/n Vc12/k,l,m E1 Chan/n T*c*
*Laps/n* Sts/n Vt1dot5/l,m Ds1 Chan/n T*c*

The *Tc* component is used to provision and monitor trunk conditioning options. A separate instance of this component is required for each *Chan* on a Port which is offering a structured constant bit rate service.

Under certain failure alarm conditions, trunk conditioning *replacementData* is substituted into the *timeslots* as defined by the *Chan* component. Trunk conditioning signaling is also substituted into the appropriate Channel Associated Signaling (CAS) bits when a *lineType* that uses CAS has been defined.

When used with AAL1 Circuit Emulation Service, trunk conditioning is transmitted towards the ATM network under the following conditions:
lossOfSignal (LOS)
lossOfFrame (LOF)
remoteAlarmIndication (RAI)
alarmIndicationSignal (AIS)
bufferUnderflow (BU)
and in addition for E1:
lossOfMultiframe (LOMF)
receiveMultiframeRemoteAlarmIndication (RMRAI)

When used with AAL1 Circuit Emulation Service, trunk conditioning is transmitted towards the PDH network under the

following conditions:
bufferUnderflow (BU)
AAL1 protocol errors.

This component needs to be provisioned on 2pDs3cAal and 32pE1Aal FPs.

Common Verbs

Help
List
Display
Add
DELete

## GROUP Laps Vc4 Vc12 E1 Chan Tc Provisioned (Prov)

Properties: Provisioned

Description: This group contains all specific provisioning data for a *Tc* component.

## ATTRIBUTE Laps Vc4 Vc12 E1 Chan Tc replacementData (data)

Access: Read and write

Description: This attribute specifies the trunk conditioning data byte to be substituted into the *timeslots* defined by the *Chan* component under fault conditions.

The attribute *replacementData* can be set to any two digit hexadecimal number. The following are recommended values:
DS1 MUX Out Of Service Code = 0x1A
E1 MUX Out Of Service Code = 0xFF

On the ***4pDS3ChAal1*** card, the only allowed value for this attribute is ***0xFF***.

On the ***4pOC3ChSmIr*** and ***2pOC3ChSmIrVsp3*** cards, the default value for this attribute is ***0x1A*** for DS1 and ***0xFF*** for E1. On all other cards the default value is ***0xFF***.

Values: Hex (H.0..H.ff)

| | |
|---|---|
| Units | Hex |
| Default | No default |

### ATTRIBUTE Laps Vc4 Vc12 E1 Chan Tc signalOneDuration (duration)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time duration in seconds for which *signalOne* is substituted into the appropriate signaling bits, when a *lineType* that uses CAS has been defined. When *signalOneDuration* has expired *signalTwo* is substituted into the appropriate signaling bits.<br><br>If *signalOneDuration* is set to zero then only *signalTwo* is substituted into the appropriate signaling bits during error conditions.<br><br>The *signalOneDuration* attribute can be set to any integer value from 0 to 60 seconds. |
| Values | Decimal (0..60) |
| Units | seconds |
| Default | 0 |

### ATTRIBUTE Laps Vc4 Vc12 E1 Chan Tc noServiceResponse (resp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the Channel's egress response when it has no service provisioned, or the service provisioned is unavailable due to a near end failure. The following responses are available:<br><br>***autoConfigure*** - automatically configure the channels response.<br>***tc*** - transmit trunk conditioning on all timeslots provisioned in the egress direction.<br>***ais*** - transmit AIS in the egress direction.<br>***noResponse*** - no response is sent in the egress direction.<br><br>A value of ***autoConfigure*** will result in TC being transmitted for all card types. |

| | |
|---|---|
| Values | autoConfigure<br>tc<br>ais<br>noResponse |
| Default | autoConfigure |

### ATTRIBUTE Laps Vc4 Vc12 E1 Chan Tc signalOne (sigOne)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the value to be substituted into the ABCD signaling bits for the *timeslots* defined by the *Chan* component under fault conditions. The value will be substituted for the duration provisioned in *signalOneDuration* when a *lineType* that uses CAS has been defined.<br><br>For a *lineType* of ***d4Cas*** (Super Frame), signaling bits C and D are required to equal bits A and B respectively. |
| Vector of | Decimal (0..1) |
| Index | D<br>C<br>B<br>A |
| Default | (1, 1, 1, 1) |

### ATTRIBUTE Laps Vc4 Vc12 E1 Chan Tc signalTwo (sigTwo)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the value to be substituted into the ABCD signaling bits for the *timeslots* defined by the *Chan* component under fault conditions. The value will be substituted after the duration provisioned in *signalOneDuration* has expired and when a *lineType* that uses CAS has been defined.<br><br>For a *lineType* of ***d4Cas*** (Super Frame), signaling bits C and D are required to equal bits A and B respectively. |

| | |
|---|---|
| Vector of | Decimal (0..1) |
| Index | D<br>C<br>B<br>A |
| Default | (1, 1, 1, 1) |

### GROUP Laps Vc4 Vc12 E1 Chan Tc Operational (Op)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all specific operational data for a *Tc* component. |

### ATTRIBUTE Laps Vc4 Vc12 E1 Chan Tc ingressConditioning (inCon)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the status of locally generated trunk conditioning towards the ATM network.<br><br>When trunk conditioning is being locally generated towards the ATM network, *ingressConditioning* is set to ***on.***<br><br>When trunk conditioning is not being locally generated towards the ATM network, *ingressConditioning* is set to ***off***.<br><br>Trunk conditioning is transmitted towards the ATM network under the following conditions:<br>lossOfSignal (LOS)<br>lossOfFrame (LOF)<br>remoteAlarmIndication (RAI)<br>alarmIndicationSignal (AIS)<br>bufferUnderflow (BU)<br>and in addition for E1:<br>lossOfMultiframe (LOMF)<br>receiveMultiframeRemoteAlarmIndication (RMRAI) |

| | |
|---|---|
| Values | off<br>on |
| Default | off |

### ATTRIBUTE Laps Vc4 Vc12 E1 Chan Tc egressConditioning (egCon)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the status of locally generated trunk conditioning towards the PDH line.<br><br>When trunk conditioning is being locally generated towards the PDH line, *egressConditioning* is set to ***on.***<br><br>When trunk conditioning is not being locally generated towards the PDH line, *egressConditioning* is set to ***off***.<br><br>Trunk conditioning is transmitted towards the PDH line under the following conditions:<br>bufferUnderflow (BU)<br>AAL1 protocol errors. |
| Values | off<br>on |
| Default | off |

### COMPONENT Laps Vc4 Vc12 E1 Chan FrameLinkMonitoring (Flm)

| | |
|---|---|
| Groups | "GROUP Laps Vc4 Vc12 E1 Chan Flm Provisioned (Prov)"<br>"GROUP Laps Vc4 Vc12 E1 Chan Flm Operational (Op)" |
| Scope | Device |
| Description | *Lp/n E1/n Chan/n FrameLinkMonitoring*<br><br>This component provides a monitoring function specific to a Frame Relay Channel on an E1 line. It combines the status of E1 channel-associated-signalling A-bits and HDLC frame defect. |

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Laps Vc4 Vc12 E1 Chan Flm Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all specific provisioning data for an *Flm* component. |

### ATTRIBUTE Laps Vc4 Vc12 E1 Chan Flm aBitMonitoring (aBit)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute controls the monitoring of A-bit defects. |
| Values | disabled<br>enabled |
| Default | enabled |

### ATTRIBUTE Laps Vc4 Vc12 E1 Chan Flm hdlcMonitoring (hdlc)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute controls the monitoring of HDLC defect. |
| Values | disabled<br>enabled |
| Default | No default |

### GROUP Laps Vc4 Vc12 E1 Chan Flm Operational (Op)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all specific operational data for an *Flm* component. |

## ATTRIBUTE Laps Vc4 Vc12 E1 Chan Flm flmStatus (status)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the status of a Frame Relay channel on an E1 line. By combining the E1 channel-associated-signalling (CAS) A-bits status, and HDLC defect, a single value indicates the likely cause of the failure. This mechanism assumes that the far end equipment loops back signaling A-bits for some or all of the timeslots in a channel. The A-bits in channel are transmitted as ‘0’. If they are all received as ‘0’, it is assumed that the E1 link is up in both directions. The presence of HDLC frames indicates that the service is connected.<br><br>When A-bits and HDLC frames are correctly received, ***frameLinkUp*** is indicated.<br><br>When neither are received, ***frameLinkDown*** is indicated.<br><br>When HDLC frames are not receive but A-bits are not at fault, ***lossOfHdlc*** is indicated.<br><br>When HDLC frames are received, but there is a fault in any of timeslot’s A-bits on a channel ***lossOfAbit*** is indicated. |
| Values | notMonitoring<br>frameLinkUp<br>frameLinkDown<br>lossOfHdlc<br>lossOfAbit |
| Default | No default |

## COMPONENT Laps Vc4 Vc12 E1 Test (Test)

| | |
|---|---|
| Groups | "GROUP Laps Vc4 Vc12 E1 Test OsiState (State)"<br>"GROUP Laps Vc4 Vc12 E1 Test Setup (Setup)"<br>"GROUP Laps Vc4 Vc12 E1 Test Results (Results)" |
| Scope | Application |

Description — The *Test* component is configured to control a hardware facility test on a physical (*V35*, *X21*, *DS1*, *E1*, *DS3*, *E3* etc.) or a logical port.

Common Verbs
- Help
- List
- Display

### VERB START Laps Vc4 Vc12 E1 Test

Impact — Service

Description — This command invokes a test on the hardware component. Note that some test types requires the parent component (the hardware component) to be locked (using the *Lock* command) before a test can be started.

### VERB STOP Laps Vc4 Vc12 E1 Test

Impact — Service

Description — This command stops a test running on the hardware component.

### GROUP Laps Vc4 Vc12 E1 Test OsiState (State)

Properties — Operational

Description — This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Laps Vc4 Vc12 E1 Test adminState (osiAdmin)

Access — Read only

Description — This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Laps Vc4 Vc12 E1 Test operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Laps Vc4 Vc12 E1 Test usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Laps Vc4 Vc12 E1 Test Setup (Setup)

Properties
Operational

Description
This group contains all of the operational data for a *Test* component.

### ATTRIBUTE Laps Vc4 Vc12 E1 Test purpose (purpose)

Access
Read and write

Description
This attribute records the purpose of the test so that the test results can be associated and properly analyzed.

Values
String (0..40, ASCII)

Default
No default

### ATTRIBUTE Laps Vc4 Vc12 E1 Test type (type)

Access
Read and write

Description
This attribute is the type of test to be run. The available test types include the following:
***card*** test sets up an internal loop on the board and runs a bit error rate test.
***manual*** test assumes the line is looped back externally and a bit error rate test is performed.
***localLoop*** test loops back the local modem and performs a bit error rate test.
***remoteLoop*** test loops back the remote modem (or CSU) and performs a bit error rate test.
***externalLoop*** test loops back the line to the far end.

***payloadLoop*** test only loops back the payload data received from the incoming line.
***remoteLoopThisTrib*** loops this particular tributary back at the far end, using services provided by the parent.
***v54RemoteLoop*** initiates a V.54 Remote Loopback test.
***pn127RemoteLoop*** initiates a PN127 Remote Loopback test.
***lineBIP8Error*** tests line BIP 8 error generation and detection (B2 byte inverted).
***sectionBIP8Error*** tests section BIP 8 error generation and detection (B1 byte inverted).
***pathBIP8Error*** tests path BIP 8 error generation and detection (B3 byte inverted).
***pathBIP2Error*** tests path BIP 2 error generation and detection (bit 1-2 of V5 byte inverted).
Note that not all test types are not supported by all function processors.

Values

card
manual
localLoop
remoteLoop
externalLoop
payloadLoop
remoteLoopThisTrib
v54RemoteLoop
pn127RemoteLoop
lineBIP8Error
sectionBIP8Error
pathBIP8Error
pathBIP2Error

Default

card

## ATTRIBUTE Laps Vc4 Vc12 E1 Test frmSize (size)

Access

Read and write

Description

This attribute defines the size of the test data frames in number of bytes.
This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame.

Values

Decimal (4..4096)

| | |
|---|---|
| Units | bytes |
| Default | 1024 |

### ATTRIBUTE Laps Vc4 Vc12 E1 Test frmPatternType (fpt)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the type of data pattern generation to use. The following lists the available pattern types:<br>***ccitt32kBitPattern*** is a pseudo-random sequence of 32 kbit.<br>***ccitt8MBitPattern*** is a pseudo-random sequence of 8Mbit.<br>***customizedPattern*** is the pattern defined in the ***customizedPattern*** attribute. |
| Values | ccitt32kBitPattern<br>ccitt8MBitPattern<br>customizedPattern |
| Default | ccitt32kBitPattern |

### ATTRIBUTE Laps Vc4 Vc12 E1 Test customizedPattern (cp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute allows a customized 32 bit pattern to be defined for use in the test data frames. This attribute is used when the attribute *frmPatternType* is set to ***CustomizedPattern***. Note that a 55 hex pattern is an alternating 1 and 0 pattern. |
| Values | Hex (H.0..H.ffffffff) |
| Units | Hex |
| Default | H.55555555 |

### ATTRIBUTE Laps Vc4 Vc12 E1 Test dataStartDelay (dsd)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time delay (in seconds) between when the test expects the loop to have been set up, to when the test data actually starts to be transmitted. This attribute is to accommodate some non-standard equipment that requires extra time for setting up a requested loop.<br>This attribute is ignored when the test *type* is set to ***externalLoop***. |

| | |
|---|---|
| Values | Decimal (0..1814400) |
| Units | seconds |
| Default | 0 |

### ATTRIBUTE Laps Vc4 Vc12 E1 Test displayInterval (di)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the interval (in minutes) between which interim test results are to be displayed. Results are displayed at the operator console at which the test was started. When the test *type* is set to ***externalLoop***, this attribute is ignored. There will be no display of results if *displayInterval* is set to 0. This attribute can be changed anytime. |
| Values | Decimal (0..30240) |
| Units | minutes |
| Default | 5 |

### ATTRIBUTE Laps Vc4 Vc12 E1 Test duration

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the duration for which the test data will be transmitted. In the case of an ***externalLoop***, this is the time that the loop is in effect. Note that *dataStartDelay* does not apply to the ***externalLoop*** test type. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 1.00 |

### GROUP Laps Vc4 Vc12 E1 Test Results (Results)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all the statistics related attributes of the *Test* component. |

### ATTRIBUTE Laps Vc4 Vc12 E1 Test causeOfTermination

| | |
|---|---|
| Access | Read only |

Description

This attribute indicates either the status of the test or the cause of the test's termination:

a value of ***neverStarted*** indicates that the test has not yet been started.

a value of ***testRunning*** indicates that the test has been started.

a value of ***stoppedByOperator*** indicates that the operator issued a stop command on a test that was running.

a value of ***testTimeExpired*** indicates that the test ran for the time specified by the test's *duration*.

a value of ***loopCodeSyncFailed*** indicates that the local end failed to synchronize to the loopCode pattern. The local end transmits the loopCode pattern to cause the remote end to apply a loopback, after which the local end should receive the loopCode pattern. The exact pattern used to request loopCode depends on the test *type*. This failure indicates a high rate of transmission errors, or that the remote end has failed to apply the loopback.

a value of ***patternSyncFailed*** indicates that the local end failed to synchronize to the *frmPatternType* test pattern, that should have been looped back at the remote end. This failure indicates a high rate of transmission errors or the absence of a loopback.

a value of ***patternSyncLost*** indicates that the local end gained and then lost synchronization to the returned *frmPatternType* test pattern. This failure indicates a sudden increase in transmission errors, frame slippage, or the removal of an existing loopback.

a value of ***unknown*** is set when a reason to terminate other than those listed here is encountered.

Note: The *causeOfTermination* attribute values of ***loopCodeSyncFailed***, ***patternSyncFailed*** and ***patternSyncLost*** are supported only on MSA cards. *Test* components located on other cards or under an *Ima* component on an MSA card will never terminate the test under the conditions described by these

values.

| | |
|---|---|
| Values | testTimeExpired<br>stoppedByOperator<br>unknown<br>neverStarted<br>testRunning<br>hardwareReconfigured<br>loopCodeSyncFailed<br>patternSyncFailed<br>patternSyncLost |
| Default | neverStarted |

### ATTRIBUTE Laps Vc4 Vc12 E1 Test bitsTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bits sent during the test period. As long as the line speed of the hardware interface is less than 70 Mbit/s, this counter is not expected to reach the maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Laps Vc4 Vc12 E1 Test bytesTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes sent during the test period. This counter is not expected to reach its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Laps Vc4 Vc12 E1 Test frmTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames sent during the test period. This counter is not expected to reach its maximum value.<br><br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |

| | |
|---|---|
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Laps Vc4 Vc12 E1 Test bitsRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bits received during the test period. The counter wraps to zero when it exceeds the maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Laps Vc4 Vc12 E1 Test bytesRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes received during the test period. The counter wraps to zero when it exceeds its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Laps Vc4 Vc12 E1 Test frmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received during the test period. The counter wraps to zero when it exceeds its maximum value.<br><br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Laps Vc4 Vc12 E1 Test erroredFrmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute is not displayed for ATM and MSA32 cards. For ATM cards, the physical layer drops all errored frames at the controller interface. For MSA32 cards, the test does not generate any frame. |

For all other card types, this attribute counts the errored frames received during the test period. The counter wraps to zero when it exceeds its maximum value.

Values: Long Integer

Default: No default

### ATTRIBUTE Laps Vc4 Vc12 E1 Test bitErrorRate

Access: Read only

Description: This attribute is not displayed for ATM cards because the physical layer drops all errored frames at the controller interface. For MSA32 cards, this attribute indicates the link bit error rate, regardless of the *frameSize*, which is not supported

For all other card types, this attribute is the calculated bit error rate on the link. Test data are generated and sent in frames of a preset size (*frameSize*). The *Test* component will try to estimate the number of bit errors in any errored frame which is identifiable. The statistics will be updated accordingly. A lost frame (may be due to an error on the flag sequence) will be discarded for the bit error rate calculation. The result is presented in the form of xEsyy, where x is the mantissa, syy is the exponent, for example 0E+00, 2E-09.
Note that the *bitErrorRate* is an estimate only. For more reliable test results, the test should be done over a long period. Multiple tests would also improve the confidence level of the test results.

Values: String (5, ASCII)

Default: No default

### ATTRIBUTE Laps Vc4 Vc12 E1 Test elapsedTime

Access: Read only

Description: This attribute indicates the time elapsed since the test started for an ***externalLoop*** test. For a data test, it indicates time since test data was first transmitted.

Values: Decimal (0.00..30240.00)

| | |
|---|---|
| Units | minutes |
| Default | 0.00 |

### ATTRIBUTE Laps Vc4 Vc12 E1 Test timeRemaining

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the length of time remaining before the test stops according to the *duration* attribute. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 0.00 |

### COMPONENT Laps Vc4 Vc12 E1 Dsp

| | |
|---|---|
| Scope | Device |
| Description | *LogicalProcessor/n E1/0 Dsp*<br>The *Dsp* component presents the status of the Digital Signal Processors (DSPs) present on a voice card.<br>A voice card's *Dsp* component is created automatically whenever the parent E1 component becomes active, and remains in existence as long as the E1 component exists. *Dsp* components cannot be added or deleted. |
| Common Verbs | Help<br>List<br>Display |

### COMPONENT Laps Vc4 Vc12 E1 Audio

| | |
|---|---|
| Scope | Device |
| Description | *LogicalProcessor/n E1/0 Audio*<br>The *Audio* component presents the audio status of the channels on a voice card.<br>A voice card's *Audio* component is created automatically whenever the parent E1 component becomes active, and remains |

in existence as long as the E1 component exists. *Audio* components cannot be added or deleted.

Common Verbs

Help
List
Display

Passport 7400, 15000, 20000

# Component Laps

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component La

241-5701-060

Passport 7400, 15000, 20000

# Component La

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT LanApplication (La)

| | |
|---|---|
| Instance | Decimal (0..255) |
| Groups | "GROUP La CustomerIdentifierData (CidData)"<br>"GROUP La MediaProvisioned (MediaProv)"<br>"GROUP La IfEntryProv (IfEntry)"<br>"GROUP La OsiState (State)"<br>"GROUP La OperationalStatus (OperStatus)"<br>"GROUP La Operational (Oper)" |
| Scope | Application |
| Description | *LanApplication/n*<br>The *LanApplication* component, using the *Framer* subcomponent, is used to provide the interface either between the *VirtualRouter ProtocolPort* and a LAN component such as *Ethernet*, or to an ATM transport. |
| Subcomponents | "COMPONENT La Framer" |
| Opt. Subcomp. | "COMPONENT La Transport (Trsp)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP La CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |

| | |
|---|---|
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

### ATTRIBUTE La customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.<br><br>Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.<br><br>An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to "basic CIDs" in DPN) may be assigned to specific customers. |
| Values | Decimal (0; 1..8191) |
| Default | 0 |

### GROUP La MediaProvisioned (MediaProv)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the base provisioning data for the *LanApplication/n* component. |

### ATTRIBUTE La linkToProtocolPort

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the *ProtocolPort* component to which the application is associated. This attribute must not be set if there is |

| | |
|---|---|
| | a *Transport* subcomponent under this *LanApplication* component. |
| Values | Link (Service, linkToMedia) |
| Default | No default |

### ATTRIBUTE La enetConnection

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the Enet component to which the application is associated. This attribute must not be set if there is a Transport subcomponent under this LanApplication component or the linkToProtocolPort is set. |
| Values | Link (Service, linkToEnetIf) |
| Default | No default |

### GROUP La IfEntryProv (IfEntry)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the ifEntry. |

### ATTRIBUTE La ifAdminStatus (ifState)

| | |
|---|---|
| Access | Read and write |
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE La ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP La OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE La adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is |

administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE La operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE La usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

| | |
|---|---|
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP La OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

### ATTRIBUTE La snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### GROUP La Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational attributes specific to the *LanApplication* component. |

### ATTRIBUTE La macAddress

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the media access controller (MAC) address which was assigned to this component by the system. The value is displayed in canonical format.<br><br>No two stations in a network may have the same MAC address. |

| | |
|---|---|
| Values | String (6, Dashed Hex) |
| Default | No default |

## COMPONENT La Framer

| | |
|---|---|
| Groups | "GROUP La Framer Provisioned (Prov)"<br>"GROUP La Framer Statistics (Stats)" |
| Scope | Application |
| Description | *LanApplication/n Framer*<br>The *Framer* component is used to link a *LanApplication* to a Lan interface such as *Ethernet*, *Fddi*, *TokenRing* or *Ethernet100BaseT*. |
| Common Verbs | Help<br>List<br>Display |

## GROUP La Framer Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the link to the Lan interface such as *Ethernet*, *Fddi*, or *TokenRing*. |

## ATTRIBUTE La Framer interfaceName

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute associates the *LanApplication* with a specific Lan interface such as *Ethernet*, *Fddi*, or *TokenRing*. This also defines the *LogicalProcessor* on which *Framer*'s parent component (as well as *Framer* itself) will run. Only one (1) LAN interface can be linked to a *Framer* except for *Ethernet100BaseT* LAN interface, for which up to two (2) interfaces residing on the same *LogicalProcessor* can be linked. |
| List of | Link (Hardware, applicationFramerName) |
| List Size | 2 |

| | |
|---|---|
| Default | No default |

### GROUP La Framer Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational statistics data for a *Framer* Component. |

### ATTRIBUTE La Framer IrcErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the count of the number of frames or cells that have failed the Longintudinal Redundancy Check (LRC) as they were being sent to the link. This check is used to verify the integrity of the data prior to transmission. Usually the problem is on the originating card, with the destination card the only one reporting the error. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT La Transport (Trsp)

| | |
|---|---|
| Scope | Application |
| Description | *La/n Transport*<br>The *Transport* component represents a transport connection using the network protocol specified by the provisioned subcomponent. |
| Subcomponents | "COMPONENT La Trsp AtmTransport (Atmtr)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### COMPONENT La Trsp AtmTransport (Atmtr)

| | |
|---|---|
| Groups | "GROUP La Trsp Atmtr OsiState (State)"<br>"GROUP La Trsp Atmtr OperationalStatus (OperStatus)" |

"GROUP La Trsp Atmtr AtmTransportCon (TrspCon)"
"GROUP La Trsp Atmtr Statistics (Stats)"

Scope: Application

Description: *La/n Trsp AtmTransport*
The *AtmTransport* component represents one endpoint of an ATM transport connection which uses RFC 1483 VC encapsulation.

Subcomponents: "COMPONENT La Trsp Atmtr AtmAddress (Addr)"
"COMPONENT La Trsp Atmtr Spvc (Spvc)"

Common Verbs:
Help
List
Display

## GROUP La Trsp Atmtr OsiState (State)

Properties: Operational

Description: This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

## ATTRIBUTE La Trsp Atmtr adminState (osiAdmin)

Access: Read only

Description: This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it

is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE La Trsp Atmtr operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE La Trsp Atmtr usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP La Trsp Atmtr OperationalStatus (OperStatus)

Properties
Operational

Description
This group includes the Operational Status attribute. This attribute defines the current operational state of this component.

### ATTRIBUTE La Trsp Atmtr snmpOperStatus

Access
Read only

Description
The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed.

Values
up
down
testing

Default
up

### GROUP La Trsp Atmtr AtmTransportCon (TrspCon)

Properties
Operational

Description
This group contains operational data associated with ATM SPVC for the *AtmTransport* component.

### ATTRIBUTE La Trsp Atmtr remoteAddress (raddr)

Access
Read only

Criticality
Component

| | |
|---|---|
| Description | This attribute indicates the 40-digit remote NSAP address of the remote *LanApplication* at the far end of this transport connection. |
| Values | String (0..40, ASCII) |
| Default | No default |

### ATTRIBUTE La Trsp Atmtr serviceCategory (sc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the ATM service category of the transport connection.<br><br>If the value of the *endpoint* attribute is ***called***, and the value of the *spvcStatus* is not ***connected***, this attribute has a value of ***notAvailable***.<br><br>If the value of the *endpoint* attribute is ***called***, and the value of the *spvcStatus* is ***connected***, this attribute can have a value of either ***ubr*** or ***nrtvbr***.<br><br>If the value of the *endpoint* attribute is ***calling***, this attribute reflects the value of the configured *endpoint* attribute. |
| Values | notAvailable (notAvail)<br>unspecifiedBitRate (ubr)<br>nrtVariableBitRate (nrtvbr) |
| Default | No default |

### ATTRIBUTE La Trsp Atmtr peakCellRate01 (pcr01)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Peak Cell Rate (PCR) of the ATM VCC to which this interworking function is linked for all cells (with CLP=0 and CLP=1).<br><br>The *pcr01* is derived from the remote end traffic parameters using the conversion policy of the *transferPriorityMapping*. |
| Values | Decimal (0..4294967295) |
| Units | cell/s |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE La Trsp Atmtr sustainedCellRate0 (scr0)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Sustained Cell Rate (SCR) of the ATM VCC to which this interworking function is linked for high priority cells (with CLP=0).<br><br>The *scr0* is derived from the remote end traffic parameters using the conversion policy of the *transferPriorityMapping*. |
| Values | Decimal (0..4294967295) |
| Units | cell/s |
| Default | No default |

### ATTRIBUTE La Trsp Atmtr maximumBurstSize0 (mbs0)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Maximum Burst Size (MBS) of the ATM VCC to which this interworking function is linked for high priority cells (with CLP=0).<br><br>The *mbs0* is derived from the remote end traffic parameters using the conversion policy of the *transferPriorityMapping*. |
| Values | Decimal (0..4294967295) |
| Units | cell/s |
| Default | No default |

### GROUP La Trsp Atmtr Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistics attributes for the *AtmTransport* connection. |

### ATTRIBUTE La Trsp Atmtr congDiscFromIf (cdfi)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the frames received from the ethernet interface to the network, that have been discarded due to congestion on the egress ATM trunk card. The value wraps to ***0*** when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE La Trsp Atmtr ethernetNetworkDownDiscards (ethNetDownDisc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received from the ethernet interface that have been discarded because the ATM transport connection was inactive. The value wraps to ***0*** when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT La Trsp Atmtr AtmAddress (Addr)

| | |
|---|---|
| Groups | "GROUP La Trsp Atmtr Addr Provisioned (Prov)"<br>"GROUP La Trsp Atmtr Addr AtmAddressOper (Aaddr)" |
| Scope | Application |
| Description | *La/n Trsp AtmTr Address*<br>The *Address* component contains the local *lanApplication* address in the ATM network. |
| Common Verbs | Help<br>List<br>Display |

### GROUP La Trsp Atmtr Addr Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the *AtmTransport Address* component. |

### ATTRIBUTE La Trsp Atmtr Addr localAddress (lAddr)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies a 40-digit ATM address in standard ISO NSAP format. This is the ATM address of the local *LanApplication* component within the ATM routing database.<br><br>If no NSAP address is provisioned, a default NSAP address is generated using the value of the *nodePrefix* attribute of the *ModuleData* component and the value of the *macAddress* attribute of the *LanApplication* component. |
| Values | String (40, AESANsapAddress) |
| Default | 4700000000000000000000000000000000000000 |

### GROUP La Trsp Atmtr Addr AtmAddressOper (Aaddr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational data associated with *Address* componet |

### ATTRIBUTE La Trsp Atmtr Addr activeLocalAddress

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the operational local Nsap address associated with the *atmTransport* component |
| Values | String (0..40, ASCII) |
| Default | No default |

### COMPONENT La Trsp Atmtr Spvc (Spvc)

| | |
|---|---|
| Instance | Decimal (0..0) |
| Groups | "GROUP La Trsp Atmtr Spvc Provisioned (Prov)"<br>"GROUP La Trsp Atmtr Spvc Operational (Oper)" |
| Scope | Network |

| | |
|---|---|
| Description | *La/n Trsp AtmTr Spvc/m*<br>The *Spvc* component represents one of the SPVC endpoints of the ATM transport connection. |
| Subcomponents | "COMPONENT La Trsp Atmtr Spvc TrafficManagement (Tm)" |
| Dyn. Subcomp. | "COMPONENT La Trsp Atmtr Spvc AtmConnection (AtmCon)" |
| Common Verbs | Help<br>List<br>Display |

### VERB Clear (Clr) La Trsp Atmtr Spvc

| | |
|---|---|
| Impact | Service |
| Description | *Clear La/n Trsp AtmTr Spvc/m*<br>This command tears down the active SPVC connection.<br>If there is no active SPVC, the clear command has no effect. |

### GROUP La Trsp Atmtr Spvc Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the *AtmTransport Spvc/m* component. |

### ATTRIBUTE La Trsp Atmtr Spvc remoteAddress (raddr)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the NSAP address of the remote end of the ATM transport connection.<br><br>This attribute is ignored if the value of the *endPoint* attribute is ***called***. |
| Values | String (40, AESANsapAddress) |
| Default | 470000000000000000000000000000000000000 |

### ATTRIBUTE La Trsp Atmtr Spvc remoteConnectionIdentifier (rci)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the remote connection identifier. The identifier is a remote *Atm Vpi.Vci* logical channel number assignment The remote *Atm Vpi.Vci* logical channel number is input as "***Vpi.Vci***". If not provisioned or a called end it will show "***0. 65535***" |
| Values | Integer Sequence (0..255; 0..65536) |
| Default | No default |

### ATTRIBUTE La Trsp Atmtr Spvc endPoint (endpt)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies whether this *LanApplication* is the ***called*** or ***calling*** endpoint of the VCC. The ***called*** endpoint receives the setup request from the remote end of the ATM transport connection. The ***calling*** endpoint initiates the setup request to the remote end of the ATM transport connection.<br><br>When this attribute is set to a value of ***called***, the *remoteAddress* attribute is not used. When this attribute is set to a value of ***calling***, the *remoteAddress* attribute must have a value. |
| Values | called<br>calling |
| Default | called |

### ATTRIBUTE La Trsp Atmtr Spvc retryPeriod (retry)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the interval after which an SPVC connection attempts re-establishment after a setup or teardown of the ATM transport connection. |
| Values | Decimal (10..3600) |

| | |
|---|---|
| Units | seconds |
| Default | 20 |

## GROUP La Trsp Atmtr Spvc Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains the operational attributes for the *AtmTransport Spvc* component. |

## ATTRIBUTE La Trsp Atmtr Spvc spvcStatus (status)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the status of the incoming and outgoing connection.<br><br>***serviceNotReady*** indicates that the component is initialising when first created; a connection has not been established, and no incoming setup requests are processed.<br><br>***serviceReady*** indicates that a connection has not yet been established, and that setup requests are sent if the *endpoint* attribute is ***calling*** and that the setup request is expected if the *endpoint* attribute is ***called***.<br><br>***waitingForConnect*** indicates that a connection has not been established, and the component is waiting to restart.<br><br>***connected*** indicates that a connection has been established.<br><br>***setupFailed*** indicates that the ATM Networking resources are not available to setup the connection at the calling endpoint.<br><br>***connectFailed*** indicates that the ATM Networking resources are not avaialble to setup the connection at the called endpoint.<br><br>***releaseFailed*** indicates that *retryLimit* consecutive connection setup attempts have failed, and the connection procedure has been aborted. |
| Values | serviceNotReady<br>serviceReady |

waitingForConnect
connected
setupFailed
connectFailed
releaseFailed

Default — No default

### ATTRIBUTE La Trsp Atmtr Spvc retryFailures (failures)

Access — Read only

Description — *retryFailures* counts the number of consecutive failed connection attempts prior to the current attempt.

*retryFailures* is reset to ***0*** whenever a connection is successfully established. The value wraps to ***0*** when it exceeds the maximum value.

Values — Decimal (0..4294967295)

Default — No default

### ATTRIBUTE La Trsp Atmtr Spvc lastSetupFailureCause (failCause)

Access — Read only

Description — *lastSetupFailureCause* indicates the cause of the last ATM transport connection setup failure.

The values are as defined in the ATM Forum ATM User-Network Interface (UNI) Specification.

Values — Decimal (0..255)

Default — No default

### ATTRIBUTE La Trsp Atmtr Spvc lastSetupFailureDiagnostic (failDiag)

Access — Read only

Description — *lastSetupFailureDiagnostic* provides a diagnostic to supplement the *lastSetupFailureCause* attribute.

The values are as defined in the ATM Forum ATM User-Network Interface (UNI) Specification.

| | |
|---|---|
| Values | String (0..8, ASCII) |
| Default | No default |

### ATTRIBUTE La Trsp Atmtr Spvc lastTearDownCause (cause)

| | |
|---|---|
| Access | Read only |
| Description | *lastTearDownCause* indicates the cause of the last ATM transport connection tear down.<br><br>The values are as defined in the ATM Forum ATM User-Network Interface (UNI) Specification. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE La Trsp Atmtr Spvc lastTearDownDiagnostic (diag)

| | |
|---|---|
| Access | Read only |
| Description | *lastTearDownDiagnostic* provides a diagnostic to supplement the *lastTearDownCause* attribute.<br><br>The values are as defined in the ATM Forum ATM User-Network Interface (UNI) Specification. |
| Values | String (0..8, ASCII) |
| Default | No default |

### COMPONENT La Trsp Atmtr Spvc TrafficManagement (Tm)

| | |
|---|---|
| Groups | "GROUP La Trsp Atmtr Spvc Tm Provisioned (Prov)" |
| Scope | Network |
| Description | *La/n Trsp AtmTr Spvc/m TrafficManagement*<br>The *TrafficManagement* component represents the traffic management parameters for the ATM SPVC transport connection. |

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display |

## GROUP La Trsp Atmtr Spvc Tm Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the *AtmTransport TrafficManagement* component. |

## ATTRIBUTE La Trsp Atmtr Spvc Tm serviceCategory (sc)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the desired ATM service category for this transport connection.<br><br>Refer to NTP 241-5701-705 for more information on ATM Traffic Management. |
| Values | unspecifiedBitRate (ubr)<br>nrtVariableBitRate (nrtvbr) |
| Default | nrtVariableBitRate |

## ATTRIBUTE La Trsp Atmtr Spvc Tm bandwidth (bw)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the desired bandwidth, in bits per second, for this connection. This bandwidth value is used to convert it to a sustained cell rate (SCR) for ATM traffic management.<br><br>Refer to NTP 241-5701-705 for more information on ATM Traffic Management. |
| Values | Decimal (320..4294967295) |

| | |
|---|---|
| Units | bit/s |
| Default | 100000000 |

### ATTRIBUTE La Trsp Atmtr Spvc Tm averageFrameSize (afs)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the expected average frame size, in bytes, for this connection. This average frame size is used to derive the sustained cell rate (SCR) for ATM traffic management.<br><br>Refer to NTP 241-5701-705 for more information on ATM Traffic Management. |
| Values | Decimal (64..1500) |
| Units | bytes |
| Default | 1500 |

### COMPONENT La Trsp Atmtr Spvc AtmConnection (AtmCon)

| | |
|---|---|
| Groups | "GROUP La Trsp Atmtr Spvc AtmCon Operational (Oper)" |
| Scope | Device |
| Description | An AtmConnection component is created for each ATM connection established by an application. It shows where the data traffic for this connection is directed. |
| Common Verbs | Help<br>List<br>Display |

### GROUP La Trsp Atmtr Spvc AtmCon Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains the operational attributes for the *NapAtmConnection* component. |

### ATTRIBUTE La Trsp Atmtr Spvc AtmCon nextHop

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute shows the component name of the *AtmIf Vcc Ep* or *AtmCon* component to which this switched connection is established. |
| Values | The name of the component |
| Default | No default |

Passport 7400, 15000, 20000

# Component La

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component Lec

241-5701-060

Passport 7400, 15000, 20000

# Component Lec

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT LanEmulationClient (Lec)

| | |
|---|---|
| Instance | Decimal (0..31) |
| Groups | "GROUP Lec CustomerIdentifierData (CidData)"<br>"GROUP Lec IfEntryProv (IfEntry)"<br>"GROUP Lec MediaProv (Mp)"<br>"GROUP Lec Provisioned (Prov)"<br>"GROUP Lec OsiState (State)"<br>"GROUP Lec OperationalStatus (OperStatus)"<br>"GROUP Lec Operational (Oper)"<br>"GROUP Lec Statistics (Stats)" |
| Scope | Application |
| Description | *LanEmulationClient/n*<br>This component represents a LAN Emulation Client (LEC) as specified in the ATM Forum LAN Emulation over ATM Specification (LANE). The LEC provides a MAC level emulated Ethernet service to higher layer protocols using ATM VCCs.<br><br>The ‘laneClient’ feature must be provisioned on all ILS and ATM cards. |

| | |
|---|---|
| Dyn. Subcomp. | "COMPONENT Lec LeArpEntry (LeArp)"<br>"COMPONENT Lec Connection (Conn)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

### GROUP Lec CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

### ATTRIBUTE Lec customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.<br><br>Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.<br><br>An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of |

| | |
|---|---|
| | any component. Values 1 to 8191 inclusive (equivalent to “basic CIDs” in DPN) may be assigned to specific customers. |
| Values | Decimal (0; 1..8191) |
| Default | 0 |

### GROUP Lec IfEntryProv (IfEntry)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the ifEntry. |

### ATTRIBUTE Lec ifAdminStatus (ifState)

| | |
|---|---|
| Access | Read and write |
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE Lec ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP Lec MediaProv (Mp)

| | |
|---|---|
| Properties | Provisioned |

| | |
|---|---|
| Description | This group contains the base provisioning data for the Media Application component. |

### ATTRIBUTE Lec linkToProtocolPort (pp)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute contains a protocol port component name. The attribute associates the application with a protocol port. |
| Values | Link (Service, linkToMedia) |
| Default | No default |

### GROUP Lec Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the *LanEmulationClient* component. |

### ATTRIBUTE Lec lanType

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the data frame format for this LEC. Auto-configuring LECs use this attribute in their Configure requests. Manually-configured LECs use it in their Join requests. A value of ***unspecified*** implies that the data frame format is obtained from the LECS or LES.<br>The value of this attribute may be overridden by the LECS or LES; *actualLanType* contains the actual value. |
| Values | unspecified<br>ethernet |
| Default | unspecified |

### ATTRIBUTE Lec maxFrameSize

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |

| | |
|---|---|
| Description | This attribute specifies the maximum data frame size for this LEC. Auto-configuring LECs use this attribute in their Configure requests. Manually-configured LECs use it in their Join requests. A value of ***unspecified*** may only be used for auto-configuring LECs. |
| Values | unspecified<br>1516<br>1580<br>4544<br>9234<br>18190 |
| Units | octets |
| Default | unspecified |

### ATTRIBUTE Lec lanName

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the ELAN name for this LEC. Auto-configuring LECs use this attribute in their Configure requests. Manually-configured LECs use it in their Join requests. An empty string means unspecified.<br>The value of this attribute may be overridden by the LECS or LES; *actualLanName* contains the actual value. |
| Values | String (0..32, ASCII) |
| Default | No default |

### ATTRIBUTE Lec v2Capable (v2c)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies whether this LEC exhibits LANE v2 behavior where it differs in its requirements from LANE v1 behavior. |

| | |
|---|---|
| Values | yes<br>no |
| Default | yes |

### ATTRIBUTE Lec lecsAddress (lecsAddr)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the ATM address of the LECS. If this attribute is non-null, the LEC attempts to set up a Configuration Direct SVC to this address as the first step in the LECS Connect phase. Otherwise, the well known LECS ATM address is used.<br>Only one of the attributes *lecsAddress* and *lesAddress* can be specified at one time. |
| Values | String (0..20, Hex) |
| Default | No default |

### ATTRIBUTE Lec lesAddress (lesAddr)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the ATM address of the LES. The LEC uses this address to connect directly to the LES, thus bypassing the LECS. A LEC which did not use the LECS is deemed to be manually-configured.<br>Only one of the attributes *lecsAddress* and *lesAddress* can be specified at one time. |
| Values | String (0..20, Hex) |
| Default | No default |

### ATTRIBUTE Lec maxDataSvcs

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |

| | |
|---|---|
| Description | This attribute specifies the maximum number of Data Direct SVCs which this LEC can have active at any one time. When operating at the maximum, an SVC setup request releases the oldest 10% of the Data Direct SVCs of this LEC.<br>A SET alarm is issued when *currDataSvcs* rises above 95% of this value and is CLEAR-ed when it falls below 85%.<br>Set *maxDataSvcs* as low as acceptable since a fixed amount of memory is consumed proportional to this value on every LP with this feature present. |
| Values | Decimal (16..1018) |
| Default | 16 |

### ATTRIBUTE Lec maxArpEntries

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the maximum number of entries which this LEC can have in its LE_ARP table at any one time. When operating at the maximum, if an additional entry must be installed, up to 10% of the oldest entries are removed.<br>A SET alarm is issued when *currArpEntries* rises above 95% of this value and is CLEAR-ed when it falls below 85%. |
| Values | Decimal (32..10240) |
| Default | 5120 |

### ATTRIBUTE Lec ilsForwarder (ilsFwdr)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the *IlsForwarder* that this LEC is using. |
| Values | Link (Service, linkToTrafficSource) |
| Default | No default |

### GROUP Lec OsiState (State)

| | |
|---|---|
| Properties | Operational |

Description

This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

## ATTRIBUTE Lec adminState (osiAdmin)

Access

Read only

Description

This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values

locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default

unlocked

## ATTRIBUTE Lec operationalState (osiOper)

Access

Read only

Description

This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be

providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values: enabled (ena)
disabled (dis)

Default: disabled

### ATTRIBUTE Lec usageState (osiUsage)

Access: Read only

Description: This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values: idle
active (activ)
busy

Default: idle

### GROUP Lec OperationalStatus (OperStatus)

Properties: Operational

Description: This group includes the Operational Status attribute. This attribute defines the current operational state of this component.

### ATTRIBUTE Lec snmpOperStatus

Access: Read only

| | |
|---|---|
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### GROUP Lec Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational status attributes of the *LanEmulationClient* component. |

### ATTRIBUTE Lec actualLanType (actLanType)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the data frame format of this LEC. This may come from the *lanType* attribute, LECS or LES. The data frame format is not ***unspecified*** for an operational LEC.<br>This attribute represents the ‘C2’ LEC state parameter in the ATM Forum LANE specification.<br><br>Token Ring data frame format is not supported. The LEC does not become operational if the LECS or LES specify a LAN type of Token Ring. |
| Values | unspecified<br>ethernet |
| Default | No default |

### ATTRIBUTE Lec actualMaxFrameSize (actMaxFrameSize)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the maximum data frame size of this LEC. This may come from the *maxFrameSize* attribute, LECS or LES. The value is not ***unspecified*** for an operational LEC. |

| | |
|---|---|
| Values | unspecified<br>1516<br>1580<br>4544<br>9234<br>18190 |
| Units | octets |
| Default | No default |

### ATTRIBUTE Lec actualLanName (actLanName)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the name of the ELAN to which this LEC is connected. This may come from the *lanName* attribute, LECS or LES. It may be null for an operational LEC.<br>This attribute represents the 'C5' LEC state parameter in the ATM Forum LANE specification. |
| Values | String (0..32, ASCII) |
| Default | No default |

### ATTRIBUTE Lec elanId

| | |
|---|---|
| Access | Read only |
| Description | This attribute identifies the ELAN to which this LEC is connected. For v2, the value will be set in the configuration phase, |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lec actualV2Capable (v2)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether this LEC exhibits LANE v2 behavior. The value is set in the Join phase. |
| Values | yes<br>no |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Lec configurationSource (configSource)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether this LEC used the LECS, and if so, the method used to establish the Configuration Direct VCC. |
| Values | usedProvisionedLecsAddress<br>gotLecsAddressViaIlmi<br>usedWellKnownLecsAddress<br>usedLecsPvc<br>didNotUseLecs |
| Default | No default |

### ATTRIBUTE Lec actualLecsAddress (actLecsAddr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the ATM address of the LECS used to configure this LEC. The address is null if the LECS was not used. |
| Values | String (0..20, Hex) |
| Default | No default |

### ATTRIBUTE Lec actualLesAddress (actLesAddr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the ATM address of the LES which is currently serving this LEC. The address is not null for an operational LEC.<br>This attribute represents the ‘C9’ LEC state parameter in the ATM Forum LANE specification. |
| Values | String (0..20, Hex) |
| Default | No default |

### ATTRIBUTE Lec atmAddress (atmAddr)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the ATM address of this LEC.<br>This attribute represents the ‘C1’ LEC state parameter in the ATM Forum LANE specification. |
| Values | String (0..20, Hex) |
| Default | No default |

### ATTRIBUTE Lec macAddress (macAddr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the MAC address of this LEC.<br>This attribute represents the ‘C6’ LEC state parameter in the ATM Forum LANE specification. |
| Values | String (6, Dashed Hex) |
| Default | No default |

### ATTRIBUTE Lec lecId

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the LANE Client Identifier (LECID) assigned to this LEC by the LES during the Join phase. The LECID uniquely identifies a LEC on a particular ELAN.<br>This attribute represents the ‘C14’ LEC state parameter in the ATM Forum LANE specification. |
| Values | Decimal (0..65279) |
| Default | No default |

### ATTRIBUTE Lec interfaceState

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current state of the LEC. Note that *ifOperStatus* is ***up*** only when *interfaceState* is ***operational***.<br>- ***initialState***: Some parameters (such as addresses and ELAN name) are known to the LEC.<br>- ***lecsConnect***: LEC establishes Configuration Direct VCC to LECS. Manually-configured LECs skip this state.<br>- ***configure***: LEC discovers LES.<br>- ***join***: LEC establishes control connections to LES. LEC is |

assigned unique LECID and knows all ELAN parameters.
- ***initialRegistration***: LEC may register additional MAC addresses with LES. This is in addition to the single MAC address registered during Join phase.
- ***busConnect***: LEC issues LE_ARP to locate the BUS and sets up the connection. The BUS then establishes the Multicast Forward VCC to the LEC.
- ***operational***: LEC is operational and can forward data traffic.

Values

initialState
lecsConnect
configure
join
initialRegistration
busConnect
operational

Default

No default

## ATTRIBUTE Lec lastFailureResponseCode

Access

Read only

Description

The attribute indicates the status code from the last failed Configure or Join response. Failed responses are those for which the LE_CONFIGURE_RESPONSE / LE_JOIN_RESPONSE frame contains a non-zero code, or fails to arrive within a time-out period. If none of the LEC's requests have failed, this attribute has the value ***none***.

Values

none
timeout
undefinedError
versionNotSupported
invalidRequestParameters
duplicateLanDestination
duplicateAtmAddress
insufficientResources
accessDenied
invalidRequesterId
invalidLanDestination
invalidAtmAddress
noConfiguration

| | |
|---|---|
| | leConfigureError<br>insufficientInformation |
| Default | No default |

### ATTRIBUTE Lec lastFailureState

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the state that the LEC was in when it updated the *lastFailureResponseCode*. If *lastFailureResponseCode* is ***none***, this attribute has the value ***initialState***.<br>See the *interfaceState* attribute for a description of each state. |
| Values | initialState<br>lecsConnect<br>configure<br>join<br>initialRegistration<br>busConnect<br>operational |
| Default | No default |

### GROUP Lec Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the statistical attributes of the *LanEmulationClient* component. |

### ATTRIBUTE Lec arpRequestsOut

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the LE_ARP_REQUESTS sent by this LEC. This counter wraps to zero when the maximum value is reached. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Lec arpRepliesIn

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the LE_ARP_RESPONSES received by this LEC. This counter wraps to zero when the maximum value is reached. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Lec arpRequestsIn

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the LE_ARP_REQUESTS received by this LEC. This counter wraps to zero when the maximum value is reached. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Lec arpRepliesOut

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the LE_ARP_RESPONSES sent by this LEC. This counter wraps to zero when the maximum value is reached. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Lec controlFramesOut

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the control packets sent by this LEC. This counter wraps to zero when the maximum value is reached. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Lec controlFramesIn

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the control packets received by this LEC. This counter wraps to zero when the maximum value is reached. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Lec svcFailures

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of SVCs that could not be set up. The reasons for failure are:<br>- outgoing SVCs that this LEC failed to establish;<br>- incoming SVCs that this LEC failed to establish; and<br>- incoming SVCs that this LEC rejected for protocol or security reasons.<br>This counter wraps to zero when the maximum value is reached. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Lec currDataSvcs

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of Data Direct SVCs that this LEC has in service. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Lec peakDataSvcs

| | |
|---|---|
| Access | Read only |
| Description | The attribute is the peak value of *currDataSvcs*. In other words, this value is the maximum number of Data Direct SVCs that this LEC had in service at any one time. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Lec currArpEntries

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the current number of entries that this LEC has in its LE ARP table. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Lec peakArpEntries

| | |
|---|---|
| Access | Read only |
| Description | The attribute is the peak value *currArpEntries*. In other words, this value is the maximum number of entries that this LEC had in its LE ARP table at any one time. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Lec badControlFrames

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the control frames discarded by the LEC due to invalid or illegal frame format, and those frames with a STATUS code other than “Success”. This counter wraps to zero when the maximum value is reached. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Lec protocolViolations

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of responses received by |
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Lec unsupportedTlvs

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times an unsupported TLV was |
| Values | Decimal (0..4292967295) |
| Default | No default |

### COMPONENT Lec LeArpEntry (LeArp)

| | |
|---|---|
| Instance | String (6, Dashed Hex) |
| Groups | "GROUP Lec LeArp Operational (Oper)" |
| Scope | Application |
| Description | *Lec/n LeArpEntry/<Mac Address>*<br>This component defines an entry in the LE_ARP table. Each entry contains information about the binding of one MAC address to one ATM address. |
| Common Verbs | Help<br>List<br>Display |

### VERB Clear Lec LeArp

| | |
|---|---|
| Impact | Passive |
| Description | *Clear Lec/n LeArp/<Mac Address>*<br>This verb removes the specified entry from the LE_ARP table. |

### GROUP Lec LeArp Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes of the *LeArpEntry* component. |

### ATTRIBUTE Lec LeArp atmAddress (atmAddr)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the ATM address of the BUS or LEC associated with the MAC address of this entry. If the MAC address is the all-ones broadcast address, the entry is for the BUS. |
| Values | String (20, Hex) |
| Default | No default |

### ATTRIBUTE Lec LeArp isRemoteAddress (remote)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether this entry is for a local or remote MAC address. In this context, ‘local’ means a MAC address that is local to a LEC, and ‘remote’ means a MAC address for which the LEC is proxy.<br>If ***yes***, the address is believed to be remote, or its local/remote status is unknown.<br>If ***no***, the address is believed to be local; that is, registered with the LES by the LEC whose ATM address is *atmAddress*. |
| Values | yes<br>no |
| Default | No default |

### ATTRIBUTE Lec LeArp connectionId (connId)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the connection identifier associated with this entry. The connection identifier is the instance of the *Connection* component. |
| Values | Decimal (0..1022) |
| Default | No default |

### COMPONENT Lec Connection (Conn)

| | |
|---|---|
| Instance | Decimal (0..1022) |
| Groups | "GROUP Lec Conn Operational (Oper)"<br>"GROUP Lec Conn Statistics (Stats)" |

| | |
|---|---|
| Scope | Application |
| Description | *Lec/n Connection/n*<br>This component defines an ATM connection (SVC) that is used by the LEC. |
| Dyn. Subcomp. | "COMPONENT Lec Conn AtmConnection (AtmCon)" |
| Common Verbs | Help<br>List<br>Display |

### VERB Clear Lec Conn

| | |
|---|---|
| Impact | Passive |
| Description | *Clear Lec/n Conn/n*<br>This verb clears the specified *Connection*. Clearing the BUS connection results in temporary loss of the ability to send/receive broadcast and unknown data traffic. Clearing a connection to the LES reinitializes the LEC. |

### GROUP Lec Conn Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational status attributes of the *Connection* component. |

### ATTRIBUTE Lec Conn remoteAtmAddress (remoteAtmAddr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the ATM address of the far end. |
| Values | String (20, Hex) |
| Default | No default |

### ATTRIBUTE Lec Conn age

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the age of this connection. |
| Values | Decimal (0..4292967295) |

| | |
|---|---|
| Units | seconds |
| Default | No default |

### ATTRIBUTE Lec Conn type

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the type of this connection. |
| Values | configurationDirectVcc (configDirect)<br>controlDirectVcc (controlDirect)<br>controlDistributeVcc (controlDistrib)<br>dataDirectVcc (data)<br>defaultMulticastSendVcc (dfltMcastSend)<br>multicastForward (mcastFwd) |
| Default | No default |

### GROUP Lec Conn Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the statistical attributes of the *Connection* component. |

### ATTRIBUTE Lec Conn outFrames

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames sent over this connection. This counter wraps to zero when the maximum value is reached. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Lec Conn inFrames

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received over this connection. This counter wraps to zero when the maximum value is reached. |
| Values | Decimal (0..4292967295) |
| Default | No default |

## COMPONENT Lec Conn AtmConnection (AtmCon)

| | |
|---|---|
| Groups | "GROUP Lec Conn AtmCon Operational (Oper)" |
| Scope | Device |
| Description | An AtmConnection component is created for each ATM connection established by an application. It shows where the data traffic for this connection is directed. |
| Common Verbs | Help<br>List<br>Display |

## GROUP Lec Conn AtmCon Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains the operational attributes for the *NapAtmConnection* component. |

## ATTRIBUTE Lec Conn AtmCon nextHop

| | |
|---|---|
| Access | Read only |
| Description | This attribute shows the component name of the *AtmIf Vcc Ep* or *AtmCon* component to which this switched connection is established. |
| Values | The name of the component |
| Default | No default |

Passport 7400, 15000, 20000

# Component Lec

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component Liaf

241-5701-060

Passport 7400, 15000, 20000

# Component Liaf

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT LawfulInterceptAccessFunction (Liaf)

| | |
|---|---|
| Instance | Decimal (1..15) |
| Groups | "GROUP Liaf Provisioned (Prov)"<br>"GROUP Liaf Statistics (Stats)"<br>"GROUP Liaf OsiState (State)"<br>"GROUP Liaf WlcCustomCounters (WlcCustomCntr)" |
| Scope | Application |
| Description | *Liaf/n*<br><br>This component represents the Lawful Intercept Access Function (Liaf). Lawful Intercept is used by law enforcement agencies to monitor the activities of a subscriber on the network based on the IMSI or the MSISDN. |
| Subcomponents | "COMPONENT Liaf MemoryPoolManager (Mpm)" |
| Dyn. Subcomp. | "COMPONENT Liaf RemoteApplicationConnection (RaConn)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Liaf Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |

| | |
|---|---|
| Description | This group contains provisionable attributes of the *LawfulInterceptAccessFunction (Liaf)* component. |

### ATTRIBUTE Liaf linkToLogicalProcessor (lp)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the Logical Processor (LP) that the *LawfulInterceptAccessFunction (Liaf)* component is provisioned on. No more than one *LawfulInterceptAccessFunction (Liaf)* component can be linked to the same *LogicalProcessor* instance. |
| Values | Link (Hardware, linkToApplications) |
| Default | No default |

### ATTRIBUTE Liaf admfAddr

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the IP address of the Lawful Intercept Gateway (LIG) Administrative Function (ADMF).<br><br>The ADMF provides a list of target subscribers to be monitored by the *LawfulInterceptAccessFunction (Liaf)* component.<br><br>Changing this value causes the outstanding transactions to be affected. |
| Values | IP address |
| Default | No default |

### ATTRIBUTE Liaf admfPort

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the IP port number of the Lawful Intercept Gateway (LIG) Administrative Function (ADMF).<br><br>The ADMF provides a list of target subscribers to be monitored by the *LawfulInterceptAccessFunction (Liaf)* component. |

| | |
|---|---|
| | Changing this value causes the outstanding transactions to be affected. |
| Values | Decimal (1024..65535) |
| Default | 2000 |

### ATTRIBUTE Liaf nsInterceptions (nsInt)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies a capacity service level that represents a maximum number of monitored targets. When this number of monitored targets is reached, the OSI usage state transitions to busy and an alarm is generated. |
| Values | Decimal (256..3000) |
| Default | 256 |

### ATTRIBUTE Liaf linkToLiClient

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies links to the UMTS/GPRS subscriber control entities that are handled by this *LawfulInterceptAccessFunction (Liaf)* component.<br><br>This attribute must be set to *Usc* or *Gsc* instance, based on whether it is used in UMTS or GPRS.<br><br>Changing this value causes the outstanding transactions to be affected. |
| List of | Link (Service, linkToLisp) |
| Default | No default |

### ATTRIBUTE Liaf linkToPort

| | |
|---|---|
| Access | Read: All<br>Write: All |

| | |
|---|---|
| Description | This attribute specifies the IP address and TCP port numbers of the *LawfulInterceptAccessFunction (Liaf)* component.<br><br>The IP Address and TCP Port numbers are specified by setting this attribute to link to the correct *Gips IpAddress Tcp Port* components on the same card.<br><br>Two *Gips IpAddress Tcp Port* components must be assigned: one for the Lawful Intercept Gateway (LIG) Administration Function (ADMF) connectivity, and the second for LIG Delivery Function (DF) connectivity.<br><br>Changing this value causes the outstanding transactions to be lost. |
| List of | Link (Service, linkToApplication) |
| Default | No default |

## GROUP Liaf Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistical attributes of the *LawfulInterceptAccessFunction (Liaf)* component. |

## ATTRIBUTE Liaf admfErrors (admf)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts errors encountered by the *LawfulInterceptAccessFunction (Liaf)* component when decoding a message from the Lawful Intercept Gateway (LIG) Administrative Function (ADMF). It allows the user to determine if there is a problem (for example, formatting or corrupt data) with the messages received from the ADMF. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Liaf nsInterceptionsExceed (nsiExceed)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of times the number of monitored targets exceeds *nsInterceptions*. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Liaf bufferOverFlows (buffOf)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of TCP buffer overflows. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Liaf OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Liaf adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or |

*Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Liaf operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
enabled (ena)
disabled (dis)

| | |
|---|---|
| Default | disabled |

### ATTRIBUTE Liaf usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### ATTRIBUTE Liaf availabilityStatus (osiAvail)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can |

be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.

The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.

The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.

The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.

The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

| | |
|---|---|
| Set of | inTest<br>failed<br>dependency (depend)<br>powerOff (pwrOff)<br>offLine<br>offDuty<br>degraded (degrad)<br>notInstalled (notIn)<br>logFull<br>migrating |
| Default | No default |

### ATTRIBUTE Liaf proceduralStatus (osiProc)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.<br><br>The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.<br><br>The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***. |

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

### ATTRIBUTE Liaf controlStatus (osiCntrl)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

Set of

subjectToTest (subTst)
partOfServicesLocked (partLk)
reservedForTest (rsrvd)
suspended (suspnd)

Default

No default

### ATTRIBUTE Liaf alarmStatus (osiAlarm)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of
underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default
No default

### ATTRIBUTE Liaf standbyStatus (osiStby)

Access
Read only

Description
If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values
hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

| | |
|---|---|
| Default | notSet |

### ATTRIBUTE Liaf unknownStatus (osiUnknw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Unknown status of the component.<br><br>The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.<br><br>The value ***true*** indicates that the actual state of the component is not known for sure. |
| Values | false<br>true |
| Default | false |

### GROUP Liaf WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Liaf customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Liaf customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Liaf customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT Liaf MemoryPoolManager (Mpm)

| | |
|---|---|
| Scope | Application |
| Description | *Gsc/n MemoryPoolManager*<br>*Gsd/n MemoryPoolManager*<br>*Gtl/n MemoryPoolManager*<br>*DnsAgent/<vr>,n MemoryPoolManager*<br><br>This component represents the memory resources of a given GPRS application that are managed as pools of objects. |
| Dyn. Subcomp. | "COMPONENT Liaf Mpm MemoryPoolClient (Mpc)" |
| Common Verbs | Help<br>List<br>Display |

### COMPONENT Liaf Mpm MemoryPoolClient (Mpc)

| | |
|---|---|
| Instance | String (1..30, ASCII) |

| | |
|---|---|
| Scope | Application |
| Description | *Gsc/n Mpm MemoryPoolClient/<name>*<br>*Gsd/n Mpm MemoryPoolClient/<name>*<br>*SgGtl/n Mpm MemoryPoolClient/<name>*<br>*DnsAgent/<vr>,n Mpm MemoryPoolClient/<name>*<br><br>This component represents a pool of objects of a particular class that a GPRS application currently owns as well as all the objects that could be owned by that application. All the objects in the pool are of the same class. The instance value of this component is a string which is the class name of the objects in the pool. |
| Common Verbs | Help<br>List<br>Display |

## COMPONENT Liaf RemoteApplicationConnection (RaConn)

| | |
|---|---|
| Instance | appType [String (1..8, ASCII)]<br>shelfId [Decimal (0..15)]<br>n [Decimal (1..15)] |
| Groups | "GROUP Liaf RaConn OsiState (State)"<br>"GROUP Liaf RaConn WlcCustomCounters (WlcCustomCntr)" |
| Scope | Application |
| Description | *... RemoteApplicationConnection/<appType, shelfId, n>*<br><br>This component represents the Remote Application Connection information of an application that talks to applications on other shelves. For each application that it can communicate with, one of these connection components is created and is instantiated with the name of the remote application, the Id of the shelf on which the application runs, and the instance number of the application. ShelfId ***0*** represents the Master shelf. |

| | |
|---|---|
| Dyn. Subcomp. | "COMPONENT Liaf RaConn AtmConnection (AtmCon)" |
| Common Verbs | Help<br>List<br>Display |

## GROUP Liaf RaConn OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

## ATTRIBUTE Liaf RaConn adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |

| | |
|---|---|
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Liaf RaConn operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Liaf RaConn usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |

| | |
|---|---|
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Liaf RaConn WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Liaf RaConn customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Liaf RaConn customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Liaf RaConn customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## COMPONENT Liaf RaConn AtmConnection (AtmCon)

| | |
|---|---|
| Groups | "GROUP Liaf RaConn AtmCon Operational (Oper)" |
| Scope | Device |
| Description | An AtmConnection component is created for each ATM connection established by an application. It shows where the data traffic for this connection is directed. |
| Common Verbs | Help<br>List<br>Display |

## GROUP Liaf RaConn AtmCon Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains the operational attributes for the *NapAtmConnection* component. |

## ATTRIBUTE Liaf RaConn AtmCon nextHop

| | |
|---|---|
| Access | Read only |
| Description | This attribute shows the component name of the *AtmIf Vcc Ep* or *AtmCon* component to which this switched connection is established. |
| Values | The name of the component |
| Default | No default |

Passport 7400, 15000, 20000

# Component Liaf

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component LocalMed

241-5701-060

Passport 7400, 15000, 20000

# Component LocalMed

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT LocalMedia

| | |
|---|---|
| Scope | Application |
| Description | *LocalMedia*<br>The *LocalMedia* component represents a logical media and provides a functional interface to the APCs that are unaware of the *VirtualRouter* and Passport IP architecture. There may be at most one instance of *LocalMedia. component*<br>The component can be used to support inter-APC communication, or APC communication with external nodes. |
| Subcomponents | "COMPONENT LocalMedia Interface (If)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## COMPONENT LocalMedia Interface (If)

| | |
|---|---|
| Instance | Decimal (0..4) |
| Groups | "GROUP LocalMedia If CustomerIdentifierData (CidData)"<br>"GROUP LocalMedia If IfEntryProv (IfEntry)"<br>"GROUP LocalMedia If MediaProv (Mp)"<br>"GROUP LocalMedia If Provisioned (Prov)"<br>"GROUP LocalMedia If OperationalStatus (OperStatus)"<br>"GROUP LocalMedia If OsiState (State)" |
| Scope | Application |

Description

*LocalMedia Interface/n*
This component represents a logical interface to the *LocalMedia* component. The *Interface* component has to be linked to a *VirtualRouter ProtocolPort* component which has only one logicalInerface subcomponent.

Common Verbs

Help
List
Display
Add
DELete

## GROUP LocalMedia If CustomerIdentifierData (CidData)

Properties

Provisioned

Description

This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs.

## ATTRIBUTE LocalMedia If customerIdentifier (cid)

Access

Read and write

Description

This attribute holds the Customer Identifier (CID).

Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.

Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.

An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to "basic CIDs" in DPN) may be assigned to specific customers.

| | |
|---|---|
| Values | Decimal (0; 1..8191) |
| Default | 0 |

### GROUP LocalMedia If IfEntryProv (IfEntry)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the ifEntry. |

### ATTRIBUTE LocalMedia If ifAdminStatus (ifState)

| | |
|---|---|
| Access | Read and write |
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE LocalMedia If ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP LocalMedia If MediaProv (Mp)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the base provisioning data for the media base component. |

### ATTRIBUTE LocalMedia If linkToProtocolPort (pp)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the *ProtocolPort* to which this interface is linked to. The protocol port is the logical interface to the network. The protocol port component describes the logical characteristics of this interface. |
| Values | Link (Service, linkToMedia) |
| Default | No default |

### GROUP LocalMedia If Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the *If* component. |

### ATTRIBUTE LocalMedia If maxTransmissionUnit (mtu)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the size of the largest datagram which can be sent on the interface. This includes the size of the header (if applicable) as well as the protocol data unit. |
| Values | Decimal (256..9180) |
| Units | octets |
| Default | 9180 |

### ATTRIBUTE LocalMedia If trafficType (tt)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the supported traffic types of the *LocalMedia If* component. It contains one or more of the values.***Rnc***, ***Cpds***, ***CpdsCoreNetwork, type3, type4***.<br><br>***Rnc***: This traffic type supports all types of traffic in RNC-IN. |

***Cpds***: This traffic type supports all types of traffic in CPDS, except the traffic between PCU and PDSN.

***CpdsCoreNetwork***: This traffic type supports traffic between PCU and PDSN.

***type3***: .Reserved for future use.

***type4***: Reserved for future use.

Set of
rnc
cpds
cpdsCoreNetwork
type3
type4

Default
No default

### GROUP LocalMedia If OperationalStatus (OperStatus)

Properties
Operational

Description
This group includes the Operational Status attribute. This attribute defines the current operational state of this component.

### ATTRIBUTE LocalMedia If snmpOperStatus

Access
Read only

Description
The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed.

Values
up
down
testing

Default
up

### GROUP LocalMedia If OsiState (State)

Properties
Operational

Description

This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

## ATTRIBUTE LocalMedia If adminState (osiAdmin)

Access

Read only

Description

This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values

locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default

unlocked

## ATTRIBUTE LocalMedia If operationalState (osiOper)

Access

Read only

Description

This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be

providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE LocalMedia If usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

Passport 7400, 15000, 20000

# Component LocalMed

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component LpP

241-5701-060

Passport 7400, 15000, 20000

# Component LpP

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT LpPair (LpP)

| | |
|---|---|
| Instance | Integer Sequence (0..15; 0..15) |
| Scope | Application |
| Description | *LpPair/m.n*<br>This component represents a pair of LPs, *LP/m* and *LP/n*. There are no real instances of this component which you can issue commands against. It is solely for the purpose of alarm handling for other components which can link to two LPs (for example, via a *LineAutomaticProtectionSwitching*, or *Laps*, component). These other components are typically spared across the two LPs, which means that the LP hierarchical clear alarms alone are not sufficient to properly clear certain alarms; use of the *LpPair* component does provide this.<br><br>Thus, the name of an *LpPair* can appear in the related component name field of an alarm so that subsequent alarm clearing can be handled appropriately. It can also appear in the component name field of an alarm, for a hierarchical clear against the pair of LPs and for components which are spared across the two LPs. The LP alarms and their fields remain unchanged. |
| Common Verbs | Help<br>List<br>Display |

Passport 7400, 15000, 20000

# Component LpP

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component Lp

241-5701-060

Passport 7400, 15000, 20000

# Component Lp

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT LogicalProcessor (Lp)

| | |
|---|---|
| Instance | Decimal (0..15) |
| Groups | "GROUP Lp Provisioned (Prov)"<br>"GROUP Lp CustomerIdentifierData (CidData)"<br>"GROUP Lp OsiState (State)"<br>"GROUP Lp Operational (Oper)"<br>"GROUP Lp Utilization (Util)"<br>"GROUP Lp Capacity (Cap)" |

"COLLECTED STATS LogicalProcessor"

| | |
|---|---|
| Scope | Device |
| Description | *LogicalProcessor/n*<br>The *LogicalProcessor* (*Lp*) component is a root component. One *Lp* component is created for each Logical Processor. An *Lp* may be configured to run on up to two cards; one as the main card, and the other as the spare card. When two cards are configured, the *Lp* runs on one card, and waits for that card to fail before starting to run on the other card. |

| | |
|---|---|
| Subcomponents | "COMPONENT Lp Engineering (Eng)" |
| Opt. Subcomp. | "COMPONENT Lp BridgedSonet (Bso)"<br>"COMPONENT Lp Ethernet (Enet)"<br>"COMPONENT Lp Fddi (Fi)"<br>"COMPONENT Lp DS3"<br>"COMPONENT Lp E3"<br>"COMPONENT Lp DS1"<br>"COMPONENT Lp E1"<br>"COMPONENT Lp V35"<br>"COMPONENT Lp X21"<br>"COMPONENT Lp TokenRing (Tr)"<br>"COMPONENT Lp Sonet"<br>"COMPONENT Lp Sdh"<br>"COMPONENT Lp JT2"<br>"COMPONENT Lp Hssi"<br>"COMPONENT Lp IlsForwarder (IlsFwdr)"<br>"COMPONENT Lp InverseMultiplexerAtm (Ima)"<br>"COMPONENT Lp VoiceServicesProcessor (Vsp)"<br>"COMPONENT Lp Ethernet100BaseT (Eth100)"<br>"COMPONENT Lp OamEthernet (OamEnet)"<br>"COMPONENT Lp EDS1"<br>"COMPONENT Lp EE1"<br>"COMPONENT Lp PCUServicesProcessor (Pcusp)"<br>"COMPONENT Lp MultiLinkFrameRelay (Mlfr)"<br>"COMPONENT Lp Ethernet (Enet)" |
| Dyn. Subcomp. | "COMPONENT Lp AdjunctProcessor (Ap)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## VERB RESET Lp

Impact: Service

Description:

*Reset Lp/n*
*Reset -force Lp/0*

This command is used to reset the processor card on which this *LP* is currently running. Resetting a processor card implies: (1) resetting the hardware (as if the card had just been powered on), (2) performing the card's self-tests, and (3) reloading the software.

A *Reset* command issued against the CP (*Lp/0*) causes it to reload from the committed provisioning data file.

A *Reset* command issued against an FP causes it to reload the same software it was already running. This is the software load that is derived from the provisioning data in the CP's current view (this may or may not be the committed view).

**Options:**
*-force*
This option causes the reset to occur against lp/0 even if the current or edit view differs from the committed view, or if the standby OAM Ethernet port is not available, or if the standby CP is currently loading the committed provisioning data file. Use of this option would cause the loss of data in any unsaved view, and any FPs running uncommitted data would restart. On any lp other than lp/0, -force has no meaning.

## VERB RESTART Lp

Impact: Service

Description: *Restart Lp/n*
*Restart -force Lp/0*

This command is used to restart the processor card on which this *LP* is currently running. Restarting a processor card causes the software to reinitialize itself and behave as if it had just been reloaded. A *Restart* command issued against the CP (*Lp/0*) causes it to restart using the committed provisioning data.

**Options:**
*-force*
This option causes the restart to occur against lp/0 even if the current or edit view differs from the committed view, or if the standby OAM Ethernet port is not available, or if the standby CP is currently loading the committed provisioning data file. Use of this option would cause the loss of data in any unsaved view, and any FPs running uncommitted data would restart. On any lp other than lp/0, -force has no meaning.

## VERB RELOADcp (Reload) Lp

Impact: Service

Description: *ReloadCp -force -filename(<name>) Lp/0*

This command is used to force the CP to reload using a specified provisioning file instead of using the committed provisioning file. The command has a parameter that specifies the name of the file to use.

## VERB SWITCHover Lp

Impact: Service

Description:

*Switchover Lp/n*
*Switchover -time(yyyy-mm-dd hh:mm) Lp/n*
*Switchover -cancel Lp/n*
*Switchover -force Lp/0*

This command forces a sparing operation to occur. The *spareCard* becomes active if the *mainCard* is currently active or, alternatively, the *mainCard* becomes active if the *spareCard* is currently active.

**Options:**
*-time*
This option is used to specify the time when a scheduled switchover is to take effect.

*-cancel*
*This option is used to cancel a scheduled switchover.*

*-force*
This option causes the switchover to occur even if the current or edit view differs from the committed view. Use of this option would cause the loss of data in any unsaved view. In addition, any FPs running uncommitted data would restart.

## GROUP Lp Provisioned (Prov)

Properties: Provisioned

Description:

This Group contains the provisionable attributes for the *LP* component.

## ATTRIBUTE Lp mainCard (main)

Access: Read and write

Description:

This is the preferred processor card on which this *LP* should be assigned.

| | |
|---|---|
| Values | Link (Service, configuredLPs) |
| Default | No default |

### ATTRIBUTE Lp spareCard (spare)

| | |
|---|---|
| Access | Read and write |
| Description | This is the spare processor card on which this *LP* should be assigned. |
| Values | Link (Service, configuredLPs) |
| Default | No default |

### ATTRIBUTE Lp logicalProcessorType (lpt)

| | |
|---|---|
| Access | Read and write |
| Description | This is the Logical Processor Type (LPT) that determines which software this *LP* will run. |
| Values | Link (Service, logicalProcessors) |
| Default | No default |

### ATTRIBUTE Lp oneForNSparingBehavior

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the sparing behavior in a 1 for N sparing configuration when a main card fails.<br>If the attribute value is ***delayedSwitchOver***, the failure of a main card to recover as the active card will initiate a switchover to the spare card. This sparing behavior gives the failed main card a chance to recover and hence allows the main cards to remain protected by the spare card.<br>If the attribute value is ***immediateSwitchOver***, the failure of a main card initiates an immediate switchover to the spare card. This sparing behavior provides greater emphasis on reducing outage time for a failed main card at the expense of leaving the other main cards unprotected. |
| Values | delayedSwitchOver (delayedSO)<br>immediateSwitchOver (immediateSO) |

| | |
|---|---|
| Default | delayedSwitchOver |

### ATTRIBUTE Lp linkToApplications

| | |
|---|---|
| Access | Read only |
| Description | This attribute allows applications to link themselves directly to the *LP* component. |
| List of | Link |
| List Size | 256 |
| Default | No default |

### GROUP Lp CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

### ATTRIBUTE Lp customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.<br><br>Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.<br><br>An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to "basic CIDs" in DPN) may be assigned to specific customers. |

| | |
|---|---|
| Values | Decimal (0; 1..8191) |
| Default | 0 |

### GROUP Lp OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Lp adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |

| | |
|---|---|
| Default | unlocked |

### ATTRIBUTE Lp operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Lp usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |

| | |
|---|---|
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### ATTRIBUTE Lp availabilityStatus (osiAvail)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.<br><br>The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.<br><br>The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.<br><br>The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.<br><br>The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***. |

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

### ATTRIBUTE Lp proceduralStatus (osiProc)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the

user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.

The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of
initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default
No default

### ATTRIBUTE Lp controlStatus (osiCntrl)

Access
Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

Set of

subjectToTest (subTst)
partOfServicesLocked (partLk)
reservedForTest (rsrvd)
suspended (suspnd)

Default

No default

### ATTRIBUTE Lp alarmStatus (osiAlarm)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions

described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE Lp standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and

thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values
hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

Default
notSet

### ATTRIBUTE Lp unknownStatus (osiUnknw)

Access
Read only

Description
This attribute indicates the OSI Unknown status of the component.

The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.

The value ***true*** indicates that the actual state of the component is not known for sure.

Values
false
true

Default
false

### GROUP Lp Operational (Oper)

Properties
Operational

| | |
|---|---|
| Description | This Group contains the operational attributes for the LP component. |

### ATTRIBUTE Lp activeCard

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates on which card this LP is currently running (if any). |
| Values | The name of the component |
| Default | No default |

### ATTRIBUTE Lp mainCardStatus

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the status of this LP's main card. The following values have been defined:<br>***notProvisioned***— No main card has been provisioned.<br>***notAvailable***— The main card is not available.<br>***available***— The main card is available (running as standby).<br>***active***— The main card is running as active. |
| Values | notProvisioned<br>notAvailable<br>available<br>active |
| Default | No default |

### ATTRIBUTE Lp spareCardStatus

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the status of this LP's spare card. The following values have been defined:<br>***notProvisioned***— No spare card has been provisioned.<br>***notAvailable***— The spare card is not available.<br>***alreadyInUse***— The spare card is already in use by another LP.<br>***available***— The spare card is available (running as standby).<br>***active***— The spare card is running as active. |

| | |
|---|---|
| Values | notProvisioned<br>notAvailable<br>alreadyInUse<br>available<br>active |
| Default | No default |

### ATTRIBUTE Lp restartOnCpSwitch

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether the *Lp* always restarts upon a CP switchover. The value is ***true*** if the *featureList* of the associated *Sw Lpt* component contains a feature that does not support hitless CP switchover. The value is also ***true*** when the feature ***noHitlessCpSwitch*** is provisioned on the CP. A value of ***false*** does not guarantee “no restart”; dynamic conditions may still result in an FP restart when a CP switchover occurs. |
| Values | false<br>true |
| Default | No default |

### ATTRIBUTE Lp scheduledSwitchover

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the execution time of the scheduled switchover. When there is no switchover scheduled the time is equals to 0 (0000-00-00 00:00). |
| Values | Time (DHM) |
| Default | No default |

### GROUP Lp Utilization (Util)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes that specify the processor’s utilization levels. When this group exists for an LP component, the attributes are representative of the active card. |

### ATTRIBUTE Lp timeInterval

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the time period (in minutes) for which the average, minimum and maximum utilization values are calculated. This attribute is reset to 0 every 15 minutes. |
| Values | Decimal (0..15) |
| Units | minutes |
| Default | No default |

### ATTRIBUTE Lp cpuUtil

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates an approximation of the current processor utilization level (expressed as a percentage). |
| Values | Decimal (0..100) |
| Units | % |
| Default | No default |

### ATTRIBUTE Lp cpuUtilAvg

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates an average processor utilization level over the specified time period, *timeInterval*. This average is calculated based on one minute CPU utilization averages. |
| Values | Decimal (0..100) |
| Units | % |
| Default | No default |

### ATTRIBUTE Lp cpuUtilAvgMin

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the minimum processor utilization level over a specified time period, *timeInterval*. This is based on one minute CPU utilization averages. |
| Values | Decimal (0..100) |
| Units | % |
| Default | No default |

### ATTRIBUTE Lp cpuUtilAvgMax

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the maximum processor utilization level over a specified time period, *timeInterval*. This is based on one minute CPU utilization averages. |
| Values | Decimal (0..100) |
| Units | % |
| Default | No default |

### ATTRIBUTE Lp sharedMsgBlockUsage

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the processor's current shared message block memory utilization. |
| Values | Decimal (0..2147483647) |
| Units | kbyte |
| Default | No default |

### ATTRIBUTE Lp sharedMsgBlockUsageAvg

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the processor's average memory utilization of shared message blocks, calculated over a specified time period, *timeInterval*. This utilization value is calculated using 15 second samples. At the start of each *timeInterval*, this average memory utilization is reset to the current usage, *sharedMsgBlockUsage*. |

| | |
|---|---|
| Values | Decimal (0..2147483647) |
| Units | kbyte |
| Default | No default |

### ATTRIBUTE Lp sharedMsgBlockUsageAvgMin

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the processor's minimum memory utilization of shared message blocks, calculated over a specified time period, *timeInterval*. This utilization value is calculated using 15 second samples. At the start of each *timeInterval*, this minimum memory utilization is reset to the current usage, *sharedMsgBlockUsage*. |
| Values | Decimal (0..2147483647) |
| Units | kbyte |
| Default | No default |

### ATTRIBUTE Lp sharedMsgBlockUsageAvgMax

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the processor's maximum memory utilization of shared message blocks, calculated over a specified time period, *timeInterval*. This utilization value is calculated using 15 second samples. At the start of each *timeInterval*, this maximum memory utilization is reset to the current usage, *sharedMsgBlockUsage*. |
| Values | Decimal (0..2147483647) |
| Units | kbyte |
| Default | No default |

### ATTRIBUTE Lp localMsgBlockUsage

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the processor's current memory utilization of message blocks which are used for local messaging on the card. |
| Values | Decimal (0..2147483647) |
| Units | kbyte |
| Default | No default |

### ATTRIBUTE Lp localMsgBlockUsageAvg

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the processor's average memory utilization of message blocks used for local messaging on the card, calculated over a specified time period, *timeInterval*. This utilization value is calculated using 15 second samples. At the start of each *timeInterval*, this average memory utilization is reset to the current usage, *localMsgBlockUsage.* |
| Values | Decimal (0..2147483647) |
| Units | kbyte |
| Default | No default |

### ATTRIBUTE Lp localMsgBlockUsageMin

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the processor's minimum memory utilization of message blocks used for local messaging on the card, calculated over a specified time period, *timeInterval*. This utilization value is updated at 15 second intervals. At the start of each *timeInterval*, this minimum memory utilization is reset to the current usage, *localMsgBlockUsage*. |
| Values | Decimal (0..2147483647) |
| Units | kbyte |
| Default | No default |

### ATTRIBUTE Lp localMsgBlockUsageMax

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the processor's maximum memory utilization of message blocks used for local messaging on the card, calculated over a specified time period, *timeInterval*. This utilization value is updated at 15 second intervals. At the start of each *timeInterval*, this maximum memory utilization is reset to the current usage, *localMsgBlockUsage*. |
| Values | Decimal (0..2147483647) |
| Units | kbyte |
| Default | No default |

### ATTRIBUTE Lp memoryUsage

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the processor's current memory utilization for each type of memory. |
| Vector of | Decimal (0..2147483647) |
| Units | kbyte |
| Index | fastRam<br>normalRam<br>sharedRam |
| Default | No default |

### ATTRIBUTE Lp memoryUsageAvg

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the processor's average memory utilization for each type of memory in the specified time period, *timeInterval*. This value is calculated using 15 second samples. |
| Vector of | Decimal (0..2147483647) |

| | |
|---|---|
| Units | kbyte |
| Index | fastRam<br>normalRam<br>sharedRam |
| Default | No default |

### ATTRIBUTE Lp memoryUsageAvgMin

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the processor's minimum memory utilization for each type of memory in the specified time period, *timeInterval*. This value is calculated using 15 second samples. |
| Vector of | Decimal (0..2147483647) |
| Units | kbyte |
| Index | fastRam<br>normalRam<br>sharedRam |
| Default | No default |

### ATTRIBUTE Lp memoryUsageAvgMax

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the processor's maximum memory utilization for each type of memory in the specified time period, *timeInterval*. This value is calculated using 15 second samples. |
| Vector of | Decimal (0..2147483647) |
| Units | kbyte |
| Index | fastRam<br>normalRam<br>sharedRam |
| Default | No default |

### GROUP Lp Capacity (Cap)

| | |
|---|---|
| Properties | Operational |

| | |
|---|---|
| Description | This group contains the operational attributes that specify the processor's capacity levels. When this group exists for an *LP* component, the attributes are representative of the active *Card*. |

### ATTRIBUTE Lp sharedMsgBlockCapacity

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the processor card's shared message block memory capacity. |
| Values | Decimal (0..2147483647) |
| Units | kbyte |
| Default | No default |

### ATTRIBUTE Lp localMsgBlockCapacity

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the processor card's local message block memory capacity. These message blocks are used for local messaging on the card. |
| Values | Decimal (0..2147483647) |
| Units | kbyte |
| Default | No default |

### ATTRIBUTE Lp memoryCapacity

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the processor card's memory capacity for each type of memory. |
| Vector of | Decimal (0..2147483647) |
| Units | kbyte |
| Index | fastRam<br>normalRam<br>sharedRam |
| Default | No default |

# COLLECTED STATS LogicalProcessor

| | |
|---|---|
| Description | The statistics record generated by the LogicalProcessor component. |

### ATTRIBUTE Lp cardNumber (ca)

| | |
|---|---|
| Description | This attribute is the card number associated to this statistical information. |
| Values | Decimal (0..15) |

### ATTRIBUTE Lp cardStatus

| | |
|---|---|
| Description | This attribute indicates whether the card is running as ***active*** or ***standby***. |
| Values | standby<br>active |

### ATTRIBUTE Lp cpuUtilAvg

| | |
|---|---|
| Description | This attribute indicates an average processor utilization level over a the specified collection interval. This average is calculated based on one minute CPU utilization averages. |
| Values | Decimal (0..100) |
| Units | % |

### ATTRIBUTE Lp cpuUtilAvgMin

| | |
|---|---|
| Description | This attribute indicates the minimum processor utilization level over a specified collection interval. This is calculated based on one minute CPU utilization averages. |
| Values | Decimal (0..100) |
| Units | % |

### ATTRIBUTE Lp cpuUtilAvgMax

| | |
|---|---|
| Description | This attribute indicates the maximum processor utilization level over a specified collection interval. This is based on one minute CPU utilization averages. |

| | |
|---|---|
| Values | Decimal (0..100) |
| Units | % |

### ATTRIBUTE Lp memoryCapacity

| | |
|---|---|
| Description | This attribute indicates the processor's memory capacity for each type of memory. |
| Vector of | Decimal (0..2147483647) |
| Units | kbyte |
| Index | fastRam<br>normalRam<br>sharedRam |

### ATTRIBUTE Lp memoryUsageAvg

| | |
|---|---|
| Description | This attribute indicates the processor's average memory utilization for each type of memory in the specified collection interval. This is calculated using 15 second samples. |
| Vector of | Decimal (0..2147483647) |
| Units | kbyte |
| Index | fastRam<br>normalRam<br>sharedRam |

### ATTRIBUTE Lp memoryUsageAvgMin

| | |
|---|---|
| Description | This attribute indicates the processor's minimum memory utilization for each type of memory in the specified collection interval. This is calculated using 15 second samples. |
| Vector of | Decimal (0..2147483647) |
| Units | kbyte |
| Index | fastRam<br>normalRam<br>sharedRam |

### ATTRIBUTE Lp memoryUsageAvgMax

| | |
|---|---|
| Description | This attribute indicates the processor's maximum memory utilization for each type of memory in the specified collection interval. This is calculated using 15 second samples. |
| Vector of | Decimal (0..2147483647) |
| Units | kbyte |
| Index | fastRam<br>normalRam<br>sharedRam |

### ATTRIBUTE Lp sharedMsgBlockCapacity

| | |
|---|---|
| Description | This attribute indicates the processor's shared message block memory capacity. |
| Values | Decimal (0..2147483647) |
| Units | kbyte |

### ATTRIBUTE Lp sharedMsgBlockUsageAvg

| | |
|---|---|
| Description | This attribute indicates the processor's average shared message block memory utilization over a specified collection interval. This is calculated using 15 second samples. |
| Values | Decimal (0..2147483647) |
| Units | kbyte |

### ATTRIBUTE Lp sharedMsgBlockUsageAvgMin

| | |
|---|---|
| Description | This attribute indicates the processor's minimum shared message block memory utilization over a specified collection interval. This is calculated using 15 second samples. |
| Values | Decimal (0..2147483647) |
| Units | kbyte |

### ATTRIBUTE Lp sharedMsgBlockUsageAvgMax

| | |
|---|---|
| Description | This attribute indicates the processor's maximum shared message block memory utilization over a specified collection interval. This is calculated using 15 second samples. |
| Values | Decimal (0..2147483647) |
| Units | kbyte |

### ATTRIBUTE Lp localMsgBlockCapacity

| | |
|---|---|
| Description | This attribute indicates the processor's local message block memory capacity. These message blocks are used for local messaging on the card. |
| Values | Decimal (0..2147483647) |
| Units | kbyte |

### ATTRIBUTE Lp localMsgBlockUsageAvg

| | |
|---|---|
| Description | This attribute indicates the processor's average memory utilization of message blocks used for local messaging on the card, calculated over a specified collection interval. This is calculated using 15 second samples. |
| Values | Decimal (0..2147483647) |
| Units | kbyte |

### ATTRIBUTE Lp localMsgBlockUsageMin

| | |
|---|---|
| Description | This attribute indicates the processor's minimum memory utilization of message blocks used for local messaging on the card, calculated over a specified collection interval. |
| Values | Decimal (0..2147483647) |
| Units | kbyte |

### ATTRIBUTE Lp localMsgBlockUsageMax

| | |
|---|---|
| Description | This attribute indicates the processor's maximum memory utilization of message blocks used for local messaging on the card, calculated over a specified collection interval. |

| | |
|---|---|
| Values | Decimal (0..2147483647) |
| Units | kbyte |

### COMPONENT Lp BridgedSonet (Bso)

| | |
|---|---|
| Instance | Decimal (0..15) |
| Groups | "GROUP Lp Bso CustomerIdentifierData (CidData)"<br>"GROUP Lp Bso Provisioned (Prov)"<br>"GROUP Lp Bso OsiState (State)" |
| Scope | Device |
| Description | *Lp/n BridgedSonet/n*<br>This component controls a bridge on a SONET card that is connected to the line hardware of the mate SONET card. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

### GROUP Lp Bso CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

### ATTRIBUTE Lp Bso customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0. |

Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.

An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to "basic CIDs" in DPN) may be assigned to specific customers.

Values: Decimal (0; 1..8191)

Default: 0

### GROUP Lp Bso Provisioned (Prov)

Properties: Provisioned

Description: This group contains the provisioning data for a *BridgedSonet* component.

### ATTRIBUTE Lp Bso portBridgeGroupLink (pbgl)

Access: Read and write

Description: This attribute specifies the name of the *Pbg* component. The specified *Pbg* component provides port bridging for a SONET line specified by *Pbg/n workingLine* and this *BridgedSonet* component.

Values: Link

Default: No default

### GROUP Lp Bso OsiState (State)

Properties: Operational

Description: This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific

information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Lp Bso adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Lp Bso operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service. |

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Lp Bso usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
idle
active (activ)
busy

Default
idle

### ATTRIBUTE Lp Bso availabilityStatus (osiAvail)

Access
Read only

Description
If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is

defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.

The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.

The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.

The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.

The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a

rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

### ATTRIBUTE Lp Bso proceduralStatus (osiProc)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.

The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

### ATTRIBUTE Lp Bso controlStatus (osiCntrl)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

Set of

subjectToTest (subTst)
partOfServicesLocked (partLk)
reservedForTest (rsrvd)
suspended (suspnd)

Default

No default

### ATTRIBUTE Lp Bso alarmStatus (osiAlarm)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms

may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE Lp Bso standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values
hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

Default
notSet

### ATTRIBUTE Lp Bso unknownStatus (osiUnknw)

Access
Read only

Description
This attribute indicates the OSI Unknown status of the component.

The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.

The value ***true*** indicates that the actual state of the component is not known for sure.

Values
false
true

Default
false

### COMPONENT Lp Ethernet (Enet)

Instance
Decimal (0..5)

Groups
"GROUP Lp Enet CustomerIdentifierData (CidData)"
"GROUP Lp Enet IfEntryProv (IfEntry)"
"GROUP Lp Enet Provisioned (Prov)"
"GROUP Lp Enet AdminInfo (AdminInfo)"
"GROUP Lp Enet OsiState (State)"
"GROUP Lp Enet OperationalStatus (OperStatus)"
"GROUP Lp Enet Operational (Oper)"
"GROUP Lp Enet Statistics (Stats)"

Scope
Device

| | |
|---|---|
| Description | *Lp/n Ethernet/n*<br>This component defines an instance of an *Ethernet* station attached to a bus. One instance of this component will be created for each hardware port. Each station will be provisioned prior to operating on the bus. |
| Subcomponents | "COMPONENT Lp Enet LanTest (Lt)"<br>"COMPONENT Lp Enet Test" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP Lp Enet CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

## ATTRIBUTE Lp Enet customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.<br><br>Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID. |

| | |
|---|---|
| | An operator CID of 0 is used to identify the Network Manager (referred to as “NetMan” in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to “basic CIDs” in DPN) may be assigned to specific customers. |
| Values | Decimal (0; 1..8191) |
| Default | 0 |

### GROUP Lp Enet IfEntryProv (IfEntry)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the ifEntry. |

### ATTRIBUTE Lp Enet ifAdminStatus (ifState)

| | |
|---|---|
| Access | Read and write |
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE Lp Enet ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP Lp Enet Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |

| | |
|---|---|
| Description | This group contains provisioned attributes for the *Ethernet* component. |

### ATTRIBUTE Lp Enet heartbeatPacket

| | |
|---|---|
| Access | Read and write |
| Description | The *heartbeat* packet feature is used to select whether or not the station will generate a *heartbeat* packet. If enabled, the station will generate one *heartbeat* packet every second. If disabled, the station will not generate any *heartbeat* packets. |
| Values | enabled<br>disabled |
| Default | enabled |

### ATTRIBUTE Lp Enet applicationFramerName (framer)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute contains the component name of a *Framer* which is associated with the *Ethernet* component. This link is used by the component administration system (CAS) to identify which card the application component (associated with the *Framer* component) is to be created. |
| Values | Link (Service, interfaceName) |
| Default | No default |

### GROUP Lp Enet AdminInfo (AdminInfo)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attributes pertaining to the vendor of the equipment. |

### ATTRIBUTE Lp Enet vendor

| | |
|---|---|
| Access | Read and write |
| Description | This is the name of the vendor supplying the facility. |
| Values | String (0..20, ASCII) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Lp Enet commentText

| | |
|---|---|
| Access | Read and write |
| Description | Any miscellaneous text about the facility. |
| Values | String (0..60, ASCII) |
| Default | No default |

### GROUP Lp Enet OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Lp Enet adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |

| | |
|---|---|
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Lp Enet operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Lp Enet usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |

| | |
|---|---|
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Lp Enet OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

### ATTRIBUTE Lp Enet snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### GROUP Lp Enet Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes of the *Ethernet* component. |

### ATTRIBUTE Lp Enet macAddress

| | |
|---|---|
| Access | Read only |
| Description | The medium access controller (MAC) address is an address that is only recognized by one station on the network The value of this attribute will be assigned by the system. MAC address is displayed in canonical format. |
| Values | String (6, Dashed Hex) |

| | |
|---|---|
| Default | No default |

### GROUP Lp Enet Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistical attributes for the *Ethernet* component. |

### ATTRIBUTE Lp Enet alignmentErrors

| | |
|---|---|
| Access | Read only |
| Description | The *alignmentErrors* counter indicates the number of frames received which were not an integral number of octets in length. Frames will be checked for *alignmentErrors* before they are checked for Frame Check Sequence (FCS) errors. If there is an alignment error, the error will only be counted here and not in *fcsErrors*. This counter wraps around after it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp Enet fcsErrors

| | |
|---|---|
| Access | Read only |
| Description | The *fcsErrors*, Frame Check Sequence (FCS) error, counter indicates the number of frames received which were an integral number of octets in length and did not pass the FCS check. This counter wraps around after it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp Enet singleCollisionFrames

| | |
|---|---|
| Access | Read only |
| Description | The *singleCollisionFrames* counter indicates the number of frames successfully transmitted which experienced exactly one collision. This counter wraps around after it exceeds its maximum value. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp Enet multipleCollisionFrames

| | |
|---|---|
| Access | Read only |
| Description | The *multipleCollisionFrames* counter indicates the number of frames successfully transmitted which experienced more than one collision. This counter wraps around after it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp Enet sqeTestErrors

| | |
|---|---|
| Access | Read only |
| Description | The *sqeTestErrors*, Signal Quality Error (SQE) Test errors, counter indicates the number of times the “SQE Test Error” message has been generated for the station. This counter wraps around after it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp Enet deferredTransmissions

| | |
|---|---|
| Access | Read only |
| Description | The *deferredTransmissions* counter indicates the number of frames which experienced a transmission delay because the medium was busy. This counter wraps around after it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp Enet lateCollisions

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | The *lateCollisions* counter indicates the number of times a collision was detected later than 512 bit-times into the transmission of a packet. This counter wraps around after it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp Enet excessiveCollisions

| | |
|---|---|
| Access | Read only |
| Description | The *excessiveCollisions* counter indicates the number of frames which failed to get transmitted due to excessive collisions. This counter wraps around after it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp Enet macTransmitErrors

| | |
|---|---|
| Access | Read only |
| Description | The Medium Access Controller (MAC) transmit error counter indicates the number of times that a transmission failed due to internal MAC transmit errors. This counter wraps around after it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp Enet carrierSenseErrors

| | |
|---|---|
| Access | Read only |
| Description | The carrier sense error counter indicates the number of times that the carrier sense condition was lost or never asserted when attempting to transmit a frame. This counter wraps around after it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp Enet frameTooLongs

| | |
|---|---|
| Access | Read only |
| Description | The frame too long counter indicates the number of frames received which exceeded the maximum frame size. This counter wraps around after it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp Enet macReceiveErrors

| | |
|---|---|
| Access | Read only |
| Description | The Medium Access Controller (MAC) receive error counter indicates the number of times a receive failed due to internal MAC receive errors. This counter wraps around after it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT Lp Enet LanTest (Lt)

| | |
|---|---|
| Groups | "GROUP Lp Enet Lt TestOp (Top)" |
| Scope | Device |
| Description | *Lp/n Fddi/n LanTest*, or<br>*Lp/n Ethernet/n LanTest*, or<br>*Lp/n TokenRing/n LanTest, or*<br>*Lp/n IlsForwarder/n LanTest*<br>The LanTest component is used to control testing on LAN interfaces. This includes LLC layer loopback, on-card loopback, SNMP required tests, and any testing to be done in the lab or manufacturing. |

| | |
|---|---|
| Dyn. Subcomp. | "COMPONENT Lp Enet Lt FrameCompare (FrmCmp)"<br>"COMPONENT Lp Enet Lt FrameCopy (FrmCpy)"<br>"COMPONENT Lp Enet Lt PortConfig (PrtCfg)"<br>"COMPONENT Lp Enet Lt FrameBuild (Fb)"<br>"COMPONENT Lp Enet Lt Control (Cntl)" |
| Common Verbs | Help<br>List<br>Display |

### VERB Start Lp Enet Lt

| | |
|---|---|
| Impact | Service |
| Description | This verb is used to start a test as per the attributes set within each subcomponent of LanTest. |

### VERB Stop Lp Enet Lt

| | |
|---|---|
| Impact | Service |
| Description | This verb is used to stop a test. |

### VERB Reset Lp Enet Lt

| | |
|---|---|
| Impact | Service |
| Description | This verb is used to reset the LanTest component. |

### VERB Get Lp Enet Lt

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters for the LanTest component. This includes attributes set using the Set verb. |

### VERB Tlist Lp Enet Lt

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to an attribute. |

### GROUP Lp Enet Lt TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

### ATTRIBUTE Lp Enet Lt tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

### COMPONENT Lp Enet Lt FrameCompare (FrmCmp)

| | |
|---|---|
| Groups | "GROUP Lp Enet Lt FrmCmp TestOp (Top)" |
| Scope | Device |
| Description | This component compares frames received from the hardware and emulator during testing. |
| Common Verbs | Help<br>List<br>Display |

### VERB Get Lp Enet Lt FrmCmp

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters for the LanTest FrameCompare component. This includes attributes set using the Set verb. |

### VERB Tlist Lp Enet Lt FrmCmp

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

### GROUP Lp Enet Lt FrmCmp TestOp (Top)

| | |
|---|---|
| Properties | Operational |

| | |
|---|---|
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

### ATTRIBUTE Lp Enet Lt FrmCmp tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

### COMPONENT Lp Enet Lt FrameCopy (FrmCpy)

| | |
|---|---|
| Groups | "GROUP Lp Enet Lt FrmCpy TestOp (Top)" |
| Scope | Device |
| Description | This component receives its input from FrameBuild and places it upon the hardware which sends it to the appropriate emulator. |
| Common Verbs | Help<br>List<br>Display |

### VERB Get Lp Enet Lt FrmCpy

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters for the LanTest FrameCopy component. This includes attributes set using the Set verb. |

### VERB Tlist Lp Enet Lt FrmCpy

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

### GROUP Lp Enet Lt FrmCpy TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

### ATTRIBUTE Lp Enet Lt FrmCpy tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

### COMPONENT Lp Enet Lt PortConfig (PrtCfg)

| | |
|---|---|
| Groups | "GROUP Lp Enet Lt PrtCfg TestOp (Top)" |
| Scope | Device |
| Description | This component controls the emulator and hardware to ensure frames output from each will match in FrameCompare. |
| Common Verbs | Help<br>List<br>Display |

### VERB Get Lp Enet Lt PrtCfg

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters for the LanTest PortConfig component. This includes attributes set using the Set verb. |

### VERB Tlist Lp Enet Lt PrtCfg

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

### GROUP Lp Enet Lt PrtCfg TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

### ATTRIBUTE Lp Enet Lt PrtCfg tData (td)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

## COMPONENT Lp Enet Lt FrameBuild (Fb)

| | |
|---|---|
| Groups | "GROUP Lp Enet Lt Fb TestOp (Top)" |
| Scope | Device |
| Description | LanTest Framebuild<br>This component controls the building of all frames built and sent by the LanTest component. Each component under FrameBuild builds a portion of a packet or frame. |
| Dyn. Subcomp. | "COMPONENT Lp Enet Lt Fb TransmitInfo (TxInfo)"<br>"COMPONENT Lp Enet Lt Fb FddiMac (MacFddi)"<br>"COMPONENT Lp Enet Lt Fb EthernetMac (MacEnet)"<br>"COMPONENT Lp Enet Lt Fb TokenRingMac (MacTr)"<br>"COMPONENT Lp Enet Lt Fb DataField (Data)"<br>"COMPONENT Lp Enet Lt Fb IpHeader (IpH)"<br>"COMPONENT Lp Enet Lt Fb LlcHeader (Llch)"<br>"COMPONENT Lp Enet Lt Fb AppleHeader (AppleH)"<br>"COMPONENT Lp Enet Lt Fb IpxHeader (IpxH)" |
| Common Verbs | Help<br>List<br>Display |

## VERB Get Lp Enet Lt Fb

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters for the LanTest FrameBuild component. This includes attributes set using the Set verb. |

## VERB Tlist Lp Enet Lt Fb

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

### GROUP Lp Enet Lt Fb TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

### ATTRIBUTE Lp Enet Lt Fb tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

### COMPONENT Lp Enet Lt Fb TransmitInfo (TxInfo)

| | |
|---|---|
| Groups | "GROUP Lp Enet Lt Fb TxInfo TestOp (Top)" |
| Scope | Device |
| Description | LanTest TransmitInfo<br>This component builds a transmit header which is attached to all frames transmitted on LAN interfaces. |
| Common Verbs | Help<br>List<br>Display |

### VERB Get Lp Enet Lt Fb TxInfo

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters for the LanTest TransmitInfo component. This includes attributes set using the Set verb. |

### VERB Tlist Lp Enet Lt Fb TxInfo

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

### GROUP Lp Enet Lt Fb TxInfo TestOp (Top)

| | |
|---|---|
| Properties | Operational |

| | |
|---|---|
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

### ATTRIBUTE Lp Enet Lt Fb TxInfo tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

### COMPONENT Lp Enet Lt Fb FddiMac (MacFddi)

| | |
|---|---|
| Groups | "GROUP Lp Enet Lt Fb MacFddi TestOp (Top)" |
| Scope | Device |
| Description | LanTest FddiMac<br>This component builds an FDDI MAC header which is attached to all FDDI frames. |
| Common Verbs | Help<br>List<br>Display |

### VERB Get Lp Enet Lt Fb MacFddi

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters for the LanTest FddiMac component. This includes attributes set using the Set verb. |

### VERB Tlist Lp Enet Lt Fb MacFddi

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

### GROUP Lp Enet Lt Fb MacFddi TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

### ATTRIBUTE Lp Enet Lt Fb MacFddi tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

### COMPONENT Lp Enet Lt Fb EthernetMac (MacEnet)

| | |
|---|---|
| Groups | "GROUP Lp Enet Lt Fb MacEnet TestOp (Top)" |
| Scope | Device |
| Description | LanTest EthernetMac<br>This component builds an Ethernet MAC header which is attached to all Ethernet frames. |
| Common Verbs | Help<br>List<br>Display |

### VERB Get Lp Enet Lt Fb MacEnet

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters LanTest EthernetMac component. This includes attributes set using the Set verb. |

### VERB Tlist Lp Enet Lt Fb MacEnet

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

### GROUP Lp Enet Lt Fb MacEnet TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

### ATTRIBUTE Lp Enet Lt Fb MacEnet tData (td)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

### COMPONENT Lp Enet Lt Fb TokenRingMac (MacTr)

| | |
|---|---|
| Groups | "GROUP Lp Enet Lt Fb MacTr TestOp (Top)" |
| Scope | Device |
| Description | LanTest TokenRingMac<br>This component builds a Token Ring MAC header which is attached to all Token Ring frames. |
| Common Verbs | Help<br>List<br>Display |

### VERB Get Lp Enet Lt Fb MacTr

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters for the LanTest TokenRingMac component. This includes attributes set using the Set verb. |

### VERB Tlist Lp Enet Lt Fb MacTr

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

### GROUP Lp Enet Lt Fb MacTr TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

### ATTRIBUTE Lp Enet Lt Fb MacTr tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |

| | |
|---|---|
| Values | String (0..255, ASCII) |
| Default | No default |

### COMPONENT Lp Enet Lt Fb DataField (Data)

| | |
|---|---|
| Groups | "GROUP Lp Enet Lt Fb Data TestOp (Top)" |
| Scope | Device |
| Description | This component adds a data field to frame. |
| Common Verbs | Help<br>List<br>Display |

### VERB Get Lp Enet Lt Fb Data

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters for the LanTest DataField component. This includes attributes set using the Set verb. |

### VERB Tlist Lp Enet Lt Fb Data

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

### GROUP Lp Enet Lt Fb Data TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

### ATTRIBUTE Lp Enet Lt Fb Data tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

## COMPONENT Lp Enet Lt Fb IpHeader (IpH)

| | |
|---|---|
| Groups | "GROUP Lp Enet Lt Fb IpH TestOp (Top)" |
| Scope | Device |
| Description | LanTest IpHeader<br>This component adds an IP header to a frame or packet. |
| Common Verbs | Help<br>List<br>Display |

## VERB Get Lp Enet Lt Fb IpH

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters for the LanTest IpHeader component. This includes attributes set using the Set verb. |

## VERB Tlist Lp Enet Lt Fb IpH

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

## GROUP Lp Enet Lt Fb IpH TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

## ATTRIBUTE Lp Enet Lt Fb IpH tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

## COMPONENT Lp Enet Lt Fb LlcHeader (Llch)

| | |
|---|---|
| Groups | "GROUP Lp Enet Lt Fb Llch TestOp (Top)" |

| | |
|---|---|
| Scope | Device |
| Description | LanTest LlcHeader<br>This component adds an LLC 802.2 or Ethernet header to a frame or packet. |
| Common Verbs | Help<br>List<br>Display |

### VERB Get Lp Enet Lt Fb Llch

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters for the LanTest LlcHeader component. This includes attributes set using the SET verb. |

### VERB Tlist Lp Enet Lt Fb Llch

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

### GROUP Lp Enet Lt Fb Llch TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

### ATTRIBUTE Lp Enet Lt Fb Llch tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

### COMPONENT Lp Enet Lt Fb AppleHeader (AppleH)

| | |
|---|---|
| Groups | "GROUP Lp Enet Lt Fb AppleH TestOp (Top)" |
| Scope | Device |

| | |
|---|---|
| Description | This component adds an AppleTalk header to a frame or packet. |
| Common Verbs | Help<br>List<br>Display |

### VERB Get Lp Enet Lt Fb AppleH

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters for the LanTest AppleHeader component. This includes attributes set using the Set verb. |

### VERB Tlist Lp Enet Lt Fb AppleH

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

### GROUP Lp Enet Lt Fb AppleH TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

### ATTRIBUTE Lp Enet Lt Fb AppleH tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

### COMPONENT Lp Enet Lt Fb IpxHeader (IpxH)

| | |
|---|---|
| Groups | "GROUP Lp Enet Lt Fb IpxH TestOp (Top)" |
| Scope | Device |

| | |
|---|---|
| Description | This component adds an IPX header to a frame or packet. |
| Common Verbs | Help<br>List<br>Display |

### VERB Get Lp Enet Lt Fb IpxH

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters forLanTest IpxHeader component. This includes attributes set using the Set verb. |

### VERB Tlist Lp Enet Lt Fb IpxH

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

### GROUP Lp Enet Lt Fb IpxH TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

### ATTRIBUTE Lp Enet Lt Fb IpxH tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

### COMPONENT Lp Enet Lt Control (Cntl)

| | |
|---|---|
| Groups | "GROUP Lp Enet Lt Cntl TestOp (Top)" |
| Scope | Device |
| Description | LanTest Control<br>This component controls the overall testing by telling the |

FrameBuild component to start and check the FrameCompare component to see if the test is complete.

Common Verbs

Help
List
Display

### VERB Get Lp Enet Lt Cntl

Impact: Passive

Description: This verb is used to get and display operational parameters for the LanTest Control component. This includes attributes set using the Set verb.

### VERB Tlist Lp Enet Lt Cntl

Impact: Passive

Description: This verb is used to display the list of arguments to a component.

### GROUP Lp Enet Lt Cntl TestOp (Top)

Properties: Operational

Description: This group contains the operational data for the LanTest component and its subcomponents.

### ATTRIBUTE Lp Enet Lt Cntl tData (td)

Access: Read and write

Description: This attribute is used to display and set attributes.

Values: String (0..255, ASCII)

Default: No default

### COMPONENT Lp Enet Test

Groups: "GROUP Lp Enet Test PortTestOp (PTO)"
"GROUP Lp Enet Test Results (Results)"

Scope: Device

| | |
|---|---|
| Description | *Lp/n Fddi/n Test*, or<br>*Lp/n Ethernet/n Test*, or<br>*Lp/n TokenRing/n Test, or*<br>*Lp/n IlsForwarder/n Test*<br>The Test component is used to do StartUp port test for LAN cards. |
| Common Verbs | Help<br>List<br>Display |

### VERB Start Lp Enet Test

| | |
|---|---|
| Impact | Service |
| Description | This verb is used to start a test as per the attributes set within each subcomponent of Test. |

### VERB Stop Lp Enet Test

| | |
|---|---|
| Impact | Service |
| Description | This verb is used to stop a test. |

### VERB Reset Lp Enet Test

| | |
|---|---|
| Impact | Service |
| Description | This verb is used to reset the Test component. |

### GROUP Lp Enet Test PortTestOp (PTO)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanPortTest component. |

### ATTRIBUTE Lp Enet Test type (type)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the type of test to be run. The available test types include the following: card test sets up an internal loop on the board and runs a bit error rate test; manual test assumes the line is looped back externally and a bit error rate test is performed; |

| | |
|---|---|
| | localLoop test loops back the local modem and performs a bit error rate test; remoteLoop test loops back the remote modem (or CSU) and performs a bit error rate test; externalLoop test loops back the line to the far end; payloadLoop test only loops back the payload data received from the incoming line; Note that localLoop, remoteLoop and payloadLoop are not supported by all function processors. |
| Values | onCard<br>normal<br>wrapA<br>wrapB<br>thruA<br>thruB<br>extWrapA<br>extWrapB<br>extThruA<br>extThruB<br>extWrapAB<br>extWrapBA |
| Default | No default |

### ATTRIBUTE Lp Enet Test frmSize (size)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the size of the test data frames in number of bytes. |
| Values | Decimal (4..4096) |
| Units | bytes |
| Default | 1024 |

### ATTRIBUTE Lp Enet Test duration (duration)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the duration (in minutes) that test data will be transmitted. In the case of an externalLoop, this is the time that the loop is in effect. Note that dataStartDelay does not apply to the externalLoop. |

| | |
|---|---|
| Values | Decimal (1..30240) |
| Units | minutes |
| Default | 1 |

### GROUP Lp Enet Test Results (Results)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all the statistics related attributes of the Test component. |

### ATTRIBUTE Lp Enet Test elapsedTime

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the number of minutes elapsed since the test started for an externalLoop test. For a data test, this is the time since test data was first transmitted. |
| Values | Decimal (0..4294967295) |
| Units | minutes |
| Default | 0 |

### ATTRIBUTE Lp Enet Test timeRemaining

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the number of minutes remaining before the test is to be stopped according to the duration attribute. |
| Values | Decimal (0..4294967295) |
| Units | minutes |
| Default | 0 |

### ATTRIBUTE Lp Enet Test causeOfTermination

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the reason the test is terminated. |
| Values | testTimeExpired<br>stoppedByOperator |

| | |
|---|---|
| | unknown<br>neverStarted<br>testRunning |
| Default | neverStarted |

### ATTRIBUTE Lp Enet Test frmTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of frames sent during the test period. This counter is not expected to reach its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Enet Test bitsTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of bits sent during the test period. This counter is not expected to reach its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Enet Test frmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of frames received during the test period. This counter is not expected to reach its maximum value. The counter will wrap around to 0 if it does reach its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Enet Test bitsRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of bits received during the test period. This counter is not expected to reach its maximum value. |

| | |
|---|---|
| | The counter will wrap around to 0 if it does reach its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Enet Test erroredFrmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of errored frames received during the test period. This counter is not expected to reach its maximum value. The counter will wrap around to 0 if it does reach its maximum value. |
| Values | Long Integer |
| Default | No default |

### COMPONENT Lp Fddi (Fi)

| | |
|---|---|
| Instance | Decimal (0) |
| Groups | "GROUP Lp Fi CustomerIdentifierData (CidData)"<br>"GROUP Lp Fi IfEntryProv (IfEntry)"<br>"GROUP Lp Fi SmtProvisioned (SmtProv)"<br>"GROUP Lp Fi MacProvisioned (MacProv)"<br>"GROUP Lp Fi AdminInfo (AdminInfo)"<br>"GROUP Lp Fi OsiState (State)"<br>"GROUP Lp Fi OperationalStatus (OperStatus)"<br>"GROUP Lp Fi SmtOperational (SmtOper)"<br>"GROUP Lp Fi MacOperational (MacOper)"<br>"GROUP Lp Fi MacCOperational (MacCOper)"<br>"GROUP Lp Fi NcMacOperational (NcMacOper)" |
| Scope | Device |
| Description | *Lp/n Fddi/n*<br>This component defines an instance of a FDDI station attached to a ring. One instance of this component must be created for each hardware interface. Each station must be provisioned prior to inserting into the ring. |

| | |
|---|---|
| Subcomponents | "COMPONENT Lp Fi LanTest (Lt)"<br>"COMPONENT Lp Fi PhysicalLayer (Phy)"<br>"COMPONENT Lp Fi Test" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

### GROUP Lp Fi CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

### ATTRIBUTE Lp Fi customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.<br><br>Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.<br><br>An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of |

| | |
|---|---|
| | any component. Values 1 to 8191 inclusive (equivalent to “basic CIDs” in DPN) may be assigned to specific customers. |
| Values | Decimal (0; 1..8191) |
| Default | 0 |

### GROUP Lp Fi IfEntryProv (IfEntry)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the ifEntry. |

### ATTRIBUTE Lp Fi ifAdminStatus (ifState)

| | |
|---|---|
| Access | Read and write |
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE Lp Fi ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP Lp Fi SmtProvisioned (SmtProv)

| | |
|---|---|
| Properties | Provisioned |

| | |
|---|---|
| Description | This group contains the provisionable Station Management (SMT) attributes of the *Fddi* component. |

### ATTRIBUTE Lp Fi userData

| | |
|---|---|
| Access | Read and write |
| Description | The user data field is used to identify the FDDI interface on the ring. The user data contains a message with a maximum of 32 characters. |
| Values | String (0..32, ASCII) |
| Default | FDDI |

### ATTRIBUTE Lp Fi acceptAa

| | |
|---|---|
| Access | Read and write |
| Description | The *acceptAa* attribute defines the station type A to station type A connection policy. If ***enabled***, the connection will be accepted. If ***disabled***, the connection will be rejected. |
| Values | enabled<br>disabled |
| Default | disabled |

### ATTRIBUTE Lp Fi acceptBb

| | |
|---|---|
| Access | Read and write |
| Description | The *acceptBb* attribute defines the station type B to station type B connection policy. If ***enabled***, the connection will be accepted. If ***disabled***, the connection will be rejected. |
| Values | enabled<br>disabled |
| Default | disabled |

### ATTRIBUTE Lp Fi acceptAs

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | The *acceptAs* attribute defines the station type A to station type S connection policy. If ***enabled***, the connection will be accepted. If ***disabled***, the connection will be rejected. |
| Values | enabled<br>disabled |
| Default | disabled |

### ATTRIBUTE Lp Fi acceptBs

| | |
|---|---|
| Access | Read and write |
| Description | The *acceptBs* attribute defines the station type B to station type S connection policy. If ***enabled***, the connection will be accepted. If ***disabled***, the connection will be rejected. |
| Values | enabled<br>disabled |
| Default | disabled |

### ATTRIBUTE Lp Fi acceptAm

| | |
|---|---|
| Access | Read and write |
| Description | The *acceptAm* attribute defines the station type A to station type M connection policy. If ***enabled***, the connection will be accepted. If ***disabled***, the connection will be rejected. |
| Values | enabled<br>disabled |
| Default | enabled |

### ATTRIBUTE Lp Fi acceptBm

| | |
|---|---|
| Access | Read and write |
| Description | The *acceptBm* attribute defines the station type B to station type M connection policy. If ***enabled***, the connection will be accepted. If ***disabled***, the connection will be rejected. |
| Values | enabled<br>disabled |

| | |
|---|---|
| Default | enabled |

### ATTRIBUTE Lp Fi useThruBa

| | |
|---|---|
| Access | Read and write |
| Description | The *useThruBa* attribute is used to configure the requested path of the associated station. If ***enabled***, only the secondary preferred path is permitted. If ***disabled***, only the primary preferred path is permitted. |
| Values | enabled<br>disabled |
| Default | disabled |

### ATTRIBUTE Lp Fi neighborNotifyInterval

| | |
|---|---|
| Access | Read and write |
| Description | The *neighborNotifyInterval* attribute contains the amount of time, expressed in seconds, between neighbor notification frames. |
| Values | Decimal (2..30) |
| Units | seconds |
| Default | 30 |

### ATTRIBUTE Lp Fi statusReportPolicy

| | |
|---|---|
| Access | Read and write |
| Description | The *statusReportPolicy* attribute indicates whether or not the station will generate status reporting frames for its implemented events and conditions. If ***true***, the station will generate the status frames. If ***false***, the station will not generate the status frames. |
| Values | true<br>false |
| Default | true |

### ATTRIBUTE Lp Fi traceMaxExpirationTimer (traceExp)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | The *traceMaxExpirationTimer* attribute is used to configure the maximum propagation time, expressed in milliseconds, for a trace on a FDDI topology. This value places a lower bound on the detection time for an unrecovered ring. |
| Values | Decimal (0..1000000) |
| Units | msec |
| Default | 7000 |

### ATTRIBUTE Lp Fi applicationFramerName (framer)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute contains the component name of a *Framer* which is associated with the *Fddi* component. This defines which *LanApplication/n Framer* will be using this *Fddi* interface. |
| Values | Link (Service, interfaceName) |
| Default | No default |

### GROUP Lp Fi MacProvisioned (MacProv)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable MAC attributes of the *Fddi* component. |

### ATTRIBUTE Lp Fi tokenRequestTimer (tReq)

| | |
|---|---|
| Access | Read and write |
| Description | The *tokenRequestTimer* value contains the token request value assigned to the associated medium access controller (MAC).<br><br>Warning:<br>Changes to this attribute can have adverse effects on the performance of the FDDI ring. Therefore it is recommended that this parameter only be modified by personnel with a thorough understanding of the consequences that may result from changes to this attribute. |

| | |
|---|---|
| Values | Decimal (20480..1340000000) |
| Units | nsec |
| Default | 165290000 |

### ATTRIBUTE Lp Fi tokenMaxTimer (tMax)

| | |
|---|---|
| Access | Read and write |
| Description | The *tokenMaxTimer* value is the maximum timer value the negotiated token rotation time may assume.<br><br>Warning:<br>Changes to this attribute can have adverse effects on the performance of the FDDI ring. Therefore it is recommended that this parameter only be modified by personnel with a thorough understanding of the consequences that may result from changes to this attribute. |
| Values | Decimal (40960..1342200000) |
| Units | nsec |
| Default | 167770000 |

### ATTRIBUTE Lp Fi validTransmissionTimer (tvx)

| | |
|---|---|
| Access | Read and write |
| Description | The *validTransmissionTimer* (Tvx) value specifies the amount of time required for a valid transmission. The station must receive a valid transmission once every Tvx.<br><br>Warning:<br>Changes to this attribute can have adverse effects on the performance of the FDDI ring. Therefore it is recommended that this parameter only be modified by personnel with a thorough understanding of the consequences that may result from changes to this attribute. |
| Values | Decimal (40960..1342200000) |
| Units | nsec |

| | |
|---|---|
| Default | 2621400 |

### GROUP Lp Fi AdminInfo (AdminInfo)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attributes pertaining to the vendor of the equipment. |

### ATTRIBUTE Lp Fi vendor

| | |
|---|---|
| Access | Read and write |
| Description | This is the name of the vendor supplying the facility. |
| Values | String (0..20, ASCII) |
| Default | No default |

### ATTRIBUTE Lp Fi commentText

| | |
|---|---|
| Access | Read and write |
| Description | Any miscellaneous text about the facility. |
| Values | String (0..60, ASCII) |
| Default | No default |

### GROUP Lp Fi OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Lp Fi adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component. |

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values: locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default: unlocked

### ATTRIBUTE Lp Fi operationalState (osiOper)

Access: Read only

Description: This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values: enabled (ena)
disabled (dis)

Default: disabled

### ATTRIBUTE Lp Fi usageState (osiUsage)

Access: Read only

| | |
|---|---|
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Lp Fi OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

### ATTRIBUTE Lp Fi snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### GROUP Lp Fi SmtOperational (SmtOper)

| | |
|---|---|
| Properties | Operational |

| | |
|---|---|
| Description | This group contains the operational station management (SMT) attributes of the *Fddi* component. |

### ATTRIBUTE Lp Fi version

| | |
|---|---|
| Access | Read only |
| Description | The *version* attribute contains a copy of the currently supported version numbers of the management information base (MIB) and the station management (SMT). |
| Values | String (0..32, ASCII) |
| Default | No default |

### ATTRIBUTE Lp Fi bypassPresent

| | |
|---|---|
| Access | Read only |
| Description | The *bypassPresent* attribute indicates whether the optical bypass switch is present on its AB port pair. If ***true***, the optical bypass switch is present. If ***false***, it is not present. |
| Values | true<br>false |
| Default | No default |

### ATTRIBUTE Lp Fi ecmState

| | |
|---|---|
| Access | Read only |
| Description | The *ecmState*, Entity Coordination Manager (ECM), state indicates the current state of the ECM state machine. |
| Values | out<br>in<br>trace<br>leave<br>pathTest<br>insert<br>check<br>deinsert |
| Default | No default |

### ATTRIBUTE Lp Fi cfState

| | |
|---|---|
| Access | Read only |
| Description | The *cfState* attribute indicates the current state of the configuration management (CFM) state machine. |
| Values | isolated<br>localA<br>localB<br>localAB<br>localS<br>wrapA<br>wrapB<br>wrapAB<br>wrapS<br>cWrapA<br>cWrapB<br>cWrapS<br>thru |
| Default | No default |

### GROUP Lp Fi MacOperational (MacOper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational Medium Access Controller (MAC) attributes of the of the *Fddi* component. |

### ATTRIBUTE Lp Fi ringLatency

| | |
|---|---|
| Access | Read only |
| Description | The *ringLatency* attribute contains the measured ring latency of the ring the station is attached to. |
| Values | Decimal (1280..1342000000) |
| Units | nsec |
| Default | No default |

### ATTRIBUTE Lp Fi macAddress

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | The medium access controller (MAC) address is an address that is recognized by only one station on the attached ring. The value of this attribute is assigned by the system. This attribute is displayed in canonical format. The non-canonical version of this address is indicated in *ncMacAddress*. |
| Values | String (6, Dashed Hex) |
| Default | No default |

### ATTRIBUTE Lp Fi upstreamNeighbor

| | |
|---|---|
| Access | Read only |
| Description | The *upstreamNeighbor* attribute contains the MAC address associated with the upstream neighbor station on the ring. This attribute is displayed in canonical format. The non-canonical version of this address is indicated in *ncUpstreamNeighbor.* |
| Values | String (6, Dashed Hex) |
| Default | No default |

### ATTRIBUTE Lp Fi downstreamNeighbor

| | |
|---|---|
| Access | Read only |
| Description | The *downstreamNeighbor* attribute contains the MAC address associated with the downstream station on the ring. This attribute is displayed in canonical format. The non-canonical version of this address is indicated in *ncDownstreamNeighbor.* |
| Values | String (6, Dashed Hex) |
| Default | No default |

### ATTRIBUTE Lp Fi oldUpstreamNeighbor

| | |
|---|---|
| Access | Read only |
| Description | *The oldUpstreamNeighbor* attribute contains the previous value of the MAC address associated with the upstream station on the ring. This attribute is displayed in canonical format. The non-canonical version of this address is indicated in *ncOldUpstreamNeighbor.* |

| | |
|---|---|
| Values | String (6, Dashed Hex) |
| Default | No default |

### ATTRIBUTE Lp Fi oldDownstreamNeighbor

| | |
|---|---|
| Access | Read only |
| Description | The *oldDownstreamNeighbor* attribute contains the previous value of the MAC address associated with the downstream station on the ring. This attribute is displayed in canonical format. The non-canonical version of this address is indicated in *ncOldDownstreamNeighbor.* |
| Values | String (6, Dashed Hex) |
| Default | No default |

### ATTRIBUTE Lp Fi dupAddressTest

| | |
|---|---|
| Access | Read only |
| Description | The *dupAddressTest* attribute indicates the condition results of the duplicate address test. If ***notDone***, the test has not been executed. If ***pass***, the test has successfully executed. If ***fail***, the test has failed. |
| Values | notDone<br>pass<br>fail |
| Default | No default |

### ATTRIBUTE Lp Fi tokenNegotiatedTimer (tNeg)

| | |
|---|---|
| Access | Read only |
| Description | The *tokenNegotiatedTimer* specifies the negotiated token rotation time. |
| Values | Decimal (80..1340000000) |
| Units | nsec |
| Default | 167772000 |

### ATTRIBUTE Lp Fi frameCounts

| | |
|---|---|
| Access | Read only |
| Description | The *frameCounts* attribute contains the number of frames that have been received by the station. This counter will wrap around after it reaches its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Fi copiedCounts

| | |
|---|---|
| Access | Read only |
| Description | The *copiedCounts* attribute contains the number of frames successfully copied into this station's receive buffers, not including MAC control frames. This counter will wrap around after it reaches its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Fi transmitCounts

| | |
|---|---|
| Access | Read only |
| Description | The *transmitCounts* attribute contains the number of frames transmitted by this station, not including MAC control frames. This counter will wrap around after it reaches its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Fi errorCounts

| | |
|---|---|
| Access | Read only |
| Description | The *errorCounts* attribute contains the number of error frames first detected by this station. This counter will wrap around after it reaches its maximum value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE Lp Fi lostCounts

| | |
|---|---|
| Access | Read only |
| Description | The *lostCounts* attribute contains the number of instances that the station has detected a format error during frame reception such that the frame was stripped. This counter will wrap around after it reaches its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp Fi rmtState

| | |
|---|---|
| Access | Read only |
| Description | The *rmtState*, ring management (RMT), state indicates the current state of the RMT state machine. |
| Values | isolated<br>nonOp<br>ringOp<br>detect<br>nonOpDup<br>ringOpDup<br>directed<br>trace |
| Default | No default |

### ATTRIBUTE Lp Fi frameErrorFlag

| | |
|---|---|
| Access | Read only |
| Description | The *frameErrorFlag* attribute indicates the MAC frame error condition status. If ***true***, a MAC frame error is present. If ***false***, a MAC frame error condition is not present. |
| Values | true<br>false |
| Default | No default |

### GROUP Lp Fi MacCOperational (MacCOper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes of the Medium Access Controller (MAC) Counters Table of the *Fddi* component. |

### ATTRIBUTE Lp Fi tokenCounts

| | |
|---|---|
| Access | Read only |
| Description | The *tokenCounts* attribute contains the number of times the station has received a token. This counter will wrap around after it reaches its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Fi tvxExpiredCounts

| | |
|---|---|
| Access | Read only |
| Description | The *tvxExpiredCounts*, Transmission Valid eXpired (TVX), attribute contains the number of times that TVX timer has expired. This counter may increment as stations go on and off the ring. A rapidly increasing value may indicate a problem. This counter will wrap around after it reaches its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Fi notCopiedCounts

| | |
|---|---|
| Access | Read only |
| Description | The *notCopiedCounts* attribute contains the number of times that the station has detected a frame addressed to itself but did not copy it due to local buffer congestion. This counter will wrap around after it reaches its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Fi lateCounts

| | |
|---|---|
| Access | Read only |
| Description | The *lateCounts* attribute contains the number of token rotation time (TRT) expirations since the station was reset or a token was received. This counter may increment as stations go on and off the ring. A rapidly increasing value may indicate a problem. This counter will wrap around after it reaches its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Fi ringOpCounts

| | |
|---|---|
| Access | Read only |
| Description | The *ringOpCounts* attribute contains the number of times the station has made the transition from the ring not operational state to the ring operational state. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### GROUP Lp Fi NcMacOperational (NcMacOper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes of the *Fddi* component related to non-canonical MAC addresses. |

### ATTRIBUTE Lp Fi ncMacAddress

| | |
|---|---|
| Access | Read only |
| Description | The medium access controller (MAC) address is an address that is recognized by only one station on the attached ring. The value of this attribute is assigned by the system. This attribute is displayed in non-canonical format. The canonical version of this address is indicated in *macAddress*. |
| Values | String (6, Dashed Hex) |
| Default | No default |

### ATTRIBUTE Lp Fi ncUpstreamNeighbor

| | |
|---|---|
| Access | Read only |
| Description | The *ncUpstreamNeighbor* attribute contains the MAC address associated with the upstream neighbor station on the ring. This attribute is displayed in non-canonical format. The canonical version of this address is indicated in *upstreamNeighbor*. |
| Values | String (6, Dashed Hex) |
| Default | No default |

### ATTRIBUTE Lp Fi ncDownstreamNeighbor

| | |
|---|---|
| Access | Read only |
| Description | The *ncDownstreamNeighbor* attribute contains the MAC address associated with the downstream station on the ring. This attribute is displayed in non-canonical format. The canonical version of this address is indicated in *downstreamNeighbor* |
| Values | String (6, Dashed Hex) |
| Default | No default |

### ATTRIBUTE Lp Fi ncOldUpstreamNeighbor

| | |
|---|---|
| Access | Read only |
| Description | *The ncOldUpstreamNeighbor* attribute contains the previous value of the MAC address associated with the upstream station on the ring. This attribute is displayed in non-canonical format. The canonical version of this address is indicated in *oldUpstreamNeighbor.* |
| Values | String (6, Dashed Hex) |
| Default | No default |

### ATTRIBUTE Lp Fi ncOldDownstreamNeighbor

| | |
|---|---|
| Access | Read only |
| Description | The *ncOldDownstreamNeighbor* attribute contains the previous value of the MAC address associated with the downstream station |

on the ring. This attribute is displayed in non-canonical format. The canonical version of this address is indicated in *oldDownstreamNeighbor*.

Values: String (6, Dashed Hex)

Default: No default

## COMPONENT Lp Fi LanTest (Lt)

Groups: "GROUP Lp Fi Lt TestOp (Top)"

Scope: Device

Description: *Lp/n Fddi/n LanTest*, or
*Lp/n Ethernet/n LanTest*, or
*Lp/n TokenRing/n LanTest, or*
*Lp/n IlsForwarder/n LanTest*
The LanTest component is used to control testing on LAN interfaces. This includes LLC layer loopback, on-card loopback, SNMP required tests, and any testing to be done in the lab or manufacturing.

Dyn. Subcomp.:
"COMPONENT Lp Fi Lt FrameCompare (FrmCmp)"
"COMPONENT Lp Fi Lt FrameCopy (FrmCpy)"
"COMPONENT Lp Fi Lt PortConfig (PrtCfg)"
"COMPONENT Lp Fi Lt FrameBuild (Fb)"
"COMPONENT Lp Fi Lt Control (Cntl)"

Common Verbs:
Help
List
Display

## VERB Start Lp Fi Lt

Impact: Service

Description: This verb is used to start a test as per the attributes set within each subcomponent of LanTest.

### VERB Stop Lp Fi Lt

| | |
|---|---|
| Impact | Service |
| Description | This verb is used to stop a test. |

### VERB Reset Lp Fi Lt

| | |
|---|---|
| Impact | Service |
| Description | This verb is used to reset the LanTest component. |

### VERB Get Lp Fi Lt

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters for the LanTest component. This includes attributes set using the Set verb. |

### VERB Tlist Lp Fi Lt

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to an attribute. |

### GROUP Lp Fi Lt TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

### ATTRIBUTE Lp Fi Lt tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

### COMPONENT Lp Fi Lt FrameCompare (FrmCmp)

| | |
|---|---|
| Groups | "GROUP Lp Fi Lt FrmCmp TestOp (Top)" |
| Scope | Device |

| | |
|---|---|
| Description | This component compares frames received from the hardware and emulator during testing. |
| Common Verbs | Help<br>List<br>Display |

### VERB Get Lp Fi Lt FrmCmp

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters for the LanTest FrameCompare component. This includes attributes set using the Set verb. |

### VERB Tlist Lp Fi Lt FrmCmp

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

### GROUP Lp Fi Lt FrmCmp TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

### ATTRIBUTE Lp Fi Lt FrmCmp tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

### COMPONENT Lp Fi Lt FrameCopy (FrmCpy)

| | |
|---|---|
| Groups | "GROUP Lp Fi Lt FrmCpy TestOp (Top)" |
| Scope | Device |

| | |
|---|---|
| Description | This component receives its input from FrameBuild and places it upon the hardware which sends it to the appropriate emulator. |
| Common Verbs | Help<br>List<br>Display |

### VERB Get Lp Fi Lt FrmCpy

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters for the LanTest FrameCopy component. This includes attributes set using the Set verb. |

### VERB Tlist Lp Fi Lt FrmCpy

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

### GROUP Lp Fi Lt FrmCpy TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

### ATTRIBUTE Lp Fi Lt FrmCpy tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

### COMPONENT Lp Fi Lt PortConfig (PrtCfg)

| | |
|---|---|
| Groups | "GROUP Lp Fi Lt PrtCfg TestOp (Top)" |
| Scope | Device |

| | |
|---|---|
| Description | This component controls the emulator and hardware to ensure frames output from each will match in FrameCompare. |
| Common Verbs | Help<br>List<br>Display |

### VERB Get Lp Fi Lt PrtCfg

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters for the LanTest PortConfig component. This includes attributes set using the Set verb. |

### VERB Tlist Lp Fi Lt PrtCfg

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

### GROUP Lp Fi Lt PrtCfg TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

### ATTRIBUTE Lp Fi Lt PrtCfg tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

### COMPONENT Lp Fi Lt FrameBuild (Fb)

| | |
|---|---|
| Groups | "GROUP Lp Fi Lt Fb TestOp (Top)" |
| Scope | Device |
| Description | LanTest Framebuild<br>This component controls the building of all frames built and sent |

by the LanTest component. Each component under FrameBuild builds a portion of a packet or frame.

Dyn. Subcomp.

"COMPONENT Lp Fi Lt Fb TransmitInfo (TxInfo)"
"COMPONENT Lp Fi Lt Fb FddiMac (MacFddi)"
"COMPONENT Lp Fi Lt Fb EthernetMac (MacEnet)"
"COMPONENT Lp Fi Lt Fb TokenRingMac (MacTr)"
"COMPONENT Lp Fi Lt Fb DataField (Data)"
"COMPONENT Lp Fi Lt Fb IpHeader (IpH)"
"COMPONENT Lp Fi Lt Fb LlcHeader (Llch)"
"COMPONENT Lp Fi Lt Fb AppleHeader (AppleH)"
"COMPONENT Lp Fi Lt Fb IpxHeader (IpxH)"

Common Verbs

Help
List
Display

### VERB Get Lp Fi Lt Fb

Impact: Passive

Description: This verb is used to get and display operational parameters for the LanTest FrameBuild component. This includes attributes set using the Set verb.

### VERB Tlist Lp Fi Lt Fb

Impact: Passive

Description: This verb is used to display the list of arguments to a component.

### GROUP Lp Fi Lt Fb TestOp (Top)

Properties: Operational

Description: This group contains the operational data for the LanTest component and its subcomponents.

### ATTRIBUTE Lp Fi Lt Fb tData (td)

Access: Read and write

Description: This attribute is used to display and set attributes.

Values: String (0..255, ASCII)

| | |
|---|---|
| Default | No default |

### COMPONENT Lp Fi Lt Fb TransmitInfo (TxInfo)

| | |
|---|---|
| Groups | "GROUP Lp Fi Lt Fb TxInfo TestOp (Top)" |
| Scope | Device |
| Description | LanTest TransmitInfo<br>This component builds a transmit header which is attached to all frames transmitted on LAN interfaces. |
| Common Verbs | Help<br>List<br>Display |

### VERB Get Lp Fi Lt Fb TxInfo

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters for the LanTest TransmitInfo component. This includes attributes set using the Set verb. |

### VERB Tlist Lp Fi Lt Fb TxInfo

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

### GROUP Lp Fi Lt Fb TxInfo TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

### ATTRIBUTE Lp Fi Lt Fb TxInfo tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

## COMPONENT Lp Fi Lt Fb FddiMac (MacFddi)

| | |
|---|---|
| Groups | "GROUP Lp Fi Lt Fb MacFddi TestOp (Top)" |
| Scope | Device |
| Description | LanTest FddiMac<br>This component builds an FDDI MAC header which is attached to all FDDI frames. |
| Common Verbs | Help<br>List<br>Display |

### VERB Get Lp Fi Lt Fb MacFddi

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters for the LanTest FddiMac component. This includes attributes set using the Set verb. |

### VERB Tlist Lp Fi Lt Fb MacFddi

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

### GROUP Lp Fi Lt Fb MacFddi TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

### ATTRIBUTE Lp Fi Lt Fb MacFddi tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

## COMPONENT Lp Fi Lt Fb EthernetMac (MacEnet)

| | |
|---|---|
| Groups | "GROUP Lp Fi Lt Fb MacEnet TestOp (Top)" |
| Scope | Device |
| Description | LanTest EthernetMac<br>This component builds an Ethernet MAC header which is attached to all Ethernet frames. |
| Common Verbs | Help<br>List<br>Display |

## VERB Get Lp Fi Lt Fb MacEnet

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters LanTest EthernetMac component. This includes attributes set using the Set verb. |

## VERB Tlist Lp Fi Lt Fb MacEnet

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

## GROUP Lp Fi Lt Fb MacEnet TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

## ATTRIBUTE Lp Fi Lt Fb MacEnet tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

## COMPONENT Lp Fi Lt Fb TokenRingMac (MacTr)

| | |
|---|---|
| Groups | "GROUP Lp Fi Lt Fb MacTr TestOp (Top)" |
| Scope | Device |
| Description | LanTest TokenRingMac<br>This component builds a Token Ring MAC header which is attached to all Token Ring frames. |
| Common Verbs | Help<br>List<br>Display |

## VERB Get Lp Fi Lt Fb MacTr

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters for the LanTest TokenRingMac component. This includes attributes set using the Set verb. |

## VERB Tlist Lp Fi Lt Fb MacTr

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

## GROUP Lp Fi Lt Fb MacTr TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

## ATTRIBUTE Lp Fi Lt Fb MacTr tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

## COMPONENT Lp Fi Lt Fb DataField (Data)

| | |
|---|---|
| Groups | "GROUP Lp Fi Lt Fb Data TestOp (Top)" |
| Scope | Device |
| Description | This component adds a data field to frame. |
| Common Verbs | Help<br>List<br>Display |

## VERB Get Lp Fi Lt Fb Data

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters for the LanTest DataField component. This includes attributes set using the Set verb. |

## VERB Tlist Lp Fi Lt Fb Data

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

## GROUP Lp Fi Lt Fb Data TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

## ATTRIBUTE Lp Fi Lt Fb Data tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

## COMPONENT Lp Fi Lt Fb IpHeader (IpH)

| | |
|---|---|
| Groups | "GROUP Lp Fi Lt Fb IpH TestOp (Top)" |
| Scope | Device |

| | |
|---|---|
| Description | LanTest IpHeader<br>This component adds an IP header to a frame or packet. |
| Common Verbs | Help<br>List<br>Display |

### VERB Get Lp Fi Lt Fb IpH

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters for the LanTest IpHeader component. This includes attributes set using the Set verb. |

### VERB Tlist Lp Fi Lt Fb IpH

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

### GROUP Lp Fi Lt Fb IpH TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

### ATTRIBUTE Lp Fi Lt Fb IpH tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

### COMPONENT Lp Fi Lt Fb LlcHeader (Llch)

| | |
|---|---|
| Groups | "GROUP Lp Fi Lt Fb Llch TestOp (Top)" |
| Scope | Device |

| | |
|---|---|
| Description | LanTest LlcHeader<br>This component adds an LLC 802.2 or Ethernet header to a frame or packet. |
| Common Verbs | Help<br>List<br>Display |

### VERB Get Lp Fi Lt Fb Llch

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters for the LanTest LlcHeader component. This includes attributes set using the SET verb. |

### VERB Tlist Lp Fi Lt Fb Llch

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

### GROUP Lp Fi Lt Fb Llch TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

### ATTRIBUTE Lp Fi Lt Fb Llch tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

### COMPONENT Lp Fi Lt Fb AppleHeader (AppleH)

| | |
|---|---|
| Groups | "GROUP Lp Fi Lt Fb AppleH TestOp (Top)" |
| Scope | Device |

| | |
|---|---|
| Description | This component adds an AppleTalk header to a frame or packet. |
| Common Verbs | Help<br>List<br>Display |

### VERB Get Lp Fi Lt Fb AppleH

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters for the LanTest AppleHeader component. This includes attributes set using the Set verb. |

### VERB Tlist Lp Fi Lt Fb AppleH

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

### GROUP Lp Fi Lt Fb AppleH TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

### ATTRIBUTE Lp Fi Lt Fb AppleH tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

### COMPONENT Lp Fi Lt Fb IpxHeader (IpxH)

| | |
|---|---|
| Groups | "GROUP Lp Fi Lt Fb IpxH TestOp (Top)" |
| Scope | Device |

| | |
|---|---|
| Description | This component adds an IPX header to a frame or packet. |
| Common Verbs | Help<br>List<br>Display |

### VERB Get Lp Fi Lt Fb IpxH

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters forLanTest IpxHeader component. This includes attributes set using the Set verb. |

### VERB Tlist Lp Fi Lt Fb IpxH

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

### GROUP Lp Fi Lt Fb IpxH TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

### ATTRIBUTE Lp Fi Lt Fb IpxH tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

### COMPONENT Lp Fi Lt Control (Cntl)

| | |
|---|---|
| Groups | "GROUP Lp Fi Lt Cntl TestOp (Top)" |
| Scope | Device |
| Description | LanTest Control<br>This component controls the overall testing by telling the |

FrameBuild component to start and check the FrameCompare component to see if the test is complete.

Common Verbs

Help
List
Display

### VERB Get Lp Fi Lt Cntl

Impact: Passive

Description: This verb is used to get and display operational parameters for the LanTest Control component. This includes attributes set using the Set verb.

### VERB Tlist Lp Fi Lt Cntl

Impact: Passive

Description: This verb is used to display the list of arguments to a component.

### GROUP Lp Fi Lt Cntl TestOp (Top)

Properties: Operational

Description: This group contains the operational data for the LanTest component and its subcomponents.

### ATTRIBUTE Lp Fi Lt Cntl tData (td)

Access: Read and write

Description: This attribute is used to display and set attributes.

Values: String (0..255, ASCII)

Default: No default

### COMPONENT Lp Fi PhysicalLayer (Phy)

Instance: a
b

Groups: "GROUP Lp Fi Phy Provisionable (Prov)"
"GROUP Lp Fi Phy Operational (Oper)"

| | |
|---|---|
| Scope | Device |
| Description | *Lp/n Fddi/n Phy/x*<br>This component defines an instance of a FDDI port attached to a ring. Two instances of this component must be provisioned for each hardware port. Each port must be provisioned prior to inserting into the ring. |
| Common Verbs | Help<br>List<br>Display<br>Add |

### GROUP Lp Fi Phy Provisionable (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes of the Fddi *Phy* component. |

### ATTRIBUTE Lp Fi Phy lerCutoff

| | |
|---|---|
| Access | Read and write |
| Description | The *lerCutoff* attribute contains the link error rate estimate at which a link connection will be broken. The values will range from 10**-4 to 10**-15. Only the absolute value of the base 10 log is reported. |
| Values | Decimal (4..15) |
| Default | 7 |

### ATTRIBUTE Lp Fi Phy lerAlarm

| | |
|---|---|
| Access | Read and write |
| Description | The *lerAlarm* attribute contains the link error rate estimate at which a link connection will generate an alarm. The values will range from 10**-4 to 10**-15. Only the absolute value of the base 10 log is reported |
| Values | Decimal (4..15) |
| Default | 8 |

### ATTRIBUTE Lp Fi Phy linkErrorMonitor

| | |
|---|---|
| Access | Read and write |
| Description | The *linkErrorMonitor* attribute is used to select the state of the link error monitor for the associated *Phy* component. If ***enabled***, the link error monitor will send the correct test status to the neighboring station. If ***disabled***, the link error monitor will always send a test passed status to the neighboring station. |
| Values | enabled<br>disabled |
| Default | enabled |

### GROUP Lp Fi Phy Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes of the Fddi *Phy* component. |

### ATTRIBUTE Lp Fi Phy neighborType

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the neighbor type of the neighbor physical layer. |
| Values | a<br>b<br>s<br>m<br>none |
| Default | No default |

### ATTRIBUTE Lp Fi Phy lctFailCounts

| | |
|---|---|
| Access | Read only |
| Description | The *lctFailCounts* attribute contains the number of consecutive times the Link Confidence Test (LCT) has failed. This counter will wrap around after it reaches its maximum value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE Lp Fi Phy lerEstimate

| | |
|---|---|
| Access | Read only |
| Description | The *lerEstimate* attribute contains a long term average link error rate. The values will range from 10**-4 to 10**-15. Only the absolute value of the base 10 log is reported |
| Values | Decimal (4..15) |
| Default | No default |

### ATTRIBUTE Lp Fi Phy lemRejectCounts

| | |
|---|---|
| Access | Read only |
| Description | The *lemRejectCounts* attribute contains the number of times that a link has been rejected. This counter will wrap around after it reaches its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp Fi Phy lemCounts

| | |
|---|---|
| Access | Read only |
| Description | The *lemCounts* attribute contains the aggregate link error monitor error count. This counter is set to zero only on station initialization. This counter will wrap around after it reaches its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp Fi Phy pcmState

| | |
|---|---|
| Access | Read only |
| Description | The *pcmState*, physical connection manager (PCM), state indicates the current state of the PCM state machine. |

| | |
|---|---|
| Values | off<br>break<br>trace<br>connect<br>next<br>signal<br>join<br>verify<br>active<br>maint |
| Default | No default |

### ATTRIBUTE Lp Fi Phy lerFlag

| | |
|---|---|
| Access | Read only |
| Description | The *lerFlag* attribute indicates when the link error rate estimate is less than or equal to the link error rate alarm. If ***true***, the value of the link error rate estimate is less than or equal to the link error rate alarm. If ***false***, the value of the link error rate estimate is greater than the link error rate alarm. |
| Values | true<br>false |
| Default | No default |

### ATTRIBUTE Lp Fi Phy signalState

| | |
|---|---|
| Access | Read only |
| Description | The *signalState* attribute contains the current physical connection manager (PCM) signal bit being transmitted, or was transmitted, during the PCM signal state. |
| Values | escape<br>phyTypeL<br>phyTypeH<br>accept<br>lctLengthL<br>lctLengthH<br>macAvail<br>lctResult |

macLoop
macOnPhy
signalingDone

Default No default

### ATTRIBUTE Lp Fi Phy signalBitsRcvd

Access Read only

Description The *signalBitsRcvd* attribute contains the current physical connection manager (PCM) signal bits received.

Set of
escape
phyTypeL
phyTypeH
accept
lctLengthL
lctLengthH
macAvail
lctResult
macLoop
macOnPhy

Default No default

### ATTRIBUTE Lp Fi Phy signalBitsTxmt

Access Read only

Description The *signalBitsTxmt* attribute contains the current physical connection manager (PCM) signal bits transmitted.

Set of
escape
phyTypeL
phyTypeH
accept
lctLengthL
lctLengthH
macAvail
lctResult
macLoop
macOnPhy

| | |
|---|---|
| Default | No default |

## COMPONENT Lp Fi Test

| | |
|---|---|
| Groups | "GROUP Lp Fi Test PortTestOp (PTO)"<br>"GROUP Lp Fi Test Results (Results)" |
| Scope | Device |
| Description | *Lp/n Fddi/n Test*, or<br>*Lp/n Ethernet/n Test*, or<br>*Lp/n TokenRing/n Test, or*<br>*Lp/n IlsForwarder/n Test*<br>The Test component is used to do StartUp port test for LAN cards. |
| Common Verbs | Help<br>List<br>Display |

## VERB Start Lp Fi Test

| | |
|---|---|
| Impact | Service |
| Description | This verb is used to start a test as per the attributes set within each subcomponent of Test. |

## VERB Stop Lp Fi Test

| | |
|---|---|
| Impact | Service |
| Description | This verb is used to stop a test. |

## VERB Reset Lp Fi Test

| | |
|---|---|
| Impact | Service |
| Description | This verb is used to reset the Test component. |

## GROUP Lp Fi Test PortTestOp (PTO)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanPortTest component. |

### ATTRIBUTE Lp Fi Test type (type)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the type of test to be run. The available test types include the following: card test sets up an internal loop on the board and runs a bit error rate test; manual test assumes the line is looped back externally and a bit error rate test is performed; localLoop test loops back the local modem and performs a bit error rate test; remoteLoop test loops back the remote modem (or CSU) and performs a bit error rate test; externalLoop test loops back the line to the far end; payloadLoop test only loops back the payload data received from the incoming line; Note that localLoop, remoteLoop and payloadLoop are not supported by all function processors. |
| Values | onCard<br>normal<br>wrapA<br>wrapB<br>thruA<br>thruB<br>extWrapA<br>extWrapB<br>extThruA<br>extThruB<br>extWrapAB<br>extWrapBA |
| Default | No default |

### ATTRIBUTE Lp Fi Test frmSize (size)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the size of the test data frames in number of bytes. |
| Values | Decimal (4..4096) |
| Units | bytes |
| Default | 1024 |

### ATTRIBUTE Lp Fi Test duration (duration)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the duration (in minutes) that test data will be transmitted. In the case of an externalLoop, this is the time that the loop is in effect. Note that dataStartDelay does not apply to the externalLoop. |
| Values | Decimal (1..30240) |
| Units | minutes |
| Default | 1 |

### GROUP Lp Fi Test Results (Results)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all the statistics related attributes of the Test component. |

### ATTRIBUTE Lp Fi Test elapsedTime

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the number of minutes elapsed since the test started for an externalLoop test. For a data test, this is the time since test data was first transmitted. |
| Values | Decimal (0..4294967295) |
| Units | minutes |
| Default | 0 |

### ATTRIBUTE Lp Fi Test timeRemaining

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the number of minutes remaining before the test is to be stopped according to the duration attribute. |
| Values | Decimal (0..4294967295) |
| Units | minutes |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE Lp Fi Test causeOfTermination

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the reason the test is terminated. |
| Values | testTimeExpired<br>stoppedByOperator<br>unknown<br>neverStarted<br>testRunning |
| Default | neverStarted |

### ATTRIBUTE Lp Fi Test frmTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of frames sent during the test period. This counter is not expected to reach its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Fi Test bitsTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of bits sent during the test period. This counter is not expected to reach its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Fi Test frmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of frames received during the test period. This counter is not expected to reach its maximum value. The counter will wrap around to 0 if it does reach its maximum value. |

| | |
|---|---|
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Fi Test bitsRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of bits received during the test period. This counter is not expected to reach its maximum value. The counter will wrap around to 0 if it does reach its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Fi Test erroredFrmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of errored frames received during the test period. This counter is not expected to reach its maximum value. The counter will wrap around to 0 if it does reach its maximum value. |
| Values | Long Integer |
| Default | No default |

### COMPONENT Lp DS3

| | |
|---|---|
| Instance | Decimal (0..11) |
| Groups | "GROUP Lp DS3 Provisioned (Prov)"<br>"GROUP Lp DS3 CustomerIdentifierData (CidData)"<br>"GROUP Lp DS3 AdminInfo (AdminInfo)"<br>"GROUP Lp DS3 IfEntryProv (IfEntry)"<br>"GROUP Lp DS3 OperationalStatus (OperStatus)"<br>"GROUP Lp DS3 OsiState (State)"<br>"GROUP Lp DS3 Operational (Oper)"<br>"GROUP Lp DS3 Statistics (Stats)" |
| Scope | Application |

| | |
|---|---|
| Description | Lp/n DS3/n<br>The *DS3* component controls a DS3 port on a DS3 Function Processor. Only for a 4pDS3 Frame Relay FP, determination of channelized or unchannelized card type is based on the provisioning of DS1Tribs. i.e. If no DS1Trib provisioned, it is regarded as an unchannelized FP; otherwise it is treated as a channelized FP. It should also be noticed that currently mixture of channelized and unchannelized configurations on the same 4pDS3 Frame Relay FP is not accepted. |
| Opt. Subcomp. | "COMPONENT Lp DS3 AtmCell (Cell)"<br>"COMPONENT Lp DS3 DS1"<br>"COMPONENT Lp DS3 InverseMultiplexerAtm (Ima)" |
| Dyn. Subcomp. | "COMPONENT Lp DS3 Test (Test)"<br>"COMPONENT Lp DS3 CBit"<br>"COMPONENT Lp DS3 Plcp" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

### GROUP Lp DS3 Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all of the provisioning data for a *DS3* component. |

### ATTRIBUTE Lp DS3 cbitParity

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates if C-Bit parity has been turned ON or OFF. The *CBIT* component will appear under the *DS3* component when the *cbitParity* attribute is set to ***on***. |
| Values | off<br>on |

| | |
|---|---|
| Default | on |

### ATTRIBUTE Lp DS3 lineLength (length)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the line length for equalization calculations for the DS3 line. The range is between 0 and 450 feet (1 metre = 3.28 feet).<br>Note: There are currently only two ranges as far as the equalization calculation performed on the FP is concerned: 0 to 224ft and 225 to 450ft. |
| Values | Decimal (0..450) |
| Units | feet |
| Default | 1 |

### ATTRIBUTE Lp DS3 clockingSource

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the type of clocking source used for synchronizing the DS3 transmit clock: ***local*** means direct use of the local clock oscillator at its centre frequency; ***line*** means use of a signal phase-locked to the incoming DS3 line rate; ***module*** means the use of a signal phase-locked to the CP reference clock. Note that the multiport cell-based cards have one common clock source for all ports. For this reason, the following rules apply for the value of *clockingSource* across the board's three ports:<br>All three *clockingSource* values must be "***local***" OR<br>All three *clockingSource* values must be "***module***" OR<br>One *clockingSource* value must be "***line***" and the other two must be "***otherPort***".<br>If there is no *NS* component provisioned, the default value for this attribute will be ***local.*** If the *NS* component has been provisioned, the default value is ***module***, except for the ***1pDS3C*** cards.<br><br>For the ***1pDS3C*** cards, the default and only valid value for this attribute is ***local***. The *clockingSource* of the DS1 sub-component becomes the effective clocking source for this attribute. All the DS1 sub-components have the same clocking source. |

On the ***4pDS3ChAal1*** card, the only allowed values for this attribute are ***local*** and ***module***.

Values
local
line
module
otherPort

Default
No default

### ATTRIBUTE Lp DS3 applicationFramerName (framer)

Access
Read and write

Description
This attribute defines the link to the software stack. It defines which application is running on top of the *DS3* component.

Values
Link (Service, interfaceName)

Default
No default

### ATTRIBUTE Lp DS3 mapping

Access
Read and write

Description
This attribute indicates if ATM cells will be mapped directly into the DS3 payload, or whether PLCP mapping will be used. The *PLCP* component will appear under the *DS3* component when this attribute is set to ***plcp***. This attribute will be ignored when set on frame-based cards.

On the ***4pDS3ChAal1*** card, the only allowed value for this attribute is ***direct***.

Values
direct
plcp

Default
direct

### GROUP Lp DS3 CustomerIdentifierData (CidData)

Properties
Provisioned

Description
This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs.

### ATTRIBUTE Lp DS3 customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.<br><br>Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.<br><br>An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to "basic CIDs" in DPN) may be assigned to specific customers. |
| Values | Decimal (0; 1..8191) |
| Default | 0 |

### GROUP Lp DS3 AdminInfo (AdminInfo)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attributes pertaining to the vendor of the equipment. |

### ATTRIBUTE Lp DS3 vendor

| | |
|---|---|
| Access | Read and write |
| Description | This is the name of the vendor supplying the facility. |
| Values | String (0..20, ASCII) |
| Default | No default |

### ATTRIBUTE Lp DS3 commentText

| | |
|---|---|
| Access | Read and write |
| Description | Any miscellaneous text about the facility. |
| Values | String (0..60, ASCII) |
| Default | No default |

### GROUP Lp DS3 IfEntryProv (IfEntry)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the ifEntry. |

### ATTRIBUTE Lp DS3 ifAdminStatus (ifState)

| | |
|---|---|
| Access | Read and write |
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE Lp DS3 ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP Lp DS3 OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

### ATTRIBUTE Lp DS3 snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### GROUP Lp DS3 OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Lp DS3 adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. |

When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Lp DS3 operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Lp DS3 usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### ATTRIBUTE Lp DS3 availabilityStatus (osiAvail)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present. |

The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.

The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.

The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.

The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

| | |
|---|---|
| Set of | inTest<br>failed<br>dependency (depend)<br>powerOff (pwrOff)<br>offLine<br>offDuty<br>degraded (degrad)<br>notInstalled (notIn)<br>logFull<br>migrating |
| Default | No default |

### ATTRIBUTE Lp DS3 proceduralStatus (osiProc)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.<br><br>The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.<br><br>The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***. |

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

### ATTRIBUTE Lp DS3 controlStatus (osiCntrl)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

Set of

subjectToTest (subTst)
partOfServicesLocked (partLk)
reservedForTest (rsrvd)
suspended (suspnd)

Default

No default

### ATTRIBUTE Lp DS3 alarmStatus (osiAlarm)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE Lp DS3 standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values

hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

| | |
|---|---|
| Default | notSet |

### ATTRIBUTE Lp DS3 unknownStatus (osiUnknw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Unknown status of the component.<br><br>The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.<br><br>The value ***true*** indicates that the actual state of the component is not known for sure. |
| Values | false<br>true |
| Default | false |

### GROUP Lp DS3 Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the common operational data for the *DS3* component. |

### ATTRIBUTE Lp DS3 losAlarm (los)

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays whether a Loss Of Signal (LOS) alarm state has been entered. An LOS alarm state is entered when LOS defects have been observed and accumulated for a period of 2.5 seconds +/- 0.5 seconds. An LOS defect is detected at the DS3 line interface upon observing 175 +/- 75 continuous pulse positions with no pulses of either positive or negative polarity. If the LOS defects are intermittently occurring, the LOS defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.<br>The *DS3* component goes into an operational state of *disabled* until the LOS alarm condition is cleared. The LOS alarm state is cleared after LOS defects have been absent for a period of 10 |

seconds +/- 0.5 seconds.
The *losAlarm* attribute is always set to ***off*** when the component has been *locked* and left *offline*.

Values
on
off

Default
off

### ATTRIBUTE Lp DS3 lofAlarm (lof)

Access
Read only

Description
This attribute displays whether a Loss Of Frame (LOF) alarm state has been entered. An LOF alarm state is entered when Severely Errored Frame (SEF) defects have been observed and accumulated for a period of 2.5 seconds +/- 0.5 seconds. A SEF defect is detected when 3 (or more) out of 16 (or fewer) F-bits are in error, or one (or more) M-bits in two (or more) out of four (or fewer) consecutive M-frames are in error. If the LOF defects are intermittently occurring, the LOF defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.
The *DS3* component goes into an operational state of *disabled* until the LOF alarm condition is cleared. The condition is cleared when framing has been achieved for a period of 10 seconds +/- 0.5 seconds. As long as SEF defects are detected, the node also transmits the far-end SEF/AIS defect indicator over the outgoing line. When not running in C-Bit Parity mode, the *txRai* attribute is also set to ***on*** when transmitting the far-end SEF/AIS defect indicator on the outgoing line.
The *lofAlarm* attribute is always set to ***off*** when the component has been *locked* and left *offline*.

Values
on
off

Default
off

### ATTRIBUTE Lp DS3 rxAisAlarm (rxAis)

Access
Read only

Description

This attribute displays whether an Alarm Indication Signal (AIS) alarm state has been entered. An AIS alarm state is entered when AIS defects have been observed and accumulated for 2.5 seconds +/- 0.5 seconds. An AIS defect is the occurrence of AIS (valid DS3 frame with payload containing the 1010...sequence and with C-Bits set to zero) in contiguous M-frames for a time greater than 100 milliseconds. If the AIS defects are intermittently occurring, the AIS defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.
The *DS3* component goes into an operational state of *disabled* until the AIS alarm condition is cleared (after AIS has been no longer detected for a period of 10 seconds +/- 0.5 seconds). As long as AIS is detected, the node also transmits the far-end SEF/AIS defect indicator over the outgoing line. When not running in C-Bit Parity mode, the *txRai* attribute is also set to *on* when transmitting the far-end SEF/AIS defect indicator on the outgoing line.
The *rxAisAlarm* attribute is always set to ***off*** when the component has been *locked* and left *offline*.

Values

on
off

Default

off

### ATTRIBUTE Lp DS3 rxRaiAlarm (rxRai)

Access

Read only

Description

This attribute displays whether a Remote Alarm Indication (RAI) alarm state has been entered.
When not running the C-Bit Parity mode, the RAI alarm state is entered when the far-end SEF/AIS defect indicator has been observed and accumulated for a period of 2.5 seconds +/- 0.5 seconds on the incoming DS3 line. If the RAI defects are intermittently occurring, the RAI defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle. The *DS3* component goes into an operational state of *disabled* until the RAI alarm condition is cleared. The condition is cleared when the far-end SEF/AIS defect indicator

has not been detected for 10 seconds +/- 0.5 seconds.
When running the C-Bit Parity mode, the RAI alarm state is entered upon detection of a far-end alarm over the Far-End Alarm and Control (FEAC) channel. The RAI alarm state is exited as soon as no more far-end alarm is detected on the FEAC channel. The far-end alarms that can be detected on the FEAC channel and that cause the RAI alarm state to be entered are: equipment failure alarm (service affecting), LOS alarm, LOF alarm, idle and AIS alarm.
The *rxRaiAlarm* attribute is always set to ***off*** when the component has been *locked* and left *offline*.

Values
on
off

Default
off

### ATTRIBUTE Lp DS3 rxIdle

Access
Read only

Description
This attribute displays whether an Idle failure condition has been reported on the DS3 port. An Idle condition is reported when DS3 Idle defects have been observed and accumulated for a period of 2.5 seconds +/- 0.5 seconds. The DS3 Idle defect is the occurrence of a valid DS3 frame with the information bits set to a 11001100.. sequence. If the DS3 Idle defects are intermittently occurring, the DS3 Idle defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.
The *DS3* component goes into an operational state of *disabled* until the Idle failure condition is cleared. The failure condition is cleared when the DS3 idle pattern has not been detected for at least 10 seconds +/- 0.5 seconds.
The *rxIdle* attribute is always set to ***off*** when the component has been *locked* and left *offline*.
The idle pattern indicates that the far-end is physically connected but not put in service. For instance, DS3 idle is transmitted on the outgoing line when the *DS3* component is locked and not used for operational testing.

Values
on
off

| | |
|---|---|
| Default | off |

### ATTRIBUTE Lp DS3 txAis

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays whether an Alarm Indication Signal (AIS) alarm is being transmitted on the DS3 line. Currently, AIS is never transmitted by a Passport DS3 node. |
| Values | on<br>off |
| Default | off |

### ATTRIBUTE Lp DS3 txRai

| | |
|---|---|
| Access | Read only |
| Description | When not running C-Bit Parity mode, this attribute displays whether the far-end SEF/AIS defect indicator is transmitted over the outgoing line when the *DS3* component has been unlocked or used in operational testing. When running in C-Bit Parity mode, this attribute displays whether a far-end alarm is sent over the Far-End Alarm and Control (FEAC) channel when the *DS3* component has been unlocked or used in operational testing. When the *DS3* component is locked and not used in operational testing, this attribute is always set to ***off***. |
| Values | on<br>off |
| Default | off |

### ATTRIBUTE Lp DS3 txIdle

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays whether the DS3 Idle signal is transmitted over the outgoing line. DS3 Idle is sent when the *DS3* component has been locked and not used in operational testing. |
| Values | on<br>off |
| Default | off |

## GROUP Lp DS3 Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the specific DS3 common operational data for a *DS3* component. Each attribute type is a non-negative integer which monotonically increases until it reaches a maximum value, at which point it wraps around and starts increasing again from zero. |

## ATTRIBUTE Lp DS3 runningTime (time)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of seconds since the DS3 component has been activated and been in unlocked state or used for operational testing. All the other error counts that follow as well as each *DS3* subcomponent's error counts can be updated when this count is active. |
| Values | Decimal (0..4294967295) |
| Units | seconds |
| Default | 0 |

## ATTRIBUTE Lp DS3 errorFreeSec (efs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of seconds that the DS3 port has been in an error free state. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## ATTRIBUTE Lp DS3 lineCodeViolations (lcv)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of Line Code Violations (LCV) detected. A DS3 Line Code Violation is a B3Zs error. LCV counting is inhibited for second intervals where Line Severely Errored Second (LSES) is counted.<br>This attribute is a non-negative integer which monotonically |

| | |
|---|---|
| | increases until it reaches a maximum value, at which point it wraps around and starts increasing again from zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp DS3 lineErroredSec (les)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of Line Errored Seconds (LES) that have been counted. A LES is declared for second intervals containing one or more LCV or one or more Loss Of Signal (LOS) defects. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp DS3 lineSevErroredSec (lses)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of Line Severely Errored Seconds (LSES) that have been counted. A LSES is declared for second intervals containing more than 44 LCVs or one or more LOS defects. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp DS3 lineLosSec (loss)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of Line LOS Seconds (LOSS) that have been counted. A LOSS is declared for second intervals containing one or more LOS defects. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp DS3 lineFailures (lf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of times that a line failure (LOS failure) has been declared.<br>This attribute is a non-negative integer which monotonically increases until it reaches a maximum value, at which point it wraps around and starts increasing again from zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp DS3 pathCodeViolations (pcv)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of Path Code Violations (PCVs) detected. Each PCV corresponds to a P-bit parity error, or possibly a frame error or a disagreement between P-bits or X-bits. PCV counting is inhibited over second intervals where a Path Severely Errored Second (PSES) is counted. Counting of PCVs is also inhibited over second intervals where a Path Unavailable Second (PUAS) is counted.<br>This attribute is a non-negative integer which monotonically increases until it reaches a maximum value, at which point it wraps around and starts increasing again from zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp DS3 pathErroredSec (pes)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of Path Errored Seconds (PESs) that have been counted. A PES is declared for second intervals containing one or more Path Code Violations (PCV) or one or more Severely Errored Frame (SEF) or Alarm Indication Signal (AIS) defects. Counting of Path Errored Seconds is inhibited when Path Unavailable Seconds (PUAS) is counted over the monitored second. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp DS3 pathSevErroredSec (pses)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of Path Severely Errored Seconds (PSESs) that have been counted. A PSES is declared for second intervals containing more than 44 PCVs or one or more SEF or AIS defects. Counting of PSESs is inhibited when Path Unavailable Seconds (PUAS) is counted over the monitored second. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp DS3 pathSefAisSec (psas)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of SEF/AIS Seconds (PSASs). A PSAS is declared for second intervals containing one or more Severely Errored Frame (SEF) or Alarm Indication Signal (AIS) defects. Counting of PSAS is inhibited when Path Unavailable Seconds (PUAS) is counted over the monitored second. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp DS3 pathUnavailSec (puas)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of one second intervals for which the DS3 path is unavailable. The DS3 path becomes unavailable at the onset of 10 consecutive Path Severely Errored Seconds (PSES). The 10 PSESs are included in the unavailable time. Once unavailable, the DS3 path becomes available at the onset of 10 contiguous seconds with no PSES. The 10 seconds with no PSES are excluded from the unavailable time. For second |

| | |
|---|---|
| | intervals where PUAS is counted, counting of Path Coding Violations (PCV), Path Errored Seconds (PES), Path Severely Errored Seconds (PSES) and Path Sef/Ais Seconds (PSAS) is inhibited. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp DS3 pathFailures (pf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of times that a path failure (LOF/AIS failure) has been declared.<br>This attribute is a non-negative integer which monotonically increases until it reaches a maximum value, at which point it wraps around and starts increasing again from zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp DS3 egressFrameDiscards

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of frames discarded at egress PQC. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT Lp DS3 Test (Test)

| | |
|---|---|
| Groups | "GROUP Lp DS3 Test OsiState (State)"<br>"GROUP Lp DS3 Test Setup (Setup)"<br>"GROUP Lp DS3 Test Results (Results)" |
| Scope | Application |

Description — The *Test* component is configured to control a hardware facility test on a physical (*V35*, *X21*, *DS1*, *E1*, *DS3*, *E3* etc.) or a logical port.

Common Verbs
- Help
- List
- Display

### VERB START Lp DS3 Test

Impact — Service

Description — This command invokes a test on the hardware component. Note that some test types requires the parent component (the hardware component) to be locked (using the *Lock* command) before a test can be started.

### VERB STOP Lp DS3 Test

Impact — Service

Description — This command stops a test running on the hardware component.

### GROUP Lp DS3 Test OsiState (State)

Properties — Operational

Description — This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Lp DS3 Test adminState (osiAdmin)

Access — Read only

Description — This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component.

When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Lp DS3 Test operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Lp DS3 Test usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Lp DS3 Test Setup (Setup)

Properties
Operational

Description
This group contains all of the operational data for a *Test* component.

### ATTRIBUTE Lp DS3 Test purpose (purpose)

Access
Read and write

Description
This attribute records the purpose of the test so that the test results can be associated and properly analyzed.

Values
String (0..40, ASCII)

Default
No default

### ATTRIBUTE Lp DS3 Test type (type)

Access
Read and write

Description
This attribute is the type of test to be run. The available test types include the following:
***card*** test sets up an internal loop on the board and runs a bit error rate test.
***manual*** test assumes the line is looped back externally and a bit error rate test is performed.
***localLoop*** test loops back the local modem and performs a bit error rate test.

***remoteLoop*** test loops back the remote modem (or CSU) and performs a bit error rate test.
***externalLoop*** test loops back the line to the far end.
***payloadLoop*** test only loops back the payload data received from the incoming line.
***remoteLoopThisTrib*** loops this particular tributary back at the far end, using services provided by the parent.
***v54RemoteLoop*** initiates a V.54 Remote Loopback test.
***pn127RemoteLoop*** initiates a PN127 Remote Loopback test.
***lineBIP8Error*** tests line BIP 8 error generation and detection (B2 byte inverted).
***sectionBIP8Error*** tests section BIP 8 error generation and detection (B1 byte inverted).
***pathBIP8Error*** tests path BIP 8 error generation and detection (B3 byte inverted).
***pathBIP2Error*** tests path BIP 2 error generation and detection (bit 1-2 of V5 byte inverted).
Note that not all test types are not supported by all function processors.

Values

card
manual
localLoop
remoteLoop
externalLoop
payloadLoop
remoteLoopThisTrib
v54RemoteLoop
pn127RemoteLoop
lineBIP8Error
sectionBIP8Error
pathBIP8Error
pathBIP2Error

Default

card

## ATTRIBUTE Lp DS3 Test frmSize (size)

Access

Read and write

Description

This attribute defines the size of the test data frames in number of bytes.

| | |
|---|---|
| | This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |
| Values | Decimal (4..4096) |
| Units | bytes |
| Default | 1024 |

### ATTRIBUTE Lp DS3 Test frmPatternType (fpt)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the type of data pattern generation to use. The following lists the available pattern types:<br>***ccitt32kBitPattern*** is a pseudo-random sequence of 32 kbit.<br>***ccitt8MBitPattern*** is a pseudo-random sequence of 8Mbit.<br>***customizedPattern*** is the pattern defined in the ***customizedPattern*** attribute. |
| Values | ccitt32kBitPattern<br>ccitt8MBitPattern<br>customizedPattern |
| Default | ccitt32kBitPattern |

### ATTRIBUTE Lp DS3 Test customizedPattern (cp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute allows a customized 32 bit pattern to be defined for use in the test data frames. This attribute is used when the attribute *frmPatternType* is set to ***CustomizedPattern***. Note that a 55 hex pattern is an alternating 1 and 0 pattern. |
| Values | Hex (H.0..H.ffffffff) |
| Units | Hex |
| Default | H.55555555 |

### ATTRIBUTE Lp DS3 Test dataStartDelay (dsd)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute specifies the time delay (in seconds) between when the test expects the loop to have been set up, to when the test data actually starts to be transmitted. This attribute is to accommodate some non-standard equipment that requires extra time for setting up a requested loop.<br>This attribute is ignored when the test *type* is set to ***externalLoop***. |
| Values | Decimal (0..1814400) |
| Units | seconds |
| Default | 0 |

### ATTRIBUTE Lp DS3 Test displayInterval (di)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the interval (in minutes) between which interim test results are to be displayed. Results are displayed at the operator console at which the test was started. When the test *type* is set to ***externalLoop***, this attribute is ignored. There will be no display of results if *displayInterval* is set to 0. This attribute can be changed anytime. |
| Values | Decimal (0..30240) |
| Units | minutes |
| Default | 5 |

### ATTRIBUTE Lp DS3 Test duration

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the duration for which the test data will be transmitted. In the case of an ***externalLoop***, this is the time that the loop is in effect. Note that *dataStartDelay* does not apply to the ***externalLoop*** test type. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 1.00 |

## GROUP Lp DS3 Test Results (Results)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all the statistics related attributes of the *Test* component. |

## ATTRIBUTE Lp DS3 Test causeOfTermination

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates either the status of the test or the cause of the test's termination:<br><br>a value of ***neverStarted*** indicates that the test has not yet been started.<br><br>a value of ***testRunning*** indicates that the test has been started.<br><br>a value of ***stoppedByOperator*** indicates that the operator issued a stop command on a test that was running.<br><br>a value of ***testTimeExpired*** indicates that the test ran for the time specified by the test's *duration*.<br><br>a value of ***loopCodeSyncFailed*** indicates that the local end failed to synchronize to the loopCode pattern. The local end transmits the loopCode pattern to cause the remote end to apply a loopback, after which the local end should receive the loopCode pattern. The exact pattern used to request loopCode depends on the test *type*. This failure indicates a high rate of transmission errors, or that the remote end has failed to apply the loopback.<br><br>a value of ***patternSyncFailed*** indicates that the local end failed to synchronize to the *frmPatternType* test pattern, that should have been looped back at the remote end. This failure indicates a high rate of transmission errors or the absence of a loopback.<br><br>a value of ***patternSyncLost*** indicates that the local end gained and then lost synchronization to the returned *frmPatternType* test pattern. This failure indicates a sudden increase in transmission errors, frame slippage, or the removal of an existing loopback. |

a value of ***unknown*** is set when a reason to terminate other than those listed here is encountered.

Note: The *causeOfTermination* attribute values of ***loopCodeSyncFailed***, ***patternSyncFailed*** and ***patternSyncLost*** are supported only on MSA cards. *Test* components located on other cards or under an *Ima* component on an MSA card will never terminate the test under the conditions described by these values.

Values
testTimeExpired
stoppedByOperator
unknown
neverStarted
testRunning
hardwareReconfigured
loopCodeSyncFailed
patternSyncFailed
patternSyncLost

Default
neverStarted

### ATTRIBUTE Lp DS3 Test bitsTx

Access
Read only

Description
This attribute counts the bits sent during the test period. As long as the line speed of the hardware interface is less than 70 Mbit/s, this counter is not expected to reach the maximum value.

Values
Long Integer

Default
No default

### ATTRIBUTE Lp DS3 Test bytesTx

Access
Read only

Description
This attribute counts the bytes sent during the test period. This counter is not expected to reach its maximum value.

Values
Long Integer

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Lp DS3 Test frmTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames sent during the test period. This counter is not expected to reach its maximum value.<br><br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp DS3 Test bitsRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bits received during the test period. The counter wraps to zero when it exceeds the maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp DS3 Test bytesRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes received during the test period. The counter wraps to zero when it exceeds its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp DS3 Test frmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received during the test period. The counter wraps to zero when it exceeds its maximum value.<br><br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |

| | |
|---|---|
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp DS3 Test erroredFrmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute is not displayed for ATM and MSA32 cards. For ATM cards, the physical layer drops all errored frames at the controller interface. For MSA32 cards, the test does not generate any frame.<br><br>For all other card types, this attribute counts the errored frames received during the test period. The counter wraps to zero when it exceeds its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp DS3 Test bitErrorRate

| | |
|---|---|
| Access | Read only |
| Description | This attribute is not displayed for ATM cards because the physical layer drops all errored frames at the controller interface. For MSA32 cards, this attribute indicates the link bit error rate, regardless of the *frameSize*, which is not supported<br><br>For all other card types, this attribute is the calculated bit error rate on the link. Test data are generated and sent in frames of a preset size (*frameSize*). The *Test* component will try to estimate the number of bit errors in any errored frame which is identifiable. The statistics will be updated accordingly. A lost frame (may be due to an error on the flag sequence) will be discarded for the bit error rate calculation. The result is presented in the form of xEsyy, where x is the mantissa, syy is the exponent, for example 0E+00, 2E-09.<br>Note that the *bitErrorRate* is an estimate only. For more reliable test results, the test should be done over a long period. Multiple tests would also improve the confidence level of the test results. |
| Values | String (5, ASCII) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Lp DS3 Test elapsedTime

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the time elapsed since the test started for an ***externalLoop*** test. For a data test, it indicates time since test data was first transmitted. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 0.00 |

### ATTRIBUTE Lp DS3 Test timeRemaining

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the length of time remaining before the test stops according to the *duration* attribute. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 0.00 |

### COMPONENT Lp DS3 CBit

| | |
|---|---|
| Groups | "GROUP Lp DS3 CBit Operational"<br>"GROUP Lp DS3 CBit Statistics (Stats)" |
| Scope | Application |
| Description | *Lp/n DS3/n CBIT*<br>The *CBIT* component is configured to display all DS3 C-Bit parity related operational and statistical data. It will appear under the *DS3* component when the *DS3 cbitParity* attribute is set to ***on***. |
| Common Verbs | Help<br>List<br>Display |

## GROUP Lp DS3 CBit Operational

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the DS3 C-Bit Parity operational data for the *CBIT* component. |

## ATTRIBUTE Lp DS3 CBit farEndAlarm

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Far-End alarm signal that is currently received at the DS3 interface. This signal is carried over the Far-End Alarm and Control (FEAC) bits of DS3 frames. Five far-end alarm signals can be received: far-end equipment failure that is received when the far-end terminal has detected a local equipment failure; far-end Loss Of Signal (LOS) that is received when the far-end DS3 terminal has declared a LOS failure condition; far-end Loss of Frame (LOF) when the far-end DS3 terminal has declared a Loss Of Frame (LOF) failure condition; far-end Alarm Indication Signal (AIS) when the far-end has declared an AIS failure condition; far-end Idle when the far-end has declared an Idle signal condition. |
| Values | equipmentFailure<br>los<br>sef<br>ais<br>idle<br>none |
| Default | none |

## ATTRIBUTE Lp DS3 CBit loopedbackToFarEnd

| | |
|---|---|
| Access | Read only |
| Description | This indicates whether or not the DS3 component is currently looping back the incoming DS3 signal or one of its DS1 tributaries to the far-end DS3 terminal. This is activated when the far-end DS3 equipment has ordered the local terminal to do so. |

| | |
|---|---|
| Set of | 1<br>2<br>3<br>4<br>5<br>6<br>7<br>8<br>9<br>10<br>11<br>12<br>13<br>14<br>15<br>16<br>17<br>18<br>19<br>20<br>21<br>22<br>23<br>24<br>25<br>26<br>27<br>28<br>ds3Line |
| Default | No default |

### ATTRIBUTE Lp DS3 CBit loopbackAtFarEndRequested

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates which DS1 tributaries are being looped back, or if the DS3 line is being looped back. Each value listed indicates a loopback request has been made. When a loopback |

deactivation command has been sent to the far end, the corresponding value will be removed from the list.

Set of

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
ds3Line

Default

No default

## GROUP Lp DS3 CBit Statistics (Stats)

Properties

Operational

Description

This group contains the DS3 C-Bit Parity statistical data for the *CBIT* component. Each attribute type is a non-negative integer

which monotonically increases until it reaches a maximum value, at which point it wraps around and starts increasing again from zero.

### ATTRIBUTE Lp DS3 CBit cbitErrorFreeSec (cefs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of seconds that the DS3 port has not suffered any C-Bit errors. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp DS3 CBit cbitCodeViolations (ccv)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total count of C-Bit Parity Code Violations (CCV). A CCV is obtained when the parity calculated over the previous DS3 frame and the value of the CP-bits appearing in the current DS3 frame differ. The value of this attribute will wrap around to 0 if it does reach its maximum value. CCV counting is inhibited for second intervals where C-Bit Parity Severely Errored Seconds (CSES) are counted. It is also inhibited for second intervals where C-Bit Unavailable Seconds (CUAS) are counted.<br>This attribute is a non-negative integer which monotonically increases until it reaches a maximum value, at which point it wraps around and starts increasing again from zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp DS3 CBit cbitErroredSec (ces)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of C-Bit Parity Errored Seconds (CES). A CES second is declared for second intervals containing one or more CCVs or when one or more SEF (Severely Errored Frame) or AIS (Alarm Indication Signal) defects. |

CES counting is inhibited for second intervals where C-Bit Unavailable Seconds (CUAS) are counted.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE Lp DS3 CBit cbitSevErroredSec (cses)

Access: Read only

Description: This attribute indicates the total number of C-Bit Parity Severely Errored Seconds (CSES). A CSES is declared for second intervals containing more than 44 CCVs or one or more SEF or AIS defects. The occurrence of CSES in a one second interval causes the inhibition of CCV counting during that second interval. CSES counting is also inhibited for second intervals where C-Bit Unavailable Seconds (CUAS) are counted.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE Lp DS3 CBit cbitUnavailSec (cuas)

Access: Read only

Description: This attribute indicates the total number of one second intervals for which the DS3 path is unavailable. The DS3 path becomes unavailable at the onset of 10 consecutive C-Bit Severely Errored Seconds (CSES). The 10 CSESs are included in the unavailable time. Once unavailable, the DS3 path becomes available at the onset of 10 contiguous seconds with no CSES. The 10 seconds with no CSES are excluded from the unavailable time. For second intervals where CUAS is counted, counting of C-Bit Coding Violations (CCV), C-Bit Errored Seconds (CES) and C-Bit Severely Errored Seconds (CSES) is inhibited.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE Lp DS3 CBit farEndErrorFreeSec (feefs)

Access: Read only

| | |
|---|---|
| Description | This attribute indicates the number of seconds that the DS3 port has not suffered of any far-end errors. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp DS3 CBit farEndCodeViolations (fecv)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total count of DS3 frames containing a Coding Violation on the Far-End (FECV), also known as a Far-End Block Error (FEBE). Each FEBE is reported over the FEBE bits each time the far-end DS3 terminal detects a C-BIT Parity error over a received DS3 frame. For second intervals where Far-End Unavailable Seconds (FEAUS) or Far-End Severely Errored Seconds (FESES) are counted, counting of FECVs is inhibited. This attribute is a non-negative integer which monotonically increases until it reaches a maximum value, at which point it wraps around and starts increasing again from zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp DS3 CBit farEndErroredSec (fees)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of Far-End Errored Seconds (FEES). A FEES is declared for second intervals containing with one or more FECVs or one or more far-end SEF/AIS defects. A far-end SEF/AIS defect occurs when the X-Bits of the DS3 frame are received as being set to zero. For second intervals where Far-End Unavailable Seconds (FEUAS) are counted, counting of FEESs is inhibited. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp DS3 CBit farEndSevErroredSec (feses)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the total number of Far-End Severely Errored Seconds (FESES). A FESES is declared for second intervals containing more than 44 FECVs or one or more far-end SEF/AIS defects. For second intervals where a FESES is counted, counting of FECVs is inhibited. For second intervals where Far-End Unavailable Seconds (FEUAS) are counted, counting of FESESs is inhibited. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp DS3 CBit farEndSefAisSec (fesas)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of Far-End SEF/AIS Seconds (FESAS). A FESAS is declared for second intervals containing one or more far-end SEF/AIS defects.For second intervals where Far-End Unavailable Seconds (FEUAS) are counted, counting of FESASs is inhibited. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp DS3 CBit farEndUnavailSec (feuas)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of one second intervals for which the DS3 far-end path is unavailable. The DS3 far-end path becomes unavailable at the onset of 10 consecutive Far-End Severely Errored Seconds (FESES). The 10 FESESs are included in the unavailable time. Once unavailable, the DS3 far-end path becomes available at the onset of 10 contiguous seconds with no FESES. The 10 seconds with no FESES are excluded from the unavailable time. For second intervals where FEUAS is counted, counting of Far-End Coding Violations (FECV), Far-End Errored Seconds (FEES), Far-End Severely Errored Seconds (FESES) and Far-End Sef/Ais Seconds (FESAS) is inhibited. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp DS3 CBit farEndFailures (fef)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of times that a far-end path failure (i.e. a Far-End SEF/AIS defect) has been declared. This attribute is a non-negative integer which monotonically increases until it reaches a maximum value, at which point it wraps around and starts increasing again from zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT Lp DS3 Plcp

| | |
|---|---|
| Groups | "GROUP Lp DS3 Plcp Operational"<br>"GROUP Lp DS3 Plcp Statistics (Stats)" |
| Scope | Application |
| Description | *LP/n DS3/n PLCP*<br>*LP/n E3/n PLCP*<br>The *PLCP* component is configured to display all DS3/E3 PLCP related operational and statistical data. It will appear under the *DS3* or *E3* components when the *mapping* attribute is set to ***plcp***. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Lp DS3 Plcp Operational

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the *PLCP* component. |

### ATTRIBUTE Lp DS3 Plcp lofAlarm (lof)

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays whether a PLCP Loss Of Frame (LOF) failure alarm state has been entered. An LOF failure is declared when a PLCP LOF defect persists for 2.5 s +/- 0.5 s. An LOF |

defect occurs when an OOF (Out of Frame) state persists for more than 1 ms. If the OOF events are intermittent, the LOF defect counter is decremented at a rate of 1/12 (for DS3 PLCP) or 1/9 (for G.751 E3 PLCP) of the incrementing rate, with all measurements based on a 200 ms polling cycle. An OOF event (also known as a PLCP SEF event) is declared when an error is detected in both the A1 and A2 octets, or when two consecutive POHIDs are found in error.
OOF is removed when two valid sets of framing octets and two valid and sequential POHID octets have been found. The LOF defect is removed when the defect counter reaches zero, i.e. when OOF events are absent for more than 12 ms (DS3 PLCP) or 9 ms (G.751 E3 PLCP). LOF failure alarm is cleared when LOF defect is absent for 10.0 s +/- 0.5 s
The *DS3* or *E3* component goes into an operational state of *disabled* until the LOF failure alarm is cleared. The terminal declaring the LOF failure alarm will transmit a PLCP RAI signal to the far-end for the duration of the alarm.
The *lofAlarm* attribute is always set to *off* when the *DS3* or *E3* component has been *locked* and left *offline*.

Values: on, off

Default: off

### ATTRIBUTE Lp DS3 Plcp rxRaiAlarm (rxrai)

Access: Read only

Description: This attribute displays whether a PLCP Remote Alarm Indication (RAI) failure alarm state has been entered. An RAI failure alarm occurs when ten consecutive PLCP RAI bits (bit 5 in the G1 byte) are high on the incoming line. An RAI failure alarm is cleared when ten consecutive RAI bits are set to 0.
Note: Some standards call this alarm RFI.
The *rxRaiAlarm* attribute is always set to *off* when the *DS3* or *E3* component has been *locked* and left *offline*.

Values: on, off

Default: off

## GROUP Lp DS3 Plcp Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the statistical data for the *PLCP* component. Each attribute type is a non-negative integer which monotonically increases until it reaches a maximum value, at which point it wraps around and starts increasing again from zero. |

## ATTRIBUTE Lp DS3 Plcp errorFreeSec (efs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of seconds during which the near-end PLCP path layer had no errors. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## ATTRIBUTE Lp DS3 Plcp codingViolations (cv)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of BIP-8 Errors, framing pattern octet errors, and path overhead identification errors detected in received PLCP frames.<br>Counting of PLCP CV is inhibited for second intervals where PLCP Severely Errored Framing Seconds (SEFS) or PLCP Unavailable Seconds (UAS) are counted.<br>This attribute is a non-negative integer which monotonically increases until it reaches a maximum value, at which point it wraps around and starts increasing again from zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## ATTRIBUTE Lp DS3 Plcp erroredSec (es)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of seconds containing one or more PLCP Coding Violations (CV) or in which a PLCP Severely Errored Framing Second (SEFS) was counted. |

| | |
|---|---|
| | Counting of PLCP ES is inhibited during second intervals where PLCP Unavailable Seconds (UAS) are counted. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp DS3 Plcp sevErroredSec (ses)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of seconds containing 5 or more PLCPCVs or in which a PLCPSEFS was counted (i.e. a PLCP OOF event occurred).<br>Counting of PLCP SES is inhibited during second intervals where PLCP Unavailable Seconds (UAS) are counted. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp DS3 Plcp sevErroredFramingSec (sefs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of seconds containing one or more PLCP Severely Errored Frame (SEF) events. An SEF event is equivalent to a PLCP OOF (Out of Frame) event.<br>Counting of PLCPP SEFSs is inhibited for second intervals where PLCP Unavailable Seconds (UAS) are counted. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp DS3 Plcp unavailSec (uas)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of seconds when the near-end PLCP layer is unavailable. The PLCP Path Layer becomes unavailable at the declaration of PLCP LOF (Loss of Frame) failure alarm state. The PLCP Path Layer becomes available again only after clearing this condition.<br>For second intervals where PLCP UAS are counted, counting of PLCP Severely Errored Framing Seconds (SEFS), PLCP Coding |

| | |
|---|---|
| | Violations (CV), PLCP Errored Seconds (ES), PLCP Severely Errored Seconds (SES) and PLCP Far-End Severely Errored Seconds (FESES) is inhibited. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp DS3 Plcp farEndErrorFreeSec (feefs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of seconds during which the far-end PLCP path layer had no errors. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp DS3 Plcp farEndCodingViolations (fecv)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of PLCP Far-End Block Errors (FEBE) reported by the far-end terminal.<br>Counting of FEBEs is inhibited for second intervals where PLCP Far-End Unavailable Seconds (FEUAS) are counted.<br>This attribute is a non-negative integer which monotonically increases until it reaches a maximum value, at which point it wraps around and starts increasing again from zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp DS3 Plcp farEndErroredSec (fees)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of seconds containing one or more PLCP Far-End Coding Violations (FECV).<br>Counting of PLCP FEES is inhibited during second intervals where PLCP Far-End Unavailable Seconds (FEUAS) are counted. |
| Values | Decimal (0..4294967295) |

Default 0

### ATTRIBUTE Lp DS3 Plcp farEndSevErroredSec (feses)

Access Read only

Description This attribute indicates the number of seconds containing 5 or more PLCP Far-End Coding Violations (FECV).
Counting of PLCP FESES is inhibited for second intervals where PLCP Far-End Unavailable Seconds (FEUAS) are counted.

Values Decimal (0..4294967295)

Default 0

### ATTRIBUTE Lp DS3 Plcp farEndUnavailableSec (feuas)

Access Read only

Description This attribute indicates the number of seconds during which the PLCP far end is unavailable. The PLCP Path Layer becomes unavailable at the declaration of PLCP RAI (Remote Alarm Indication). Service becomes available again after this condition is cleared. For second intervals where PLCP FEUAS are counted, counting of PLCP Far-End Coding Violations (FECV), PLCP Far-End Errored Seconds (FEES), and PLCP Far-End Severely Errored Seconds (FESES) is inhibited.

Values Decimal (0..4294967295)

Default 0

### COMPONENT Lp DS3 AtmCell (Cell)

Groups "GROUP Lp DS3 Cell Provisioned (Prov)"
"GROUP Lp DS3 Cell Operational (Oper)"
"GROUP Lp DS3 Cell Statistics (Stats)"

Scope Device

Description The *AtmCell* component contains provisioning and operational attributes. The provisioning attributes are used to set the Loss of Cell Delineation (LCD) alarm activation delay and to turn cell payload scrambling on or off. The operational attributes are used to report about the quality of the ATM cells received by the

interface and the cell capacity utilization. The *AtmCell* component appears under all port components running on ATM cards.

Common Verbs

Help
List
Display
Add
DELete

## GROUP Lp DS3 Cell Provisioned (Prov)

Properties: Provisioned

Description: This group contains the provisioning attributes for the *AtmCell* component.

## ATTRIBUTE Lp DS3 Cell alarmActDelay (act)

Access: Read and write

Description: This attribute specifies the time during which a Loss of Cell Delineation (LCD) defect should be observed before declaring an LCD alarm (alarm 70115501). When the *Cell* component is provisioned under the *Sonet* or *Sdh* component, this attribute defaults to 500 milliseconds. When it is provisioned under the *Laps* component, the default is 2000 milliseconds. This is necessary to ensure that the services bound to the *Sts* or *Vc4* component are not disrupted during short lived LCD defects caused by a line switchover. Setting this attribute to a lower value when the *Laps* component is provisioned may result in a temporary service outage when a line switchover occurs.

Values: Decimal (0..2000)

Units: msec

Default: No default

## ATTRIBUTE Lp DS3 Cell scrambleCellPayload (scramble)

Access: Read and write

| | |
|---|---|
| Description | Cell scrambling, as defined by ITU-T Recommendation I.432., can provide a solution to the problem of transmission equipment which is sensitive to certain bit patterns in the ATM cell payload. This attribute controls whether or not the cell payload is scrambled.<br>It defaults to ***off*** for *DS1* interfaces, and ***on*** for all other interfaces.<br>Note that this setting must be the same at both ends of the link. |
| Values | off<br>on |
| Default | No default |

### ATTRIBUTE Lp DS3 Cell correctSingleBitHeaderErrors

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether the port corrects single bit errors detected in the headers of received cells. If single bit errors are corrected, the affected cells are passed up to the ATM layer according to normal operation. If single bit errors are not corrected, these errored cells are discarded by the physical layer. Note that cells containing multiple bit errors in their headers are always discarded.<br><br>Single bit HEC error correction must remain ***off*** for the following card types: 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 2pJ6MAtm, 3pDS3Atm, and 3pE3Atm. |
| Values | off<br>on |
| Default | off |

### ATTRIBUTE Lp DS3 Cell clearDelay (clear)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the minimum elapsed time between the clearing of the Loss of Cell Delineation (LCD) defect and the port returning to service. The LCD defect should be absent for the entire period of elapsed time. This attribute value is specified in minutes. If the value of the *clearDelay* attribute is initially 0 |

(default), the time is actually about 10 seconds.
This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm.

Values: Decimal (0..60)

Units: minutes

Default: 0

### ATTRIBUTE Lp DS3 Cell hecSampleInterval (hSample)

Access: Read and write

Description: This attribute specifies the sampling interval (in seconds) for errors associated with the *uncorrectableHeaderErrors* attribute. When the sum of errors counted by the *uncorrectableHeaderErrors* attribute over the interval time is greater than or equal to the provisioned *hecErrorLimit* attribute, the sample interval is considered errored. If the number of consecutive errored intervals reaches the limit established in the *hecErrorIntervalLimit* attribute, an LCD alarm is declared and the port is disabled. If the attribute *hecSampleInterval* is set to the default, 0, then the attribute *uncorrectableHeaderErrors* cannot be used to bring down the port.
This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm.

Values: Decimal (0..25)

Units: seconds

Default: 0

### ATTRIBUTE Lp DS3 Cell hecErrorLimit (hLimit)

Access: Read and write

Description: This attribute specifies the error threshold for a HEC error sampling interval beyond which a port is brought down. When the value of the *uncorrectableHeaderErrors* attribute accumulated over the provisioned value of the *hecSampleInterval* attribute is greater than or equal to the provisioned value of the *hecErrorLimit* attribute, the sample interval is considered errored. If the number of consecutive errored intervals reaches the limit

established in the *hecErrorIntervalLimit* attribute, an LCD alarm is declared and the port is disabled. (Please note that a *hecErrorInterval* attribute value of 0 (default) disables the mechanism of using the value of the *uncorrectableHeaderErrors* attribute to disable a port.)
This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm.

Values: Decimal (1..250000)

Default: No default

### ATTRIBUTE Lp DS3 Cell lcdStateDelay (delay)

Access: Read and write

Description: This attribute specifies the time during which an Out of Cell Delineation (OCD) defect should be observed before moving to the Loss of Cell Delineation (LCD) defect state. The time is specified in milliseconds. The valid values are 1 to 50 milliseconds if the *AtmCell c*omponent is located under the *Ds1* or *E1* component, and 1 to 5 milliseconds if under a *Ds3* or *E3* component.
This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm.

Values: Decimal (1..50)

Units: msec

Default: No default

### ATTRIBUTE Lp DS3 Cell hecErrorIntervalLimit (hIntLimit)

Access: Read and write

Description: This attribute counts the instances of the *hecSamplingInterval* attribute for all HEC errors (specified by the *uncorrectableHeaderError* attribute) before an LCD alarm is generated. The alarm is only generated if the value of the *uncorrectableHeaderErrors* attribute in a given interval is greater than the value of the *hecErrorLimit* attribute. For example, if there are 20 HEC errors in 5 seconds, for three times in a row (the number of times in a row is represented by this attribute), an

alarm is raised. If there are 24 HEC errors in the 5 seconds, and 14 in the next 5 seconds no alarm is generated because the number of HEC errors should also be more than 20 in the next instances.
This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm.

Values: Decimal (1..25)

Default: 1

### GROUP Lp DS3 Cell Operational (Oper)

Properties: Operational

Description: This group contains the common operational attributes for the *AtmCell* component.

### ATTRIBUTE Lp DS3 Cell lcdAlarm (lcd)

Access: Read only

Description: This attribute displays whether the Loss of Cell Delineation (LCD) failure alarm state has been entered. This state is entered when LCD defects have been observed and accumulated for a period of time specified through the *alarmActDelay* attribute.
In ATM cell direct mapping mode, an LCD defect occurs when Out of Cell Delineation (OCD) anomaly persists for *x* milliseconds, and disappears when the Out of Cell Delineation (OCD) is absent for *x* msec. An OCD anomaly occurs when 7 consecutive incorrect HECs have been detected. An OCD anomaly terminates when 6 consecutive correct HECs have been detected.
For an *AtmCell* component located under a *DS3* or *E3* component with *mapping* = ***PLCP***, the LCD defect is directly derived from the PLCP LOF defect.
If LCD defects are intermittently occurring, the LCD defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle
The component under which is located the *AtmCell* component goes into an operational state of ***disabled*** until the LCD alarm condition is cleared. The condition is cleared after the LCD

defect has not been reported for a period of 10 seconds +/- 0.5 seconds.
The *lcdAlarm* attribute is always set to off when the parent of the *AtmCell* component has been *locked* and left *offline*. This can also happen when the *Path* or *Channel* component has been suspended since its parent has been locked.

Values: on
off

Default: off

### GROUP Lp DS3 Cell Statistics (Stats)

Properties: Operational

Description: This group contains the statistics attribute for the *AtmCell* component. Each attribute type is a non-negative integer which monotonically increases until it reaches a maximum value, at which point it wraps around and starts increasing again from zero.

### ATTRIBUTE Lp DS3 Cell uncorrectableHeaderErrors (ucErr)

Access: Read only

Description: This attribute indicates the number of uncorrectable ATM cell header errors that have been detected. Counting of *uncorrectableHeaderErrors* is inhibited when an Out of Cell Delineation (OCD) defect is present. An OCD defect occurs when seven consecutive incorrect HECs have been detected. An OCD defect terminates when six consecutive correct HECs have been detected.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE Lp DS3 Cell sevErroredSec (ses)

Access: Read only

Description: This attribute indicates the total number of ATM Cell Severely Errored Seconds (SESs) that have been counted.

In direct mapping mode, an ATM Cell SES is declared for second intervals containing one or more Out of Cell Delineation (OCD) defects. An OCD defect occurs when seven consecutive incorrect HECs have been detected. An OCD defect terminates when six consecutive correct HECs have been detected.

If the *AtmCell* component is located under a *Ds3* or *E3* component where the *mapping* attribute is set to ***plcp***, an ATM Cell SES is declared for second intervals containing one or more PLCP LOF defects.

Counting of *uncorrectableHeaderErrors* (*ucErr*) and *correctableHeaderErrors* (*cErr*) is inhibited when the OCD defect is present.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE Lp DS3 Cell receiveCellUtilization (rxutil)

Access: Read only

Description: This attribute is the ratio of the number of valid, assigned cells received on the link to the nominal link capacity. The utilization is calculated over a period of one minute.
This attribute is always set to ***0*** when the parent of the *AtmCell* component has been *locked* and left *offline.* This can also happen when the *Path* or *Channel* component has been *suspended* since its parent has been *locked*.

Values: Decimal (0..100)

Units: %

Default: 0

### ATTRIBUTE Lp DS3 Cell transmitCellUtilization (txutil)

Access: Read only

Description: This attribute is the ratio of the number of valid, assigned cells transmitted on the link to the nominal link capacity. The utilization is calculated over a period of one minute.

This attribute is always set to ***0*** when the parent of the *AtmCell* component has been *locked* and left *offline*. This can also happen when the *Path* or *Channel* component has been *suspended* since its parent has been *locked*.

Values: Decimal (0..100)

Units: %

Default: 0

### ATTRIBUTE Lp DS3 Cell correctableHeaderErrors (cErr)

Access: Read only

Description: This attribute indicates the number of correctable ATM cell header errors that have been detected and corrected. Counting of *correctableHeaderErrors* is inhibited when an Out of Cell Delineation (OCD) defect is present. An OCD defect occurs when seven consecutive incorrect HECs have been detected. An OCD defect terminates when six consecutive correct HECs have been detected

Values: Decimal (0..4294967295)

Default: 0

### COMPONENT Lp DS3 DS1

Instance: Decimal (1..28)

Groups:
"GROUP Lp DS3 DS1 Provisioned (Prov)"
"GROUP Lp DS3 DS1 CustomerIdentifierData (CidData)"
"GROUP Lp DS3 DS1 AdminInfo (AdminInfo)"
"GROUP Lp DS3 DS1 IfEntryProv (IfEntry)"
"GROUP Lp DS3 DS1 OperationalStatus (OperStatus)"
"GROUP Lp DS3 DS1 OsiState (State)"
"GROUP Lp DS3 DS1 Operational (Oper)"
"GROUP Lp DS3 DS1 Statistics (Stats)"

Scope: Application

Description: *Lp/n DS3/n DS1/n*
The *DS1* component controls and monitors a DS1 tributary of a

channelized DS3 port on a Function Processor that supports channelization of a DS3.

Subcomponents "COMPONENT Lp DS3 DS1 Channel (Chan)"

Dyn. Subcomp. "COMPONENT Lp DS3 DS1 Test (Test)"

Common Verbs
Help
List
Display
Add
DELete
LOCK
Unlock

## GROUP Lp DS3 DS1 Provisioned (Prov)

Properties Provisioned

Description This group contains all of the provisioning data for a *DS1* component.

## ATTRIBUTE Lp DS3 DS1 lineType (lineType)

Access Read and write

Description This attribute defines the framing of the DS1 tributary.
***d4*** defines a framing pattern of 12 frames per multiframe.
***esf*** defines a framing pattern of 24 frames per multiframe.
***d4Cas*** defines a framing pattern of 12 frames per multiframe with channel associated signalling.
***esfCas*** defines a framing pattern of 24 frames per multiframe with channel associated signalling.
***unframed*** defines an unknown framing pattern for clear channels.

For the ***4pDS3ChAtm*** card, only ***d4*** and ***esf*** framing patterns are permitted.

The ***4pDS3ChAal1*** card supports the ***d4*** and ***esf*** framing patterns, as well as ***unframed***.

Values
d4
esf

| | |
|---|---|
| | d4Cas<br>esfCas<br>unframed |
| Default | esf |

### ATTRIBUTE Lp DS3 DS1 zeroCoding (zeroCoding)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute defines the zero encoding on the DS1 tributary.<br>***bit7Stuffing*** sets bit 7 of every timeslot to a one to guarantee ones's density. This reduces the available bandwidth of the channel by 1/8.<br>***none*** does no zero encoding, it does not change any value of the bits in the timeslot. The value ***none*** is compatible with any zero coding scheme which transports all 8 data bits in a timeslot (this would include both ***ami*** and ***b8zs*** values of the *DS1 zeroCoding* attribute). |
| Values | bit7Stuffing<br>none |
| Default | none |

### ATTRIBUTE Lp DS3 DS1 clockingSource (clockingSource)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the source of the transmit clock for the DS1 tributary.<br>When the clocking source is ***local***, the crystal on the port generates the clocking for the DS1 tributary.<br>When the clocking source is ***line***, the port synchronizes to the clock from the DS1 tributary.<br>When the clocking source is ***module***, the port's clock synchronizes to the clock provided by the oscillator on the active CP.<br>When the clocking source is ***sameAsDs3***, the Ds1 port's clock synchronizes to the same clock source as that of its parent Ds3 port. |

On a ***1pDS3C*** card, if the *NetworkSynchronization (NS)* component is present, the default value of this attribute will be ***module***; otherwise it will be ***line***.

On a ***2pDS3cAal*** card, the only valid values are ***local*** and ***module***. If the *NS* component is present, the default value of this attribute will be ***module***; otherwise it will be ***local***.

On the ***4pDS3Ch***, ***4pDS3ChAtm***, and ***4pDS3ChAal1*** cards, the only valid value is ***sameAsDs3***. This is because a DS1 must have the same clocking source as its parent DS3.

Values
local
line
module
sameAsDs3

Default
No default

## GROUP Lp DS3 DS1 CustomerIdentifierData (CidData)

Properties
Provisioned

Description
This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs.

## ATTRIBUTE Lp DS3 DS1 customerIdentifier (cid)

Access
Read and write

Description
This attribute holds the Customer Identifier (CID).

Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.

Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.

| | |
|---|---|
| | An operator CID of 0 is used to identify the Network Manager (referred to as “NetMan” in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to “basic CIDs” in DPN) may be assigned to specific customers. |
| Values | Decimal (0; 1..8191) |
| Default | 0 |

### GROUP Lp DS3 DS1 AdminInfo (AdminInfo)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attributes pertaining to the vendor of the equipment. |

### ATTRIBUTE Lp DS3 DS1 vendor

| | |
|---|---|
| Access | Read and write |
| Description | This is the name of the vendor supplying the facility. |
| Values | String (0..20, ASCII) |
| Default | No default |

### ATTRIBUTE Lp DS3 DS1 commentText

| | |
|---|---|
| Access | Read and write |
| Description | Any miscellaneous text about the facility. |
| Values | String (0..60, ASCII) |
| Default | No default |

### GROUP Lp DS3 DS1 IfEntryProv (IfEntry)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the ifEntry. |

### ATTRIBUTE Lp DS3 DS1 ifAdminStatus (ifState)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE Lp DS3 DS1 ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP Lp DS3 DS1 OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

### ATTRIBUTE Lp DS3 DS1 snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |

Default up

### GROUP Lp DS3 DS1 OsiState (State)

Properties Operational

Description This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Lp DS3 DS1 adminState (osiAdmin)

Access Read only

Description This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default unlocked

## ATTRIBUTE Lp DS3 DS1 operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

## ATTRIBUTE Lp DS3 DS1 usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |

| | |
|---|---|
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### ATTRIBUTE Lp DS3 DS1 availabilityStatus (osiAvail)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.<br><br>The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.<br><br>The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.<br><br>The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.<br><br>The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***. |

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

### ATTRIBUTE Lp DS3 DS1 proceduralStatus (osiProc)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the

user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.

The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of: initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default: No default

### ATTRIBUTE Lp DS3 DS1 controlStatus (osiCntrl)

Access: Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

Set of

subjectToTest (subTst)
partOfServicesLocked (partLk)
reservedForTest (rsrvd)
suspended (suspnd)

Default

No default

### ATTRIBUTE Lp DS3 DS1 alarmStatus (osiAlarm)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions

described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE Lp DS3 DS1 standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and

thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values
hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

Default
notSet

### ATTRIBUTE Lp DS3 DS1 unknownStatus (osiUnknw)

Access
Read only

Description
This attribute indicates the OSI Unknown status of the component.

The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.

The value ***true*** indicates that the actual state of the component is not known for sure.

Values
false
true

Default
false

### GROUP Lp DS3 DS1 Operational (Oper)

Properties
Operational

Description This group contains the common operational data for a component in a digital hierarchy interface.

### ATTRIBUTE Lp DS3 DS1 rxAisAlarm (rxAisAlarm)

Access Read only

Description This attribute indicates whether an AIS (Alarm Indication Signal) alarm state has been entered. The AIS Alarm state is entered when AIS defects have been observed and accumulated for 2.5 seconds
+/- 0.5 seconds. An AIS defect is detected after having received less than 3 zeros in a 2048 bit period. If the AIS defects are intermittently occurring, the AIS defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle. This tributary goes into an *operationalState* of ***disabled*** for the duration of an AIS alarm state.
The AIS alarm state is cleared when AIS defects are absent for 10 seconds +/- 0.5 seconds.

Values on
off

Default off

### ATTRIBUTE Lp DS3 DS1 lofAlarm (lofAlarm)

Access Read only

Description This attribute indicates whether a LOF (Loss of Frame) alarm state has been entered. The LOF alarm state is entered when LOF defects (2 out of 5 framing bits in error) have been detected for 3 seconds +/- 0.5 seconds. If the LOF defects are intermittently occurring, the LOF defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle. This tributary goes into an *operationalState* of ***disabled*** until the LOF alarm state is cleared. Also, an RAI alarm is transmitted to the far end for the duration of the LOF alarm state
The condition is cleared when framing has been achieved for 10 seconds +/- 0.5 seconds.

| | |
|---|---|
| Values | on<br>off |
| Default | off |

### ATTRIBUTE Lp DS3 DS1 rxRaiAlarm (rxRaiAlarm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether an RAI (Remote Alarm Indication) alarm state has been entered. An RAI alarm state is entered when the RAI defect indicator has been observed and accumulated for 3.5 seconds +/- 0.5 seconds. If the RAI defects are intermittently occurring, the RAI defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.<br>The RAI alarm state is cleared when the RAI defect indicator has been absent for 10 seconds +/- 0.5 seconds. The RAI alarm is usually an indication that the far end facility is unable to gain synchronization. |
| Values | on<br>off |
| Default | off |

### ATTRIBUTE Lp DS3 DS1 txAisAlarm (txAisAlarm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether an AIS (Alarm Indication Signal) alarm is being transmitted on the line. An AIS alarm is transmitted when the tributary is in a locked state. |
| Values | on<br>off |
| Default | off |

### ATTRIBUTE Lp DS3 DS1 txRaiAlarm (txRaiAlarm)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates whether a RAI signal is being sent on the outgoing line. The RAI signal is transmitted when the tributary detects a LOF alarm condition. |
| Values | on<br>off |
| Default | off |

### GROUP Lp DS3 DS1 Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the common statistical data for a component in a digital hierarchy interface. |

### ATTRIBUTE Lp DS3 DS1 runningTime (runningTime)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of seconds since the tributary was activated. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp DS3 DS1 errorFreeSec (efs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of seconds that the tributary has been in an error free state. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp DS3 DS1 erroredSec (es)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of errored seconds the tributary has counted since it was activated. An errored second is declared when a second with one or more Code Violation Error events, or one or more Out Of Frame events occurs. A code violation error |

may be a CRC error or a BPV error. An Out Of Frame event occurs when 2 out of 5 framing bits are in error.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE Lp DS3 DS1 sevErroredSec (ses)

Access: Read only

Description: This attribute counts the number of severely errored seconds the tributary has counted since it was activated. A severely errored second occurs when a second with 320 or more Code Violation Error events or one or more Out Of Frame events occurs.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE Lp DS3 DS1 sevErroredFrmSec (sefs)

Access: Read only

Description: This attribute counts the number of severely errored framing seconds the tributary has counted since it was activated A severely errored framing second occurs when a second with one or more Out Of Frame events occurs.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE Lp DS3 DS1 unavailSec

Access: Read only

Description: This attribute counts the total number of seconds that the tributary has been in an unavailable signal state. An unavailable signal state occurs at the onset of 10 consecutive Severely Errored Seconds. The state is cleared at the onset of 10 seconds with no Severely Errored Seconds.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE Lp DS3 DS1 crcErrors (crcErrors)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of CRC-6 errors. These will only be counted when the *lineType* is ***esf***. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp DS3 DS1 frmErrors (frmErrors)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frame errors. A frame error is an error in the framing bits. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp DS3 DS1 slipErrors (slipErrors)

| | |
|---|---|
| Access | Read only |
| Description | The total number of times that the line experienced a controlled frame slip. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT Lp DS3 DS1 Channel (Chan)

| | |
|---|---|
| Instance | Decimal (0..23) |
| Groups | "GROUP Lp DS3 DS1 Chan Provisioned (Prov)"<br>"GROUP Lp DS3 DS1 Chan CustomerIdentifierData (CidData)"<br>"GROUP Lp DS3 DS1 Chan IfEntryProv (IfEntry)"<br>"GROUP Lp DS3 DS1 Chan OperationalStatus (OperStatus)"<br>"GROUP Lp DS3 DS1 Chan OsiState (State)"<br>"GROUP Lp DS3 DS1 Chan Operational (Oper)"<br>"GROUP Lp DS3 DS1 Chan AdminInfo (AdminInfo)" |
| Scope | Application |

| | |
|---|---|
| Description | *Channel*<br>The *Channel* component is configured to control a group of timeslots that form a fractional group on a DS1 or E1 port. Cell-based cards allow only one channel per port, and this is automatically provisioned with all available timeslots. Similarly, the ***1pDS3C*** card type only allows one channel per port, and this is automatically provisioned with all available timeslots. |
| Opt. Subcomp. | "COMPONENT Lp DS3 DS1 Chan AtmCell (Cell)"<br>"COMPONENT Lp DS3 DS1 Chan TrunkConditioning (Tc)" |
| Dyn. Subcomp. | "COMPONENT Lp DS3 DS1 Chan Test (Test)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP Lp DS3 DS1 Chan Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all of the provisional data for a *Channel* component. |

## ATTRIBUTE Lp DS3 DS1 Chan timeslots (ts)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute contains the list of timeslots that are used by the *Channel* component. Valid numbers are 1-24 for a *Channel* used by a *DS1* component, and 1-31 for a *Channel* used by an *E1* component.<br><br>For the ***4pDS3Ch*** card, a timeslot value of ***none*** cannot be combined with other valid timeslot values. When ***none*** is selected, no timeslots are assigned and any service linked to the *Channel* does not function. |

| | |
|---|---|
| Set of | none<br>1<br>2<br>3<br>4<br>5<br>6<br>7<br>8<br>9<br>10<br>11<br>12<br>13<br>14<br>15<br>16<br>17<br>18<br>19<br>20<br>21<br>22<br>23<br>24<br>25<br>26<br>27<br>28<br>29<br>30<br>31 |
| Default | No default |

### ATTRIBUTE Lp DS3 DS1 Chan timeslotDataRate (dataRate)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |

Description

This attribute selects the data rate of the timeslots in a channel of a DS1 component. For E1, the data rate of the timeslots will always be 64kbit/s regardless of this attribute.

When ***doNotOverride*** is selected for a channel on a DS1, the data rate of the channel's timeslots are dependant on the *zeroCoding* selection of the DS1 component. If the *zeroCoding* is ***B8ZS*** (where supported on the FP) or ***none***, the timeslot's data rate will be 64kbit/s. If the *zeroCoding* option is ***bit7Stuffing,*** the data rate of a timeslot will be 56kbit/s.

When ***56k*** is selected for a channel on a DS1, the least significant bit of each timeslot of this *Channel* will always be set to 1 and not used for data. The data rate for the timeslots of this channel is therefore restricted to 56kbit/s.

On the ***4pDS3Ch*** cards, the *zeroCoding* attribute is restricted to the value *none*, and so when the *timeslotDataRate* is set to ***doNotOverride***, the timeslot's data rate will be 64kbit/s. Timeslot data rate of ***56k*** is also available on this card.

On the ***4pDS3ChAal1*** card, the only allowed value for this attribute is ***doNotOverride***.

One application of this attribute is to allow a DS1 line to support mixing channels that originate from lines that use different *zeroCoding* schemes.

Values

56k
doNotOverride

Default

doNotOverride

### ATTRIBUTE Lp DS3 DS1 Chan applicationFramerName

Access

Read and write

Description

This attribute defines the link to the software stack. It defines which application is running on top of this hardware component.

Values

Link (Service, interfaceName)

Default

No default

### GROUP Lp DS3 DS1 Chan CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

### ATTRIBUTE Lp DS3 DS1 Chan customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.<br><br>Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.<br><br>An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to "basic CIDs" in DPN) may be assigned to specific customers. |
| Values | Decimal (0; 1..8191) |
| Default | 0 |

### GROUP Lp DS3 DS1 Chan IfEntryProv (IfEntry)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the ifEntry. |

### ATTRIBUTE Lp DS3 DS1 Chan ifAdminStatus (ifState)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE Lp DS3 DS1 Chan ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP Lp DS3 DS1 Chan OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

### ATTRIBUTE Lp DS3 DS1 Chan snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |

Default up

### GROUP Lp DS3 DS1 Chan OsiState (State)

Properties Operational

Description This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Lp DS3 DS1 Chan adminState (osiAdmin)

Access Read only

Description This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default unlocked

### ATTRIBUTE Lp DS3 DS1 Chan operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Lp DS3 DS1 Chan usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |

| | |
|---|---|
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### ATTRIBUTE Lp DS3 DS1 Chan availabilityStatus (osiAvail)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.<br><br>The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.<br><br>The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.<br><br>The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.<br><br>The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***. |

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

## ATTRIBUTE Lp DS3 DS1 Chan proceduralStatus (osiProc)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.

The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of
initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default
No default

### ATTRIBUTE Lp DS3 DS1 Chan controlStatus (osiCntrl)

Access
Read only

Description
If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the

user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

Set of: subjectToTest (subTst)
partOfServicesLocked (partLk)
reservedForTest (rsrvd)
suspended (suspnd)

Default: No default

### ATTRIBUTE Lp DS3 DS1 Chan alarmStatus (osiAlarm)

Access: Read only

Description: If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE Lp DS3 DS1 Chan standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the

resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values
hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

Default
notSet

### ATTRIBUTE Lp DS3 DS1 Chan unknownStatus (osiUnknw)

Access
Read only

Description
This attribute indicates the OSI Unknown status of the component.

The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.

The value ***true*** indicates that the actual state of the component is not known for sure.

Values
false
true

Default
false

### GROUP Lp DS3 DS1 Chan Operational (Oper)

Properties
Operational

Description
This group contains all of the operational data for a *Channel* component.

### ATTRIBUTE Lp DS3 DS1 Chan actualChannelSpeed

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the measured link speed of the *Channel* component. |
| Values | Decimal (0..4294967295) |
| Units | bit/s |
| Default | 0 |

### GROUP Lp DS3 DS1 Chan AdminInfo (AdminInfo)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attributes pertaining to the vendor of the equipment. |

### ATTRIBUTE Lp DS3 DS1 Chan vendor

| | |
|---|---|
| Access | Read and write |
| Description | This is the name of the vendor supplying the facility. |
| Values | String (0..20, ASCII) |
| Default | No default |

### ATTRIBUTE Lp DS3 DS1 Chan commentText

| | |
|---|---|
| Access | Read and write |
| Description | Any miscellaneous text about the facility. |
| Values | String (0..60, ASCII) |
| Default | No default |

### COMPONENT Lp DS3 DS1 Chan Test (Test)

| | |
|---|---|
| Groups | "GROUP Lp DS3 DS1 Chan Test OsiState (State)"<br>"GROUP Lp DS3 DS1 Chan Test Setup (Setup)"<br>"GROUP Lp DS3 DS1 Chan Test Results (Results)" |
| Scope | Application |

| | |
|---|---|
| Description | The *Test* component is configured to control a hardware facility test on a physical (*V35*, *X21*, *DS1*, *E1*, *DS3*, *E3* etc.) or a logical port. |
| Common Verbs | Help<br>List<br>Display |

### VERB START Lp DS3 DS1 Chan Test

| | |
|---|---|
| Impact | Service |
| Description | This command invokes a test on the hardware component. Note that some test types requires the parent component (the hardware component) to be locked (using the *Lock* command) before a test can be started. |

### VERB STOP Lp DS3 DS1 Chan Test

| | |
|---|---|
| Impact | Service |
| Description | This command stops a test running on the hardware component. |

### GROUP Lp DS3 DS1 Chan Test OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Lp DS3 DS1 Chan Test adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***. |

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Lp DS3 DS1 Chan Test operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Lp DS3 DS1 Chan Test usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Lp DS3 DS1 Chan Test Setup (Setup)

Properties
Operational

Description
This group contains all of the operational data for a *Test* component.

### ATTRIBUTE Lp DS3 DS1 Chan Test purpose (purpose)

Access
Read and write

Description
This attribute records the purpose of the test so that the test results can be associated and properly analyzed.

Values
String (0..40, ASCII)

Default
No default

### ATTRIBUTE Lp DS3 DS1 Chan Test type (type)

Access
Read and write

Description
This attribute is the type of test to be run. The available test types include the following:
***card*** test sets up an internal loop on the board and runs a bit error rate test.
***manual*** test assumes the line is looped back externally and a bit error rate test is performed.
***localLoop*** test loops back the local modem and performs a bit error rate test.
***remoteLoop*** test loops back the remote modem (or CSU) and performs a bit error rate test.
***externalLoop*** test loops back the line to the far end.

***payloadLoop*** test only loops back the payload data received from the incoming line.
***remoteLoopThisTrib*** loops this particular tributary back at the far end, using services provided by the parent.
***v54RemoteLoop*** initiates a V.54 Remote Loopback test.
***pn127RemoteLoop*** initiates a PN127 Remote Loopback test.
***lineBIP8Error*** tests line BIP 8 error generation and detection (B2 byte inverted).
***sectionBIP8Error*** tests section BIP 8 error generation and detection (B1 byte inverted).
***pathBIP8Error*** tests path BIP 8 error generation and detection (B3 byte inverted).
***pathBIP2Error*** tests path BIP 2 error generation and detection (bit 1-2 of V5 byte inverted).
Note that not all test types are not supported by all function processors.

Values

card
manual
localLoop
remoteLoop
externalLoop
payloadLoop
remoteLoopThisTrib
v54RemoteLoop
pn127RemoteLoop
lineBIP8Error
sectionBIP8Error
pathBIP8Error
pathBIP2Error

Default

card

## ATTRIBUTE Lp DS3 DS1 Chan Test frmSize (size)

Access

Read and write

Description

This attribute defines the size of the test data frames in number of bytes.
This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame.

Values

Decimal (4..4096)

| | |
|---|---|
| Units | bytes |
| Default | 1024 |

### ATTRIBUTE Lp DS3 DS1 Chan Test frmPatternType (fpt)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the type of data pattern generation to use. The following lists the available pattern types:<br>***ccitt32kBitPattern*** is a pseudo-random sequence of 32 kbit.<br>***ccitt8MBitPattern*** is a pseudo-random sequence of 8Mbit.<br>***customizedPattern*** is the pattern defined in the ***customizedPattern*** attribute. |
| Values | ccitt32kBitPattern<br>ccitt8MBitPattern<br>customizedPattern |
| Default | ccitt32kBitPattern |

### ATTRIBUTE Lp DS3 DS1 Chan Test customizedPattern (cp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute allows a customized 32 bit pattern to be defined for use in the test data frames. This attribute is used when the attribute *frmPatternType* is set to ***CustomizedPattern***. Note that a 55 hex pattern is an alternating 1 and 0 pattern. |
| Values | Hex (H.0..H.ffffffff) |
| Units | Hex |
| Default | H.55555555 |

### ATTRIBUTE Lp DS3 DS1 Chan Test dataStartDelay (dsd)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time delay (in seconds) between when the test expects the loop to have been set up, to when the test data actually starts to be transmitted. This attribute is to accommodate some non-standard equipment that requires extra time for setting up a requested loop.<br>This attribute is ignored when the test *type* is set to ***externalLoop***. |

| | |
|---|---|
| Values | Decimal (0..1814400) |
| Units | seconds |
| Default | 0 |

### ATTRIBUTE Lp DS3 DS1 Chan Test displayInterval (di)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the interval (in minutes) between which interim test results are to be displayed. Results are displayed at the operator console at which the test was started. When the test *type* is set to ***externalLoop***, this attribute is ignored. There will be no display of results if *displayInterval* is set to 0. This attribute can be changed anytime. |
| Values | Decimal (0..30240) |
| Units | minutes |
| Default | 5 |

### ATTRIBUTE Lp DS3 DS1 Chan Test duration

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the duration for which the test data will be transmitted. In the case of an ***externalLoop***, this is the time that the loop is in effect. Note that *dataStartDelay* does not apply to the ***externalLoop*** test type. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 1.00 |

### GROUP Lp DS3 DS1 Chan Test Results (Results)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all the statistics related attributes of the *Test* component. |

### ATTRIBUTE Lp DS3 DS1 Chan Test causeOfTermination

| | |
|---|---|
| Access | Read only |

Description

This attribute indicates either the status of the test or the cause of the test's termination:

a value of ***neverStarted*** indicates that the test has not yet been started.

a value of ***testRunning*** indicates that the test has been started.

a value of ***stoppedByOperator*** indicates that the operator issued a stop command on a test that was running.

a value of ***testTimeExpired*** indicates that the test ran for the time specified by the test's *duration*.

a value of ***loopCodeSyncFailed*** indicates that the local end failed to synchronize to the loopCode pattern. The local end transmits the loopCode pattern to cause the remote end to apply a loopback, after which the local end should receive the loopCode pattern. The exact pattern used to request loopCode depends on the test *type*. This failure indicates a high rate of transmission errors, or that the remote end has failed to apply the loopback.

a value of ***patternSyncFailed*** indicates that the local end failed to synchronize to the *frmPatternType* test pattern, that should have been looped back at the remote end. This failure indicates a high rate of transmission errors or the absence of a loopback.

a value of ***patternSyncLost*** indicates that the local end gained and then lost synchronization to the returned *frmPatternType* test pattern. This failure indicates a sudden increase in transmission errors, frame slippage, or the removal of an existing loopback.

a value of ***unknown*** is set when a reason to terminate other than those listed here is encountered.

Note: The *causeOfTermination* attribute values of ***loopCodeSyncFailed***, ***patternSyncFailed*** and ***patternSyncLost*** are supported only on MSA cards. *Test* components located on other cards or under an *Ima* component on an MSA card will never terminate the test under the conditions described by these

values.

| | |
|---|---|
| Values | testTimeExpired<br>stoppedByOperator<br>unknown<br>neverStarted<br>testRunning<br>hardwareReconfigured<br>loopCodeSyncFailed<br>patternSyncFailed<br>patternSyncLost |
| Default | neverStarted |

### ATTRIBUTE Lp DS3 DS1 Chan Test bitsTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bits sent during the test period. As long as the line speed of the hardware interface is less than 70 Mbit/s, this counter is not expected to reach the maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp DS3 DS1 Chan Test bytesTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes sent during the test period. This counter is not expected to reach its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp DS3 DS1 Chan Test frmTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames sent during the test period. This counter is not expected to reach its maximum value.<br><br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |

| | |
|---|---|
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp DS3 DS1 Chan Test bitsRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bits received during the test period. The counter wraps to zero when it exceeds the maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp DS3 DS1 Chan Test bytesRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes received during the test period. The counter wraps to zero when it exceeds its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp DS3 DS1 Chan Test frmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received during the test period. The counter wraps to zero when it exceeds its maximum value.<br><br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp DS3 DS1 Chan Test erroredFrmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute is not displayed for ATM and MSA32 cards. For ATM cards, the physical layer drops all errored frames at the controller interface. For MSA32 cards, the test does not generate any frame. |

For all other card types, this attribute counts the errored frames received during the test period. The counter wraps to zero when it exceeds its maximum value.

Values: Long Integer

Default: No default

### ATTRIBUTE Lp DS3 DS1 Chan Test bitErrorRate

Access: Read only

Description: This attribute is not displayed for ATM cards because the physical layer drops all errored frames at the controller interface. For MSA32 cards, this attribute indicates the link bit error rate, regardless of the *frameSize*, which is not supported

For all other card types, this attribute is the calculated bit error rate on the link. Test data are generated and sent in frames of a preset size (*frameSize*). The *Test* component will try to estimate the number of bit errors in any errored frame which is identifiable. The statistics will be updated accordingly. A lost frame (may be due to an error on the flag sequence) will be discarded for the bit error rate calculation. The result is presented in the form of xEsyy, where x is the mantissa, syy is the exponent, for example 0E+00, 2E-09.
Note that the *bitErrorRate* is an estimate only. For more reliable test results, the test should be done over a long period. Multiple tests would also improve the confidence level of the test results.

Values: String (5, ASCII)

Default: No default

### ATTRIBUTE Lp DS3 DS1 Chan Test elapsedTime

Access: Read only

Description: This attribute indicates the time elapsed since the test started for an ***externalLoop*** test. For a data test, it indicates time since test data was first transmitted.

Values: Decimal (0.00..30240.00)

| | |
|---|---|
| Units | minutes |
| Default | 0.00 |

### ATTRIBUTE Lp DS3 DS1 Chan Test timeRemaining

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the length of time remaining before the test stops according to the *duration* attribute. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 0.00 |

### COMPONENT Lp DS3 DS1 Chan AtmCell (Cell)

| | |
|---|---|
| Groups | "GROUP Lp DS3 DS1 Chan Cell Provisioned (Prov)"<br>"GROUP Lp DS3 DS1 Chan Cell Operational (Oper)"<br>"GROUP Lp DS3 DS1 Chan Cell Statistics (Stats)" |
| Scope | Device |
| Description | The *AtmCell* component contains provisioning and operational attributes. The provisioning attributes are used to set the Loss of Cell Delineation (LCD) alarm activation delay and to turn cell payload scrambling on or off. The operational attributes are used to report about the quality of the ATM cells received by the interface and the cell capacity utilization. The *AtmCell* component appears under all port components running on ATM cards. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Lp DS3 DS1 Chan Cell Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |

Description This group contains the provisioning attributes for the *AtmCell* component.

### ATTRIBUTE Lp DS3 DS1 Chan Cell alarmActDelay (act)

Access Read and write

Description This attribute specifies the time during which a Loss of Cell Delineation (LCD) defect should be observed before declaring an LCD alarm (alarm 70115501). When the *Cell* component is provisioned under the *Sonet* or *Sdh* component, this attribute defaults to 500 milliseconds. When it is provisioned under the *Laps* component, the default is 2000 milliseconds. This is necessary to ensure that the services bound to the *Sts* or *Vc4* component are not disrupted during short lived LCD defects caused by a line switchover. Setting this attribute to a lower value when the *Laps* component is provisioned may result in a temporary service outage when a line switchover occurs.

Values Decimal (0..2000)

Units msec

Default No default

### ATTRIBUTE Lp DS3 DS1 Chan Cell scrambleCellPayload (scramble)

Access Read and write

Description Cell scrambling, as defined by ITU-T Recommendation I.432., can provide a solution to the problem of transmission equipment which is sensitive to certain bit patterns in the ATM cell payload. This attribute controls whether or not the cell payload is scrambled.
It defaults to ***off*** for *DS1* interfaces, and ***on*** for all other interfaces.
Note that this setting must be the same at both ends of the link.

Values off
on

Default No default

### ATTRIBUTE Lp DS3 DS1 Chan Cell correctSingleBitHeaderErrors

Access Read and write

Description

This attribute specifies whether the port corrects single bit errors detected in the headers of received cells. If single bit errors are corrected, the affected cells are passed up to the ATM layer according to normal operation. If single bit errors are not corrected, these errored cells are discarded by the physical layer. Note that cells containing multiple bit errors in their headers are always discarded.

Single bit HEC error correction must remain ***off*** for the following card types: 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 2pJ6MAtm, 3pDS3Atm, and 3pE3Atm.

Values

off
on

Default

off

### ATTRIBUTE Lp DS3 DS1 Chan Cell clearDelay (clear)

Access

Read and write

Description

This attribute specifies the minimum elapsed time between the clearing of the Loss of Cell Delineation (LCD) defect and the port returning to service. The LCD defect should be absent for the entire period of elapsed time. This attribute value is specified in minutes. If the value of the *clearDelay* attribute is initially 0 (default), the time is actually about 10 seconds.
This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm.

Values

Decimal (0..60)

Units

minutes

Default

0

### ATTRIBUTE Lp DS3 DS1 Chan Cell hecSampleInterval (hSample)

Access

Read and write

Description

This attribute specifies the sampling interval (in seconds) for errors associated with the *uncorrectableHeaderErrors* attribute. When the sum of errors counted by the *uncorrectableHeaderErrors* attribute over the interval time is greater than or equal to the provisioned *hecErrorLimit* attribute,

the sample interval is considered errored. If the number of consecutive errored intervals reaches the limit established in the *hecErrorIntervalLimit* attribute, an LCD alarm is declared and the port is disabled. If the attribute *hecSampleInterval* is set to the default, 0, then the attribute *uncorrectableHeaderErrors* cannot be used to bring down the port.
This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm.

Values: Decimal (0..25)

Units: seconds

Default: 0

### ATTRIBUTE Lp DS3 DS1 Chan Cell hecErrorLimit (hLimit)

Access: Read and write

Description: This attribute specifies the error threshold for a HEC error sampling interval beyond which a port is brought down. When the value of the *uncorrectableHeaderErrors* attribute accumulated over the provisioned value of the *hecSampleInterval* attribute is greater than or equal to the provisioned value of the *hecErrorLimit* attribute, the sample interval is considered errored. If the number of consecutive errored intervals reaches the limit established in the *hecErrorIntervalLimit* attribute, an LCD alarm is declared and the port is disabled. (Please note that a *hecErrorInterval* attribute value of 0 (default) disables the mechanism of using the value of the *uncorrectableHeaderErrors* attribute to disable a port.)
This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm.

Values: Decimal (1..250000)

Default: No default

### ATTRIBUTE Lp DS3 DS1 Chan Cell lcdStateDelay (delay)

Access: Read and write

Description: This attribute specifies the time during which an Out of Cell Delineation (OCD) defect should be observed before moving to the Loss of Cell Delineation (LCD) defect state. The time is

specified in milliseconds. The valid values are 1 to 50 milliseconds if the *AtmCell c*omponent is located under the *Ds1* or *E1* component, and 1 to 5 milliseconds if under a *Ds3* or *E3* component.
This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm.

Values — Decimal (1..50)

Units — msec

Default — No default

### ATTRIBUTE Lp DS3 DS1 Chan Cell hecErrorIntervalLimit (hIntLimit)

Access — Read and write

Description — This attribute counts the instances of the *hecSamplingInterval* attribute for all HEC errors (specified by the *uncorrectableHeaderError* attribute) before an LCD alarm is generated. The alarm is only generated if the value of the *uncorrectableHeaderErrors* attribute in a given interval is greater than the value of the *hecErrorLimit* attribute. For example, if there are 20 HEC errors in 5 seconds, for three times in a row (the number of times in a row is represented by this attribute), an alarm is raised. If there are 24 HEC errors in the 5 seconds, and 14 in the next 5 seconds no alarm is generated because the number of HEC errors should also be more than 20 in the next instances.
This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm.

Values — Decimal (1..25)

Default — 1

### GROUP Lp DS3 DS1 Chan Cell Operational (Oper)

Properties — Operational

Description — This group contains the common operational attributes for the *AtmCell* component.

### ATTRIBUTE Lp DS3 DS1 Chan Cell lcdAlarm (lcd)

Access — Read only

| | |
|---|---|
| Description | This attribute displays whether the Loss of Cell Delineation (LCD) failure alarm state has been entered. This state is entered when LCD defects have been observed and accumulated for a period of time specified through the *alarmActDelay* attribute.<br>In ATM cell direct mapping mode, an LCD defect occurs when Out of Cell Delineation (OCD) anomaly persists for *x* milliseconds, and disappears when the Out of Cell Delineation (OCD) is absent for *x* msec. An OCD anomaly occurs when 7 consecutive incorrect HECs have been detected. An OCD anomaly terminates when 6 consecutive correct HECs have been detected.<br>For an *AtmCell* component located under a *DS3* or *E3* component with *mapping* = ***PLCP***, the LCD defect is directly derived from the PLCP LOF defect.<br>If LCD defects are intermittently occurring, the LCD defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle<br>The component under which is located the *AtmCell* component goes into an operational state of ***disabled*** until the LCD alarm condition is cleared. The condition is cleared after the LCD defect has not been reported for a period of 10 seconds +/- 0.5 seconds.<br>The *lcdAlarm* attribute is always set to off when the parent of the *AtmCell* component has been *locked* and left *offline*. This can also happen when the *Path* or *Channel* component has been suspended since its parent has been locked. |
| Values | on<br>off |
| Default | off |

## GROUP Lp DS3 DS1 Chan Cell Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the statistics attribute for the *AtmCell* component. Each attribute type is a non-negative integer which monotonically increases until it reaches a maximum value, at which point it wraps around and starts increasing again from zero. |

### ATTRIBUTE Lp DS3 DS1 Chan Cell uncorrectableHeaderErrors (ucErr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of uncorrectable ATM cell header errors that have been detected. Counting of *uncorrectableHeaderErrors* is inhibited when an Out of Cell Delineation (OCD) defect is present. An OCD defect occurs when seven consecutive incorrect HECs have been detected. An OCD defect terminates when six consecutive correct HECs have been detected. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp DS3 DS1 Chan Cell sevErroredSec (ses)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of ATM Cell Severely Errored Seconds (SESs) that have been counted.<br><br>In direct mapping mode, an ATM Cell SES is declared for second intervals containing one or more Out of Cell Delineation (OCD) defects. An OCD defect occurs when seven consecutive incorrect HECs have been detected. An OCD defect terminates when six consecutive correct HECs have been detected.<br><br>If the *AtmCell* component is located under a *Ds3* or *E3* component where the *mapping* attribute is set to ***plcp***, an ATM Cell SES is declared for second intervals containing one or more PLCP LOF defects.<br><br>Counting of *uncorrectableHeaderErrors* (*ucErr*) and *correctableHeaderErrors* (*cErr*) is inhibited when the OCD defect is present. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp DS3 DS1 Chan Cell receiveCellUtilization (rxutil)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute is the ratio of the number of valid, assigned cells received on the link to the nominal link capacity. The utilization is calculated over a period of one minute.<br>This attribute is always set to ***0*** when the parent of the *AtmCell* component has been *locked* and left *offline.* This can also happen when the *Path* or *Channel* component has been *suspended* since its parent has been *locked*. |
| Values | Decimal (0..100) |
| Units | % |
| Default | 0 |

### ATTRIBUTE Lp DS3 DS1 Chan Cell transmitCellUtilization (txutil)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the ratio of the number of valid, assigned cells transmitted on the link to the nominal link capacity. The utilization is calculated over a period of one minute.<br>This attribute is always set to ***0*** when the parent of the *AtmCell* component has been *locked* and left *offline*. This can also happen when the *Path* or *Channel* component has been *suspended* since its parent has been *locked*. |
| Values | Decimal (0..100) |
| Units | % |
| Default | 0 |

### ATTRIBUTE Lp DS3 DS1 Chan Cell correctableHeaderErrors (cErr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of correctable ATM cell header errors that have been detected and corrected. Counting of *correctableHeaderErrors* is inhibited when an Out of Cell Delineation (OCD) defect is present. An OCD defect occurs when seven consecutive incorrect HECs have been detected. An OCD defect terminates when six consecutive correct HECs have been detected |
| Values | Decimal (0..4294967295) |

Default 0

## COMPONENT Lp DS3 DS1 Chan TrunkConditioning (Tc)

Groups "GROUP Lp DS3 DS1 Chan Tc Provisioned (Prov)"
"GROUP Lp DS3 DS1 Chan Tc Operational (Op)"

Scope Device

Description *Lp/n Ds1/n Chan/n Tc*
*Lp/n E1/n Chan/n Tc*
*Lp/n Ds3/n Ds1/n Chan/n Tc*
*Lp/n Sdh/n Vc4/n Vc12/k,l,m E1 Chan/n Tc*
*Lp/n Sonet/n Sts/n Vt1dot5/l,m Ds1 Chan/n Tc*
*Laps/n* Vc4/n Vc12/k,l,m E1 Chan/n T*c*
*Laps/n* Sts/n Vt1dot5/l,m Ds1 Chan/n T*c*

The *Tc* component is used to provision and monitor trunk conditioning options. A separate instance of this component is required for each *Chan* on a Port which is offering a structured constant bit rate service.

Under certain failure alarm conditions, trunk conditioning *replacementData* is substituted into the *timeslots* as defined by the *Chan* component. Trunk conditioning signaling is also substituted into the appropriate Channel Associated Signaling (CAS) bits when a *lineType* that uses CAS has been defined.

When used with AAL1 Circuit Emulation Service, trunk conditioning is transmitted towards the ATM network under the following conditions:
lossOfSignal (LOS)
lossOfFrame (LOF)
remoteAlarmIndication (RAI)
alarmIndicationSignal (AIS)
bufferUnderflow (BU)
and in addition for E1:
lossOfMultiframe (LOMF)
receiveMultiframeRemoteAlarmIndication (RMRAI)

When used with AAL1 Circuit Emulation Service, trunk conditioning is transmitted towards the PDH network under the

following conditions:
bufferUnderflow (BU)
AAL1 protocol errors.

This component needs to be provisioned on 2pDs3cAal and 32pE1Aal FPs.

Common Verbs

Help
List
Display
Add
DELete

## GROUP Lp DS3 DS1 Chan Tc Provisioned (Prov)

Properties: Provisioned

Description: This group contains all specific provisioning data for a *Tc* component.

## ATTRIBUTE Lp DS3 DS1 Chan Tc replacementData (data)

Access: Read and write

Description: This attribute specifies the trunk conditioning data byte to be substituted into the *timeslots* defined by the *Chan* component under fault conditions.

The attribute *replacementData* can be set to any two digit hexadecimal number. The following are recommended values:
DS1 MUX Out Of Service Code = 0x1A
E1 MUX Out Of Service Code = 0xFF

On the ***4pDS3ChAal1*** card, the only allowed value for this attribute is ***0xFF***.

On the ***4pOC3ChSmIr*** and ***2pOC3ChSmIrVsp3*** cards, the default value for this attribute is ***0x1A*** for DS1 and ***0xFF*** for E1. On all other cards the default value is ***0xFF***.

Values: Hex (H.0..H.ff)

| | |
|---|---|
| Units | Hex |
| Default | No default |

### ATTRIBUTE Lp DS3 DS1 Chan Tc signalOneDuration (duration)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time duration in seconds for which *signalOne* is substituted into the appropriate signaling bits, when a *lineType* that uses CAS has been defined. When *signalOneDuration* has expired *signalTwo* is substituted into the appropriate signaling bits.<br><br>If *signalOneDuration* is set to zero then only *signalTwo* is substituted into the appropriate signaling bits during error conditions.<br><br>The *signalOneDuration* attribute can be set to any integer value from 0 to 60 seconds. |
| Values | Decimal (0..60) |
| Units | seconds |
| Default | 0 |

### ATTRIBUTE Lp DS3 DS1 Chan Tc noServiceResponse (resp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the Channel's egress response when it has no service provisioned, or the service provisioned is unavailable due to a near end failure. The following responses are available:<br><br>***autoConfigure*** - automatically configure the channels response.<br>***tc*** - transmit trunk conditioning on all timeslots provisioned in the egress direction.<br>***ais*** - transmit AIS in the egress direction.<br>***noResponse*** - no response is sent in the egress direction.<br><br>A value of ***autoConfigure*** will result in TC being transmitted for all card types. |

| | |
|---|---|
| Values | autoConfigure<br>tc<br>ais<br>noResponse |
| Default | autoConfigure |

### ATTRIBUTE Lp DS3 DS1 Chan Tc signalOne (sigOne)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the value to be substituted into the ABCD signaling bits for the *timeslots* defined by the *Chan* component under fault conditions. The value will be substituted for the duration provisioned in *signalOneDuration* when a *lineType* that uses CAS has been defined.<br><br>For a *lineType* of ***d4Cas*** (Super Frame), signaling bits C and D are required to equal bits A and B respectively. |
| Vector of | Decimal (0..1) |
| Index | D<br>C<br>B<br>A |
| Default | (1, 1, 1, 1) |

### ATTRIBUTE Lp DS3 DS1 Chan Tc signalTwo (sigTwo)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the value to be substituted into the ABCD signaling bits for the *timeslots* defined by the *Chan* component under fault conditions. The value will be substituted after the duration provisioned in *signalOneDuration* has expired and when a *lineType* that uses CAS has been defined.<br><br>For a *lineType* of ***d4Cas*** (Super Frame), signaling bits C and D are required to equal bits A and B respectively. |

| | |
|---|---|
| Vector of | Decimal (0..1) |
| Index | D<br>C<br>B<br>A |
| Default | (1, 1, 1, 1) |

### GROUP Lp DS3 DS1 Chan Tc Operational (Op)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all specific operational data for a *Tc* component. |

### ATTRIBUTE Lp DS3 DS1 Chan Tc ingressConditioning (inCon)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the status of locally generated trunk conditioning towards the ATM network.<br><br>When trunk conditioning is being locally generated towards the ATM network, *ingressConditioning* is set to ***on.***<br><br>When trunk conditioning is not being locally generated towards the ATM network, *ingressConditioning* is set to ***off***.<br><br>Trunk conditioning is transmitted towards the ATM network under the following conditions:<br>lossOfSignal (LOS)<br>lossOfFrame (LOF)<br>remoteAlarmIndication (RAI)<br>alarmIndicationSignal (AIS)<br>bufferUnderflow (BU)<br>and in addition for E1:<br>lossOfMultiframe (LOMF)<br>receiveMultiframeRemoteAlarmIndication (RMRAI) |

| | |
|---|---|
| Values | off<br>on |
| Default | off |

### ATTRIBUTE Lp DS3 DS1 Chan Tc egressConditioning (egCon)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the status of locally generated trunk conditioning towards the PDH line.<br><br>When trunk conditioning is being locally generated towards the PDH line, *egressConditioning* is set to ***on.***<br><br>When trunk conditioning is not being locally generated towards the PDH line, *egressConditioning* is set to ***off***.<br><br>Trunk conditioning is transmitted towards the PDH line under the following conditions:<br>bufferUnderflow (BU)<br>AAL1 protocol errors. |
| Values | off<br>on |
| Default | off |

### COMPONENT Lp DS3 DS1 Test (Test)

| | |
|---|---|
| Groups | "GROUP Lp DS3 DS1 Test OsiState (State)"<br>"GROUP Lp DS3 DS1 Test Setup (Setup)"<br>"GROUP Lp DS3 DS1 Test Results (Results)" |
| Scope | Application |
| Description | The *Test* component is configured to control a hardware facility test on a physical (*V*35, *X21*, *DS1*, *E1*, *DS3*, *E3* etc.) or a logical port. |
| Common Verbs | Help<br>List<br>Display |

### VERB START Lp DS3 DS1 Test

| | |
|---|---|
| Impact | Service |
| Description | This command invokes a test on the hardware component. Note that some test types requires the parent component (the hardware component) to be locked (using the *Lock* command) before a test can be started. |

### VERB STOP Lp DS3 DS1 Test

| | |
|---|---|
| Impact | Service |
| Description | This command stops a test running on the hardware component. |

### GROUP Lp DS3 DS1 Test OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Lp DS3 DS1 Test adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is |

administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Lp DS3 DS1 Test operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Lp DS3 DS1 Test usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

| | |
|---|---|
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Lp DS3 DS1 Test Setup (Setup)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all of the operational data for a *Test* component. |

### ATTRIBUTE Lp DS3 DS1 Test purpose (purpose)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute records the purpose of the test so that the test results can be associated and properly analyzed. |
| Values | String (0..40, ASCII) |
| Default | No default |

### ATTRIBUTE Lp DS3 DS1 Test type (type)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the type of test to be run. The available test types include the following:<br>***card*** test sets up an internal loop on the board and runs a bit error rate test.<br>***manual*** test assumes the line is looped back externally and a bit error rate test is performed.<br>***localLoop*** test loops back the local modem and performs a bit error rate test.<br>***remoteLoop*** test loops back the remote modem (or CSU) and performs a bit error rate test.<br>***externalLoop*** test loops back the line to the far end.<br>***payloadLoop*** test only loops back the payload data received from the incoming line.<br>***remoteLoopThisTrib*** loops this particular tributary back at the far end, using services provided by the parent.<br>***v54RemoteLoop*** initiates a V.54 Remote Loopback test.<br>***pn127RemoteLoop*** initiates a PN127 Remote Loopback test. |

***lineBIP8Error*** tests line BIP 8 error generation and detection (B2 byte inverted).
***sectionBIP8Error*** tests section BIP 8 error generation and detection (B1 byte inverted).
***pathBIP8Error*** tests path BIP 8 error generation and detection (B3 byte inverted).
***pathBIP2Error*** tests path BIP 2 error generation and detection (bit 1-2 of V5 byte inverted).
Note that not all test types are not supported by all function processors.

Values
card
manual
localLoop
remoteLoop
externalLoop
payloadLoop
remoteLoopThisTrib
v54RemoteLoop
pn127RemoteLoop
lineBIP8Error
sectionBIP8Error
pathBIP8Error
pathBIP2Error

Default
card

### ATTRIBUTE Lp DS3 DS1 Test frmSize (size)

Access
Read and write

Description
This attribute defines the size of the test data frames in number of bytes.
This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame.

Values
Decimal (4..4096)

Units
bytes

Default
1024

### ATTRIBUTE Lp DS3 DS1 Test frmPatternType (fpt)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the type of data pattern generation to use. The following lists the available pattern types:<br>***ccitt32kBitPattern*** is a pseudo-random sequence of 32 kbit.<br>***ccitt8MBitPattern*** is a pseudo-random sequence of 8Mbit.<br>***customizedPattern*** is the pattern defined in the ***customizedPattern*** attribute. |
| Values | ccitt32kBitPattern<br>ccitt8MBitPattern<br>customizedPattern |
| Default | ccitt32kBitPattern |

### ATTRIBUTE Lp DS3 DS1 Test customizedPattern (cp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute allows a customized 32 bit pattern to be defined for use in the test data frames. This attribute is used when the attribute *frmPatternType* is set to ***CustomizedPattern***. Note that a 55 hex pattern is an alternating 1 and 0 pattern. |
| Values | Hex (H.0..H.ffffffff) |
| Units | Hex |
| Default | H.55555555 |

### ATTRIBUTE Lp DS3 DS1 Test dataStartDelay (dsd)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time delay (in seconds) between when the test expects the loop to have been set up, to when the test data actually starts to be transmitted. This attribute is to accommodate some non-standard equipment that requires extra time for setting up a requested loop.<br>This attribute is ignored when the test *type* is set to ***externalLoop***. |
| Values | Decimal (0..1814400) |
| Units | seconds |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE Lp DS3 DS1 Test displayInterval (di)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the interval (in minutes) between which interim test results are to be displayed. Results are displayed at the operator console at which the test was started. When the test *type* is set to ***externalLoop***, this attribute is ignored. There will be no display of results if *displayInterval* is set to 0. This attribute can be changed anytime. |
| Values | Decimal (0..30240) |
| Units | minutes |
| Default | 5 |

### ATTRIBUTE Lp DS3 DS1 Test duration

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the duration for which the test data will be transmitted. In the case of an ***externalLoop***, this is the time that the loop is in effect. Note that *dataStartDelay* does not apply to the ***externalLoop*** test type. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 1.00 |

### GROUP Lp DS3 DS1 Test Results (Results)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all the statistics related attributes of the *Test* component. |

### ATTRIBUTE Lp DS3 DS1 Test causeOfTermination

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates either the status of the test or the cause of the test's termination: |

a value of ***neverStarted*** indicates that the test has not yet been started.

a value of ***testRunning*** indicates that the test has been started.

a value of ***stoppedByOperator*** indicates that the operator issued a stop command on a test that was running.

a value of ***testTimeExpired*** indicates that the test ran for the time specified by the test's *duration*.

a value of ***loopCodeSyncFailed*** indicates that the local end failed to synchronize to the loopCode pattern. The local end transmits the loopCode pattern to cause the remote end to apply a loopback, after which the local end should receive the loopCode pattern. The exact pattern used to request loopCode depends on the test *type*. This failure indicates a high rate of transmission errors, or that the remote end has failed to apply the loopback.

a value of ***patternSyncFailed*** indicates that the local end failed to synchronize to the *frmPatternType* test pattern, that should have been looped back at the remote end. This failure indicates a high rate of transmission errors or the absence of a loopback.

a value of ***patternSyncLost*** indicates that the local end gained and then lost synchronization to the returned *frmPatternType* test pattern. This failure indicates a sudden increase in transmission errors, frame slippage, or the removal of an existing loopback.

a value of ***unknown*** is set when a reason to terminate other than those listed here is encountered.

Note: The *causeOfTermination* attribute values of ***loopCodeSyncFailed***, ***patternSyncFailed*** and ***patternSyncLost*** are supported only on MSA cards. *Test* components located on other cards or under an *Ima* component on an MSA card will never terminate the test under the conditions described by these values.

| | |
|---|---|
| Values | testTimeExpired<br>stoppedByOperator<br>unknown<br>neverStarted<br>testRunning<br>hardwareReconfigured<br>loopCodeSyncFailed<br>patternSyncFailed<br>patternSyncLost |
| Default | neverStarted |

### ATTRIBUTE Lp DS3 DS1 Test bitsTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bits sent during the test period. As long as the line speed of the hardware interface is less than 70 Mbit/s, this counter is not expected to reach the maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp DS3 DS1 Test bytesTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes sent during the test period. This counter is not expected to reach its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp DS3 DS1 Test frmTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames sent during the test period. This counter is not expected to reach its maximum value.<br><br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |
| Values | Long Integer |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Lp DS3 DS1 Test bitsRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bits received during the test period. The counter wraps to zero when it exceeds the maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp DS3 DS1 Test bytesRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes received during the test period. The counter wraps to zero when it exceeds its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp DS3 DS1 Test frmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received during the test period. The counter wraps to zero when it exceeds its maximum value.<br><br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp DS3 DS1 Test erroredFrmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute is not displayed for ATM and MSA32 cards. For ATM cards, the physical layer drops all errored frames at the controller interface. For MSA32 cards, the test does not generate any frame. |

For all other card types, this attribute counts the errored frames received during the test period. The counter wraps to zero when it exceeds its maximum value.

Values: Long Integer

Default: No default

### ATTRIBUTE Lp DS3 DS1 Test bitErrorRate

Access: Read only

Description: This attribute is not displayed for ATM cards because the physical layer drops all errored frames at the controller interface. For MSA32 cards, this attribute indicates the link bit error rate, regardless of the *frameSize*, which is not supported

For all other card types, this attribute is the calculated bit error rate on the link. Test data are generated and sent in frames of a preset size (*frameSize*). The *Test* component will try to estimate the number of bit errors in any errored frame which is identifiable. The statistics will be updated accordingly. A lost frame (may be due to an error on the flag sequence) will be discarded for the bit error rate calculation. The result is presented in the form of xEsyy, where x is the mantissa, syy is the exponent, for example 0E+00, 2E-09.
Note that the *bitErrorRate* is an estimate only. For more reliable test results, the test should be done over a long period. Multiple tests would also improve the confidence level of the test results.

Values: String (5, ASCII)

Default: No default

### ATTRIBUTE Lp DS3 DS1 Test elapsedTime

Access: Read only

Description: This attribute indicates the time elapsed since the test started for an ***externalLoop*** test. For a data test, it indicates time since test data was first transmitted.

Values: Decimal (0.00..30240.00)

Units: minutes

| | |
|---|---|
| Default | 0.00 |

### ATTRIBUTE Lp DS3 DS1 Test timeRemaining

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the length of time remaining before the test stops according to the *duration* attribute. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 0.00 |

### COMPONENT Lp DS3 InverseMultiplexerAtm (Ima)

| | |
|---|---|
| Instance | Decimal (0..13) |
| Groups | "GROUP Lp DS3 Ima Provisioned (Prov)"<br>"GROUP Lp DS3 Ima Operational (Oper)"<br>"GROUP Lp DS3 Ima Statistics (Stats)"<br>"GROUP Lp DS3 Ima CustomerIdentifierData (CidData)"<br>"GROUP Lp DS3 Ima OsiState (State)" |
| Scope | Device |
| Description | *Lp/n InverseMultiplexerAtm/n*<br>*Lp/n Ds3/n InverseMultiplexerAtm/n*<br><br>This component is used to define an inverse multiplexing for ATM (IMA) group. IMA provides a data rate greater than DS1 E1 in increments of DS1 E1. To use IMA on an 8pDS1E1, MSA32, or 2pSTM1eCh function processor, add an *Lp/n InverseMultiplexerAtm/n* component. To use IMA on a 4pDS3ChAtm function processor, add an *Lp/n Ds3/n InverseMultiplexerAtm/n* component.<br><br>The instance range 0..7 applies to 8pDS1Atm and 8pE1Atm cards. The instance range 0..13 applies to 4pDS3ChAtm cards. The instance range 0..29 applies to MSA32 cards. The instance range 0..113 applies to 2pStm1eCh cards.<br><br>The instance number of an *IMA* group must not be the same as the instance number of a *DS1/E1* “ATM UNI port” under the |

same *Lp*. An “ATM UNI port” is a *DS1* or *E1* component with a single *Chan* whose *applicationFramer* attribute is linked to an *AtmIf* component. On an MSA32 card, ports that are used as IMA links have two immiscible sub-ranges: 0..15 and 16..31. The instance number of an *IMA* group must be in the same sub-range as all of its ports. IMA sub-ranges also exist on a 2pStm1eCh card, instances 0..56 are allowed on port SDH 0, and instances 57..113 are allowed on port SDH 1.

Opt. Subcomp. "COMPONENT Lp DS3 Ima Link (Lk)"

Dyn. Subcomp. "COMPONENT Lp DS3 Ima Test (Test)"

Common Verbs

Help
List
Display
Add
DELete
LOCK
Unlock

## GROUP Lp DS3 Ima Provisioned (Prov)

Properties Provisioned

Description This group contains the provisionable attributes for the *Ima* component.
The default values of *linkSelectionCriterion* and *linkRetryTimeout* depend on card type.

## ATTRIBUTE Lp DS3 Ima linkSelectionCriterion (select)

Access Read and write

Description This attribute specifies the method to be used by the IMA group when selecting links to be activated. This comes into effect only when the configured links do not respect the maximum differential delay (otherwise all links are accepted).

If ***leastDelay*** is chosen, first the link having the smallest delay is selected as the reference link. The IMA group includes all links which respect the maximum differential delay relative to the reference link.

If ***maxBandwidth*** is chosen, the IMA group selects the maximum possible number of links, with each selected link respecting the maximum differential delay relative to every other selected link. When more than one possibility exists, the combination which offers the least delay is selected.

The default value for Multi-Service Access cards is ***leastDelay***, and for all other cards is ***maxBandwidth***. On Multi-Service Access cards ***leastDelay*** is the only acceptable provisionable value.

| | |
|---|---|
| Values | leastDelay<br>maxBandwidth |
| Default | No default |

### ATTRIBUTE Lp DS3 Ima maxDiffDelay (delay)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum differential delay between links acceptable in the IMA group. If a link violates that maximum differential delay, it will not be active in the IMA group and an alarm will be generated.<br><br>For the 4pDS3ChAtm card, the value must not exceed 70. |
| Values | Decimal (1..100) |
| Units | msec |
| Default | 25 |

### ATTRIBUTE Lp DS3 Ima linkRetryTimeout (retry)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the amount of time before reactivation of a link is attempted after it recovers from a failure condition.<br><br>The default value for Multi-Service Access cards is ***1***, and for all |

| | |
|---|---|
| | other cards is ***10***. On Multi-Service Access cards ***1*** is the only acceptable provisionable value. |
| Values | Decimal (0..1000) |
| Units | seconds |
| Default | No default |

### ATTRIBUTE Lp DS3 Ima applicationFramerName (framer)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the link to the *AtmIf* component using the *Ima*. An example is *AtmIf/31*. |
| Values | Link (Service, interfaceName) |
| Default | No default |

### ATTRIBUTE Lp DS3 Ima transmitClockMode (clock)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the transmit clocking mode.<br>If ***itc*** (Independent Transmit Clock) is chosen, the physical ports used by the IMA group may have different clocking sources.<br>If ***ctc*** (Common Transmit Clock) is chosen, it is recommended that the physical ports used by the IMA group have the same clocking source. However, if the physical ports have different clocking sources, the operator should ensure that all the clocking sources have the same rate. |
| Values | itc<br>ctc |
| Default | itc |

### ATTRIBUTE Lp DS3 Ima protocol (prot)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies which IMA protocol the component should run. |

If ***atmForum10*** is chosen, the ATM Forum's IMA protocol (version 1.0) will be used and signalled in outgoing IMA Control Protocol (ICP) cells.The IMA group will come up only if the far end IMA also uses the ATM Forum's IMA protocol 1.0. Feature ***imaAtmForum*** must be provisioned on the LP for this protocol to be used.
If ***atmForum11*** is chosen, the ATM Forum's IMA protocol (version 1.1) will be used and signalled in outgoing IMA Control Protocol (ICP) cells.The IMA group will come up only if the far end IMA uses the ATM Forum's IMA protocol 1.0 or 1.1. Feature ***imaAtmForum*** must be provisioned on the LP for this protocol to be used. If the far end is 1.0, then the near end downgrades to 1.0. After the downgrade, this attribute continues to specify the provisioned protocol version, while the *activeProtocol* operational attribute of the IMA component specifies the protocol version effectively running.
If ***proprietary*** is chosen, Nortel’s proprietary IMA protocol will be used. The IMA group will come up only if the far end IMA also uses Nortel’s proprietary IMA protocol. This IMA group will not inter-operate with IMA implementations from other vendors. Feature ***ima*** must be provisioned on the LP for this protocol to be used.

The DEFAULT on 2pStm1eCh function processor is atmForum11.

| | |
|---|---|
| Values | atmForum10<br>proprietary<br>atmForum11 |
| Default | No default |

## GROUP Lp DS3 Ima Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for the *Ima* component. |

## ATTRIBUTE Lp DS3 Ima failureCause (cause)

| | |
|---|---|
| Access | Read only |

Description

This attribute indicates the cause of the current local end failure experienced by the IMA group. The failure may have occurred during a start-up procedure or during normal operation. Possible values are:
***noFailure***: no local end failure.
***noGoodLinksInStartup***: no good links were available during IMA start-up.
***badGidInStartup***: during start-up, different group identifiers (GIDs) were received on the links.
***badLidInStartup***: during start-up, duplicate link identifiers (LIDs) were received on the links.
***unsupportedFrameLengthInStartup***: during start-up, an unsupported frame length was received.
***timeoutInStartup***: a time-out has occurred during start-up.
***noGoodLinks***: no good links are available in the IMA group.
***remoteFailure***: the far end is down.
***unsupportedSymmetryInStartup***: the symmetry proposed by the far end is not supported on the near-end. This value will occur when the IMA group is running the ATM Forum protocol and the far end is proposing a group symmetry other than “symmetric configuration and operation”.
***unsupportedVersionInStartup***: the ima version proposed by the far end is not supported on the near-end.

Values

noFailure
noGoodLinksInStartup
badGidInStartup
badLidInStartup
unsupportedFrameLengthInStartup
timeoutInStartup
noGoodLinks
remoteFailure
unsupportedSymmetryInStartup
unsupportedVersionInStartup

Default

No default

## ATTRIBUTE Lp DS3 Ima remoteDefect (remDef)

Access

Read only

| | |
|---|---|
| Description | This attribute indicates the cause of the current far end defect experienced by the IMA group.<br>For the ATM Forum IMA protocol, possible values are:<br>***noDefect***: no defect.<br>***unsupportedFrameLengthInStartup***: during the far end's start-up, an unsupported frame length was received.<br>***unsupportedSymmetryInStartup***: during the far end's start-up, an unsupported symmetry configuration was received.<br>***otherAbortStartup***: the far end has aborted its start-up for another reason. This could be because different Gids were received on the links or if duplicate link identifiers (LIDs) were received.<br>***insufficientLinks***: the far end does not have sufficient links active. This value will be displayed if the far end IMA group is locked.<br>***blocked***: the far end IMA group is blocked.<br><br>For the proprietary IMA protocol, possible values are:<br>***noDefect***: no defect.<br>***noGoodLinksInStartup***: no good links were available during the far end’s start-up.<br>***badGidInStartup***: during the far end’s start-up, different GIDs were received on the links.<br>***badLidInStartup***: during the far end’s start-up, duplicate link identifiers (LIDs) were received on the links.<br>***unsupportedFrameLengthInStartup***: during the far end’s start-up, an unsupported frame length was received.<br>***timeoutInStartup***: a time out has occurred during the far end’s start-up.<br>***noGoodLinks***: no good links are available in the far end IMA group.<br>***blocked***: the far end IMA group is locked.<br>***unsupportedVersionInStartup***: the ima version proposed by the far end is not supported on the near-end. |
| Values | noDefect<br>noGoodLinksInStartup<br>badGidInStartup<br>badLidInStartup<br>unsupportedFrameLengthInStartup<br>timeoutInStartup<br>noGoodLinks |

| | |
|---|---|
| | locked<br>unsupportedSymmetryInStartup<br>otherAbortStartup<br>insufficientLinks<br>blocked<br>unsupportedVersionInStartup |
| Default | No default |

### ATTRIBUTE Lp DS3 Ima remoteLidsConfig (remConf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates all the links which have been configured in the remote IMA group. For example, if links 1, 3 and 5 have been configured in the remote IMA group, this attribute would contain ***1 3 5***. |
| Set of | Decimal (0..31) |
| Default | No default |

### ATTRIBUTE Lp DS3 Ima remoteLidsActive (remAct)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates all the links which are active in the remote IMA group. For example, if links 1 and 5 are active in the remote IMA, this attribute would contain ***1 5***. |
| Set of | Decimal (0..31) |
| Default | No default |

### ATTRIBUTE Lp DS3 Ima cellCapacity (cap)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total cell capacity (in cells per second) which is provided to the ATM layer. This cell capacity takes into account the physical and IMA level overheads. |
| Values | Decimal (0..4294967295) |
| Units | cell/s |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Lp DS3 Ima remoteGid (remGid)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the IMA group identifier (GID) used by the remote IMA. A value of 0 will be displayed if the group is not receiving IMA Control Protocol (ICP) cells.<br>This attribute will always have a value of 0 if the *protocol for the IMA group is* ***proprietary.*** |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE Lp DS3 Ima clockingModeMismatch (mismatch)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether or not both ends of the IMA group are using the same transmit clocking mode (***itc***/***ctc***). Its value will be ***yes*** if both ends are not using the same transmit clocking mode. A clocking mode mismatch does not prevent an IMA group from coming up and can be corrected by using the same clocking mode at both ends.<br>This attribute will always have a value of ***no*** if the *protocol* for the IMA group is ***proprietary***. |
| Values | no<br>yes |
| Default | No default |

### ATTRIBUTE Lp DS3 Ima activeProtocol (activeProt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates which IMA protocol the *Ima* component is effectively running.<br>This attribute is supported on the 8pDs1Atm, 8pE1Atm, 4pDS3ChAtm, and 2pStm1eCh cards. This attribute is not supported on the MSA32 cards.<br>The value of this attribute is the same as the provisioned *protocol* attribute if the IMA is operating at the provisioned protocol |

| | |
|---|---|
| | version. The value of this attribute indicates the dongraded protocol version if the IMA has gone through a protocol version downgrade upon IMA 1.1 to IMA 1.0 interworking. |
| Values | atmForum10<br>proprietary<br>atmForum11 |
| Default | No default |

### GROUP Lp DS3 Ima Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the statistics data for the *Ima* component. |

### ATTRIBUTE Lp DS3 Ima runningTime (running)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the length of time (in seconds) for which the *Ima* component has been in the unlocked state or has been used for operational testing. |
| Values | Decimal (0..4294967295) |
| Units | seconds |
| Default | No default |

### ATTRIBUTE Lp DS3 Ima unavailSec (unavail)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of one second intervals during which the *Ima* component has been unlocked and out of service. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp DS3 Ima failures (fail)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of complete failures, during start-up or normal operation, that the *Ima* component has |

experienced since being added. It must be noted that a service degradation, such as 1 of the 3 links in an IMA group being down, is not counted as a failure. If an *Ima* component is in a failure loop and does not come up, this count will only increase by 1.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Lp DS3 Ima receiveCellUtilization (rxutil)

Access: Read only

Description: This attribute indicates the ratio of the number of valid, assigned user cells received on the IMA group to the IMA cell capacity (based on the number of active links). The utilization is calculated over a one minute period.

This attribute will always have a value of 0 if the *protocol for the IMA group is* ***proprietary.***

Values: Decimal (0..100)

Units: %

Default: No default

### ATTRIBUTE Lp DS3 Ima transmitCellUtilization (txutil)

Access: Read only

Description: This attribute indicates the ratio of the number of user cells transmitted on the IMA group to the IMA cell capacity (based on the number of active links). The utilization is calculated over a one minute period.

This attribute will always have a value of 0 if the *protocol for the IMA group is* ***proprietary.***

Values: Decimal (0..100)

Units: %

Default: No default

## GROUP Lp DS3 Ima CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

## ATTRIBUTE Lp DS3 Ima customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.<br><br>Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.<br><br>An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to "basic CIDs" in DPN) may be assigned to specific customers. |
| Values | Decimal (0; 1..8191) |
| Default | 0 |

## GROUP Lp DS3 Ima OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific |

information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Lp DS3 Ima adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Lp DS3 Ima operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service. |

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Lp DS3 Ima usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
idle
active (activ)
busy

Default
idle

### ATTRIBUTE Lp DS3 Ima availabilityStatus (osiAvail)

Access
Read only

Description
If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is

defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.

The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.

The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.

The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.

The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a

rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

### ATTRIBUTE Lp DS3 Ima proceduralStatus (osiProc)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.

The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

## ATTRIBUTE Lp DS3 Ima controlStatus (osiCntrl)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

Set of

subjectToTest (subTst)
partOfServicesLocked (partLk)
reservedForTest (rsrvd)
suspended (suspnd)

Default

No default

### ATTRIBUTE Lp DS3 Ima alarmStatus (osiAlarm)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms

may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE Lp DS3 Ima standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values
hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

Default
notSet

### ATTRIBUTE Lp DS3 Ima unknownStatus (osiUnknw)

Access
Read only

Description
This attribute indicates the OSI Unknown status of the component.

The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.

The value ***true*** indicates that the actual state of the component is not known for sure.

Values
false
true

Default
false

### COMPONENT Lp DS3 Ima Test (Test)

Groups
"GROUP Lp DS3 Ima Test OsiState (State)"
"GROUP Lp DS3 Ima Test Setup (Setup)"
"GROUP Lp DS3 Ima Test Results (Results)"

Scope
Application

Description
The *Test* component is configured to control a hardware facility test on a physical (*V35*, *X21*, *DS1*, *E1*, *DS3*, *E3* etc.) or a logical port.

Common Verbs
Help
List
Display

### VERB START Lp DS3 Ima Test

| | |
|---|---|
| Impact | Service |
| Description | This command invokes a test on the hardware component. Note that some test types requires the parent component (the hardware component) to be locked (using the *Lock* command) before a test can be started. |

### VERB STOP Lp DS3 Ima Test

| | |
|---|---|
| Impact | Service |
| Description | This command stops a test running on the hardware component. |

### GROUP Lp DS3 Ima Test OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Lp DS3 Ima Test adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is |

administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Lp DS3 Ima Test operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Lp DS3 Ima Test usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

| | |
|---|---|
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Lp DS3 Ima Test Setup (Setup)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all of the operational data for a *Test* component. |

### ATTRIBUTE Lp DS3 Ima Test purpose (purpose)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute records the purpose of the test so that the test results can be associated and properly analyzed. |
| Values | String (0..40, ASCII) |
| Default | No default |

### ATTRIBUTE Lp DS3 Ima Test type (type)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the type of test to be run. The available test types include the following:<br>***card*** test sets up an internal loop on the board and runs a bit error rate test.<br>***manual*** test assumes the line is looped back externally and a bit error rate test is performed.<br>***localLoop*** test loops back the local modem and performs a bit error rate test.<br>***remoteLoop*** test loops back the remote modem (or CSU) and performs a bit error rate test.<br>***externalLoop*** test loops back the line to the far end.<br>***payloadLoop*** test only loops back the payload data received from the incoming line.<br>***remoteLoopThisTrib*** loops this particular tributary back at the far end, using services provided by the parent.<br>***v54RemoteLoop*** initiates a V.54 Remote Loopback test.<br>***pn127RemoteLoop*** initiates a PN127 Remote Loopback test. |

***lineBIP8Error*** tests line BIP 8 error generation and detection (B2 byte inverted).
***sectionBIP8Error*** tests section BIP 8 error generation and detection (B1 byte inverted).
***pathBIP8Error*** tests path BIP 8 error generation and detection (B3 byte inverted).
***pathBIP2Error*** tests path BIP 2 error generation and detection (bit 1-2 of V5 byte inverted).
Note that not all test types are not supported by all function processors.

Values
card
manual
localLoop
remoteLoop
externalLoop
payloadLoop
remoteLoopThisTrib
v54RemoteLoop
pn127RemoteLoop
lineBIP8Error
sectionBIP8Error
pathBIP8Error
pathBIP2Error

Default
card

## ATTRIBUTE Lp DS3 Ima Test frmSize (size)

Access
Read and write

Description
This attribute defines the size of the test data frames in number of bytes.
This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame.

Values
Decimal (4..4096)

Units
bytes

Default
1024

### ATTRIBUTE Lp DS3 Ima Test frmPatternType (fpt)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the type of data pattern generation to use. The following lists the available pattern types:<br>***ccitt32kBitPattern*** is a pseudo-random sequence of 32 kbit.<br>***ccitt8MBitPattern*** is a pseudo-random sequence of 8Mbit.<br>***customizedPattern*** is the pattern defined in the ***customizedPattern*** attribute. |
| Values | ccitt32kBitPattern<br>ccitt8MBitPattern<br>customizedPattern |
| Default | ccitt32kBitPattern |

### ATTRIBUTE Lp DS3 Ima Test customizedPattern (cp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute allows a customized 32 bit pattern to be defined for use in the test data frames. This attribute is used when the attribute *frmPatternType* is set to ***CustomizedPattern***. Note that a 55 hex pattern is an alternating 1 and 0 pattern. |
| Values | Hex (H.0..H.ffffffff) |
| Units | Hex |
| Default | H.55555555 |

### ATTRIBUTE Lp DS3 Ima Test dataStartDelay (dsd)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time delay (in seconds) between when the test expects the loop to have been set up, to when the test data actually starts to be transmitted. This attribute is to accommodate some non-standard equipment that requires extra time for setting up a requested loop.<br>This attribute is ignored when the test *type* is set to ***externalLoop***. |
| Values | Decimal (0..1814400) |
| Units | seconds |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE Lp DS3 Ima Test displayInterval (di)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the interval (in minutes) between which interim test results are to be displayed. Results are displayed at the operator console at which the test was started. When the test *type* is set to ***externalLoop***, this attribute is ignored. There will be no display of results if *displayInterval* is set to 0. This attribute can be changed anytime. |
| Values | Decimal (0..30240) |
| Units | minutes |
| Default | 5 |

### ATTRIBUTE Lp DS3 Ima Test duration

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the duration for which the test data will be transmitted. In the case of an ***externalLoop***, this is the time that the loop is in effect. Note that *dataStartDelay* does not apply to the ***externalLoop*** test type. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 1.00 |

### GROUP Lp DS3 Ima Test Results (Results)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all the statistics related attributes of the *Test* component. |

### ATTRIBUTE Lp DS3 Ima Test causeOfTermination

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates either the status of the test or the cause of the test's termination: |

a value of ***neverStarted*** indicates that the test has not yet been started.

a value of ***testRunning*** indicates that the test has been started.

a value of ***stoppedByOperator*** indicates that the operator issued a stop command on a test that was running.

a value of ***testTimeExpired*** indicates that the test ran for the time specified by the test's *duration*.

a value of ***loopCodeSyncFailed*** indicates that the local end failed to synchronize to the loopCode pattern. The local end transmits the loopCode pattern to cause the remote end to apply a loopback, after which the local end should receive the loopCode pattern. The exact pattern used to request loopCode depends on the test *type*. This failure indicates a high rate of transmission errors, or that the remote end has failed to apply the loopback.

a value of ***patternSyncFailed*** indicates that the local end failed to synchronize to the *frmPatternType* test pattern, that should have been looped back at the remote end. This failure indicates a high rate of transmission errors or the absence of a loopback.

a value of ***patternSyncLost*** indicates that the local end gained and then lost synchronization to the returned *frmPatternType* test pattern. This failure indicates a sudden increase in transmission errors, frame slippage, or the removal of an existing loopback.

a value of ***unknown*** is set when a reason to terminate other than those listed here is encountered.

Note: The *causeOfTermination* attribute values of ***loopCodeSyncFailed***, ***patternSyncFailed*** and ***patternSyncLost*** are supported only on MSA cards. *Test* components located on other cards or under an *Ima* component on an MSA card will never terminate the test under the conditions described by these values.

| | |
|---|---|
| Values | testTimeExpired<br>stoppedByOperator<br>unknown<br>neverStarted<br>testRunning<br>hardwareReconfigured<br>loopCodeSyncFailed<br>patternSyncFailed<br>patternSyncLost |
| Default | neverStarted |

### ATTRIBUTE Lp DS3 Ima Test bitsTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bits sent during the test period. As long as the line speed of the hardware interface is less than 70 Mbit/s, this counter is not expected to reach the maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp DS3 Ima Test bytesTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes sent during the test period. This counter is not expected to reach its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp DS3 Ima Test frmTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames sent during the test period. This counter is not expected to reach its maximum value.<br><br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |
| Values | Long Integer |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Lp DS3 Ima Test bitsRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bits received during the test period. The counter wraps to zero when it exceeds the maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp DS3 Ima Test bytesRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes received during the test period. The counter wraps to zero when it exceeds its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp DS3 Ima Test frmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received during the test period. The counter wraps to zero when it exceeds its maximum value.<br><br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp DS3 Ima Test erroredFrmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute is not displayed for ATM and MSA32 cards. For ATM cards, the physical layer drops all errored frames at the controller interface. For MSA32 cards, the test does not generate any frame. |

For all other card types, this attribute counts the errored frames received during the test period. The counter wraps to zero when it exceeds its maximum value.

Values: Long Integer

Default: No default

### ATTRIBUTE Lp DS3 Ima Test bitErrorRate

Access: Read only

Description: This attribute is not displayed for ATM cards because the physical layer drops all errored frames at the controller interface. For MSA32 cards, this attribute indicates the link bit error rate, regardless of the *frameSize*, which is not supported

For all other card types, this attribute is the calculated bit error rate on the link. Test data are generated and sent in frames of a preset size (*frameSize*). The *Test* component will try to estimate the number of bit errors in any errored frame which is identifiable. The statistics will be updated accordingly. A lost frame (may be due to an error on the flag sequence) will be discarded for the bit error rate calculation. The result is presented in the form of xEsyy, where x is the mantissa, syy is the exponent, for example 0E+00, 2E-09.
Note that the *bitErrorRate* is an estimate only. For more reliable test results, the test should be done over a long period. Multiple tests would also improve the confidence level of the test results.

Values: String (5, ASCII)

Default: No default

### ATTRIBUTE Lp DS3 Ima Test elapsedTime

Access: Read only

Description: This attribute indicates the time elapsed since the test started for an ***externalLoop*** test. For a data test, it indicates time since test data was first transmitted.

Values: Decimal (0.00..30240.00)

Units: minutes

| | |
|---|---|
| Default | 0.00 |

### ATTRIBUTE Lp DS3 Ima Test timeRemaining

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the length of time remaining before the test stops according to the *duration* attribute. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 0.00 |

### COMPONENT Lp DS3 Ima Link (Lk)

| | |
|---|---|
| Instance | Decimal (0..31) |
| Groups | "GROUP Lp DS3 Ima Lk Provisioned (Prov)"<br>"GROUP Lp DS3 Ima Lk Operational (Oper)"<br>"GROUP Lp DS3 Ima Lk Statistics (Stats)"<br>"GROUP Lp DS3 Ima Lk OsiState (State)" |
| Scope | Device |
| Description | *Lp/n Ima/n Link/n*<br>*Lp/n Ds3/n Ima/n Link/n*<br><br>This component is used to define a DS1/E1 link belonging to an IMA group. The instance number of the *Link* subcomponent corresponds to the link identifier (LID) used by the link in IMA Control Protocol (ICP) cells. To use Ima on an 8pDS1E1 function processor, add *Lp/n Ima/n Link/n*. To use Ima on a 4pDS3ChAtm function processor, add *Lp/n Ds3/n Ima/n Link/n*. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Lp DS3 Ima Lk Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |

| | |
|---|---|
| Description | This group contains the provisionable attributes for the *Link* subcomponent. |

### ATTRIBUTE Lp DS3 Ima Lk interfaceName

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute associates the *Link* subcomponent with a specific interface on a function processor, for example *Lp/5 E1/3 Chan/0*. If IMA groups and independent links coexist on a card running IMA and per-VC queueing is enabled, plan the selection of DS1 or E1 ports to be used by the IMA group carefully. For a 4pDS3ChAtm function processor there is no per-VC queueing. |
| Values | Link (Hardware, applicationFramerName) |
| Default | No default |

### GROUP Lp DS3 Ima Lk Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for the *Link* subcomponent. |

### ATTRIBUTE Lp DS3 Ima Lk failureCause (cause)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the failure cause on this link. Possible values are:<br>***noFailure***: there is no failure on this link.<br>***interfaceDown***: the physical port used by the link is down.<br>***lif***: the link is in loss of IMA frame (LIF) state.<br>***lods***: the link is in loss of delay synchronization (LODS) state; that is, it has exhibited a differential delay which is greater than the maximum differential delay tolerated by the IMA group. It must be noted that hysteresis is used for the LODS condition.<br>***protocolError***: the link is down because of a time-out or because bad values are being received in IMA Control Protocol (ICP) cells.<br>***remoteFailure***: the far end link is down.<br>***misconnected***: the link is down because the IMA group has |

declared, after using its transmit test pattern procedure, that this link is not properly connected. This value can occur only if the *protocol for the IMA group is* ***atmForum10.***
***unsupportedFrameLength***: the link is down because it is receiving from the far end a frame length which is not supported by the local IMA group. This value can occur only if the *protocol for the IMA group is* ***atmForum10.***
***unsupportedSymmetry***: the link is down because it is receiving from the far end a group symmetry which is not supported by the local IMA group. This value can occur only if the *protocol for the IMA group is* ***atmForum10.***
***noIcp***: the link is down because it is not receiving IMA Control Protocol (ICP) cells. This value can occur only if the *protocol* for the IMA group is ***atmForum10***.
***unsupportedVersion***: the link is down because it is receiving from the far end a group version that is not supported by the local IMA group.

Values

noFailure
interfaceDown
lif
lods
protocolError
remoteFailure
misconnected
unsupportedFrameLength
unsupportedSymmetry
noIcp
unsupportedVersion

Default

No default

## ATTRIBUTE Lp DS3 Ima Lk remoteDefect (remDef)

Access

Read only

Description

This attribute indicates the IMA remote defect indicator (RDI) currently being received on this link. Possible values are:
***noDefect***: no defect.
***physicalLayerDefect***: the interface used by the remote link has a physical layer defect. This value can occur only if the *protocol for the IMA group is* ***atmForum10.***
***interfaceDown***: the physical interface used by the remote link is

down.This value can occur only if the *protocol for the IMA group is* ***proprietary.***
***lif***: the remote link has a loss of IMA frame (LIF) defect.
***lods***: the remote link has a loss of delay synchronization (LODS) defect; that is, it has exhibited a differential delay which is greater than the maximum differential delay tolerated by the IMA group.

Values
noDefect
interfaceDown
lif
lods
physicalLayerDefect

Default
No default

### ATTRIBUTE Lp DS3 Ima Lk remoteLid (remLid)

Access
Read only

Description
This attribute indicates the link identifier (LID) used by the remote IMA group on the physical link. A value of 0 will be displayed if the link is not receiving IMA Control Protocol (ICP) cells or if the physical layer is down.

Values
Decimal (0..31)

Default
No default

### ATTRIBUTE Lp DS3 Ima Lk relativeDelay (rel)

Access
Read only

Description
This attribute indicates the latest measured differential delay (rounded up in milliseconds) between this link and the link, in the same IMA group, having the least delay. A value of 4294967295 indicates that the relative delay could not be measured. This can be due to physical layer problems or to no IMA Control Protocol (ICP) cells being received on the link.

Values
Decimal (0..4294967295)

Units
msec

Default
No default

## ATTRIBUTE Lp DS3 Ima Lk lastOifCause (oif)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the cause of the last out of IMA frame (OIF) anomaly on the link. It will always have a value of ***noOif*** if the *protocol* for the IMA group is ***proprietary***.<br>Possible values are:<br>***noOif***: no OIF was detected.<br>***badFrameLength***: an IMA Control Protocol (ICP) cell with an unexpected frame length was received.<br>***badGid***: an ICP cell with an unexpected group identifier (GID) was received.<br>***badLid***: an ICP cell with an unexpected link identifier (LID) was received.<br>***badOffset***: an ICP cell with an unexpected cell offset was received.<br>***badSequenceNumber***: an ICP cell with an unexpected frame sequence number was received.<br>***stuffError***: an illegal stuffing sequence was received.<br>***missingIcp***: an expected ICP cell was not received.<br>***unexpectedIcp***: an unexpected ICP cell was received.<br>***erroredIcp***: two consecutive errored ICP cells were received.<br>***noCells***: no cells are being received on the link.<br>***idleCell***: an idle cell was received on the link.<br>***badOamLabel***: an ICP cell with an unexpected oam label was received. |
| Values | noOif<br>badFrameLength<br>badGid<br>badLid<br>badOffset<br>badSequenceNumber<br>stuffError<br>missingIcp<br>unexpectedIcp<br>erroredIcp<br>noCells<br>idleCell<br>badOamLabel |

| | |
|---|---|
| Default | No default |

### GROUP Lp DS3 Ima Lk Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the statistics data for the *Link* subcomponent. |

### ATTRIBUTE Lp DS3 Ima Lk runningTime (running)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the length of time (in seconds) for which the *Link* component has been running. |
| Values | Decimal (0..4294967295) |
| Units | seconds |
| Default | No default |

### ATTRIBUTE Lp DS3 Ima Lk unavailSec (unavail)

| | |
|---|---|
| Access | Read only |
| Description | For an IMA group whose *protocol* is ***atmForum10***, this attribute counts the number of unavailable seconds. Unavailability begins at the start of 10 contiguous severely errored seconds (SES) and ends at the start of 10 contiguous seconds with no SES.<br>For an IMA group whose *protocol* is ***proprietary***, this attribute counts the number of one second intervals during which the *Link* component has been out of service. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp DS3 Ima Lk failures (fail)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of failures, during link addition or normal operation, that the link has experienced. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp DS3 Ima Lk unusableSec (uus)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of one second intervals during which the near end has been in an unusable state.<br>This attribute will always have a value of 0 if the *protocol for the IMA group is* ***proprietary.*** |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp DS3 Ima Lk sevErroredSec (ses)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of one second intervals in which at least 30 percent of the IMA Control Protocol (ICP) cells were counted as ICP violations or at least one link defect (physical layer, LIF and LODS defects) was detected. This attribute will not increment during UAS (Unavailable Second) conditions.<br>This attribute will always have a value of 0 if the *protocol for the IMA group is* ***proprietary.*** |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp DS3 Ima Lk farEndUnusableSec (feUus)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of one second intervals during which the “Tx/Rx Unusable” condition has been received from the far end.<br>This attribute will always have a value of 0 if the *protocol for the IMA group is* ***proprietary.*** |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp DS3 Ima Lk farEndSevErroredSec (feSes)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the number of one second intervals containing one or more RDI defects. This attribute will not increment during FEUAS (Far-End Unavailable Second) conditions.<br>This attribute will always have a value of 0 if the *protocol for the IMA group is* ***proprietary.*** |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp DS3 Ima Lk farEndUnavailSec (feUnavail)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of unavailable seconds at the far end. Unavailability begins at the start of 10 contiguous severely errored seconds (SES) at the far end and ends at the start of 10 contiguous seconds at the far end with no SES.<br>This attribute will always have a value of 0 if the *protocol for the IMA group is* ***proprietary.*** |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp DS3 Ima Lk icpViolations (iv)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of errored, invalid or missing IMA Control Protocol (ICP) cells during non-SES (Severely Errored Second) and non-UAS (Unavailable Seconds) conditions.<br>This attribute will always have a value of 0 if the *protocol for the IMA group is* ***proprietary.*** |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp DS3 Ima Lk txStuffEvents (txStuff)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of Stuff events transmitted during non-SES (Severely Errored Second) and non-UAS |

(Unavailable Seconds) conditions.
This attribute will always have a value of 0 if the *protocol for the IMA group is* ***proprietary.***

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Lp DS3 Ima Lk rxStuffEvents (rxStuff)

Access: Read only

Description: This attribute counts the number of Stuff events received during non-SES (Severely Errored Second) and non-UAS (Unavailable Seconds) conditions.
This attribute will always have a value of 0 if the *protocol for the IMA group is* ***proprietary.***

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Lp DS3 Ima Lk idleCellSec (idle)

Access: Read only

Description: This attributes counts the number of one second intervals during which one or more idle cells was received. The reception of idle cells is an abnormal condition which could be caused by the remote IMA using the Common Transmit Clock mode with ports whose clock sources are not synchronized.
This attribute will always have a value of 0 if the *protocol for the IMA group is* ***proprietary.***

Values: Decimal (0..4294967295)

Default: No default

### GROUP Lp DS3 Ima Lk OsiState (State)

Properties: Operational

Description: This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every

component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Lp DS3 Ima Lk adminState (osiAdmin)

Access: Read only

Description: This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values:
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default: unlocked

### ATTRIBUTE Lp DS3 Ima Lk operationalState (osiOper)

Access: Read only

Description: This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Lp DS3 Ima Lk usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
idle
active (activ)
busy

Default
idle

### ATTRIBUTE Lp DS3 Ima Lk availabilityStatus (osiAvail)

Access
Read only

Description
If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is

defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.

The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.

The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.

The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.

The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a

rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

### ATTRIBUTE Lp DS3 Ima Lk proceduralStatus (osiProc)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.

The value ***notInitialized*** indicates (for a resource which does

initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

### ATTRIBUTE Lp DS3 Ima Lk controlStatus (osiCntrl)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service

is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

Set of

subjectToTest (subTst)
partOfServicesLocked (partLk)
reservedForTest (rsrvd)
suspended (suspnd)

Default

No default

### ATTRIBUTE Lp DS3 Ima Lk alarmStatus (osiAlarm)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE Lp DS3 Ima Lk standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

| | |
|---|---|
| Values | hotStandby (hot)<br>coldStandby (cold)<br>providingService (serv)<br>notSet (nSet) |
| Default | notSet |

### ATTRIBUTE Lp DS3 Ima Lk unknownStatus (osiUnknw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Unknown status of the component.<br><br>The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.<br><br>The value ***true*** indicates that the actual state of the component is not known for sure. |
| Values | false<br>true |
| Default | false |

### COMPONENT Lp E3

| | |
|---|---|
| Instance | Decimal (0..11) |
| Groups | "GROUP Lp E3 Provisioned (Prov)"<br>"GROUP Lp E3 CustomerIdentifierData (CidData)"<br>"GROUP Lp E3 AdminInfo (AdminInfo)"<br>"GROUP Lp E3 IfEntryProv (IfEntry)"<br>"GROUP Lp E3 OperationalStatus (OperStatus)"<br>"GROUP Lp E3 OsiState (State)"<br>"GROUP Lp E3 Operational (Oper)"<br>"GROUP Lp E3 Statistics (Stats)" |
| Scope | Application |

| | |
|---|---|
| Description | *LP/n E3/n*<br>The *E3* component controls an E3 port on an E3 Function Processor. |
| Opt. Subcomp. | "COMPONENT Lp E3 G832"<br>"COMPONENT Lp E3 AtmCell (Cell)" |
| Dyn. Subcomp. | "COMPONENT Lp E3 Test (Test)"<br>"COMPONENT Lp E3 Plcp" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

### GROUP Lp E3 Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all of the provisioning data for a *E3* component. |

### ATTRIBUTE Lp E3 lineLength (length)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the line length for equalization calculations for the E3 line. The line length range is between 0 and 300 metres (1 metres = 3.28 feet). |
| Values | Decimal (0..300) |
| Units | metres |
| Default | 1 |

### ATTRIBUTE Lp E3 clockingSource

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute defines the type of clocking source used for synchronizing the E3 transmit clock: ***local*** means direct use of the local clock oscillator at its centre frequency; ***line*** means use of a signal phase-locked to the incoming E3 line rate; ***module*** means the use of a signal phase-locked to the CP reference clock. Note that the multiport cell-based cards have one common clock source for each of the three ports. For this reason, the following rules apply for the value of *clockingSource* across the board's three ports:<br>All three *clockingSource* values must be "***local***" OR<br>All three *clockingSource* values must be "***module***" OR<br>One *clockingSource* value must be "***line***" and the other two must be "***otherPort***".<br>The default value for this attribute will be ***module*** if a CP clock is available, and ***local*** otherwise. |
| Values | local<br>line<br>module<br>otherPort |
| Default | No default |

### ATTRIBUTE Lp E3 applicationFramerName (framer)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the link to the software stack. It defines which application is running on top of the *E3* component. |
| Values | Link (Service, interfaceName) |
| Default | No default |

### ATTRIBUTE Lp E3 mapping

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates if ATM cells will be mapped directly into the E3 payload, or whether PLCP mapping will be used. The *PLCP* component will appear under the *E3* component when this attribute is set to ***plcp***. This attribute will be ignored when set on frame-based cards. |

| | |
|---|---|
| Values | direct<br>plcp |
| Default | direct |

### ATTRIBUTE Lp E3 framing

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates if the framing mode will be in accordance with the CCITT G.751 or G.832 specification. The *G832* component will appear under the *E3* component when this attribute is set to ***g832***. This attribute may only be set on cell-based card types. Note also that this attribute may only be set to ***g751*** if the *mapping* attribute is set to ***plcp***.<br>The default value of this attribute will be ***g751*** for frame-based cards, and ***g832*** for cell-based cards.<br>Note: when *E3 framing* is changed from ***g832*** to ***g751***, the *G832* component must be deleted. |
| Values | g751<br>g832 |
| Default | No default |

### ATTRIBUTE Lp E3 linkAlarmActivationThreshold

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time interval between the detection of a sustained link failure and the activation of an alarm. It is provisionable for E3 cards. |
| Values | Decimal (100..2600) |
| Units | msec |
| Default | 2200 |

### ATTRIBUTE Lp E3 linkAlarmScanInterval

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the alarm scan timer polling interval. It determines how frequently the status of the link is monitored after a first link error interrupt. It is provisionable for E3 cards. |

| | |
|---|---|
| Values | Decimal (50..250) |
| Units | msec |
| Default | 200 |

### GROUP Lp E3 CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

### ATTRIBUTE Lp E3 customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.<br><br>Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.<br><br>An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to "basic CIDs" in DPN) may be assigned to specific customers. |
| Values | Decimal (0; 1..8191) |
| Default | 0 |

### GROUP Lp E3 AdminInfo (AdminInfo)

| | |
|---|---|
| Properties | Provisioned |

| | |
|---|---|
| Description | This group contains the attributes pertaining to the vendor of the equipment. |

### ATTRIBUTE Lp E3 vendor

| | |
|---|---|
| Access | Read and write |
| Description | This is the name of the vendor supplying the facility. |
| Values | String (0..20, ASCII) |
| Default | No default |

### ATTRIBUTE Lp E3 commentText

| | |
|---|---|
| Access | Read and write |
| Description | Any miscellaneous text about the facility. |
| Values | String (0..60, ASCII) |
| Default | No default |

### GROUP Lp E3 IfEntryProv (IfEntry)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the ifEntry. |

### ATTRIBUTE Lp E3 ifAdminStatus (ifState)

| | |
|---|---|
| Access | Read and write |
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE Lp E3 ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP Lp E3 OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

### ATTRIBUTE Lp E3 snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### GROUP Lp E3 OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific |

information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Lp E3 adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Lp E3 operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service. |

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Lp E3 usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
idle
active (activ)
busy

Default
idle

### ATTRIBUTE Lp E3 availabilityStatus (osiAvail)

Access
Read only

Description
If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is

defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.

The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.

The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.

The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.

The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a

rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

### ATTRIBUTE Lp E3 proceduralStatus (osiProc)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.

The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

### ATTRIBUTE Lp E3 controlStatus (osiCntrl)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

Set of

subjectToTest (subTst)
partOfServicesLocked (partLk)
reservedForTest (rsrvd)
suspended (suspnd)

Default

No default

### ATTRIBUTE Lp E3 alarmStatus (osiAlarm)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms

may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE Lp E3 standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values
hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

Default
notSet

### ATTRIBUTE Lp E3 unknownStatus (osiUnknw)

Access
Read only

Description
This attribute indicates the OSI Unknown status of the component.

The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.

The value ***true*** indicates that the actual state of the component is not known for sure.

Values
false
true

Default
false

### GROUP Lp E3 Operational (Oper)

Properties
Operational

Description
This group contains the common operational data for *E3* component.

### ATTRIBUTE Lp E3 losAlarm (los)

Access
Read only

Description
This attribute displays whether a Loss Of Signal (LOS) alarm state has been entered. An LOS alarm state is entered when LOS defects has been observed and accumulated for a period of 2.5 seconds +/- 0.5 seconds. An LOS defect is detected at the E3 line interface upon observing N continuous pulse positions with no

pulses of either positive or negative polarity, where N is between 10 and 255. If the LOS defects are intermittently occurring, the LOS defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.
The *E3* component goes into an operational state of *disabled* until the LOS alarm condition is cleared. The LOS alarm state is cleared when the LOS defects are absent for a period of 10 seconds +/- 0.5 seconds.
The *losAlarm* attribute is always set to *off* when the component has been *locked* and left *offline*.

Values
on
off

Default
off

### ATTRIBUTE Lp E3 lofAlarm (lof)

Access
Read only

Description
This attribute displays whether a Loss Of Frame (LOF) alarm state has been entered. An LOF alarm state is entered when Severely Errored Frame (SEF) defects have been detected and accumulated for a period of 2.5 seconds +/- 0.5 seconds. An E3 SEF defect is reported after detecting Frame Alignment Signal (FAS) errors on 4 consecutive E3 frames received on the incoming line. If the LOF defects are intermittently occurring, the LOF defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.
The *E3* component goes into an operational state of *disabled* until the LOF alarm condition is cleared. The condition is cleared when E3 framing has been achieved for a period of 10 seconds +/- 0.5 seconds. As long as SEF defects are detected, the node also transmits the far-end SEF/AIS (in G.751 E3) or FERF (in G.832) defect indicator over the outgoing line. The *txRai* attribute is set to *on* when transmitting the far-end SEF/AIS defect indicator on the outgoing line.
The *lofAlarm* attribute is always set to *off* when the component has been *locked* and left *offline*.

| | |
|---|---|
| Values | on<br>off |
| Default | off |

### ATTRIBUTE Lp E3 rxAisAlarm (rxAis)

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays whether an Alarm Indication Signal (AIS) alarm when state has been entered. An AIS alarm state is entered when AIS defects have been observed and accumulated for a period of 2.5 seconds +/- 0.5 seconds on the incoming E3 line. An AIS defect is the occurrence of the AIS (unframed signal with a density of zeros below a certain threshold such as defined by ITU Recommendation G.775). If the AIS defects are intermittently occurring, the AIS defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.<br>The *E3* component goes into an operational state of *disabled* until the AIS alarm condition is cleared (after AIS has been no longer detected for a period of 10 seconds +/- 0.5 seconds). As long as AIS is detected on the incoming line, the node also transmits the far-end SEF/AIS (in G.751 E3) or FERF (in G.832) defect indicator over the outgoing line. The *txRai* attribute is set to *on* when transmitting the far-end SEF/AIS defect indicator on the outgoing line.<br>The *rxAisAlarm* attribute is always set to *off* when the component has been *locked* and left *offline*. |
| Values | on<br>off |
| Default | off |

### ATTRIBUTE Lp E3 rxRaiAlarm (rxRai)

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays whether a Remote Alarm Indication (RAI) alarm state has been entered. A RAI alarm state is entered when far-end SEF/AIS defects (or Far-End Receive Failure (FERF) defects in G.832 E3 Framing mode) have been observed and |

accumulated for a period of 2.5 seconds +/- 0.5 seconds on the E3 incoming line. If the RAI defects are intermittently occurring, the RAI defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.
The *E3* component goes into an operational state of *disabled* until the RAI alarm condition is cleared. The condition is cleared when the far-end defect indicator has not been detected for 10 seconds +/- 0.5 seconds. The declaration of a RAI Alarm is usually a signal that the far end facility is unable to gain synchronization.
The *rxRaiAlarm* attribute is always set to *off* when the component has been *locked* and left *offline*.

Values
on
off

Default
off

### ATTRIBUTE Lp E3 txAis

Access
Read only

Description
This attribute displays whether an AIS alarm is being transmitted on the E3 line. AIS is transmitted on the outgoing line when the *E3* component is locked and not used for operational testing.

Values
on
off

Default
off

### ATTRIBUTE Lp E3 txRai

Access
Read only

Description
This attribute displays whether the far-end SEF/AIS defect indicator is transmitted over the outgoing line when the *E3* component has been unlocked or used in operational testing. When the *E3* component is locked and not used in operational testing, this attribute is always set to *off*. The far-end SEF/AIS defect indicator is transmitted over the outgoing line when SEF/AIS defects are detected on the incoming line. In G.832 E3 Framing mode, the FERF bit is set to ‘1’ to transmit the SEF/AIS defect indicator.

| | |
|---|---|
| Values | on<br>off |
| Default | off |

### GROUP Lp E3 Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the common operational data for *E3* component. Each attribute type is a non-negative integer which monotonically increases until it reaches a maximum value, at which point it wraps around and starts increasing again from zero. |

### ATTRIBUTE Lp E3 runningTime (time)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of seconds since the *E3* component has been activated and been in unlocked state or used for operational testing. All the other error counts that follow as well as each E3 subcomponent's error counts can be updated when this count is active. |
| Values | Decimal (0..4294967295) |
| Units | seconds |
| Default | 0 |

### ATTRIBUTE Lp E3 errorFreeSec (efs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of seconds that the E3 port has been in an error free state. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp E3 lineCodeViolations (lcv)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the total number of Line Code Violations (LCV) detected. An E3 Line Code Violation is an HDB3 coded signal error. LCV counting is inhibited for second intervals where a Line Severely Errored Second (LSES) is counted.<br>This attribute is a non-negative integer which monotonically increases until it reaches a maximum value, at which point it wraps around and starts increasing again from zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp E3 lineErroredSec (les)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of Line Errored Seconds (LES) that have been counted. A LES is declared for interval seconds containing one or more Line Code Violations (LCV) or one or more Loss Of Signal (LOS) defects. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp E3 lineSevErroredSec (lses)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of Line Severely Errored Seconds (LSES) that have been counted. A LSES is declared for second intervals containing more than 34 Line Code Violations (LCV) or one or more Loss of Signal (LOS) defects. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp E3 lineLosSec (loss)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of Line LOS Seconds (LOSS) that have been counted. A LOSS is declared for second intervals containing one or more Loss of Signal (LOS) defects. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp E3 lineFailures (lf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of times that a line failure (LOS failure) has been declared.<br>This attribute is a non-negative integer which monotonically increases until it reaches a maximum value, at which point it wraps around and starts increasing again from zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp E3 pathCodeViolations (pcv)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of Path Code Violations (PCV) detected. An E3 PCV is an error in the Frame Alignment (FA) signal, or, in G.832 Framing Mode, an error in the Frame Alignment signal or a BIP-8 error. PCV counting is inhibited over second intervals where a Path Severely Errored Second (PSES) is counted. Counting of PCVs is also inhibited over second intervals where a Path Unavailable Second (PUAS) is counted.<br>This attribute is a non-negative integer which monotonically increases until it reaches a maximum value, at which point it wraps around and starts increasing again from zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp E3 pathErroredSec (pes)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of Path Errored Seconds (PES) that have been counted. A PES is declared for second intervals containing one or more Path Code Violations (PCV) or one or more Severely Errored Frame (SEF) or Alarm Indication |

Signal (AIS) defects. Counting of Path Errored Seconds is inhibited when a Path Unavailable Second (PUAS) is counted over the monitored second.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE Lp E3 pathSevErroredSec (pses)

Access: Read only

Description: This attribute indicates the total number of Path Severely Errored Seconds (PSES) that have been counted. A PSES is declared for second intervals containing more than 22 (G.751 E3) or 34 (G.832 E3) Path Code Violations (PCV) or one or more Severely Errored Frame (SEF) or Alarm Indication Signal (AIS) defects. Counting of PSESs is inhibited when a Path Unavailable Second (PUAS) is counted over the monitored second.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE Lp E3 pathSefAisSec (psas)

Access: Read only

Description: This attribute indicates the total number of Path SEF/AIS Seconds (PSAS). A PSAS is declared for second intervals containing one or more Severely Errored Frame (SEF) or Alarm Indication Signal (AIS) defects. Counting of PSAS is inhibited when Path Unavailable Seconds (PUAS) is counted over the monitored second.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE Lp E3 pathUnavailSec (puas)

Access: Read only

Description: This attribute indicates the total number of one second intervals for which the E3 path is unavailable. The E3 path becomes unavailable at the onset of 10 consecutive Path Severely Errored

Seconds (PSES). The 10 PSESs are included in the unavailable time. Once unavailable, the E3 path becomes available at the onset of 10 contiguous seconds with no PSES. The 10 seconds with no PSES are excluded from the unavailable time. For second intervals where PUAS is counted, counting of Path Code Violations (PCV), Path Errored Seconds (PES), Path Severely Errored Seconds (PSES) and Path SefAis Seconds (PSAS) is inhibited.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE Lp E3 pathFailures (pf)

Access: Read only

Description: This attribute indicates the total number of times that a path failure (LOF/AIS failure) has been declared.
This attribute is a non-negative integer which monotonically increases until it reaches a maximum value, at which point it wraps around and starts increasing again from zero.

Values: Decimal (0..4294967295)

Default: 0

### COMPONENT Lp E3 Test (Test)

Groups: "GROUP Lp E3 Test OsiState (State)"
"GROUP Lp E3 Test Setup (Setup)"
"GROUP Lp E3 Test Results (Results)"

Scope: Application

Description: The *Test* component is configured to control a hardware facility test on a physical (*V*35, *X21, DS1, E1, DS3, E3* etc.) or a logical port.

Common Verbs:
- Help
- List
- Display

### VERB START Lp E3 Test

| | |
|---|---|
| Impact | Service |
| Description | This command invokes a test on the hardware component. Note that some test types requires the parent component (the hardware component) to be locked (using the *Lock* command) before a test can be started. |

### VERB STOP Lp E3 Test

| | |
|---|---|
| Impact | Service |
| Description | This command stops a test running on the hardware component. |

### GROUP Lp E3 Test OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Lp E3 Test adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is |

administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Lp E3 Test operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Lp E3 Test usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

| | |
|---|---|
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Lp E3 Test Setup (Setup)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all of the operational data for a *Test* component. |

### ATTRIBUTE Lp E3 Test purpose (purpose)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute records the purpose of the test so that the test results can be associated and properly analyzed. |
| Values | String (0..40, ASCII) |
| Default | No default |

### ATTRIBUTE Lp E3 Test type (type)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the type of test to be run. The available test types include the following:<br>***card*** test sets up an internal loop on the board and runs a bit error rate test.<br>***manual*** test assumes the line is looped back externally and a bit error rate test is performed.<br>***localLoop*** test loops back the local modem and performs a bit error rate test.<br>***remoteLoop*** test loops back the remote modem (or CSU) and performs a bit error rate test.<br>***externalLoop*** test loops back the line to the far end.<br>***payloadLoop*** test only loops back the payload data received from the incoming line.<br>***remoteLoopThisTrib*** loops this particular tributary back at the far end, using services provided by the parent.<br>***v54RemoteLoop*** initiates a V.54 Remote Loopback test.<br>***pn127RemoteLoop*** initiates a PN127 Remote Loopback test. |

***lineBIP8Error*** tests line BIP 8 error generation and detection (B2 byte inverted).
***sectionBIP8Error*** tests section BIP 8 error generation and detection (B1 byte inverted).
***pathBIP8Error*** tests path BIP 8 error generation and detection (B3 byte inverted).
***pathBIP2Error*** tests path BIP 2 error generation and detection (bit 1-2 of V5 byte inverted).
Note that not all test types are not supported by all function processors.

Values
card
manual
localLoop
remoteLoop
externalLoop
payloadLoop
remoteLoopThisTrib
v54RemoteLoop
pn127RemoteLoop
lineBIP8Error
sectionBIP8Error
pathBIP8Error
pathBIP2Error

Default
card

## ATTRIBUTE Lp E3 Test frmSize (size)

Access
Read and write

Description
This attribute defines the size of the test data frames in number of bytes.
This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame.

Values
Decimal (4..4096)

Units
bytes

Default
1024

### ATTRIBUTE Lp E3 Test frmPatternType (fpt)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the type of data pattern generation to use. The following lists the available pattern types:<br>***ccitt32kBitPattern*** is a pseudo-random sequence of 32 kbit.<br>***ccitt8MBitPattern*** is a pseudo-random sequence of 8Mbit.<br>***customizedPattern*** is the pattern defined in the ***customizedPattern*** attribute. |
| Values | ccitt32kBitPattern<br>ccitt8MBitPattern<br>customizedPattern |
| Default | ccitt32kBitPattern |

### ATTRIBUTE Lp E3 Test customizedPattern (cp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute allows a customized 32 bit pattern to be defined for use in the test data frames. This attribute is used when the attribute *frmPatternType* is set to ***CustomizedPattern***. Note that a 55 hex pattern is an alternating 1 and 0 pattern. |
| Values | Hex (H.0..H.ffffffff) |
| Units | Hex |
| Default | H.55555555 |

### ATTRIBUTE Lp E3 Test dataStartDelay (dsd)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time delay (in seconds) between when the test expects the loop to have been set up, to when the test data actually starts to be transmitted. This attribute is to accommodate some non-standard equipment that requires extra time for setting up a requested loop.<br>This attribute is ignored when the test *type* is set to ***externalLoop***. |
| Values | Decimal (0..1814400) |
| Units | seconds |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE Lp E3 Test displayInterval (di)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the interval (in minutes) between which interim test results are to be displayed. Results are displayed at the operator console at which the test was started. When the test *type* is set to ***externalLoop***, this attribute is ignored. There will be no display of results if *displayInterval* is set to 0. This attribute can be changed anytime. |
| Values | Decimal (0..30240) |
| Units | minutes |
| Default | 5 |

### ATTRIBUTE Lp E3 Test duration

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the duration for which the test data will be transmitted. In the case of an ***externalLoop***, this is the time that the loop is in effect. Note that *dataStartDelay* does not apply to the ***externalLoop*** test type. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 1.00 |

### GROUP Lp E3 Test Results (Results)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all the statistics related attributes of the *Test* component. |

### ATTRIBUTE Lp E3 Test causeOfTermination

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates either the status of the test or the cause of the test's termination: |

a value of ***neverStarted*** indicates that the test has not yet been started.

a value of ***testRunning*** indicates that the test has been started.

a value of ***stoppedByOperator*** indicates that the operator issued a stop command on a test that was running.

a value of ***testTimeExpired*** indicates that the test ran for the time specified by the test's *duration*.

a value of ***loopCodeSyncFailed*** indicates that the local end failed to synchronize to the loopCode pattern. The local end transmits the loopCode pattern to cause the remote end to apply a loopback, after which the local end should receive the loopCode pattern. The exact pattern used to request loopCode depends on the test *type*. This failure indicates a high rate of transmission errors, or that the remote end has failed to apply the loopback.

a value of ***patternSyncFailed*** indicates that the local end failed to synchronize to the *frmPatternType* test pattern, that should have been looped back at the remote end. This failure indicates a high rate of transmission errors or the absence of a loopback.

a value of ***patternSyncLost*** indicates that the local end gained and then lost synchronization to the returned *frmPatternType* test pattern. This failure indicates a sudden increase in transmission errors, frame slippage, or the removal of an existing loopback.

a value of ***unknown*** is set when a reason to terminate other than those listed here is encountered.

Note: The *causeOfTermination* attribute values of ***loopCodeSyncFailed***, ***patternSyncFailed*** and ***patternSyncLost*** are supported only on MSA cards. *Test* components located on other cards or under an *Ima* component on an MSA card will never terminate the test under the conditions described by these values.

| | |
|---|---|
| Values | testTimeExpired<br>stoppedByOperator<br>unknown<br>neverStarted<br>testRunning<br>hardwareReconfigured<br>loopCodeSyncFailed<br>patternSyncFailed<br>patternSyncLost |
| Default | neverStarted |

### ATTRIBUTE Lp E3 Test bitsTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bits sent during the test period. As long as the line speed of the hardware interface is less than 70 Mbit/s, this counter is not expected to reach the maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp E3 Test bytesTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes sent during the test period. This counter is not expected to reach its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp E3 Test frmTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames sent during the test period. This counter is not expected to reach its maximum value.<br><br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |
| Values | Long Integer |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Lp E3 Test bitsRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bits received during the test period. The counter wraps to zero when it exceeds the maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp E3 Test bytesRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes received during the test period. The counter wraps to zero when it exceeds its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp E3 Test frmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received during the test period. The counter wraps to zero when it exceeds its maximum value.<br><br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp E3 Test erroredFrmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute is not displayed for ATM and MSA32 cards. For ATM cards, the physical layer drops all errored frames at the controller interface. For MSA32 cards, the test does not generate any frame. |

For all other card types, this attribute counts the errored frames received during the test period. The counter wraps to zero when it exceeds its maximum value.

Values: Long Integer

Default: No default

### ATTRIBUTE Lp E3 Test bitErrorRate

Access: Read only

Description: This attribute is not displayed for ATM cards because the physical layer drops all errored frames at the controller interface. For MSA32 cards, this attribute indicates the link bit error rate, regardless of the *frameSize*, which is not supported

For all other card types, this attribute is the calculated bit error rate on the link. Test data are generated and sent in frames of a preset size (*frameSize*). The *Test* component will try to estimate the number of bit errors in any errored frame which is identifiable. The statistics will be updated accordingly. A lost frame (may be due to an error on the flag sequence) will be discarded for the bit error rate calculation. The result is presented in the form of xEsyy, where x is the mantissa, syy is the exponent, for example 0E+00, 2E-09.
Note that the *bitErrorRate* is an estimate only. For more reliable test results, the test should be done over a long period. Multiple tests would also improve the confidence level of the test results.

Values: String (5, ASCII)

Default: No default

### ATTRIBUTE Lp E3 Test elapsedTime

Access: Read only

Description: This attribute indicates the time elapsed since the test started for an ***externalLoop*** test. For a data test, it indicates time since test data was first transmitted.

Values: Decimal (0.00..30240.00)

Units: minutes

| | |
|---|---|
| Default | 0.00 |

### ATTRIBUTE Lp E3 Test timeRemaining

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the length of time remaining before the test stops according to the *duration* attribute. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 0.00 |

### COMPONENT Lp E3 G832

| | |
|---|---|
| Groups | "GROUP Lp E3 G832 Provisioned"<br>"GROUP Lp E3 G832 Operational"<br>"GROUP Lp E3 G832 Statistics (Stats)" |
| Scope | Application |
| Description | G832<br>The *G832* component is configured to display all E3 G832 related operational and statistical data. It will appear under the *E3* components when the *E3 framing* attribute is set to ***g832***.<br>Note: when *E3 framing* is changed from ***g832*** to ***g751***, the *G832* component must be deleted. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Lp E3 G832 Provisioned

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable data for the G832 component. |

### ATTRIBUTE Lp E3 G832 trailTraceTransmitted

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates the E.164 address which is to be encoded in the trail access point identifier, which is transmitted using the Trail Trace (TR) field of the transmitted E3 Frame.<br>Both the expected trail access point identifier and the transmitted trail access point identifier are provisionable attributes of the *G832* component.<br>The 16 byte Trail Trace frame is composed of one byte containing a frame start marker and a CRC-7 calculation over the previous frame, and 15 bytes for transporting an E.164 address. If less than the full 15 bytes are used, the address is padded with NULL characters. |
| Values | String (0..15, ASCII) |
| Default | "" |

### ATTRIBUTE Lp E3 G832 trailTraceExpected

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates the E.164 address which is expected in the trail access point identifier, which is transmitted using the Trail Trace (TR) field of the transmitted E3 Frame.<br>Both the expected trail access point identifier and the transmitted trail access point identifier are provisionable attributes of the *G832* component.<br>The 16 byte Trail Trace frame is composed of one byte containing a frame start marker and a CRC-7 calculation over the previous frame, and 15 bytes for transporting an E.164 address. If less than the full 15 bytes are used, the address is padded with NULL characters. |
| Values | String (0..15, ASCII) |
| Default | "" |

### GROUP Lp E3 G832 Operational

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the G832 component. |

## ATTRIBUTE Lp E3 G832 unexpectedPayloadType (upt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays whether the Unexpected Payload Type (UPT) alarm state has been entered. The UPT alarm state is entered when UPT defects have been observed and accumulated for a period of 2.5 seconds +/- 0.5 seconds. The UPT defect is reported when a received frame fails to agree with the expected Payload Type. If the UPT defects are intermittently occurring, the UPT defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle..<br>The UPT alarm is cleared when the Payload Type in the received frame agrees with the expected Payload Type for a period of 10 seconds +/- 0.5 seconds.<br>The *unexpectedPayloadType* attribute is always set to *off* when the *E3* component has been *locked* and left *offline*. |
| Values | on<br>off |
| Default | No default |

## ATTRIBUTE Lp E3 G832 trailTraceMismatch (ttm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays whether the Trail Trace Mismatch (TTM) alarm state has been entered. The TTM alarm state is entered when TTM defects have been observed and accumulated for a period of 2.5 seconds +/- 0.5 seconds. The TTM defect is reported when the trail access point identifier contained in the Trail Trace (TR) field in the received frame fails to agree with the expected identifier. If the TTM defects are intermittently occurring, the TTM defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.<br>The TTM alarm is cleared when the trail access point identifier in the received frame agrees with the expected identifier for a period of 10 seconds +/- 0.5 seconds.<br>The *trailTraceMismatch* attribute is always set to *off* when the *E3* component has been *locked* and left *offline*. |

Both the expected trail access identifier and the transmitted trail access identifier are provisionable attributes of the G832 component.

Values
on
off

Default
No default

### ATTRIBUTE Lp E3 G832 timingMarker

Access
Read only

Description
Indicates whether or not the timing source at the far-end node is traceable to a Primary Reference Clock.
The *timingMarker* indication is controlled by the timing marker bit in the G832 MA byte. If the received timing marker bit is 1 for five consecutive frames, and five consecutive 0s are not received for two seconds, the *timingMarker* indication will be set to ***not traceable***. If the received timing marker bit is 0 for five consecutive frames and five consecutive 1s are not received for two seconds, the *timingMarker* indication will be set to ***traceable***.

Values
not traceable
traceable

Default
No default

### ATTRIBUTE Lp E3 G832 trailTraceReceived

Access
Read only

Description
This attribute indicates the 15 byte E.164 address which is currently being received in the trail trace (TR) field of the E3 G832 frame. If this attribute differs from the provisioned trailTraceTransmitted string a trail trace mismatch (TTM) defect is reported, possibly resulting in a TTM alarm, as described for operational attribute *trailTraceMismatch*.

Values
String (0..15, ASCII)

Default
No default

## GROUP Lp E3 G832 Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the statistical data for the G832 component. Each attribute type is a non-negative integer which monotonically increases until it reaches a maximum value, at which point it wraps around and starts increasing again from zero. |

## ATTRIBUTE Lp E3 G832 farEndErrorFreeSec (feefs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of seconds that the E3 line has not suffered any G832 errors. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## ATTRIBUTE Lp E3 G832 farEndCodeViolations (fecv)

| | |
|---|---|
| Access | Read only |
| Description | A count of E3 frames containing a Far-End Block Error (FEBE). A FEBE is reported over the FEBE bit each time the far-end terminal detects a BIP-8 error in a received E3 frame. For second intervals where Far End Unavailable Seconds (FEUAS) or Far End Severely Errored Seconds (FESES) are counted, counting of FECVs is inhibited.<br>This attribute is a non-negative integer which monotonically increases until it reaches a maximum value, at which point it wraps around and starts increasing again from zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## ATTRIBUTE Lp E3 G832 farEndErroredSec (fees)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of Far-End Errored Seconds (FEES). A FEES is declared for second intervals containing with one or more Far-End Coding Violations (FECV) or one or more Far-End Receive Failure (FERF) defects. A FERF |

defect occurs when the FERF bit in the received frame is set to one. For second intervals where Far End Unavailable Seconds (FEUAS) are counted, counting of FEESs is inhibited.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE Lp E3 G832 farEndSevErroredSec (feses)

Access: Read only

Description: This attribute indicates the total number of Far-End Severely Errored Seconds (FESESs). A FESES is declared for second intervals containing more than 34 Far-End Coding Violations (FECV) or one or more Far-End Receive Failure (FERF) defects. For second intervals where a Far-End Severely Errored Seconds (FESES) is counted, counting of FECVs is inhibited. For second intervals where Far End Unavailable Seconds (FEUAS) are counted, counting of FESESs is inhibited.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE Lp E3 G832 farEndSefAisSec (fesas)

Access: Read only

Description: This attribute indicates the total number of Far-End SEF/AIS Seconds (FESAS). A FESAS is declared for second intervals containing one or more Far-End Receive Failure (FERF) defects. For second intervals where Far End Unavailable Seconds (FEUAS) are counted, counting of FESAS is inhibited.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE Lp E3 G832 farEndUnavailSec (feuas)

Access: Read only

Description: This attribute indicates the total number of one second intervals for which the E3 far-end path is unavailable. The E3 far-end path becomes unavailable at the onset of 10 consecutive Far End

Severely Errored Seconds (FESES). It comes available at the onset of 10 contiguous seconds with no FESES. The unavailable time includes the initial 10 seconds to enter the unavailable state but not the 10 seconds to exit the state For second intervals where FEUAS is counted, counting of Far End Coding Violations (FECV), Far-End Errored Seconds (FEES), Far-End Severely Errored Seconds (FESES) and Far-End SefAis Seconds (FESAS) are inhibited.

Values: Decimal (0..4294967295)

Default: 0

## COMPONENT Lp E3 Plcp

Groups: "GROUP Lp E3 Plcp Operational"
"GROUP Lp E3 Plcp Statistics (Stats)"

Scope: Application

Description: *LP/n DS3/n PLCP*
*LP/n E3/n PLCP*
The *PLCP* component is configured to display all DS3/E3 PLCP related operational and statistical data. It will appear under the *DS3* or *E3* components when the *mapping* attribute is set to ***plcp***.

Common Verbs:
Help
List
Display

## GROUP Lp E3 Plcp Operational

Properties: Operational

Description: This group contains the operational data for the *PLCP* component.

## ATTRIBUTE Lp E3 Plcp lofAlarm (lof)

Access: Read only

Description: This attribute displays whether a PLCP Loss Of Frame (LOF) failure alarm state has been entered. An LOF failure is declared when a PLCP LOF defect persists for 2.5 s +/- 0.5 s. An LOF

defect occurs when an OOF (Out of Frame) state persists for more than 1 ms. If the OOF events are intermittent, the LOF defect counter is decremented at a rate of 1/12 (for DS3 PLCP) or 1/9 (for G.751 E3 PLCP) of the incrementing rate, with all measurements based on a 200 ms polling cycle. An OOF event (also known as a PLCP SEF event) is declared when an error is detected in both the A1 and A2 octets, or when two consecutive POHIDs are found in error.
OOF is removed when two valid sets of framing octets and two valid and sequential POHID octets have been found. The LOF defect is removed when the defect counter reaches zero, i.e. when OOF events are absent for more than 12 ms (DS3 PLCP) or 9 ms (G.751 E3 PLCP). LOF failure alarm is cleared when LOF defect is absent for 10.0 s +/- 0.5 s
The *DS3* or *E3* component goes into an operational state of *disabled* until the LOF failure alarm is cleared. The terminal declaring the LOF failure alarm will transmit a PLCP RAI signal to the far-end for the duration of the alarm.
The *lofAlarm* attribute is always set to *off* when the *DS3* or *E3* component has been *locked* and left *offline*.

Values
on
off

Default
off

### ATTRIBUTE Lp E3 Plcp rxRaiAlarm (rxrai)

Access
Read only

Description
This attribute displays whether a PLCP Remote Alarm Indication (RAI) failure alarm state has been entered. An RAI failure alarm occurs when ten consecutive PLCP RAI bits (bit 5 in the G1 byte) are high on the incoming line. An RAI failure alarm is cleared when ten consecutive RAI bits are set to 0.
Note: Some standards call this alarm RFI.
The *rxRaiAlarm* attribute is always set to *off* when the *DS3* or *E3* component has been *locked* and left *offline*.

Values
on
off

Default
off

## GROUP Lp E3 Plcp Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the statistical data for the *PLCP* component. Each attribute type is a non-negative integer which monotonically increases until it reaches a maximum value, at which point it wraps around and starts increasing again from zero. |

## ATTRIBUTE Lp E3 Plcp errorFreeSec (efs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of seconds during which the near-end PLCP path layer had no errors. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## ATTRIBUTE Lp E3 Plcp codingViolations (cv)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of BIP-8 Errors, framing pattern octet errors, and path overhead identification errors detected in received PLCP frames.<br>Counting of PLCP CV is inhibited for second intervals where PLCP Severely Errored Framing Seconds (SEFS) or PLCP Unavailable Seconds (UAS) are counted.<br>This attribute is a non-negative integer which monotonically increases until it reaches a maximum value, at which point it wraps around and starts increasing again from zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## ATTRIBUTE Lp E3 Plcp erroredSec (es)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of seconds containing one or more PLCP Coding Violations (CV) or in which a PLCP Severely Errored Framing Second (SEFS) was counted. |

| | |
|---|---|
| | Counting of PLCP ES is inhibited during second intervals where PLCP Unavailable Seconds (UAS) are counted. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp E3 Plcp sevErroredSec (ses)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of seconds containing 5 or more PLCPCVs or in which a PLCPSEFS was counted (i.e. a PLCP OOF event occurred).<br>Counting of PLCP SES is inhibited during second intervals where PLCP Unavailable Seconds (UAS) are counted. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp E3 Plcp sevErroredFramingSec (sefs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of seconds containing one or more PLCP Severely Errored Frame (SEF) events. An SEF event is equivalent to a PLCP OOF (Out of Frame) event.<br>Counting of PLCPP SEFSs is inhibited for second intervals where PLCP Unavailable Seconds (UAS) are counted. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp E3 Plcp unavailSec (uas)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of seconds when the near-end PLCP layer is unavailable. The PLCP Path Layer becomes unavailable at the declaration of PLCP LOF (Loss of Frame) failure alarm state. The PLCP Path Layer becomes available again only after clearing this condition.<br>For second intervals where PLCP UAS are counted, counting of PLCP Severely Errored Framing Seconds (SEFS), PLCP Coding |

| | |
|---|---|
| | Violations (CV), PLCP Errored Seconds (ES), PLCP Severely Errored Seconds (SES) and PLCP Far-End Severely Errored Seconds (FESES) is inhibited. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp E3 Plcp farEndErrorFreeSec (feefs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of seconds during which the far-end PLCP path layer had no errors. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp E3 Plcp farEndCodingViolations (fecv)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of PLCP Far-End Block Errors (FEBE) reported by the far-end terminal.<br>Counting of FEBEs is inhibited for second intervals where PLCP Far-End Unavailable Seconds (FEUAS) are counted.<br>This attribute is a non-negative integer which monotonically increases until it reaches a maximum value, at which point it wraps around and starts increasing again from zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp E3 Plcp farEndErroredSec (fees)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of seconds containing one or more PLCP Far-End Coding Violations (FECV).<br>Counting of PLCP FEES is inhibited during second intervals where PLCP Far-End Unavailable Seconds (FEUAS) are counted. |
| Values | Decimal (0..4294967295) |

Default 0

### ATTRIBUTE Lp E3 Plcp farEndSevErroredSec (feses)

Access Read only

Description This attribute indicates the number of seconds containing 5 or more PLCP Far-End Coding Violations (FECV).
Counting of PLCP FESES is inhibited for second intervals where PLCP Far-End Unavailable Seconds (FEUAS) are counted.

Values Decimal (0..4294967295)

Default 0

### ATTRIBUTE Lp E3 Plcp farEndUnavailableSec (feuas)

Access Read only

Description This attribute indicates the number of seconds during which the PLCP far end is unavailable. The PLCP Path Layer becomes unavailable at the declaration of PLCP RAI (Remote Alarm Indication). Service becomes available again after this condition is cleared. For second intervals where PLCP FEUAS are counted, counting of PLCP Far-End Coding Violations (FECV), PLCP Far-End Errored Seconds (FEES), and PLCP Far-End Severely Errored Seconds (FESES) is inhibited.

Values Decimal (0..4294967295)

Default 0

### COMPONENT Lp E3 AtmCell (Cell)

Groups "GROUP Lp E3 Cell Provisioned (Prov)"
"GROUP Lp E3 Cell Operational (Oper)"
"GROUP Lp E3 Cell Statistics (Stats)"

Scope Device

Description The *AtmCell* component contains provisioning and operational attributes. The provisioning attributes are used to set the Loss of Cell Delineation (LCD) alarm activation delay and to turn cell payload scrambling on or off. The operational attributes are used to report about the quality of the ATM cells received by the

interface and the cell capacity utilization. The *AtmCell* component appears under all port components running on ATM cards.

Common Verbs

Help
List
Display
Add
DELete

## GROUP Lp E3 Cell Provisioned (Prov)

Properties: Provisioned

Description: This group contains the provisioning attributes for the *AtmCell* component.

## ATTRIBUTE Lp E3 Cell alarmActDelay (act)

Access: Read and write

Description: This attribute specifies the time during which a Loss of Cell Delineation (LCD) defect should be observed before declaring an LCD alarm (alarm 70115501). When the *Cell* component is provisioned under the *Sonet* or *Sdh* component, this attribute defaults to 500 milliseconds. When it is provisioned under the *Laps* component, the default is 2000 milliseconds. This is necessary to ensure that the services bound to the *Sts* or *Vc4* component are not disrupted during short lived LCD defects caused by a line switchover. Setting this attribute to a lower value when the *Laps* component is provisioned may result in a temporary service outage when a line switchover occurs.

Values: Decimal (0..2000)

Units: msec

Default: No default

## ATTRIBUTE Lp E3 Cell scrambleCellPayload (scramble)

Access: Read and write

| | |
|---|---|
| Description | Cell scrambling, as defined by ITU-T Recommendation I.432., can provide a solution to the problem of transmission equipment which is sensitive to certain bit patterns in the ATM cell payload. This attribute controls whether or not the cell payload is scrambled.<br>It defaults to ***off*** for *DS1* interfaces, and ***on*** for all other interfaces.<br>Note that this setting must be the same at both ends of the link. |
| Values | off<br>on |
| Default | No default |

### ATTRIBUTE Lp E3 Cell correctSingleBitHeaderErrors

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether the port corrects single bit errors detected in the headers of received cells. If single bit errors are corrected, the affected cells are passed up to the ATM layer according to normal operation. If single bit errors are not corrected, these errored cells are discarded by the physical layer. Note that cells containing multiple bit errors in their headers are always discarded.<br><br>Single bit HEC error correction must remain ***off*** for the following card types: 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 2pJ6MAtm, 3pDS3Atm, and 3pE3Atm. |
| Values | off<br>on |
| Default | off |

### ATTRIBUTE Lp E3 Cell clearDelay (clear)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the minimum elapsed time between the clearing of the Loss of Cell Delineation (LCD) defect and the port returning to service. The LCD defect should be absent for the entire period of elapsed time. This attribute value is specified in minutes. If the value of the *clearDelay* attribute is initially 0 |

| | |
|---|---|
| | (default), the time is actually about 10 seconds.<br>This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm. |
| Values | Decimal (0..60) |
| Units | minutes |
| Default | 0 |

### ATTRIBUTE Lp E3 Cell hecSampleInterval (hSample)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the sampling interval (in seconds) for errors associated with the *uncorrectableHeaderErrors* attribute. When the sum of errors counted by the *uncorrectableHeaderErrors* attribute over the interval time is greater than or equal to the provisioned *hecErrorLimit* attribute, the sample interval is considered errored. If the number of consecutive errored intervals reaches the limit established in the *hecErrorIntervalLimit* attribute, an LCD alarm is declared and the port is disabled. If the attribute *hecSampleInterval* is set to the default, 0, then the attribute *uncorrectableHeaderErrors* cannot be used to bring down the port.<br>This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm. |
| Values | Decimal (0..25) |
| Units | seconds |
| Default | 0 |

### ATTRIBUTE Lp E3 Cell hecErrorLimit (hLimit)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the error threshold for a HEC error sampling interval beyond which a port is brought down. When the value of the *uncorrectableHeaderErrors* attribute accumulated over the provisioned value of the *hecSampleInterval* attribute is greater than or equal to the provisioned value of the *hecErrorLimit* attribute, the sample interval is considered errored. If the number of consecutive errored intervals reaches the limit |

established in the *hecErrorIntervalLimit* attribute, an LCD alarm is declared and the port is disabled. (Please note that a *hecErrorInterval* attribute value of 0 (default) disables the mechanism of using the value of the *uncorrectableHeaderErrors* attribute to disable a port.)
This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm.

Values: Decimal (1..250000)

Default: No default

### ATTRIBUTE Lp E3 Cell lcdStateDelay (delay)

Access: Read and write

Description: This attribute specifies the time during which an Out of Cell Delineation (OCD) defect should be observed before moving to the Loss of Cell Delineation (LCD) defect state. The time is specified in milliseconds. The valid values are 1 to 50 milliseconds if the *AtmCell c*omponent is located under the *Ds1* or *E1* component, and 1 to 5 milliseconds if under a *Ds3* or *E3* component.
This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm.

Values: Decimal (1..50)

Units: msec

Default: No default

### ATTRIBUTE Lp E3 Cell hecErrorIntervalLimit (hIntLimit)

Access: Read and write

Description: This attribute counts the instances of the *hecSamplingInterval* attribute for all HEC errors (specified by the *uncorrectableHeaderError* attribute) before an LCD alarm is generated. The alarm is only generated if the value of the *uncorrectableHeaderErrors* attribute in a given interval is greater than the value of the *hecErrorLimit* attribute. For example, if there are 20 HEC errors in 5 seconds, for three times in a row (the number of times in a row is represented by this attribute), an

alarm is raised. If there are 24 HEC errors in the 5 seconds, and 14 in the next 5 seconds no alarm is generated because the number of HEC errors should also be more than 20 in the next instances.
This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm.

Values: Decimal (1..25)

Default: 1

### GROUP Lp E3 Cell Operational (Oper)

Properties: Operational

Description: This group contains the common operational attributes for the *AtmCell* component.

### ATTRIBUTE Lp E3 Cell lcdAlarm (lcd)

Access: Read only

Description: This attribute displays whether the Loss of Cell Delineation (LCD) failure alarm state has been entered. This state is entered when LCD defects have been observed and accumulated for a period of time specified through the *alarmActDelay* attribute.
In ATM cell direct mapping mode, an LCD defect occurs when Out of Cell Delineation (OCD) anomaly persists for *x* milliseconds, and disappears when the Out of Cell Delineation (OCD) is absent for *x* msec. An OCD anomaly occurs when 7 consecutive incorrect HECs have been detected. An OCD anomaly terminates when 6 consecutive correct HECs have been detected.
For an *AtmCell* component located under a *DS3* or *E3* component with *mapping* = ***PLCP***, the LCD defect is directly derived from the PLCP LOF defect.
If LCD defects are intermittently occurring, the LCD defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle
The component under which is located the *AtmCell* component goes into an operational state of ***disabled*** until the LCD alarm condition is cleared. The condition is cleared after the LCD

defect has not been reported for a period of 10 seconds +/- 0.5 seconds.
The *lcdAlarm* attribute is always set to off when the parent of the *AtmCell* component has been *locked* and left *offline*. This can also happen when the *Path* or *Channel* component has been suspended since its parent has been locked.

Values: on
off

Default: off

### GROUP Lp E3 Cell Statistics (Stats)

Properties: Operational

Description: This group contains the statistics attribute for the *AtmCell* component. Each attribute type is a non-negative integer which monotonically increases until it reaches a maximum value, at which point it wraps around and starts increasing again from zero.

### ATTRIBUTE Lp E3 Cell uncorrectableHeaderErrors (ucErr)

Access: Read only

Description: This attribute indicates the number of uncorrectable ATM cell header errors that have been detected. Counting of *uncorrectableHeaderErrors* is inhibited when an Out of Cell Delineation (OCD) defect is present. An OCD defect occurs when seven consecutive incorrect HECs have been detected. An OCD defect terminates when six consecutive correct HECs have been detected.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE Lp E3 Cell sevErroredSec (ses)

Access: Read only

Description: This attribute indicates the total number of ATM Cell Severely Errored Seconds (SESs) that have been counted.

In direct mapping mode, an ATM Cell SES is declared for second intervals containing one or more Out of Cell Delineation (OCD) defects. An OCD defect occurs when seven consecutive incorrect HECs have been detected. An OCD defect terminates when six consecutive correct HECs have been detected.

If the *AtmCell* component is located under a *Ds3* or *E3* component where the *mapping* attribute is set to ***plcp***, an ATM Cell SES is declared for second intervals containing one or more PLCP LOF defects.

Counting of *uncorrectableHeaderErrors* (*ucErr*) and *correctableHeaderErrors* (*cErr*) is inhibited when the OCD defect is present.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE Lp E3 Cell receiveCellUtilization (rxutil)

Access: Read only

Description: This attribute is the ratio of the number of valid, assigned cells received on the link to the nominal link capacity. The utilization is calculated over a period of one minute.
This attribute is always set to ***0*** when the parent of the *AtmCell* component has been *locked* and left *offline.* This can also happen when the *Path* or *Channel* component has been *suspended* since its parent has been *locked*.

Values: Decimal (0..100)

Units: %

Default: 0

### ATTRIBUTE Lp E3 Cell transmitCellUtilization (txutil)

Access: Read only

Description: This attribute is the ratio of the number of valid, assigned cells transmitted on the link to the nominal link capacity. The utilization is calculated over a period of one minute.

This attribute is always set to ***0*** when the parent of the *AtmCell* component has been *locked* and left *offline*. This can also happen when the *Path* or *Channel* component has been *suspended* since its parent has been *locked*.

Values: Decimal (0..100)

Units: %

Default: 0

### ATTRIBUTE Lp E3 Cell correctableHeaderErrors (cErr)

Access: Read only

Description: This attribute indicates the number of correctable ATM cell header errors that have been detected and corrected. Counting of *correctableHeaderErrors* is inhibited when an Out of Cell Delineation (OCD) defect is present. An OCD defect occurs when seven consecutive incorrect HECs have been detected. An OCD defect terminates when six consecutive correct HECs have been detected

Values: Decimal (0..4294967295)

Default: 0

### COMPONENT Lp DS1

Instance: Decimal (0..31)

Groups:
"GROUP Lp DS1 Provisioned (Prov)"
"GROUP Lp DS1 CustomerIdentifierData (CidData)"
"GROUP Lp DS1 AdminInfo (AdminInfo)"
"GROUP Lp DS1 IfEntryProv (IfEntry)"
"GROUP Lp DS1 OperationalStatus (OperStatus)"
"GROUP Lp DS1 OsiState (State)"
"GROUP Lp DS1 Operational (Oper)"
"GROUP Lp DS1 Statistics (Stats)"

Scope: Application

Description: *Lp/n DS1/n*
The *DS1* component controls and monitors a DS1 port on a Function Processor. The number of ports supported depends on

the type of card, and is usually encoded in the *Shelf Card/n cardType*, for example 4pDS1Aal1: 4 port. The lowest instance value is always ***0***.

Multi-Service cards have an instance range 0..31, except that instance values 30 and 31 are not available for an “ATM UNI port”. (A DS1 “ATM UNI port” is a *DS1* component with a single *Chan* whose *applicationFramerName* attribute is linked to an *AtmIf* component.)

The instance number of a *DS1* “ATM UNI port” must not be the same as the instance number of an *IMA* group under the same *Lp*.

Subcomponents: "COMPONENT Lp DS1 Channel (Chan)"

Dyn. Subcomp.: "COMPONENT Lp DS1 Test (Test)"
"COMPONENT Lp DS1 Dsp"
"COMPONENT Lp DS1 Audio"

Common Verbs:
Help
List
Display
Add
DELete
LOCK
Unlock

## GROUP Lp DS1 Provisioned (Prov)

Properties: Provisioned

Description: This group contains all of the provisioning data for a DS1 component.

## ATTRIBUTE Lp DS1 lineType (lineType)

Access: Read and write

Description: This attribute defines the framing of the DS1 line.
***d4*** defines a framing pattern of 12 frames per multiframe.
***esf*** defines a framing pattern of 24 frames per multiframe.
***d4Cas*** defines a framing pattern of 12 frames per multiframe with channel associated signalling.

***esfCas*** defines a framing pattern of 24 frames per multiframe with channel associated signalling.
***unframed*** defines an unknown framing pattern for clear channels.

For cell-based cards only the default option ***esf*** is permitted.

Values
d4
esf
d4Cas
esfCas
unframed

Default
esf

### ATTRIBUTE Lp DS1 zeroCoding (zeroCoding)

Access
Read and write

Criticality
Component

Description
This attribute defines the zero encoding on the DS1 line.
***bit7Stuffing*** sets bit 7 of every timeslot to a one to guarantee ones's density. This reduces the available bandwidth of the channel by 1/8.
***b8zs*** substitutes a pattern of bipolar violations if more than 7 zeros in a row are to be transported.
***ami*** specifies Alternate Mark Inversion, in which successive marks (ones) alternate between positive and negative polarity voltage signals, and spaces (zeros) are sent as a zero amplitude signal.
When *zeroCoding* is set to ***ami*** and l*ineType* is set to ***d4***, it is recommended that *raiAlarmType* be set to ***SBit*** in order to avoid possible mimic RAI alarm.

For cell-based cards, only the default value ***b8zs*** is permitted.

The value *ami* should be used with caution. If the ones density of the traffic is not sufficiently high, the DS1 will lose clock synchronization.

Values
bit7Stuffing
b8zs
ami

Default b8zs

### ATTRIBUTE Lp DS1 clockingSource (clockingSource)

Access Read and write

Description This attribute defines the source of the transmit clock for the DS1 line.

When ***local*** is selected, the crystal on the port generates the clocking for the line.

When ***line*** is selected, the port synchronizes to the clock from the facility.

When ***module*** is selected, the ports clock synchronizes to the clock provided by the oscillator on the active CP.

When ***otherPort*** is selected, the port synchronizes to the port with a clocking source of ***line***.

When ***srtsMode*** is selected, the port transmit frequency depends on the SRTS (Synchronous Residual Time-Stamp) received over the ATM network. SRTS information is also generated sent over the ATM network.

When ***adaptiveMode*** is selected, the port transmit frequency continually adapts to match the egress data received from the ATM network.

A port with ***srtsMode*** or ***adaptiveMode*** must have a single *Chan* which may be linked only to an *Aal1Ces*.service with serviceType ***unstructured***

If the *NetworkSynchronization* component is present, the default value of this attribute is ***module***, otherwise it defaults to ***line***, except for the ***3pDS1Atm*** card, which it defaults to ***local***.

On a ***3pDS1Atm*** card all ports must have the same value, and be either ***local*** or ***module***.

***otherPort*** is valid only on AAL1 cards. ***srtsMode*** is valid only on

AAL1 and Multi-Service Access cards. ***adaptiveMode*** is valid only on Multi-Service Access cards.
On ***4DS1Aal1*** cards either:

all four ports' *clockingSource* values must be ***local*** OR
all four ports' *clockingSource* values must be ***module*** OR
one port's *clockingSource* value must be ***line*** and the other three must be ***otherPort***. A port can only have ***srtsMode*** selected if the other ports are ***module*** or ***srtsMode***.

Values
local
line
module
otherPort
srtsMode
adaptiveMode

Default
No default

### ATTRIBUTE Lp DS1 raiAlarmType (raiType)

Access
Read and write

Description
This attribute defines the method of sending a RAI (Remote Alarm Indication) alarm on a DS1 line.
When ***SBit*** is selected, RAI alarm is sent by setting the S bit in frame 12.
When ***Bit2*** is selected, RAI alarm is sent by setting bit 2 in all timeslots to 0.
When ***fdl*** is selected, RAI alarm is sent by a repeating pattern of 00 hex and FF hex on the FDL link.
Note that for *lineType* of ***d4***, only the SBit and the Bit2 methods are applicable. Whereas for *lineType* of ***esf***, only the Bit2 and the ***fdl*** methods are applicable.
***SBit*** method is recommended if *lineType* is set to ***d4*** and *zeroCoding* is set to ***ami***. This will help to avoid potential mimic RAI alarm when 1's density is too low in the data transmitted.
For cell-based cards, only the default value ***fdl*** is permitted.

Values
sBit
bit2
fdl

| | |
|---|---|
| Default | fdl |

### ATTRIBUTE Lp DS1 lineLength (lineLength)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the line length (in feet) for equalization calculations for the DS1 line. The value ranges between 0-655. For ***8pDS1Atm*** cards the actual value used for equalization is rounded up to the nearest 110 feet; for all other card types the actual value used is rounded to the nearest 50 feet. |
| Values | Decimal (0..655) |
| Default | 0 |

### GROUP Lp DS1 CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

### ATTRIBUTE Lp DS1 customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.<br><br>Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.<br><br>An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of |

| | |
|---|---|
| | any component. Values 1 to 8191 inclusive (equivalent to “basic CIDs” in DPN) may be assigned to specific customers. |
| Values | Decimal (0; 1..8191) |
| Default | 0 |

### GROUP Lp DS1 AdminInfo (AdminInfo)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attributes pertaining to the vendor of the equipment. |

### ATTRIBUTE Lp DS1 vendor

| | |
|---|---|
| Access | Read and write |
| Description | This is the name of the vendor supplying the facility. |
| Values | String (0..20, ASCII) |
| Default | No default |

### ATTRIBUTE Lp DS1 commentText

| | |
|---|---|
| Access | Read and write |
| Description | Any miscellaneous text about the facility. |
| Values | String (0..60, ASCII) |
| Default | No default |

### GROUP Lp DS1 IfEntryProv (IfEntry)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the ifEntry. |

### ATTRIBUTE Lp DS1 ifAdminStatus (ifState)

| | |
|---|---|
| Access | Read and write |
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed. |

| | |
|---|---|
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE Lp DS1 ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP Lp DS1 OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

### ATTRIBUTE Lp DS1 snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### GROUP Lp DS1 OsiState (State)

| | |
|---|---|
| Properties | Operational |

Description

This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

## ATTRIBUTE Lp DS1 adminState (osiAdmin)

Access

Read only

Description

This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values

locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default

unlocked

## ATTRIBUTE Lp DS1 operationalState (osiOper)

Access

Read only

| | |
|---|---|
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Lp DS1 usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

## ATTRIBUTE Lp DS1 availabilityStatus (osiAvail)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.<br><br>The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.<br><br>The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.<br><br>The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.<br><br>The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.<br><br>The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***. |

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

### ATTRIBUTE Lp DS1 proceduralStatus (osiProc)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.

The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

### ATTRIBUTE Lp DS1 controlStatus (osiCntrl)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the

attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

Set of

subjectToTest (subTst)
partOfServicesLocked (partLk)
reservedForTest (rsrvd)
suspended (suspnd)

Default

No default

### ATTRIBUTE Lp DS1 alarmStatus (osiAlarm)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are

outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE Lp DS1 standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and

containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values
hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

Default
notSet

### ATTRIBUTE Lp DS1 unknownStatus (osiUnknw)

Access
Read only

Description
This attribute indicates the OSI Unknown status of the component.

The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.

The value ***true*** indicates that the actual state of the component is not known for sure.

Values
false
true

Default
false

### GROUP Lp DS1 Operational (Oper)

Properties
Operational

Description
This group contains the common operational data for a component in a digital hierarchy interface.

### ATTRIBUTE Lp DS1 losAlarm (losAlarm)

Access
Read only

Description

This attribute displays whether a LOS (Loss of Signal) alarm state has been entered. A LOS alarm is declared after LOS defects have been observed and accumulated for a period of 2 seconds +/- 0.5 seconds (for **3pDS1Atm**, **3pE1Atm**, **8pDS1Atm**, and **8pE1Atm** cards: 2.5 seconds +/- 0.5 seconds). A LOS defect is detected upon observing all zeros for 150 ms (for **3pDS1Atm**, **3pE1Atm**, **8pDS1Atm**, and **8pE1Atm** cards: upon observing 175 +/- 75 pulse positions with no pulses of either positive or negative polarity). If the LOS defects are intermittently occurring, the LOS defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.
The port goes into an operational state of ***disabled*** until the LOS alarm state is cleared. Also, an RAI alarm is transmitted to the far end for the duration of the LOS alarm state.
The LOS alarm state is cleared when LOS defects are absent for 10 seconds +/- 0.5 seconds.

Values

on
off

Default

off

### ATTRIBUTE Lp DS1 rxAisAlarm (rxAisAlarm)

Access

Read only

Description

This attribute displays whether an AIS (Alarm Indication Signal) alarm state has been entered. The AIS Alarm state is entered when AIS defects have been observed and accumulated for 2.5 seconds +/- 0.5 seconds. An AIS defect is detected after having received less than 3 zeros in a 2048 bit period (for **8pDS1Atm** cards: when both an Out Of Frame condition exists and a 1's density of at least 99.9% is present for a time T, where 3 ms ≤ T ≤ 75 ms; for **8pE1Atm** cards: when both an Out Of Frame condition exists and fewer than three 0's have been received in 512 bit periods). If the AIS defects are intermittently occurring, the AIS defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.
The port goes into an operational state of ***disabled*** for the duration of an AIS alarm state.

The AIS alarm state is cleared when AIS defects are absent for 10 seconds +/- 0.5 seconds.

Values
on
off

Default
off

### ATTRIBUTE Lp DS1 lofAlarm (lofAlarm)

Access
Read only

Description
This attribute displays whether a LOF (Loss of Frame) alarm state has been entered. The LOF alarm state is entered when LOF defects (for DS1: 2 out of 5 framing bits in error; for E1: 3 consecutive frame alignment patterns in error) have been detected for 3 seconds +/- 0.5 seconds (for **3pDS1Atm**, **3pE1Atm**, **8pDS1Atm**, and **8pE1Atm** cards: 2.5 seconds +/- 0.5 seconds). If the LOF defects are intermittently occurring, the LOF defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.
The port goes into an operational state of ***disabled*** until the LOF alarm state is cleared. Also, an RAI alarm is transmitted to the far end for the duration of the LOF alarm state
The condition is cleared when framing has been achieved for 10 seconds +/- 0.5 seconds.

Values
on
off

Default
off

### ATTRIBUTE Lp DS1 rxRaiAlarm (rxRaiAlarm)

Access
Read only

Description
This attribute displays whether an RAI (Remote Alarm Indication) alarm state has been entered. An RAI alarm state is entered when the RAI defect indicator has been observed and accumulated for 3.5 seconds +/- 0.5 seconds. For **3pDS1Atm**, and **8pDS1Atm** cards: alarm is declared immediately upon observing the defect is present, with no integration time. For **3pE1Atm**, and **8pE1Atm** cards: alarm state is entered when the

RAI defect indicator has been observed and accumulated for 2.5 seconds +/- 0.5 seconds. If the RAI defects are intermittently occurring, the RAI defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.
The RAI alarm state is cleared when the RAI defect indicator has been absent for 10 seconds +/- 0.5 seconds (for **3pDS1Atm**, and **8pDS1Atm** cards: alarm is cleared immediately upon observing the defect is absent, with no integration time).
The RAI alarm is usually an indication that the far end facility is unable to gain synchronization.

Values: on
off

Default: off

### ATTRIBUTE Lp DS1 txAisAlarm (txAisAlarm)

Access: Read only

Description: This attribute displays whether an AIS (Alarm Indication Signal) alarm is being transmitted on the line. An AIS alarm is transmitted when the port is in a locked state.

Values: on
off

Default: off

### ATTRIBUTE Lp DS1 txRaiAlarm (txRaiAlarm)

Access: Read only

Description: This attribute displays whether a RAI signal is being sent on the outgoing line. The RAI signal is transmitted when the port detects a LOF alarm condition (for **3pDS1Atm**, **3pE1Atm**, **8pDS1Atm**, and **8pE1Atm** cards: RAI is transmitted when the port detects a LOS, LOF, or AIS condition).

Values: on
off

Default: off

### GROUP Lp DS1 Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the common statistical data for a component in a digital hierarchy interface. |

### ATTRIBUTE Lp DS1 runningTime (runningTime)

| | |
|---|---|
| Access | Read only |
| Description | The number of seconds since the port component was activated. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp DS1 errorFreeSec (efs)

| | |
|---|---|
| Access | Read only |
| Description | The number of seconds that the port has been in an error free state. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp DS1 erroredSec (es)

| | |
|---|---|
| Access | Read only |
| Description | An errored second is declared when a second with one or more Code Violation Error events, or one or more Out Of Frame events occurs. A code violation error may be a CRC error or a BPV error. An Out Of Frame event occurs when 2 out of 5 framing bits are in error. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp DS1 sevErroredSec (ses)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | A severely errored second occurs when a second with 320 or more Code Violation Error events or one or more Out Of Frame events occurs. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp DS1 sevErroredFrmSec (sefs)

| | |
|---|---|
| Access | Read only |
| Description | A severely errored framing second occurs when a second with one or more Out Of Frame events occurs. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp DS1 unavailSec

| | |
|---|---|
| Access | Read only |
| Description | The total number of seconds that the interface is in an unavailable signal state. An unavailable signal state occurs at the onset of 10 consecutive Severely Errored Seconds. The state is cleared at the onset of 10 seconds with no Severely Errored Seconds. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp DS1 bpvErrors (bpvErrors)

| | |
|---|---|
| Access | Read only |
| Description | The current count of Bipolar Violations. A bipolar violation is an error in the alternate mark inversion pattern (AMI) on the line. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp DS1 crcErrors (crcErrors)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | If the interface is a DS1 line, it is the current count of CRC-6 errors. These will only be counted when the lineType is ESF. If the interface is an E1 line, it is the total number of CRC-4 errors. These will only be counted when crc4Mode is on. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp DS1 frmErrors (frmErrors)

| | |
|---|---|
| Access | Read only |
| Description | The current count of frame errors. A frame error is an error in the framing bits |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp DS1 losStateChanges (losChanges)

| | |
|---|---|
| Access | Read only |
| Description | The total number of times that the line lost signal. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp DS1 slipErrors (slipErrors)

| | |
|---|---|
| Access | Read only |
| Description | The total number of times that the line experienced a controlled frame slip. This attribute is incremented for ports on the voice cards (for example the 1pDS1V and the 1pE1V function processors) only. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT Lp DS1 Channel (Chan)

| | |
|---|---|
| Instance | Decimal (0..24) |

| | |
|---|---|
| Groups | "GROUP Lp DS1 Chan Provisioned (Prov)"<br>"GROUP Lp DS1 Chan CustomerIdentifierData (CidData)"<br>"GROUP Lp DS1 Chan IfEntryProv (IfEntry)"<br>"GROUP Lp DS1 Chan OperationalStatus (OperStatus)"<br>"GROUP Lp DS1 Chan OsiState (State)"<br>"GROUP Lp DS1 Chan Operational (Oper)"<br>"GROUP Lp DS1 Chan AdminInfo (AdminInfo)" |
| Scope | Application |
| Description | *Channel*<br>The *Channel* component is configured to control a group of timeslots that form a fractional group on a DS1 or E1 port. Cell-based cards allow only one channel per port, and this is automatically provisioned with all available timeslots. Similarly, the ***1pDS3C*** card type only allows one channel per port, and this is automatically provisioned with all available timeslots. |
| Opt. Subcomp. | "COMPONENT Lp DS1 Chan AtmCell (Cell)"<br>"COMPONENT Lp DS1 Chan TrunkConditioning (Tc)" |
| Dyn. Subcomp. | "COMPONENT Lp DS1 Chan Test (Test)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP Lp DS1 Chan Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all of the provisional data for a *Channel* component. |

## ATTRIBUTE Lp DS1 Chan timeslots (ts)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |

| | |
|---|---|
| Description | This attribute contains the list of timeslots that are used by the *Channel* component. Valid numbers are 1-24 for a *Channel* used by a *DS1* component, and 1-31 for a *Channel* used by an *E1* component.<br><br>For the ***4pDS3Ch*** card, a timeslot value of ***none*** cannot be combined with other valid timeslot values. When ***none*** is selected, no timeslots are assigned and any service linked to the *Channel* does not function. |
| Set of | none<br>1<br>2<br>3<br>4<br>5<br>6<br>7<br>8<br>9<br>10<br>11<br>12<br>13<br>14<br>15<br>16<br>17<br>18<br>19<br>20<br>21<br>22<br>23<br>24<br>25<br>26<br>27<br>28<br>29<br>30 |

31

Default No default

### ATTRIBUTE Lp DS1 Chan timeslotDataRate (dataRate)

Access Read and write

Criticality Component

Description This attribute selects the data rate of the timeslots in a channel of a DS1 component. For E1, the data rate of the timeslots will always be 64kbit/s regardless of this attribute.

When ***doNotOverride*** is selected for a channel on a DS1, the data rate of the channel's timeslots are dependant on the *zeroCoding* selection of the DS1 component. If the *zeroCoding* is ***B8ZS*** (where supported on the FP) or ***none***, the timeslot's data rate will be 64kbit/s. If the *zeroCoding* option is ***bit7Stuffing,*** the data rate of a timeslot will be 56kbit/s.

When ***56k*** is selected for a channel on a DS1, the least significant bit of each timeslot of this *Channel* will always be set to 1 and not used for data. The data rate for the timeslots of this channel is therefore restricted to 56kbit/s.

On the ***4pDS3Ch*** cards, the *zeroCoding* attribute is restricted to the value *none*, and so when the *timeslotDataRate* is set to ***doNotOverride***, the timeslot's data rate will be 64kbit/s. Timeslot data rate of ***56k*** is also available on this card.

On the ***4pDS3ChAal1*** card, the only allowed value for this attribute is ***doNotOverride***.

One application of this attribute is to allow a DS1 line to support mixing channels that originate from lines that use different *zeroCoding* schemes.

Values: 56k
doNotOverride

Default: doNotOverride

### ATTRIBUTE Lp DS1 Chan applicationFramerName

Access: Read and write

Description: This attribute defines the link to the software stack. It defines which application is running on top of this hardware component.

Values: Link (Service, interfaceName)

Default: No default

### GROUP Lp DS1 Chan CustomerIdentifierData (CidData)

Properties: Provisioned

Description: This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs.

### ATTRIBUTE Lp DS1 Chan customerIdentifier (cid)

Access: Read and write

Description: This attribute holds the Customer Identifier (CID).

Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.

Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the

operator will be allowed to issue commands for only those components which have a matching CID.

An operator CID of 0 is used to identify the Network Manager (referred to as “NetMan” in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to “basic CIDs” in DPN) may be assigned to specific customers.

Values: Decimal (0; 1..8191)

Default: 0

### GROUP Lp DS1 Chan IfEntryProv (IfEntry)

Properties: Provisioned

Description: This group contains the provisionable attributes for the ifEntry.

### ATTRIBUTE Lp DS1 Chan ifAdminStatus (ifState)

Access: Read and write

Description: The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed.

Values:
up
down
testing

Default: up

### ATTRIBUTE Lp DS1 Chan ifIndex (ifI)

Access:
Read: Passive
Write: Debug

Criticality: Component

Description: This is the index for the IfEntry. Its value is automatically initialized during the provisioning process.

Values: Decimal (1..65535)

Default: No default

### GROUP Lp DS1 Chan OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

### ATTRIBUTE Lp DS1 Chan snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### GROUP Lp DS1 Chan OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Lp DS1 Chan adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. |

When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Lp DS1 Chan operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Lp DS1 Chan usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### ATTRIBUTE Lp DS1 Chan availabilityStatus (osiAvail)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present. |

The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.

The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.

The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.

The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration

activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

### ATTRIBUTE Lp DS1 Chan proceduralStatus (osiProc)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.

The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

### ATTRIBUTE Lp DS1 Chan controlStatus (osiCntrl)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

Set of

subjectToTest (subTst)
partOfServicesLocked (partLk)
reservedForTest (rsrvd)
suspended (suspnd)

Default

No default

## ATTRIBUTE Lp DS1 Chan alarmStatus (osiAlarm)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE Lp DS1 Chan standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values

hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

| | |
|---|---|
| Default | notSet |

### ATTRIBUTE Lp DS1 Chan unknownStatus (osiUnknw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Unknown status of the component.<br><br>The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.<br><br>The value ***true*** indicates that the actual state of the component is not known for sure. |
| Values | false<br>true |
| Default | false |

### GROUP Lp DS1 Chan Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all of the operational data for a *Channel* component. |

### ATTRIBUTE Lp DS1 Chan actualChannelSpeed

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the measured link speed of the *Channel* component. |
| Values | Decimal (0..4294967295) |
| Units | bit/s |
| Default | 0 |

### GROUP Lp DS1 Chan AdminInfo (AdminInfo)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attributes pertaining to the vendor of the equipment. |

### ATTRIBUTE Lp DS1 Chan vendor

| | |
|---|---|
| Access | Read and write |
| Description | This is the name of the vendor supplying the facility. |
| Values | String (0..20, ASCII) |
| Default | No default |

### ATTRIBUTE Lp DS1 Chan commentText

| | |
|---|---|
| Access | Read and write |
| Description | Any miscellaneous text about the facility. |
| Values | String (0..60, ASCII) |
| Default | No default |

### COMPONENT Lp DS1 Chan Test (Test)

| | |
|---|---|
| Groups | "GROUP Lp DS1 Chan Test OsiState (State)"<br>"GROUP Lp DS1 Chan Test Setup (Setup)"<br>"GROUP Lp DS1 Chan Test Results (Results)" |
| Scope | Application |
| Description | The *Test* component is configured to control a hardware facility test on a physical (*V*35, *X21, DS1, E1, DS3, E3* etc.) or a logical port. |
| Common Verbs | Help<br>List<br>Display |

### VERB START Lp DS1 Chan Test

| | |
|---|---|
| Impact | Service |
| Description | This command invokes a test on the hardware component. Note that some test types requires the parent component (the hardware component) to be locked (using the *Lock* command) before a test can be started. |

### VERB STOP Lp DS1 Chan Test

| | |
|---|---|
| Impact | Service |
| Description | This command stops a test running on the hardware component. |

### GROUP Lp DS1 Chan Test OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Lp DS1 Chan Test adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Lp DS1 Chan Test operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Lp DS1 Chan Test usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Lp DS1 Chan Test Setup (Setup)

| | |
|---|---|
| Properties | Operational |

| | |
|---|---|
| Description | This group contains all of the operational data for a *Test* component. |

### ATTRIBUTE Lp DS1 Chan Test purpose (purpose)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute records the purpose of the test so that the test results can be associated and properly analyzed. |
| Values | String (0..40, ASCII) |
| Default | No default |

### ATTRIBUTE Lp DS1 Chan Test type (type)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the type of test to be run. The available test types include the following:<br>***card*** test sets up an internal loop on the board and runs a bit error rate test.<br>***manual*** test assumes the line is looped back externally and a bit error rate test is performed.<br>***localLoop*** test loops back the local modem and performs a bit error rate test.<br>***remoteLoop*** test loops back the remote modem (or CSU) and performs a bit error rate test.<br>***externalLoop*** test loops back the line to the far end.<br>***payloadLoop*** test only loops back the payload data received from the incoming line.<br>***remoteLoopThisTrib*** loops this particular tributary back at the far end, using services provided by the parent.<br>***v54RemoteLoop*** initiates a V.54 Remote Loopback test.<br>***pn127RemoteLoop*** initiates a PN127 Remote Loopback test.<br>***lineBIP8Error*** tests line BIP 8 error generation and detection (B2 byte inverted).<br>***sectionBIP8Error*** tests section BIP 8 error generation and detection (B1 byte inverted).<br>***pathBIP8Error*** tests path BIP 8 error generation and detection (B3 byte inverted).<br>***pathBIP2Error*** tests path BIP 2 error generation and detection (bit 1-2 of V5 byte inverted). |

Note that not all test types are not supported by all function processors.

Values

card
manual
localLoop
remoteLoop
externalLoop
payloadLoop
remoteLoopThisTrib
v54RemoteLoop
pn127RemoteLoop
lineBIP8Error
sectionBIP8Error
pathBIP8Error
pathBIP2Error

Default

card

### ATTRIBUTE Lp DS1 Chan Test frmSize (size)

Access

Read and write

Description

This attribute defines the size of the test data frames in number of bytes.
This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame.

Values

Decimal (4..4096)

Units

bytes

Default

1024

### ATTRIBUTE Lp DS1 Chan Test frmPatternType (fpt)

Access

Read and write

Description

This attribute defines the type of data pattern generation to use. The following lists the available pattern types:
***ccitt32kBitPattern*** is a pseudo-random sequence of 32 kbit.
***ccitt8MBitPattern*** is a pseudo-random sequence of 8Mbit.
***customizedPattern*** is the pattern defined in the ***customizedPattern*** attribute.

| | |
|---|---|
| Values | ccitt32kBitPattern<br>ccitt8MBitPattern<br>customizedPattern |
| Default | ccitt32kBitPattern |

### ATTRIBUTE Lp DS1 Chan Test customizedPattern (cp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute allows a customized 32 bit pattern to be defined for use in the test data frames. This attribute is used when the attribute *frmPatternType* is set to ***CustomizedPattern***. Note that a 55 hex pattern is an alternating 1 and 0 pattern. |
| Values | Hex (H.0..H.ffffffff) |
| Units | Hex |
| Default | H.55555555 |

### ATTRIBUTE Lp DS1 Chan Test dataStartDelay (dsd)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time delay (in seconds) between when the test expects the loop to have been set up, to when the test data actually starts to be transmitted. This attribute is to accommodate some non-standard equipment that requires extra time for setting up a requested loop.<br>This attribute is ignored when the test *type* is set to ***externalLoop***. |
| Values | Decimal (0..1814400) |
| Units | seconds |
| Default | 0 |

### ATTRIBUTE Lp DS1 Chan Test displayInterval (di)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the interval (in minutes) between which interim test results are to be displayed. Results are displayed at the operator console at which the test was started. When the test *type* is set to ***externalLoop***, this attribute is ignored. There will be |

| | |
|---|---|
| | no display of results if *displayInterval* is set to 0. This attribute can be changed anytime. |
| Values | Decimal (0..30240) |
| Units | minutes |
| Default | 5 |

### ATTRIBUTE Lp DS1 Chan Test duration

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the duration for which the test data will be transmitted. In the case of an ***externalLoop***, this is the time that the loop is in effect. Note that *dataStartDelay* does not apply to the ***externalLoop*** test type. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 1.00 |

### GROUP Lp DS1 Chan Test Results (Results)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all the statistics related attributes of the *Test* component. |

### ATTRIBUTE Lp DS1 Chan Test causeOfTermination

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates either the status of the test or the cause of the test's termination:<br><br>a value of ***neverStarted*** indicates that the test has not yet been started.<br><br>a value of ***testRunning*** indicates that the test has been started.<br><br>a value of ***stoppedByOperator*** indicates that the operator issued a stop command on a test that was running. |

a value of ***testTimeExpired*** indicates that the test ran for the time specified by the test's *duration*.

a value of ***loopCodeSyncFailed*** indicates that the local end failed to synchronize to the loopCode pattern. The local end transmits the loopCode pattern to cause the remote end to apply a loopback, after which the local end should receive the loopCode pattern. The exact pattern used to request loopCode depends on the test *type*. This failure indicates a high rate of transmission errors, or that the remote end has failed to apply the loopback.

a value of ***patternSyncFailed*** indicates that the local end failed to synchronize to the *frmPatternType* test pattern, that should have been looped back at the remote end. This failure indicates a high rate of transmission errors or the absence of a loopback.

a value of ***patternSyncLost*** indicates that the local end gained and then lost synchronization to the returned *frmPatternType* test pattern. This failure indicates a sudden increase in transmission errors, frame slippage, or the removal of an existing loopback.

a value of ***unknown*** is set when a reason to terminate other than those listed here is encountered.

Note: The *causeOfTermination* attribute values of ***loopCodeSyncFailed***, ***patternSyncFailed*** and ***patternSyncLost*** are supported only on MSA cards. *Test* components located on other cards or under an *Ima* component on an MSA card will never terminate the test under the conditions described by these values.

Values

testTimeExpired
stoppedByOperator
unknown
neverStarted
testRunning
hardwareReconfigured
loopCodeSyncFailed
patternSyncFailed
patternSyncLost

| | |
|---|---|
| Default | neverStarted |

### ATTRIBUTE Lp DS1 Chan Test bitsTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bits sent during the test period. As long as the line speed of the hardware interface is less than 70 Mbit/s, this counter is not expected to reach the maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp DS1 Chan Test bytesTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes sent during the test period. This counter is not expected to reach its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp DS1 Chan Test frmTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames sent during the test period. This counter is not expected to reach its maximum value.<br><br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp DS1 Chan Test bitsRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bits received during the test period. The counter wraps to zero when it exceeds the maximum value. |
| Values | Long Integer |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Lp DS1 Chan Test bytesRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes received during the test period. The counter wraps to zero when it exceeds its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp DS1 Chan Test frmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received during the test period. The counter wraps to zero when it exceeds its maximum value.<br><br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp DS1 Chan Test erroredFrmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute is not displayed for ATM and MSA32 cards. For ATM cards, the physical layer drops all errored frames at the controller interface. For MSA32 cards, the test does not generate any frame.<br><br>For all other card types, this attribute counts the errored frames received during the test period. The counter wraps to zero when it exceeds its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp DS1 Chan Test bitErrorRate

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute is not displayed for ATM cards because the physical layer drops all errored frames at the controller interface. For MSA32 cards, this attribute indicates the link bit error rate, regardless of the *frameSize*, which is not supported<br><br>For all other card types, this attribute is the calculated bit error rate on the link. Test data are generated and sent in frames of a preset size (*frameSize*). The *Test* component will try to estimate the number of bit errors in any errored frame which is identifiable. The statistics will be updated accordingly. A lost frame (may be due to an error on the flag sequence) will be discarded for the bit error rate calculation. The result is presented in the form of xEsyy, where x is the mantissa, syy is the exponent, for example 0E+00, 2E-09.<br>Note that the *bitErrorRate* is an estimate only. For more reliable test results, the test should be done over a long period. Multiple tests would also improve the confidence level of the test results. |
| Values | String (5, ASCII) |
| Default | No default |

### ATTRIBUTE Lp DS1 Chan Test elapsedTime

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the time elapsed since the test started for an ***externalLoop*** test. For a data test, it indicates time since test data was first transmitted. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 0.00 |

### ATTRIBUTE Lp DS1 Chan Test timeRemaining

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the length of time remaining before the test stops according to the *duration* attribute. |
| Values | Decimal (0.00..30240.00) |

| | |
|---|---|
| Units | minutes |
| Default | 0.00 |

### COMPONENT Lp DS1 Chan AtmCell (Cell)

| | |
|---|---|
| Groups | "GROUP Lp DS1 Chan Cell Provisioned (Prov)"<br>"GROUP Lp DS1 Chan Cell Operational (Oper)"<br>"GROUP Lp DS1 Chan Cell Statistics (Stats)" |
| Scope | Device |
| Description | The *AtmCell* component contains provisioning and operational attributes. The provisioning attributes are used to set the Loss of Cell Delineation (LCD) alarm activation delay and to turn cell payload scrambling on or off. The operational attributes are used to report about the quality of the ATM cells received by the interface and the cell capacity utilization. The *AtmCell* component appears under all port components running on ATM cards. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Lp DS1 Chan Cell Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioning attributes for the *AtmCell* component. |

### ATTRIBUTE Lp DS1 Chan Cell alarmActDelay (act)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time during which a Loss of Cell Delineation (LCD) defect should be observed before declaring an LCD alarm (alarm 70115501). When the *Cell* component is provisioned under the *Sonet* or *Sdh* component, this attribute defaults to 500 milliseconds. When it is provisioned under the *Laps* component, the default is 2000 milliseconds. This is |

necessary to ensure that the services bound to the *Sts* or *Vc4* component are not disrupted during short lived LCD defects caused by a line switchover. Setting this attribute to a lower value when the *Laps* component is provisioned may result in a temporary service outage when a line switchover occurs.

Values: Decimal (0..2000)

Units: msec

Default: No default

### ATTRIBUTE Lp DS1 Chan Cell scrambleCellPayload (scramble)

Access: Read and write

Description: Cell scrambling, as defined by ITU-T Recommendation I.432., can provide a solution to the problem of transmission equipment which is sensitive to certain bit patterns in the ATM cell payload. This attribute controls whether or not the cell payload is scrambled.
It defaults to ***off*** for *DS1* interfaces, and ***on*** for all other interfaces.
Note that this setting must be the same at both ends of the link.

Values: off
on

Default: No default

### ATTRIBUTE Lp DS1 Chan Cell correctSingleBitHeaderErrors

Access: Read and write

Description: This attribute specifies whether the port corrects single bit errors detected in the headers of received cells. If single bit errors are corrected, the affected cells are passed up to the ATM layer according to normal operation. If single bit errors are not corrected, these errored cells are discarded by the physical layer. Note that cells containing multiple bit errors in their headers are always discarded.

Single bit HEC error correction must remain ***off*** for the following card types: 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 2pJ6MAtm, 3pDS3Atm, and 3pE3Atm.

| | |
|---|---|
| Values | off<br>on |
| Default | off |

### ATTRIBUTE Lp DS1 Chan Cell clearDelay (clear)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the minimum elapsed time between the clearing of the Loss of Cell Delineation (LCD) defect and the port returning to service. The LCD defect should be absent for the entire period of elapsed time. This attribute value is specified in minutes. If the value of the *clearDelay* attribute is initially 0 (default), the time is actually about 10 seconds.<br>This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm. |
| Values | Decimal (0..60) |
| Units | minutes |
| Default | 0 |

### ATTRIBUTE Lp DS1 Chan Cell hecSampleInterval (hSample)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the sampling interval (in seconds) for errors associated with the *uncorrectableHeaderErrors* attribute. When the sum of errors counted by the *uncorrectableHeaderErrors* attribute over the interval time is greater than or equal to the provisioned *hecErrorLimit* attribute, the sample interval is considered errored. If the number of consecutive errored intervals reaches the limit established in the *hecErrorIntervalLimit* attribute, an LCD alarm is declared and the port is disabled. If the attribute *hecSampleInterval* is set to the default, 0, then the attribute *uncorrectableHeaderErrors* cannot be used to bring down the port.<br>This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm. |
| Values | Decimal (0..25) |
| Units | seconds |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE Lp DS1 Chan Cell hecErrorLimit (hLimit)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the error threshold for a HEC error sampling interval beyond which a port is brought down. When the value of the *uncorrectableHeaderErrors* attribute accumulated over the provisioned value of the *hecSampleInterval* attribute is greater than or equal to the provisioned value of the *hecErrorLimit* attribute, the sample interval is considered errored. If the number of consecutive errored intervals reaches the limit established in the *hecErrorIntervalLimit* attribute, an LCD alarm is declared and the port is disabled. (Please note that a *hecErrorInterval* attribute value of 0 (default) disables the mechanism of using the value of the *uncorrectableHeaderErrors* attribute to disable a port.)<br>This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm. |
| Values | Decimal (1..250000) |
| Default | No default |

### ATTRIBUTE Lp DS1 Chan Cell lcdStateDelay (delay)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time during which an Out of Cell Delineation (OCD) defect should be observed before moving to the Loss of Cell Delineation (LCD) defect state. The time is specified in milliseconds. The valid values are 1 to 50 milliseconds if the *AtmCell c*omponent is located under the *Ds1* or *E1* component, and 1 to 5 milliseconds if under a *Ds3* or *E3* component.<br>This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm. |
| Values | Decimal (1..50) |
| Units | msec |
| Default | No default |

### ATTRIBUTE Lp DS1 Chan Cell hecErrorIntervalLimit (hIntLimit)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute counts the instances of the *hecSamplingInterval* attribute for all HEC errors (specified by the *uncorrectableHeaderError* attribute) before an LCD alarm is generated. The alarm is only generated if the value of the *uncorrectableHeaderErrors* attribute in a given interval is greater than the value of the *hecErrorLimit* attribute. For example, if there are 20 HEC errors in 5 seconds, for three times in a row (the number of times in a row is represented by this attribute), an alarm is raised. If there are 24 HEC errors in the 5 seconds, and 14 in the next 5 seconds no alarm is generated because the number of HEC errors should also be more than 20 in the next instances.<br>This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm. |
| Values | Decimal (1..25) |
| Default | 1 |

### GROUP Lp DS1 Chan Cell Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the common operational attributes for the *AtmCell* component. |

### ATTRIBUTE Lp DS1 Chan Cell lcdAlarm (lcd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays whether the Loss of Cell Delineation (LCD) failure alarm state has been entered. This state is entered when LCD defects have been observed and accumulated for a period of time specified through the *alarmActDelay* attribute.<br>In ATM cell direct mapping mode, an LCD defect occurs when Out of Cell Delineation (OCD) anomaly persists for *x* milliseconds, and disappears when the Out of Cell Delineation (OCD) is absent for *x* msec. An OCD anomaly occurs when 7 consecutive incorrect HECs have been detected. An OCD anomaly terminates when 6 consecutive correct HECs have been |

detected.
For an *AtmCell* component located under a *DS3* or *E3* component with *mapping* = ***PLCP***, the LCD defect is directly derived from the PLCP LOF defect.
If LCD defects are intermittently occurring, the LCD defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle
The component under which is located the *AtmCell* component goes into an operational state of ***disabled*** until the LCD alarm condition is cleared. The condition is cleared after the LCD defect has not been reported for a period of 10 seconds +/- 0.5 seconds.
The *lcdAlarm* attribute is always set to off when the parent of the *AtmCell* component has been *locked* and left *offline*. This can also happen when the *Path* or *Channel* component has been suspended since its parent has been locked.

Values: on
off

Default: off

## GROUP Lp DS1 Chan Cell Statistics (Stats)

Properties: Operational

Description: This group contains the statistics attribute for the *AtmCell* component. Each attribute type is a non-negative integer which monotonically increases until it reaches a maximum value, at which point it wraps around and starts increasing again from zero.

## ATTRIBUTE Lp DS1 Chan Cell uncorrectableHeaderErrors (ucErr)

Access: Read only

Description: This attribute indicates the number of uncorrectable ATM cell header errors that have been detected. Counting of *uncorrectableHeaderErrors* is inhibited when an Out of Cell Delineation (OCD) defect is present. An OCD defect occurs when seven consecutive incorrect HECs have been detected. An OCD defect terminates when six consecutive correct HECs have been detected.

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp DS1 Chan Cell sevErroredSec (ses)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of ATM Cell Severely Errored Seconds (SESs) that have been counted.<br><br>In direct mapping mode, an ATM Cell SES is declared for second intervals containing one or more Out of Cell Delineation (OCD) defects. An OCD defect occurs when seven consecutive incorrect HECs have been detected. An OCD defect terminates when six consecutive correct HECs have been detected.<br><br>If the *AtmCell* component is located under a *Ds3* or *E3* component where the *mapping* attribute is set to ***plcp***, an ATM Cell SES is declared for second intervals containing one or more PLCP LOF defects.<br><br>Counting of *uncorrectableHeaderErrors* (*ucErr*) and *correctableHeaderErrors* (*cErr*) is inhibited when the OCD defect is present. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp DS1 Chan Cell receiveCellUtilization (rxutil)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the ratio of the number of valid, assigned cells received on the link to the nominal link capacity. The utilization is calculated over a period of one minute.<br>This attribute is always set to ***0*** when the parent of the *AtmCell* component has been *locked* and left *offline.* This can also happen when the *Path* or *Channel* component has been *suspended* since its parent has been *locked*. |
| Values | Decimal (0..100) |
| Units | % |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE Lp DS1 Chan Cell transmitCellUtilization (txutil)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the ratio of the number of valid, assigned cells transmitted on the link to the nominal link capacity. The utilization is calculated over a period of one minute.<br>This attribute is always set to ***0*** when the parent of the *AtmCell* component has been *locked* and left *offline*. This can also happen when the *Path* or *Channel* component has been *suspended* since its parent has been *locked*. |
| Values | Decimal (0..100) |
| Units | % |
| Default | 0 |

### ATTRIBUTE Lp DS1 Chan Cell correctableHeaderErrors (cErr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of correctable ATM cell header errors that have been detected and corrected. Counting of *correctableHeaderErrors* is inhibited when an Out of Cell Delineation (OCD) defect is present. An OCD defect occurs when seven consecutive incorrect HECs have been detected. An OCD defect terminates when six consecutive correct HECs have been detected |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT Lp DS1 Chan TrunkConditioning (Tc)

| | |
|---|---|
| Groups | "GROUP Lp DS1 Chan Tc Provisioned (Prov)"<br>"GROUP Lp DS1 Chan Tc Operational (Op)" |
| Scope | Device |
| Description | *Lp/n Ds1/n Chan/n Tc*<br>*Lp/n E1/n Chan/n Tc*<br>*Lp/n Ds3/n Ds1/n Chan/n Tc* |

*Lp/n Sdh/n Vc4/n Vc12/k,l,m E1 Chan/n Tc*
*Lp/n Sonet/n Sts/n Vt1dot5/l,m Ds1 Chan/n Tc*
*Laps/n* Vc4/n Vc12/k,l,m E1 Chan/n T*c*
*Laps/n* Sts/n Vt1dot5/l,m Ds1 Chan/n T*c*

The *Tc* component is used to provision and monitor trunk conditioning options. A separate instance of this component is required for each *Chan* on a Port which is offering a structured constant bit rate service.

Under certain failure alarm conditions, trunk conditioning *replacementData* is substituted into the *timeslots* as defined by the *Chan* component. Trunk conditioning signaling is also substituted into the appropriate Channel Associated Signaling (CAS) bits when a *lineType* that uses CAS has been defined.

When used with AAL1 Circuit Emulation Service, trunk conditioning is transmitted towards the ATM network under the following conditions:
lossOfSignal (LOS)
lossOfFrame (LOF)
remoteAlarmIndication (RAI)
alarmIndicationSignal (AIS)
bufferUnderflow (BU)
and in addition for E1:
lossOfMultiframe (LOMF)
receiveMultiframeRemoteAlarmIndication (RMRAI)

When used with AAL1 Circuit Emulation Service, trunk conditioning is transmitted towards the PDH network under the following conditions:
bufferUnderflow (BU)
AAL1 protocol errors.

This component needs to be provisioned on 2pDs3cAal and 32pE1Aal FPs.

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Lp DS1 Chan Tc Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all specific provisioning data for a *Tc* component. |

## ATTRIBUTE Lp DS1 Chan Tc replacementData (data)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the trunk conditioning data byte to be substituted into the *timeslots* defined by the *Chan* component under fault conditions.<br><br>The attribute *replacementData* can be set to any two digit hexadecimal number. The following are recommended values:<br>DS1 MUX Out Of Service Code = 0x1A<br>E1 MUX Out Of Service Code = 0xFF<br><br>On the ***4pDS3ChAal1*** card, the only allowed value for this attribute is ***0xFF***.<br><br>On the ***4pOC3ChSmIr*** and ***2pOC3ChSmIrVsp3*** cards, the default value for this attribute is ***0x1A*** for DS1 and ***0xFF*** for E1. On all other cards the default value is ***0xFF***. |
| Values | Hex (H.0..H.ff) |
| Units | Hex |
| Default | No default |

## ATTRIBUTE Lp DS1 Chan Tc signalOneDuration (duration)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time duration in seconds for which *signalOne* is substituted into the appropriate signaling bits, when a *lineType* that uses CAS has been defined. When *signalOneDuration* has expired *signalTwo* is substituted into the appropriate signaling bits.<br><br>If *signalOneDuration* is set to zero then only *signalTwo* is substituted into the appropriate signaling bits during error conditions.<br><br>The *signalOneDuration* attribute can be set to any integer value from 0 to 60 seconds. |
| Values | Decimal (0..60) |
| Units | seconds |
| Default | 0 |

## ATTRIBUTE Lp DS1 Chan Tc noServiceResponse (resp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the Channel's egress response when it has no service provisioned, or the service provisioned is unavailable due to a near end failure. The following responses are available:<br><br>***autoConfigure*** - automatically configure the channels response.<br>***tc*** - transmit trunk conditioning on all timeslots provisioned in the egress direction.<br>***ais*** - transmit AIS in the egress direction.<br>***noResponse*** - no response is sent in the egress direction.<br><br>A value of ***autoConfigure*** will result in TC being transmitted for all card types. |
| Values | autoConfigure<br>tc<br>ais<br>noResponse |

| | |
|---|---|
| Default | autoConfigure |

### ATTRIBUTE Lp DS1 Chan Tc signalOne (sigOne)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the value to be substituted into the ABCD signaling bits for the *timeslots* defined by the *Chan* component under fault conditions. The value will be substituted for the duration provisioned in *signalOneDuration* when a *lineType* that uses CAS has been defined.<br><br>For a *lineType* of ***d4Cas*** (Super Frame), signaling bits C and D are required to equal bits A and B respectively. |
| Vector of | Decimal (0..1) |
| Index | D<br>C<br>B<br>A |
| Default | (1, 1, 1, 1) |

### ATTRIBUTE Lp DS1 Chan Tc signalTwo (sigTwo)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the value to be substituted into the ABCD signaling bits for the *timeslots* defined by the *Chan* component under fault conditions. The value will be substituted after the duration provisioned in *signalOneDuration* has expired and when a *lineType* that uses CAS has been defined.<br><br>For a *lineType* of ***d4Cas*** (Super Frame), signaling bits C and D are required to equal bits A and B respectively. |
| Vector of | Decimal (0..1) |
| Index | D<br>C<br>B<br>A |
| Default | (1, 1, 1, 1) |

## GROUP Lp DS1 Chan Tc Operational (Op)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all specific operational data for a *Tc* component. |

## ATTRIBUTE Lp DS1 Chan Tc ingressConditioning (inCon)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the status of locally generated trunk conditioning towards the ATM network.<br><br>When trunk conditioning is being locally generated towards the ATM network, *ingressConditioning* is set to ***on.***<br><br>When trunk conditioning is not being locally generated towards the ATM network, *ingressConditioning* is set to ***off***.<br><br>Trunk conditioning is transmitted towards the ATM network under the following conditions:<br>lossOfSignal (LOS)<br>lossOfFrame (LOF)<br>remoteAlarmIndication (RAI)<br>alarmIndicationSignal (AIS)<br>bufferUnderflow (BU)<br>and in addition for E1:<br>lossOfMultiframe (LOMF)<br>receiveMultiframeRemoteAlarmIndication (RMRAI) |
| Values | off<br>on |
| Default | off |

## ATTRIBUTE Lp DS1 Chan Tc egressConditioning (egCon)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the status of locally generated trunk conditioning towards the PDH line. |

When trunk conditioning is being locally generated towards the PDH line, *egressConditioning* is set to ***on.***

When trunk conditioning is not being locally generated towards the PDH line, *egressConditioning* is set to ***off***.

Trunk conditioning is transmitted towards the PDH line under the following conditions:
bufferUnderflow (BU)
AAL1 protocol errors.

Values: off
on

Default: off

## COMPONENT Lp DS1 Test (Test)

Groups: "GROUP Lp DS1 Test OsiState (State)"
"GROUP Lp DS1 Test Setup (Setup)"
"GROUP Lp DS1 Test Results (Results)"

Scope: Application

Description: The *Test* component is configured to control a hardware facility test on a physical (*V35*, *X21*, *DS1*, *E1*, *DS3*, *E3* etc.) or a logical port.

Common Verbs:
Help
List
Display

## VERB START Lp DS1 Test

Impact: Service

Description: This command invokes a test on the hardware component. Note that some test types requires the parent component (the hardware component) to be locked (using the *Lock* command) before a test can be started.

### VERB STOP Lp DS1 Test

| | |
|---|---|
| Impact | Service |
| Description | This command stops a test running on the hardware component. |

### GROUP Lp DS1 Test OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Lp DS1 Test adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Lp DS1 Test operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Lp DS1 Test usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

## GROUP Lp DS1 Test Setup (Setup)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all of the operational data for a *Test* component. |

## ATTRIBUTE Lp DS1 Test purpose (purpose)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute records the purpose of the test so that the test results can be associated and properly analyzed. |
| Values | String (0..40, ASCII) |
| Default | No default |

## ATTRIBUTE Lp DS1 Test type (type)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the type of test to be run. The available test types include the following:<br>***card*** test sets up an internal loop on the board and runs a bit error rate test.<br>***manual*** test assumes the line is looped back externally and a bit error rate test is performed.<br>***localLoop*** test loops back the local modem and performs a bit error rate test.<br>***remoteLoop*** test loops back the remote modem (or CSU) and performs a bit error rate test.<br>***externalLoop*** test loops back the line to the far end.<br>***payloadLoop*** test only loops back the payload data received from the incoming line.<br>***remoteLoopThisTrib*** loops this particular tributary back at the far end, using services provided by the parent.<br>***v54RemoteLoop*** initiates a V.54 Remote Loopback test.<br>***pn127RemoteLoop*** initiates a PN127 Remote Loopback test.<br>***lineBIP8Error*** tests line BIP 8 error generation and detection (B2 byte inverted).<br>***sectionBIP8Error*** tests section BIP 8 error generation and detection (B1 byte inverted).<br>***pathBIP8Error*** tests path BIP 8 error generation and detection |

(B3 byte inverted).
***pathBIP2Error*** tests path BIP 2 error generation and detection (bit 1-2 of V5 byte inverted).
Note that not all test types are not supported by all function processors.

Values
card
manual
localLoop
remoteLoop
externalLoop
payloadLoop
remoteLoopThisTrib
v54RemoteLoop
pn127RemoteLoop
lineBIP8Error
sectionBIP8Error
pathBIP8Error
pathBIP2Error

Default
card

### ATTRIBUTE Lp DS1 Test frmSize (size)

Access
Read and write

Description
This attribute defines the size of the test data frames in number of bytes.
This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame.

Values
Decimal (4..4096)

Units
bytes

Default
1024

### ATTRIBUTE Lp DS1 Test frmPatternType (fpt)

Access
Read and write

Description
This attribute defines the type of data pattern generation to use.
The following lists the available pattern types:
***ccitt32kBitPattern*** is a pseudo-random sequence of 32 kbit.

***ccitt8MBitPattern*** is a pseudo-random sequence of 8Mbit.
***customizedPattern*** is the pattern defined in the ***customizedPattern*** attribute.

Values: ccitt32kBitPattern
ccitt8MBitPattern
customizedPattern

Default: ccitt32kBitPattern

### ATTRIBUTE Lp DS1 Test customizedPattern (cp)

Access: Read and write

Description: This attribute allows a customized 32 bit pattern to be defined for use in the test data frames. This attribute is used when the attribute *frmPatternType* is set to ***CustomizedPattern***. Note that a 55 hex pattern is an alternating 1 and 0 pattern.

Values: Hex (H.0..H.ffffffff)

Units: Hex

Default: H.55555555

### ATTRIBUTE Lp DS1 Test dataStartDelay (dsd)

Access: Read and write

Description: This attribute specifies the time delay (in seconds) between when the test expects the loop to have been set up, to when the test data actually starts to be transmitted. This attribute is to accommodate some non-standard equipment that requires extra time for setting up a requested loop.
This attribute is ignored when the test *type* is set to ***externalLoop***.

Values: Decimal (0..1814400)

Units: seconds

Default: 0

### ATTRIBUTE Lp DS1 Test displayInterval (di)

Access: Read and write

| | |
|---|---|
| Description | This attribute defines the interval (in minutes) between which interim test results are to be displayed. Results are displayed at the operator console at which the test was started. When the test *type* is set to ***externalLoop***, this attribute is ignored. There will be no display of results if *displayInterval* is set to 0. This attribute can be changed anytime. |
| Values | Decimal (0..30240) |
| Units | minutes |
| Default | 5 |

### ATTRIBUTE Lp DS1 Test duration

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the duration for which the test data will be transmitted. In the case of an ***externalLoop***, this is the time that the loop is in effect. Note that *dataStartDelay* does not apply to the ***externalLoop*** test type. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 1.00 |

### GROUP Lp DS1 Test Results (Results)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all the statistics related attributes of the *Test* component. |

### ATTRIBUTE Lp DS1 Test causeOfTermination

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates either the status of the test or the cause of the test's termination:<br><br>a value of ***neverStarted*** indicates that the test has not yet been started.<br><br>a value of ***testRunning*** indicates that the test has been started. |

a value of ***stoppedByOperator*** indicates that the operator issued a stop command on a test that was running.

a value of ***testTimeExpired*** indicates that the test ran for the time specified by the test's *duration*.

a value of ***loopCodeSyncFailed*** indicates that the local end failed to synchronize to the loopCode pattern. The local end transmits the loopCode pattern to cause the remote end to apply a loopback, after which the local end should receive the loopCode pattern. The exact pattern used to request loopCode depends on the test *type*. This failure indicates a high rate of transmission errors, or that the remote end has failed to apply the loopback.

a value of ***patternSyncFailed*** indicates that the local end failed to synchronize to the *frmPatternType* test pattern, that should have been looped back at the remote end. This failure indicates a high rate of transmission errors or the absence of a loopback.

a value of ***patternSyncLost*** indicates that the local end gained and then lost synchronization to the returned *frmPatternType* test pattern. This failure indicates a sudden increase in transmission errors, frame slippage, or the removal of an existing loopback.

a value of ***unknown*** is set when a reason to terminate other than those listed here is encountered.

Note: The *causeOfTermination* attribute values of ***loopCodeSyncFailed***, ***patternSyncFailed*** and ***patternSyncLost*** are supported only on MSA cards. *Test* components located on other cards or under an *Ima* component on an MSA card will never terminate the test under the conditions described by these values.

Values

testTimeExpired
stoppedByOperator
unknown
neverStarted
testRunning

| | |
|---|---|
| | hardwareReconfigured<br>loopCodeSyncFailed<br>patternSyncFailed<br>patternSyncLost |
| Default | neverStarted |

### ATTRIBUTE Lp DS1 Test bitsTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bits sent during the test period. As long as the line speed of the hardware interface is less than 70 Mbit/s, this counter is not expected to reach the maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp DS1 Test bytesTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes sent during the test period. This counter is not expected to reach its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp DS1 Test frmTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames sent during the test period. This counter is not expected to reach its maximum value.<br><br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp DS1 Test bitsRx

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the bits received during the test period. The counter wraps to zero when it exceeds the maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp DS1 Test bytesRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes received during the test period. The counter wraps to zero when it exceeds its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp DS1 Test frmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received during the test period. The counter wraps to zero when it exceeds its maximum value.<br><br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp DS1 Test erroredFrmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute is not displayed for ATM and MSA32 cards. For ATM cards, the physical layer drops all errored frames at the controller interface. For MSA32 cards, the test does not generate any frame.<br><br>For all other card types, this attribute counts the errored frames received during the test period. The counter wraps to zero when it exceeds its maximum value. |
| Values | Long Integer |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Lp DS1 Test bitErrorRate

| | |
|---|---|
| Access | Read only |
| Description | This attribute is not displayed for ATM cards because the physical layer drops all errored frames at the controller interface. For MSA32 cards, this attribute indicates the link bit error rate, regardless of the *frameSize*, which is not supported<br><br>For all other card types, this attribute is the calculated bit error rate on the link. Test data are generated and sent in frames of a preset size (*frameSize*). The *Test* component will try to estimate the number of bit errors in any errored frame which is identifiable. The statistics will be updated accordingly. A lost frame (may be due to an error on the flag sequence) will be discarded for the bit error rate calculation. The result is presented in the form of xEsyy, where x is the mantissa, syy is the exponent, for example 0E+00, 2E-09.<br>Note that the *bitErrorRate* is an estimate only. For more reliable test results, the test should be done over a long period. Multiple tests would also improve the confidence level of the test results. |
| Values | String (5, ASCII) |
| Default | No default |

### ATTRIBUTE Lp DS1 Test elapsedTime

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the time elapsed since the test started for an ***externalLoop*** test. For a data test, it indicates time since test data was first transmitted. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 0.00 |

### ATTRIBUTE Lp DS1 Test timeRemaining

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the length of time remaining before the test stops according to the *duration* attribute. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 0.00 |

## COMPONENT Lp DS1 Dsp

| | |
|---|---|
| Scope | Device |
| Description | *LogicalProcessor/n Ds1/0 Dsp*<br>The *Dsp* component presents the status of the Digital Signal Processors (DSPs) present on a voice card.<br>A voice card's *Dsp* component is created automatically whenever the parent DS1 component becomes active, and remains in existence as long as the card remains operational. *Dsp* components cannot be added or deleted. |
| Common Verbs | Help<br>List<br>Display |

## COMPONENT Lp DS1 Audio

| | |
|---|---|
| Scope | Device |
| Description | *LogicalProcessor/n Ds1/0 Audio*<br>The Audio component presents the audio status of all timeslots on a given DS1.<br>A voice card's *Audio* component is created automatically whenever the parent DS1 component becomes active, and remains in existence as long as the card remains operational. *Audio* components cannot be added or deleted. |
| Common Verbs | Help<br>List<br>Display |

## COMPONENT Lp E1

| | |
|---|---|
| Instance | Decimal (0..32) |
| Groups | "GROUP Lp E1 Provisioned (Prov)"<br>"GROUP Lp E1 CustomerIdentifierData (CidData)"<br>"GROUP Lp E1 AdminInfo (AdminInfo)"<br>"GROUP Lp E1 IfEntryProv (IfEntry)"<br>"GROUP Lp E1 OperationalStatus (OperStatus)"<br>"GROUP Lp E1 OsiState (State)"<br>"GROUP Lp E1 Operational (Oper)"<br>"GROUP Lp E1 E1Operational (E1Oper)"<br>"GROUP Lp E1 Statistics (Stats)" |
| Scope | Device |
| Description | *Lp/n E1/n*<br>*Lp/n Sdh/i Vc4/j Vc12/k,l,m E1*<br>The *E1* component controls and monitors an E1 port or tributary on a Function Processor. The number of ports supported depends on the type of card, and is usually encoded in the *Shelf Card/n cardType*, for example 4pE1Aal1: 4 port. The lowest instance value is usually ***0***, except for the ***32pE1Aal*** card when it is ***1***.<br>No instance value is used when the E1 is a STM tributary.<br>Multi-Service cards have an instance range 0..31, except that instance values 30 and 31 are not available for an “ATM UNI port”. (An E1 “ATM UNI port” is an *E1* component with a single *Chan* whose *applicationFramerName* attribute is linked to an *AtmIf* component.)<br>The instance number of an *E1* “ATM UNI port” must not be the same as the instance number of an *IMA* group under the same *Lp*. |

| | |
|---|---|
| Subcomponents | "COMPONENT Lp E1 Channel (Chan)" |
| Dyn. Subcomp. | "COMPONENT Lp E1 Test (Test)"<br>"COMPONENT Lp E1 Dsp"<br>"COMPONENT Lp E1 Audio" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP Lp E1 Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all of the provisioning data for an E1 component. |

## ATTRIBUTE Lp E1 lineType (lineType)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the framing of the E1 line.<br>When ***cas*** (channel associated signalling) is selected, timeslot 16 is reserved for multiframe signalling and only 30 timeslots are available for data. The signalling bits are not interpreted.<br>When ***ccs*** (common channel signalling) is selected, timeslot 16 is not reserved for multiframe signalling and 31 timeslots are available for data. The signalling bits are not interpreted.<br>When ***unframed*** is selected, a clear channel is defined whereby data from all timeslots including the framing data (in timeslot 0) and timeslot 16 are passed transparently. This value is valid only for AAL1 cards.<br><br>For cell-based cards the ATM Forum specifies that timeslot 16 be reserved, leaving 30 timeslots available for data.<br>The ***8pE1Atm*** and ***1pStm1ChSmIr*** cards support the ***ccs*** value |

only. The ***4pOC3ChSmIr*** card only supports the ***ccs*** and ***unframed*** values. For both these cards, the default value is ***ccs***. For all other cards, the default value is ***cas***.

Values
ccs
cas
unframed

Default
No default

### ATTRIBUTE Lp E1 clockingSource (clockingSource)

Access
Read and write

Description
This attribute defines the source of the transmit clock for the E1 line.

When ***local*** is selected, the crystal on the port generates the clocking for the line.

When ***line*** is selected, the port synchronizes to the clock from the facility.

When ***module*** is selected, the ports clock synchronizes to the clock provided by the oscillator on the active CP.

When ***otherPort*** is selected, the port synchronizes to the port with a clocking source of ***line***.

When ***srtsMode*** is selected, the port transmit frequency depends on the SRTS (Synchronous Residual Time-Stamp) received over the ATM network. SRTS information is also generated sent over the ATM network.

When ***adaptiveMode*** is selected, the port transmit frequency continually adapts to match the egress data received from the ATM network.

A port with ***srtsMode*** or ***adaptiveMode*** must have a single *Chan* which may be linked only to an *Aal1Ces*.service with serviceType ***unstructured***

If the *NetworkSynchronization* component is present, the default value of this attribute is ***module***, otherwise it defaults to ***line***, except for the ***3pE1Atm*** card, which it defaults to ***local***.
On a ***3pE1Atm*** card all ports must have the same value, and be either ***local*** or ***module***.

***otherPort*** is valid only on AAL1 cards. ***srtsMode*** is valid only on AAL1 and Multi-Service Access cards. ***adaptiveMode*** is valid only on Multi-Service Access cards.

On ***4E1Aal1*** cards either:

all four ports' *clockingSource* values must be ***local*** OR
all four ports' *clockingSource* values must be ***module*** OR
one port's *clockingSource* value must be ***line*** and the other three must be ***otherPort***. A port can only have ***srtsMode*** selected if the other ports are ***module*** or ***srtsMode***.

Values
local
line
module
otherPort
srtsMode
adaptiveMode

Default
No default

## ATTRIBUTE Lp E1 crc4Mode

Access
Read and write

Description
This attribute defines whether the CRC-4 checking and generation on the E1 line is enabled or disabled.

The default CRC-4 mode is ***off*** except for the cell-based cards which default to ***on*** as per the ATM Forum.

Values
on
off

Default
No default

### ATTRIBUTE Lp E1 sendRaiOnAis

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines whether the Remote Alarm Indicator (RAI) will be sent when receiving an AIS alarm. The value is ***yes*** by default; it can be changed to ***no*** only for ports on J2MV cards. |
| Values | no<br>yes |
| Default | yes |

### ATTRIBUTE Lp E1 raiDeclareAlarmTime

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the period of time that a Remote Alarm Indicator (RAI) must be present before declaring an RAI alarm. The value of ***auto*** sets the RAI declare time to the default value for E1 and E1C card types which do not have hardware support for RAI response. On E1C card types with hardware support, if the value of ***auto*** is set, RAI response is done according to the standards. If ***auto*** is set, the value of the *raiClearAlarmTime* attribute is ignored and ***auto*** is used. This attribute is for E1 and E1C card types only. For all other card types, the default value must be used. |
| Values | Decimal (1..20000)<br>auto |
| Units | msec |
| Default | 100 |

### ATTRIBUTE Lp E1 raiClearAlarmTime

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the period of time that a Remote Alarm Indicator (RAI) has been absent before clearing an RAI alarm. The value of ***auto*** sets the RAI clear time to the default value for E1 and E1C card types which do not have hardware support for RAI response. On E1C card types with hardware support, if the value of ***auto*** is set, RAI response is done according to the |

| | |
|---|---|
| | standards. If ***auto*** is set, the value of the *raiDeclareAlarmTime* attribute is ignored and ***auto*** is used. This attribute is for E1 and E1C card types only. For all other card types, the default value must be used. |
| Values | Decimal (1..20000)<br>auto |
| Units | msec |
| Default | 100 |

### ATTRIBUTE Lp E1 ssmE1SaNumber

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies which of the five available Sa bits (Sa4 to Sa8) recommended in ITU G.704 is to be used for Synchronization Status Messages (SSM). If set to ***none***, the transmission of SSM is disabled on this port. |
| Values | Decimal (4..8)<br>none |
| Default | none |

### GROUP Lp E1 CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

### ATTRIBUTE Lp E1 customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0. |

| | |
|---|---|
| | Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.<br><br>An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to "basic CIDs" in DPN) may be assigned to specific customers. |
| Values | Decimal (0; 1..8191) |
| Default | 0 |

### GROUP Lp E1 AdminInfo (AdminInfo)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attributes pertaining to the vendor of the equipment. |

### ATTRIBUTE Lp E1 vendor

| | |
|---|---|
| Access | Read and write |
| Description | This is the name of the vendor supplying the facility. |
| Values | String (0..20, ASCII) |
| Default | No default |

### ATTRIBUTE Lp E1 commentText

| | |
|---|---|
| Access | Read and write |
| Description | Any miscellaneous text about the facility. |
| Values | String (0..60, ASCII) |
| Default | No default |

### GROUP Lp E1 IfEntryProv (IfEntry)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the ifEntry. |

### ATTRIBUTE Lp E1 ifAdminStatus (ifState)

| | |
|---|---|
| Access | Read and write |
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE Lp E1 ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP Lp E1 OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

### ATTRIBUTE Lp E1 snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |

| | |
|---|---|
| Values | up<br>down<br>testing |
| Default | up |

### GROUP Lp E1 OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Lp E1 adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |

| | |
|---|---|
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Lp E1 operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Lp E1 usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
idle
active (activ)
busy

Default
idle

### ATTRIBUTE Lp E1 availabilityStatus (osiAvail)

Access
Read only

Description
If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.

The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.

The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.

The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.

The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

### ATTRIBUTE Lp E1 proceduralStatus (osiProc)

Access

Read only

| | |
|---|---|
| Description | If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.<br><br>The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.<br><br>The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.<br><br>The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.<br><br>The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***. |
| Set of | initializationRequired (initRq)<br>notInitialized (notInit)<br>initializing (init)<br>reporting (report)<br>terminating (term) |
| Default | No default |

## ATTRIBUTE Lp E1 controlStatus (osiCntrl)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.<br><br>The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.<br><br>The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.<br><br>The value ***suspended*** indicates that the service has been administratively suspended. |
| Set of | subjectToTest (subTst)<br>partOfServicesLocked (partLk)<br>reservedForTest (rsrvd)<br>suspended (suspnd) |
| Default | No default |

## ATTRIBUTE Lp E1 alarmStatus (osiAlarm)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user. |

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE Lp E1 standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not

supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values
hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

Default
notSet

### ATTRIBUTE Lp E1 unknownStatus (osiUnknw)

Access
Read only

Description
This attribute indicates the OSI Unknown status of the component.

The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.

The value ***true*** indicates that the actual state of the component is not known for sure.

Values
false
true

Default
false

## GROUP Lp E1 Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the common operational data for a component in a digital hierarchy interface. |

## ATTRIBUTE Lp E1 losAlarm (losAlarm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays whether a LOS (Loss of Signal) alarm state has been entered. A LOS alarm is declared after LOS defects have been observed and accumulated for a period of 2 seconds +/- 0.5 seconds (for **3pDS1Atm**, **3pE1Atm**, **8pDS1Atm**, and **8pE1Atm** cards: 2.5 seconds +/- 0.5 seconds). A LOS defect is detected upon observing all zeros for 150 ms (for **3pDS1Atm**, **3pE1Atm**, **8pDS1Atm**, and **8pE1Atm** cards: upon observing 175 +/- 75 pulse positions with no pulses of either positive or negative polarity). If the LOS defects are intermittently occurring, the LOS defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.<br>The port goes into an operational state of ***disabled*** until the LOS alarm state is cleared. Also, an RAI alarm is transmitted to the far end for the duration of the LOS alarm state.<br>The LOS alarm state is cleared when LOS defects are absent for 10 seconds +/- 0.5 seconds. |
| Values | on<br>off |
| Default | off |

## ATTRIBUTE Lp E1 rxAisAlarm (rxAisAlarm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays whether an AIS (Alarm Indication Signal) alarm state has been entered. The AIS Alarm state is entered when AIS defects have been observed and accumulated for 2.5 seconds +/- 0.5 seconds. An AIS defect is detected after having received less than 3 zeros in a 2048 bit period (for **8pDS1Atm** cards: when both an Out Of Frame condition exists and a 1's |

density of at least 99.9% is present for a time T, where 3 ms ≤ T ≤ 75 ms; for **8pE1Atm** cards: when both an Out Of Frame condition exists and fewer than three 0's have been received in 512 bit periods). If the AIS defects are intermittently occurring, the AIS defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.
The port goes into an operational state of ***disabled*** for the duration of an AIS alarm state.
The AIS alarm state is cleared when AIS defects are absent for 10 seconds +/- 0.5 seconds.

Values
on
off

Default
off

### ATTRIBUTE Lp E1 lofAlarm (lofAlarm)

Access
Read only

Description
This attribute displays whether a LOF (Loss of Frame) alarm state has been entered. The LOF alarm state is entered when LOF defects (for DS1: 2 out of 5 framing bits in error; for E1: 3 consecutive frame alignment patterns in error) have been detected for 3 seconds +/- 0.5 seconds (for **3pDS1Atm**, **3pE1Atm**, **8pDS1Atm**, and **8pE1Atm** cards: 2.5 seconds +/- 0.5 seconds).
If the LOF defects are intermittently occurring, the LOF defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.
The port goes into an operational state of ***disabled*** until the LOF alarm state is cleared. Also, an RAI alarm is transmitted to the far end for the duration of the LOF alarm state
The condition is cleared when framing has been achieved for 10 seconds +/- 0.5 seconds.

Values
on
off

Default
off

### ATTRIBUTE Lp E1 rxRaiAlarm (rxRaiAlarm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays whether an RAI (Remote Alarm Indication) alarm state has been entered. An RAI alarm state is entered when the RAI defect indicator has been observed and accumulated for 3.5 seconds +/- 0.5 seconds. For **3pDS1Atm**, and **8pDS1Atm** cards: alarm is declared immediately upon observing the defect is present, with no integration time. For **3pE1Atm**, and **8pE1Atm** cards: alarm state is entered when the RAI defect indicator has been observed and accumulated for 2.5 seconds +/- 0.5 seconds. If the RAI defects are intermittently occurring, the RAI defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.<br>The RAI alarm state is cleared when the RAI defect indicator has been absent for 10 seconds +/- 0.5 seconds (for **3pDS1Atm**, and **8pDS1Atm** cards: alarm is cleared immediately upon observing the defect is absent, with no integration time).<br>The RAI alarm is usually an indication that the far end facility is unable to gain synchronization. |
| Values | on<br>off |
| Default | off |

### ATTRIBUTE Lp E1 txAisAlarm (txAisAlarm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays whether an AIS (Alarm Indication Signal) alarm is being transmitted on the line. An AIS alarm is transmitted when the port is in a locked state. |
| Values | on<br>off |
| Default | off |

### ATTRIBUTE Lp E1 txRaiAlarm (txRaiAlarm)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute displays whether a RAI signal is being sent on the outgoing line. The RAI signal is transmitted when the port detects a LOF alarm condition (for **3pDS1Atm**, **3pE1Atm**, **8pDS1Atm**, and **8pE1Atm** cards: RAI is transmitted when the port detects a LOS, LOF, or AIS condition). |
| Values | on<br>off |
| Default | off |

### GROUP Lp E1 E1Operational (E1Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all of the operational data for a E1 component that are not defined in the DSCommonOp group. |

### ATTRIBUTE Lp E1 multifrmLofAlarm (multiLofAlarm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether a multiframe LOF (loss of frame) alarm state is entered. A multiframe LOF alarm state is entered when a multiframe LOF defect (2 consecutive errors in the multiframe alignment signal) has been detected and accumulated for 2.5 seconds +/- 0.5 seconds. If the multiframe LOF defects are intermittently occurring, the multiframe LOF defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.<br>The alarm is cleared when the defect is not detected for 10 seconds +/- 0.5 seconds. When the multiframe LOF alarm is on, a multiframe RAI alarm indicator is transmitted on the line.<br><br>The ***8pE1Atm*** card does not support the multiframe LOF alarm. |
| Values | on<br>off |
| Default | off |

### ATTRIBUTE Lp E1 rxMultifrmRaiAlarm (rxMultiRaiAlarm)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute displays whether a multiframe RAI (remote alarm indicator) alarm state has been entered. A multiframe RAI alarm state is entered when a multiframe RAI alarm indicator (bit 6 of timeslot 16 in frame 0 is set to a one) is observed and accumulated for 2.5 seconds +/- 0.5 seconds. If the multiframe RAI indicator is intermittently received, the multiframe RAI defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.<br>The multiframe RAI alarm condition is cleared when the multiframe RAI alarm indication is not received for 10 seconds +/- 0.5 seconds. The multiframe RAI alarm is usually an indication that the far end facility is unable to gain multiframe synchronization.<br><br>The ***8pE1Atm*** card does not support the multiframe RAI alarm. |
| Values | on<br>off |
| Default | off |

### ATTRIBUTE Lp E1 txMultifrmRaiAlarm (txMultiRaiAlarm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays whether a multiframe RAI (remote alarm indicator) alarm is being sent on the E1 line. This is transmitted when the E1 port detects a multiframe LOF condition.<br><br>The ***8pE1Atm*** card does not generate the multiframe RAI alarm. |
| Values | on<br>off |
| Default | off |

### ATTRIBUTE Lp E1 ssmE1Tx

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current Synchronization Status Message (SSM) transmitted on the E1 port within the Sa byte |

defined in ITU G.704.
This attribute is filtered when *ssmE1SaNumber* is set to ***none***.

Values: Decimal (0..15)

Default: No default

### ATTRIBUTE Lp E1 multifrmCRC4LofAlarm (multiCRC4LofAlarm)

Access: Read only

Description: This attribute indicates whether E1 CRC-4 multiframe LOF (loss of frame) alarm state is entered. A CRC-4 multiframe LOF alarm state is entered when a CRC-4 multiframe LOF defect (2 consecutive errors in the multiframe alignment signal) has been detected and accumulated for 2.5 seconds +/- 0.5 seconds. If the CRC-4 multiframe LOF defects are intermittently occurring, the CRC-4 multiframe LOF defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.
The alarm is cleared when the defect is not detected for 10 seconds +/- 0.5 seconds.
The *multifrmCRC4LofAlarm* is not implemented for the ***E1***, ***1pE1V***, ***1pE1Mvp***, ***1pE1Mvpe***, ***4pE1Mvpe***, ***8pE1Atm***, ***E1C*** and ***4pE1Aal1*** cards.

Values: on
off

Default: off

### GROUP Lp E1 Statistics (Stats)

Properties: Operational

Description: This group contains the common statistical data for a component in a digital hierarchy interface.

### ATTRIBUTE Lp E1 runningTime (runningTime)

Access: Read only

Description: The number of seconds since the port component was activated.

Values: Decimal (0..4294967295)

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE Lp E1 errorFreeSec (efs)

| | |
|---|---|
| Access | Read only |
| Description | The number of seconds that the port has been in an error free state. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp E1 erroredSec (es)

| | |
|---|---|
| Access | Read only |
| Description | An errored second is declared when a second with one or more Code Violation Error events, or one or more Out Of Frame events occurs. A code violation error may be a CRC error or a BPV error. An Out Of Frame event occurs when 2 out of 5 framing bits are in error. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp E1 sevErroredSec (ses)

| | |
|---|---|
| Access | Read only |
| Description | A severely errored second occurs when a second with 320 or more Code Violation Error events or one or more Out Of Frame events occurs. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp E1 sevErroredFrmSec (sefs)

| | |
|---|---|
| Access | Read only |
| Description | A severely errored framing second occurs when a second with one or more Out Of Frame events occurs. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE Lp E1 unavailSec

| | |
|---|---|
| Access | Read only |
| Description | The total number of seconds that the interface is in an unavailable signal state. An unavailable signal state occurs at the onset of 10 consecutive Severely Errored Seconds. The state is cleared at the onset of 10 seconds with no Severely Errored Seconds. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp E1 bpvErrors (bpvErrors)

| | |
|---|---|
| Access | Read only |
| Description | The current count of Bipolar Violations. A bipolar violation is an error in the alternate mark inversion pattern (AMI) on the line. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp E1 crcErrors (crcErrors)

| | |
|---|---|
| Access | Read only |
| Description | If the interface is a DS1 line, it is the current count of CRC-6 errors. These will only be counted when the lineType is ESF. If the interface is an E1 line, it is the total number of CRC-4 errors. These will only be counted when crc4Mode is on. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp E1 frmErrors (frmErrors)

| | |
|---|---|
| Access | Read only |
| Description | The current count of frame errors. A frame error is an error in the framing bits |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE Lp E1 losStateChanges (losChanges)

| | |
|---|---|
| Access | Read only |
| Description | The total number of times that the line lost signal. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp E1 slipErrors (slipErrors)

| | |
|---|---|
| Access | Read only |
| Description | The total number of times that the line experienced a controlled frame slip. This attribute is incremented for ports on the voice cards (for example the 1pDS1V and the 1pE1V function processors) only. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT Lp E1 Channel (Chan)

| | |
|---|---|
| Instance | Decimal (0..31) |
| Groups | "GROUP Lp E1 Chan Provisioned (Prov)"<br>"GROUP Lp E1 Chan CustomerIdentifierData (CidData)"<br>"GROUP Lp E1 Chan IfEntryProv (IfEntry)"<br>"GROUP Lp E1 Chan OperationalStatus (OperStatus)"<br>"GROUP Lp E1 Chan OsiState (State)"<br>"GROUP Lp E1 Chan Operational (Oper)"<br>"GROUP Lp E1 Chan AdminInfo (AdminInfo)" |
| Scope | Application |
| Description | *Channel*<br>The *Channel* component is configured to control a group of timeslots that form a fractional group on a DS1 or E1 port. Cell-based cards allow only one channel per port, and this is automatically provisioned with all available timeslots. |

| | |
|---|---|
| Opt. Subcomp. | "COMPONENT Lp E1 Chan AtmCell (Cell)"<br>"COMPONENT Lp E1 Chan TrunkConditioning (Tc)"<br>"COMPONENT Lp E1 Chan FrameLinkMonitoring (Flm)" |
| Dyn. Subcomp. | "COMPONENT Lp E1 Chan Test (Test)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP Lp E1 Chan Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all of the provisional data for a *Channel* component. |

## ATTRIBUTE Lp E1 Chan timeslots (ts)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute contains the list of timeslots that are used by the *Channel* component. Valid numbers are 1-24 for a *Channel* used by a *DS1* component, and 1-31 for a *Channel* used by an *E1* component.<br><br>For the ***4pDS3Ch*** card, a timeslot value of ***none*** cannot be combined with other valid timeslot values. When ***none*** is selected, no timeslots are assigned and any service linked to the *Channel* does not function. |

| | |
|---|---|
| Set of | none<br>1<br>2<br>3<br>4<br>5<br>6<br>7<br>8<br>9<br>10<br>11<br>12<br>13<br>14<br>15<br>16<br>17<br>18<br>19<br>20<br>21<br>22<br>23<br>24<br>25<br>26<br>27<br>28<br>29<br>30<br>31 |
| Default | No default |

## ATTRIBUTE Lp E1 Chan timeslotDataRate (dataRate)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute selects the data rate of the timeslots in a channel of a DS1 component. For E1, the data rate of the timeslots will always be 64kbit/s regardless of this attribute.<br><br>When ***doNotOverride*** is selected for a channel on a DS1, the data rate of the channel's timeslots are dependant on the *zeroCoding* selection of the DS1 component. If the *zeroCoding* is ***B8ZS*** (where supported on the FP) or ***none***, the timeslot's data rate will be 64kbit/s. If the *zeroCoding* option is ***bit7Stuffing,*** the data rate of a timeslot will be 56kbit/s.<br><br>When ***56k*** is selected for a channel on a DS1, the least significant bit of each timeslot of this *Channel* will always be set to 1 and not used for data. The data rate for the timeslots of this channel is therefore restricted to 56kbit/s.<br><br>On the ***4pDS3Ch*** cards, the *zeroCoding* attribute is restricted to the value *none*, and so when the *timeslotDataRate* is set to ***doNotOverride***, the timeslot's data rate will be 64kbit/s. Timeslot data rate of ***56k*** is also available on this card.<br><br>On the ***4pDS3ChAal1*** card, the only allowed value for this attribute is ***doNotOverride***.<br><br>One application of this attribute is to allow a DS1 line to support mixing channels that originate from lines that use different *zeroCoding* schemes. |
| Values | 56k<br>doNotOverride |
| Default | doNotOverride |

## ATTRIBUTE Lp E1 Chan applicationFramerName

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute defines the link to the software stack. It defines which application is running on top of this hardware component. |
| Values | Link (Service, interfaceName) |
| Default | No default |

### GROUP Lp E1 Chan CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

### ATTRIBUTE Lp E1 Chan customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.<br><br>Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.<br><br>An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to "basic CIDs" in DPN) may be assigned to specific customers. |
| Values | Decimal (0; 1..8191) |
| Default | 0 |

### GROUP Lp E1 Chan IfEntryProv (IfEntry)

| | |
|---|---|
| Properties | Provisioned |

| | |
|---|---|
| Description | This group contains the provisionable attributes for the ifEntry. |

### ATTRIBUTE Lp E1 Chan ifAdminStatus (ifState)

| | |
|---|---|
| Access | Read and write |
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE Lp E1 Chan ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP Lp E1 Chan OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

### ATTRIBUTE Lp E1 Chan snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable |

to forward packets. ***testing*** state indicates that no operational packets can be passed.

Values
up
down
testing

Default
up

### GROUP Lp E1 Chan OsiState (State)

Properties
Operational

Description
This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Lp E1 Chan adminState (osiAdmin)

Access
Read only

Description
This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Lp E1 Chan operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Lp E1 Chan usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
idle
active (activ)
busy

Default
idle

### ATTRIBUTE Lp E1 Chan availabilityStatus (osiAvail)

Access
Read only

Description
If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.

The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.

The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.

The value ***powerOff*** indicates the resource requires power to be

applied and it is not powered on. The *operationalState* is ***disabled***.

The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

## ATTRIBUTE Lp E1 Chan proceduralStatus (osiProc)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.<br><br>The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.<br><br>The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.<br><br>The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.<br><br>The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***. |
| Set of | initializationRequired (initRq)<br>notInitialized (notInit)<br>initializing (init)<br>reporting (report)<br>terminating (term) |

Default No default

### ATTRIBUTE Lp E1 Chan controlStatus (osiCntrl)

Access Read only

Description If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

Set of subjectToTest (subTst)
partOfServicesLocked (partLk)
reservedForTest (rsrvd)
suspended (suspnd)

Default No default

### ATTRIBUTE Lp E1 Chan alarmStatus (osiAlarm)

Access Read only

Description If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is

defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

## ATTRIBUTE Lp E1 Chan standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values
hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

Default
notSet

### ATTRIBUTE Lp E1 Chan unknownStatus (osiUnknw)

Access
Read only

Description
This attribute indicates the OSI Unknown status of the component.

The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.

The value ***true*** indicates that the actual state of the component is not known for sure.

Values
false
true

| | |
|---|---|
| Default | false |

### GROUP Lp E1 Chan Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all of the operational data for a *Channel* component. |

### ATTRIBUTE Lp E1 Chan actualChannelSpeed

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the measured link speed of the *Channel* component. |
| Values | Decimal (0..4294967295) |
| Units | bit/s |
| Default | 0 |

### GROUP Lp E1 Chan AdminInfo (AdminInfo)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attributes pertaining to the vendor of the equipment. |

### ATTRIBUTE Lp E1 Chan vendor

| | |
|---|---|
| Access | Read and write |
| Description | This is the name of the vendor supplying the facility. |
| Values | String (0..20, ASCII) |
| Default | No default |

### ATTRIBUTE Lp E1 Chan commentText

| | |
|---|---|
| Access | Read and write |
| Description | Any miscellaneous text about the facility. |
| Values | String (0..60, ASCII) |
| Default | No default |

## COMPONENT Lp E1 Chan Test (Test)

| | |
|---|---|
| Groups | "GROUP Lp E1 Chan Test OsiState (State)"<br>"GROUP Lp E1 Chan Test Setup (Setup)"<br>"GROUP Lp E1 Chan Test Results (Results)" |
| Scope | Application |
| Description | The *Test* component is configured to control a hardware facility test on a physical (*V35*, *X21*, *DS1*, *E1*, *DS3*, *E3* etc.) or a logical port. |
| Common Verbs | Help<br>List<br>Display |

## VERB START Lp E1 Chan Test

| | |
|---|---|
| Impact | Service |
| Description | This command invokes a test on the hardware component. Note that some test types requires the parent component (the hardware component) to be locked (using the *Lock* command) before a test can be started. |

## VERB STOP Lp E1 Chan Test

| | |
|---|---|
| Impact | Service |
| Description | This command stops a test running on the hardware component. |

## GROUP Lp E1 Chan Test OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

## ATTRIBUTE Lp E1 Chan Test adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |

Description

This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values

locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default

unlocked

### ATTRIBUTE Lp E1 Chan Test operationalState (osiOper)

Access

Read only

Description

This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values

enabled (ena)
disabled (dis)

Default

disabled

### ATTRIBUTE Lp E1 Chan Test usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Lp E1 Chan Test Setup (Setup)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all of the operational data for a *Test* component. |

### ATTRIBUTE Lp E1 Chan Test purpose (purpose)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute records the purpose of the test so that the test results can be associated and properly analyzed. |
| Values | String (0..40, ASCII) |
| Default | No default |

### ATTRIBUTE Lp E1 Chan Test type (type)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the type of test to be run. The available test types include the following:<br>***card*** test sets up an internal loop on the board and runs a bit error |

rate test.
***manual*** test assumes the line is looped back externally and a bit error rate test is performed.
***localLoop*** test loops back the local modem and performs a bit error rate test.
***remoteLoop*** test loops back the remote modem (or CSU) and performs a bit error rate test.
***externalLoop*** test loops back the line to the far end.
***payloadLoop*** test only loops back the payload data received from the incoming line.
***remoteLoopThisTrib*** loops this particular tributary back at the far end, using services provided by the parent.
***v54RemoteLoop*** initiates a V.54 Remote Loopback test.
***pn127RemoteLoop*** initiates a PN127 Remote Loopback test.
***lineBIP8Error*** tests line BIP 8 error generation and detection (B2 byte inverted).
***sectionBIP8Error*** tests section BIP 8 error generation and detection (B1 byte inverted).
***pathBIP8Error*** tests path BIP 8 error generation and detection (B3 byte inverted).
***pathBIP2Error*** tests path BIP 2 error generation and detection (bit 1-2 of V5 byte inverted).
Note that not all test types are not supported by all function processors.

Values

card
manual
localLoop
remoteLoop
externalLoop
payloadLoop
remoteLoopThisTrib
v54RemoteLoop
pn127RemoteLoop
lineBIP8Error
sectionBIP8Error
pathBIP8Error
pathBIP2Error

Default

card

### ATTRIBUTE Lp E1 Chan Test frmSize (size)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the size of the test data frames in number of bytes.<br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |
| Values | Decimal (4..4096) |
| Units | bytes |
| Default | 1024 |

### ATTRIBUTE Lp E1 Chan Test frmPatternType (fpt)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the type of data pattern generation to use. The following lists the available pattern types:<br>***ccitt32kBitPattern*** is a pseudo-random sequence of 32 kbit.<br>***ccitt8MBitPattern*** is a pseudo-random sequence of 8Mbit.<br>***customizedPattern*** is the pattern defined in the ***customizedPattern*** attribute. |
| Values | ccitt32kBitPattern<br>ccitt8MBitPattern<br>customizedPattern |
| Default | ccitt32kBitPattern |

### ATTRIBUTE Lp E1 Chan Test customizedPattern (cp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute allows a customized 32 bit pattern to be defined for use in the test data frames. This attribute is used when the attribute *frmPatternType* is set to ***CustomizedPattern***. Note that a 55 hex pattern is an alternating 1 and 0 pattern. |
| Values | Hex (H.0..H.ffffffff) |
| Units | Hex |
| Default | H.55555555 |

### ATTRIBUTE Lp E1 Chan Test dataStartDelay (dsd)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time delay (in seconds) between when the test expects the loop to have been set up, to when the test data actually starts to be transmitted. This attribute is to accommodate some non-standard equipment that requires extra time for setting up a requested loop.<br>This attribute is ignored when the test *type* is set to ***externalLoop***. |
| Values | Decimal (0..1814400) |
| Units | seconds |
| Default | 0 |

### ATTRIBUTE Lp E1 Chan Test displayInterval (di)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the interval (in minutes) between which interim test results are to be displayed. Results are displayed at the operator console at which the test was started. When the test *type* is set to ***externalLoop***, this attribute is ignored. There will be no display of results if *displayInterval* is set to 0. This attribute can be changed anytime. |
| Values | Decimal (0..30240) |
| Units | minutes |
| Default | 5 |

### ATTRIBUTE Lp E1 Chan Test duration

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the duration for which the test data will be transmitted. In the case of an ***externalLoop***, this is the time that the loop is in effect. Note that *dataStartDelay* does not apply to the ***externalLoop*** test type. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |

Default 1.00

### GROUP Lp E1 Chan Test Results (Results)

Properties Operational

Description This group contains all the statistics related attributes of the *Test* component.

### ATTRIBUTE Lp E1 Chan Test causeOfTermination

Access Read only

Description This attribute indicates either the status of the test or the cause of the test's termination:

a value of ***neverStarted*** indicates that the test has not yet been started.

a value of ***testRunning*** indicates that the test has been started.

a value of ***stoppedByOperator*** indicates that the operator issued a stop command on a test that was running.

a value of ***testTimeExpired*** indicates that the test ran for the time specified by the test's *duration*.

a value of ***loopCodeSyncFailed*** indicates that the local end failed to synchronize to the loopCode pattern. The local end transmits the loopCode pattern to cause the remote end to apply a loopback, after which the local end should receive the loopCode pattern. The exact pattern used to request loopCode depends on the test *type*. This failure indicates a high rate of transmission errors, or that the remote end has failed to apply the loopback.

a value of ***patternSyncFailed*** indicates that the local end failed to synchronize to the *frmPatternType* test pattern, that should have been looped back at the remote end. This failure indicates a high rate of transmission errors or the absence of a loopback.

a value of ***patternSyncLost*** indicates that the local end gained and then lost synchronization to the returned *frmPatternType* test pattern. This failure indicates a sudden increase in transmission

errors, frame slippage, or the removal of an existing loopback.

a value of ***unknown*** is set when a reason to terminate other than those listed here is encountered.

Note: The *causeOfTermination* attribute values of ***loopCodeSyncFailed***, ***patternSyncFailed*** and ***patternSyncLost*** are supported only on MSA cards. *Test* components located on other cards or under an *Ima* component on an MSA card will never terminate the test under the conditions described by these values.

Values
testTimeExpired
stoppedByOperator
unknown
neverStarted
testRunning
hardwareReconfigured
loopCodeSyncFailed
patternSyncFailed
patternSyncLost

Default
neverStarted

### ATTRIBUTE Lp E1 Chan Test bitsTx

Access
Read only

Description
This attribute counts the bits sent during the test period. As long as the line speed of the hardware interface is less than 70 Mbit/s, this counter is not expected to reach the maximum value.

Values
Long Integer

Default
No default

### ATTRIBUTE Lp E1 Chan Test bytesTx

Access
Read only

Description
This attribute counts the bytes sent during the test period. This counter is not expected to reach its maximum value.

Values
Long Integer

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Lp E1 Chan Test frmTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames sent during the test period. This counter is not expected to reach its maximum value.<br><br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp E1 Chan Test bitsRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bits received during the test period. The counter wraps to zero when it exceeds the maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp E1 Chan Test bytesRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes received during the test period. The counter wraps to zero when it exceeds its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp E1 Chan Test frmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received during the test period. The counter wraps to zero when it exceeds its maximum value.<br><br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |

| | |
|---|---|
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp E1 Chan Test erroredFrmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute is not displayed for ATM and MSA32 cards. For ATM cards, the physical layer drops all errored frames at the controller interface. For MSA32 cards, the test does not generate any frame.<br><br>For all other card types, this attribute counts the errored frames received during the test period. The counter wraps to zero when it exceeds its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp E1 Chan Test bitErrorRate

| | |
|---|---|
| Access | Read only |
| Description | This attribute is not displayed for ATM cards because the physical layer drops all errored frames at the controller interface. For MSA32 cards, this attribute indicates the link bit error rate, regardless of the *frameSize*, which is not supported<br><br>For all other card types, this attribute is the calculated bit error rate on the link. Test data are generated and sent in frames of a preset size (*frameSize*). The *Test* component will try to estimate the number of bit errors in any errored frame which is identifiable. The statistics will be updated accordingly. A lost frame (may be due to an error on the flag sequence) will be discarded for the bit error rate calculation. The result is presented in the form of xEsyy, where x is the mantissa, syy is the exponent, for example 0E+00, 2E-09.<br>Note that the *bitErrorRate* is an estimate only. For more reliable test results, the test should be done over a long period. Multiple tests would also improve the confidence level of the test results. |
| Values | String (5, ASCII) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Lp E1 Chan Test elapsedTime

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the time elapsed since the test started for an ***externalLoop*** test. For a data test, it indicates time since test data was first transmitted. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 0.00 |

### ATTRIBUTE Lp E1 Chan Test timeRemaining

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the length of time remaining before the test stops according to the *duration* attribute. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 0.00 |

### COMPONENT Lp E1 Chan AtmCell (Cell)

| | |
|---|---|
| Groups | "GROUP Lp E1 Chan Cell Provisioned (Prov)"<br>"GROUP Lp E1 Chan Cell Operational (Oper)"<br>"GROUP Lp E1 Chan Cell Statistics (Stats)" |
| Scope | Device |
| Description | The *AtmCell* component contains provisioning and operational attributes. The provisioning attributes are used to set the Loss of Cell Delineation (LCD) alarm activation delay and to turn cell payload scrambling on or off. The operational attributes are used to report about the quality of the ATM cells received by the interface and the cell capacity utilization. The *AtmCell* component appears under all port components running on ATM cards. |

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Lp E1 Chan Cell Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioning attributes for the *AtmCell* component. |

### ATTRIBUTE Lp E1 Chan Cell alarmActDelay (act)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time during which a Loss of Cell Delineation (LCD) defect should be observed before declaring an LCD alarm (alarm 70115501). When the *Cell* component is provisioned under the *Sonet* or *Sdh* component, this attribute defaults to 500 milliseconds. When it is provisioned under the *Laps* component, the default is 2000 milliseconds. This is necessary to ensure that the services bound to the *Sts* or *Vc4* component are not disrupted during short lived LCD defects caused by a line switchover. Setting this attribute to a lower value when the *Laps* component is provisioned may result in a temporary service outage when a line switchover occurs. |
| Values | Decimal (0..2000) |
| Units | msec |
| Default | No default |

### ATTRIBUTE Lp E1 Chan Cell scrambleCellPayload (scramble)

| | |
|---|---|
| Access | Read and write |
| Description | Cell scrambling, as defined by ITU-T Recommendation I.432., can provide a solution to the problem of transmission equipment |

which is sensitive to certain bit patterns in the ATM cell payload. This attribute controls whether or not the cell payload is scrambled.
It defaults to ***off*** for *DS1* interfaces, and ***on*** for all other interfaces.
Note that this setting must be the same at both ends of the link.

Values
off
on

Default
No default

### ATTRIBUTE Lp E1 Chan Cell correctSingleBitHeaderErrors

Access
Read and write

Description
This attribute specifies whether the port corrects single bit errors detected in the headers of received cells. If single bit errors are corrected, the affected cells are passed up to the ATM layer according to normal operation. If single bit errors are not corrected, these errored cells are discarded by the physical layer. Note that cells containing multiple bit errors in their headers are always discarded.

Single bit HEC error correction must remain ***off*** for the following card types: 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 2pJ6MAtm, 3pDS3Atm, and 3pE3Atm.

Values
off
on

Default
off

### ATTRIBUTE Lp E1 Chan Cell clearDelay (clear)

Access
Read and write

Description
This attribute specifies the minimum elapsed time between the clearing of the Loss of Cell Delineation (LCD) defect and the port returning to service. The LCD defect should be absent for the entire period of elapsed time. This attribute value is specified in minutes. If the value of the *clearDelay* attribute is initially 0 (default), the time is actually about 10 seconds.

This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm.

Values: Decimal (0..60)

Units: minutes

Default: 0

### ATTRIBUTE Lp E1 Chan Cell hecSampleInterval (hSample)

Access: Read and write

Description: This attribute specifies the sampling interval (in seconds) for errors associated with the *uncorrectableHeaderErrors* attribute. When the sum of errors counted by the *uncorrectableHeaderErrors* attribute over the interval time is greater than or equal to the provisioned *hecErrorLimit* attribute, the sample interval is considered errored. If the number of consecutive errored intervals reaches the limit established in the *hecErrorIntervalLimit* attribute, an LCD alarm is declared and the port is disabled. If the attribute *hecSampleInterval* is set to the default, 0, then the attribute *uncorrectableHeaderErrors* cannot be used to bring down the port.
This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm.

Values: Decimal (0..25)

Units: seconds

Default: 0

### ATTRIBUTE Lp E1 Chan Cell hecErrorLimit (hLimit)

Access: Read and write

Description: This attribute specifies the error threshold for a HEC error sampling interval beyond which a port is brought down. When the value of the *uncorrectableHeaderErrors* attribute accumulated over the provisioned value of the *hecSampleInterval* attribute is greater than or equal to the provisioned value of the *hecErrorLimit* attribute, the sample interval is considered errored. If the number of consecutive errored intervals reaches the limit established in the *hecErrorIntervalLimit* attribute, an LCD alarm

is declared and the port is disabled. (Please note that a *hecErrorInterval* attribute value of 0 (default) disables the mechanism of using the value of the *uncorrectableHeaderErrors* attribute to disable a port.)
This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm.

Values: Decimal (1..250000)

Default: No default

### ATTRIBUTE Lp E1 Chan Cell lcdStateDelay (delay)

Access: Read and write

Description: This attribute specifies the time during which an Out of Cell Delineation (OCD) defect should be observed before moving to the Loss of Cell Delineation (LCD) defect state. The time is specified in milliseconds. The valid values are 1 to 50 milliseconds if the *AtmCell c*omponent is located under the *Ds1* or *E1* component, and 1 to 5 milliseconds if under a *Ds3* or *E3* component.
This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm.

Values: Decimal (1..50)

Units: msec

Default: No default

### ATTRIBUTE Lp E1 Chan Cell hecErrorIntervalLimit (hIntLimit)

Access: Read and write

Description: This attribute counts the instances of the *hecSamplingInterval* attribute for all HEC errors (specified by the *uncorrectableHeaderError* attribute) before an LCD alarm is generated. The alarm is only generated if the value of the *uncorrectableHeaderErrors* attribute in a given interval is greater than the value of the *hecErrorLimit* attribute. For example, if there are 20 HEC errors in 5 seconds, for three times in a row (the number of times in a row is represented by this attribute), an alarm is raised. If there are 24 HEC errors in the 5 seconds, and 14 in the next 5 seconds no alarm is generated because the

number of HEC errors should also be more than 20 in the next instances.
This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm.

Values: Decimal (1..25)

Default: 1

## GROUP Lp E1 Chan Cell Operational (Oper)

Properties: Operational

Description: This group contains the common operational attributes for the *AtmCell* component.

## ATTRIBUTE Lp E1 Chan Cell lcdAlarm (lcd)

Access: Read only

Description: This attribute displays whether the Loss of Cell Delineation (LCD) failure alarm state has been entered. This state is entered when LCD defects have been observed and accumulated for a period of time specified through the *alarmActDelay* attribute.
In ATM cell direct mapping mode, an LCD defect occurs when Out of Cell Delineation (OCD) anomaly persists for *x* milliseconds, and disappears when the Out of Cell Delineation (OCD) is absent for *x* msec. An OCD anomaly occurs when 7 consecutive incorrect HECs have been detected. An OCD anomaly terminates when 6 consecutive correct HECs have been detected.
For an *AtmCell* component located under a *DS3* or *E3* component with *mapping* = ***PLCP***, the LCD defect is directly derived from the PLCP LOF defect.
If LCD defects are intermittently occurring, the LCD defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle
The component under which is located the *AtmCell* component goes into an operational state of ***disabled*** until the LCD alarm condition is cleared. The condition is cleared after the LCD defect has not been reported for a period of 10 seconds +/- 0.5 seconds.
The *lcdAlarm* attribute is always set to off when the parent of the

*AtmCell* component has been *locked* and left *offline*. This can also happen when the *Path* or *Channel* component has been suspended since its parent has been locked.

Values
on
off

Default
off

### GROUP Lp E1 Chan Cell Statistics (Stats)

Properties
Operational

Description
This group contains the statistics attribute for the *AtmCell* component. Each attribute type is a non-negative integer which monotonically increases until it reaches a maximum value, at which point it wraps around and starts increasing again from zero.

### ATTRIBUTE Lp E1 Chan Cell uncorrectableHeaderErrors (ucErr)

Access
Read only

Description
This attribute indicates the number of uncorrectable ATM cell header errors that have been detected. Counting of *uncorrectableHeaderErrors* is inhibited when an Out of Cell Delineation (OCD) defect is present. An OCD defect occurs when seven consecutive incorrect HECs have been detected. An OCD defect terminates when six consecutive correct HECs have been detected.

Values
Decimal (0..4294967295)

Default
0

### ATTRIBUTE Lp E1 Chan Cell sevErroredSec (ses)

Access
Read only

Description
This attribute indicates the total number of ATM Cell Severely Errored Seconds (SESs) that have been counted.

In direct mapping mode, an ATM Cell SES is declared for second intervals containing one or more Out of Cell Delineation (OCD) defects. An OCD defect occurs when seven consecutive incorrect

HECs have been detected. An OCD defect terminates when six consecutive correct HECs have been detected.

If the *AtmCell* component is located under a *Ds3* or *E3* component where the *mapping* attribute is set to ***plcp***, an ATM Cell SES is declared for second intervals containing one or more PLCP LOF defects.

Counting of *uncorrectableHeaderErrors* (*ucErr*) and *correctableHeaderErrors* (*cErr*) is inhibited when the OCD defect is present.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE Lp E1 Chan Cell receiveCellUtilization (rxutil)

Access: Read only

Description: This attribute is the ratio of the number of valid, assigned cells received on the link to the nominal link capacity. The utilization is calculated over a period of one minute.
This attribute is always set to ***0*** when the parent of the *AtmCell* component has been *locked* and left *offline.* This can also happen when the *Path* or *Channel* component has been *suspended* since its parent has been *locked*.

Values: Decimal (0..100)

Units: %

Default: 0

### ATTRIBUTE Lp E1 Chan Cell transmitCellUtilization (txutil)

Access: Read only

Description: This attribute is the ratio of the number of valid, assigned cells transmitted on the link to the nominal link capacity. The utilization is calculated over a period of one minute.
This attribute is always set to ***0*** when the parent of the *AtmCell* component has been *locked* and left *offline*. This can also happen when the *Path* or *Channel* component has been *suspended* since its parent has been *locked*.

| | |
|---|---|
| Values | Decimal (0..100) |
| Units | % |
| Default | 0 |

### ATTRIBUTE Lp E1 Chan Cell correctableHeaderErrors (cErr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of correctable ATM cell header errors that have been detected and corrected. Counting of *correctableHeaderErrors* is inhibited when an Out of Cell Delineation (OCD) defect is present. An OCD defect occurs when seven consecutive incorrect HECs have been detected. An OCD defect terminates when six consecutive correct HECs have been detected |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT Lp E1 Chan TrunkConditioning (Tc)

| | |
|---|---|
| Groups | "GROUP Lp E1 Chan Tc Provisioned (Prov)"<br>"GROUP Lp E1 Chan Tc Operational (Op)" |
| Scope | Device |
| Description | *Lp/n Ds1/n Chan/n Tc*<br>*Lp/n E1/n Chan/n Tc*<br>*Lp/n Ds3/n Ds1/n Chan/n Tc*<br>*Lp/n Sdh/n Vc4/n Vc12/k,l,m E1 Chan/n Tc*<br>*Lp/n Sonet/n Sts/n Vt1dot5/l,m Ds1 Chan/n Tc*<br>*Laps/n* Vc4/n Vc12/k,l,m E1 Chan/n T*c*<br>*Laps/n* Sts/n Vt1dot5/l,m Ds1 Chan/n T*c*<br><br>The *Tc* component is used to provision and monitor trunk conditioning options. A separate instance of this component is required for each *Chan* on a Port which is offering a structured constant bit rate service.<br><br>Under certain failure alarm conditions, trunk conditioning *replacementData* is substituted into the *timeslots* as defined by the *Chan* component. Trunk conditioning signaling is also |

substituted into the appropriate Channel Associated Signaling (CAS) bits when a *lineType* that uses CAS has been defined.

When used with AAL1 Circuit Emulation Service, trunk conditioning is transmitted towards the ATM network under the following conditions:
lossOfSignal (LOS)
lossOfFrame (LOF)
remoteAlarmIndication (RAI)
alarmIndicationSignal (AIS)
bufferUnderflow (BU)
and in addition for E1:
lossOfMultiframe (LOMF)
receiveMultiframeRemoteAlarmIndication (RMRAI)

When used with AAL1 Circuit Emulation Service, trunk conditioning is transmitted towards the PDH network under the following conditions:
bufferUnderflow (BU)
AAL1 protocol errors.

This component needs to be provisioned on 2pDs3cAal and 32pE1Aal FPs.

Common Verbs

Help
List
Display
Add
DELete

## GROUP Lp E1 Chan Tc Provisioned (Prov)

Properties: Provisioned

Description: This group contains all specific provisioning data for a *Tc* component.

## ATTRIBUTE Lp E1 Chan Tc replacementData (data)

Access: Read and write

| | |
|---|---|
| Description | This attribute specifies the trunk conditioning data byte to be substituted into the *timeslots* defined by the *Chan* component under fault conditions.<br><br>The attribute *replacementData* can be set to any two digit hexadecimal number. The following are recommended values:<br>DS1 MUX Out Of Service Code = 0x1A<br>E1 MUX Out Of Service Code = 0xFF<br><br>On the ***4pDS3ChAal1*** card, the only allowed value for this attribute is ***0xFF***.<br><br>On the ***4pOC3ChSmIr*** and ***2pOC3ChSmIrVsp3*** cards, the default value for this attribute is ***0x1A*** for DS1 and ***0xFF*** for E1. On all other cards the default value is ***0xFF***. |
| Values | Hex (H.0..H.ff) |
| Units | Hex |
| Default | No default |

### ATTRIBUTE Lp E1 Chan Tc signalOneDuration (duration)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time duration in seconds for which *signalOne* is substituted into the appropriate signaling bits, when a *lineType* that uses CAS has been defined. When *signalOneDuration* has expired *signalTwo* is substituted into the appropriate signaling bits.<br><br>If *signalOneDuration* is set to zero then only *signalTwo* is substituted into the appropriate signaling bits during error conditions.<br><br>The *signalOneDuration* attribute can be set to any integer value from 0 to 60 seconds. |
| Values | Decimal (0..60) |
| Units | seconds |
| Default | 0 |

## ATTRIBUTE Lp E1 Chan Tc noServiceResponse (resp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the Channel's egress response when it has no service provisioned, or the service provisioned is unavailable due to a near end failure. The following responses are available:<br><br>***autoConfigure*** - automatically configure the channels response.<br>***tc*** - transmit trunk conditioning on all timeslots provisioned in the egress direction.<br>***ais*** - transmit AIS in the egress direction.<br>***noResponse*** - no response is sent in the egress direction.<br><br>A value of ***autoConfigure*** will result in TC being transmitted for all card types. |
| Values | autoConfigure<br>tc<br>ais<br>noResponse |
| Default | autoConfigure |

## ATTRIBUTE Lp E1 Chan Tc signalOne (sigOne)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the value to be substituted into the ABCD signaling bits for the *timeslots* defined by the *Chan* component under fault conditions. The value will be substituted for the duration provisioned in *signalOneDuration* when a *lineType* that uses CAS has been defined.<br><br>For a *lineType* of ***d4Cas*** (Super Frame), signaling bits C and D are required to equal bits A and B respectively. |
| Vector of | Decimal (0..1) |
| Index | D<br>C<br>B<br>A |

Default (1, 1, 1, 1)

### ATTRIBUTE Lp E1 Chan Tc signalTwo (sigTwo)

Access Read and write

Description This attribute specifies the value to be substituted into the ABCD signaling bits for the *timeslots* defined by the *Chan* component under fault conditions. The value will be substituted after the duration provisioned in *signalOneDuration* has expired and when a *lineType* that uses CAS has been defined.

For a *lineType* of ***d4Cas*** (Super Frame), signaling bits C and D are required to equal bits A and B respectively.

Vector of Decimal (0..1)

Index
D
C
B
A

Default (1, 1, 1, 1)

### GROUP Lp E1 Chan Tc Operational (Op)

Properties Operational

Description This group contains all specific operational data for a *Tc* component.

### ATTRIBUTE Lp E1 Chan Tc ingressConditioning (inCon)

Access Read only

Description This attribute indicates the status of locally generated trunk conditioning towards the ATM network.

When trunk conditioning is being locally generated towards the ATM network, *ingressConditioning* is set to ***on.***

When trunk conditioning is not being locally generated towards the ATM network, *ingressConditioning* is set to ***off***.

Trunk conditioning is transmitted towards the ATM network

under the following conditions:
lossOfSignal (LOS)
lossOfFrame (LOF)
remoteAlarmIndication (RAI)
alarmIndicationSignal (AIS)
bufferUnderflow (BU)
and in addition for E1:
lossOfMultiframe (LOMF)
receiveMultiframeRemoteAlarmIndication (RMRAI)

Values
off
on

Default
off

### ATTRIBUTE Lp E1 Chan Tc egressConditioning (egCon)

Access
Read only

Description
This attribute indicates the status of locally generated trunk conditioning towards the PDH line.

When trunk conditioning is being locally generated towards the PDH line, *egressConditioning* is set to ***on.***

When trunk conditioning is not being locally generated towards the PDH line, *egressConditioning* is set to ***off***.

Trunk conditioning is transmitted towards the PDH line under the following conditions:
bufferUnderflow (BU)
AAL1 protocol errors.

Values
off
on

Default
off

### COMPONENT Lp E1 Chan FrameLinkMonitoring (Flm)

Groups
"GROUP Lp E1 Chan Flm Provisioned (Prov)"
"GROUP Lp E1 Chan Flm Operational (Op)"

| | |
|---|---|
| Scope | Device |
| Description | *Lp/n E1/n Chan/n FrameLinkMonitoring*<br><br>This component provides a monitoring function specific to a Frame Relay Channel on an E1 line. It combines the status of E1 channel-associated-signalling A-bits and HDLC frame defect. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Lp E1 Chan Flm Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all specific provisioning data for an *Flm* component. |

## ATTRIBUTE Lp E1 Chan Flm aBitMonitoring (aBit)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute controls the monitoring of A-bit defects. |
| Values | disabled<br>enabled |
| Default | enabled |

## ATTRIBUTE Lp E1 Chan Flm hdlcMonitoring (hdlc)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute controls the monitoring of HDLC defect. |
| Values | disabled<br>enabled |
| Default | No default |

## GROUP Lp E1 Chan Flm Operational (Op)

| | |
|---|---|
| Properties | Operational |

Description — This group contains all specific operational data for an *Flm* component.

### ATTRIBUTE Lp E1 Chan Flm flmStatus (status)

Access — Read only

Description — This attribute indicates the status of a Frame Relay channel on an E1 line. By combining the E1 channel-associated-signalling (CAS) A-bits status, and HDLC defect, a single value indicates the likely cause of the failure. This mechanism assumes that the far end equipment loops back signaling A-bits for some or all of the timeslots in a channel. The A-bits in channel are transmitted as ‘0’. If they are all received as ‘0’, it is assumed that the E1 link is up in both directions. The presence of HDLC frames indicates that the service is connected.

When A-bits and HDLC frames are correctly received, ***frameLinkUp*** is indicated.

When neither are received, ***frameLinkDown*** is indicated.

When HDLC frames are not receive but A-bits are not at fault, ***lossOfHdlc*** is indicated.

When HDLC frames are received, but there is a fault in any of timeslot’s A-bits on a channel ***lossOfAbit*** is indicated.

Values — notMonitoring
frameLinkUp
frameLinkDown
lossOfHdlc
lossOfAbit

Default — No default

### COMPONENT Lp E1 Test (Test)

Groups — "GROUP Lp E1 Test OsiState (State)"
"GROUP Lp E1 Test Setup (Setup)"
"GROUP Lp E1 Test Results (Results)"

Scope — Application

| | |
|---|---|
| Description | The *Test* component is configured to control a hardware facility test on a physical (*V35*, *X21*, *DS1*, *E1*, *DS3*, *E3* etc.) or a logical port. |
| Common Verbs | Help<br>List<br>Display |

### VERB START Lp E1 Test

| | |
|---|---|
| Impact | Service |
| Description | This command invokes a test on the hardware component. Note that some test types requires the parent component (the hardware component) to be locked (using the *Lock* command) before a test can be started. |

### VERB STOP Lp E1 Test

| | |
|---|---|
| Impact | Service |
| Description | This command stops a test running on the hardware component. |

### GROUP Lp E1 Test OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Lp E1 Test adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. |

When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Lp E1 Test operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Lp E1 Test usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Lp E1 Test Setup (Setup)

Properties
Operational

Description
This group contains all of the operational data for a *Test* component.

### ATTRIBUTE Lp E1 Test purpose (purpose)

Access
Read and write

Description
This attribute records the purpose of the test so that the test results can be associated and properly analyzed.

Values
String (0..40, ASCII)

Default
No default

### ATTRIBUTE Lp E1 Test type (type)

Access
Read and write

Description
This attribute is the type of test to be run. The available test types include the following:
***card*** test sets up an internal loop on the board and runs a bit error rate test.
***manual*** test assumes the line is looped back externally and a bit error rate test is performed.
***localLoop*** test loops back the local modem and performs a bit error rate test.

***remoteLoop*** test loops back the remote modem (or CSU) and performs a bit error rate test.
***externalLoop*** test loops back the line to the far end.
***payloadLoop*** test only loops back the payload data received from the incoming line.
***remoteLoopThisTrib*** loops this particular tributary back at the far end, using services provided by the parent.
***v54RemoteLoop*** initiates a V.54 Remote Loopback test.
***pn127RemoteLoop*** initiates a PN127 Remote Loopback test.
***lineBIP8Error*** tests line BIP 8 error generation and detection (B2 byte inverted).
***sectionBIP8Error*** tests section BIP 8 error generation and detection (B1 byte inverted).
***pathBIP8Error*** tests path BIP 8 error generation and detection (B3 byte inverted).
***pathBIP2Error*** tests path BIP 2 error generation and detection (bit 1-2 of V5 byte inverted).
Note that not all test types are not supported by all function processors.

Values

card
manual
localLoop
remoteLoop
externalLoop
payloadLoop
remoteLoopThisTrib
v54RemoteLoop
pn127RemoteLoop
lineBIP8Error
sectionBIP8Error
pathBIP8Error
pathBIP2Error

Default

card

## ATTRIBUTE Lp E1 Test frmSize (size)

Access

Read and write

Description

This attribute defines the size of the test data frames in number of bytes.

| | |
|---|---|
| | This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |
| Values | Decimal (4..4096) |
| Units | bytes |
| Default | 1024 |

### ATTRIBUTE Lp E1 Test frmPatternType (fpt)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the type of data pattern generation to use. The following lists the available pattern types:<br>***ccitt32kBitPattern*** is a pseudo-random sequence of 32 kbit.<br>***ccitt8MBitPattern*** is a pseudo-random sequence of 8Mbit.<br>***customizedPattern*** is the pattern defined in the ***customizedPattern*** attribute. |
| Values | ccitt32kBitPattern<br>ccitt8MBitPattern<br>customizedPattern |
| Default | ccitt32kBitPattern |

### ATTRIBUTE Lp E1 Test customizedPattern (cp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute allows a customized 32 bit pattern to be defined for use in the test data frames. This attribute is used when the attribute *frmPatternType* is set to ***CustomizedPattern***. Note that a 55 hex pattern is an alternating 1 and 0 pattern. |
| Values | Hex (H.0..H.ffffffff) |
| Units | Hex |
| Default | H.55555555 |

### ATTRIBUTE Lp E1 Test dataStartDelay (dsd)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute specifies the time delay (in seconds) between when the test expects the loop to have been set up, to when the test data actually starts to be transmitted. This attribute is to accommodate some non-standard equipment that requires extra time for setting up a requested loop.<br>This attribute is ignored when the test *type* is set to ***externalLoop***. |
| Values | Decimal (0..1814400) |
| Units | seconds |
| Default | 0 |

### ATTRIBUTE Lp E1 Test displayInterval (di)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the interval (in minutes) between which interim test results are to be displayed. Results are displayed at the operator console at which the test was started. When the test *type* is set to ***externalLoop***, this attribute is ignored. There will be no display of results if *displayInterval* is set to 0. This attribute can be changed anytime. |
| Values | Decimal (0..30240) |
| Units | minutes |
| Default | 5 |

### ATTRIBUTE Lp E1 Test duration

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the duration for which the test data will be transmitted. In the case of an ***externalLoop***, this is the time that the loop is in effect. Note that *dataStartDelay* does not apply to the ***externalLoop*** test type. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 1.00 |

## GROUP Lp E1 Test Results (Results)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all the statistics related attributes of the *Test* component. |

## ATTRIBUTE Lp E1 Test causeOfTermination

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates either the status of the test or the cause of the test's termination:<br><br>a value of ***neverStarted*** indicates that the test has not yet been started.<br><br>a value of ***testRunning*** indicates that the test has been started.<br><br>a value of ***stoppedByOperator*** indicates that the operator issued a stop command on a test that was running.<br><br>a value of ***testTimeExpired*** indicates that the test ran for the time specified by the test's *duration*.<br><br>a value of ***loopCodeSyncFailed*** indicates that the local end failed to synchronize to the loopCode pattern. The local end transmits the loopCode pattern to cause the remote end to apply a loopback, after which the local end should receive the loopCode pattern. The exact pattern used to request loopCode depends on the test *type*. This failure indicates a high rate of transmission errors, or that the remote end has failed to apply the loopback.<br><br>a value of ***patternSyncFailed*** indicates that the local end failed to synchronize to the *frmPatternType* test pattern, that should have been looped back at the remote end. This failure indicates a high rate of transmission errors or the absence of a loopback.<br><br>a value of ***patternSyncLost*** indicates that the local end gained and then lost synchronization to the returned *frmPatternType* test pattern. This failure indicates a sudden increase in transmission errors, frame slippage, or the removal of an existing loopback. |

a value of ***unknown*** is set when a reason to terminate other than those listed here is encountered.

Note: The *causeOfTermination* attribute values of ***loopCodeSyncFailed***, ***patternSyncFailed*** and ***patternSyncLost*** are supported only on MSA cards. *Test* components located on other cards or under an *Ima* component on an MSA card will never terminate the test under the conditions described by these values.

Values
testTimeExpired
stoppedByOperator
unknown
neverStarted
testRunning
hardwareReconfigured
loopCodeSyncFailed
patternSyncFailed
patternSyncLost

Default
neverStarted

### ATTRIBUTE Lp E1 Test bitsTx

Access
Read only

Description
This attribute counts the bits sent during the test period. As long as the line speed of the hardware interface is less than 70 Mbit/s, this counter is not expected to reach the maximum value.

Values
Long Integer

Default
No default

### ATTRIBUTE Lp E1 Test bytesTx

Access
Read only

Description
This attribute counts the bytes sent during the test period. This counter is not expected to reach its maximum value.

Values
Long Integer

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Lp E1 Test frmTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames sent during the test period. This counter is not expected to reach its maximum value.<br><br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp E1 Test bitsRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bits received during the test period. The counter wraps to zero when it exceeds the maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp E1 Test bytesRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes received during the test period. The counter wraps to zero when it exceeds its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp E1 Test frmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received during the test period. The counter wraps to zero when it exceeds its maximum value.<br><br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |

| | |
|---|---|
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp E1 Test erroredFrmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute is not displayed for ATM and MSA32 cards. For ATM cards, the physical layer drops all errored frames at the controller interface. For MSA32 cards, the test does not generate any frame.<br><br>For all other card types, this attribute counts the errored frames received during the test period. The counter wraps to zero when it exceeds its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp E1 Test bitErrorRate

| | |
|---|---|
| Access | Read only |
| Description | This attribute is not displayed for ATM cards because the physical layer drops all errored frames at the controller interface. For MSA32 cards, this attribute indicates the link bit error rate, regardless of the *frameSize*, which is not supported<br><br>For all other card types, this attribute is the calculated bit error rate on the link. Test data are generated and sent in frames of a preset size (*frameSize*). The *Test* component will try to estimate the number of bit errors in any errored frame which is identifiable. The statistics will be updated accordingly. A lost frame (may be due to an error on the flag sequence) will be discarded for the bit error rate calculation. The result is presented in the form of xEsyy, where x is the mantissa, syy is the exponent, for example 0E+00, 2E-09.<br>Note that the *bitErrorRate* is an estimate only. For more reliable test results, the test should be done over a long period. Multiple tests would also improve the confidence level of the test results. |
| Values | String (5, ASCII) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Lp E1 Test elapsedTime

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the time elapsed since the test started for an ***externalLoop*** test. For a data test, it indicates time since test data was first transmitted. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 0.00 |

### ATTRIBUTE Lp E1 Test timeRemaining

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the length of time remaining before the test stops according to the *duration* attribute. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 0.00 |

### COMPONENT Lp E1 Dsp

| | |
|---|---|
| Scope | Device |
| Description | *LogicalProcessor/n E1/0 Dsp*<br>The *Dsp* component presents the status of the Digital Signal Processors (DSPs) present on a voice card.<br>A voice card's *Dsp* component is created automatically whenever the parent E1 component becomes active, and remains in existence as long as the E1 component exists. *Dsp* components cannot be added or deleted. |
| Common Verbs | Help<br>List<br>Display |

## COMPONENT Lp E1 Audio

| | |
|---|---|
| Scope | Device |
| Description | *LogicalProcessor/n E1/0 Audio*<br>The *Audio* component presents the audio status of the channels on a voice card.<br>A voice card's *Audio* component is created automatically whenever the parent E1 component becomes active, and remains in existence as long as the E1 component exists. *Audio* components cannot be added or deleted. |
| Common Verbs | Help<br>List<br>Display |

## COMPONENT Lp V35

| | |
|---|---|
| Instance | Decimal (0..7) |
| Groups | "GROUP Lp V35 Provisioned (Prov)"<br>"GROUP Lp V35 CustomerIdentifierData (CidData)"<br>"GROUP Lp V35 AdminInfo (AdminInfo)"<br>"GROUP Lp V35 IfEntryProv (IfEntry)"<br>"GROUP Lp V35 OperationalStatus (OperStatus)"<br>"GROUP Lp V35 OsiState (State)"<br>"GROUP Lp V35 Operational (Oper)" |
| Scope | Application |
| Description | *Lp/n V35/n*<br><br>The *V35* component controls a Passport V.35 interface. |

| | |
|---|---|
| Dyn. Subcomp. | "COMPONENT Lp V35 Test (Test)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

### GROUP Lp V35 Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all specific provisioning data for a *V35* component. |

### ATTRIBUTE Lp V35 linkMode (mode)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the intended gender of the V.35 interface. The actual gender of the interface is determined by the physical connection to the patch panel. If the hardware setup does not match this attribute, an alarm will be generated.<br><br>In ***dte*** mode, the RTS line signal is driven as specified by the attribute *readyLineState* when the interface passes its initial diagnostics. Then, the RTS line signal will be driven as specified in the attribute *dataTransferLineState* when the application is ready to transfer data. On the other hand, the input line signals (RFS, DSR, and DCD) are compared against those specified in the attributes *readyLineState* and *dataTransferLineState*. The application will be notified when the specified input line states are observed.<br><br>In ***dce*** mode, the *V35* component behaves similarly as when it is in ***dte*** mode. However, it will be driving the DCE line signals (RFS, DSR, and DCD) and monitoring the DTE line signal (RTS) |

| | |
|---|---|
| | as specified by the attributes *readyLineState* and *dataTransferLineState*. |
| Values | dte<br>dce |
| Default | dte |

### ATTRIBUTE Lp V35 readyLineState (rls)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the line signals originating from the V.35 interface that will always be turned on, provided the interface passes its diagnostics. This set of signals is generally required for maintaining the connection. Note that both DTE and DCE signals are specified in this attribute. The appropriate set of specified signals will be turned on or checked according to the *actualLinkMode*.<br>See also *linkMode*. |
| Set of | rfs<br>dsr<br>dcd<br>rts |
| Default | (rfs, dsr, dcd, rts) |

### ATTRIBUTE Lp V35 dataTransferLineState (dtls)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the line signals required to indicate that the external equipment is in a good state (that is, data transfer can proceed). Note that both DTE and DCE signals are specified in this attribute. The appropriate set of specified signals will be turned on or checked according to the *actualLinkMode*. The value of this attribute must be a superset of that of the *readyLineState* attribute.<br>See also *linkMode*. |

| | |
|---|---|
| Set of | rfs<br>dsr<br>dcd<br>rts |
| Default | (rfs, dsr, dcd, rts) |

### ATTRIBUTE Lp V35 lineStatusTimeOut (lsto)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the time that the line state must be stable (good or bad) before a line state change is declared. |
| Values | Decimal (10..20000) |
| Units | msec |
| Default | 1000 |

### ATTRIBUTE Lp V35 lineSpeed (speed)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the speed of the line for source clocking. This attribute is ignored if the interface is not providing a clock. The clock rate is rounded up to the nearest available value. Note that the actual clock rates are available in the operational attributes *actualTxLineSpeed* and *actualRxLineSpeed*. The actual lineSpeeds configurable on a V.35 DCE interface are: 3840000, 2560000, 2048000, 1920000, 1536000, 1344000, 1280000, 1024000, 960000, 768000, 672000, 640000, 512000, 448000, 384000, 336000, 320000, 256000, 224000, 192000, 168000, 128000, 112000, 64000, 56000, 48000, 32000, 19200, 9600. Note that linespeeds of 1024000 and 2048000 cannot be provisioned on cards that have ports provisioned at 3840000, 2560000, 1920000, 1280000, 960000, 640000 or 320000. |
| Values | Decimal (9600..3840000) |
| Units | bit/s |

| | |
|---|---|
| Default | 192000 |

### ATTRIBUTE Lp V35 clockingSource (clockingSource)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the source of synchronization of the outgoing clocks. This attribute is only used when the *actualLinkMode* is ***dce***.<br><br>If the value of the attribute is ***local***, the outgoing clocks are synchronized to a local oscillator on the FP.<br><br>If the value of the attribute is ***module***, the outgoing clocks are synchronized to the oscillator on the active CP. |
| Values | local<br>module |
| Default | No default |

### ATTRIBUTE Lp V35 dteDataClockSource (rxClk)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is only used when the *actualLinkMode* is ***dce***. It is used to determine the clock to be used to recover the receive data. A DTE interface uses TSET(DCE) and RSET(DCE) for timing.<br><br>If the value of the attribute is ***fromDce***, the DCE uses the internally generated transmit clock to supply both TSET(DCE) and RSET(DCE).<br><br>If the value of the attribute is ***fromDte***, the DCE still uses the internally generated transmit clock to supply TSET(DCE), but the receive timing is derived from TSET(DTE) on the link.<br><br>The ***fromDte*** mode is recommended when the DTE is far away from the DCE interface. Note that TSET(DTE) is CCITT V.24 circuit 113; TSET(DCE) is CCITT V.24 circuit 114; and RSET(DCE) is CCITT V.24 circuit 115. |
| Values | fromDce<br>fromDte |

| | |
|---|---|
| Default | fromDce |

### ATTRIBUTE Lp V35 applicationFramerName (framer)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute contains the component name of a *Framer* which is associated with the *V35* component. |
| Values | Link (Service, interfaceName) |
| Default | No default |

### ATTRIBUTE Lp V35 enableDynamicSpeed (dynamic)

| | |
|---|---|
| Access | Read and write |
| Description | When set to ***yes***, this attribute specifies that the transmit link speed should be set to the calculated receiver link speed. This attribute can be set to ***yes*** only if the *linkMode* is ***dce*** and the *dteDataClockSource* is ***fromDte***. |
| Values | yes<br>no |
| Default | no |

### GROUP Lp V35 CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

### ATTRIBUTE Lp V35 customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0. |

Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.

An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to "basic CIDs" in DPN) may be assigned to specific customers.

| | |
|---|---|
| Values | Decimal (0; 1..8191) |
| Default | 0 |

### GROUP Lp V35 AdminInfo (AdminInfo)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attributes pertaining to the vendor of the equipment. |

### ATTRIBUTE Lp V35 vendor

| | |
|---|---|
| Access | Read and write |
| Description | This is the name of the vendor supplying the facility. |
| Values | String (0..20, ASCII) |
| Default | No default |

### ATTRIBUTE Lp V35 commentText

| | |
|---|---|
| Access | Read and write |
| Description | Any miscellaneous text about the facility. |
| Values | String (0..60, ASCII) |
| Default | No default |

### GROUP Lp V35 IfEntryProv (IfEntry)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the ifEntry. |

### ATTRIBUTE Lp V35 ifAdminStatus (ifState)

| | |
|---|---|
| Access | Read and write |
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE Lp V35 ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP Lp V35 OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

### ATTRIBUTE Lp V35 snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |

| | |
|---|---|
| Values | up<br>down<br>testing |
| Default | up |

### GROUP Lp V35 OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Lp V35 adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |

| | |
|---|---|
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Lp V35 operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Lp V35 usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
idle
active (activ)
busy

Default
idle

### ATTRIBUTE Lp V35 availabilityStatus (osiAvail)

Access
Read only

Description
If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.

The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.

The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.

The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.

The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

## ATTRIBUTE Lp V35 proceduralStatus (osiProc)

Access

Read only

| | |
|---|---|
| Description | If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.<br><br>The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.<br><br>The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.<br><br>The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.<br><br>The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***. |
| Set of | initializationRequired (initRq)<br>notInitialized (notInit)<br>initializing (init)<br>reporting (report)<br>terminating (term) |
| Default | No default |

## ATTRIBUTE Lp V35 controlStatus (osiCntrl)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.<br><br>The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.<br><br>The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.<br><br>The value ***suspended*** indicates that the service has been administratively suspended. |
| Set of | subjectToTest (subTst)<br>partOfServicesLocked (partLk)<br>reservedForTest (rsrvd)<br>suspended (suspnd) |
| Default | No default |

## ATTRIBUTE Lp V35 alarmStatus (osiAlarm)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user. |

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE Lp V35 standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not

supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values
hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

Default
notSet

### ATTRIBUTE Lp V35 unknownStatus (osiUnknw)

Access
Read only

Description
This attribute indicates the OSI Unknown status of the component.

The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.

The value ***true*** indicates that the actual state of the component is not known for sure.

Values
false
true

Default
false

## GROUP Lp V35 Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all specific operational data for a *V35* component. |

## ATTRIBUTE Lp V35 actualLinkMode

| | |
|---|---|
| Access | Read only |
| Description | This attribute contains the actual link mode defined by the hardware. Note that the hardware overrides the provisionable data. The interface behaves as a DCE or DTE according to the *actualLinkMode*. |
| Values | dte<br>dce |
| Default | No default |

## ATTRIBUTE Lp V35 lineState

| | |
|---|---|
| Access | Read only |
| Description | This attribute contains the current state of the interface signals. |
| Set of | rfs<br>dsr<br>dcd<br>rts |
| Default | No default |

## ATTRIBUTE Lp V35 actualTxLineSpeed

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the measured speed of the transmit clock. |
| Values | Decimal (0..4294967295) |
| Units | bit/s |
| Default | No default |

### ATTRIBUTE Lp V35 actualRxLineSpeed

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the measured speed of the receive clock. |
| Values | Decimal (0..4294967295) |
| Units | bit/s |
| Default | No default |

### ATTRIBUTE Lp V35 dataXferStateChanges

| | |
|---|---|
| Access | Read only |
| Description | This attribute contains the number of times that the line has entered or exited the data transfer state. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT Lp V35 Test (Test)

| | |
|---|---|
| Groups | "GROUP Lp V35 Test OsiState (State)"<br>"GROUP Lp V35 Test Setup (Setup)"<br>"GROUP Lp V35 Test Results (Results)" |
| Scope | Application |
| Description | The *Test* component is configured to control a hardware facility test on a physical (*V35*, *X21*, *DS1*, *E1*, *DS3*, *E3* etc.) or a logical port. |
| Common Verbs | Help<br>List<br>Display |

### VERB START Lp V35 Test

| | |
|---|---|
| Impact | Service |
| Description | This command invokes a test on the hardware component. Note that some test types requires the parent component (the hardware component) to be locked (using the *Lock* command) before a test can be started. |

### VERB STOP Lp V35 Test

| | |
|---|---|
| Impact | Service |
| Description | This command stops a test running on the hardware component. |

### GROUP Lp V35 Test OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Lp V35 Test adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is |

administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Lp V35 Test operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Lp V35 Test usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

| | |
|---|---|
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Lp V35 Test Setup (Setup)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all of the operational data for a *Test* component. |

### ATTRIBUTE Lp V35 Test purpose (purpose)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute records the purpose of the test so that the test results can be associated and properly analyzed. |
| Values | String (0..40, ASCII) |
| Default | No default |

### ATTRIBUTE Lp V35 Test type (type)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the type of test to be run. The available test types include the following:<br>***card*** test sets up an internal loop on the board and runs a bit error rate test.<br>***manual*** test assumes the line is looped back externally and a bit error rate test is performed.<br>***localLoop*** test loops back the local modem and performs a bit error rate test.<br>***remoteLoop*** test loops back the remote modem (or CSU) and performs a bit error rate test.<br>***externalLoop*** test loops back the line to the far end.<br>***payloadLoop*** test only loops back the payload data received from the incoming line.<br>***remoteLoopThisTrib*** loops this particular tributary back at the far end, using services provided by the parent.<br>***v54RemoteLoop*** initiates a V.54 Remote Loopback test.<br>***pn127RemoteLoop*** initiates a PN127 Remote Loopback test. |

***lineBIP8Error*** tests line BIP 8 error generation and detection (B2 byte inverted).
***sectionBIP8Error*** tests section BIP 8 error generation and detection (B1 byte inverted).
***pathBIP8Error*** tests path BIP 8 error generation and detection (B3 byte inverted).
***pathBIP2Error*** tests path BIP 2 error generation and detection (bit 1-2 of V5 byte inverted).
Note that not all test types are not supported by all function processors.

Values
card
manual
localLoop
remoteLoop
externalLoop
payloadLoop
remoteLoopThisTrib
v54RemoteLoop
pn127RemoteLoop
lineBIP8Error
sectionBIP8Error
pathBIP8Error
pathBIP2Error

Default
card

## ATTRIBUTE Lp V35 Test frmSize (size)

Access
Read and write

Description
This attribute defines the size of the test data frames in number of bytes.
This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame.

Values
Decimal (4..4096)

Units
bytes

Default
1024

### ATTRIBUTE Lp V35 Test frmPatternType (fpt)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the type of data pattern generation to use. The following lists the available pattern types:<br>***ccitt32kBitPattern*** is a pseudo-random sequence of 32 kbit.<br>***ccitt8MBitPattern*** is a pseudo-random sequence of 8Mbit.<br>***customizedPattern*** is the pattern defined in the ***customizedPattern*** attribute. |
| Values | ccitt32kBitPattern<br>ccitt8MBitPattern<br>customizedPattern |
| Default | ccitt32kBitPattern |

### ATTRIBUTE Lp V35 Test customizedPattern (cp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute allows a customized 32 bit pattern to be defined for use in the test data frames. This attribute is used when the attribute *frmPatternType* is set to ***CustomizedPattern***. Note that a 55 hex pattern is an alternating 1 and 0 pattern. |
| Values | Hex (H.0..H.ffffffff) |
| Units | Hex |
| Default | H.55555555 |

### ATTRIBUTE Lp V35 Test dataStartDelay (dsd)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time delay (in seconds) between when the test expects the loop to have been set up, to when the test data actually starts to be transmitted. This attribute is to accommodate some non-standard equipment that requires extra time for setting up a requested loop.<br>This attribute is ignored when the test *type* is set to ***externalLoop***. |
| Values | Decimal (0..1814400) |
| Units | seconds |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE Lp V35 Test displayInterval (di)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the interval (in minutes) between which interim test results are to be displayed. Results are displayed at the operator console at which the test was started. When the test *type* is set to ***externalLoop***, this attribute is ignored. There will be no display of results if *displayInterval* is set to 0. This attribute can be changed anytime. |
| Values | Decimal (0..30240) |
| Units | minutes |
| Default | 5 |

### ATTRIBUTE Lp V35 Test duration

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the duration for which the test data will be transmitted. In the case of an ***externalLoop***, this is the time that the loop is in effect. Note that *dataStartDelay* does not apply to the ***externalLoop*** test type. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 1.00 |

### GROUP Lp V35 Test Results (Results)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all the statistics related attributes of the *Test* component. |

### ATTRIBUTE Lp V35 Test causeOfTermination

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates either the status of the test or the cause of the test's termination: |

a value of ***neverStarted*** indicates that the test has not yet been started.

a value of ***testRunning*** indicates that the test has been started.

a value of ***stoppedByOperator*** indicates that the operator issued a stop command on a test that was running.

a value of ***testTimeExpired*** indicates that the test ran for the time specified by the test's *duration*.

a value of ***loopCodeSyncFailed*** indicates that the local end failed to synchronize to the loopCode pattern. The local end transmits the loopCode pattern to cause the remote end to apply a loopback, after which the local end should receive the loopCode pattern. The exact pattern used to request loopCode depends on the test *type*. This failure indicates a high rate of transmission errors, or that the remote end has failed to apply the loopback.

a value of ***patternSyncFailed*** indicates that the local end failed to synchronize to the *frmPatternType* test pattern, that should have been looped back at the remote end. This failure indicates a high rate of transmission errors or the absence of a loopback.

a value of ***patternSyncLost*** indicates that the local end gained and then lost synchronization to the returned *frmPatternType* test pattern. This failure indicates a sudden increase in transmission errors, frame slippage, or the removal of an existing loopback.

a value of ***unknown*** is set when a reason to terminate other than those listed here is encountered.

Note: The *causeOfTermination* attribute values of ***loopCodeSyncFailed***, ***patternSyncFailed*** and ***patternSyncLost*** are supported only on MSA cards. *Test* components located on other cards or under an *Ima* component on an MSA card will never terminate the test under the conditions described by these values.

| | |
|---|---|
| Values | testTimeExpired<br>stoppedByOperator<br>unknown<br>neverStarted<br>testRunning<br>hardwareReconfigured<br>loopCodeSyncFailed<br>patternSyncFailed<br>patternSyncLost |
| Default | neverStarted |

### ATTRIBUTE Lp V35 Test bitsTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bits sent during the test period. As long as the line speed of the hardware interface is less than 70 Mbit/s, this counter is not expected to reach the maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp V35 Test bytesTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes sent during the test period. This counter is not expected to reach its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp V35 Test frmTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames sent during the test period. This counter is not expected to reach its maximum value.<br><br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |
| Values | Long Integer |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Lp V35 Test bitsRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bits received during the test period. The counter wraps to zero when it exceeds the maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp V35 Test bytesRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes received during the test period. The counter wraps to zero when it exceeds its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp V35 Test frmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received during the test period. The counter wraps to zero when it exceeds its maximum value.<br><br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp V35 Test erroredFrmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute is not displayed for ATM and MSA32 cards. For ATM cards, the physical layer drops all errored frames at the controller interface. For MSA32 cards, the test does not generate any frame. |

For all other card types, this attribute counts the errored frames received during the test period. The counter wraps to zero when it exceeds its maximum value.

Values: Long Integer

Default: No default

### ATTRIBUTE Lp V35 Test bitErrorRate

Access: Read only

Description: This attribute is not displayed for ATM cards because the physical layer drops all errored frames at the controller interface. For MSA32 cards, this attribute indicates the link bit error rate, regardless of the *frameSize*, which is not supported

For all other card types, this attribute is the calculated bit error rate on the link. Test data are generated and sent in frames of a preset size (*frameSize*). The *Test* component will try to estimate the number of bit errors in any errored frame which is identifiable. The statistics will be updated accordingly. A lost frame (may be due to an error on the flag sequence) will be discarded for the bit error rate calculation. The result is presented in the form of xEsyy, where x is the mantissa, syy is the exponent, for example 0E+00, 2E-09.
Note that the *bitErrorRate* is an estimate only. For more reliable test results, the test should be done over a long period. Multiple tests would also improve the confidence level of the test results.

Values: String (5, ASCII)

Default: No default

### ATTRIBUTE Lp V35 Test elapsedTime

Access: Read only

Description: This attribute indicates the time elapsed since the test started for an ***externalLoop*** test. For a data test, it indicates time since test data was first transmitted.

Values: Decimal (0.00..30240.00)

Units: minutes

| | |
|---|---|
| Default | 0.00 |

### ATTRIBUTE Lp V35 Test timeRemaining

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the length of time remaining before the test stops according to the *duration* attribute. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 0.00 |

### COMPONENT Lp X21

| | |
|---|---|
| Instance | Decimal (0..7) |
| Groups | "GROUP Lp X21 Provisioned (Prov)"<br>"GROUP Lp X21 CustomerIdentifierData (CidData)"<br>"GROUP Lp X21 AdminInfo (AdminInfo)"<br>"GROUP Lp X21 IfEntryProv (IfEntry)"<br>"GROUP Lp X21 OperationalStatus (OperStatus)"<br>"GROUP Lp X21 OsiState (State)"<br>"GROUP Lp X21 Operational (Oper)" |
| Scope | Application |
| Description | *Lp/n X21/n*<br><br>The *X21* component controls a Passport V.11 interface. |
| Dyn. Subcomp. | "COMPONENT Lp X21 Test (Test)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP Lp X21 Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all specific provisioning data for an *X21* component. |

## ATTRIBUTE Lp X21 linkMode (mode)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the intended gender of the *X21* component (V.11 interface). The actual gender of the interface is determined by the physical connection to the patch panel. If the hardware setup does not match this attribute, an alarm will be generated.<br><br>In ***dte*** mode, the ***control*** line signal is driven as specified by the attribute *readyLineState* when the interface passes its initial diagnostics. Then, the ***control*** line signal will be driven as specified in the attribute *dataTransferLineState* when the application is ready to transfer data. On the other hand, the input line signal (***indication***) is compared against those specified in the attributes *readyLineState* and *dataTransferLineState*. The application will be notified when the specified line states are observed.<br><br>In ***dce*** mode, the *X21* component behaves similarly as when it is in ***dte*** mode. However, it will be driving the DCE line signal (***indication***) and monitoring the DTE line signal (***control***) as specified by the attributes *readyLineState* and *dataTransferLineState*. |
| Values | dte<br>dce |
| Default | dte |

## ATTRIBUTE Lp X21 readyLineState (rls)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the line signals originating from the V.11 interface that will always be turned on, provided the interface |

passes its diagnostics. This set of signals is generally required to maintain the connection. Note that both DTE and DCE signals are specified in this attribute. The appropriate set of specified signals will be turned on or checked according to the *actualLinkMode*.
See also *linkMode*.

Set of: indication
control

Default: (indication, control)

### ATTRIBUTE Lp X21 dataTransferLineState (dtls)

Access: Read and write

Description: The state of the line signals required to indicate that the external equipment is in a good state (that is, data transfer can proceed). Note that both DTE and DCE signals are specified in this attribute. The appropriate set of specified signals will be turned on or checked according to the *actualLinkMode*. The value of this attribute must be a superset of that of the *readyLineState* attribute.
See also *linkMode*.

Set of: indication
control

Default: (indication, control)

### ATTRIBUTE Lp X21 lineStatusTimeOut (lsto)

Access: Read and write

Description: This attribute defines the time the line state must be stable (good or bad) before a state change is declared.

Values: Decimal (10..20000)

Units: msec

Default: 1000

### ATTRIBUTE Lp X21 lineSpeed (speed)

Access: Read and write

| | |
|---|---|
| Description | This attribute defines the speed of the line for source clocking. This attribute is ignored if the interface is not providing a clock. The clock rate is rounded up to the nearest available value. Note that the actual clock rates are available in the operational attributes *actualTxLineSpeed* and *actualRxLineSpeed*. The actual lineSpeeds configurable on a V.11 DCE interface are: 7680000, 3840000, 2560000, 2048000, 1920000, 1536000, 1344000, 1280000, 1024000, 960000, 768000, 672000, 640000, 512000, 448000, 384000, 336000, 320000, 256000, 224000, 192000, 168000, 128000, 112000, 64000, 56000, 48000, 32000, 19200, 9600. Note that linespeeds of 1024000 and 2048000 cannot be provisioned on cards that have ports provisioned at 3840000, 2560000, 1920000, 1280000, 960000, 640000 or 320000. |
| Values | Decimal (9600..7680000) |
| Units | bit/s |
| Default | 192000 |

### ATTRIBUTE Lp X21 clockingSource (clockingSource)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the source of synchronization of the outgoing clocks. This attribute is only used when the *actualLinkMode* is ***dce***.<br><br>If the value of the attribute is *local*, the outgoing clocks are synchronized to a local oscillator on the FP.<br><br>If the value of the attribute is *module*, the outgoing clocks are synchronized to the oscillator on the active CP. |
| Values | local<br>module |
| Default | No default |

### ATTRIBUTE Lp X21 dteDataClockSource (rxClk)

| | |
|---|---|
| Access | Read and write |

Description

This attribute is only used when the *actualLinkMode* is ***dce***. It is used to determine the clock to be used to recover the receive data. Note that a V.11 DTE interface uses the S clock (see X.21 standard) for both receive data and transmit data timing. The DTE interface always loops the received S clock back to the DCE as the X clock (see X.21 standard).

If the value of the attribute is ***fromDce***, the DCE V.11 interface uses the internally generated transmit clock as the S clock and for both receive and transmit data timing. The X clock is ignored.

If the value of the attribute is ***fromDte***, the DCE still uses the internally generated transmit clock as the S clock and for transmit data timing, but the receive data timing is derived from the X clock.

The ***fromDte*** mode is recommended when the DTE is far away from the DCE interface.

Values

fromDce
fromDte

Default

fromDce

### ATTRIBUTE Lp X21 lineTerminationRequired (ltr)

Access

Read and write

Description

This attribute specifies whether termination is required for this interface. If the hardware setup does not match this attribute, an alarm will be generated.

Values

yes
no

Default

yes

### ATTRIBUTE Lp X21 applicationFramerName (framer)

Access

Read and write

Description

This attribute contains the component name of a *Framer* which is associated with the *X21* component.

| | |
|---|---|
| Values | Link (Service, interfaceName) |
| Default | No default |

### ATTRIBUTE Lp X21 enableDynamicSpeed (dynamic)

| | |
|---|---|
| Access | Read and write |
| Description | When set to ***yes***, this attribute specifies that the transmit link speed should be set to the calculated receiver link speed. This attribute can be set to ***yes*** only if the *linkMode* is ***dce*** and the *dteDataClockSource* is ***fromDte***.. |
| Values | yes<br>no |
| Default | no |

### GROUP Lp X21 CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

### ATTRIBUTE Lp X21 customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.<br><br>Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.<br><br>An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of |

| | |
|---|---|
| | any component. Values 1 to 8191 inclusive (equivalent to “basic CIDs” in DPN) may be assigned to specific customers. |
| Values | Decimal (0; 1..8191) |
| Default | 0 |

### GROUP Lp X21 AdminInfo (AdminInfo)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attributes pertaining to the vendor of the equipment. |

### ATTRIBUTE Lp X21 vendor

| | |
|---|---|
| Access | Read and write |
| Description | This is the name of the vendor supplying the facility. |
| Values | String (0..20, ASCII) |
| Default | No default |

### ATTRIBUTE Lp X21 commentText

| | |
|---|---|
| Access | Read and write |
| Description | Any miscellaneous text about the facility. |
| Values | String (0..60, ASCII) |
| Default | No default |

### GROUP Lp X21 IfEntryProv (IfEntry)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the ifEntry. |

### ATTRIBUTE Lp X21 ifAdminStatus (ifState)

| | |
|---|---|
| Access | Read and write |
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed. |

| | |
|---|---|
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE Lp X21 ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP Lp X21 OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

### ATTRIBUTE Lp X21 snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### GROUP Lp X21 OsiState (State)

| | |
|---|---|
| Properties | Operational |

Description

This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Lp X21 adminState (osiAdmin)

Access

Read only

Description

This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values

locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default

unlocked

### ATTRIBUTE Lp X21 operationalState (osiOper)

Access

Read only

| | |
|---|---|
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Lp X21 usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

## ATTRIBUTE Lp X21 availabilityStatus (osiAvail)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.<br><br>The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.<br><br>The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.<br><br>The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.<br><br>The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.<br><br>The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***. |

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

### ATTRIBUTE Lp X21 proceduralStatus (osiProc)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.

The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

### ATTRIBUTE Lp X21 controlStatus (osiCntrl)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the

attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

Set of: subjectToTest (subTst)
partOfServicesLocked (partLk)
reservedForTest (rsrvd)
suspended (suspnd)

Default: No default

### ATTRIBUTE Lp X21 alarmStatus (osiAlarm)

Access: Read only

Description: If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are

outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE Lp X21 standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and

containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values
hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

Default
notSet

### ATTRIBUTE Lp X21 unknownStatus (osiUnknw)

Access
Read only

Description
This attribute indicates the OSI Unknown status of the component.

The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.

The value ***true*** indicates that the actual state of the component is not known for sure.

Values
false
true

Default
false

### GROUP Lp X21 Operational (Oper)

Properties
Operational

Description
This group contains all specific operational data for an *X21* component.

### ATTRIBUTE Lp X21 actualLinkMode

Access
Read only

| | |
|---|---|
| Description | This attribute contains the actual link mode defined by the hardware. Note that the hardware overrides the provisionable data. The interface behaves as a DCE or DTE according to the *actualLinkMode*. |
| Values | dte<br>dce |
| Default | No default |

### ATTRIBUTE Lp X21 lineState

| | |
|---|---|
| Access | Read only |
| Description | This attribute contains the current state of the interface signals. |
| Set of | indication<br>control |
| Default | No default |

### ATTRIBUTE Lp X21 actualTxLineSpeed

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the measured speed of the transmit clock. |
| Values | Decimal (0..4294967295) |
| Units | bit/s |
| Default | No default |

### ATTRIBUTE Lp X21 actualRxLineSpeed

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the measured speed of the receive clock. |
| Values | Decimal (0..4294967295) |
| Units | bit/s |
| Default | No default |

### ATTRIBUTE Lp X21 dataXferStateChanges

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute contains the number of times that the line has entered or exited the data transfer state. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT Lp X21 Test (Test)

| | |
|---|---|
| Groups | "GROUP Lp X21 Test OsiState (State)"<br>"GROUP Lp X21 Test Setup (Setup)"<br>"GROUP Lp X21 Test Results (Results)" |
| Scope | Application |
| Description | The *Test* component is configured to control a hardware facility test on a physical (*V35*, *X21*, *DS1*, *E1*, *DS3*, *E3* etc.) or a logical port. |
| Common Verbs | Help<br>List<br>Display |

### VERB START Lp X21 Test

| | |
|---|---|
| Impact | Service |
| Description | This command invokes a test on the hardware component. Note that some test types requires the parent component (the hardware component) to be locked (using the *Lock* command) before a test can be started. |

### VERB STOP Lp X21 Test

| | |
|---|---|
| Impact | Service |
| Description | This command stops a test running on the hardware component. |

### GROUP Lp X21 Test OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state |

combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Lp X21 Test adminState (osiAdmin)

Access: Read only

Description: This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values: locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default: unlocked

### ATTRIBUTE Lp X21 Test operationalState (osiOper)

Access: Read only

Description: This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available

for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Lp X21 Test usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Lp X21 Test Setup (Setup)

Properties
Operational

Description
This group contains all of the operational data for a *Test* component.

### ATTRIBUTE Lp X21 Test purpose (purpose)

Access
Read and write

Description
This attribute records the purpose of the test so that the test results can be associated and properly analyzed.

Values
String (0..40, ASCII)

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Lp X21 Test type (type)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the type of test to be run. The available test types include the following:<br>***card*** test sets up an internal loop on the board and runs a bit error rate test.<br>***manual*** test assumes the line is looped back externally and a bit error rate test is performed.<br>***localLoop*** test loops back the local modem and performs a bit error rate test.<br>***remoteLoop*** test loops back the remote modem (or CSU) and performs a bit error rate test.<br>***externalLoop*** test loops back the line to the far end.<br>***payloadLoop*** test only loops back the payload data received from the incoming line.<br>***remoteLoopThisTrib*** loops this particular tributary back at the far end, using services provided by the parent.<br>***v54RemoteLoop*** initiates a V.54 Remote Loopback test.<br>***pn127RemoteLoop*** initiates a PN127 Remote Loopback test.<br>***lineBIP8Error*** tests line BIP 8 error generation and detection (B2 byte inverted).<br>***sectionBIP8Error*** tests section BIP 8 error generation and detection (B1 byte inverted).<br>***pathBIP8Error*** tests path BIP 8 error generation and detection (B3 byte inverted).<br>***pathBIP2Error*** tests path BIP 2 error generation and detection (bit 1-2 of V5 byte inverted).<br>Note that not all test types are not supported by all function processors. |
| Values | card<br>manual<br>localLoop<br>remoteLoop<br>externalLoop<br>payloadLoop<br>remoteLoopThisTrib<br>v54RemoteLoop |

pn127RemoteLoop
lineBIP8Error
sectionBIP8Error
pathBIP8Error
pathBIP2Error

Default card

### ATTRIBUTE Lp X21 Test frmSize (size)

Access Read and write

Description This attribute defines the size of the test data frames in number of bytes.
This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame.

Values Decimal (4..4096)

Units bytes

Default 1024

### ATTRIBUTE Lp X21 Test frmPatternType (fpt)

Access Read and write

Description This attribute defines the type of data pattern generation to use. The following lists the available pattern types:
***ccitt32kBitPattern*** is a pseudo-random sequence of 32 kbit.
***ccitt8MBitPattern*** is a pseudo-random sequence of 8Mbit.
***customizedPattern*** is the pattern defined in the ***customizedPattern*** attribute.

Values ccitt32kBitPattern
ccitt8MBitPattern
customizedPattern

Default ccitt32kBitPattern

### ATTRIBUTE Lp X21 Test customizedPattern (cp)

Access Read and write

Description This attribute allows a customized 32 bit pattern to be defined for use in the test data frames. This attribute is used when the

| | |
|---|---|
| | attribute *frmPatternType* is set to ***CustomizedPattern***. Note that a 55 hex pattern is an alternating 1 and 0 pattern. |
| Values | Hex (H.0..H.ffffffff) |
| Units | Hex |
| Default | H.55555555 |

### ATTRIBUTE Lp X21 Test dataStartDelay (dsd)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time delay (in seconds) between when the test expects the loop to have been set up, to when the test data actually starts to be transmitted. This attribute is to accommodate some non-standard equipment that requires extra time for setting up a requested loop.<br>This attribute is ignored when the test *type* is set to ***externalLoop***. |
| Values | Decimal (0..1814400) |
| Units | seconds |
| Default | 0 |

### ATTRIBUTE Lp X21 Test displayInterval (di)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the interval (in minutes) between which interim test results are to be displayed. Results are displayed at the operator console at which the test was started. When the test *type* is set to ***externalLoop***, this attribute is ignored. There will be no display of results if *displayInterval* is set to 0. This attribute can be changed anytime. |
| Values | Decimal (0..30240) |
| Units | minutes |
| Default | 5 |

### ATTRIBUTE Lp X21 Test duration

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute is the duration for which the test data will be transmitted. In the case of an ***externalLoop***, this is the time that the loop is in effect. Note that *dataStartDelay* does not apply to the ***externalLoop*** test type. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 1.00 |

### GROUP Lp X21 Test Results (Results)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all the statistics related attributes of the *Test* component. |

### ATTRIBUTE Lp X21 Test causeOfTermination

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates either the status of the test or the cause of the test's termination:<br><br>a value of ***neverStarted*** indicates that the test has not yet been started.<br><br>a value of ***testRunning*** indicates that the test has been started.<br><br>a value of ***stoppedByOperator*** indicates that the operator issued a stop command on a test that was running.<br><br>a value of ***testTimeExpired*** indicates that the test ran for the time specified by the test's *duration*.<br><br>a value of ***loopCodeSyncFailed*** indicates that the local end failed to synchronize to the loopCode pattern. The local end transmits the loopCode pattern to cause the remote end to apply a loopback, after which the local end should receive the loopCode pattern. The exact pattern used to request loopCode depends on the test *type*. This failure indicates a high rate of transmission errors, or that the remote end has failed to apply the loopback. |

a value of ***patternSyncFailed*** indicates that the local end failed to synchronize to the *frmPatternType* test pattern, that should have been looped back at the remote end. This failure indicates a high rate of transmission errors or the absence of a loopback.

a value of ***patternSyncLost*** indicates that the local end gained and then lost synchronization to the returned *frmPatternType* test pattern. This failure indicates a sudden increase in transmission errors, frame slippage, or the removal of an existing loopback.

a value of ***unknown*** is set when a reason to terminate other than those listed here is encountered.

Note: The *causeOfTermination* attribute values of ***loopCodeSyncFailed***, ***patternSyncFailed*** and ***patternSyncLost*** are supported only on MSA cards. *Test* components located on other cards or under an *Ima* component on an MSA card will never terminate the test under the conditions described by these values.

| | |
|---|---|
| Values | testTimeExpired<br>stoppedByOperator<br>unknown<br>neverStarted<br>testRunning<br>hardwareReconfigured<br>loopCodeSyncFailed<br>patternSyncFailed<br>patternSyncLost |
| Default | neverStarted |

### ATTRIBUTE Lp X21 Test bitsTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bits sent during the test period. As long as the line speed of the hardware interface is less than 70 Mbit/s, this counter is not expected to reach the maximum value. |
| Values | Long Integer |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Lp X21 Test bytesTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes sent during the test period. This counter is not expected to reach its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp X21 Test frmTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames sent during the test period. This counter is not expected to reach its maximum value.<br><br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp X21 Test bitsRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bits received during the test period. The counter wraps to zero when it exceeds the maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp X21 Test bytesRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes received during the test period. The counter wraps to zero when it exceeds its maximum value. |
| Values | Long Integer |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Lp X21 Test frmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received during the test period. The counter wraps to zero when it exceeds its maximum value.<br><br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp X21 Test erroredFrmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute is not displayed for ATM and MSA32 cards. For ATM cards, the physical layer drops all errored frames at the controller interface. For MSA32 cards, the test does not generate any frame.<br><br>For all other card types, this attribute counts the errored frames received during the test period. The counter wraps to zero when it exceeds its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp X21 Test bitErrorRate

| | |
|---|---|
| Access | Read only |
| Description | This attribute is not displayed for ATM cards because the physical layer drops all errored frames at the controller interface. For MSA32 cards, this attribute indicates the link bit error rate, regardless of the *frameSize*, which is not supported<br><br>For all other card types, this attribute is the calculated bit error rate on the link. Test data are generated and sent in frames of a preset size (*frameSize*). The *Test* component will try to estimate |

| | |
|---|---|
| | the number of bit errors in any errored frame which is identifiable. The statistics will be updated accordingly. A lost frame (may be due to an error on the flag sequence) will be discarded for the bit error rate calculation. The result is presented in the form of xEsyy, where x is the mantissa, syy is the exponent, for example 0E+00, 2E-09.<br>Note that the *bitErrorRate* is an estimate only. For more reliable test results, the test should be done over a long period. Multiple tests would also improve the confidence level of the test results. |
| Values | String (5, ASCII) |
| Default | No default |

### ATTRIBUTE Lp X21 Test elapsedTime

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the time elapsed since the test started for an ***externalLoop*** test. For a data test, it indicates time since test data was first transmitted. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 0.00 |

### ATTRIBUTE Lp X21 Test timeRemaining

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the length of time remaining before the test stops according to the *duration* attribute. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 0.00 |

## COMPONENT Lp TokenRing (Tr)

| | |
|---|---|
| Instance | Decimal (0..5) |

| | |
|---|---|
| Groups | "GROUP Lp Tr CustomerIdentifierData (CidData)"<br>"GROUP Lp Tr IfEntryProv (IfEntry)"<br>"GROUP Lp Tr Provisioned (Prov)"<br>"GROUP Lp Tr AdminInfo (AdminInfo)"<br>"GROUP Lp Tr OsiState (State)"<br>"GROUP Lp Tr OperationalStatus (OperStatus)"<br>"GROUP Lp Tr Operational (Oper)"<br>"GROUP Lp Tr Statistics (Stats)"<br>"GROUP Lp Tr NcMacOperational (NcMacOper)" |
| Scope | Device |
| Description | Lp/n TokenRing/n<br>This component defines an instance of a Token Ring interface attached to a ring. One instance of this component must be created for each hardware interface. Each interface must be provisioned prior to inserting into the ring. |
| Subcomponents | "COMPONENT Lp Tr LanTest (Lt)"<br>"COMPONENT Lp Tr Test" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP Lp Tr CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

## ATTRIBUTE Lp Tr customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID). |

Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.

Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.

An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to "basic CIDs" in DPN) may be assigned to specific customers.

Values: Decimal (0; 1..8191)

Default: 0

### GROUP Lp Tr IfEntryProv (IfEntry)

Properties: Provisioned

Description: This group contains the provisionable attributes for the ifEntry.

### ATTRIBUTE Lp Tr ifAdminStatus (ifState)

Access: Read and write

Description: The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed.

Values:
up
down
testing

Default: up

### ATTRIBUTE Lp Tr ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP Lp Tr Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes of the Token Ring port. |

### ATTRIBUTE Lp Tr ringSpeed (rspd)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute indicates the ring speed at the next insertion into the ring. Note that all the interfaces on a ring must operate at the same speed. |
| Values | fourMegabit<br>sixteenMegabit |
| Default | sixteenMegabit |

### ATTRIBUTE Lp Tr monitorParticipate (mntr)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute determines whether the interface will participate in the active monitor selection process. |
| Values | true<br>false |

| | |
|---|---|
| Default | false |

### ATTRIBUTE Lp Tr functionalAddress

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute contains a bit mask of all token ring functional addresses for which this interface will accept frames. The address is displayed in canonical form. |
| Values | String (6, Dashed Hex) |
| Default | 03-00-fe-ff-8f-01 |

### ATTRIBUTE Lp Tr nodeAddress (nAddr)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute identifies the primary, node specific address recognized by this interface. If an operator does not provision a MAC address, the interface will use a predefined, permanently assigned address.<br>A valid node address must not be any of the following: a broadcast address, a group address, a functional address or a null address. A node address should be entered in the canonical form. |
| Values | String (6, Dashed Hex) |
| Default | 00-00-00-00-00-00 |

### ATTRIBUTE Lp Tr groupAddress (gAddr)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute identifies the group address for which this interface will accept frames. The address is displayed in canonical form. For a valid group address, the least significant bit of the first octet should be set to 1. Currently, only one group address can be provisioned for one interface. |

| | |
|---|---|
| Values | String (6, Dashed Hex) |
| Default | 03-00-01-00-00-00 |

### ATTRIBUTE Lp Tr productId

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute is used to identify the host system attached to this interface. This information is transmitted in response to Request Station Attachment MAC frames. |
| Values | String (0..18, ASCII) |
| Default | "LAN Token Ring" |

### ATTRIBUTE Lp Tr applicationFramerName (framer)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute contains the component name of a Framer which is associated with the *Tr* component. |
| Values | Link (Service, interfaceName) |
| Default | No default |

### GROUP Lp Tr AdminInfo (AdminInfo)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attributes pertaining to the vendor of the equipment. |

### ATTRIBUTE Lp Tr vendor

| | |
|---|---|
| Access | Read and write |
| Description | This is the name of the vendor supplying the facility. |
| Values | String (0..20, ASCII) |
| Default | No default |

### ATTRIBUTE Lp Tr commentText

| | |
|---|---|
| Access | Read and write |
| Description | Any miscellaneous text about the facility. |
| Values | String (0..60, ASCII) |
| Default | No default |

### GROUP Lp Tr OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Lp Tr adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |

| | |
|---|---|
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Lp Tr operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Lp Tr usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |

| | |
|---|---|
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Lp Tr OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

### ATTRIBUTE Lp Tr snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### GROUP Lp Tr Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes of the Token Ring component. |

### ATTRIBUTE Lp Tr macAddress

| | |
|---|---|
| Access | Read only |
| Description | This attribute contains the actual MAC address. The value is assigned by the system if *nodeAddress* is not provisioned. This address is displayed in canonical form. The non-canonical version of this address is indicated in *ncMacAddress*. |
| Values | String (6, Dashed Hex) |

| | |
|---|---|
| Default | 00-00-00-00-00-00 |

### ATTRIBUTE Lp Tr ringState

| | |
|---|---|
| Access | Read only |
| Description | This attribute contains the value of the current interface state with respect to entering or leaving the ring. |
| Values | opened<br>closed<br>opening<br>closing<br>openFailure<br>ringFailure |
| Default | ringFailure |

### ATTRIBUTE Lp Tr ringStatus

| | |
|---|---|
| Access | Read only |
| Description | This attribute contains the value of the current interface status after the station has entered the ring. The value is a sum of values, one for each currently applicable condition. Before the station attempts an open this attribute has the value of ***noStatus***.<br>***noProblems*** = 0,<br>***ringRecovery*** = 32,<br>***singleStation*** = 64,<br>***removeReceived*** = 256,<br>***reserved*** = 512,<br>***autoRemovalError*** = 1024,<br>***lobeWireFault*** = 2048,<br>***transmitBeacon*** = 4096,<br>***softError*** = 8192,<br>***hardError*** = 16384,<br>***signalLoss*** = 32768,<br>***noStatus*** = 131072 |

| | |
|---|---|
| Set of | noProblems<br>ringRecovery<br>singleStation<br>removeReceived<br>reserved<br>autoRemovalError<br>lobeWireFault<br>transmitBeacon<br>softError<br>hardError<br>signalLoss<br>noStatus |
| Default | (noStatus) |

### ATTRIBUTE Lp Tr ringOpenStatus

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates what happened the last time the station attempted to enter into the ring. |
| Values | noOpen<br>badParam<br>lobeFailed<br>signalLoss<br>insertionTimeout<br>ringFailed<br>beaconing<br>duplicateMac<br>requestFailed<br>removeReceived<br>open |
| Default | noOpen |

### ATTRIBUTE Lp Tr upStream

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute is the MAC address of the station's up-stream neighbor. This address is displayed in canonical form. The non-canonical version of this address is indicated in *ncUpStream*. |
| Values | String (6, Dashed Hex) |
| Default | 00-00-00-00-00-00 |

### ATTRIBUTE Lp Tr chipSet

| | |
|---|---|
| Access | Read only |
| Description | This attribute identifies the hardware chip set in use by an interface. |
| Values | ibm16<br>titms380<br>titms380c16<br>titms380c26 |
| Default | titms380c16 |

### ATTRIBUTE Lp Tr lastTimeBeaconSent

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the time at which a Beacon frame was last transmitted on this interface. |
| Values | Time (DHMS) |
| Default | No default |

### GROUP Lp Tr Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistical information for the Token Ring port. |

### ATTRIBUTE Lp Tr lineErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute contains the number of frames or tokens copied or repeated by a station where there is a non-data bit or a FCS error. This counter wraps around when the maximum value is reached. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Tr burstErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute contains the number of times the station detects the absence of transitions for five consecutive half-bit times. This counter wraps around when the maximum value is reached. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Tr acErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute contains the number of times that a station can not set the AC bits properly. This counter wraps around when the maximum value is reached. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Tr abortTransErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute contains the number of aborted frames. This counter wraps around when the maximum value is reached. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Tr internalErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute contains the number of internal errors. When the value of the counter soars up quickly, it indicates a potential hardware problem. This counter wraps around when the maximum value is reached. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Tr lostFrameErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute contains the number of times a station is transmitting and its TRR timer expires. This counter wraps around when the maximum value is reached. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Tr receiveCongestions

| | |
|---|---|
| Access | Read only |
| Description | This attribute contains the number of times a station is supposed to receive a frame but cannot due to lack of buffer space. This counter wraps around when the maximum value is reached. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Tr frameCopiedErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute contains the number of times a station receives a frame addressed to its specific address and detects that the A bit is set. This counter wraps around when the maximum value is reached. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Tr tokenErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute contains the number of times a station acting as the active monitor recognizes an error condition that needs a token |

| | |
|---|---|
| | transmission. This counter wraps around when the maximum value is reached. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Tr softErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute contains the number of soft errors or the number of Report Error Mac frames the station has transmitted. This counter wraps around when the maximum value is reached. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Tr hardErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute contains the number of times this interface has detected an immediately recoverable fatal error. This counter wraps around when the maximum value is reached. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Tr signalLoss

| | |
|---|---|
| Access | Read only |
| Description | This attribute contains the number of times signal condition has been lost. This counter wraps around when the maximum value is reached. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Tr transmitBeacons

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute contains the number of beacon frames transmitted. This counter wraps around when the maximum value is reached. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Tr ringRecoverys

| | |
|---|---|
| Access | Read only |
| Description | This attribute contains the number of times the ring has been purged. This counter wraps around when the maximum value is reached. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Tr lobeWires

| | |
|---|---|
| Access | Read only |
| Description | This attribute contains the number of times the interface has detected a short circuit in the lobe data path. This counter wraps around when the maximum value is reached. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Tr removeRings

| | |
|---|---|
| Access | Read only |
| Description | This attribute contains the number of Remove Ring Station Mac frames received. This counter wraps around when the maximum value is reached. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Tr singleStation

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute contains the number of times the station has determined it is the only one on the ring. This is not necessarily an error. This counter wraps around when the maximum value is reached. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Tr freqErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute contains the number of signal frequency errors detected. This counter wraps around when the maximum value is reached. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### GROUP Lp Tr NcMacOperational (NcMacOper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes of the *TokenRing* port component related to non-canonical MAC addresses. |

### ATTRIBUTE Lp Tr ncMacAddress

| | |
|---|---|
| Access | Read only |
| Description | This attribute contains the actual MAC address. The value is assigned by the system if *nodeAddress* is not provisioned. This address is displayed in non-canonical form. The canonical version of this address is indicated in *macAddress*. |
| Values | String (6, Dashed Hex) |
| Default | No default |

### ATTRIBUTE Lp Tr ncUpStream

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute is the MAC address of the station's up-stream neighbor. This address is displayed in non-canonical form. The canonical version of this address is indicated in *upStream*. |
| Values | String (6, Dashed Hex) |
| Default | No default |

## COMPONENT Lp Tr LanTest (Lt)

| | |
|---|---|
| Groups | "GROUP Lp Tr Lt TestOp (Top)" |
| Scope | Device |
| Description | *Lp/n Fddi/n LanTest*, or<br>*Lp/n Ethernet/n LanTest*, or<br>*Lp/n TokenRing/n LanTest, or*<br>*Lp/n IlsForwarder/n LanTest*<br>The LanTest component is used to control testing on LAN interfaces. This includes LLC layer loopback, on-card loopback, SNMP required tests, and any testing to be done in the lab or manufacturing. |
| Dyn. Subcomp. | "COMPONENT Lp Tr Lt FrameCompare (FrmCmp)"<br>"COMPONENT Lp Tr Lt FrameCopy (FrmCpy)"<br>"COMPONENT Lp Tr Lt PortConfig (PrtCfg)"<br>"COMPONENT Lp Tr Lt FrameBuild (Fb)"<br>"COMPONENT Lp Tr Lt Control (Cntl)" |
| Common Verbs | Help<br>List<br>Display |

## VERB Start Lp Tr Lt

| | |
|---|---|
| Impact | Service |
| Description | This verb is used to start a test as per the attributes set within each subcomponent of LanTest. |

### VERB Stop Lp Tr Lt

| | |
|---|---|
| Impact | Service |
| Description | This verb is used to stop a test. |

### VERB Reset Lp Tr Lt

| | |
|---|---|
| Impact | Service |
| Description | This verb is used to reset the LanTest component. |

### VERB Get Lp Tr Lt

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters for the LanTest component. This includes attributes set using the Set verb. |

### VERB Tlist Lp Tr Lt

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to an attribute. |

### GROUP Lp Tr Lt TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

### ATTRIBUTE Lp Tr Lt tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

### COMPONENT Lp Tr Lt FrameCompare (FrmCmp)

| | |
|---|---|
| Groups | "GROUP Lp Tr Lt FrmCmp TestOp (Top)" |
| Scope | Device |

| | |
|---|---|
| Description | This component compares frames received from the hardware and emulator during testing. |
| Common Verbs | Help<br>List<br>Display |

### VERB Get Lp Tr Lt FrmCmp

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters for the LanTest FrameCompare component. This includes attributes set using the Set verb. |

### VERB Tlist Lp Tr Lt FrmCmp

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

### GROUP Lp Tr Lt FrmCmp TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

### ATTRIBUTE Lp Tr Lt FrmCmp tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

### COMPONENT Lp Tr Lt FrameCopy (FrmCpy)

| | |
|---|---|
| Groups | "GROUP Lp Tr Lt FrmCpy TestOp (Top)" |
| Scope | Device |

| | |
|---|---|
| Description | This component receives its input from FrameBuild and places it upon the hardware which sends it to the appropriate emulator. |
| Common Verbs | Help<br>List<br>Display |

### VERB Get Lp Tr Lt FrmCpy

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters for the LanTest FrameCopy component. This includes attributes set using the Set verb. |

### VERB Tlist Lp Tr Lt FrmCpy

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

### GROUP Lp Tr Lt FrmCpy TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

### ATTRIBUTE Lp Tr Lt FrmCpy tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

### COMPONENT Lp Tr Lt PortConfig (PrtCfg)

| | |
|---|---|
| Groups | "GROUP Lp Tr Lt PrtCfg TestOp (Top)" |
| Scope | Device |

| | |
|---|---|
| Description | This component controls the emulator and hardware to ensure frames output from each will match in FrameCompare. |
| Common Verbs | Help<br>List<br>Display |

### VERB Get Lp Tr Lt PrtCfg

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters for the LanTest PortConfig component. This includes attributes set using the Set verb. |

### VERB Tlist Lp Tr Lt PrtCfg

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

### GROUP Lp Tr Lt PrtCfg TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

### ATTRIBUTE Lp Tr Lt PrtCfg tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

### COMPONENT Lp Tr Lt FrameBuild (Fb)

| | |
|---|---|
| Groups | "GROUP Lp Tr Lt Fb TestOp (Top)" |
| Scope | Device |
| Description | LanTest Framebuild<br>This component controls the building of all frames built and sent |

by the LanTest component. Each component under FrameBuild builds a portion of a packet or frame.

Dyn. Subcomp.

"COMPONENT Lp Tr Lt Fb TransmitInfo (TxInfo)"
"COMPONENT Lp Tr Lt Fb FddiMac (MacFddi)"
"COMPONENT Lp Tr Lt Fb EthernetMac (MacEnet)"
"COMPONENT Lp Tr Lt Fb TokenRingMac (MacTr)"
"COMPONENT Lp Tr Lt Fb DataField (Data)"
"COMPONENT Lp Tr Lt Fb IpHeader (IpH)"
"COMPONENT Lp Tr Lt Fb LlcHeader (Llch)"
"COMPONENT Lp Tr Lt Fb AppleHeader (AppleH)"
"COMPONENT Lp Tr Lt Fb IpxHeader (IpxH)"

Common Verbs

Help
List
Display

### VERB Get Lp Tr Lt Fb

Impact: Passive

Description: This verb is used to get and display operational parameters for the LanTest FrameBuild component. This includes attributes set using the Set verb.

### VERB Tlist Lp Tr Lt Fb

Impact: Passive

Description: This verb is used to display the list of arguments to a component.

### GROUP Lp Tr Lt Fb TestOp (Top)

Properties: Operational

Description: This group contains the operational data for the LanTest component and its subcomponents.

### ATTRIBUTE Lp Tr Lt Fb tData (td)

Access: Read and write

Description: This attribute is used to display and set attributes.

Values: String (0..255, ASCII)

| | |
|---|---|
| Default | No default |

### COMPONENT Lp Tr Lt Fb TransmitInfo (TxInfo)

| | |
|---|---|
| Groups | "GROUP Lp Tr Lt Fb TxInfo TestOp (Top)" |
| Scope | Device |
| Description | LanTest TransmitInfo<br>This component builds a transmit header which is attached to all frames transmitted on LAN interfaces. |
| Common Verbs | Help<br>List<br>Display |

### VERB Get Lp Tr Lt Fb TxInfo

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters for the LanTest TransmitInfo component. This includes attributes set using the Set verb. |

### VERB Tlist Lp Tr Lt Fb TxInfo

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

### GROUP Lp Tr Lt Fb TxInfo TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

### ATTRIBUTE Lp Tr Lt Fb TxInfo tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

## COMPONENT Lp Tr Lt Fb FddiMac (MacFddi)

| | |
|---|---|
| Groups | "GROUP Lp Tr Lt Fb MacFddi TestOp (Top)" |
| Scope | Device |
| Description | LanTest FddiMac<br>This component builds an FDDI MAC header which is attached to all FDDI frames. |
| Common Verbs | Help<br>List<br>Display |

## VERB Get Lp Tr Lt Fb MacFddi

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters for the LanTest FddiMac component. This includes attributes set using the Set verb. |

## VERB Tlist Lp Tr Lt Fb MacFddi

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

## GROUP Lp Tr Lt Fb MacFddi TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

## ATTRIBUTE Lp Tr Lt Fb MacFddi tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

## COMPONENT Lp Tr Lt Fb EthernetMac (MacEnet)

| | |
|---|---|
| Groups | "GROUP Lp Tr Lt Fb MacEnet TestOp (Top)" |
| Scope | Device |
| Description | LanTest EthernetMac<br>This component builds an Ethernet MAC header which is attached to all Ethernet frames. |
| Common Verbs | Help<br>List<br>Display |

### VERB Get Lp Tr Lt Fb MacEnet

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters LanTest EthernetMac component. This includes attributes set using the Set verb. |

### VERB Tlist Lp Tr Lt Fb MacEnet

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

### GROUP Lp Tr Lt Fb MacEnet TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

### ATTRIBUTE Lp Tr Lt Fb MacEnet tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

## COMPONENT Lp Tr Lt Fb TokenRingMac (MacTr)

| | |
|---|---|
| Groups | "GROUP Lp Tr Lt Fb MacTr TestOp (Top)" |
| Scope | Device |
| Description | LanTest TokenRingMac<br>This component builds a Token Ring MAC header which is attached to all Token Ring frames. |
| Common Verbs | Help<br>List<br>Display |

## VERB Get Lp Tr Lt Fb MacTr

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters for the LanTest TokenRingMac component. This includes attributes set using the Set verb. |

## VERB Tlist Lp Tr Lt Fb MacTr

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

## GROUP Lp Tr Lt Fb MacTr TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

## ATTRIBUTE Lp Tr Lt Fb MacTr tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

## COMPONENT Lp Tr Lt Fb DataField (Data)

| | |
|---|---|
| Groups | "GROUP Lp Tr Lt Fb Data TestOp (Top)" |
| Scope | Device |
| Description | This component adds a data field to frame. |
| Common Verbs | Help<br>List<br>Display |

## VERB Get Lp Tr Lt Fb Data

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters for the LanTest DataField component. This includes attributes set using the Set verb. |

## VERB Tlist Lp Tr Lt Fb Data

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

## GROUP Lp Tr Lt Fb Data TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

## ATTRIBUTE Lp Tr Lt Fb Data tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

## COMPONENT Lp Tr Lt Fb IpHeader (IpH)

| | |
|---|---|
| Groups | "GROUP Lp Tr Lt Fb IpH TestOp (Top)" |
| Scope | Device |

| | |
|---|---|
| Description | LanTest IpHeader<br>This component adds an IP header to a frame or packet. |
| Common Verbs | Help<br>List<br>Display |

### VERB Get Lp Tr Lt Fb IpH

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters for the LanTest IpHeader component. This includes attributes set using the Set verb. |

### VERB Tlist Lp Tr Lt Fb IpH

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

### GROUP Lp Tr Lt Fb IpH TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

### ATTRIBUTE Lp Tr Lt Fb IpH tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

### COMPONENT Lp Tr Lt Fb LlcHeader (Llch)

| | |
|---|---|
| Groups | "GROUP Lp Tr Lt Fb Llch TestOp (Top)" |
| Scope | Device |

| | |
|---|---|
| Description | LanTest LlcHeader<br>This component adds an LLC 802.2 or Ethernet header to a frame or packet. |
| Common Verbs | Help<br>List<br>Display |

### VERB Get Lp Tr Lt Fb Llch

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters for the LanTest LlcHeader component. This includes attributes set using the SET verb. |

### VERB Tlist Lp Tr Lt Fb Llch

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

### GROUP Lp Tr Lt Fb Llch TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

### ATTRIBUTE Lp Tr Lt Fb Llch tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

### COMPONENT Lp Tr Lt Fb AppleHeader (AppleH)

| | |
|---|---|
| Groups | "GROUP Lp Tr Lt Fb AppleH TestOp (Top)" |
| Scope | Device |

| | |
|---|---|
| Description | This component adds an AppleTalk header to a frame or packet. |
| Common Verbs | Help<br>List<br>Display |

### VERB Get Lp Tr Lt Fb AppleH

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters for the LanTest AppleHeader component. This includes attributes set using the Set verb. |

### VERB Tlist Lp Tr Lt Fb AppleH

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

### GROUP Lp Tr Lt Fb AppleH TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

### ATTRIBUTE Lp Tr Lt Fb AppleH tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

### COMPONENT Lp Tr Lt Fb IpxHeader (IpxH)

| | |
|---|---|
| Groups | "GROUP Lp Tr Lt Fb IpxH TestOp (Top)" |
| Scope | Device |

| | |
|---|---|
| Description | This component adds an IPX header to a frame or packet. |
| Common Verbs | Help<br>List<br>Display |

### VERB Get Lp Tr Lt Fb IpxH

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters forLanTest IpxHeader component. This includes attributes set using the Set verb. |

### VERB Tlist Lp Tr Lt Fb IpxH

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

### GROUP Lp Tr Lt Fb IpxH TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

### ATTRIBUTE Lp Tr Lt Fb IpxH tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

### COMPONENT Lp Tr Lt Control (Cntl)

| | |
|---|---|
| Groups | "GROUP Lp Tr Lt Cntl TestOp (Top)" |
| Scope | Device |
| Description | LanTest Control<br>This component controls the overall testing by telling the |

FrameBuild component to start and check the FrameCompare component to see if the test is complete.

Common Verbs

Help
List
Display

### VERB Get Lp Tr Lt Cntl

Impact: Passive

Description: This verb is used to get and display operational parameters for the LanTest Control component. This includes attributes set using the Set verb.

### VERB Tlist Lp Tr Lt Cntl

Impact: Passive

Description: This verb is used to display the list of arguments to a component.

### GROUP Lp Tr Lt Cntl TestOp (Top)

Properties: Operational

Description: This group contains the operational data for the LanTest component and its subcomponents.

### ATTRIBUTE Lp Tr Lt Cntl tData (td)

Access: Read and write

Description: This attribute is used to display and set attributes.

Values: String (0..255, ASCII)

Default: No default

### COMPONENT Lp Tr Test

Groups: "GROUP Lp Tr Test PortTestOp (PTO)"
"GROUP Lp Tr Test Results (Results)"

Scope: Device

| | |
|---|---|
| Description | *Lp/n Fddi/n Test*, or<br>*Lp/n Ethernet/n Test*, or<br>*Lp/n TokenRing/n Test, or*<br>*Lp/n IlsForwarder/n Test*<br>The Test component is used to do StartUp port test for LAN cards. |
| Common Verbs | Help<br>List<br>Display |

### VERB Start Lp Tr Test

| | |
|---|---|
| Impact | Service |
| Description | This verb is used to start a test as per the attributes set within each subcomponent of Test. |

### VERB Stop Lp Tr Test

| | |
|---|---|
| Impact | Service |
| Description | This verb is used to stop a test. |

### VERB Reset Lp Tr Test

| | |
|---|---|
| Impact | Service |
| Description | This verb is used to reset the Test component. |

### GROUP Lp Tr Test PortTestOp (PTO)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanPortTest component. |

### ATTRIBUTE Lp Tr Test type (type)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the type of test to be run. The available test types include the following: card test sets up an internal loop on the board and runs a bit error rate test; manual test assumes the line is looped back externally and a bit error rate test is performed; |

localLoop test loops back the local modem and performs a bit error rate test; remoteLoop test loops back the remote modem (or CSU) and performs a bit error rate test; externalLoop test loops back the line to the far end; payloadLoop test only loops back the payload data received from the incoming line; Note that localLoop, remoteLoop and payloadLoop are not supported by all function processors.

Values

onCard
normal
wrapA
wrapB
thruA
thruB
extWrapA
extWrapB
extThruA
extThruB
extWrapAB
extWrapBA

Default

No default

### ATTRIBUTE Lp Tr Test frmSize (size)

Access

Read and write

Description

This attribute defines the size of the test data frames in number of bytes.

Values

Decimal (4..4096)

Units

bytes

Default

1024

### ATTRIBUTE Lp Tr Test duration (duration)

Access

Read and write

Description

This attribute is the duration (in minutes) that test data will be transmitted. In the case of an externalLoop, this is the time that the loop is in effect. Note that dataStartDelay does not apply to the externalLoop.

| | |
|---|---|
| Values | Decimal (1..30240) |
| Units | minutes |
| Default | 1 |

### GROUP Lp Tr Test Results (Results)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all the statistics related attributes of the Test component. |

### ATTRIBUTE Lp Tr Test elapsedTime

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the number of minutes elapsed since the test started for an externalLoop test. For a data test, this is the time since test data was first transmitted. |
| Values | Decimal (0..4294967295) |
| Units | minutes |
| Default | 0 |

### ATTRIBUTE Lp Tr Test timeRemaining

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the number of minutes remaining before the test is to be stopped according to the duration attribute. |
| Values | Decimal (0..4294967295) |
| Units | minutes |
| Default | 0 |

### ATTRIBUTE Lp Tr Test causeOfTermination

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the reason the test is terminated. |
| Values | testTimeExpired<br>stoppedByOperator |

| | |
|---|---|
| | unknown<br>neverStarted<br>testRunning |
| Default | neverStarted |

### ATTRIBUTE Lp Tr Test frmTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of frames sent during the test period. This counter is not expected to reach its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Tr Test bitsTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of bits sent during the test period. This counter is not expected to reach its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Tr Test frmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of frames received during the test period. This counter is not expected to reach its maximum value. The counter will wrap around to 0 if it does reach its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Tr Test bitsRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of bits received during the test period. This counter is not expected to reach its maximum value. |

| | |
|---|---|
| | The counter will wrap around to 0 if it does reach its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Tr Test erroredFrmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of errored frames received during the test period. This counter is not expected to reach its maximum value. The counter will wrap around to 0 if it does reach its maximum value. |
| Values | Long Integer |
| Default | No default |

### COMPONENT Lp Sonet

| | |
|---|---|
| Instance | Decimal (0..15) |
| Groups | "GROUP Lp Sonet Provisioned (Prov)"<br>"GROUP Lp Sonet CustomerIdentifierData (CidData)"<br>"GROUP Lp Sonet AdminInfo (AdminInfo)"<br>"GROUP Lp Sonet IfEntryProv (IfEntry)"<br>"GROUP Lp Sonet OperationalStatus (OperStatus)"<br>"GROUP Lp Sonet OsiState (State)"<br>"GROUP Lp Sonet Operational (Oper)"<br>"GROUP Lp Sonet Statistics (Stats)" |
| Scope | Device |
| Description | *Lp/n Sonet/n*<br>This component controls a port on a SONET Card. In particular, it deals with SONET medium, section, and line layers.<br>Note that there can be *Sonet* and *Sdh* components coexisting under the same LP. However they cannot use the same instance.<br><br>DEFAULTS escape creates a *Path* component under the *Sonet* in Passport 7000. |

| | |
|---|---|
| Opt. Subcomp. | "COMPONENT Lp Sonet Path"<br>"COMPONENT Lp Sonet Sts"<br>"COMPONENT Lp Sonet OpticalModule (Om)" |
| Dyn. Subcomp. | "COMPONENT Lp Sonet Test (Test)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP Lp Sonet Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioning data for a *Sonet* or *Sdh* component. |

## ATTRIBUTE Lp Sonet clockingSource

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the type of clocking source used for synchronizing the transmit clock: ***local*** means direct use of the local clock oscillator at its centre frequency; ***line*** means the use of a signal phase-locked to the incoming line rate; ***module*** means the use of a signal phase-locked to the CP reference clock.<br><br>When adding a *Sonet* or *Sdh* component, the *clockingSource* attribute is set to ***module*** if the *NetworkSynchronization* component has been added and is set to ***local*** otherwise.<br><br>Note that the multiport cell-based cards have one common clock source for each of the three ports when either the clocking source ***local*** or ***module*** is selected. For this reason, it is not allowed to have at the same time the *clockingSource* attribute set to ***local*** on one port and ***module*** on another port. Furthermore, the |

*clockingSource* attribute cannot be set to ***module*** if the *NetworkSynchronization* component has not been added.

Values
local
line
module

Default
No default

### ATTRIBUTE Lp Sonet lineAutomaticProtectionSwitch (laps)

Access
Read and write

Criticality
Process

Description
This attribute specifies the name of the *Laps* component. In the case of intra-card configurations, the specified *Laps* component is used to provide sparing of lines which use this port and its mate; in the case of inter-card configurations, the specified *Laps* component is used to provide sparing of lines only.

Values
Link

Default
No default

### ATTRIBUTE Lp Sonet txSectionTrace

Access
Read and write

Description
This attribute specifies the section identifier. The string must be constructed with 7-bit characters only. The section identifier is prefixed by a CRC byte and padded with null characters if necessary to form the 16-octet section trace message transmitted in byte J0 of 16 outgoing frames. At the remote end, the section trace is reassembled, the CRC is checked and the message is compared to the *expectedRxSectionTrace* attribute. If a mismatch is detected, an alarm is issued.

Usage guidelines for the section trace are found in clause 3 of the ITU G.831 standard which defines the Access Point Identifier format.

The functionality supported by this attribute is not available.

Values
String (0..15, Extended ASCII)

| | |
|---|---|
| Default | "" |

### ATTRIBUTE Lp Sonet expectedRxSectionTrace

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the expected section trace identifier which is used to identify the fiber connected to the associated port. This attribute must match the corresponding *txSectionTrace* provisioned at the transmitting equipment end. If it does not, an alarm is issued.<br><br>The functionality supported by this attribute is not available. |
| Values | String (0..15, Extended ASCII) |
| Default | "" |

### ATTRIBUTE Lp Sonet s1RxDefault

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the default S1 byte reported by the port when the received S1 byte is 0 (quality unknown). No default is applied when this attribute is set to ***none***. |
| Values | Decimal (0..15)<br>none |
| Default | none |

### ATTRIBUTE Lp Sonet s1TxOverride

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the S1 byte transmitted on the port regardless of the Synchronization Status Message (SSM) value provided by the *NetworkSynchronization* component. Changes in SSM value from the *NetworkSynchronization* component are ignored when this attribute is set to a value other than ***none***. |
| Values | Decimal (0..15)<br>none |
| Default | none |

### ATTRIBUTE Lp Sonet s1RxOverride

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the S1 byte value reported by the port regardless of the received value. Changes in S1 byte on the port are ignored when this attribute is set to a value other than ***none***. |
| Values | Decimal (0..15)<br>none |
| Default | none |

### GROUP Lp Sonet CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

### ATTRIBUTE Lp Sonet customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.<br><br>Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.<br><br>An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to "basic CIDs" in DPN) may be assigned to specific customers. |
| Values | Decimal (0; 1..8191) |

| | |
|---|---|
| Default | 0 |

### GROUP Lp Sonet AdminInfo (AdminInfo)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attributes pertaining to the vendor of the equipment. |

### ATTRIBUTE Lp Sonet vendor

| | |
|---|---|
| Access | Read and write |
| Description | This is the name of the vendor supplying the facility. |
| Values | String (0..20, ASCII) |
| Default | No default |

### ATTRIBUTE Lp Sonet commentText

| | |
|---|---|
| Access | Read and write |
| Description | Any miscellaneous text about the facility. |
| Values | String (0..60, ASCII) |
| Default | No default |

### GROUP Lp Sonet IfEntryProv (IfEntry)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the ifEntry. |

### ATTRIBUTE Lp Sonet ifAdminStatus (ifState)

| | |
|---|---|
| Access | Read and write |
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |

| | |
|---|---|
| Default | up |

### ATTRIBUTE Lp Sonet ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP Lp Sonet OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

### ATTRIBUTE Lp Sonet snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### GROUP Lp Sonet OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values |

and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Lp Sonet adminState (osiAdmin)

Access: Read only

Description: This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values:
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default: unlocked

### ATTRIBUTE Lp Sonet operationalState (osiOper)

Access: Read only

Description: This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for

operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Lp Sonet usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
idle
active (activ)
busy

Default
idle

### ATTRIBUTE Lp Sonet availabilityStatus (osiAvail)

Access
Read only

Description

If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.

The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.

The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.

The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.

The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is

one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

### ATTRIBUTE Lp Sonet proceduralStatus (osiProc)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***initializationRequired*** indicates (for a resource which doesn’t initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has

not been initiated. The *operationalState* is ***disabled***.

The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of
initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default
No default

## ATTRIBUTE Lp Sonet controlStatus (osiCntrl)

Access
Read only

Description
If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but

tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

Set of

subjectToTest (subTst)
partOfServicesLocked (partLk)
reservedForTest (rsrvd)
suspended (suspnd)

Default

No default

## ATTRIBUTE Lp Sonet alarmStatus (osiAlarm)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE Lp Sonet standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the

role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values
hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

Default
notSet

### ATTRIBUTE Lp Sonet unknownStatus (osiUnknw)

Access
Read only

Description
This attribute indicates the OSI Unknown status of the component.

The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.

The value ***true*** indicates that the actual state of the component is not known for sure.

Values
false
true

Default
false

### GROUP Lp Sonet Operational (Oper)

Properties
Operational

Description
This group contains the common operational data for a *Sonet* or *Sdh* component.

### ATTRIBUTE Lp Sonet losAlarm (los)

Access
Read only

Description
This attribute indicates whether a Loss Of Signal (LOS) alarm state has been entered. An LOS alarm state is entered when LOS defects have been observed and accumulated for a period of 2.5

seconds +/- 0.5 seconds, or if an LOS defect is present when the criteria for LOF failure declaration have been met. An LOS defect is declared when 20+/-3 us of all-zeros pattern is detected. The LOS defect is cleared when two valid framing words are detected and no Loss of Signal condition is detected during an interval of 20+/-3 us. If the LOS defects are intermittently occurring, the LOS defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.
The *Sonet/Sdh* component goes into an operational state of *disabled* until the LOS alarm condition is cleared. The LOS alarm state is cleared after LOS defects have been absent for a period of 10 seconds +/- 0.5 seconds.
The *losAlarm* attribute is always set to ***off*** when the component has been *locked* and left *offline*.

Values
on
off

Default
No default

### ATTRIBUTE Lp Sonet lofAlarm (lof)

Access
Read only

Description
This attribute displays whether a Loss Of Frame (LOF) alarm state has been entered. An LOF alarm state is entered when LOF defects have been observed and accumulated for a period of 2.5 seconds +/- 0.5 seconds, except when an LOS defect or failure is present. An LOF defect is detected when getting contiguous errored frame alignment for at least 3 msec. If the LOF defects are intermittently occurring, the LOF defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.
The *Sonet/Sdh* component goes into an operational state of *disabled* until the LOF alarm condition is cleared. The condition is cleared when framing has been achieved for a period of 10 seconds +/- 0.5 seconds.
The *lofAlarm* attribute is always set to ***off*** when the component has been *locked* and left *offline*.

| | |
|---|---|
| Values | on<br>off |
| Default | No default |

### ATTRIBUTE Lp Sonet rxAisAlarm (ais)

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays whether a Line Alarm Indication Signal (L-AIS) alarm state has been entered. An L-AIS alarm state is entered when L-AIS defects have been observed and accumulated for a period of 2.5 seconds +/- 0.5 seconds. The L-AIS defect is the occurrence of the L-AIS signal in five contiguous STS (STM) frames (111 pattern in bits 6,7, and 8 of the K2 bytes). If the L-AIS defects are intermittently occurring, the L-AIS defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.<br>The *Sonet/Sdh* component goes into an operational state of *disabled* until the L-AIS alarm condition is cleared. The condition is cleared after not detecting the L-AIS signal for a period of 10 seconds +/- 0.5 seconds.<br>The *rxAisAlarm* attribute is always set to ***off*** when the component has been *locked* and left *offline*. |
| Values | on<br>off |
| Default | No default |

### ATTRIBUTE Lp Sonet rxRfiAlarm (rfi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays whether a Line Remote Failure Indication (LRFI) alarm state has been entered. An L-RFI alarm state is entered when Line Remote Failure Indication (L-RDI) defects have been observed and accumulated for a period of 2.5 seconds +/- 0.5 seconds. The L-RDI defect is the occurrence of the L-RDI signal in five contiguous valid STS (STM) frame (110 pattern in bits 6,7, and 8 of the K2 bytes). If the L-RDI defects are intermittently occurring, the L-RDI defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm |

integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.
The *Sonet/Sdh* component goes into an operational state of *disabled* until the L-RFI alarm condition is cleared. The condition is cleared after not detecting the L-RDI signal for a period of 10 seconds +/- 0.5 seconds.
The *rxRfiAlarm* attribute is always set to ***off*** when the component has been *locked* and left *offline*.

Values
on
off

Default
No default

### ATTRIBUTE Lp Sonet txAis

Access
Read only

Description
This attribute displays whether the Line Alarm Indication Signal (L-AIS) signal is being transmitted on the outgoing line. This signal is transmitted when the *Sonet/Sdh* is *locked* and left *offline*.

Values
on
off

Default
No default

### ATTRIBUTE Lp Sonet txRdi

Access
Read only

Description
This attribute displays whether the Line Remote Defect Indicator (L-RDI) signal is being transmitted over the OC-3 line. The L-RDI signal is transmitted upon the detection of the LOS, LOF or L-AIS defect. This attribute is always set to ***off*** when the component has been *locked* and left *offline*.

Values
on
off

Default
No default

### ATTRIBUTE Lp Sonet unusableTxClockRefAlarm (utcr)

Access
Read only

| | |
|---|---|
| Description | This attribute displays whether an Unusable Transmit Clock Reference (UTCR) alarm state has been entered. A UTCR alarm state is entered when a Sonet/Sdh port provisioned to act as a transmit clock reference has received the code “do not use for synchronization” in the S1 byte (in the SONET/ SDH line overhead) for 2.5 +/- 0.5 seconds.<br>The condition is cleared after not detecting the “do not use for synchronization” code for a period of 10 +/- 0.5 seconds or when the port is no longer provisioned to act as a transmit clock reference.<br>A port is acting as a transmit clock reference if it is provisioned with a) a *clockingSource* of *line*, or b) it has been provisioned as a primaryReference, secondaryReference or tertiaryReference in the NetworkSynchronization component.<br>The *unusableTxClockRefAlarm* attribute is always set to ***off*** when the component has been *locked* and left *offline*. |
| Values | on<br>off |
| Default | No default |

### ATTRIBUTE Lp Sonet s1Rx (s1R)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current S1 byte received on the port. |
| Values | Decimal (0..15) |
| Default | No default |

### ATTRIBUTE Lp Sonet s1Tx (s1T)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current S1 byte transmitted on the port. |
| Values | Decimal (0..15) |
| Default | No default |

## GROUP Lp Sonet Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the statistics data for a *Sonet* or *Sdh* component. Each attribute type is a non-negative integer which monotonically increases until it reaches a maximum value, at which point it wraps around and starts increasing again from zero. |

## ATTRIBUTE Lp Sonet runningTime (time)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of seconds since the *Sonet/Sdh* component has been activated and been in unlocked state. All the other error counts that follow can be updated when this count is active. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## ATTRIBUTE Lp Sonet errorFreeSec (efs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of seconds that the *Sonet/Sdh* component has been in a near-end error free state. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## ATTRIBUTE Lp Sonet sectCodeViolations (scv)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of Section Code Violations (SCVs) detected. A SCV corresponds to section BIP-8 error. SCV counting is inhibited for second intervals where a Section Severely Errored Second (SSES) is counted. The count wraps at its maximum value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE Lp Sonet sectErroredSec (ses)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of Section Errored Seconds (SESs) that have been counted. A SES is declared for second intervals containing one or more SCVs or one or more Loss Of Signal (LOS) or Severely Errored Frame (SEF) defects. A SEF defect is the occurrence of 4 contiguous errored STS or STM frame alignment words. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sonet sectSevErroredSec (sses)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of Section Severely Errored Seconds (SSESs) that have been counted. A SSES is declared for second intervals containing more than *x* SCVs or one or more LOS or SEF defects. The value of *x* is 16 for 155 Mbit/s interface. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sonet sectLosSec (sloss)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of Section LOS Seconds (SLOSSs) that have been counted. A SLOSS is declared for second intervals containing one or more LOS defects. |
| Values | Decimal (0..429496729) |
| Default | 0 |

### ATTRIBUTE Lp Sonet sectSevErroredFrmSec (ssefs)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the total number of Section Severely Errored Frame Seconds (SSEFSs) that have been counted. A SSEFS is declared for second intervals containing one or more SEF defects. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sonet sectFailures (sf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of times that a section failure (LOS or LOF failure) has been declared. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sonet lineCodeViolations (lcv)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of Line Code Violations (LCVs) detected. A LCV corresponds to a line BIP-24 errors. LCV counting is inhibited for second intervals where a Line Severely Errored Second (LSES) is counted. Counting of LCVs is also inhibited over second intervals where a Line Unavailable Second (LUAS) is counted. The count wraps when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sonet lineErroredSec (les)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of Line Errored Seconds (LESs) that have been counted. A LES is declared for second intervals containing one or more LCVs or one or more line AIS defects. Counting of LES is inhibited over second intervals where a LUAS is counted. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sonet lineSevErroredSec (lses)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of Line Severely Errored Seconds (LSESs) that have been counted. A LSES is declared for second intervals containing more than *x* LCVs or one or more L-AIS defects. The value of *x* is 32 for 155 Mbits/sec interface. Counting of LSES is inhibited over second intervals where a LUAS is counted. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sonet lineAisSec (laiss)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of Line AIS Seconds (LAISSs) that have been counted. A LAISS is declared for second intervals containing one or more L-AIS defects. Counting of LAISS is inhibited over second intervals where a LUAS is counted. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sonet lineUnavailSec (luas)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of one second intervals for which the STS line is unavailable. The STS line becomes unavailable at the onset of 10 consecutive LSESs. The 10 LSESs are included in the unavailable time. Once unavailable, the STS line becomes available at the onset of 10 contiguous seconds with no LSES. The 10 seconds with no LSES are excluded from the unavailable time. For second intervals where a Line Unavailable |

| | |
|---|---|
| | Second (LUAS) is counted, counting of LCV, LES, LSES and LAISS is inhibited. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sonet lineFailures (lf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of times that a line failure (L-AIS failure) has been declared. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sonet farEndLineErrorFreeSec (felefs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of seconds that the *Sonet* or *Sdh* component has been in a far-end error free state. |
| Values | Decimal (0..4294967295) |
| Units | seconds |
| Default | 0 |

### ATTRIBUTE Lp Sonet farEndLineCodeViolations (felcv)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of line FEBE detected from the incoming line. The counting of line FEBE is inhibited for second intervals where a Far-End Line Severely Errored Second (FELSES) is counted. Counting of FELCVs is also inhibited over second intervals where a Far-End Line Unavailable Second (FELUAS) is counted. The count wraps at its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sonet farEndLineErroredSec (feles)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of Far-End Line Errored Seconds (FELESs) that have been counted. A FELES is declared for second intervals containing one or more Far-End Line CVs (FELCVs) or one or more L-RDI defects. Counting of FELES is inhibited over second intervals where a FELUAS is counted. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sonet farEndLineSevErroredSec (felses)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of Far-End Line Severely Errored Seconds (FELSESs) that have been counted. A FELSES is declared for second intervals containing more than *x* FELCVs or one or more L-RDI defects. The value of *x* is 32 for 155 Mbit/s interface. Counting of FELSES is inhibited over second intervals where a FELUAS is counted. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sonet farEndLineAisSec (felaiss)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of Far-End Line AIS Seconds (FELAISSs) that have been counted. A FELAISS is declared for second intervals one or more L-RDI defects. Counting of FELAISS is inhibited over second intervals where a FELUAS is counted. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sonet farEndLineUnavailSec (feluas)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the total number of one second intervals for which the STS far-end line is unavailable. The STS far-end line becomes unavailable at the onset of 10 consecutive FELSESs. The 10 FELSESs are included in the unavailable time. Once unavailable, the STS far-end line becomes available at the onset of 10 contiguous seconds with no FELSES. The 10 seconds with no FELSES are excluded from the unavailable time. For second intervals where a Far-End Line Unavailable Second (FELUAS) is counted, counting of FELCV, FELES, FELSES and FELAISS is inhibited. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sonet farEndLineFailures (felf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of times that a far-end line failure (L-RFI failure) has been declared. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT Lp Sonet Path

| | |
|---|---|
| Instance | Decimal (0..0) |
| Groups | "GROUP Lp Sonet Path Provisioned (Prov)"<br>"GROUP Lp Sonet Path CustomerIdentifierData (CidData)"<br>"GROUP Lp Sonet Path OsiState (State)"<br>"GROUP Lp Sonet Path IfEntryProv (IfEntry)"<br>"GROUP Lp Sonet Path OperationalStatus (OperStatus)"<br>"GROUP Lp Sonet Path Operational (Oper)"<br>"GROUP Lp Sonet Path Statistics (Stats)" |
| Scope | Device |
| Description | *Lp/n Sonet/n Path/0*<br>*Lp/n Sdh/n Path/0*<br>This component controls a path signal that is carried within a SONET or SDH signal. The *Path* component can only be added under a *Sonet* or *Sdh* component. |

The migration escape renames the Path component under a Sonet to Sts, and the Path component under an Sdh to Vc4 in a passport 15000, but do not alter it in a passport 7000.
The check escape is added to disallow provisioning of a Path in a Passport 15000. The path cdl exists in a Passport 15000 for the purpose of renaming Path to Sts or Vc4.

Subcomponents "COMPONENT Lp Sonet Path AtmCell (Cell)"

Common Verbs
Help
List
Display
Add
DELete
LOCK
Unlock

## GROUP Lp Sonet Path Provisioned (Prov)

Properties Provisioned

Description This group contains all of the provisioning data for the component.

## ATTRIBUTE Lp Sonet Path applicationFramerName (framer)

Access Read only

Description This attribute defines which application is running on the path.

Values Link

Default No default

## GROUP Lp Sonet Path CustomerIdentifierData (CidData)

Properties Provisioned

Description This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs.

## ATTRIBUTE Lp Sonet Path customerIdentifier (cid)

Access Read and write

Description

This attribute holds the Customer Identifier (CID).

Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.

Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.

An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to "basic CIDs" in DPN) may be assigned to specific customers.

Values

Decimal (0; 1..8191)

Default

0

## GROUP Lp Sonet Path OsiState (State)

Properties

Operational

Description

This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

## ATTRIBUTE Lp Sonet Path adminState (osiAdmin)

Access

Read only

Description

This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or

*Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Lp Sonet Path operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
enabled (ena)
disabled (dis)

| | |
|---|---|
| Default | disabled |

### ATTRIBUTE Lp Sonet Path usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### ATTRIBUTE Lp Sonet Path availabilityStatus (osiAvail)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can |

be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.

The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.

The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.

The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.

The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration

activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

### ATTRIBUTE Lp Sonet Path proceduralStatus (osiProc)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.

The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

## ATTRIBUTE Lp Sonet Path controlStatus (osiCntrl)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

Set of

subjectToTest (subTst)
partOfServicesLocked (partLk)
reservedForTest (rsrvd)
suspended (suspnd)

Default

No default

## ATTRIBUTE Lp Sonet Path alarmStatus (osiAlarm)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

## ATTRIBUTE Lp Sonet Path standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values

hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

| | |
|---|---|
| Default | notSet |

### ATTRIBUTE Lp Sonet Path unknownStatus (osiUnknw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Unknown status of the component.<br><br>The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.<br><br>The value ***true*** indicates that the actual state of the component is not known for sure. |
| Values | false<br>true |
| Default | false |

### GROUP Lp Sonet Path IfEntryProv (IfEntry)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the ifEntry. |

### ATTRIBUTE Lp Sonet Path ifAdminStatus (ifState)

| | |
|---|---|
| Access | Read and write |
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE Lp Sonet Path ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |

| | |
|---|---|
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP Lp Sonet Path OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

### ATTRIBUTE Lp Sonet Path snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### GROUP Lp Sonet Path Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the common operational data for the component. |

### ATTRIBUTE Lp Sonet Path lopAlarm (lop)

| | |
|---|---|
| Access | Read only |

Description

This attribute displays whether a Loss Of Pointer (LOP) alarm state has been entered. An LOP alarm state is entered when LOP defects have been observed and accumulated for a period of 2.5 seconds +/- 0.5 seconds. An LOP defect occurs when no valid SPE or VC pointer was received in 8 contiguous frames. If the LOP defects are intermittently occurring, the LOP defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.

The component goes into an operational state of *disabled* until the LOP alarm condition is cleared. The condition is cleared when no more invalid pointer has been reported for 10 seconds +/- 0.5 seconds.

The *lopAlarm* attribute is always set to ***off*** when the component has been *Lock*ed and left *offline* by the operator or when the component has been *Suspend*ed since the parent component has been *Lock*ed.

Values

on
off

Default

No default

## ATTRIBUTE Lp Sonet Path rxAisAlarm (ais)

Access

Read only

Description

This attribute displays whether a Path Alarm Indication Signal (P-AIS) alarm state has been entered. A P-AIS alarm state is entered when P-AIS defects have been observed and accumulated for a period of 2.5 seconds +/- 0.5 seconds. The P-AIS defect is the occurrence of the P-AIS signal in three contiguous valid STS or STM frames (all one’s in bytes H1 and H2). If the P-AIS defects are intermittently occurring, the P-AIS defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.

The component goes into an operational state of *disabled* until the P-AIS alarm condition is cleared. The condition is cleared

after no P-AIS defect has been detected for 10 seconds +/- 0.5 seconds.
The *rxAisAlarm* attribute is always set to ***off*** when the component has been *Lock*ed and left *offline* by the operator or when the component has been *Suspend*ed since the parent component has been *Lock*ed.

Values
on
off

Default
No default

### ATTRIBUTE Lp Sonet Path rxRfiAlarm (rfi)

Access
Read only

Description
This attribute displays whether the Path Remote Failure Indication (P-RFI) alarm state has been entered. A P-RFI alarm state is entered when Path Remote Defect Indicator (P-RDI) defects have been observed and accumulated for a period of 2.5 seconds +/- 0.5 seconds. The P-RDI defect is the occurrence of the P-RDI signal in five contiguous valid STS or STM frames (bit 5 of the G1 byte set to 1). If the P-RDI defects are intermittently occurring, the P-RDI defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10)with all measurements based on a 200 ms polling cycle.

The component goes into an operational state of *disabled* until the P-RFI alarm condition is cleared. The condition is cleared after no P-RDI defect has been detected for 10 seconds +/- 0.5 seconds.
The *rxRfiAlarm* attribute is always set to ***off*** when the component has been *Lock*ed and left *offline* by the operator or when the component has been *Suspend*ed since the parent component has been *Lock*ed.

Values
on
off

Default
No default

### ATTRIBUTE Lp Sonet Path signalLabelMismatch (slm)

Access
Read only

Description

This attribute displays whether the Path Signal Label Mismatch (P-SLM) failure condition has been entered. A P-SLM failure condition is entered when P-SLM defects have been observed and accumulated for period of 2.5 seconds +/- 0.5 seconds. A P-SLM defect occurs when detecting an unexpected path signal label. The expected Path signal labels are “Mapping for ATM” or “Equipped - Non Specific Payload”. If the P-SLM defects are intermittently occurring, the P-SLM defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.
The component goes into an operational state of *disabled* until the Path Signal Label Mismatch failure condition is cleared. The condition is cleared when an expected path signal label is received for 10 seconds +/- 0.5 seconds.

The *signalLabelMismatch* attribute is always set to ***off*** when the component has been *Lock*ed and left *offline* by the operator or when the component has been *Suspend*ed since the parent component has been *Lock*ed.

Values

on
off

Default

No default

## ATTRIBUTE Lp Sonet Path txAis

Access

Read only

Description

This attribute displays whether the Path Alarm Indication Signal (P-AIS) signal is being transmitted on the path. The P-AIS signal is transmitted when the component has been *Lock*ed and left *offline* by the operator or when the component has been *Suspend*ed since the parent component has been *Lock*ed.

Values

on
off

Default

No default

## ATTRIBUTE Lp Sonet Path txRdi

Access

Read only

| | |
|---|---|
| Description | This attribute displays whether the Path Remote Defect Indicator (P-RDI) signal is being transmitted over the path signal. The P-RDI signal is transmitted over the outgoing line upon detection of LOP, P-AIS or the occurrence of the LCD state. This attribute is always set to ***off*** when the component has been *Lock*ed and left *offline* by the operator or when the component has been *Suspend*ed since the parent component has been *Lock*ed. |
| Values | on<br>off |
| Default | No default |

### GROUP Lp Sonet Path Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the statistics data for the component. |

### ATTRIBUTE Lp Sonet Path pathErrorFreeSec (pefs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the one second intervals that the component has been in a near-end error free state.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sonet Path pathCodeViolations (pcv)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the detected Path Code Violations (PCVs). Each PCV corresponds to a path BIP-8 error. PCV counting is inhibited over second intervals where a Path Severely Errored Second (PSES) is counted. Counting of PCVs is also inhibited over second intervals where a Path Unavailable Second (PUAS) is counted.<br><br>The counter wraps to 0 when it exceeds its maximum value. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sonet Path pathErroredSec (pes)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the declared Path Errored Seconds (PESs). A PES is declared for second intervals containing one or more PCVs or one or more LOP or path AIS defects. Counting of PES is inhibited when PUAS is declared over the monitored second.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sonet Path pathSevErroredSec (pses)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the declared Path Severely Errored Seconds (PSESs). A PSES is declared for second intervals containing more than *x* PCVs or one or more LOP or path AIS defects. The value of *x* is 2400 for a 155 Mbit/s interface. Counting of PSES is inhibited when PUAS is declared over the monitored second.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sonet Path pathAisLopSec (pals)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the path AIS and LOP Seconds (PALSs). A PALS is declared for second intervals containing one or more path AIS or LOP defects. Counting of PALS is inhibited when PUAS is declared over the monitored second.<br><br>The counter wraps to 0 when it exceeds its maximum value. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sonet Path pathUnavailSec (puas)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the one second intervals during which the STS/STM path is unavailable. The path becomes unavailable at the onset of 10 consecutive PSESs. The 10 PSESs are included in the unavailable time. Once unavailable, the path becomes available at the onset of 10 contiguous seconds with no PSES. The 10 seconds with no PSES are excluded from the unavailable time. For second intervals where a Path Unavailable Second (PUAS) is declared, counting of PCV, PES, PSES and PALS is inhibited.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sonet Path pathFailures (pf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the declarations of a path failure (LOP, P-AIS or Path Signal Label Mismatch failure).<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sonet Path farEndPathErrorFreeSec (fepefs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the one second intervals that the component has been in a far-end error free state.<br><br>The counter wraps to 0 when it exceeds its maximum value. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sonet Path farEndPathCodeViolations (fepcv)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the Far-End Path Code Violations (FEPCVs) detected. Each FEPCV corresponds to a path FEBE. FEPCV counting is inhibited over second intervals where a Far-End Path Severely Errored Second (FEPSES) is declared. Counting of PCVs is also inhibited over second intervals where a Far-End Path Unavailable Second (FEPUAS) is declared.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sonet Path farEndPathErroredSec (fepes)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the Far-End Path Errored Seconds (FEPESs) that have been declared. A FEPES is declared for each one second interval containing one or more FEPCVs or one or more path RDI (P-RDI) defects. Counting of FEPES is inhibited when FEPUAS is declared over the monitored second.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sonet Path farEndPathSevErroredSec (fepses)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the Far-End Path Severely Errored Seconds (FEPSESs) that have been declared. A FEPSES is declared for second intervals containing more than *x* FEPCVs or one or more P-RDI defects. The value of *x* is 2400 for a 155 Mbit/s interface. |

Counting of FEPSESs is inhibited when FEPUAS is declared over the monitored second.

The counter wraps to 0 when it exceeds its maximum value.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE Lp Sonet Path farEndPathAisLopSec (fepals)

Access: Read only

Description: This attribute counts the Far-End Path AIS and LOP Seconds (FEPALSs). A FEPALS is declared for each one second interval containing one or more P-RDI defects. Counting of FEPALS is inhibited when FEPUAS is declared over the monitored second.

The counter wraps to 0 when it exceeds its maximum value.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE Lp Sonet Path farEndPathUnavailSec (fepuas)

Access: Read only

Description: This attribute counts the one second intervals for which the STS/STM far-end path is unavailable. The far-end path becomes unavailable at the onset of 10 consecutive FEPSESs. The 10 FEPSESs are included in the unavailable time. Once unavailable, the far-end path becomes available at the onset of 10 contiguous seconds with no FEPSES. The 10 seconds with no FEPSES are excluded from the unavailable time. For one-second intervals where a Far-End Path Unavailable Second (FEPUAS) is declared, counting of FEPCV, FEPES, FEPSES and FEPALS is inhibited.

The counter wraps to 0 when it exceeds its maximum value.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE Lp Sonet Path farEndPathFailures (fepf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the declarations of STS/STM far-end path failure (P-RFI failure).<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT Lp Sonet Path AtmCell (Cell)

| | |
|---|---|
| Groups | "GROUP Lp Sonet Path Cell Provisioned (Prov)"<br>"GROUP Lp Sonet Path Cell Operational (Oper)"<br>"GROUP Lp Sonet Path Cell Statistics (Stats)" |
| Scope | Device |
| Description | The *AtmCell* component contains provisioning and operational attributes. The provisioning attributes are used to set the Loss of Cell Delineation (LCD) alarm activation delay and to turn cell payload scrambling on or off. The operational attributes are used to report about the quality of the ATM cells received by the interface and the cell capacity utilization. The *AtmCell* component appears under all port components running on ATM cards. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Lp Sonet Path Cell Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioning attributes for the *AtmCell* component. |

### ATTRIBUTE Lp Sonet Path Cell alarmActDelay (act)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute specifies the time during which a Loss of Cell Delineation (LCD) defect should be observed before declaring an LCD alarm (alarm 70115501). When the *Cell* component is provisioned under the *Sonet* or *Sdh* component, this attribute defaults to 500 milliseconds. When it is provisioned under the *Laps* component, the default is 2000 milliseconds. This is necessary to ensure that the services bound to the *Sts* or *Vc4* component are not disrupted during short lived LCD defects caused by a line switchover. Setting this attribute to a lower value when the *Laps* component is provisioned may result in a temporary service outage when a line switchover occurs. |
| Values | Decimal (0..2000) |
| Units | msec |
| Default | No default |

### ATTRIBUTE Lp Sonet Path Cell scrambleCellPayload (scramble)

| | |
|---|---|
| Access | Read and write |
| Description | Cell scrambling, as defined by ITU-T Recommendation I.432., can provide a solution to the problem of transmission equipment which is sensitive to certain bit patterns in the ATM cell payload. This attribute controls whether or not the cell payload is scrambled.<br>It defaults to ***off*** for *DS1* interfaces, and ***on*** for all other interfaces.<br>Note that this setting must be the same at both ends of the link. |
| Values | off<br>on |
| Default | No default |

### ATTRIBUTE Lp Sonet Path Cell correctSingleBitHeaderErrors

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether the port corrects single bit errors detected in the headers of received cells. If single bit errors are corrected, the affected cells are passed up to the ATM layer according to normal operation. If single bit errors are not corrected, these errored cells are discarded by the physical layer. |

Note that cells containing multiple bit errors in their headers are always discarded.

Single bit HEC error correction must remain ***off*** for the following card types: 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 2pJ6MAtm, 3pDS3Atm, and 3pE3Atm.

Values: off
on

Default: off

### ATTRIBUTE Lp Sonet Path Cell clearDelay (clear)

Access: Read and write

Description: This attribute specifies the minimum elapsed time between the clearing of the Loss of Cell Delineation (LCD) defect and the port returning to service. The LCD defect should be absent for the entire period of elapsed time. This attribute value is specified in minutes. If the value of the *clearDelay* attribute is initially 0 (default), the time is actually about 10 seconds.
This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm.

Values: Decimal (0..60)

Units: minutes

Default: 0

### ATTRIBUTE Lp Sonet Path Cell hecSampleInterval (hSample)

Access: Read and write

Description: This attribute specifies the sampling interval (in seconds) for errors associated with the *uncorrectableHeaderErrors* attribute. When the sum of errors counted by the *uncorrectableHeaderErrors* attribute over the interval time is greater than or equal to the provisioned *hecErrorLimit* attribute, the sample interval is considered errored. If the number of consecutive errored intervals reaches the limit established in the *hecErrorIntervalLimit* attribute, an LCD alarm is declared and the port is disabled. If the attribute *hecSampleInterval* is set to the default, 0, then the attribute *uncorrectableHeaderErrors* cannot

be used to bring down the port.
This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm.

Values: Decimal (0..25)

Units: seconds

Default: 0

### ATTRIBUTE Lp Sonet Path Cell hecErrorLimit (hLimit)

Access: Read and write

Description: This attribute specifies the error threshold for a HEC error sampling interval beyond which a port is brought down. When the value of the *uncorrectableHeaderErrors* attribute accumulated over the provisioned value of the *hecSampleInterval* attribute is greater than or equal to the provisioned value of the *hecErrorLimit* attribute, the sample interval is considered errored. If the number of consecutive errored intervals reaches the limit established in the *hecErrorIntervalLimit* attribute, an LCD alarm is declared and the port is disabled. (Please note that a *hecErrorInterval* attribute value of 0 (default) disables the mechanism of using the value of the *uncorrectableHeaderErrors* attribute to disable a port.)
This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm.

Values: Decimal (1..250000)

Default: No default

### ATTRIBUTE Lp Sonet Path Cell lcdStateDelay (delay)

Access: Read and write

Description: This attribute specifies the time during which an Out of Cell Delineation (OCD) defect should be observed before moving to the Loss of Cell Delineation (LCD) defect state. The time is specified in milliseconds. The valid values are 1 to 50 milliseconds if the *AtmCell c*omponent is located under the *Ds1* or *E1* component, and 1 to 5 milliseconds if under a *Ds3* or *E3* component.

| | |
|---|---|
| | This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm. |
| Values | Decimal (1..50) |
| Units | msec |
| Default | No default |

### ATTRIBUTE Lp Sonet Path Cell hecErrorIntervalLimit (hIntLimit)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute counts the instances of the *hecSamplingInterval* attribute for all HEC errors (specified by the *uncorrectableHeaderError* attribute) before an LCD alarm is generated. The alarm is only generated if the value of the *uncorrectableHeaderErrors* attribute in a given interval is greater than the value of the *hecErrorLimit* attribute. For example, if there are 20 HEC errors in 5 seconds, for three times in a row (the number of times in a row is represented by this attribute), an alarm is raised. If there are 24 HEC errors in the 5 seconds, and 14 in the next 5 seconds no alarm is generated because the number of HEC errors should also be more than 20 in the next instances.<br>This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm. |
| Values | Decimal (1..25) |
| Default | 1 |

### GROUP Lp Sonet Path Cell Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the common operational attributes for the *AtmCell* component. |

### ATTRIBUTE Lp Sonet Path Cell lcdAlarm (lcd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays whether the Loss of Cell Delineation (LCD) failure alarm state has been entered. This state is entered when LCD defects have been observed and accumulated for a |

period of time specified through the *alarmActDelay* attribute.
In ATM cell direct mapping mode, an LCD defect occurs when Out of Cell Delineation (OCD) anomaly persists for *x* milliseconds, and disappears when the Out of Cell Delineation (OCD) is absent for *x* msec. An OCD anomaly occurs when 7 consecutive incorrect HECs have been detected. An OCD anomaly terminates when 6 consecutive correct HECs have been detected.
For an *AtmCell* component located under a *DS3* or *E3* component with *mapping* = ***PLCP***, the LCD defect is directly derived from the PLCP LOF defect.
If LCD defects are intermittently occurring, the LCD defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle
The component under which is located the *AtmCell* component goes into an operational state of ***disabled*** until the LCD alarm condition is cleared. The condition is cleared after the LCD defect has not been reported for a period of 10 seconds +/- 0.5 seconds.
The *lcdAlarm* attribute is always set to off when the parent of the *AtmCell* component has been *locked* and left *offline*. This can also happen when the *Path* or *Channel* component has been suspended since its parent has been locked.

Values: on
off

Default: off

## GROUP Lp Sonet Path Cell Statistics (Stats)

Properties: Operational

Description: This group contains the statistics attribute for the *AtmCell* component. Each attribute type is a non-negative integer which monotonically increases until it reaches a maximum value, at which point it wraps around and starts increasing again from zero.

## ATTRIBUTE Lp Sonet Path Cell uncorrectableHeaderErrors (ucErr)

Access: Read only

| | |
|---|---|
| Description | This attribute indicates the number of uncorrectable ATM cell header errors that have been detected. Counting of *uncorrectableHeaderErrors* is inhibited when an Out of Cell Delineation (OCD) defect is present. An OCD defect occurs when seven consecutive incorrect HECs have been detected. An OCD defect terminates when six consecutive correct HECs have been detected. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sonet Path Cell sevErroredSec (ses)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of ATM Cell Severely Errored Seconds (SESs) that have been counted.<br><br>In direct mapping mode, an ATM Cell SES is declared for second intervals containing one or more Out of Cell Delineation (OCD) defects. An OCD defect occurs when seven consecutive incorrect HECs have been detected. An OCD defect terminates when six consecutive correct HECs have been detected.<br><br>If the *AtmCell* component is located under a *Ds3* or *E3* component where the *mapping* attribute is set to ***plcp***, an ATM Cell SES is declared for second intervals containing one or more PLCP LOF defects.<br><br>Counting of *uncorrectableHeaderErrors* (*ucErr*) and *correctableHeaderErrors* (*cErr*) is inhibited when the OCD defect is present. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sonet Path Cell receiveCellUtilization (rxutil)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the ratio of the number of valid, assigned cells received on the link to the nominal link capacity. The utilization |

is calculated over a period of one minute.
This attribute is always set to ***0*** when the parent of the *AtmCell* component has been *locked* and left *offline.* This can also happen when the *Path* or *Channel* component has been *suspended* since its parent has been *locked*.

Values: Decimal (0..100)

Units: %

Default: 0

### ATTRIBUTE Lp Sonet Path Cell transmitCellUtilization (txutil)

Access: Read only

Description: This attribute is the ratio of the number of valid, assigned cells transmitted on the link to the nominal link capacity. The utilization is calculated over a period of one minute.
This attribute is always set to ***0*** when the parent of the *AtmCell* component has been *locked* and left *offline*. This can also happen when the *Path* or *Channel* component has been *suspended* since its parent has been *locked*.

Values: Decimal (0..100)

Units: %

Default: 0

### ATTRIBUTE Lp Sonet Path Cell correctableHeaderErrors (cErr)

Access: Read only

Description: This attribute indicates the number of correctable ATM cell header errors that have been detected and corrected. Counting of *correctableHeaderErrors* is inhibited when an Out of Cell Delineation (OCD) defect is present. An OCD defect occurs when seven consecutive incorrect HECs have been detected. An OCD defect terminates when six consecutive correct HECs have been detected

Values: Decimal (0..4294967295)

Default: 0

## COMPONENT Lp Sonet Test (Test)

| | |
|---|---|
| Groups | "GROUP Lp Sonet Test OsiState (State)"<br>"GROUP Lp Sonet Test Setup (Setup)"<br>"GROUP Lp Sonet Test Results (Results)" |
| Scope | Application |
| Description | The *Test* component is configured to control a hardware facility test on a physical (*V35*, *X21*, *DS1*, *E1*, *DS3*, *E3* etc.) or a logical port. |
| Common Verbs | Help<br>List<br>Display |

## VERB START Lp Sonet Test

| | |
|---|---|
| Impact | Service |
| Description | This command invokes a test on the hardware component. Note that some test types requires the parent component (the hardware component) to be locked (using the *Lock* command) before a test can be started. |

## VERB STOP Lp Sonet Test

| | |
|---|---|
| Impact | Service |
| Description | This command stops a test running on the hardware component. |

## GROUP Lp Sonet Test OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

## ATTRIBUTE Lp Sonet Test adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |

Description

This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values

locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default

unlocked

### ATTRIBUTE Lp Sonet Test operationalState (osiOper)

Access

Read only

Description

This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values

enabled (ena)
disabled (dis)

Default

disabled

### ATTRIBUTE Lp Sonet Test usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Lp Sonet Test Setup (Setup)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all of the operational data for a *Test* component. |

### ATTRIBUTE Lp Sonet Test purpose (purpose)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute records the purpose of the test so that the test results can be associated and properly analyzed. |
| Values | String (0..40, ASCII) |
| Default | No default |

### ATTRIBUTE Lp Sonet Test type (type)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the type of test to be run. The available test types include the following:<br>***card*** test sets up an internal loop on the board and runs a bit error |

rate test.
***manual*** test assumes the line is looped back externally and a bit error rate test is performed.
***localLoop*** test loops back the local modem and performs a bit error rate test.
***remoteLoop*** test loops back the remote modem (or CSU) and performs a bit error rate test.
***externalLoop*** test loops back the line to the far end.
***payloadLoop*** test only loops back the payload data received from the incoming line.
***remoteLoopThisTrib*** loops this particular tributary back at the far end, using services provided by the parent.
***v54RemoteLoop*** initiates a V.54 Remote Loopback test.
***pn127RemoteLoop*** initiates a PN127 Remote Loopback test.
***lineBIP8Error*** tests line BIP 8 error generation and detection (B2 byte inverted).
***sectionBIP8Error*** tests section BIP 8 error generation and detection (B1 byte inverted).
***pathBIP8Error*** tests path BIP 8 error generation and detection (B3 byte inverted).
***pathBIP2Error*** tests path BIP 2 error generation and detection (bit 1-2 of V5 byte inverted).
Note that not all test types are not supported by all function processors.

Values

card
manual
localLoop
remoteLoop
externalLoop
payloadLoop
remoteLoopThisTrib
v54RemoteLoop
pn127RemoteLoop
lineBIP8Error
sectionBIP8Error
pathBIP8Error
pathBIP2Error

Default

card

### ATTRIBUTE Lp Sonet Test frmSize (size)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the size of the test data frames in number of bytes.<br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |
| Values | Decimal (4..4096) |
| Units | bytes |
| Default | 1024 |

### ATTRIBUTE Lp Sonet Test frmPatternType (fpt)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the type of data pattern generation to use. The following lists the available pattern types:<br>***ccitt32kBitPattern*** is a pseudo-random sequence of 32 kbit.<br>***ccitt8MBitPattern*** is a pseudo-random sequence of 8Mbit.<br>***customizedPattern*** is the pattern defined in the ***customizedPattern*** attribute. |
| Values | ccitt32kBitPattern<br>ccitt8MBitPattern<br>customizedPattern |
| Default | ccitt32kBitPattern |

### ATTRIBUTE Lp Sonet Test customizedPattern (cp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute allows a customized 32 bit pattern to be defined for use in the test data frames. This attribute is used when the attribute *frmPatternType* is set to ***CustomizedPattern***. Note that a 55 hex pattern is an alternating 1 and 0 pattern. |
| Values | Hex (H.0..H.ffffffff) |
| Units | Hex |
| Default | H.55555555 |

### ATTRIBUTE Lp Sonet Test dataStartDelay (dsd)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time delay (in seconds) between when the test expects the loop to have been set up, to when the test data actually starts to be transmitted. This attribute is to accommodate some non-standard equipment that requires extra time for setting up a requested loop.<br>This attribute is ignored when the test *type* is set to ***externalLoop***. |
| Values | Decimal (0..1814400) |
| Units | seconds |
| Default | 0 |

### ATTRIBUTE Lp Sonet Test displayInterval (di)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the interval (in minutes) between which interim test results are to be displayed. Results are displayed at the operator console at which the test was started. When the test *type* is set to ***externalLoop***, this attribute is ignored. There will be no display of results if *displayInterval* is set to 0. This attribute can be changed anytime. |
| Values | Decimal (0..30240) |
| Units | minutes |
| Default | 5 |

### ATTRIBUTE Lp Sonet Test duration

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the duration for which the test data will be transmitted. In the case of an ***externalLoop***, this is the time that the loop is in effect. Note that *dataStartDelay* does not apply to the ***externalLoop*** test type. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |

Default 1.00

## GROUP Lp Sonet Test Results (Results)

Properties Operational

Description This group contains all the statistics related attributes of the *Test* component.

## ATTRIBUTE Lp Sonet Test causeOfTermination

Access Read only

Description This attribute indicates either the status of the test or the cause of the test's termination:

a value of ***neverStarted*** indicates that the test has not yet been started.

a value of ***testRunning*** indicates that the test has been started.

a value of ***stoppedByOperator*** indicates that the operator issued a stop command on a test that was running.

a value of ***testTimeExpired*** indicates that the test ran for the time specified by the test's *duration*.

a value of ***loopCodeSyncFailed*** indicates that the local end failed to synchronize to the loopCode pattern. The local end transmits the loopCode pattern to cause the remote end to apply a loopback, after which the local end should receive the loopCode pattern. The exact pattern used to request loopCode depends on the test *type*. This failure indicates a high rate of transmission errors, or that the remote end has failed to apply the loopback.

a value of ***patternSyncFailed*** indicates that the local end failed to synchronize to the *frmPatternType* test pattern, that should have been looped back at the remote end. This failure indicates a high rate of transmission errors or the absence of a loopback.

a value of ***patternSyncLost*** indicates that the local end gained and then lost synchronization to the returned *frmPatternType* test pattern. This failure indicates a sudden increase in transmission

errors, frame slippage, or the removal of an existing loopback.

a value of ***unknown*** is set when a reason to terminate other than those listed here is encountered.

Note: The *causeOfTermination* attribute values of ***loopCodeSyncFailed***, ***patternSyncFailed*** and ***patternSyncLost*** are supported only on MSA cards. *Test* components located on other cards or under an *Ima* component on an MSA card will never terminate the test under the conditions described by these values.

Values
testTimeExpired
stoppedByOperator
unknown
neverStarted
testRunning
hardwareReconfigured
loopCodeSyncFailed
patternSyncFailed
patternSyncLost

Default
neverStarted

### ATTRIBUTE Lp Sonet Test bitsTx

Access
Read only

Description
This attribute counts the bits sent during the test period. As long as the line speed of the hardware interface is less than 70 Mbit/s, this counter is not expected to reach the maximum value.

Values
Long Integer

Default
No default

### ATTRIBUTE Lp Sonet Test bytesTx

Access
Read only

Description
This attribute counts the bytes sent during the test period. This counter is not expected to reach its maximum value.

| | |
|---|---|
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Sonet Test frmTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames sent during the test period. This counter is not expected to reach its maximum value.<br><br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Sonet Test bitsRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bits received during the test period. The counter wraps to zero when it exceeds the maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Sonet Test bytesRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes received during the test period. The counter wraps to zero when it exceeds its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Sonet Test frmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received during the test period. The counter wraps to zero when it exceeds its maximum value. |

This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame.

Values: Long Integer

Default: No default

### ATTRIBUTE Lp Sonet Test erroredFrmRx

Access: Read only

Description: This attribute is not displayed for ATM and MSA32 cards. For ATM cards, the physical layer drops all errored frames at the controller interface. For MSA32 cards, the test does not generate any frame.

For all other card types, this attribute counts the errored frames received during the test period. The counter wraps to zero when it exceeds its maximum value.

Values: Long Integer

Default: No default

### ATTRIBUTE Lp Sonet Test bitErrorRate

Access: Read only

Description: This attribute is not displayed for ATM cards because the physical layer drops all errored frames at the controller interface. For MSA32 cards, this attribute indicates the link bit error rate, regardless of the *frameSize*, which is not supported

For all other card types, this attribute is the calculated bit error rate on the link. Test data are generated and sent in frames of a preset size (*frameSize*). The *Test* component will try to estimate the number of bit errors in any errored frame which is identifiable. The statistics will be updated accordingly. A lost frame (may be due to an error on the flag sequence) will be discarded for the bit error rate calculation. The result is presented in the form of xEsyy, where x is the mantissa, syy is the exponent, for example 0E+00, 2E-09.
Note that the *bitErrorRate* is an estimate only. For more reliable

| | |
|---|---|
| | test results, the test should be done over a long period. Multiple tests would also improve the confidence level of the test results. |
| Values | String (5, ASCII) |
| Default | No default |

### ATTRIBUTE Lp Sonet Test elapsedTime

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the time elapsed since the test started for an ***externalLoop*** test. For a data test, it indicates time since test data was first transmitted. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 0.00 |

### ATTRIBUTE Lp Sonet Test timeRemaining

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the length of time remaining before the test stops according to the *duration* attribute. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 0.00 |

### COMPONENT Lp Sonet Sts

| | |
|---|---|
| Instance | Decimal (0..11) |
| Groups | "GROUP Lp Sonet Sts Provisioned (Prov)"<br>"GROUP Lp Sonet Sts CustomerIdentifierData (CidData)"<br>"GROUP Lp Sonet Sts OsiState (State)"<br>"GROUP Lp Sonet Sts IfEntryProv (IfEntry)"<br>"GROUP Lp Sonet Sts OperationalStatus (OperStatus)"<br>"GROUP Lp Sonet Sts Operational (Oper)"<br>"GROUP Lp Sonet Sts Statistics (Stats)"<br>"GROUP Lp Sonet Sts Provisioned (Prov)" |

| | |
|---|---|
| Scope | Device |
| Description | *Lp/n Sonet/n Sts/n*<br>*Laps/n Sts/n*<br>This component controls a path signal that is carried within a SONET signal. The instance number of *Sts* component must be 0 for components on unchannelized cards. On channelized cards, the index of an *Sts* component must be outside the range defined by [j,j+C-1], where j is the index of another *Sts* component (under the same parent *Sonet* component, or if under the *Laps* component, the same working line), and C is the concatenation level defined for that other *Sts* component. On channelized cards, the maximum value of the index of an *Sts* component must be less than or equal to the bandwidth number of the line minus 1. For example, the maximum index value for an *Sts* component under an OC-12 *Sonet* component is 11. On channelized cards, the sum of concatenation values over all *Sts* subcomponents under a *Sonet* component (or the working line if under an *Laps* component) must not be greater than the concatenation level for that *Sonet* component. |
| Opt. Subcomp. | "COMPONENT Lp Sonet Sts AtmCell (Cell)"<br>"COMPONENT Lp Sonet Sts Vt1dot5" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP Lp Sonet Sts Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all of the provisioning data for the component. |

## ATTRIBUTE Lp Sonet Sts applicationFramerName (framer)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute defines which application is running on the path. |
| Values | Link |
| Default | No default |

### GROUP Lp Sonet Sts CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

### ATTRIBUTE Lp Sonet Sts customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.<br><br>Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.<br><br>An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to "basic CIDs" in DPN) may be assigned to specific customers. |
| Values | Decimal (0; 1..8191) |
| Default | 0 |

### GROUP Lp Sonet Sts OsiState (State)

| | |
|---|---|
| Properties | Operational |

Description

This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

## ATTRIBUTE Lp Sonet Sts adminState (osiAdmin)

Access

Read only

Description

This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values

locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default

unlocked

## ATTRIBUTE Lp Sonet Sts operationalState (osiOper)

Access

Read only

| | |
|---|---|
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Lp Sonet Sts usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

## ATTRIBUTE Lp Sonet Sts availabilityStatus (osiAvail)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.<br><br>The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.<br><br>The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.<br><br>The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.<br><br>The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.<br><br>The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***. |

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

## ATTRIBUTE Lp Sonet Sts proceduralStatus (osiProc)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.

The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

### ATTRIBUTE Lp Sonet Sts controlStatus (osiCntrl)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the

attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

Set of: subjectToTest (subTst)
partOfServicesLocked (partLk)
reservedForTest (rsrvd)
suspended (suspnd)

Default: No default

## ATTRIBUTE Lp Sonet Sts alarmStatus (osiAlarm)

Access: Read only

Description: If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are

outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

## ATTRIBUTE Lp Sonet Sts standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and

containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values
hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

Default
notSet

### ATTRIBUTE Lp Sonet Sts unknownStatus (osiUnknw)

Access
Read only

Description
This attribute indicates the OSI Unknown status of the component.

The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.

The value ***true*** indicates that the actual state of the component is not known for sure.

Values
false
true

Default
false

### GROUP Lp Sonet Sts IfEntryProv (IfEntry)

Properties
Provisioned

Description
This group contains the provisionable attributes for the ifEntry.

### ATTRIBUTE Lp Sonet Sts ifAdminStatus (ifState)

Access
Read and write

| | |
|---|---|
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE Lp Sonet Sts ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP Lp Sonet Sts OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

### ATTRIBUTE Lp Sonet Sts snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |

Default up

## GROUP Lp Sonet Sts Operational (Oper)

Properties Operational

Description This group contains the common operational data for the component.

## ATTRIBUTE Lp Sonet Sts lopAlarm (lop)

Access Read only

Description This attribute displays whether a Loss Of Pointer (LOP) alarm state has been entered. An LOP alarm state is entered when LOP defects have been observed and accumulated for a period of 2.5 seconds +/- 0.5 seconds. An LOP defect occurs when no valid SPE or VC pointer was received in 8 contiguous frames. If the LOP defects are intermittently occurring, the LOP defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.

The component goes into an operational state of *disabled* until the LOP alarm condition is cleared. The condition is cleared when no more invalid pointer has been reported for 10 seconds +/- 0.5 seconds.

The *lopAlarm* attribute is always set to ***off*** when the component has been *Lock*ed and left *offline* by the operator or when the component has been *Suspend*ed since the parent component has been *Lock*ed.

Values on
off

Default No default

## ATTRIBUTE Lp Sonet Sts rxAisAlarm (ais)

Access Read only

Description This attribute displays whether a Path Alarm Indication Signal (P-AIS) alarm state has been entered. A P-AIS alarm state is

entered when P-AIS defects have been observed and accumulated for a period of 2.5 seconds +/- 0.5 seconds. The P-AIS defect is the occurrence of the P-AIS signal in three contiguous valid STS or STM frames (all one's in bytes H1 and H2). If the P-AIS defects are intermittently occurring, the P-AIS defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.

The component goes into an operational state of *disabled* until the P-AIS alarm condition is cleared. The condition is cleared after no P-AIS defect has been detected for 10 seconds +/- 0.5 seconds.
The *rxAisAlarm* attribute is always set to ***off*** when the component has been *Lock*ed and left *offline* by the operator or when the component has been *Suspend*ed since the parent component has been *Lock*ed.

Values
on
off

Default
No default

### ATTRIBUTE Lp Sonet Sts rxRfiAlarm (rfi)

Access
Read only

Description
This attribute displays whether the Path Remote Failure Indication (P-RFI) alarm state has been entered. A P-RFI alarm state is entered when Path Remote Defect Indicator (P-RDI) defects have been observed and accumulated for a period of 2.5 seconds +/- 0.5 seconds. The P-RDI defect is the occurrence of the P-RDI signal in five contiguous valid STS or STM frames (bit 5 of the G1 byte set to 1). If the P-RDI defects are intermittently occurring, the P-RDI defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10)with all measurements based on a 200 ms polling cycle.

The component goes into an operational state of *disabled* until the P-RFI alarm condition is cleared. The condition is cleared after no P-RDI defect has been detected for 10 seconds +/- 0.5 seconds.

The *rxRfiAlarm* attribute is always set to ***off*** when the component has been *Lock*ed and left *offline* by the operator or when the component has been *Suspend*ed since the parent component has been *Lock*ed.

Values
on
off

Default
No default

### ATTRIBUTE Lp Sonet Sts signalLabelMismatch (slm)

Access
Read only

Description
This attribute displays whether the Path Signal Label Mismatch (P-SLM) failure condition has been entered. A P-SLM failure condition is entered when P-SLM defects have been observed and accumulated for period of 2.5 seconds +/- 0.5 seconds. A P-SLM defect occurs when detecting an unexpected path signal label. The expected Path signal labels are “Mapping for ATM” or “Equipped - Non Specific Payload”. If the P-SLM defects are intermittently occurring, the P-SLM defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.
The component goes into an operational state of *disabled* until the Path Signal Label Mismatch failure condition is cleared. The condition is cleared when an expected path signal label is received for 10 seconds +/- 0.5 seconds.

The *signalLabelMismatch* attribute is always set to ***off*** when the component has been *Lock*ed and left *offline* by the operator or when the component has been *Suspend*ed since the parent component has been *Lock*ed.

Values
on
off

Default
No default

### ATTRIBUTE Lp Sonet Sts txAis

Access
Read only

| | |
|---|---|
| Description | This attribute displays whether the Path Alarm Indication Signal (P-AIS) signal is being transmitted on the path. The P-AIS signal is transmitted when the component has been *Lock*ed and left *offline* by the operator or when the component has been *Suspend*ed since the parent component has been *Lock*ed. |
| Values | on<br>off |
| Default | No default |

### ATTRIBUTE Lp Sonet Sts txRdi

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays whether the Path Remote Defect Indicator (P-RDI) signal is being transmitted over the path signal. The P-RDI signal is transmitted over the outgoing line upon detection of LOP, P-AIS or the occurrence of the LCD state. This attribute is always set to ***off*** when the component has been *Lock*ed and left *offline* by the operator or when the component has been *Suspend*ed since the parent component has been *Lock*ed. |
| Values | on<br>off |
| Default | No default |

### GROUP Lp Sonet Sts Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the statistics data for the component. |

### ATTRIBUTE Lp Sonet Sts pathErrorFreeSec (pefs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the one second intervals that the component has been in a near-end error free state.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sonet Sts pathCodeViolations (pcv)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the detected Path Code Violations (PCVs). Each PCV corresponds to a path BIP-8 error. PCV counting is inhibited over second intervals where a Path Severely Errored Second (PSES) is counted. Counting of PCVs is also inhibited over second intervals where a Path Unavailable Second (PUAS) is counted.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sonet Sts pathErroredSec (pes)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the declared Path Errored Seconds (PESs). A PES is declared for second intervals containing one or more PCVs or one or more LOP or path AIS defects. Counting of PES is inhibited when PUAS is declared over the monitored second.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sonet Sts pathSevErroredSec (pses)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the declared Path Severely Errored Seconds (PSESs). A PSES is declared for second intervals containing more than *x* PCVs or one or more LOP or path AIS defects. The value of *x* is 2400 for a 155 Mbit/s interface. Counting of PSES is inhibited when PUAS is declared over the monitored second.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |

Default 0

### ATTRIBUTE Lp Sonet Sts pathAisLopSec (pals)

Access Read only

Description This attribute counts the path AIS and LOP Seconds (PALSs). A PALS is declared for second intervals containing one or more path AIS or LOP defects. Counting of PALS is inhibited when PUAS is declared over the monitored second.

The counter wraps to 0 when it exceeds its maximum value.

Values Decimal (0..4294967295)

Default 0

### ATTRIBUTE Lp Sonet Sts pathUnavailSec (puas)

Access Read only

Description This attribute counts the one second intervals during which the STS/STM path is unavailable. The path becomes unavailable at the onset of 10 consecutive PSESs. The 10 PSESs are included in the unavailable time. Once unavailable, the path becomes available at the onset of 10 contiguous seconds with no PSES. The 10 seconds with no PSES are excluded from the unavailable time. For second intervals where a Path Unavailable Second (PUAS) is declared, counting of PCV, PES, PSES and PALS is inhibited.

The counter wraps to 0 when it exceeds its maximum value.

Values Decimal (0..4294967295)

Default 0

### ATTRIBUTE Lp Sonet Sts pathFailures (pf)

Access Read only

Description This attribute counts the declarations of a path failure (LOP, P-AIS or Path Signal Label Mismatch failure).

The counter wraps to 0 when it exceeds its maximum value.

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sonet Sts farEndPathErrorFreeSec (fepefs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the one second intervals that the component has been in a far-end error free state.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sonet Sts farEndPathCodeViolations (fepcv)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the Far-End Path Code Violations (FEPCVs) detected. Each FEPCV corresponds to a path FEBE. FEPCV counting is inhibited over second intervals where a Far-End Path Severely Errored Second (FEPSES) is declared. Counting of PCVs is also inhibited over second intervals where a Far-End Path Unavailable Second (FEPUAS) is declared.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sonet Sts farEndPathErroredSec (fepes)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the Far-End Path Errored Seconds (FEPESs) that have been declared. A FEPES is declared for each one second interval containing one or more FEPCVs or one or more path RDI (P-RDI) defects. Counting of FEPES is inhibited when FEPUAS is declared over the monitored second.<br><br>The counter wraps to 0 when it exceeds its maximum value. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sonet Sts farEndPathSevErroredSec (fepses)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the Far-End Path Severely Errored Seconds (FEPSESs) that have been declared. A FEPSES is declared for second intervals containing more than *x* FEPCVs or one or more P-RDI defects. The value of *x* is 2400 for a 155 Mbit/s interface. Counting of FEPSESs is inhibited when FEPUAS is declared over the monitored second.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sonet Sts farEndPathAisLopSec (fepals)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the Far-End Path AIS and LOP Seconds (FEPALSs). A FEPALS is declared for each one second interval containing one or more P-RDI defects. Counting of FEPALS is inhibited when FEPUAS is declared over the monitored second.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sonet Sts farEndPathUnavailSec (fepuas)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the one second intervals for which the STS/STM far-end path is unavailable. The far-end path becomes unavailable at the onset of 10 consecutive FEPSESs. The 10 FEPSESs are included in the unavailable time. Once unavailable, the far-end path becomes available at the onset of 10 contiguous |

seconds with no FEPSES. The 10 seconds with no FEPSES are excluded from the unavailable time. For one-second intervals where a Far-End Path Unavailable Second (FEPUAS) is declared, counting of FEPCV, FEPES, FEPSES and FEPALS is inhibited.

The counter wraps to 0 when it exceeds its maximum value.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE Lp Sonet Sts farEndPathFailures (fepf)

Access: Read only

Description: This attribute counts the declarations of STS/STM far-end path failure (P-RFI failure).

The counter wraps to 0 when it exceeds its maximum value.

Values: Decimal (0..4294967295)

Default: 0

### GROUP Lp Sonet Sts Provisioned (ChProv)

Properties: Provisioned

Description: This group contains the provisioning data for *Sts* components provisioned under *Sonet* components that support channelization..

### ATTRIBUTE Lp Sonet Sts txPathTrace

Access: Read and write

Description: This attribute specifies the high order path identifier. The string must be constructed with 7-bit characters only. The path identifier is padded by null characters if necessary to form a 64-octet path trace message transmitted in byte J1 of 64 outgoing SONET frames. At the remote end, the path trace is reassembled, and the message is compared to the *expectedRxPathTrace* attribute. If a mismatch is detected, an alarm is issued.

The functionality supported by this attribute is not available.

| | |
|---|---|
| Values | String (0..64, ASCII) |
| Default | "" |

### ATTRIBUTE Lp Sonet Sts expectedRxPathTrace

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the expected path trace identifier which is used to identify the high order path. This attribute must match the corresponding *txPathTrace* provisioned at the transmitting equipment end. If it does not, an alarm is issued.<br><br>The functionality supported by this attribute is not available. |
| Values | String (0..64, ASCII) |
| Default | "" |

### ATTRIBUTE Lp Sonet Sts concatNumber

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the STS concatenation level for the *Sts* component on channelized cards. It must be set to a concatenation level supported by the FP upon which the *Sts* is defined, except for non-channelized cards, in which case it must be set to 0. For example, a value of 1 in this attribute would represent STS-1 concatenation, while a value of 3 would represent STS-3c, a value of 12 would represent STS-12c, and so forth. *Sts* channelization to the tributary level is supported only if this attribute is set to 1. |
| Values | Decimal (0; 1; 3; 12; 48) |
| Default | No default |

### COMPONENT Lp Sonet Sts AtmCell (Cell)

| | |
|---|---|
| Groups | "GROUP Lp Sonet Sts Cell Provisioned (Prov)"<br>"GROUP Lp Sonet Sts Cell Operational (Oper)"<br>"GROUP Lp Sonet Sts Cell Statistics (Stats)" |
| Scope | Device |

| | |
|---|---|
| Description | The *AtmCell* component contains provisioning and operational attributes. The provisioning attributes are used to set the Loss of Cell Delineation (LCD) alarm activation delay and to turn cell payload scrambling on or off. The operational attributes are used to report about the quality of the ATM cells received by the interface and the cell capacity utilization. The *AtmCell* component appears under all port components running on ATM cards. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Lp Sonet Sts Cell Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioning attributes for the *AtmCell* component. |

### ATTRIBUTE Lp Sonet Sts Cell alarmActDelay (act)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time during which a Loss of Cell Delineation (LCD) defect should be observed before declaring an LCD alarm (alarm 70115501). When the *Cell* component is provisioned under the *Sonet* or *Sdh* component, this attribute defaults to 500 milliseconds. When it is provisioned under the *Laps* component, the default is 2000 milliseconds. This is necessary to ensure that the services bound to the *Sts* or *Vc4* component are not disrupted during short lived LCD defects caused by a line switchover. Setting this attribute to a lower value when the *Laps* component is provisioned may result in a temporary service outage when a line switchover occurs. |
| Values | Decimal (0..2000) |
| Units | msec |
| Default | No default |

### ATTRIBUTE Lp Sonet Sts Cell scrambleCellPayload (scramble)

| | |
|---|---|
| Access | Read and write |
| Description | Cell scrambling, as defined by ITU-T Recommendation I.432., can provide a solution to the problem of transmission equipment which is sensitive to certain bit patterns in the ATM cell payload. This attribute controls whether or not the cell payload is scrambled.<br>It defaults to ***off*** for *DS1* interfaces, and ***on*** for all other interfaces.<br>Note that this setting must be the same at both ends of the link. |
| Values | off<br>on |
| Default | No default |

### ATTRIBUTE Lp Sonet Sts Cell correctSingleBitHeaderErrors

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether the port corrects single bit errors detected in the headers of received cells. If single bit errors are corrected, the affected cells are passed up to the ATM layer according to normal operation. If single bit errors are not corrected, these errored cells are discarded by the physical layer. Note that cells containing multiple bit errors in their headers are always discarded.<br><br>Single bit HEC error correction must remain ***off*** for the following card types: 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 2pJ6MAtm, 3pDS3Atm, and 3pE3Atm. |
| Values | off<br>on |
| Default | off |

### ATTRIBUTE Lp Sonet Sts Cell clearDelay (clear)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the minimum elapsed time between the clearing of the Loss of Cell Delineation (LCD) defect and the |

port returning to service. The LCD defect should be absent for the entire period of elapsed time. This attribute value is specified in minutes. If the value of the *clearDelay* attribute is initially 0 (default), the time is actually about 10 seconds.
This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm.

Values: Decimal (0..60)

Units: minutes

Default: 0

### ATTRIBUTE Lp Sonet Sts Cell hecSampleInterval (hSample)

Access: Read and write

Description: This attribute specifies the sampling interval (in seconds) for errors associated with the *uncorrectableHeaderErrors* attribute. When the sum of errors counted by the *uncorrectableHeaderErrors* attribute over the interval time is greater than or equal to the provisioned *hecErrorLimit* attribute, the sample interval is considered errored. If the number of consecutive errored intervals reaches the limit established in the *hecErrorIntervalLimit* attribute, an LCD alarm is declared and the port is disabled. If the attribute *hecSampleInterval* is set to the default, 0, then the attribute *uncorrectableHeaderErrors* cannot be used to bring down the port.
This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm.

Values: Decimal (0..25)

Units: seconds

Default: 0

### ATTRIBUTE Lp Sonet Sts Cell hecErrorLimit (hLimit)

Access: Read and write

Description: This attribute specifies the error threshold for a HEC error sampling interval beyond which a port is brought down. When the value of the *uncorrectableHeaderErrors* attribute accumulated over the provisioned value of the *hecSampleInterval*

attribute is greater than or equal to the provisioned value of the *hecErrorLimit* attribute, the sample interval is considered errored. If the number of consecutive errored intervals reaches the limit established in the *hecErrorIntervalLimit* attribute, an LCD alarm is declared and the port is disabled. (Please note that a *hecErrorInterval* attribute value of 0 (default) disables the mechanism of using the value of the *uncorrectableHeaderErrors* attribute to disable a port.)
This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm.

Values — Decimal (1..250000)

Default — No default

### ATTRIBUTE Lp Sonet Sts Cell lcdStateDelay (delay)

Access — Read and write

Description — This attribute specifies the time during which an Out of Cell Delineation (OCD) defect should be observed before moving to the Loss of Cell Delineation (LCD) defect state. The time is specified in milliseconds. The valid values are 1 to 50 milliseconds if the *AtmCell c*omponent is located under the *Ds1* or *E1* component, and 1 to 5 milliseconds if under a *Ds3* or *E3* component.
This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm.

Values — Decimal (1..50)

Units — msec

Default — No default

### ATTRIBUTE Lp Sonet Sts Cell hecErrorIntervalLimit (hIntLimit)

Access — Read and write

Description — This attribute counts the instances of the *hecSamplingInterval* attribute for all HEC errors (specified by the *uncorrectableHeaderError* attribute) before an LCD alarm is generated. The alarm is only generated if the value of the *uncorrectableHeaderErrors* attribute in a given interval is greater than the value of the *hecErrorLimit* attribute. For example, if

there are 20 HEC errors in 5 seconds, for three times in a row (the number of times in a row is represented by this attribute), an alarm is raised. If there are 24 HEC errors in the 5 seconds, and 14 in the next 5 seconds no alarm is generated because the number of HEC errors should also be more than 20 in the next instances.
This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm.

Values: Decimal (1..25)

Default: 1

## GROUP Lp Sonet Sts Cell Operational (Oper)

Properties: Operational

Description: This group contains the common operational attributes for the *AtmCell* component.

## ATTRIBUTE Lp Sonet Sts Cell lcdAlarm (lcd)

Access: Read only

Description: This attribute displays whether the Loss of Cell Delineation (LCD) failure alarm state has been entered. This state is entered when LCD defects have been observed and accumulated for a period of time specified through the *alarmActDelay* attribute.
In ATM cell direct mapping mode, an LCD defect occurs when Out of Cell Delineation (OCD) anomaly persists for *x* milliseconds, and disappears when the Out of Cell Delineation (OCD) is absent for *x* msec. An OCD anomaly occurs when 7 consecutive incorrect HECs have been detected. An OCD anomaly terminates when 6 consecutive correct HECs have been detected.
For an *AtmCell* component located under a *DS3* or *E3* component with *mapping* = ***PLCP***, the LCD defect is directly derived from the PLCP LOF defect.
If LCD defects are intermittently occurring, the LCD defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle
The component under which is located the *AtmCell* component goes into an operational state of ***disabled*** until the LCD alarm

condition is cleared. The condition is cleared after the LCD defect has not been reported for a period of 10 seconds +/- 0.5 seconds.
The *lcdAlarm* attribute is always set to off when the parent of the *AtmCell* component has been *locked* and left *offline*. This can also happen when the *Path* or *Channel* component has been suspended since its parent has been locked.

Values: on
off

Default: off

## GROUP Lp Sonet Sts Cell Statistics (Stats)

Properties: Operational

Description: This group contains the statistics attribute for the *AtmCell* component. Each attribute type is a non-negative integer which monotonically increases until it reaches a maximum value, at which point it wraps around and starts increasing again from zero.

## ATTRIBUTE Lp Sonet Sts Cell uncorrectableHeaderErrors (ucErr)

Access: Read only

Description: This attribute indicates the number of uncorrectable ATM cell header errors that have been detected. Counting of *uncorrectableHeaderErrors* is inhibited when an Out of Cell Delineation (OCD) defect is present. An OCD defect occurs when seven consecutive incorrect HECs have been detected. An OCD defect terminates when six consecutive correct HECs have been detected.

Values: Decimal (0..4294967295)

Default: 0

## ATTRIBUTE Lp Sonet Sts Cell sevErroredSec (ses)

Access: Read only

Description: This attribute indicates the total number of ATM Cell Severely Errored Seconds (SESs) that have been counted.

In direct mapping mode, an ATM Cell SES is declared for second intervals containing one or more Out of Cell Delineation (OCD) defects. An OCD defect occurs when seven consecutive incorrect HECs have been detected. An OCD defect terminates when six consecutive correct HECs have been detected.

If the *AtmCell* component is located under a *Ds3* or *E3* component where the *mapping* attribute is set to ***plcp***, an ATM Cell SES is declared for second intervals containing one or more PLCP LOF defects.

Counting of *uncorrectableHeaderErrors* (*ucErr*) and *correctableHeaderErrors* (*cErr*) is inhibited when the OCD defect is present.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE Lp Sonet Sts Cell receiveCellUtilization (rxutil)

Access: Read only

Description: This attribute is the ratio of the number of valid, assigned cells received on the link to the nominal link capacity. The utilization is calculated over a period of one minute.
This attribute is always set to ***0*** when the parent of the *AtmCell* component has been *locked* and left *offline.* This can also happen when the *Path* or *Channel* component has been *suspended* since its parent has been *locked*.

Values: Decimal (0..100)

Units: %

Default: 0

### ATTRIBUTE Lp Sonet Sts Cell transmitCellUtilization (txutil)

Access: Read only

Description: This attribute is the ratio of the number of valid, assigned cells transmitted on the link to the nominal link capacity. The utilization is calculated over a period of one minute.

This attribute is always set to ***0*** when the parent of the *AtmCell* component has been *locked* and left *offline*. This can also happen when the *Path* or *Channel* component has been *suspended* since its parent has been *locked*.

Values: Decimal (0..100)

Units: %

Default: 0

### ATTRIBUTE Lp Sonet Sts Cell correctableHeaderErrors (cErr)

Access: Read only

Description: This attribute indicates the number of correctable ATM cell header errors that have been detected and corrected. Counting of *correctableHeaderErrors* is inhibited when an Out of Cell Delineation (OCD) defect is present. An OCD defect occurs when seven consecutive incorrect HECs have been detected. An OCD defect terminates when six consecutive correct HECs have been detected

Values: Decimal (0..4294967295)

Default: 0

### COMPONENT Lp Sonet Sts Vt1dot5

Instance: l [Decimal (1..7)]
m [Decimal (1..4)]

Groups: "GROUP Lp Sonet Sts Vt1dot5 CustomerIdentifierData (CidData)"
"GROUP Lp Sonet Sts Vt1dot5 OsiState (State)"
"GROUP Lp Sonet Sts Vt1dot5 IfEntryProv (IfEntry)"
"GROUP Lp Sonet Sts Vt1dot5 OperationalStatus (OperStatus)"
"GROUP Lp Sonet Sts Vt1dot5 Operational (Oper)"
"GROUP Lp Sonet Sts Vt1dot5 Statistics (Stats)"

Scope: Device

| | |
|---|---|
| Description | *Lp/n Sonet/n Sts/k Vt1dot5/l,m*<br>This component represents the *Vt1.5* low order path signal that is carried within a SONET signal. |
| Opt. Subcomp. | "COMPONENT Lp Sonet Sts Vt1dot5 DS1" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP Lp Sonet Sts Vt1dot5 CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

## ATTRIBUTE Lp Sonet Sts Vt1dot5 customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.<br><br>Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.<br><br>An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to "basic CIDs" in DPN) may be assigned to specific customers. |

| | |
|---|---|
| Values | Decimal (0; 1..8191) |
| Default | 0 |

### GROUP Lp Sonet Sts Vt1dot5 OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |

| | |
|---|---|
| Default | unlocked |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |

| | |
|---|---|
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 availabilityStatus (osiAvail)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.<br><br>The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.<br><br>The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.<br><br>The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.<br><br>The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***. |

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

## ATTRIBUTE Lp Sonet Sts Vt1dot5 proceduralStatus (osiProc)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.

The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

## ATTRIBUTE Lp Sonet Sts Vt1dot5 controlStatus (osiCntrl)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the

user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

Set of: subjectToTest (subTst)
partOfServicesLocked (partLk)
reservedForTest (rsrvd)
suspended (suspnd)

Default: No default

### ATTRIBUTE Lp Sonet Sts Vt1dot5 alarmStatus (osiAlarm)

Access: Read only

Description: If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE Lp Sonet Sts Vt1dot5 standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the

resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values
hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

Default
notSet

### ATTRIBUTE Lp Sonet Sts Vt1dot5 unknownStatus (osiUnknw)

Access
Read only

Description
This attribute indicates the OSI Unknown status of the component.

The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.

The value ***true*** indicates that the actual state of the component is not known for sure.

Values
false
true

Default
false

### GROUP Lp Sonet Sts Vt1dot5 IfEntryProv (IfEntry)

Properties
Provisioned

Description
This group contains the provisionable attributes for the ifEntry.

### ATTRIBUTE Lp Sonet Sts Vt1dot5 ifAdminStatus (ifState)

Access
Read and write

| | |
|---|---|
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP Lp Sonet Sts Vt1dot5 OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |

| | |
|---|---|
| Default | up |

### GROUP Lp Sonet Sts Vt1dot5 Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the common operational data for the component. |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 rxAisAlarm

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether a Tributary Unit Alarm Indication Signal (TU-AIS) alarm state has been entered. A TU-AIS alarm state is entered when TU-AIS defects have been observed and accumulated for a period of 2.5 seconds +/- 0.5 seconds. The TU-AIS defect occurs when three consecutive TU pointers are in the all 1's state. This alarm is cleared after no TU-AIS defect has been detected for 10 seconds +/- 0.5 seconds. |
| Values | on<br>off |
| Default | No default |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 rxRdiAlarm

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether a Low Order Path Remote Defect Indicator (LP-RDI) alarm state has been entered. An LP-RDI alarm state is entered when LP-RDI defects have been observed and accumulated for a period of 2.5 seconds +/- 0.5 seconds. The LP-RDI defect occurs when RDI conditions are detected in five consecutive frames. This alarm is cleared after no LP-RDI defect has been detected for 10 seconds +/- 0.5 seconds. |
| Values | on<br>off |
| Default | No default |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 rxRfiAlarm

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates whether a Low Order Path Remote Failure Indicator (LP-RFI) alarm state has been entered. An LP-RFI alarm state is entered when LP-RFI defects have been observed and accumulated for a period of 2.5 seconds +/- 0.5 seconds. The LP-RFI defect occurs when a RFI condition is detected. This alarm is cleared after no LP-RFI defect has been detected for 10 seconds +/- 0.5 seconds. |
| Values | on<br>off |
| Default | No default |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 unequippedAlarm

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether a Low Order Path Unequipped (LP-UNEQ) alarm state has been entered. An LP-UNEQ alarm state is entered when LP-UNEQ defects have been observed and accumulated for a period of 2.5 seconds +/- 0.5 seconds. The LP-UNEQ defect occurs when an unequipped condition is detected for five consecutive multi frames. This alarm is cleared after no LP-UNEQ defect has been detected for 10 seconds +/- 0.5 seconds. |
| Values | on<br>off |
| Default | No default |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 traceIdMismatchAlarm

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether a Low Order Path Trace Identification Mismatch (LP-TIM) alarm state has been entered. An LP-TIM alarm state is entered when LP-TIM defects have been observed and accumulated for a period of 2.5 seconds +/- 0.5 seconds. The LP-TIM defect occurs when a TIM condition is detected. This alarm is cleared after no LP-TIM defect has been detected for 10 seconds +/- 0.5 seconds. |
| Values | on<br>off |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 lopAlarm

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether a Tributary Unit Loss of Pointer (TU-LOP) alarm state has been entered. An TU-LOP alarm state is entered when TU-LOP defects have been observed and accumulated for a period of 2.5 seconds +/- 0.5 seconds. The TU-LOP defect occurs when eight consecutive invalid pointer values or eight consecutive New Data Flag (NDF) pointers are detected. This alarm is cleared after no TU-LOP defect has been detected for 10 seconds +/- 0.5 seconds. |
| Values | on<br>off |
| Default | No default |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 txAis

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether the Low order Path Alarm Indication Signal (LP-AIS) is being transmitted on the low order path. The LP-AIS signal is transmitted when the component *adminState* is *locked* or *operationalState* is *disabled* and *availabilityStatus* is *dependency.* |
| Values | on<br>off |
| Default | No default |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 txRdi

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether the Low Order Path Remote Defect Indication (LP-RDI) is being transmitted on the low order path. The LP-RDI signal is transmitted upon detection of TU-LOP, TU-AIS, LP-TIM or LP-UNEQ. The value is *off* when the component *adminState* is *locked* or *operationalState* is *disabled* and *availabilityStatus* is *dependency.* |

| | |
|---|---|
| Values | on<br>off |
| Default | No default |

### GROUP Lp Sonet Sts Vt1dot5 Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the statistics data for the component. |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 pathErrorFreeSec (pefs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the one second intervals that the component has been in a near-end error free state.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 pathCodeViolations (pcv)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the detected Path Code Violations (PCVs). Each PCV corresponds to a path BIP-8 error. PCV counting is inhibited over second intervals where a Path Severely Errored Second (PSES) is counted. Counting of PCVs is also inhibited over second intervals where a Path Unavailable Second (PUAS) is counted.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 pathErroredSec (pes)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the declared Path Errored Seconds (PESs). A PES is declared for second intervals containing one or more |

PCVs or one or more LOP or path AIS defects. Counting of PES is inhibited when PUAS is declared over the monitored second.

The counter wraps to 0 when it exceeds its maximum value.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE Lp Sonet Sts Vt1dot5 pathSevErroredSec (pses)

Access: Read only

Description: This attribute counts the declared Path Severely Errored Seconds (PSESs). A PSES is declared for second intervals containing more than *x* PCVs or one or more LOP or path AIS defects. The value of *x* is 2400 for a 155 Mbit/s interface. Counting of PSES is inhibited when PUAS is declared over the monitored second.

The counter wraps to 0 when it exceeds its maximum value.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE Lp Sonet Sts Vt1dot5 pathAisLopSec (pals)

Access: Read only

Description: This attribute counts the path AIS and LOP Seconds (PALSs). A PALS is declared for second intervals containing one or more path AIS or LOP defects. Counting of PALS is inhibited when PUAS is declared over the monitored second.

The counter wraps to 0 when it exceeds its maximum value.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE Lp Sonet Sts Vt1dot5 pathUnavailSec (puas)

Access: Read only

Description: This attribute counts the one second intervals during which the STS/STM path is unavailable. The path becomes unavailable at

| | |
|---|---|
| | the onset of 10 consecutive PSESs. The 10 PSESs are included in the unavailable time. Once unavailable, the path becomes available at the onset of 10 contiguous seconds with no PSES. The 10 seconds with no PSES are excluded from the unavailable time. For second intervals where a Path Unavailable Second (PUAS) is declared, counting of PCV, PES, PSES and PALS is inhibited.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 pathFailures (pf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the declarations of a path failure (LOP, P-AIS or Path Signal Label Mismatch failure).<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 farEndPathErrorFreeSec (fepefs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the one second intervals that the component has been in a far-end error free state.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 farEndPathCodeViolations (fepcv)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the Far-End Path Code Violations (FEPCVs) detected. Each FEPCV corresponds to a path FEBE. FEPCV |

counting is inhibited over second intervals where a Far-End Path Severely Errored Second (FEPSES) is declared. Counting of PCVs is also inhibited over second intervals where a Far-End Path Unavailable Second (FEPUAS) is declared.

The counter wraps to 0 when it exceeds its maximum value.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE Lp Sonet Sts Vt1dot5 farEndPathErroredSec (fepes)

Access: Read only

Description: This attribute counts the Far-End Path Errored Seconds (FEPESs) that have been declared. A FEPES is declared for each one second interval containing one or more FEPCVs or one or more path RDI (P-RDI) defects. Counting of FEPES is inhibited when FEPUAS is declared over the monitored second.

The counter wraps to 0 when it exceeds its maximum value.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE Lp Sonet Sts Vt1dot5 farEndPathSevErroredSec (fepses)

Access: Read only

Description: This attribute counts the Far-End Path Severely Errored Seconds (FEPSESs) that have been declared. A FEPSES is declared for second intervals containing more than *x* FEPCVs or one or more P-RDI defects. The value of *x* is 2400 for a 155 Mbit/s interface. Counting of FEPSESs is inhibited when FEPUAS is declared over the monitored second.

The counter wraps to 0 when it exceeds its maximum value.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE Lp Sonet Sts Vt1dot5 farEndPathAisLopSec (fepals)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the Far-End Path AIS and LOP Seconds (FEPALSs). A FEPALS is declared for each one second interval containing one or more P-RDI defects. Counting of FEPALS is inhibited when FEPUAS is declared over the monitored second.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 farEndPathUnavailSec (fepuas)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the one second intervals for which the STS/STM far-end path is unavailable. The far-end path becomes unavailable at the onset of 10 consecutive FEPSESs. The 10 FEPSESs are included in the unavailable time. Once unavailable, the far-end path becomes available at the onset of 10 contiguous seconds with no FEPSES. The 10 seconds with no FEPSES are excluded from the unavailable time. For one-second intervals where a Far-End Path Unavailable Second (FEPUAS) is declared, counting of FEPCV, FEPES, FEPSES and FEPALS is inhibited.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 farEndPathFailures (fepf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the declarations of STS/STM far-end path failure (P-RFI failure).<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | 0 |

## COMPONENT Lp Sonet Sts Vt1dot5 DS1

| | |
|---|---|
| Groups | "GROUP Lp Sonet Sts Vt1dot5 DS1 Provisioned (Prov)"<br>"GROUP Lp Sonet Sts Vt1dot5 DS1 CustomerIdentifierData (CidData)"<br>"GROUP Lp Sonet Sts Vt1dot5 DS1 AdminInfo (AdminInfo)"<br>"GROUP Lp Sonet Sts Vt1dot5 DS1 IfEntryProv (IfEntry)"<br>"GROUP Lp Sonet Sts Vt1dot5 DS1 OperationalStatus (OperStatus)"<br>"GROUP Lp Sonet Sts Vt1dot5 DS1 OsiState (State)"<br>"GROUP Lp Sonet Sts Vt1dot5 DS1 Operational (Oper)"<br>"GROUP Lp Sonet Sts Vt1dot5 DS1 Statistics (Stats)" |
| Scope | Application |
| Description | *Lp/n DS3/n DS1/n*<br>The *DS1* component controls and monitors a DS1 tributary of a channelized DS3 port on a Function Processor that supports channelization of a DS3. |
| Subcomponents | "COMPONENT Lp Sonet Sts Vt1dot5 DS1 Channel (Chan)" |
| Dyn. Subcomp. | "COMPONENT Lp Sonet Sts Vt1dot5 DS1 Test (Test)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP Lp Sonet Sts Vt1dot5 DS1 Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all of the provisioning data for a *DS1* component. |

## ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 lineType (lineType)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute defines the framing of the DS1 tributary.<br>***d4*** defines a framing pattern of 12 frames per multiframe.<br>***esf*** defines a framing pattern of 24 frames per multiframe.<br>***d4Cas*** defines a framing pattern of 12 frames per multiframe with channel associated signalling.<br>***esfCas*** defines a framing pattern of 24 frames per multiframe with channel associated signalling.<br>***unframed*** defines an unknown framing pattern for clear channels.<br><br>For the ***4pDS3ChAtm*** card, only ***d4*** and ***esf*** framing patterns are permitted.<br><br>The ***4pDS3ChAal1*** card supports the ***d4*** and ***esf*** framing patterns, as well as ***unframed***. |
| Values | d4<br>esf<br>d4Cas<br>esfCas<br>unframed |
| Default | esf |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 zeroCoding (zeroCoding)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute defines the zero encoding on the DS1 tributary.<br>***bit7Stuffing*** sets bit 7 of every timeslot to a one to guarantee ones's density. This reduces the available bandwidth of the channel by 1/8.<br>***none*** does no zero encoding, it does not change any value of the bits in the timeslot. The value ***none*** is compatible with any zero coding scheme which transports all 8 data bits in a timeslot (this would include both ***ami*** and ***b8zs*** values of the *DS1 zeroCoding* attribute). |
| Values | bit7Stuffing<br>none |
| Default | none |

## ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 clockingSource (clockingSource)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the source of the transmit clock for the DS1 tributary.<br>When the clocking source is ***local***, the crystal on the port generates the clocking for the DS1 tributary.<br>When the clocking source is ***line***, the port synchronizes to the clock from the DS1 tributary.<br>When the clocking source is ***module***, the port's clock synchronizes to the clock provided by the oscillator on the active CP.<br>When the clocking source is ***sameAsDs3***, the Ds1 port's clock synchronizes to the same clock source as that of its parent Ds3 port.<br><br>On a ***1pDS3C*** card, if the *NetworkSynchronization (NS)* component is present, the default value of this attribute will be ***module***; otherwise it will be ***line***.<br><br>On a ***2pDS3cAal*** card, the only valid values are ***local*** and ***module***. If the *NS* component is present, the default value of this attribute will be ***module***; otherwise it will be ***local***.<br><br>On the ***4pDS3Ch***, ***4pDS3ChAtm***, and ***4pDS3ChAal1*** cards, the only valid value is ***sameAsDs3***. This is because a DS1 must have the same clocking source as its parent DS3. |
| Values | local<br>line<br>module<br>sameAsDs3 |
| Default | No default |

## GROUP Lp Sonet Sts Vt1dot5 DS1 CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.<br><br>Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.<br><br>An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to "basic CIDs" in DPN) may be assigned to specific customers. |
| Values | Decimal (0; 1..8191) |
| Default | 0 |

### GROUP Lp Sonet Sts Vt1dot5 DS1 AdminInfo (AdminInfo)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attributes pertaining to the vendor of the equipment. |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 vendor

| | |
|---|---|
| Access | Read and write |
| Description | This is the name of the vendor supplying the facility. |
| Values | String (0..20, ASCII) |
| Default | No default |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 commentText

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | Any miscellaneous text about the facility. |
| Values | String (0..60, ASCII) |
| Default | No default |

### GROUP Lp Sonet Sts Vt1dot5 DS1 IfEntryProv (IfEntry)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the ifEntry. |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 ifAdminStatus (ifState)

| | |
|---|---|
| Access | Read and write |
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP Lp Sonet Sts Vt1dot5 DS1 OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### GROUP Lp Sonet Sts Vt1dot5 DS1 OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down. |

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
idle
active (activ)
busy

Default
idle

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 availabilityStatus (osiAvail)

Access
Read only

Description
If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.

The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.

The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.

The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.

The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default No default

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 proceduralStatus (osiProc)

Access Read only

Description If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.

The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

| | |
|---|---|
| Set of | initializationRequired (initRq)<br>notInitialized (notInit)<br>initializing (init)<br>reporting (report)<br>terminating (term) |
| Default | No default |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 controlStatus (osiCntrl)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.<br><br>The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.<br><br>The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.<br><br>The value ***suspended*** indicates that the service has been administratively suspended. |
| Set of | subjectToTest (subTst)<br>partOfServicesLocked (partLk)<br>reservedForTest (rsrvd)<br>suspended (suspnd) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 alarmStatus (osiAlarm)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.<br><br>The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.<br><br>The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.<br><br>The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.<br><br>The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component. |
| Set of | underRepair (repair)<br>critical (crit)<br>major<br>minor<br>alarmOutstanding (outst) |
| Default | No default |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 standbyStatus (osiStby)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Standby status of the component.<br><br>The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.<br><br>The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.<br><br>The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.<br><br>The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource. |
| Values | hotStandby (hot)<br>coldStandby (cold)<br>providingService (serv)<br>notSet (nSet) |
| Default | notSet |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 unknownStatus (osiUnknw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Unknown status of the component.<br><br>The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate. |

The value ***true*** indicates that the actual state of the component is not known for sure.

Values
false
true

Default
false

### GROUP Lp Sonet Sts Vt1dot5 DS1 Operational (Oper)

Properties
Operational

Description
This group contains the common operational data for a component in a digital hierarchy interface.

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 rxAisAlarm (rxAisAlarm)

Access
Read only

Description
This attribute indicates whether an AIS (Alarm Indication Signal) alarm state has been entered. The AIS Alarm state is entered when AIS defects have been observed and accumulated for 2.5 seconds
+/- 0.5 seconds. An AIS defect is detected after having received less than 3 zeros in a 2048 bit period. If the AIS defects are intermittently occurring, the AIS defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle. This tributary goes into an *operationalState* of ***disabled*** for the duration of an AIS alarm state.
The AIS alarm state is cleared when AIS defects are absent for 10 seconds +/- 0.5 seconds.

Values
on
off

Default
off

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 lofAlarm (lofAlarm)

Access
Read only

Description
This attribute indicates whether a LOF (Loss of Frame) alarm state has been entered. The LOF alarm state is entered when LOF defects (2 out of 5 framing bits in error) have been detected for 3 seconds +/- 0.5 seconds. If the LOF defects are intermittently

occurring, the LOF defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle. This tributary goes into an *operationalState* of ***disabled*** until the LOF alarm state is cleared. Also, an RAI alarm is transmitted to the far end for the duration of the LOF alarm state
The condition is cleared when framing has been achieved for 10 seconds +/- 0.5 seconds.

Values
on
off

Default
off

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 rxRaiAlarm (rxRaiAlarm)

Access
Read only

Description
This attribute indicates whether an RAI (Remote Alarm Indication) alarm state has been entered. An RAI alarm state is entered when the RAI defect indicator has been observed and accumulated for 3.5 seconds +/- 0.5 seconds. If the RAI defects are intermittently occurring, the RAI defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.
The RAI alarm state is cleared when the RAI defect indicator has been absent for 10 seconds +/- 0.5 seconds. The RAI alarm is usually an indication that the far end facility is unable to gain synchronization.

Values
on
off

Default
off

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 txAisAlarm (txAisAlarm)

Access
Read only

Description
This attribute indicates whether an AIS (Alarm Indication Signal) alarm is being transmitted on the line. An AIS alarm is transmitted when the tributary is in a locked state.

| | |
|---|---|
| Values | on<br>off |
| Default | off |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 txRaiAlarm (txRaiAlarm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether a RAI signal is being sent on the outgoing line. The RAI signal is transmitted when the tributary detects a LOF alarm condition. |
| Values | on<br>off |
| Default | off |

### GROUP Lp Sonet Sts Vt1dot5 DS1 Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the common statistical data for a component in a digital hierarchy interface. |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 runningTime (runningTime)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of seconds since the tributary was activated. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 errorFreeSec (efs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of seconds that the tributary has been in an error free state. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 erroredSec (es)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of errored seconds the tributary has counted since it was activated. An errored second is declared when a second with one or more Code Violation Error events, or one or more Out Of Frame events occurs. A code violation error may be a CRC error or a BPV error. An Out Of Frame event occurs when 2 out of 5 framing bits are in error. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 sevErroredSec (ses)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of severely errored seconds the tributary has counted since it was activated. A severely errored second occurs when a second with 320 or more Code Violation Error events or one or more Out Of Frame events occurs. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 sevErroredFrmSec (sefs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of severely errored framing seconds the tributary has counted since it was activated A severely errored framing second occurs when a second with one or more Out Of Frame events occurs. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 unavailSec

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of seconds that the tributary has been in an unavailable signal state. An unavailable signal state occurs at the onset of 10 consecutive Severely |

| | |
|---|---|
| | Errored Seconds. The state is cleared at the onset of 10 seconds with no Severely Errored Seconds. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 crcErrors (crcErrors)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of CRC-6 errors. These will only be counted when the *lineType* is ***esf***. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 frmErrors (frmErrors)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frame errors. A frame error is an error in the framing bits. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 slipErrors (slipErrors)

| | |
|---|---|
| Access | Read only |
| Description | The total number of times that the line experienced a controlled frame slip. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT Lp Sonet Sts Vt1dot5 DS1 Channel (Chan)

| | |
|---|---|
| Instance | Decimal (0..23) |
| Groups | "GROUP Lp Sonet Sts Vt1dot5 DS1 Chan Provisioned (Prov)"<br>"GROUP Lp Sonet Sts Vt1dot5 DS1 Chan CustomerIdentifierData (CidData)"<br>"GROUP Lp Sonet Sts Vt1dot5 DS1 Chan IfEntryProv (IfEntry)"<br>"GROUP Lp Sonet Sts Vt1dot5 DS1 Chan OperationalStatus |

| | |
|---|---|
| | (OperStatus)"<br>"GROUP Lp Sonet Sts Vt1dot5 DS1 Chan OsiState (State)"<br>"GROUP Lp Sonet Sts Vt1dot5 DS1 Chan Operational (Oper)"<br>"GROUP Lp Sonet Sts Vt1dot5 DS1 Chan AdminInfo (AdminInfo)" |
| Scope | Application |
| Description | *Channel*<br>The *Channel* component is configured to control a group of timeslots that form a fractional group on a DS1 or E1 port. Cell-based cards allow only one channel per port, and this is automatically provisioned with all available timeslots. Similarly, the ***1pDS3C*** card type only allows one channel per port, and this is automatically provisioned with all available timeslots. |
| Opt. Subcomp. | "COMPONENT Lp Sonet Sts Vt1dot5 DS1 Chan AtmCell (Cell)"<br>"COMPONENT Lp Sonet Sts Vt1dot5 DS1 Chan TrunkConditioning (Tc)" |
| Dyn. Subcomp. | "COMPONENT Lp Sonet Sts Vt1dot5 DS1 Chan Test (Test)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

### GROUP Lp Sonet Sts Vt1dot5 DS1 Chan Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all of the provisional data for a *Channel* component. |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Chan timeslots (ts)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |

| | |
|---|---|
| Description | This attribute contains the list of timeslots that are used by the *Channel* component. Valid numbers are 1-24 for a *Channel* used by a *DS1* component, and 1-31 for a *Channel* used by an *E1* component.<br><br>For the ***4pDS3Ch*** card, a timeslot value of ***none*** cannot be combined with other valid timeslot values. When ***none*** is selected, no timeslots are assigned and any service linked to the *Channel* does not function. |
| Set of | none<br>1<br>2<br>3<br>4<br>5<br>6<br>7<br>8<br>9<br>10<br>11<br>12<br>13<br>14<br>15<br>16<br>17<br>18<br>19<br>20<br>21<br>22<br>23<br>24<br>25 |

26
27
28
29
30
31

Default No default

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Chan timeslotDataRate (dataRate)

Access Read and write

Criticality Component

Description This attribute selects the data rate of the timeslots in a channel of a DS1 component. For E1, the data rate of the timeslots will always be 64kbit/s regardless of this attribute.

When ***doNotOverride*** is selected for a channel on a DS1, the data rate of the channel's timeslots are dependant on the *zeroCoding* selection of the DS1 component. If the *zeroCoding* is ***B8ZS*** (where supported on the FP) or ***none***, the timeslot's data rate will be 64kbit/s. If the *zeroCoding* option is ***bit7Stuffing,*** the data rate of a timeslot will be 56kbit/s.

When ***56k*** is selected for a channel on a DS1, the least significant bit of each timeslot of this *Channel* will always be set to 1 and not used for data. The data rate for the timeslots of this channel is therefore restricted to 56kbit/s.

On the ***4pDS3Ch*** cards, the *zeroCoding* attribute is restricted to the value *none*, and so when the *timeslotDataRate* is set to ***doNotOverride***, the timeslot's data rate will be 64kbit/s. Timeslot data rate of ***56k*** is also available on this card.

On the ***4pDS3ChAal1*** card, the only allowed value for this

attribute is ***doNotOverride***.

One application of this attribute is to allow a DS1 line to support mixing channels that originate from lines that use different *zeroCoding* schemes.

Values: 56k
doNotOverride

Default: doNotOverride

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Chan applicationFramerName

Access: Read and write

Description: This attribute defines the link to the software stack. It defines which application is running on top of this hardware component.

Values: Link (Service, interfaceName)

Default: No default

### GROUP Lp Sonet Sts Vt1dot5 DS1 Chan CustomerIdentifierData (CidData)

Properties: Provisioned

Description: This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs.

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Chan customerIdentifier (cid)

Access: Read and write

Description: This attribute holds the Customer Identifier (CID).

Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.

Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.

| | |
|---|---|
| | An operator CID of 0 is used to identify the Network Manager (referred to as “NetMan” in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to “basic CIDs” in DPN) may be assigned to specific customers. |
| Values | Decimal (0; 1..8191) |
| Default | 0 |

### GROUP Lp Sonet Sts Vt1dot5 DS1 Chan IfEntryProv (IfEntry)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the ifEntry. |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Chan ifAdminStatus (ifState)

| | |
|---|---|
| Access | Read and write |
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Chan ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP Lp Sonet Sts Vt1dot5 DS1 Chan OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |

Description — This group includes the Operational Status attribute. This attribute defines the current operational state of this component.

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Chan snmpOperStatus

Access — Read only

Description — The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed.

Values — up
down
testing

Default — up

### GROUP Lp Sonet Sts Vt1dot5 DS1 Chan OsiState (State)

Properties — Operational

Description — This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Chan adminState (osiAdmin)

Access — Read only

Description — This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users

only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Chan operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Chan usageState (osiUsage)

Access
Read only

Description

This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values

idle
active (activ)
busy

Default

idle

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Chan availabilityStatus (osiAvail)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.

The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.

The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.

The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.

The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

| | |
|---|---|
| Set of | inTest<br>failed<br>dependency (depend)<br>powerOff (pwrOff)<br>offLine<br>offDuty<br>degraded (degrad)<br>notInstalled (notIn)<br>logFull<br>migrating |
| Default | No default |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Chan proceduralStatus (osiProc)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.<br><br>The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.<br><br>The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***. |

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Chan controlStatus (osiCntrl)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

Set of

subjectToTest (subTst)
partOfServicesLocked (partLk)
reservedForTest (rsrvd)
suspended (suspnd)

Default

No default

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Chan alarmStatus (osiAlarm)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

## ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Chan standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values

hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

| | |
|---|---|
| Default | notSet |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Chan unknownStatus (osiUnknw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Unknown status of the component.<br><br>The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.<br><br>The value ***true*** indicates that the actual state of the component is not known for sure. |
| Values | false<br>true |
| Default | false |

### GROUP Lp Sonet Sts Vt1dot5 DS1 Chan Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all of the operational data for a *Channel* component. |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Chan actualChannelSpeed

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the measured link speed of the *Channel* component. |
| Values | Decimal (0..4294967295) |
| Units | bit/s |
| Default | 0 |

### GROUP Lp Sonet Sts Vt1dot5 DS1 Chan AdminInfo (AdminInfo)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attributes pertaining to the vendor of the equipment. |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Chan vendor

| | |
|---|---|
| Access | Read and write |
| Description | This is the name of the vendor supplying the facility. |
| Values | String (0..20, ASCII) |
| Default | No default |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Chan commentText

| | |
|---|---|
| Access | Read and write |
| Description | Any miscellaneous text about the facility. |
| Values | String (0..60, ASCII) |
| Default | No default |

### COMPONENT Lp Sonet Sts Vt1dot5 DS1 Chan Test (Test)

| | |
|---|---|
| Groups | "GROUP Lp Sonet Sts Vt1dot5 DS1 Chan Test OsiState (State)"<br>"GROUP Lp Sonet Sts Vt1dot5 DS1 Chan Test Setup (Setup)"<br>"GROUP Lp Sonet Sts Vt1dot5 DS1 Chan Test Results (Results)" |
| Scope | Application |
| Description | The *Test* component is configured to control a hardware facility test on a physical (*V*35, *X21, DS1, E1, DS3, E3* etc.) or a logical port. |
| Common Verbs | Help<br>List<br>Display |

### VERB START Lp Sonet Sts Vt1dot5 DS1 Chan Test

| | |
|---|---|
| Impact | Service |
| Description | This command invokes a test on the hardware component. Note that some test types requires the parent component (the hardware component) to be locked (using the *Lock* command) before a test can be started. |

### VERB STOP Lp Sonet Sts Vt1dot5 DS1 Chan Test

| | |
|---|---|
| Impact | Service |
| Description | This command stops a test running on the hardware component. |

### GROUP Lp Sonet Sts Vt1dot5 DS1 Chan Test OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Chan Test adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Chan Test operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Chan Test usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Lp Sonet Sts Vt1dot5 DS1 Chan Test Setup (Setup)

| | |
|---|---|
| Properties | Operational |

| | |
|---|---|
| Description | This group contains all of the operational data for a *Test* component. |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Chan Test purpose (purpose)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute records the purpose of the test so that the test results can be associated and properly analyzed. |
| Values | String (0..40, ASCII) |
| Default | No default |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Chan Test type (type)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the type of test to be run. The available test types include the following:<br>***card*** test sets up an internal loop on the board and runs a bit error rate test.<br>***manual*** test assumes the line is looped back externally and a bit error rate test is performed.<br>***localLoop*** test loops back the local modem and performs a bit error rate test.<br>***remoteLoop*** test loops back the remote modem (or CSU) and performs a bit error rate test.<br>***externalLoop*** test loops back the line to the far end.<br>***payloadLoop*** test only loops back the payload data received from the incoming line.<br>***remoteLoopThisTrib*** loops this particular tributary back at the far end, using services provided by the parent.<br>***v54RemoteLoop*** initiates a V.54 Remote Loopback test.<br>***pn127RemoteLoop*** initiates a PN127 Remote Loopback test.<br>***lineBIP8Error*** tests line BIP 8 error generation and detection (B2 byte inverted).<br>***sectionBIP8Error*** tests section BIP 8 error generation and detection (B1 byte inverted).<br>***pathBIP8Error*** tests path BIP 8 error generation and detection (B3 byte inverted).<br>***pathBIP2Error*** tests path BIP 2 error generation and detection (bit 1-2 of V5 byte inverted). |

Note that not all test types are not supported by all function processors.

Values
card
manual
localLoop
remoteLoop
externalLoop
payloadLoop
remoteLoopThisTrib
v54RemoteLoop
pn127RemoteLoop
lineBIP8Error
sectionBIP8Error
pathBIP8Error
pathBIP2Error

Default
card

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Chan Test frmSize (size)

Access
Read and write

Description
This attribute defines the size of the test data frames in number of bytes.
This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame.

Values
Decimal (4..4096)

Units
bytes

Default
1024

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Chan Test frmPatternType (fpt)

Access
Read and write

Description
This attribute defines the type of data pattern generation to use. The following lists the available pattern types:
***ccitt32kBitPattern*** is a pseudo-random sequence of 32 kbit.
***ccitt8MBitPattern*** is a pseudo-random sequence of 8Mbit.
***customizedPattern*** is the pattern defined in the ***customizedPattern*** attribute.

| | |
|---|---|
| Values | ccitt32kBitPattern<br>ccitt8MBitPattern<br>customizedPattern |
| Default | ccitt32kBitPattern |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Chan Test customizedPattern (cp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute allows a customized 32 bit pattern to be defined for use in the test data frames. This attribute is used when the attribute *frmPatternType* is set to ***CustomizedPattern***. Note that a 55 hex pattern is an alternating 1 and 0 pattern. |
| Values | Hex (H.0..H.ffffffff) |
| Units | Hex |
| Default | H.55555555 |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Chan Test dataStartDelay (dsd)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time delay (in seconds) between when the test expects the loop to have been set up, to when the test data actually starts to be transmitted. This attribute is to accommodate some non-standard equipment that requires extra time for setting up a requested loop.<br>This attribute is ignored when the test *type* is set to ***externalLoop***. |
| Values | Decimal (0..1814400) |
| Units | seconds |
| Default | 0 |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Chan Test displayInterval (di)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the interval (in minutes) between which interim test results are to be displayed. Results are displayed at the operator console at which the test was started. When the test *type* is set to ***externalLoop***, this attribute is ignored. There will be |

| | |
|---|---|
| | no display of results if *displayInterval* is set to 0. This attribute can be changed anytime. |
| Values | Decimal (0..30240) |
| Units | minutes |
| Default | 5 |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Chan Test duration

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the duration for which the test data will be transmitted. In the case of an ***externalLoop***, this is the time that the loop is in effect. Note that *dataStartDelay* does not apply to the ***externalLoop*** test type. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 1.00 |

### GROUP Lp Sonet Sts Vt1dot5 DS1 Chan Test Results (Results)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all the statistics related attributes of the *Test* component. |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Chan Test causeOfTermination

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates either the status of the test or the cause of the test's termination:<br><br>a value of ***neverStarted*** indicates that the test has not yet been started.<br><br>a value of ***testRunning*** indicates that the test has been started.<br><br>a value of ***stoppedByOperator*** indicates that the operator issued a stop command on a test that was running.<br><br>a value of ***testTimeExpired*** indicates that the test ran for the time |

specified by the test's *duration*.

a value of ***loopCodeSyncFailed*** indicates that the local end failed to synchronize to the loopCode pattern. The local end transmits the loopCode pattern to cause the remote end to apply a loopback, after which the local end should receive the loopCode pattern. The exact pattern used to request loopCode depends on the test *type*. This failure indicates a high rate of transmission errors, or that the remote end has failed to apply the loopback.

a value of ***patternSyncFailed*** indicates that the local end failed to synchronize to the *frmPatternType* test pattern, that should have been looped back at the remote end. This failure indicates a high rate of transmission errors or the absence of a loopback.

a value of ***patternSyncLost*** indicates that the local end gained and then lost synchronization to the returned *frmPatternType* test pattern. This failure indicates a sudden increase in transmission errors, frame slippage, or the removal of an existing loopback.

a value of ***unknown*** is set when a reason to terminate other than those listed here is encountered.

Note: The *causeOfTermination* attribute values of ***loopCodeSyncFailed***, ***patternSyncFailed*** and ***patternSyncLost*** are supported only on MSA cards. *Test* components located on other cards or under an *Ima* component on an MSA card will never terminate the test under the conditions described by these values.

Values

testTimeExpired
stoppedByOperator
unknown
neverStarted
testRunning
hardwareReconfigured
loopCodeSyncFailed
patternSyncFailed
patternSyncLost

| | |
|---|---|
| Default | neverStarted |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Chan Test bitsTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bits sent during the test period. As long as the line speed of the hardware interface is less than 70 Mbit/s, this counter is not expected to reach the maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Chan Test bytesTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes sent during the test period. This counter is not expected to reach its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Chan Test frmTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames sent during the test period. This counter is not expected to reach its maximum value.<br><br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Chan Test bitsRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bits received during the test period. The counter wraps to zero when it exceeds the maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Chan Test bytesRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes received during the test period. The counter wraps to zero when it exceeds its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Chan Test frmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received during the test period. The counter wraps to zero when it exceeds its maximum value.<br><br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Chan Test erroredFrmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute is not displayed for ATM and MSA32 cards. For ATM cards, the physical layer drops all errored frames at the controller interface. For MSA32 cards, the test does not generate any frame.<br><br>For all other card types, this attribute counts the errored frames received during the test period. The counter wraps to zero when it exceeds its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Chan Test bitErrorRate

| | |
|---|---|
| Access | Read only |
| Description | This attribute is not displayed for ATM cards because the physical layer drops all errored frames at the controller interface. |

For MSA32 cards, this attribute indicates the link bit error rate, regardless of the *frameSize*, which is not supported

For all other card types, this attribute is the calculated bit error rate on the link. Test data are generated and sent in frames of a preset size (*frameSize*). The *Test* component will try to estimate the number of bit errors in any errored frame which is identifiable. The statistics will be updated accordingly. A lost frame (may be due to an error on the flag sequence) will be discarded for the bit error rate calculation. The result is presented in the form of xEsyy, where x is the mantissa, syy is the exponent, for example 0E+00, 2E-09.
Note that the *bitErrorRate* is an estimate only. For more reliable test results, the test should be done over a long period. Multiple tests would also improve the confidence level of the test results.

Values: String (5, ASCII)

Default: No default

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Chan Test elapsedTime

Access: Read only

Description: This attribute indicates the time elapsed since the test started for an ***externalLoop*** test. For a data test, it indicates time since test data was first transmitted.

Values: Decimal (0.00..30240.00)

Units: minutes

Default: 0.00

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Chan Test timeRemaining

Access: Read only

Description: This attribute indicates the length of time remaining before the test stops according to the *duration* attribute.

Values: Decimal (0.00..30240.00)

Units: minutes

Default: 0.00

## COMPONENT Lp Sonet Sts Vt1dot5 DS1 Chan AtmCell (Cell)

| | |
|---|---|
| Groups | "GROUP Lp Sonet Sts Vt1dot5 DS1 Chan Cell Provisioned (Prov)"<br>"GROUP Lp Sonet Sts Vt1dot5 DS1 Chan Cell Operational (Oper)"<br>"GROUP Lp Sonet Sts Vt1dot5 DS1 Chan Cell Statistics (Stats)" |
| Scope | Device |
| Description | The *AtmCell* component contains provisioning and operational attributes. The provisioning attributes are used to set the Loss of Cell Delineation (LCD) alarm activation delay and to turn cell payload scrambling on or off. The operational attributes are used to report about the quality of the ATM cells received by the interface and the cell capacity utilization. The *AtmCell* component appears under all port components running on ATM cards. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Lp Sonet Sts Vt1dot5 DS1 Chan Cell Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioning attributes for the *AtmCell* component. |

## ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Chan Cell alarmActDelay (act)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time during which a Loss of Cell Delineation (LCD) defect should be observed before declaring an LCD alarm (alarm 70115501). When the *Cell* component is provisioned under the *Sonet* or *Sdh* component, this attribute defaults to 500 milliseconds. When it is provisioned under the *Laps* component, the default is 2000 milliseconds. This is necessary to ensure that the services bound to the *Sts* or *Vc4* component are not disrupted during short lived LCD defects |

caused by a line switchover. Setting this attribute to a lower value when the *Laps* component is provisioned may result in a temporary service outage when a line switchover occurs.

Values: Decimal (0..2000)

Units: msec

Default: No default

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Chan Cell scrambleCellPayload (scramble)

Access: Read and write

Description: Cell scrambling, as defined by ITU-T Recommendation I.432., can provide a solution to the problem of transmission equipment which is sensitive to certain bit patterns in the ATM cell payload. This attribute controls whether or not the cell payload is scrambled.
It defaults to ***off*** for *DS1* interfaces, and ***on*** for all other interfaces.
Note that this setting must be the same at both ends of the link.

Values: off
on

Default: No default

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Chan Cell correctSingleBitHeaderErrors

Access: Read and write

Description: This attribute specifies whether the port corrects single bit errors detected in the headers of received cells. If single bit errors are corrected, the affected cells are passed up to the ATM layer according to normal operation. If single bit errors are not corrected, these errored cells are discarded by the physical layer. Note that cells containing multiple bit errors in their headers are always discarded.

Single bit HEC error correction must remain ***off*** for the following card types: 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 2pJ6MAtm, 3pDS3Atm, and 3pE3Atm.

| | |
|---|---|
| Values | off<br>on |
| Default | off |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Chan Cell clearDelay (clear)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the minimum elapsed time between the clearing of the Loss of Cell Delineation (LCD) defect and the port returning to service. The LCD defect should be absent for the entire period of elapsed time. This attribute value is specified in minutes. If the value of the *clearDelay* attribute is initially 0 (default), the time is actually about 10 seconds.<br>This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm. |
| Values | Decimal (0..60) |
| Units | minutes |
| Default | 0 |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Chan Cell hecSampleInterval (hSample)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the sampling interval (in seconds) for errors associated with the *uncorrectableHeaderErrors* attribute. When the sum of errors counted by the *uncorrectableHeaderErrors* attribute over the interval time is greater than or equal to the provisioned *hecErrorLimit* attribute, the sample interval is considered errored. If the number of consecutive errored intervals reaches the limit established in the *hecErrorIntervalLimit* attribute, an LCD alarm is declared and the port is disabled. If the attribute *hecSampleInterval* is set to the default, 0, then the attribute *uncorrectableHeaderErrors* cannot be used to bring down the port.<br>This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm. |
| Values | Decimal (0..25) |
| Units | seconds |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Chan Cell hecErrorLimit (hLimit)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the error threshold for a HEC error sampling interval beyond which a port is brought down. When the value of the *uncorrectableHeaderErrors* attribute accumulated over the provisioned value of the *hecSampleInterval* attribute is greater than or equal to the provisioned value of the *hecErrorLimit* attribute, the sample interval is considered errored. If the number of consecutive errored intervals reaches the limit established in the *hecErrorIntervalLimit* attribute, an LCD alarm is declared and the port is disabled. (Please note that a *hecErrorInterval* attribute value of 0 (default) disables the mechanism of using the value of the *uncorrectableHeaderErrors* attribute to disable a port.)<br>This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm. |
| Values | Decimal (1..250000) |
| Default | No default |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Chan Cell lcdStateDelay (delay)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time during which an Out of Cell Delineation (OCD) defect should be observed before moving to the Loss of Cell Delineation (LCD) defect state. The time is specified in milliseconds. The valid values are 1 to 50 milliseconds if the *AtmCell c*omponent is located under the *Ds1* or *E1* component, and 1 to 5 milliseconds if under a *Ds3* or *E3* component.<br>This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm. |
| Values | Decimal (1..50) |
| Units | msec |
| Default | No default |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Chan Cell hecErrorIntervalLimit (hIntLimit)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute counts the instances of the *hecSamplingInterval* attribute for all HEC errors (specified by the *uncorrectableHeaderError* attribute) before an LCD alarm is generated. The alarm is only generated if the value of the *uncorrectableHeaderErrors* attribute in a given interval is greater than the value of the *hecErrorLimit* attribute. For example, if there are 20 HEC errors in 5 seconds, for three times in a row (the number of times in a row is represented by this attribute), an alarm is raised. If there are 24 HEC errors in the 5 seconds, and 14 in the next 5 seconds no alarm is generated because the number of HEC errors should also be more than 20 in the next instances.<br>This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm. |
| Values | Decimal (1..25) |
| Default | 1 |

### GROUP Lp Sonet Sts Vt1dot5 DS1 Chan Cell Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the common operational attributes for the *AtmCell* component. |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Chan Cell lcdAlarm (lcd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays whether the Loss of Cell Delineation (LCD) failure alarm state has been entered. This state is entered when LCD defects have been observed and accumulated for a period of time specified through the *alarmActDelay* attribute.<br>In ATM cell direct mapping mode, an LCD defect occurs when Out of Cell Delineation (OCD) anomaly persists for *x* milliseconds, and disappears when the Out of Cell Delineation (OCD) is absent for *x* msec. An OCD anomaly occurs when 7 consecutive incorrect HECs have been detected. An OCD anomaly terminates when 6 consecutive correct HECs have been detected. |

For an *AtmCell* component located under a *DS3* or *E3* component with *mapping* = ***PLCP***, the LCD defect is directly derived from the PLCP LOF defect.
If LCD defects are intermittently occurring, the LCD defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle
The component under which is located the *AtmCell* component goes into an operational state of ***disabled*** until the LCD alarm condition is cleared. The condition is cleared after the LCD defect has not been reported for a period of 10 seconds +/- 0.5 seconds.
The *lcdAlarm* attribute is always set to off when the parent of the *AtmCell* component has been *locked* and left *offline*. This can also happen when the *Path* or *Channel* component has been suspended since its parent has been locked.

Values
on
off

Default
off

## GROUP Lp Sonet Sts Vt1dot5 DS1 Chan Cell Statistics (Stats)

Properties
Operational

Description
This group contains the statistics attribute for the *AtmCell* component. Each attribute type is a non-negative integer which monotonically increases until it reaches a maximum value, at which point it wraps around and starts increasing again from zero.

## ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Chan Cell uncorrectableHeaderErrors (ucErr)

Access
Read only

Description
This attribute indicates the number of uncorrectable ATM cell header errors that have been detected. Counting of *uncorrectableHeaderErrors* is inhibited when an Out of Cell Delineation (OCD) defect is present. An OCD defect occurs when seven consecutive incorrect HECs have been detected. An OCD defect terminates when six consecutive correct HECs have been detected.

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Chan Cell sevErroredSec (ses)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of ATM Cell Severely Errored Seconds (SESs) that have been counted.<br><br>In direct mapping mode, an ATM Cell SES is declared for second intervals containing one or more Out of Cell Delineation (OCD) defects. An OCD defect occurs when seven consecutive incorrect HECs have been detected. An OCD defect terminates when six consecutive correct HECs have been detected.<br><br>If the *AtmCell* component is located under a *Ds3* or *E3* component where the *mapping* attribute is set to ***plcp***, an ATM Cell SES is declared for second intervals containing one or more PLCP LOF defects.<br><br>Counting of *uncorrectableHeaderErrors* (*ucErr*) and *correctableHeaderErrors* (*cErr*) is inhibited when the OCD defect is present. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Chan Cell receiveCellUtilization (rxutil)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the ratio of the number of valid, assigned cells received on the link to the nominal link capacity. The utilization is calculated over a period of one minute.<br>This attribute is always set to ***0*** when the parent of the *AtmCell* component has been *locked* and left *offline.* This can also happen when the *Path* or *Channel* component has been *suspended* since its parent has been *locked*. |
| Values | Decimal (0..100) |
| Units | % |

Default 0

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Chan Cell transmitCellUtilization (txutil)

Access Read only

Description This attribute is the ratio of the number of valid, assigned cells transmitted on the link to the nominal link capacity. The utilization is calculated over a period of one minute.
This attribute is always set to ***0*** when the parent of the *AtmCell* component has been *locked* and left *offline*. This can also happen when the *Path* or *Channel* component has been *suspended* since its parent has been *locked*.

Values Decimal (0..100)

Units %

Default 0

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Chan Cell correctableHeaderErrors (cErr)

Access Read only

Description This attribute indicates the number of correctable ATM cell header errors that have been detected and corrected. Counting of *correctableHeaderErrors* is inhibited when an Out of Cell Delineation (OCD) defect is present. An OCD defect occurs when seven consecutive incorrect HECs have been detected. An OCD defect terminates when six consecutive correct HECs have been detected

Values Decimal (0..4294967295)

Default 0

### COMPONENT Lp Sonet Sts Vt1dot5 DS1 Chan TrunkConditioning (Tc)

Groups "GROUP Lp Sonet Sts Vt1dot5 DS1 Chan Tc Provisioned (Prov)"
"GROUP Lp Sonet Sts Vt1dot5 DS1 Chan Tc Operational (Op)"

Scope Device

Description *Lp/n Ds1/n Chan/n Tc*
*Lp/n E1/n Chan/n Tc*
*Lp/n Ds3/n Ds1/n Chan/n Tc*
*Lp/n Sdh/n Vc4/n Vc12/k,l,m E1 Chan/n Tc*

*Lp/n Sonet/n Sts/n Vt1dot5/l,m Ds1 Chan/n Tc*
*Laps/n* Vc4/n Vc12/k,l,m E1 Chan/n T*c*
*Laps/n* Sts/n Vt1dot5/l,m Ds1 Chan/n T*c*

The *Tc* component is used to provision and monitor trunk conditioning options. A separate instance of this component is required for each *Chan* on a Port which is offering a structured constant bit rate service.

Under certain failure alarm conditions, trunk conditioning *replacementData* is substituted into the *timeslots* as defined by the *Chan* component. Trunk conditioning signaling is also substituted into the appropriate Channel Associated Signaling (CAS) bits when a *lineType* that uses CAS has been defined.

When used with AAL1 Circuit Emulation Service, trunk conditioning is transmitted towards the ATM network under the following conditions:
lossOfSignal (LOS)
lossOfFrame (LOF)
remoteAlarmIndication (RAI)
alarmIndicationSignal (AIS)
bufferUnderflow (BU)
and in addition for E1:
lossOfMultiframe (LOMF)
receiveMultiframeRemoteAlarmIndication (RMRAI)

When used with AAL1 Circuit Emulation Service, trunk conditioning is transmitted towards the PDH network under the following conditions:
bufferUnderflow (BU)
AAL1 protocol errors.

This component needs to be provisioned on 2pDs3cAal and 32pE1Aal FPs.

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Lp Sonet Sts Vt1dot5 DS1 Chan Tc Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all specific provisioning data for a *Tc* component. |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Chan Tc replacementData (data)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the trunk conditioning data byte to be substituted into the *timeslots* defined by the *Chan* component under fault conditions.<br><br>The attribute *replacementData* can be set to any two digit hexadecimal number. The following are recommended values:<br>DS1 MUX Out Of Service Code = 0x1A<br>E1 MUX Out Of Service Code = 0xFF<br><br>On the ***4pDS3ChAal1*** card, the only allowed value for this attribute is ***0xFF***.<br><br>On the ***4pOC3ChSmIr*** and ***2pOC3ChSmIrVsp3*** cards, the default value for this attribute is ***0x1A*** for DS1 and ***0xFF*** for E1. On all other cards the default value is ***0xFF***. |
| Values | Hex (H.0..H.ff) |
| Units | Hex |
| Default | No default |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Chan Tc signalOneDuration (duration)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute specifies the time duration in seconds for which *signalOne* is substituted into the appropriate signaling bits, when a *lineType* that uses CAS has been defined. When *signalOneDuration* has expired *signalTwo* is substituted into the appropriate signaling bits.<br><br>If *signalOneDuration* is set to zero then only *signalTwo* is substituted into the appropriate signaling bits during error conditions.<br><br>The *signalOneDuration* attribute can be set to any integer value from 0 to 60 seconds. |
| Values | Decimal (0..60) |
| Units | seconds |
| Default | 0 |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Chan Tc noServiceResponse (resp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the Channel's egress response when it has no service provisioned, or the service provisioned is unavailable due to a near end failure. The following responses are available:<br><br>***autoConfigure*** - automatically configure the channels response.<br>***tc*** - transmit trunk conditioning on all timeslots provisioned in the egress direction.<br>***ais*** - transmit AIS in the egress direction.<br>***noResponse*** - no response is sent in the egress direction.<br><br>A value of ***autoConfigure*** will result in TC being transmitted for all card types. |
| Values | autoConfigure<br>tc<br>ais<br>noResponse |
| Default | autoConfigure |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Chan Tc signalOne (sigOne)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the value to be substituted into the ABCD signaling bits for the *timeslots* defined by the *Chan* component under fault conditions. The value will be substituted for the duration provisioned in *signalOneDuration* when a *lineType* that uses CAS has been defined.<br><br>For a *lineType* of ***d4Cas*** (Super Frame), signaling bits C and D are required to equal bits A and B respectively. |
| Vector of | Decimal (0..1) |
| Index | D<br>C<br>B<br>A |
| Default | (1, 1, 1, 1) |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Chan Tc signalTwo (sigTwo)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the value to be substituted into the ABCD signaling bits for the *timeslots* defined by the *Chan* component under fault conditions. The value will be substituted after the duration provisioned in *signalOneDuration* has expired and when a *lineType* that uses CAS has been defined.<br><br>For a *lineType* of ***d4Cas*** (Super Frame), signaling bits C and D are required to equal bits A and B respectively. |
| Vector of | Decimal (0..1) |
| Index | D<br>C<br>B<br>A |
| Default | (1, 1, 1, 1) |

## GROUP Lp Sonet Sts Vt1dot5 DS1 Chan Tc Operational (Op)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all specific operational data for a *Tc* component. |

## ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Chan Tc ingressConditioning (inCon)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the status of locally generated trunk conditioning towards the ATM network.<br><br>When trunk conditioning is being locally generated towards the ATM network, *ingressConditioning* is set to ***on.***<br><br>When trunk conditioning is not being locally generated towards the ATM network, *ingressConditioning* is set to ***off***.<br><br>Trunk conditioning is transmitted towards the ATM network under the following conditions:<br>lossOfSignal (LOS)<br>lossOfFrame (LOF)<br>remoteAlarmIndication (RAI)<br>alarmIndicationSignal (AIS)<br>bufferUnderflow (BU)<br>and in addition for E1:<br>lossOfMultiframe (LOMF)<br>receiveMultiframeRemoteAlarmIndication (RMRAI) |
| Values | off<br>on |
| Default | off |

## ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Chan Tc egressConditioning (egCon)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the status of locally generated trunk conditioning towards the PDH line.<br><br>When trunk conditioning is being locally generated towards the |

PDH line, *egressConditioning* is set to ***on.***

When trunk conditioning is not being locally generated towards the PDH line, *egressConditioning* is set to ***off***.

Trunk conditioning is transmitted towards the PDH line under the following conditions:
bufferUnderflow (BU)
AAL1 protocol errors.

Values
off
on

Default
off

## COMPONENT Lp Sonet Sts Vt1dot5 DS1 Test (Test)

Groups
"GROUP Lp Sonet Sts Vt1dot5 DS1 Test OsiState (State)"
"GROUP Lp Sonet Sts Vt1dot5 DS1 Test Setup (Setup)"
"GROUP Lp Sonet Sts Vt1dot5 DS1 Test Results (Results)"

Scope
Application

Description
The *Test* component is configured to control a hardware facility test on a physical (*V*35, *X21, DS1, E1, DS3, E3* etc.) or a logical port.

Common Verbs
Help
List
Display

## VERB START Lp Sonet Sts Vt1dot5 DS1 Test

Impact
Service

Description
This command invokes a test on the hardware component. Note that some test types requires the parent component (the hardware component) to be locked (using the *Lock* command) before a test can be started.

## VERB STOP Lp Sonet Sts Vt1dot5 DS1 Test

Impact
Service

Description
This command stops a test running on the hardware component.

### GROUP Lp Sonet Sts Vt1dot5 DS1 Test OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Test adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Test operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component. |

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Test usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Lp Sonet Sts Vt1dot5 DS1 Test Setup (Setup)

Properties
Operational

Description
This group contains all of the operational data for a *Test* component.

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Test purpose (purpose)

Access
Read and write

| | |
|---|---|
| Description | This attribute records the purpose of the test so that the test results can be associated and properly analyzed. |
| Values | String (0..40, ASCII) |
| Default | No default |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Test type (type)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the type of test to be run. The available test types include the following:<br>***card*** test sets up an internal loop on the board and runs a bit error rate test.<br>***manual*** test assumes the line is looped back externally and a bit error rate test is performed.<br>***localLoop*** test loops back the local modem and performs a bit error rate test.<br>***remoteLoop*** test loops back the remote modem (or CSU) and performs a bit error rate test.<br>***externalLoop*** test loops back the line to the far end.<br>***payloadLoop*** test only loops back the payload data received from the incoming line.<br>***remoteLoopThisTrib*** loops this particular tributary back at the far end, using services provided by the parent.<br>***v54RemoteLoop*** initiates a V.54 Remote Loopback test.<br>***pn127RemoteLoop*** initiates a PN127 Remote Loopback test.<br>***lineBIP8Error*** tests line BIP 8 error generation and detection (B2 byte inverted).<br>***sectionBIP8Error*** tests section BIP 8 error generation and detection (B1 byte inverted).<br>***pathBIP8Error*** tests path BIP 8 error generation and detection (B3 byte inverted).<br>***pathBIP2Error*** tests path BIP 2 error generation and detection (bit 1-2 of V5 byte inverted).<br>Note that not all test types are not supported by all function processors. |
| Values | card<br>manual<br>localLoop<br>remoteLoop |

externalLoop
payloadLoop
remoteLoopThisTrib
v54RemoteLoop
pn127RemoteLoop
lineBIP8Error
sectionBIP8Error
pathBIP8Error
pathBIP2Error

Default: card

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Test frmSize (size)

Access: Read and write

Description: This attribute defines the size of the test data frames in number of bytes.
This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame.

Values: Decimal (4..4096)

Units: bytes

Default: 1024

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Test frmPatternType (fpt)

Access: Read and write

Description: This attribute defines the type of data pattern generation to use. The following lists the available pattern types:
***ccitt32kBitPattern*** is a pseudo-random sequence of 32 kbit.
***ccitt8MBitPattern*** is a pseudo-random sequence of 8Mbit.
***customizedPattern*** is the pattern defined in the ***customizedPattern*** attribute.

Values:
ccitt32kBitPattern
ccitt8MBitPattern
customizedPattern

Default: ccitt32kBitPattern

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Test customizedPattern (cp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute allows a customized 32 bit pattern to be defined for use in the test data frames. This attribute is used when the attribute *frmPatternType* is set to ***CustomizedPattern***. Note that a 55 hex pattern is an alternating 1 and 0 pattern. |
| Values | Hex (H.0..H.ffffffff) |
| Units | Hex |
| Default | H.55555555 |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Test dataStartDelay (dsd)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time delay (in seconds) between when the test expects the loop to have been set up, to when the test data actually starts to be transmitted. This attribute is to accommodate some non-standard equipment that requires extra time for setting up a requested loop.<br>This attribute is ignored when the test *type* is set to ***externalLoop***. |
| Values | Decimal (0..1814400) |
| Units | seconds |
| Default | 0 |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Test displayInterval (di)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the interval (in minutes) between which interim test results are to be displayed. Results are displayed at the operator console at which the test was started. When the test *type* is set to ***externalLoop***, this attribute is ignored. There will be no display of results if *displayInterval* is set to 0. This attribute can be changed anytime. |
| Values | Decimal (0..30240) |
| Units | minutes |

| | |
|---|---|
| Default | 5 |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Test duration

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the duration for which the test data will be transmitted. In the case of an ***externalLoop***, this is the time that the loop is in effect. Note that *dataStartDelay* does not apply to the ***externalLoop*** test type. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 1.00 |

### GROUP Lp Sonet Sts Vt1dot5 DS1 Test Results (Results)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all the statistics related attributes of the *Test* component. |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Test causeOfTermination

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates either the status of the test or the cause of the test's termination:<br><br>a value of ***neverStarted*** indicates that the test has not yet been started.<br><br>a value of ***testRunning*** indicates that the test has been started.<br><br>a value of ***stoppedByOperator*** indicates that the operator issued a stop command on a test that was running.<br><br>a value of ***testTimeExpired*** indicates that the test ran for the time specified by the test's *duration*.<br><br>a value of ***loopCodeSyncFailed*** indicates that the local end failed to synchronize to the loopCode pattern. The local end transmits the loopCode pattern to cause the remote end to apply a |

loopback, after which the local end should receive the loopCode pattern. The exact pattern used to request loopCode depends on the test *type*. This failure indicates a high rate of transmission errors, or that the remote end has failed to apply the loopback.

a value of ***patternSyncFailed*** indicates that the local end failed to synchronize to the *frmPatternType* test pattern, that should have been looped back at the remote end. This failure indicates a high rate of transmission errors or the absence of a loopback.

a value of ***patternSyncLost*** indicates that the local end gained and then lost synchronization to the returned *frmPatternType* test pattern. This failure indicates a sudden increase in transmission errors, frame slippage, or the removal of an existing loopback.

a value of ***unknown*** is set when a reason to terminate other than those listed here is encountered.

Note: The *causeOfTermination* attribute values of ***loopCodeSyncFailed***, ***patternSyncFailed*** and ***patternSyncLost*** are supported only on MSA cards. *Test* components located on other cards or under an *Ima* component on an MSA card will never terminate the test under the conditions described by these values.

| | |
|---|---|
| Values | testTimeExpired<br>stoppedByOperator<br>unknown<br>neverStarted<br>testRunning<br>hardwareReconfigured<br>loopCodeSyncFailed<br>patternSyncFailed<br>patternSyncLost |
| Default | neverStarted |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Test bitsTx

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the bits sent during the test period. As long as the line speed of the hardware interface is less than 70 Mbit/s, this counter is not expected to reach the maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Test bytesTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes sent during the test period. This counter is not expected to reach its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Test frmTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames sent during the test period. This counter is not expected to reach its maximum value.<br><br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Test bitsRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bits received during the test period. The counter wraps to zero when it exceeds the maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Test bytesRx

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the bytes received during the test period. The counter wraps to zero when it exceeds its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Test frmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received during the test period. The counter wraps to zero when it exceeds its maximum value.<br><br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Test erroredFrmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute is not displayed for ATM and MSA32 cards. For ATM cards, the physical layer drops all errored frames at the controller interface. For MSA32 cards, the test does not generate any frame.<br><br>For all other card types, this attribute counts the errored frames received during the test period. The counter wraps to zero when it exceeds its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Test bitErrorRate

| | |
|---|---|
| Access | Read only |
| Description | This attribute is not displayed for ATM cards because the physical layer drops all errored frames at the controller interface. For MSA32 cards, this attribute indicates the link bit error rate, regardless of the *frameSize*, which is not supported |

For all other card types, this attribute is the calculated bit error rate on the link. Test data are generated and sent in frames of a preset size (*frameSize*). The *Test* component will try to estimate the number of bit errors in any errored frame which is identifiable. The statistics will be updated accordingly. A lost frame (may be due to an error on the flag sequence) will be discarded for the bit error rate calculation. The result is presented in the form of xEsyy, where x is the mantissa, syy is the exponent, for example 0E+00, 2E-09.
Note that the *bitErrorRate* is an estimate only. For more reliable test results, the test should be done over a long period. Multiple tests would also improve the confidence level of the test results.

Values: String (5, ASCII)

Default: No default

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Test elapsedTime

Access: Read only

Description: This attribute indicates the time elapsed since the test started for an ***externalLoop*** test. For a data test, it indicates time since test data was first transmitted.

Values: Decimal (0.00..30240.00)

Units: minutes

Default: 0.00

### ATTRIBUTE Lp Sonet Sts Vt1dot5 DS1 Test timeRemaining

Access: Read only

Description: This attribute indicates the length of time remaining before the test stops according to the *duration* attribute.

Values: Decimal (0.00..30240.00)

Units: minutes

Default: 0.00

## COMPONENT Lp Sonet OpticalModule (Om)

| | |
|---|---|
| Groups | "GROUP Lp Sonet Om Provisioned (Prov)"<br>"GROUP Lp Sonet Om OsiState (State)"<br>"GROUP Lp Sonet Om Operational (Oper)" |
| Scope | Device |
| Description | *Lp/n Ethernet/n OpticalModule*<br>This component represents the optical module device of the port. The optical module is used to identify the type of connection for a port. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Lp Sonet Om Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioning data for the *OpticalModule* component. |

## ATTRIBUTE Lp Sonet Om type

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the expected optical module type. The values for the *type* and *insertedType* attributes must match; otherwise, an alarm is raised and the *OpticalModule* component is disabled.<br><br>***none***: This value indicates that no optical module type is specified..<br><br>***LX***: This value indicates that the optical module is a gigabit ethernet type using long wavelength laser devices over multimode and single-mode fiber.<br><br>***SX***: This value indicates that the optical module is a gigabit |

ethernet type using short wavelength laser devices over multimode fiber.

***OC3SmLr***: This value indicates that the optical module is an OC3 type using long wavelength laser devices over singlemode fiber.

***OC3SmIr***: This value indicates that the optical module is an OC3 type using intermediate wavelength laser devices over singlemode fiber.

***OC3MmSr***: This value indicates that the optical module is an OC3 type using short wavelength laser devices over multimode fiber.

Values
none
LX
SX
OC3SmLr
OC3SmIr
OC3MmSr

Default
none

## GROUP Lp Sonet Om OsiState (State)

Properties
Operational

Description
This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

## ATTRIBUTE Lp Sonet Om adminState (osiAdmin)

Access
Read only

Description
This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively

prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Lp Sonet Om operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Lp Sonet Om usageState (osiUsage)

Access
Read only

Description

This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values

idle
active (activ)
busy

Default

idle

## GROUP Lp Sonet Om Operational (Oper)

Properties

Operational

Description

This group contains the operational data for the *OpticalModule* component.

## ATTRIBUTE Lp Sonet Om insertedType

Access

Read only

Description

This attribute indicates the inserted optical module type.

***none***: This value indicates that there is no optical module inserted to the card.

***LX***: This value indicates that the optical module is a gigabit ethernet type using long wavelength laser devices over multimode and single-mode fiber.

***SX***: This value indicates that the optical module is a gigabit ethernet type using short wavelength laser devices over multimode fiber.

***OC3SmLr***: This value indicates that the optical module is an OC3 type using long wavelength laser devices over singlemode

fiber.

***OC3SmIr***: This value indicates that the optical module is an OC3 type using intermediate wavelength laser devices over singlemode fiber.

***OC3MmSr***: This value indicates that the optical module is an OC3 type using short wavelength laser devices over multimode fiber.

Values
none
LX
SX
OC3SmLr
OC3SmIr
OC3MmSr

Default
none

### ATTRIBUTE Lp Sonet Om serialNumber

Access
Read only

Description
This attribute indicates the serial number of the inserted optical module.

Values
String (0..64, Extended ASCII)

Default
""

### ATTRIBUTE Lp Sonet Om failureCause

Access
Read only

Description
This attribute indicates the cause for the optical module's failure. The possible values are:

***typeMismatch***: This error indicates a mismatch between the *type* and *insertedType* attributes.

***internalError***: This error indicates an internal diagnostic failure of the optical module.

***unsupportedOm:*** This error indicates that the inserted optical

module is not supported on this card.

***absentOm***: This error indicates that no optical module are currently present on this port.

***noFailure***: There is no failure.

Values
typeMismatch
internalError
unsupportedOm
absentOm
noFailure

Default
noFailure

## COMPONENT Lp Sdh

Instance
Decimal (0..15)

Groups
"GROUP Lp Sdh Provisioned (Prov)"
"GROUP Lp Sdh CustomerIdentifierData (CidData)"
"GROUP Lp Sdh AdminInfo (AdminInfo)"
"GROUP Lp Sdh IfEntryProv (IfEntry)"
"GROUP Lp Sdh OperationalStatus (OperStatus)"
"GROUP Lp Sdh OsiState (State)"
"GROUP Lp Sdh Operational (Oper)"
"GROUP Lp Sdh Statistics (Stats)"

Scope
Device

Description
*Lp/n Sdh/n*
This component controls a port on an SDH card. In particular, it deals with SDH medium, section and line layers.
Note that there can be *Sonet* and *Sdh* components coexisting under the same LP. However they cannot use the same instance.

A *Path* or *Vc4* component is automatically created when an *Sdh* component is added on a Passport 7000 FP.The *Path* component is used only on FPs that do not support Virtual Container (VC).

| | |
|---|---|
| Opt. Subcomp. | "COMPONENT Lp Sdh Path"<br>"COMPONENT Lp Sdh Vc4"<br>"COMPONENT Lp Sdh OpticalModule (Om)" |
| Dyn. Subcomp. | "COMPONENT Lp Sdh Test (Test)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP Lp Sdh Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioning data for a *Sonet* or *Sdh* component. |

## ATTRIBUTE Lp Sdh clockingSource

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the type of clocking source used for synchronizing the transmit clock: ***local*** means direct use of the local clock oscillator at its centre frequency; ***line*** means the use of a signal phase-locked to the incoming line rate; ***module*** means the use of a signal phase-locked to the CP reference clock.<br><br>When adding a *Sonet* or *Sdh* component, the *clockingSource* attribute is set to ***module*** if the *NetworkSynchronization* component has been added and is set to ***local*** otherwise.<br><br>Note that the multiport cell-based cards have one common clock source for each of the three ports when either the clocking source ***local*** or ***module*** is selected. For this reason, it is not allowed to have at the same time the *clockingSource* attribute set to ***local*** on one port and ***module*** on another port. Furthermore, the |

*clockingSource* attribute cannot be set to ***module*** if the *NetworkSynchronization* component has not been added.

Values
local
line
module

Default
No default

### ATTRIBUTE Lp Sdh lineAutomaticProtectionSwitch (laps)

Access
Read and write

Criticality
Process

Description
This attribute specifies the name of the *Laps* component. In the case of intra-card configurations, the specified *Laps* component is used to provide sparing of lines which use this port and its mate; in the case of inter-card configurations, the specified *Laps* component is used to provide sparing of lines only.

Values
Link

Default
No default

### ATTRIBUTE Lp Sdh txSectionTrace

Access
Read and write

Description
This attribute specifies the section identifier. The string must be constructed with 7-bit characters only. The section identifier is prefixed by a CRC byte and padded with null characters if necessary to form the 16-octet section trace message transmitted in byte J0 of 16 outgoing frames. At the remote end, the section trace is reassembled, the CRC is checked and the message is compared to the *expectedRxSectionTrace* attribute. If a mismatch is detected, an alarm is issued.

Usage guidelines for the section trace are found in clause 3 of the ITU G.831 standard which defines the Access Point Identifier format.

The functionality supported by this attribute is not available.

Values
String (0..15, Extended ASCII)

| | |
|---|---|
| Default | "" |

### ATTRIBUTE Lp Sdh expectedRxSectionTrace

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the expected section trace identifier which is used to identify the fiber connected to the associated port. This attribute must match the corresponding *txSectionTrace* provisioned at the transmitting equipment end. If it does not, an alarm is issued.<br><br>The functionality supported by this attribute is not available. |
| Values | String (0..15, Extended ASCII) |
| Default | "" |

### ATTRIBUTE Lp Sdh s1RxDefault

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the default S1 byte reported by the port when the received S1 byte is 0 (quality unknown). No default is applied when this attribute is set to ***none***. |
| Values | Decimal (0..15)<br>none |
| Default | none |

### ATTRIBUTE Lp Sdh s1TxOverride

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the S1 byte transmitted on the port regardless of the Synchronization Status Message (SSM) value provided by the *NetworkSynchronization* component. Changes in SSM value from the *NetworkSynchronization* component are ignored when this attribute is set to a value other than ***none***. |
| Values | Decimal (0..15)<br>none |
| Default | none |

### ATTRIBUTE Lp Sdh s1RxOverride

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the S1 byte value reported by the port regardless of the received value. Changes in S1 byte on the port are ignored when this attribute is set to a value other than ***none***. |
| Values | Decimal (0..15)<br>none |
| Default | none |

### GROUP Lp Sdh CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

### ATTRIBUTE Lp Sdh customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.<br><br>Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.<br><br>An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to "basic CIDs" in DPN) may be assigned to specific customers. |
| Values | Decimal (0; 1..8191) |

| | |
|---|---|
| Default | 0 |

### GROUP Lp Sdh AdminInfo (AdminInfo)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attributes pertaining to the vendor of the equipment. |

### ATTRIBUTE Lp Sdh vendor

| | |
|---|---|
| Access | Read and write |
| Description | This is the name of the vendor supplying the facility. |
| Values | String (0..20, ASCII) |
| Default | No default |

### ATTRIBUTE Lp Sdh commentText

| | |
|---|---|
| Access | Read and write |
| Description | Any miscellaneous text about the facility. |
| Values | String (0..60, ASCII) |
| Default | No default |

### GROUP Lp Sdh IfEntryProv (IfEntry)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the ifEntry. |

### ATTRIBUTE Lp Sdh ifAdminStatus (ifState)

| | |
|---|---|
| Access | Read and write |
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |

| | |
|---|---|
| Default | up |

### ATTRIBUTE Lp Sdh ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP Lp Sdh OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

### ATTRIBUTE Lp Sdh snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### GROUP Lp Sdh OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values |

and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Lp Sdh adminState (osiAdmin)

Access: Read only

Description: This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values:
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default: unlocked

### ATTRIBUTE Lp Sdh operationalState (osiOper)

Access: Read only

Description: This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for

operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Lp Sdh usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
idle
active (activ)
busy

Default
idle

### ATTRIBUTE Lp Sdh availabilityStatus (osiAvail)

Access
Read only

Description

If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.

The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.

The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.

The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.

The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is

one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

## ATTRIBUTE Lp Sdh proceduralStatus (osiProc)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has

not been initiated. The *operationalState* is ***disabled***.

The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

## ATTRIBUTE Lp Sdh controlStatus (osiCntrl)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but

tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

Set of

subjectToTest (subTst)
partOfServicesLocked (partLk)
reservedForTest (rsrvd)
suspended (suspnd)

Default

No default

## ATTRIBUTE Lp Sdh alarmStatus (osiAlarm)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE Lp Sdh standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the

role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values
hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

Default
notSet

### ATTRIBUTE Lp Sdh unknownStatus (osiUnknw)

Access
Read only

Description
This attribute indicates the OSI Unknown status of the component.

The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.

The value ***true*** indicates that the actual state of the component is not known for sure.

Values
false
true

Default
false

### GROUP Lp Sdh Operational (Oper)

Properties
Operational

Description
This group contains the common operational data for a *Sonet* or *Sdh* component.

### ATTRIBUTE Lp Sdh losAlarm (los)

Access
Read only

Description
This attribute indicates whether a Loss Of Signal (LOS) alarm state has been entered. An LOS alarm state is entered when LOS defects have been observed and accumulated for a period of 2.5

seconds +/- 0.5 seconds, or if an LOS defect is present when the criteria for LOF failure declaration have been met. An LOS defect is declared when 20+/-3 us of all-zeros pattern is detected. The LOS defect is cleared when two valid framing words are detected and no Loss of Signal condition is detected during an interval of 20+/-3 us. If the LOS defects are intermittently occurring, the LOS defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.
The *Sonet/Sdh* component goes into an operational state of *disabled* until the LOS alarm condition is cleared. The LOS alarm state is cleared after LOS defects have been absent for a period of 10 seconds +/- 0.5 seconds.
The *losAlarm* attribute is always set to ***off*** when the component has been *locked* and left *offline*.

Values
on
off

Default
No default

## ATTRIBUTE Lp Sdh lofAlarm (lof)

Access
Read only

Description
This attribute displays whether a Loss Of Frame (LOF) alarm state has been entered. An LOF alarm state is entered when LOF defects have been observed and accumulated for a period of 2.5 seconds +/- 0.5 seconds, except when an LOS defect or failure is present. An LOF defect is detected when getting contiguous errored frame alignment for at least 3 msec. If the LOF defects are intermittently occurring, the LOF defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.
The *Sonet/Sdh* component goes into an operational state of *disabled* until the LOF alarm condition is cleared. The condition is cleared when framing has been achieved for a period of 10 seconds +/- 0.5 seconds.
The *lofAlarm* attribute is always set to ***off*** when the component has been *locked* and left *offline*.

| | |
|---|---|
| Values | on<br>off |
| Default | No default |

### ATTRIBUTE Lp Sdh rxAisAlarm (ais)

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays whether a Line Alarm Indication Signal (L-AIS) alarm state has been entered. An L-AIS alarm state is entered when L-AIS defects have been observed and accumulated for a period of 2.5 seconds +/- 0.5 seconds. The L-AIS defect is the occurrence of the L-AIS signal in five contiguous STS (STM) frames (111 pattern in bits 6,7, and 8 of the K2 bytes). If the L-AIS defects are intermittently occurring, the L-AIS defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.<br>The *Sonet/Sdh* component goes into an operational state of *disabled* until the L-AIS alarm condition is cleared. The condition is cleared after not detecting the L-AIS signal for a period of 10 seconds +/- 0.5 seconds.<br>The *rxAisAlarm* attribute is always set to ***off*** when the component has been *locked* and left *offline*. |
| Values | on<br>off |
| Default | No default |

### ATTRIBUTE Lp Sdh rxRfiAlarm (rfi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays whether a Line Remote Failure Indication (LRFI) alarm state has been entered. An L-RFI alarm state is entered when Line Remote Failure Indication (L-RDI) defects have been observed and accumulated for a period of 2.5 seconds +/- 0.5 seconds. The L-RDI defect is the occurrence of the L-RDI signal in five contiguous valid STS (STM) frame (110 pattern in bits 6,7, and 8 of the K2 bytes). If the L-RDI defects are intermittently occurring, the L-RDI defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm |

integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.
The *Sonet/Sdh* component goes into an operational state of *disabled* until the L-RFI alarm condition is cleared. The condition is cleared after not detecting the L-RDI signal for a period of 10 seconds +/- 0.5 seconds.
The *rxRfiAlarm* attribute is always set to ***off*** when the component has been *locked* and left *offline*.

Values
on
off

Default
No default

### ATTRIBUTE Lp Sdh txAis

Access
Read only

Description
This attribute displays whether the Line Alarm Indication Signal (L-AIS) signal is being transmitted on the outgoing line. This signal is transmitted when the *Sonet/Sdh* is *locked* and left *offline*.

Values
on
off

Default
No default

### ATTRIBUTE Lp Sdh txRdi

Access
Read only

Description
This attribute displays whether the Line Remote Defect Indicator (L-RDI) signal is being transmitted over the OC-3 line. The L-RDI signal is transmitted upon the detection of the LOS, LOF or L-AIS defect. This attribute is always set to ***off*** when the component has been *locked* and left *offline*.

Values
on
off

Default
No default

### ATTRIBUTE Lp Sdh unusableTxClockRefAlarm (utcr)

Access
Read only

| | |
|---|---|
| Description | This attribute displays whether an Unusable Transmit Clock Reference (UTCR) alarm state has been entered. A UTCR alarm state is entered when a Sonet/Sdh port provisioned to act as a transmit clock reference has received the code “do not use for synchronization” in the S1 byte (in the SONET/ SDH line overhead) for 2.5 +/- 0.5 seconds.<br>The condition is cleared after not detecting the “do not use for synchronization” code for a period of 10 +/- 0.5 seconds or when the port is no longer provisioned to act as a transmit clock reference.<br>A port is acting as a transmit clock reference if it is provisioned with a) a *clockingSource* of *line*, or b) it has been provisioned as a primaryReference, secondaryReference or tertiaryReference in the NetworkSynchronization component.<br>The *unusableTxClockRefAlarm* attribute is always set to ***off*** when the component has been *locked* and left *offline*. |
| Values | on<br>off |
| Default | No default |

### ATTRIBUTE Lp Sdh s1Rx (s1R)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current S1 byte received on the port. |
| Values | Decimal (0..15) |
| Default | No default |

### ATTRIBUTE Lp Sdh s1Tx (s1T)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current S1 byte transmitted on the port. |
| Values | Decimal (0..15) |
| Default | No default |

## GROUP Lp Sdh Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the statistics data for a *Sonet* or *Sdh* component. Each attribute type is a non-negative integer which monotonically increases until it reaches a maximum value, at which point it wraps around and starts increasing again from zero. |

## ATTRIBUTE Lp Sdh runningTime (time)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of seconds since the *Sonet/Sdh* component has been activated and been in unlocked state. All the other error counts that follow can be updated when this count is active. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## ATTRIBUTE Lp Sdh errorFreeSec (efs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of seconds that the *Sonet/Sdh* component has been in a near-end error free state. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## ATTRIBUTE Lp Sdh sectCodeViolations (scv)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of Section Code Violations (SCVs) detected. A SCV corresponds to section BIP-8 error. SCV counting is inhibited for second intervals where a Section Severely Errored Second (SSES) is counted. The count wraps at its maximum value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE Lp Sdh sectErroredSec (ses)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of Section Errored Seconds (SESs) that have been counted. A SES is declared for second intervals containing one or more SCVs or one or more Loss Of Signal (LOS) or Severely Errored Frame (SEF) defects. A SEF defect is the occurrence of 4 contiguous errored STS or STM frame alignment words. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sdh sectSevErroredSec (sses)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of Section Severely Errored Seconds (SSESs) that have been counted. A SSES is declared for second intervals containing more than *x* SCVs or one or more LOS or SEF defects. The value of *x* is 16 for 155 Mbit/s interface. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sdh sectLosSec (sloss)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of Section LOS Seconds (SLOSSs) that have been counted. A SLOSS is declared for second intervals containing one or more LOS defects. |
| Values | Decimal (0..429496729) |
| Default | 0 |

### ATTRIBUTE Lp Sdh sectSevErroredFrmSec (ssefs)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the total number of Section Severely Errored Frame Seconds (SSEFSs) that have been counted. A SSEFS is declared for second intervals containing one or more SEF defects. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sdh sectFailures (sf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of times that a section failure (LOS or LOF failure) has been declared. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sdh lineCodeViolations (lcv)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of Line Code Violations (LCVs) detected. A LCV corresponds to a line BIP-24 errors. LCV counting is inhibited for second intervals where a Line Severely Errored Second (LSES) is counted. Counting of LCVs is also inhibited over second intervals where a Line Unavailable Second (LUAS) is counted. The count wraps when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sdh lineErroredSec (les)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of Line Errored Seconds (LESs) that have been counted. A LES is declared for second intervals containing one or more LCVs or one or more line AIS defects. Counting of LES is inhibited over second intervals where a LUAS is counted. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sdh lineSevErroredSec (lses)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of Line Severely Errored Seconds (LSESs) that have been counted. A LSES is declared for second intervals containing more than *x* LCVs or one or more L-AIS defects. The value of *x* is 32 for 155 Mbits/sec interface. Counting of LSES is inhibited over second intervals where a LUAS is counted. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sdh lineAisSec (laiss)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of Line AIS Seconds (LAISSs) that have been counted. A LAISS is declared for second intervals containing one or more L-AIS defects. Counting of LAISS is inhibited over second intervals where a LUAS is counted. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sdh lineUnavailSec (luas)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of one second intervals for which the STS line is unavailable. The STS line becomes unavailable at the onset of 10 consecutive LSESs. The 10 LSESs are included in the unavailable time. Once unavailable, the STS line becomes available at the onset of 10 contiguous seconds with no LSES. The 10 seconds with no LSES are excluded from the unavailable time. For second intervals where a Line Unavailable |

| | |
|---|---|
| | Second (LUAS) is counted, counting of LCV, LES, LSES and LAISS is inhibited. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sdh lineFailures (lf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of times that a line failure (L-AIS failure) has been declared. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sdh farEndLineErrorFreeSec (felefs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of seconds that the *Sonet* or *Sdh* component has been in a far-end error free state. |
| Values | Decimal (0..4294967295) |
| Units | seconds |
| Default | 0 |

### ATTRIBUTE Lp Sdh farEndLineCodeViolations (felcv)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of line FEBE detected from the incoming line. The counting of line FEBE is inhibited for second intervals where a Far-End Line Severely Errored Second (FELSES) is counted. Counting of FELCVs is also inhibited over second intervals where a Far-End Line Unavailable Second (FELUAS) is counted. The count wraps at its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sdh farEndLineErroredSec (feles)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of Far-End Line Errored Seconds (FELESs) that have been counted. A FELES is declared for second intervals containing one or more Far-End Line CVs (FELCVs) or one or more L-RDI defects. Counting of FELES is inhibited over second intervals where a FELUAS is counted. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sdh farEndLineSevErroredSec (felses)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of Far-End Line Severely Errored Seconds (FELSESs) that have been counted. A FELSES is declared for second intervals containing more than *x* FELCVs or one or more L-RDI defects. The value of *x* is 32 for 155 Mbit/s interface. Counting of FELSES is inhibited over second intervals where a FELUAS is counted. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sdh farEndLineAisSec (felaiss)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of Far-End Line AIS Seconds (FELAISSs) that have been counted. A FELAISS is declared for second intervals one or more L-RDI defects. Counting of FELAISS is inhibited over second intervals where a FELUAS is counted. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sdh farEndLineUnavailSec (feluas)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the total number of one second intervals for which the STS far-end line is unavailable. The STS far-end line becomes unavailable at the onset of 10 consecutive FELSESs. The 10 FELSESs are included in the unavailable time. Once unavailable, the STS far-end line becomes available at the onset of 10 contiguous seconds with no FELSES. The 10 seconds with no FELSES are excluded from the unavailable time. For second intervals where a Far-End Line Unavailable Second (FELUAS) is counted, counting of FELCV, FELES, FELSES and FELAISS is inhibited. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sdh farEndLineFailures (felf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of times that a far-end line failure (L-RFI failure) has been declared. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT Lp Sdh Path

| | |
|---|---|
| Instance | Decimal (0..0) |
| Groups | "GROUP Lp Sdh Path Provisioned (Prov)"<br>"GROUP Lp Sdh Path CustomerIdentifierData (CidData)"<br>"GROUP Lp Sdh Path OsiState (State)"<br>"GROUP Lp Sdh Path IfEntryProv (IfEntry)"<br>"GROUP Lp Sdh Path OperationalStatus (OperStatus)"<br>"GROUP Lp Sdh Path Operational (Oper)"<br>"GROUP Lp Sdh Path Statistics (Stats)" |
| Scope | Device |
| Description | *Lp/n Sonet/n Path/0*<br>*Lp/n Sdh/n Path/0*<br>This component controls a path signal that is carried within a SONET or SDH signal. The *Path* component can only be added under a *Sonet* or *Sdh* component. |

The migration escape renames the Path component under a Sonet to Sts, and the Path component under an Sdh to Vc4 in a passport 15000, but do not alter it in a passport 7000.
The check escape is added to disallow provisioning of a Path in a Passport 15000. The path cdl exists in a Passport 15000 for the purpose of renaming Path to Sts or Vc4.

Subcomponents "COMPONENT Lp Sdh Path AtmCell (Cell)"

Common Verbs
Help
List
Display
Add
DELete
LOCK
Unlock

### GROUP Lp Sdh Path Provisioned (Prov)

Properties Provisioned

Description This group contains all of the provisioning data for the component.

### ATTRIBUTE Lp Sdh Path applicationFramerName (framer)

Access Read only

Description This attribute defines which application is running on the path.

Values Link

Default No default

### GROUP Lp Sdh Path CustomerIdentifierData (CidData)

Properties Provisioned

Description This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs.

### ATTRIBUTE Lp Sdh Path customerIdentifier (cid)

Access Read and write

Description

This attribute holds the Customer Identifier (CID).

Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.

Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.

An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to "basic CIDs" in DPN) may be assigned to specific customers.

Values

Decimal (0; 1..8191)

Default

0

## GROUP Lp Sdh Path OsiState (State)

Properties

Operational

Description

This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

## ATTRIBUTE Lp Sdh Path adminState (osiAdmin)

Access

Read only

Description

This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or

*Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Lp Sdh Path operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
enabled (ena)
disabled (dis)

Default disabled

### ATTRIBUTE Lp Sdh Path usageState (osiUsage)

Access Read only

Description This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values idle
active (activ)
busy

Default idle

### ATTRIBUTE Lp Sdh Path availabilityStatus (osiAvail)

Access Read only

Description If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can

be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.

The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.

The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.

The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.

The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

| | |
|---|---|
| Set of | inTest<br>failed<br>dependency (depend)<br>powerOff (pwrOff)<br>offLine<br>offDuty<br>degraded (degrad)<br>notInstalled (notIn)<br>logFull<br>migrating |
| Default | No default |

### ATTRIBUTE Lp Sdh Path proceduralStatus (osiProc)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.<br><br>The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.<br><br>The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***. |

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

### ATTRIBUTE Lp Sdh Path controlStatus (osiCntrl)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

Set of

subjectToTest (subTst)
partOfServicesLocked (partLk)
reservedForTest (rsrvd)
suspended (suspnd)

Default

No default

## ATTRIBUTE Lp Sdh Path alarmStatus (osiAlarm)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE Lp Sdh Path standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values

hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

| | |
|---|---|
| Default | notSet |

### ATTRIBUTE Lp Sdh Path unknownStatus (osiUnknw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Unknown status of the component.<br><br>The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.<br><br>The value ***true*** indicates that the actual state of the component is not known for sure. |
| Values | false<br>true |
| Default | false |

### GROUP Lp Sdh Path IfEntryProv (IfEntry)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the ifEntry. |

### ATTRIBUTE Lp Sdh Path ifAdminStatus (ifState)

| | |
|---|---|
| Access | Read and write |
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE Lp Sdh Path ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |

| | |
|---|---|
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP Lp Sdh Path OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

### ATTRIBUTE Lp Sdh Path snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### GROUP Lp Sdh Path Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the common operational data for the component. |

### ATTRIBUTE Lp Sdh Path lopAlarm (lop)

| | |
|---|---|
| Access | Read only |

Description

This attribute displays whether a Loss Of Pointer (LOP) alarm state has been entered. An LOP alarm state is entered when LOP defects have been observed and accumulated for a period of 2.5 seconds +/- 0.5 seconds. An LOP defect occurs when no valid SPE or VC pointer was received in 8 contiguous frames. If the LOP defects are intermittently occurring, the LOP defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.

The component goes into an operational state of *disabled* until the LOP alarm condition is cleared. The condition is cleared when no more invalid pointer has been reported for 10 seconds +/- 0.5 seconds.

The *lopAlarm* attribute is always set to ***off*** when the component has been *Lock*ed and left *offline* by the operator or when the component has been *Suspend*ed since the parent component has been *Lock*ed.

Values

on
off

Default

No default

## ATTRIBUTE Lp Sdh Path rxAisAlarm (ais)

Access

Read only

Description

This attribute displays whether a Path Alarm Indication Signal (P-AIS) alarm state has been entered. A P-AIS alarm state is entered when P-AIS defects have been observed and accumulated for a period of 2.5 seconds +/- 0.5 seconds. The P-AIS defect is the occurrence of the P-AIS signal in three contiguous valid STS or STM frames (all one's in bytes H1 and H2). If the P-AIS defects are intermittently occurring, the P-AIS defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.

The component goes into an operational state of *disabled* until the P-AIS alarm condition is cleared. The condition is cleared

after no P-AIS defect has been detected for 10 seconds +/- 0.5 seconds.
The *rxAisAlarm* attribute is always set to ***off*** when the component has been *Lock*ed and left *offline* by the operator or when the component has been *Suspend*ed since the parent component has been *Lock*ed.

Values
on
off

Default
No default

### ATTRIBUTE Lp Sdh Path rxRfiAlarm (rfi)

Access
Read only

Description
This attribute displays whether the Path Remote Failure Indication (P-RFI) alarm state has been entered. A P-RFI alarm state is entered when Path Remote Defect Indicator (P-RDI) defects have been observed and accumulated for a period of 2.5 seconds +/- 0.5 seconds. The P-RDI defect is the occurrence of the P-RDI signal in five contiguous valid STS or STM frames (bit 5 of the G1 byte set to 1). If the P-RDI defects are intermittently occurring, the P-RDI defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10)with all measurements based on a 200 ms polling cycle.

The component goes into an operational state of *disabled* until the P-RFI alarm condition is cleared. The condition is cleared after no P-RDI defect has been detected for 10 seconds +/- 0.5 seconds.
The *rxRfiAlarm* attribute is always set to ***off*** when the component has been *Lock*ed and left *offline* by the operator or when the component has been *Suspend*ed since the parent component has been *Lock*ed.

Values
on
off

Default
No default

### ATTRIBUTE Lp Sdh Path signalLabelMismatch (slm)

Access
Read only

Description

This attribute displays whether the Path Signal Label Mismatch (P-SLM) failure condition has been entered. A P-SLM failure condition is entered when P-SLM defects have been observed and accumulated for period of 2.5 seconds +/- 0.5 seconds. A P-SLM defect occurs when detecting an unexpected path signal label. The expected Path signal labels are “Mapping for ATM” or “Equipped - Non Specific Payload”. If the P-SLM defects are intermittently occurring, the P-SLM defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.
The component goes into an operational state of *disabled* until the Path Signal Label Mismatch failure condition is cleared. The condition is cleared when an expected path signal label is received for 10 seconds +/- 0.5 seconds.

The *signalLabelMismatch* attribute is always set to ***off*** when the component has been *Lock*ed and left *offline* by the operator or when the component has been *Suspend*ed since the parent component has been *Lock*ed.

Values

on
off

Default

No default

### ATTRIBUTE Lp Sdh Path txAis

Access

Read only

Description

This attribute displays whether the Path Alarm Indication Signal (P-AIS) signal is being transmitted on the path. The P-AIS signal is transmitted when the component has been *Lock*ed and left *offline* by the operator or when the component has been *Suspend*ed since the parent component has been *Lock*ed.

Values

on
off

Default

No default

### ATTRIBUTE Lp Sdh Path txRdi

Access

Read only

| | |
|---|---|
| Description | This attribute displays whether the Path Remote Defect Indicator (P-RDI) signal is being transmitted over the path signal. The P-RDI signal is transmitted over the outgoing line upon detection of LOP, P-AIS or the occurrence of the LCD state. This attribute is always set to ***off*** when the component has been *Lock*ed and left *offline* by the operator or when the component has been *Suspend*ed since the parent component has been *Lock*ed. |
| Values | on<br>off |
| Default | No default |

### GROUP Lp Sdh Path Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the statistics data for the component. |

### ATTRIBUTE Lp Sdh Path pathErrorFreeSec (pefs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the one second intervals that the component has been in a near-end error free state.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sdh Path pathCodeViolations (pcv)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the detected Path Code Violations (PCVs). Each PCV corresponds to a path BIP-8 error. PCV counting is inhibited over second intervals where a Path Severely Errored Second (PSES) is counted. Counting of PCVs is also inhibited over second intervals where a Path Unavailable Second (PUAS) is counted.<br><br>The counter wraps to 0 when it exceeds its maximum value. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sdh Path pathErroredSec (pes)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the declared Path Errored Seconds (PESs). A PES is declared for second intervals containing one or more PCVs or one or more LOP or path AIS defects. Counting of PES is inhibited when PUAS is declared over the monitored second.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sdh Path pathSevErroredSec (pses)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the declared Path Severely Errored Seconds (PSESs). A PSES is declared for second intervals containing more than *x* PCVs or one or more LOP or path AIS defects. The value of *x* is 2400 for a 155 Mbit/s interface. Counting of PSES is inhibited when PUAS is declared over the monitored second.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sdh Path pathAisLopSec (pals)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the path AIS and LOP Seconds (PALSs). A PALS is declared for second intervals containing one or more path AIS or LOP defects. Counting of PALS is inhibited when PUAS is declared over the monitored second.<br><br>The counter wraps to 0 when it exceeds its maximum value. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sdh Path pathUnavailSec (puas)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the one second intervals during which the STS/STM path is unavailable. The path becomes unavailable at the onset of 10 consecutive PSESs. The 10 PSESs are included in the unavailable time. Once unavailable, the path becomes available at the onset of 10 contiguous seconds with no PSES. The 10 seconds with no PSES are excluded from the unavailable time. For second intervals where a Path Unavailable Second (PUAS) is declared, counting of PCV, PES, PSES and PALS is inhibited.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sdh Path pathFailures (pf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the declarations of a path failure (LOP, P-AIS or Path Signal Label Mismatch failure).<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sdh Path farEndPathErrorFreeSec (fepefs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the one second intervals that the component has been in a far-end error free state.<br><br>The counter wraps to 0 when it exceeds its maximum value. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sdh Path farEndPathCodeViolations (fepcv)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the Far-End Path Code Violations (FEPCVs) detected. Each FEPCV corresponds to a path FEBE. FEPCV counting is inhibited over second intervals where a Far-End Path Severely Errored Second (FEPSES) is declared. Counting of PCVs is also inhibited over second intervals where a Far-End Path Unavailable Second (FEPUAS) is declared.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sdh Path farEndPathErroredSec (fepes)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the Far-End Path Errored Seconds (FEPESs) that have been declared. A FEPES is declared for each one second interval containing one or more FEPCVs or one or more path RDI (P-RDI) defects. Counting of FEPES is inhibited when FEPUAS is declared over the monitored second.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sdh Path farEndPathSevErroredSec (fepses)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the Far-End Path Severely Errored Seconds (FEPSESs) that have been declared. A FEPSES is declared for second intervals containing more than *x* FEPCVs or one or more P-RDI defects. The value of *x* is 2400 for a 155 Mbit/s interface. |

Counting of FEPSESs is inhibited when FEPUAS is declared over the monitored second.

The counter wraps to 0 when it exceeds its maximum value.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE Lp Sdh Path farEndPathAisLopSec (fepals)

Access: Read only

Description: This attribute counts the Far-End Path AIS and LOP Seconds (FEPALSs). A FEPALS is declared for each one second interval containing one or more P-RDI defects. Counting of FEPALS is inhibited when FEPUAS is declared over the monitored second.

The counter wraps to 0 when it exceeds its maximum value.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE Lp Sdh Path farEndPathUnavailSec (fepuas)

Access: Read only

Description: This attribute counts the one second intervals for which the STS/STM far-end path is unavailable. The far-end path becomes unavailable at the onset of 10 consecutive FEPSESs. The 10 FEPSESs are included in the unavailable time. Once unavailable, the far-end path becomes available at the onset of 10 contiguous seconds with no FEPSES. The 10 seconds with no FEPSES are excluded from the unavailable time. For one-second intervals where a Far-End Path Unavailable Second (FEPUAS) is declared, counting of FEPCV, FEPES, FEPSES and FEPALS is inhibited.

The counter wraps to 0 when it exceeds its maximum value.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE Lp Sdh Path farEndPathFailures (fepf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the declarations of STS/STM far-end path failure (P-RFI failure).<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT Lp Sdh Path AtmCell (Cell)

| | |
|---|---|
| Groups | "GROUP Lp Sdh Path Cell Provisioned (Prov)"<br>"GROUP Lp Sdh Path Cell Operational (Oper)"<br>"GROUP Lp Sdh Path Cell Statistics (Stats)" |
| Scope | Device |
| Description | The *AtmCell* component contains provisioning and operational attributes. The provisioning attributes are used to set the Loss of Cell Delineation (LCD) alarm activation delay and to turn cell payload scrambling on or off. The operational attributes are used to report about the quality of the ATM cells received by the interface and the cell capacity utilization. The *AtmCell* component appears under all port components running on ATM cards. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Lp Sdh Path Cell Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioning attributes for the *AtmCell* component. |

### ATTRIBUTE Lp Sdh Path Cell alarmActDelay (act)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute specifies the time during which a Loss of Cell Delineation (LCD) defect should be observed before declaring an LCD alarm (alarm 70115501). When the *Cell* component is provisioned under the *Sonet* or *Sdh* component, this attribute defaults to 500 milliseconds. When it is provisioned under the *Laps* component, the default is 2000 milliseconds. This is necessary to ensure that the services bound to the *Sts* or *Vc4* component are not disrupted during short lived LCD defects caused by a line switchover. Setting this attribute to a lower value when the *Laps* component is provisioned may result in a temporary service outage when a line switchover occurs. |
| Values | Decimal (0..2000) |
| Units | msec |
| Default | No default |

### ATTRIBUTE Lp Sdh Path Cell scrambleCellPayload (scramble)

| | |
|---|---|
| Access | Read and write |
| Description | Cell scrambling, as defined by ITU-T Recommendation I.432., can provide a solution to the problem of transmission equipment which is sensitive to certain bit patterns in the ATM cell payload. This attribute controls whether or not the cell payload is scrambled.<br>It defaults to ***off*** for *DS1* interfaces, and ***on*** for all other interfaces.<br>Note that this setting must be the same at both ends of the link. |
| Values | off<br>on |
| Default | No default |

### ATTRIBUTE Lp Sdh Path Cell correctSingleBitHeaderErrors

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether the port corrects single bit errors detected in the headers of received cells. If single bit errors are corrected, the affected cells are passed up to the ATM layer according to normal operation. If single bit errors are not corrected, these errored cells are discarded by the physical layer. |

Note that cells containing multiple bit errors in their headers are always discarded.

Single bit HEC error correction must remain ***off*** for the following card types: 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 2pJ6MAtm, 3pDS3Atm, and 3pE3Atm.

Values: off
on

Default: off

### ATTRIBUTE Lp Sdh Path Cell clearDelay (clear)

Access: Read and write

Description: This attribute specifies the minimum elapsed time between the clearing of the Loss of Cell Delineation (LCD) defect and the port returning to service. The LCD defect should be absent for the entire period of elapsed time. This attribute value is specified in minutes. If the value of the *clearDelay* attribute is initially 0 (default), the time is actually about 10 seconds.
This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm.

Values: Decimal (0..60)

Units: minutes

Default: 0

### ATTRIBUTE Lp Sdh Path Cell hecSampleInterval (hSample)

Access: Read and write

Description: This attribute specifies the sampling interval (in seconds) for errors associated with the *uncorrectableHeaderErrors* attribute. When the sum of errors counted by the *uncorrectableHeaderErrors* attribute over the interval time is greater than or equal to the provisioned *hecErrorLimit* attribute, the sample interval is considered errored. If the number of consecutive errored intervals reaches the limit established in the *hecErrorIntervalLimit* attribute, an LCD alarm is declared and the port is disabled. If the attribute *hecSampleInterval* is set to the default, 0, then the attribute *uncorrectableHeaderErrors* cannot

be used to bring down the port.
This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm.

Values: Decimal (0..25)

Units: seconds

Default: 0

### ATTRIBUTE Lp Sdh Path Cell hecErrorLimit (hLimit)

Access: Read and write

Description: This attribute specifies the error threshold for a HEC error sampling interval beyond which a port is brought down. When the value of the *uncorrectableHeaderErrors* attribute accumulated over the provisioned value of the *hecSampleInterval* attribute is greater than or equal to the provisioned value of the *hecErrorLimit* attribute, the sample interval is considered errored. If the number of consecutive errored intervals reaches the limit established in the *hecErrorIntervalLimit* attribute, an LCD alarm is declared and the port is disabled. (Please note that a *hecErrorInterval* attribute value of 0 (default) disables the mechanism of using the value of the *uncorrectableHeaderErrors* attribute to disable a port.)
This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm.

Values: Decimal (1..250000)

Default: No default

### ATTRIBUTE Lp Sdh Path Cell lcdStateDelay (delay)

Access: Read and write

Description: This attribute specifies the time during which an Out of Cell Delineation (OCD) defect should be observed before moving to the Loss of Cell Delineation (LCD) defect state. The time is specified in milliseconds. The valid values are 1 to 50 milliseconds if the *AtmCell c*omponent is located under the *Ds1* or *E1* component, and 1 to 5 milliseconds if under a *Ds3* or *E3* component.
This attribute is supported only on 3pDS1Atm, 8pDS1Atm,

3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm.

| | |
|---|---|
| Values | Decimal (1..50) |
| Units | msec |
| Default | No default |

### ATTRIBUTE Lp Sdh Path Cell hecErrorIntervalLimit (hIntLimit)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute counts the instances of the *hecSamplingInterval* attribute for all HEC errors (specified by the *uncorrectableHeaderError* attribute) before an LCD alarm is generated. The alarm is only generated if the value of the *uncorrectableHeaderErrors* attribute in a given interval is greater than the value of the *hecErrorLimit* attribute. For example, if there are 20 HEC errors in 5 seconds, for three times in a row (the number of times in a row is represented by this attribute), an alarm is raised. If there are 24 HEC errors in the 5 seconds, and 14 in the next 5 seconds no alarm is generated because the number of HEC errors should also be more than 20 in the next instances.<br>This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm. |
| Values | Decimal (1..25) |
| Default | 1 |

### GROUP Lp Sdh Path Cell Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the common operational attributes for the *AtmCell* component. |

### ATTRIBUTE Lp Sdh Path Cell lcdAlarm (lcd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays whether the Loss of Cell Delineation (LCD) failure alarm state has been entered. This state is entered |

when LCD defects have been observed and accumulated for a period of time specified through the *alarmActDelay* attribute.
In ATM cell direct mapping mode, an LCD defect occurs when Out of Cell Delineation (OCD) anomaly persists for *x* milliseconds, and disappears when the Out of Cell Delineation (OCD) is absent for *x* msec. An OCD anomaly occurs when 7 consecutive incorrect HECs have been detected. An OCD anomaly terminates when 6 consecutive correct HECs have been detected.
For an *AtmCell* component located under a *DS3* or *E3* component with *mapping* = ***PLCP***, the LCD defect is directly derived from the PLCP LOF defect.
If LCD defects are intermittently occurring, the LCD defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle
The component under which is located the *AtmCell* component goes into an operational state of ***disabled*** until the LCD alarm condition is cleared. The condition is cleared after the LCD defect has not been reported for a period of 10 seconds +/- 0.5 seconds.
The *lcdAlarm* attribute is always set to off when the parent of the *AtmCell* component has been *locked* and left *offline*. This can also happen when the *Path* or *Channel* component has been suspended since its parent has been locked.

Values: on
off

Default: off

## GROUP Lp Sdh Path Cell Statistics (Stats)

Properties: Operational

Description: This group contains the statistics attribute for the *AtmCell* component. Each attribute type is a non-negative integer which monotonically increases until it reaches a maximum value, at which point it wraps around and starts increasing again from zero.

### ATTRIBUTE Lp Sdh Path Cell uncorrectableHeaderErrors (ucErr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of uncorrectable ATM cell header errors that have been detected. Counting of *uncorrectableHeaderErrors* is inhibited when an Out of Cell Delineation (OCD) defect is present. An OCD defect occurs when seven consecutive incorrect HECs have been detected. An OCD defect terminates when six consecutive correct HECs have been detected. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sdh Path Cell sevErroredSec (ses)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of ATM Cell Severely Errored Seconds (SESs) that have been counted.<br><br>In direct mapping mode, an ATM Cell SES is declared for second intervals containing one or more Out of Cell Delineation (OCD) defects. An OCD defect occurs when seven consecutive incorrect HECs have been detected. An OCD defect terminates when six consecutive correct HECs have been detected.<br><br>If the *AtmCell* component is located under a *Ds3* or *E3* component where the *mapping* attribute is set to ***plcp***, an ATM Cell SES is declared for second intervals containing one or more PLCP LOF defects.<br><br>Counting of *uncorrectableHeaderErrors* (*ucErr*) and *correctableHeaderErrors* (*cErr*) is inhibited when the OCD defect is present. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sdh Path Cell receiveCellUtilization (rxutil)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute is the ratio of the number of valid, assigned cells received on the link to the nominal link capacity. The utilization is calculated over a period of one minute.<br>This attribute is always set to ***0*** when the parent of the *AtmCell* component has been *locked* and left *offline.* This can also happen when the *Path* or *Channel* component has been *suspended* since its parent has been *locked*. |
| Values | Decimal (0..100) |
| Units | % |
| Default | 0 |

### ATTRIBUTE Lp Sdh Path Cell transmitCellUtilization (txutil)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the ratio of the number of valid, assigned cells transmitted on the link to the nominal link capacity. The utilization is calculated over a period of one minute.<br>This attribute is always set to ***0*** when the parent of the *AtmCell* component has been *locked* and left *offline*. This can also happen when the *Path* or *Channel* component has been *suspended* since its parent has been *locked*. |
| Values | Decimal (0..100) |
| Units | % |
| Default | 0 |

### ATTRIBUTE Lp Sdh Path Cell correctableHeaderErrors (cErr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of correctable ATM cell header errors that have been detected and corrected. Counting of *correctableHeaderErrors* is inhibited when an Out of Cell Delineation (OCD) defect is present. An OCD defect occurs when seven consecutive incorrect HECs have been detected. An OCD defect terminates when six consecutive correct HECs have been detected |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | 0 |

## COMPONENT Lp Sdh Test (Test)

| | |
|---|---|
| Groups | "GROUP Lp Sdh Test OsiState (State)"<br>"GROUP Lp Sdh Test Setup (Setup)"<br>"GROUP Lp Sdh Test Results (Results)" |
| Scope | Application |
| Description | The *Test* component is configured to control a hardware facility test on a physical (*V35*, *X21*, *DS1*, *E1*, *DS3*, *E3* etc.) or a logical port. |
| Common Verbs | Help<br>List<br>Display |

## VERB START Lp Sdh Test

| | |
|---|---|
| Impact | Service |
| Description | This command invokes a test on the hardware component. Note that some test types requires the parent component (the hardware component) to be locked (using the *Lock* command) before a test can be started. |

## VERB STOP Lp Sdh Test

| | |
|---|---|
| Impact | Service |
| Description | This command stops a test running on the hardware component. |

## GROUP Lp Sdh Test OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Lp Sdh Test adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Lp Sdh Test operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |

| | |
|---|---|
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Lp Sdh Test usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Lp Sdh Test Setup (Setup)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all of the operational data for a *Test* component. |

### ATTRIBUTE Lp Sdh Test purpose (purpose)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute records the purpose of the test so that the test results can be associated and properly analyzed. |
| Values | String (0..40, ASCII) |
| Default | No default |

## ATTRIBUTE Lp Sdh Test type (type)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the type of test to be run. The available test types include the following:<br>***card*** test sets up an internal loop on the board and runs a bit error rate test.<br>***manual*** test assumes the line is looped back externally and a bit error rate test is performed.<br>***localLoop*** test loops back the local modem and performs a bit error rate test.<br>***remoteLoop*** test loops back the remote modem (or CSU) and performs a bit error rate test.<br>***externalLoop*** test loops back the line to the far end.<br>***payloadLoop*** test only loops back the payload data received from the incoming line.<br>***remoteLoopThisTrib*** loops this particular tributary back at the far end, using services provided by the parent.<br>***v54RemoteLoop*** initiates a V.54 Remote Loopback test.<br>***pn127RemoteLoop*** initiates a PN127 Remote Loopback test.<br>***lineBIP8Error*** tests line BIP 8 error generation and detection (B2 byte inverted).<br>***sectionBIP8Error*** tests section BIP 8 error generation and detection (B1 byte inverted).<br>***pathBIP8Error*** tests path BIP 8 error generation and detection (B3 byte inverted).<br>***pathBIP2Error*** tests path BIP 2 error generation and detection (bit 1-2 of V5 byte inverted).<br>Note that not all test types are not supported by all function processors. |
| Values | card<br>manual<br>localLoop<br>remoteLoop<br>externalLoop<br>payloadLoop<br>remoteLoopThisTrib<br>v54RemoteLoop<br>pn127RemoteLoop<br>lineBIP8Error |

| | |
|---|---|
| | sectionBIP8Error<br>pathBIP8Error<br>pathBIP2Error |
| Default | card |

### ATTRIBUTE Lp Sdh Test frmSize (size)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the size of the test data frames in number of bytes.<br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |
| Values | Decimal (4..4096) |
| Units | bytes |
| Default | 1024 |

### ATTRIBUTE Lp Sdh Test frmPatternType (fpt)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the type of data pattern generation to use. The following lists the available pattern types:<br>***ccitt32kBitPattern*** is a pseudo-random sequence of 32 kbit.<br>***ccitt8MBitPattern*** is a pseudo-random sequence of 8Mbit.<br>***customizedPattern*** is the pattern defined in the ***customizedPattern*** attribute. |
| Values | ccitt32kBitPattern<br>ccitt8MBitPattern<br>customizedPattern |
| Default | ccitt32kBitPattern |

### ATTRIBUTE Lp Sdh Test customizedPattern (cp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute allows a customized 32 bit pattern to be defined for use in the test data frames. This attribute is used when the attribute *frmPatternType* is set to ***CustomizedPattern***. Note that a 55 hex pattern is an alternating 1 and 0 pattern. |

| | |
|---|---|
| Values | Hex (H.0..H.ffffffff) |
| Units | Hex |
| Default | H.55555555 |

### ATTRIBUTE Lp Sdh Test dataStartDelay (dsd)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time delay (in seconds) between when the test expects the loop to have been set up, to when the test data actually starts to be transmitted. This attribute is to accommodate some non-standard equipment that requires extra time for setting up a requested loop.<br>This attribute is ignored when the test *type* is set to ***externalLoop***. |
| Values | Decimal (0..1814400) |
| Units | seconds |
| Default | 0 |

### ATTRIBUTE Lp Sdh Test displayInterval (di)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the interval (in minutes) between which interim test results are to be displayed. Results are displayed at the operator console at which the test was started. When the test *type* is set to ***externalLoop***, this attribute is ignored. There will be no display of results if *displayInterval* is set to 0. This attribute can be changed anytime. |
| Values | Decimal (0..30240) |
| Units | minutes |
| Default | 5 |

### ATTRIBUTE Lp Sdh Test duration

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the duration for which the test data will be transmitted. In the case of an ***externalLoop***, this is the time that |

the loop is in effect. Note that *dataStartDelay* does not apply to the ***externalLoop*** test type.

| | |
|---|---|
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 1.00 |

### GROUP Lp Sdh Test Results (Results)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all the statistics related attributes of the *Test* component. |

### ATTRIBUTE Lp Sdh Test causeOfTermination

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates either the status of the test or the cause of the test's termination:<br><br>a value of ***neverStarted*** indicates that the test has not yet been started.<br><br>a value of ***testRunning*** indicates that the test has been started.<br><br>a value of ***stoppedByOperator*** indicates that the operator issued a stop command on a test that was running.<br><br>a value of ***testTimeExpired*** indicates that the test ran for the time specified by the test's *duration*.<br><br>a value of ***loopCodeSyncFailed*** indicates that the local end failed to synchronize to the loopCode pattern. The local end transmits the loopCode pattern to cause the remote end to apply a loopback, after which the local end should receive the loopCode pattern. The exact pattern used to request loopCode depends on the test *type*. This failure indicates a high rate of transmission errors, or that the remote end has failed to apply the loopback.<br><br>a value of ***patternSyncFailed*** indicates that the local end failed to synchronize to the *frmPatternType* test pattern, that should have |

been looped back at the remote end. This failure indicates a high rate of transmission errors or the absence of a loopback.

a value of ***patternSyncLost*** indicates that the local end gained and then lost synchronization to the returned *frmPatternType* test pattern. This failure indicates a sudden increase in transmission errors, frame slippage, or the removal of an existing loopback.

a value of ***unknown*** is set when a reason to terminate other than those listed here is encountered.

Note: The *causeOfTermination* attribute values of ***loopCodeSyncFailed***, ***patternSyncFailed*** and ***patternSyncLost*** are supported only on MSA cards. *Test* components located on other cards or under an *Ima* component on an MSA card will never terminate the test under the conditions described by these values.

| | |
|---|---|
| Values | testTimeExpired<br>stoppedByOperator<br>unknown<br>neverStarted<br>testRunning<br>hardwareReconfigured<br>loopCodeSyncFailed<br>patternSyncFailed<br>patternSyncLost |
| Default | neverStarted |

### ATTRIBUTE Lp Sdh Test bitsTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bits sent during the test period. As long as the line speed of the hardware interface is less than 70 Mbit/s, this counter is not expected to reach the maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Sdh Test bytesTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes sent during the test period. This counter is not expected to reach its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Sdh Test frmTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames sent during the test period. This counter is not expected to reach its maximum value.<br><br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Sdh Test bitsRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bits received during the test period. The counter wraps to zero when it exceeds the maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Sdh Test bytesRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes received during the test period. The counter wraps to zero when it exceeds its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Sdh Test frmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received during the test period. The counter wraps to zero when it exceeds its maximum value.<br><br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Sdh Test erroredFrmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute is not displayed for ATM and MSA32 cards. For ATM cards, the physical layer drops all errored frames at the controller interface. For MSA32 cards, the test does not generate any frame.<br><br>For all other card types, this attribute counts the errored frames received during the test period. The counter wraps to zero when it exceeds its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Sdh Test bitErrorRate

| | |
|---|---|
| Access | Read only |
| Description | This attribute is not displayed for ATM cards because the physical layer drops all errored frames at the controller interface. For MSA32 cards, this attribute indicates the link bit error rate, regardless of the *frameSize*, which is not supported<br><br>For all other card types, this attribute is the calculated bit error rate on the link. Test data are generated and sent in frames of a preset size (*frameSize*). The *Test* component will try to estimate the number of bit errors in any errored frame which is identifiable. The statistics will be updated accordingly. A lost |

| | |
|---|---|
| | frame (may be due to an error on the flag sequence) will be discarded for the bit error rate calculation. The result is presented in the form of xEsyy, where x is the mantissa, syy is the exponent, for example 0E+00, 2E-09.<br>Note that the *bitErrorRate* is an estimate only. For more reliable test results, the test should be done over a long period. Multiple tests would also improve the confidence level of the test results. |
| Values | String (5, ASCII) |
| Default | No default |

### ATTRIBUTE Lp Sdh Test elapsedTime

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the time elapsed since the test started for an ***externalLoop*** test. For a data test, it indicates time since test data was first transmitted. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 0.00 |

### ATTRIBUTE Lp Sdh Test timeRemaining

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the length of time remaining before the test stops according to the *duration* attribute. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 0.00 |

### COMPONENT Lp Sdh Vc4

| | |
|---|---|
| Instance | Decimal (0..3) |
| Groups | "GROUP Lp Sdh Vc4 Provisioned (Prov)"<br>"GROUP Lp Sdh Vc4 CustomerIdentifierData (CidData)"<br>"GROUP Lp Sdh Vc4 OsiState (State)" |

| | |
|---|---|
| | "GROUP Lp Sdh Vc4 IfEntryProv (IfEntry)"<br>"GROUP Lp Sdh Vc4 OperationalStatus (OperStatus)"<br>"GROUP Lp Sdh Vc4 Operational (Oper)"<br>"GROUP Lp Sdh Vc4 Statistics (Stats)" |
| Scope | Device |
| Description | *Lp/n Sdh/n Vc4/n*<br>*Laps/n Vc4/n*<br>This component controls a *Vc4* path signal that is carried within an SDH signal. The *Vc4* component may only be defined on Passport 15000 cards that support STM and the 2pSTM1eCh card on the Passport 7000. |
| Opt. Subcomp. | "COMPONENT Lp Sdh Vc4 AtmCell (Cell)"<br>"COMPONENT Lp Sdh Vc4 Vc12" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

### GROUP Lp Sdh Vc4 Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all of the provisioning data for the component. |

### ATTRIBUTE Lp Sdh Vc4 applicationFramerName (framer)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines which application is running on the path. |
| Values | Link |
| Default | No default |

### ATTRIBUTE Lp Sdh Vc4 pathTraceLength

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the transmitted path trace message length. The *pathTraceLength* attribute at transmitting and receiving end must match. |
| Values | 16<br>64 |
| Default | 16 |

### ATTRIBUTE Lp Sdh Vc4 txPathTrace

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the high order path identifier. The string must be constructed with 7-bit characters only. If *pathTraceLength* is 16, the path identifier is prefixed with a CRC byte and padded by null characters if necessary to form a 16-octet path trace message transmitted in byte J1 of 16 outgoing SDH frames. If *pathTraceLength* is 64, the path identifier is padded by null characters if necessary to form a 64-octet path trace message transmitted in byte J1 of 64 outgoing SDH frames. At the remote end, the path trace is reassembled, the CRC is checked if necessary and the message is compared to the *expectedRxPathTrace* attribute. If a mismatch is detected, an alarm is issued.<br><br>Usage guidelines for path trace message are found in clause 3 of the ITU G.831 standard which defines the Access Point Identifier format.<br><br>The functionality supported by this attribute is not available. |
| Values | String (0..64, Extended ASCII) |
| Default | "" |

### ATTRIBUTE Lp Sdh Vc4 expectedRxPathTrace

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute specifies the expected path trace identifier which is used to identify the high order path. This attribute must match the corresponding *txPathTrace* provisioned at the transmitting equipment end. If it does not, an alarm is issued.<br><br>The functionality supported by this attribute is not available. |
| Values | String (0..64, Extended ASCII) |
| Default | "" |

### ATTRIBUTE Lp Sdh Vc4 concatNumber

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the number of contiguous Administration Unit 4 (AU-4) concatenated together. AU-4s can be concatenated together to form an AU-4-4c or AU-4-16c (4 or 16 concatenated AU-4s) which can transport payloads requiring greater capacity than one Container-4 capacity.<br><br>Only *Vc4/0* can have *concatNumber* set to 16 and only *Vc4/0*, *Vc4/4*, *Vc4/8* or *Vc4/12* can have *concatNumber* set to 4.<br><br>When a *Vc4* uses concatenation, the other concatenated *Vc4* instance number cannot be used. For example, if *Vc4/0 concatNumber* is 4, the next provisionable *Vc4* is *Vc4/4*.<br><br>*Vc4* channelization, indicated by provisioning subcomponents such as *Vc12*, is allowed only if this attribute is set to 1. This value must be set to 0 for card types which do not support the use of this attribute. |
| Values | 0<br>1<br>4<br>16 |
| Default | No default |

### GROUP Lp Sdh Vc4 CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

### ATTRIBUTE Lp Sdh Vc4 customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.<br><br>Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.<br><br>An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to "basic CIDs" in DPN) may be assigned to specific customers. |
| Values | Decimal (0; 1..8191) |
| Default | 0 |

### GROUP Lp Sdh Vc4 OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the |

appropriate NTP.

### ATTRIBUTE Lp Sdh Vc4 adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Lp Sdh Vc4 operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service. |

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Lp Sdh Vc4 usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
idle
active (activ)
busy

Default
idle

### ATTRIBUTE Lp Sdh Vc4 availabilityStatus (osiAvail)

Access
Read only

Description
If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is

defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.

The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.

The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.

The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.

The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a

rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

### ATTRIBUTE Lp Sdh Vc4 proceduralStatus (osiProc)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.

The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

## ATTRIBUTE Lp Sdh Vc4 controlStatus (osiCntrl)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

Set of

subjectToTest (subTst)
partOfServicesLocked (partLk)
reservedForTest (rsrvd)
suspended (suspnd)

Default

No default

### ATTRIBUTE Lp Sdh Vc4 alarmStatus (osiAlarm)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms

may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

## ATTRIBUTE Lp Sdh Vc4 standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values
hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

Default
notSet

### ATTRIBUTE Lp Sdh Vc4 unknownStatus (osiUnknw)

Access
Read only

Description
This attribute indicates the OSI Unknown status of the component.

The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.

The value ***true*** indicates that the actual state of the component is not known for sure.

Values
false
true

Default
false

### GROUP Lp Sdh Vc4 IfEntryProv (IfEntry)

Properties
Provisioned

Description
This group contains the provisionable attributes for the ifEntry.

### ATTRIBUTE Lp Sdh Vc4 ifAdminStatus (ifState)

Access
Read and write

Description
The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed.

| | |
|---|---|
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE Lp Sdh Vc4 ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP Lp Sdh Vc4 OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

### ATTRIBUTE Lp Sdh Vc4 snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### GROUP Lp Sdh Vc4 Operational (Oper)

| | |
|---|---|
| Properties | Operational |

Description — This group contains the common operational data for the component.

### ATTRIBUTE Lp Sdh Vc4 lopAlarm (lop)

Access — Read only

Description — This attribute displays whether a Loss Of Pointer (LOP) alarm state has been entered. An LOP alarm state is entered when LOP defects have been observed and accumulated for a period of 2.5 seconds +/- 0.5 seconds. An LOP defect occurs when no valid SPE or VC pointer was received in 8 contiguous frames. If the LOP defects are intermittently occurring, the LOP defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.

The component goes into an operational state of *disabled* until the LOP alarm condition is cleared. The condition is cleared when no more invalid pointer has been reported for 10 seconds +/- 0.5 seconds.

The *lopAlarm* attribute is always set to ***off*** when the component has been *Lock*ed and left *offline* by the operator or when the component has been *Suspend*ed since the parent component has been *Lock*ed.

Values — on
off

Default — No default

### ATTRIBUTE Lp Sdh Vc4 rxAisAlarm (ais)

Access — Read only

Description — This attribute displays whether a Path Alarm Indication Signal (P-AIS) alarm state has been entered. A P-AIS alarm state is entered when P-AIS defects have been observed and accumulated for a period of 2.5 seconds +/- 0.5 seconds. The P-AIS defect is the occurrence of the P-AIS signal in three contiguous valid STS or STM frames (all one’s in bytes H1 and H2). If the P-AIS defects are intermittently occurring, the P-AIS defect

accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.

The component goes into an operational state of *disabled* until the P-AIS alarm condition is cleared. The condition is cleared after no P-AIS defect has been detected for 10 seconds +/- 0.5 seconds.
The *rxAisAlarm* attribute is always set to ***off*** when the component has been *Lock*ed and left *offline* by the operator or when the component has been *Suspend*ed since the parent component has been *Lock*ed.

Values
on
off

Default
No default

### ATTRIBUTE Lp Sdh Vc4 rxRfiAlarm (rfi)

Access
Read only

Description
This attribute displays whether the Path Remote Failure Indication (P-RFI) alarm state has been entered. A P-RFI alarm state is entered when Path Remote Defect Indicator (P-RDI) defects have been observed and accumulated for a period of 2.5 seconds +/- 0.5 seconds. The P-RDI defect is the occurrence of the P-RDI signal in five contiguous valid STS or STM frames (bit 5 of the G1 byte set to 1). If the P-RDI defects are intermittently occurring, the P-RDI defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10)with all measurements based on a 200 ms polling cycle.

The component goes into an operational state of *disabled* until the P-RFI alarm condition is cleared. The condition is cleared after no P-RDI defect has been detected for 10 seconds +/- 0.5 seconds.
The *rxRfiAlarm* attribute is always set to ***off*** when the component has been *Lock*ed and left *offline* by the operator or when the component has been *Suspend*ed since the parent component has been *Lock*ed.

| | |
|---|---|
| Values | on<br>off |
| Default | No default |

### ATTRIBUTE Lp Sdh Vc4 signalLabelMismatch (slm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays whether the Path Signal Label Mismatch (P-SLM) failure condition has been entered. A P-SLM failure condition is entered when P-SLM defects have been observed and accumulated for period of 2.5 seconds +/- 0.5 seconds. A P-SLM defect occurs when detecting an unexpected path signal label. The expected Path signal labels are “Mapping for ATM” or “Equipped - Non Specific Payload”. If the P-SLM defects are intermittently occurring, the P-SLM defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.<br>The component goes into an operational state of *disabled* until the Path Signal Label Mismatch failure condition is cleared. The condition is cleared when an expected path signal label is received for 10 seconds +/- 0.5 seconds.<br><br>The *signalLabelMismatch* attribute is always set to ***off*** when the component has been *Lock*ed and left *offline* by the operator or when the component has been *Suspend*ed since the parent component has been *Lock*ed. |
| Values | on<br>off |
| Default | No default |

### ATTRIBUTE Lp Sdh Vc4 txAis

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays whether the Path Alarm Indication Signal (P-AIS) signal is being transmitted on the path. The P-AIS signal is transmitted when the component has been *Lock*ed and left *offline* by the operator or when the component has been *Suspend*ed since the parent component has been *Lock*ed. |

| | |
|---|---|
| Values | on<br>off |
| Default | No default |

### ATTRIBUTE Lp Sdh Vc4 txRdi

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays whether the Path Remote Defect Indicator (P-RDI) signal is being transmitted over the path signal. The P-RDI signal is transmitted over the outgoing line upon detection of LOP, P-AIS or the occurrence of the LCD state. This attribute is always set to ***off*** when the component has been *Lock*ed and left *offline* by the operator or when the component has been *Suspend*ed since the parent component has been *Lock*ed. |
| Values | on<br>off |
| Default | No default |

### GROUP Lp Sdh Vc4 Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the statistics data for the component. |

### ATTRIBUTE Lp Sdh Vc4 pathErrorFreeSec (pefs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the one second intervals that the component has been in a near-end error free state.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sdh Vc4 pathCodeViolations (pcv)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the detected Path Code Violations (PCVs). Each PCV corresponds to a path BIP-8 error. PCV counting is inhibited over second intervals where a Path Severely Errored Second (PSES) is counted. Counting of PCVs is also inhibited over second intervals where a Path Unavailable Second (PUAS) is counted.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sdh Vc4 pathErroredSec (pes)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the declared Path Errored Seconds (PESs). A PES is declared for second intervals containing one or more PCVs or one or more LOP or path AIS defects. Counting of PES is inhibited when PUAS is declared over the monitored second.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sdh Vc4 pathSevErroredSec (pses)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the declared Path Severely Errored Seconds (PSESs). A PSES is declared for second intervals containing more than *x* PCVs or one or more LOP or path AIS defects. The value of *x* is 2400 for a 155 Mbit/s interface. Counting of PSES is inhibited when PUAS is declared over the monitored second.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sdh Vc4 pathAisLopSec (pals)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the path AIS and LOP Seconds (PALSs). A PALS is declared for second intervals containing one or more path AIS or LOP defects. Counting of PALS is inhibited when PUAS is declared over the monitored second.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sdh Vc4 pathUnavailSec (puas)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the one second intervals during which the STS/STM path is unavailable. The path becomes unavailable at the onset of 10 consecutive PSESs. The 10 PSESs are included in the unavailable time. Once unavailable, the path becomes available at the onset of 10 contiguous seconds with no PSES. The 10 seconds with no PSES are excluded from the unavailable time. For second intervals where a Path Unavailable Second (PUAS) is declared, counting of PCV, PES, PSES and PALS is inhibited.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sdh Vc4 pathFailures (pf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the declarations of a path failure (LOP, P-AIS or Path Signal Label Mismatch failure).<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE Lp Sdh Vc4 farEndPathErrorFreeSec (fepefs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the one second intervals that the component has been in a far-end error free state.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sdh Vc4 farEndPathCodeViolations (fepcv)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the Far-End Path Code Violations (FEPCVs) detected. Each FEPCV corresponds to a path FEBE. FEPCV counting is inhibited over second intervals where a Far-End Path Severely Errored Second (FEPSES) is declared. Counting of PCVs is also inhibited over second intervals where a Far-End Path Unavailable Second (FEPUAS) is declared.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sdh Vc4 farEndPathErroredSec (fepes)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the Far-End Path Errored Seconds (FEPESs) that have been declared. A FEPES is declared for each one second interval containing one or more FEPCVs or one or more path RDI (P-RDI) defects. Counting of FEPES is inhibited when FEPUAS is declared over the monitored second.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |

Default 0

### ATTRIBUTE Lp Sdh Vc4 farEndPathSevErroredSec (fepses)

Access Read only

Description This attribute counts the Far-End Path Severely Errored Seconds (FEPSESs) that have been declared. A FEPSES is declared for second intervals containing more than *x* FEPCVs or one or more P-RDI defects. The value of *x* is 2400 for a 155 Mbit/s interface. Counting of FEPSESs is inhibited when FEPUAS is declared over the monitored second.

The counter wraps to 0 when it exceeds its maximum value.

Values Decimal (0..4294967295)

Default 0

### ATTRIBUTE Lp Sdh Vc4 farEndPathAisLopSec (fepals)

Access Read only

Description This attribute counts the Far-End Path AIS and LOP Seconds (FEPALSs). A FEPALS is declared for each one second interval containing one or more P-RDI defects. Counting of FEPALS is inhibited when FEPUAS is declared over the monitored second.

The counter wraps to 0 when it exceeds its maximum value.

Values Decimal (0..4294967295)

Default 0

### ATTRIBUTE Lp Sdh Vc4 farEndPathUnavailSec (fepuas)

Access Read only

Description This attribute counts the one second intervals for which the STS/STM far-end path is unavailable. The far-end path becomes unavailable at the onset of 10 consecutive FEPSESs. The 10 FEPSESs are included in the unavailable time. Once unavailable, the far-end path becomes available at the onset of 10 contiguous seconds with no FEPSES. The 10 seconds with no FEPSES are excluded from the unavailable time. For one-second intervals

where a Far-End Path Unavailable Second (FEPUAS) is declared, counting of FEPCV, FEPES, FEPSES and FEPALS is inhibited.

The counter wraps to 0 when it exceeds its maximum value.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE Lp Sdh Vc4 farEndPathFailures (fepf)

Access: Read only

Description: This attribute counts the declarations of STS/STM far-end path failure (P-RFI failure).

The counter wraps to 0 when it exceeds its maximum value.

Values: Decimal (0..4294967295)

Default: 0

### COMPONENT Lp Sdh Vc4 AtmCell (Cell)

Groups:
"GROUP Lp Sdh Vc4 Cell Provisioned (Prov)"
"GROUP Lp Sdh Vc4 Cell Operational (Oper)"
"GROUP Lp Sdh Vc4 Cell Statistics (Stats)"

Scope: Device

Description: The *AtmCell* component contains provisioning and operational attributes. The provisioning attributes are used to set the Loss of Cell Delineation (LCD) alarm activation delay and to turn cell payload scrambling on or off. The operational attributes are used to report about the quality of the ATM cells received by the interface and the cell capacity utilization. The *AtmCell* component appears under all port components running on ATM cards.

Common Verbs:
Help
List
Display
Add
DELete

## GROUP Lp Sdh Vc4 Cell Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioning attributes for the *AtmCell* component. |

## ATTRIBUTE Lp Sdh Vc4 Cell alarmActDelay (act)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time during which a Loss of Cell Delineation (LCD) defect should be observed before declaring an LCD alarm (alarm 70115501). When the *Cell* component is provisioned under the *Sonet* or *Sdh* component, this attribute defaults to 500 milliseconds. When it is provisioned under the *Laps* component, the default is 2000 milliseconds. This is necessary to ensure that the services bound to the *Sts* or *Vc4* component are not disrupted during short lived LCD defects caused by a line switchover. Setting this attribute to a lower value when the *Laps* component is provisioned may result in a temporary service outage when a line switchover occurs. |
| Values | Decimal (0..2000) |
| Units | msec |
| Default | No default |

## ATTRIBUTE Lp Sdh Vc4 Cell scrambleCellPayload (scramble)

| | |
|---|---|
| Access | Read and write |
| Description | Cell scrambling, as defined by ITU-T Recommendation I.432., can provide a solution to the problem of transmission equipment which is sensitive to certain bit patterns in the ATM cell payload. This attribute controls whether or not the cell payload is scrambled.<br>It defaults to ***off*** for *DS1* interfaces, and ***on*** for all other interfaces.<br>Note that this setting must be the same at both ends of the link. |
| Values | off<br>on |

Default — No default

### ATTRIBUTE Lp Sdh Vc4 Cell correctSingleBitHeaderErrors

Access — Read and write

Description — This attribute specifies whether the port corrects single bit errors detected in the headers of received cells. If single bit errors are corrected, the affected cells are passed up to the ATM layer according to normal operation. If single bit errors are not corrected, these errored cells are discarded by the physical layer. Note that cells containing multiple bit errors in their headers are always discarded.

Single bit HEC error correction must remain ***off*** for the following card types: 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 2pJ6MAtm, 3pDS3Atm, and 3pE3Atm.

Values — off
on

Default — off

### ATTRIBUTE Lp Sdh Vc4 Cell clearDelay (clear)

Access — Read and write

Description — This attribute specifies the minimum elapsed time between the clearing of the Loss of Cell Delineation (LCD) defect and the port returning to service. The LCD defect should be absent for the entire period of elapsed time. This attribute value is specified in minutes. If the value of the *clearDelay* attribute is initially 0 (default), the time is actually about 10 seconds.
This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm.

Values — Decimal (0..60)

Units — minutes

Default — 0

### ATTRIBUTE Lp Sdh Vc4 Cell hecSampleInterval (hSample)

Access — Read and write

| | |
|---|---|
| Description | This attribute specifies the sampling interval (in seconds) for errors associated with the *uncorrectableHeaderErrors* attribute. When the sum of errors counted by the *uncorrectableHeaderErrors* attribute over the interval time is greater than or equal to the provisioned *hecErrorLimit* attribute, the sample interval is considered errored. If the number of consecutive errored intervals reaches the limit established in the *hecErrorIntervalLimit* attribute, an LCD alarm is declared and the port is disabled. If the attribute *hecSampleInterval* is set to the default, 0, then the attribute *uncorrectableHeaderErrors* cannot be used to bring down the port.<br>This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm. |
| Values | Decimal (0..25) |
| Units | seconds |
| Default | 0 |

### ATTRIBUTE Lp Sdh Vc4 Cell hecErrorLimit (hLimit)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the error threshold for a HEC error sampling interval beyond which a port is brought down. When the value of the *uncorrectableHeaderErrors* attribute accumulated over the provisioned value of the *hecSampleInterval* attribute is greater than or equal to the provisioned value of the *hecErrorLimit* attribute, the sample interval is considered errored. If the number of consecutive errored intervals reaches the limit established in the *hecErrorIntervalLimit* attribute, an LCD alarm is declared and the port is disabled. (Please note that a *hecErrorInterval* attribute value of 0 (default) disables the mechanism of using the value of the *uncorrectableHeaderErrors* attribute to disable a port.)<br>This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm. |
| Values | Decimal (1..250000) |
| Default | No default |

### ATTRIBUTE Lp Sdh Vc4 Cell lcdStateDelay (delay)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time during which an Out of Cell Delineation (OCD) defect should be observed before moving to the Loss of Cell Delineation (LCD) defect state. The time is specified in milliseconds. The valid values are 1 to 50 milliseconds if the *AtmCell c*omponent is located under the *Ds1* or *E1* component, and 1 to 5 milliseconds if under a *Ds3* or *E3* component.<br>This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm. |
| Values | Decimal (1..50) |
| Units | msec |
| Default | No default |

### ATTRIBUTE Lp Sdh Vc4 Cell hecErrorIntervalLimit (hIntLimit)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute counts the instances of the *hecSamplingInterval* attribute for all HEC errors (specified by the *uncorrectableHeaderError* attribute) before an LCD alarm is generated. The alarm is only generated if the value of the *uncorrectableHeaderErrors* attribute in a given interval is greater than the value of the *hecErrorLimit* attribute. For example, if there are 20 HEC errors in 5 seconds, for three times in a row (the number of times in a row is represented by this attribute), an alarm is raised. If there are 24 HEC errors in the 5 seconds, and 14 in the next 5 seconds no alarm is generated because the number of HEC errors should also be more than 20 in the next instances.<br>This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm. |
| Values | Decimal (1..25) |
| Default | 1 |

## GROUP Lp Sdh Vc4 Cell Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the common operational attributes for the *AtmCell* component. |

## ATTRIBUTE Lp Sdh Vc4 Cell lcdAlarm (lcd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays whether the Loss of Cell Delineation (LCD) failure alarm state has been entered. This state is entered when LCD defects have been observed and accumulated for a period of time specified through the *alarmActDelay* attribute.<br>In ATM cell direct mapping mode, an LCD defect occurs when Out of Cell Delineation (OCD) anomaly persists for *x* milliseconds, and disappears when the Out of Cell Delineation (OCD) is absent for *x* msec. An OCD anomaly occurs when 7 consecutive incorrect HECs have been detected. An OCD anomaly terminates when 6 consecutive correct HECs have been detected.<br>For an *AtmCell* component located under a *DS3* or *E3* component with *mapping* = ***PLCP***, the LCD defect is directly derived from the PLCP LOF defect.<br>If LCD defects are intermittently occurring, the LCD defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle<br>The component under which is located the *AtmCell* component goes into an operational state of ***disabled*** until the LCD alarm condition is cleared. The condition is cleared after the LCD defect has not been reported for a period of 10 seconds +/- 0.5 seconds.<br>The *lcdAlarm* attribute is always set to off when the parent of the *AtmCell* component has been *locked* and left *offline*. This can also happen when the *Path* or *Channel* component has been suspended since its parent has been locked. |
| Values | on<br>off |
| Default | off |

## GROUP Lp Sdh Vc4 Cell Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the statistics attribute for the *AtmCell* component. Each attribute type is a non-negative integer which monotonically increases until it reaches a maximum value, at which point it wraps around and starts increasing again from zero. |

## ATTRIBUTE Lp Sdh Vc4 Cell uncorrectableHeaderErrors (ucErr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of uncorrectable ATM cell header errors that have been detected. Counting of *uncorrectableHeaderErrors* is inhibited when an Out of Cell Delineation (OCD) defect is present. An OCD defect occurs when seven consecutive incorrect HECs have been detected. An OCD defect terminates when six consecutive correct HECs have been detected. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## ATTRIBUTE Lp Sdh Vc4 Cell sevErroredSec (ses)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of ATM Cell Severely Errored Seconds (SESs) that have been counted.<br><br>In direct mapping mode, an ATM Cell SES is declared for second intervals containing one or more Out of Cell Delineation (OCD) defects. An OCD defect occurs when seven consecutive incorrect HECs have been detected. An OCD defect terminates when six consecutive correct HECs have been detected.<br><br>If the *AtmCell* component is located under a *Ds3* or *E3* component where the *mapping* attribute is set to ***plcp***, an ATM Cell SES is declared for second intervals containing one or more PLCP LOF defects. |

| | |
|---|---|
| | Counting of *uncorrectableHeaderErrors* (*ucErr*) and *correctableHeaderErrors* (*cErr*) is inhibited when the OCD defect is present. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sdh Vc4 Cell receiveCellUtilization (rxutil)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the ratio of the number of valid, assigned cells received on the link to the nominal link capacity. The utilization is calculated over a period of one minute.<br>This attribute is always set to ***0*** when the parent of the *AtmCell* component has been *locked* and left *offline.* This can also happen when the *Path* or *Channel* component has been *suspended* since its parent has been *locked*. |
| Values | Decimal (0..100) |
| Units | % |
| Default | 0 |

### ATTRIBUTE Lp Sdh Vc4 Cell transmitCellUtilization (txutil)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the ratio of the number of valid, assigned cells transmitted on the link to the nominal link capacity. The utilization is calculated over a period of one minute.<br>This attribute is always set to ***0*** when the parent of the *AtmCell* component has been *locked* and left *offline*. This can also happen when the *Path* or *Channel* component has been *suspended* since its parent has been *locked*. |
| Values | Decimal (0..100) |
| Units | % |
| Default | 0 |

### ATTRIBUTE Lp Sdh Vc4 Cell correctableHeaderErrors (cErr)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the number of correctable ATM cell header errors that have been detected and corrected. Counting of *correctableHeaderErrors* is inhibited when an Out of Cell Delineation (OCD) defect is present. An OCD defect occurs when seven consecutive incorrect HECs have been detected. An OCD defect terminates when six consecutive correct HECs have been detected |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## COMPONENT Lp Sdh Vc4 Vc12

| | |
|---|---|
| Instance | k [Decimal (1..3)]<br>l [Decimal (1..7)]<br>m [Decimal (1..3)] |
| Groups | "GROUP Lp Sdh Vc4 Vc12 Provisioned (Prov)"<br>"GROUP Lp Sdh Vc4 Vc12 CustomerIdentifierData (CidData)"<br>"GROUP Lp Sdh Vc4 Vc12 OsiState (State)"<br>"GROUP Lp Sdh Vc4 Vc12 IfEntryProv (IfEntry)"<br>"GROUP Lp Sdh Vc4 Vc12 OperationalStatus (OperStatus)"<br>"GROUP Lp Sdh Vc4 Vc12 Operational (Oper)"<br>"GROUP Lp Sdh Vc4 Vc12 Statistics (Stats)" |
| Scope | Device |
| Description | *Lp/n Sdh/n Vc4/n Vc12/k,l,m*<br>This component controls the *Vc12* low order path signal that is carried within an SDH signal. The *Vc12* component may only be defined on Passport 15000 cards that support STM and the 2pSTM1eCh card on the Passport 7000. |
| Opt. Subcomp. | "COMPONENT Lp Sdh Vc4 Vc12 E1" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP Lp Sdh Vc4 Vc12 Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all of the provisioning data for the component. |

## ATTRIBUTE Lp Sdh Vc4 Vc12 txPathTrace

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the low order path identifier. The string must be constructed with 7-bit characters only. The path identifier is prefixed with a CRC byte and padded by null characters if necessary to form a 16-octet path trace message transmitted in byte J2 of 16 outgoing SDH frames. At the remote end, the path trace is reassembled, the CRC is checked and the message is compared to the *expectedRxPathTrace* attribute. If a mismatch is detected and the *expectedRxPathTrace* attribute is not an empty string (default value), an alarm is issued.<br><br>Usage guidelines for path trace message are found in clause 3 of the ITU G.831 standard which defines the Access Point Identifier format.<br><br>The functionality supported by this attribute is available on the *4pOC3Ch* functional processor. |
| Values | String (0..15, Extended ASCII) |
| Default | "" |

## ATTRIBUTE Lp Sdh Vc4 Vc12 expectedRxPathTrace

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the expected path trace identifier which is used to identify the low order path. This attribute must match the corresponding *txPathTrace* provisioned at the transmitting equipment end. If it does not, an alarm is issued. If an empty string (default value) is provisioned, the Low Order Path Trace Identification Mismatch (LP-TIM) defect is ignored. |

The functionality supported by this attribute is available on the *4pOC3Ch* functional processor.

Values: String (0..15, Extended ASCII)

Default: ""

### GROUP Lp Sdh Vc4 Vc12 CustomerIdentifierData (CidData)

Properties: Provisioned

Description: This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs.

### ATTRIBUTE Lp Sdh Vc4 Vc12 customerIdentifier (cid)

Access: Read and write

Description: This attribute holds the Customer Identifier (CID).

Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.

Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.

An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to "basic CIDs" in DPN) may be assigned to specific customers.

Values: Decimal (0; 1..8191)

Default: 0

### GROUP Lp Sdh Vc4 Vc12 OsiState (State)

Properties: Operational

Description

This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

## ATTRIBUTE Lp Sdh Vc4 Vc12 adminState (osiAdmin)

Access

Read only

Description

This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values

locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default

unlocked

## ATTRIBUTE Lp Sdh Vc4 Vc12 operationalState (osiOper)

Access

Read only

Description

This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values: enabled (ena)
disabled (dis)

Default: disabled

### ATTRIBUTE Lp Sdh Vc4 Vc12 usageState (osiUsage)

Access: Read only

Description: This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values: idle
active (activ)
busy

Default: idle

## ATTRIBUTE Lp Sdh Vc4 Vc12 availabilityStatus (osiAvail)

Access: Read only

Description: If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.

The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.

The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.

The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.

The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the

component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

### ATTRIBUTE Lp Sdh Vc4 Vc12 proceduralStatus (osiProc)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***initializationRequired*** indicates (for a resource which

doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.

The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

## ATTRIBUTE Lp Sdh Vc4 Vc12 controlStatus (osiCntrl)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

Set of

subjectToTest (subTst)
partOfServicesLocked (partLk)
reservedForTest (rsrvd)
suspended (suspnd)

Default

No default

## ATTRIBUTE Lp Sdh Vc4 Vc12 alarmStatus (osiAlarm)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE Lp Sdh Vc4 Vc12 standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization

activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values
hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

Default
notSet

### ATTRIBUTE Lp Sdh Vc4 Vc12 unknownStatus (osiUnknw)

Access
Read only

Description
This attribute indicates the OSI Unknown status of the component.

The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.

The value ***true*** indicates that the actual state of the component is not known for sure.

Values
false
true

Default
false

### GROUP Lp Sdh Vc4 Vc12 IfEntryProv (IfEntry)

Properties
Provisioned

Description
This group contains the provisionable attributes for the ifEntry.

### ATTRIBUTE Lp Sdh Vc4 Vc12 ifAdminStatus (ifState)

Access
Read and write

Description
The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed.

| | |
|---|---|
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE Lp Sdh Vc4 Vc12 ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP Lp Sdh Vc4 Vc12 OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

### ATTRIBUTE Lp Sdh Vc4 Vc12 snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### GROUP Lp Sdh Vc4 Vc12 Operational (Oper)

| | |
|---|---|
| Properties | Operational |

| | |
|---|---|
| Description | This group contains the common operational data for the component. |

### ATTRIBUTE Lp Sdh Vc4 Vc12 rxAisAlarm

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether a Tributary Unit Alarm Indication Signal (TU-AIS) alarm state has been entered. A TU-AIS alarm state is entered when TU-AIS defects have been observed and accumulated for a period of 2.5 seconds +/- 0.5 seconds. The TU-AIS defect occurs when three consecutive TU pointers are in the all 1's state. This alarm is cleared after no TU-AIS defect has been detected for 10 seconds +/- 0.5 seconds. |
| Values | on<br>off |
| Default | No default |

### ATTRIBUTE Lp Sdh Vc4 Vc12 rxRdiAlarm

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether a Low Order Path Remote Defect Indicator (LP-RDI) alarm state has been entered. An LP-RDI alarm state is entered when LP-RDI defects have been observed and accumulated for a period of 2.5 seconds +/- 0.5 seconds. The LP-RDI defect occurs when RDI conditions are detected in five consecutive frames. This alarm is cleared after no LP-RDI defect has been detected for 10 seconds +/- 0.5 seconds. |
| Values | on<br>off |
| Default | No default |

### ATTRIBUTE Lp Sdh Vc4 Vc12 rxRfiAlarm

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether a Low Order Path Remote Failure Indicator (LP-RFI) alarm state has been entered. An LP-RFI alarm state is entered when LP-RFI defects have been observed and accumulated for a period of 2.5 seconds +/- 0.5 seconds. The LP-RFI defect occurs when a RFI condition is detected. This |

alarm is cleared after no LP-RFI defect has been detected for 10 seconds +/- 0.5 seconds.

Values
on
off

Default
No default

### ATTRIBUTE Lp Sdh Vc4 Vc12 rxReiAlarm

Access
Read only

Description
This attribute indicates whether a Low Order Path Remote Error Indicator (LP-REI) alarm state has been entered. An LP-REI alarm state is entered when LP-REI defects have been observed and accumulated for a period of 2.5 seconds +/- 0.5 seconds. The LP-REI defect occurs when a REI condition is detected. This alarm is cleared after no LP-REI defect has been detected for 10 seconds +/- 0.5 seconds.

Values
on
off

Default
No default

### ATTRIBUTE Lp Sdh Vc4 Vc12 bip2Alarm

Access
Read only

Description
This attribute indicates whether a Low Order Path Error Monitoring (BIP-2) alarm state has been entered. An BIP-2 alarm state is entered when BIP-2 defects have been observed and accumulated for a period of 2.5 seconds +/- 0.5 seconds. The BIP-2 defect occurs when a mismatch between the calculated and received BIP-2 is detected. This alarm is cleared after no BIP-2 defect has been detected for 10 seconds +/- 0.5 seconds.

Values
on
off

Default
No default

### ATTRIBUTE Lp Sdh Vc4 Vc12 unequippedAlarm

Access
Read only

| | |
|---|---|
| Description | This attribute indicates whether a Low Order Path Unequipped (LP-UNEQ) alarm state has been entered. An LP-UNEQ alarm state is entered when LP-UNEQ defects have been observed and accumulated for a period of 2.5 seconds +/- 0.5 seconds. The LP-UNEQ defect occurs when an unequipped condition is detected for five consecutive multi frames. This alarm is cleared after no LP-UNEQ defect has been detected for 10 seconds +/- 0.5 seconds. |
| Values | on<br>off |
| Default | No default |

### ATTRIBUTE Lp Sdh Vc4 Vc12 traceIdMismatchAlarm

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether a Low Order Path Trace Identification Mismatch (LP-TIM) alarm state has been entered. An LP-TIM alarm state is entered when LP-TIM defects have been observed and accumulated for a period of 2.5 seconds +/- 0.5 seconds. The LP-TIM defect occurs when a TIM condition is detected. This alarm is cleared after no LP-TIM defect has been detected for 10 seconds +/- 0.5 seconds. |
| Values | on<br>off |
| Default | No default |

### ATTRIBUTE Lp Sdh Vc4 Vc12 lopAlarm

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether a Tributary Unit Loss of Pointer (TU-LOP) alarm state has been entered. An TU-LOP alarm state is entered when TU-LOP defects have been observed and accumulated for a period of 2.5 seconds +/- 0.5 seconds. The TU-LOP defect occurs when eight consecutive invalid pointer values or eight consecutive New Data Flag (NDF) pointers are detected. This alarm is cleared after no TU-LOP defect has been detected for 10 seconds +/- 0.5 seconds. |

| | |
|---|---|
| Values | on<br>off |
| Default | No default |

### ATTRIBUTE Lp Sdh Vc4 Vc12 txAis

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether the Low order Path Alarm Indication Signal (LP-AIS) is being transmitted on the low order path. The LP-AIS signal is transmitted when the component *adminState* is ***locked*** or *operationalState* is ***disabled*** and *availabilityStatus* is *dependency.* |
| Values | on<br>off |
| Default | No default |

### ATTRIBUTE Lp Sdh Vc4 Vc12 txRdi

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether the Low Order Path Remote Defect Indication (LP-RDI) is being transmitted on the low order path. The LP-RDI signal is transmitted upon detection of TU-LOP, TU-AIS, LP-TIM or LP-UNEQ. The value is ***off*** when the component *adminState* is ***locked*** or *operationalState* is ***disabled*** and *availabilityStatus* is ***dependency****.* |
| Values | on<br>off |
| Default | No default |

### GROUP Lp Sdh Vc4 Vc12 Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the statistics data for the component. |

### ATTRIBUTE Lp Sdh Vc4 Vc12 pathErrorFreeSec (pefs)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the one second intervals that the component has been in a near-end error free state.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sdh Vc4 Vc12 pathCodeViolations (pcv)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the detected Path Code Violations (PCVs). Each PCV corresponds to a path BIP-8 error. PCV counting is inhibited over second intervals where a Path Severely Errored Second (PSES) is counted. Counting of PCVs is also inhibited over second intervals where a Path Unavailable Second (PUAS) is counted.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sdh Vc4 Vc12 pathErroredSec (pes)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the declared Path Errored Seconds (PESs). A PES is declared for second intervals containing one or more PCVs or one or more LOP or path AIS defects. Counting of PES is inhibited when PUAS is declared over the monitored second.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sdh Vc4 Vc12 pathSevErroredSec (pses)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the declared Path Severely Errored Seconds (PSESs). A PSES is declared for second intervals containing more than *x* PCVs or one or more LOP or path AIS defects. The value of *x* is 2400 for a 155 Mbit/s interface. Counting of PSES is inhibited when PUAS is declared over the monitored second.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sdh Vc4 Vc12 pathAisLopSec (pals)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the path AIS and LOP Seconds (PALSs). A PALS is declared for second intervals containing one or more path AIS or LOP defects. Counting of PALS is inhibited when PUAS is declared over the monitored second.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sdh Vc4 Vc12 pathUnavailSec (puas)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the one second intervals during which the STS/STM path is unavailable. The path becomes unavailable at the onset of 10 consecutive PSESs. The 10 PSESs are included in the unavailable time. Once unavailable, the path becomes available at the onset of 10 contiguous seconds with no PSES. The 10 seconds with no PSES are excluded from the unavailable time. For second intervals where a Path Unavailable Second (PUAS) is declared, counting of PCV, PES, PSES and PALS is inhibited.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE Lp Sdh Vc4 Vc12 pathFailures (pf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the declarations of a path failure (LOP, P-AIS or Path Signal Label Mismatch failure).<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sdh Vc4 Vc12 farEndPathErrorFreeSec (fepefs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the one second intervals that the component has been in a far-end error free state.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sdh Vc4 Vc12 farEndPathCodeViolations (fepcv)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the Far-End Path Code Violations (FEPCVs) detected. Each FEPCV corresponds to a path FEBE. FEPCV counting is inhibited over second intervals where a Far-End Path Severely Errored Second (FEPSES) is declared. Counting of PCVs is also inhibited over second intervals where a Far-End Path Unavailable Second (FEPUAS) is declared.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sdh Vc4 Vc12 farEndPathErroredSec (fepes)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the Far-End Path Errored Seconds (FEPESs) that have been declared. A FEPES is declared for each one second interval containing one or more FEPCVs or one or more path RDI (P-RDI) defects. Counting of FEPES is inhibited when FEPUAS is declared over the monitored second.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sdh Vc4 Vc12 farEndPathSevErroredSec (fepses)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the Far-End Path Severely Errored Seconds (FEPSESs) that have been declared. A FEPSES is declared for second intervals containing more than *x* FEPCVs or one or more P-RDI defects. The value of *x* is 2400 for a 155 Mbit/s interface. Counting of FEPSESs is inhibited when FEPUAS is declared over the monitored second.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sdh Vc4 Vc12 farEndPathAisLopSec (fepals)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the Far-End Path AIS and LOP Seconds (FEPALSs). A FEPALS is declared for each one second interval containing one or more P-RDI defects. Counting of FEPALS is inhibited when FEPUAS is declared over the monitored second.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |

Default 0

### ATTRIBUTE Lp Sdh Vc4 Vc12 farEndPathUnavailSec (fepuas)

Access Read only

Description This attribute counts the one second intervals for which the STS/STM far-end path is unavailable. The far-end path becomes unavailable at the onset of 10 consecutive FEPSESs. The 10 FEPSESs are included in the unavailable time. Once unavailable, the far-end path becomes available at the onset of 10 contiguous seconds with no FEPSES. The 10 seconds with no FEPSES are excluded from the unavailable time. For one-second intervals where a Far-End Path Unavailable Second (FEPUAS) is declared, counting of FEPCV, FEPES, FEPSES and FEPALS is inhibited.

The counter wraps to 0 when it exceeds its maximum value.

Values Decimal (0..4294967295)

Default 0

### ATTRIBUTE Lp Sdh Vc4 Vc12 farEndPathFailures (fepf)

Access Read only

Description This attribute counts the declarations of STS/STM far-end path failure (P-RFI failure).

The counter wraps to 0 when it exceeds its maximum value.

Values Decimal (0..4294967295)

Default 0

### COMPONENT Lp Sdh Vc4 Vc12 E1

Groups "GROUP Lp Sdh Vc4 Vc12 E1 Provisioned (Prov)"
"GROUP Lp Sdh Vc4 Vc12 E1 CustomerIdentifierData (CidData)"
"GROUP Lp Sdh Vc4 Vc12 E1 AdminInfo (AdminInfo)"
"GROUP Lp Sdh Vc4 Vc12 E1 IfEntryProv (IfEntry)"
"GROUP Lp Sdh Vc4 Vc12 E1 OperationalStatus (OperStatus)"
"GROUP Lp Sdh Vc4 Vc12 E1 OsiState (State)"
"GROUP Lp Sdh Vc4 Vc12 E1 Operational (Oper)"

"GROUP Lp Sdh Vc4 Vc12 E1 E1Operational (E1Oper)"
"GROUP Lp Sdh Vc4 Vc12 E1 Statistics (Stats)"

Scope: Device

Description:

*Lp/n E1/n*
*Lp/n Sdh/i Vc4/j Vc12/k,l,m E1*
The *E1* component controls and monitors an E1 port or tributary on a Function Processor. The number of ports supported depends on the type of card, and is usually encoded in the *Shelf Card/n cardType*, for example 4pE1Aal1: 4 port. The lowest instance value is usually ***0***, except for the ***32pE1Aal*** card when it is ***1***.
No instance value is used when the E1 is a STM tributary.
Multi-Service cards have an instance range 0..31, except that instance values 30 and 31 are not available for an “ATM UNI port”. (An E1 “ATM UNI port” is an *E1* component with a single *Chan* whose *applicationFramerName* attribute is linked to an *AtmIf* component.)
The instance number of an *E1* “ATM UNI port” must not be the same as the instance number of an *IMA* group under the same *Lp*.

Subcomponents: "COMPONENT Lp Sdh Vc4 Vc12 E1 Channel (Chan)"

Dyn. Subcomp.:
"COMPONENT Lp Sdh Vc4 Vc12 E1 Test (Test)"
"COMPONENT Lp Sdh Vc4 Vc12 E1 Dsp"
"COMPONENT Lp Sdh Vc4 Vc12 E1 Audio"

Common Verbs:
Help
List
Display
Add
DELete
LOCK
Unlock

## GROUP Lp Sdh Vc4 Vc12 E1 Provisioned (Prov)

Properties: Provisioned

Description: This group contains all of the provisioning data for an E1 component.

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 lineType (lineType)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the framing of the E1 line.<br>When ***cas*** (channel associated signalling) is selected, timeslot 16 is reserved for multiframe signalling and only 30 timeslots are available for data. The signalling bits are not interpreted.<br>When ***ccs*** (common channel signalling) is selected, timeslot 16 is not reserved for multiframe signalling and 31 timeslots are available for data. The signalling bits are not interpreted.<br>When ***unframed*** is selected, a clear channel is defined whereby data from all timeslots including the framing data (in timeslot 0) and timeslot 16 are passed transparently. This value is valid only for AAL1 cards.<br><br>For cell-based cards the ATM Forum specifies that timeslot 16 be reserved, leaving 30 timeslots available for data.<br>The ***8pE1Atm*** and ***1pStm1ChSmIr*** cards support the ***ccs*** value only. The ***4pOC3ChSmIr*** card only supports the ***ccs*** and ***unframed*** values. For both these cards, the default value is ***ccs***. For all other cards, the default value is ***cas***. |
| Values | ccs<br>cas<br>unframed |
| Default | No default |

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 clockingSource (clockingSource)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the source of the transmit clock for the E1 line.<br><br>When ***local*** is selected, the crystal on the port generates the clocking for the line.<br><br>When ***line*** is selected, the port synchronizes to the clock from the facility.<br><br>When ***module*** is selected, the ports clock synchronizes to the clock provided by the oscillator on the active CP. |

When ***otherPort*** is selected, the port synchronizes to the port with a clocking source of ***line***.

When ***srtsMode*** is selected, the port transmit frequency depends on the SRTS (Synchronous Residual Time-Stamp) received over the ATM network. SRTS information is also generated sent over the ATM network.

When ***adaptiveMode*** is selected, the port transmit frequency continually adapts to match the egress data received from the ATM network.

A port with ***srtsMode*** or ***adaptiveMode*** must have a single *Chan* which may be linked only to an *Aal1Ces*.service with serviceType ***unstructured***

If the *NetworkSynchronization* component is present, the default value of this attribute is ***module***, otherwise it defaults to ***line***, except for the ***3pE1Atm*** card, which it defaults to ***local***.
On a ***3pE1Atm*** card all ports must have the same value, and be either ***local*** or ***module***.

***otherPort*** is valid only on AAL1 cards. ***srtsMode*** is valid only on AAL1 and Multi-Service Access cards. ***adaptiveMode*** is valid only on Multi-Service Access cards.

On ***4E1Aal1*** cards either:

all four ports' *clockingSource* values must be ***local*** OR
all four ports' *clockingSource* values must be ***module*** OR
one port's *clockingSource* value must be ***line*** and the other three must be ***otherPort***. A port can only have ***srtsMode*** selected if the other ports are ***module*** or ***srtsMode***.

Values

local
line
module
otherPort
srtsMode
adaptiveMode

Default — No default

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 crc4Mode

Access — Read and write

Description — This attribute defines whether the CRC-4 checking and generation on the E1 line is enabled or disabled.

The default CRC-4 mode is ***off*** except for the cell-based cards which default to ***on*** as per the ATM Forum.

Values — on
off

Default — No default

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 sendRaiOnAis

Access — Read and write

Description — This attribute defines whether the Remote Alarm Indicator (RAI) will be sent when receiving an AIS alarm. The value is ***yes*** by default; it can be changed to ***no*** only for ports on J2MV cards.

Values — no
yes

Default — yes

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 raiDeclareAlarmTime

Access — Read and write

Description — This attribute specifies the period of time that a Remote Alarm Indicator (RAI) must be present before declaring an RAI alarm. The value of ***auto*** sets the RAI declare time to the default value for E1 and E1C card types which do not have hardware support for RAI response. On E1C card types with hardware support, if the value of ***auto*** is set, RAI response is done according to the standards. If ***auto*** is set, the value of the *raiClearAlarmTime* attribute is ignored and ***auto*** is used. This attribute is for E1 and E1C card types only. For all other card types, the default value must be used.

| | |
|---|---|
| Values | Decimal (1..20000)<br>auto |
| Units | msec |
| Default | 100 |

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 raiClearAlarmTime

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the period of time that a Remote Alarm Indicator (RAI) has been absent before clearing an RAI alarm. The value of ***auto*** sets the RAI clear time to the default value for E1 and E1C card types which do not have hardware support for RAI response. On E1C card types with hardware support, if the value of ***auto*** is set, RAI response is done according to the standards. If ***auto*** is set, the value of the *raiDeclareAlarmTime* attribute is ignored and ***auto*** is used. This attribute is for E1 and E1C card types only. For all other card types, the default value must be used. |
| Values | Decimal (1..20000)<br>auto |
| Units | msec |
| Default | 100 |

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 ssmE1SaNumber

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies which of the five available Sa bits (Sa4 to Sa8) recommended in ITU G.704 is to be used for Synchronization Status Messages (SSM). If set to ***none***, the transmission of SSM is disabled on this port. |
| Values | Decimal (4..8)<br>none |
| Default | none |

### GROUP Lp Sdh Vc4 Vc12 E1 CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |

| | |
|---|---|
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.<br><br>Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.<br><br>An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to "basic CIDs" in DPN) may be assigned to specific customers. |
| Values | Decimal (0; 1..8191) |
| Default | 0 |

### GROUP Lp Sdh Vc4 Vc12 E1 AdminInfo (AdminInfo)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attributes pertaining to the vendor of the equipment. |

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 vendor

| | |
|---|---|
| Access | Read and write |
| Description | This is the name of the vendor supplying the facility. |
| Values | String (0..20, ASCII) |
| Default | No default |

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 commentText

| | |
|---|---|
| Access | Read and write |
| Description | Any miscellaneous text about the facility. |
| Values | String (0..60, ASCII) |
| Default | No default |

### GROUP Lp Sdh Vc4 Vc12 E1 IfEntryProv (IfEntry)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the ifEntry. |

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 ifAdminStatus (ifState)

| | |
|---|---|
| Access | Read and write |
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP Lp Sdh Vc4 Vc12 E1 OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |

Description — This group includes the Operational Status attribute. This attribute defines the current operational state of this component.

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 snmpOperStatus

Access — Read only

Description — The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed.

Values — up
down
testing

Default — up

### GROUP Lp Sdh Vc4 Vc12 E1 OsiState (State)

Properties — Operational

Description — This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 adminState (osiAdmin)

Access — Read only

Description — This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users

only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 usageState (osiUsage)

Access
Read only

Description

This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values

idle
active (activ)
busy

Default

idle

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 availabilityStatus (osiAvail)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.

The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.

The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.

The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.

The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

| | |
|---|---|
| Set of | inTest<br>failed<br>dependency (depend)<br>powerOff (pwrOff)<br>offLine<br>offDuty<br>degraded (degrad)<br>notInstalled (notIn)<br>logFull<br>migrating |
| Default | No default |

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 proceduralStatus (osiProc)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.<br><br>The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.<br><br>The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***. |

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 controlStatus (osiCntrl)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

Set of

subjectToTest (subTst)
partOfServicesLocked (partLk)
reservedForTest (rsrvd)
suspended (suspnd)

Default

No default

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 alarmStatus (osiAlarm)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

## ATTRIBUTE Lp Sdh Vc4 Vc12 E1 standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values

hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

Default notSet

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 unknownStatus (osiUnknw)

Access Read only

Description This attribute indicates the OSI Unknown status of the component.

The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.

The value ***true*** indicates that the actual state of the component is not known for sure.

Values false
true

Default false

### GROUP Lp Sdh Vc4 Vc12 E1 Operational (Oper)

Properties Operational

Description This group contains the common operational data for a component in a digital hierarchy interface.

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 losAlarm (losAlarm)

Access Read only

Description This attribute displays whether a LOS (Loss of Signal) alarm state has been entered. A LOS alarm is declared after LOS defects have been observed and accumulated for a period of 2 seconds +/- 0.5 seconds (for **3pDS1Atm**, **3pE1Atm**, **8pDS1Atm**, and **8pE1Atm** cards: 2.5 seconds +/- 0.5 seconds). A LOS defect is detected upon observing all zeros for 150 ms (for **3pDS1Atm**, **3pE1Atm**, **8pDS1Atm**, and **8pE1Atm** cards: upon observing 175 +/- 75 pulse positions with no pulses of either positive or negative polarity). If the LOS defects are intermittently occurring, the LOS defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.
The port goes into an operational state of ***disabled*** until the LOS alarm state is cleared. Also, an RAI alarm is transmitted to the far

end for the duration of the LOS alarm state.
The LOS alarm state is cleared when LOS defects are absent for 10 seconds +/- 0.5 seconds.

Values
on
off

Default
off

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 rxAisAlarm (rxAisAlarm)

Access
Read only

Description
This attribute displays whether an AIS (Alarm Indication Signal) alarm state has been entered. The AIS Alarm state is entered when AIS defects have been observed and accumulated for 2.5 seconds +/- 0.5 seconds. An AIS defect is detected after having received less than 3 zeros in a 2048 bit period (for **8pDS1Atm** cards: when both an Out Of Frame condition exists and a 1's density of at least 99.9% is present for a time T, where 3 ms ≤ T ≤ 75 ms; for **8pE1Atm** cards: when both an Out Of Frame condition exists and fewer than three 0's have been received in 512 bit periods). If the AIS defects are intermittently occurring, the AIS defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.
The port goes into an operational state of ***disabled*** for the duration of an AIS alarm state.
The AIS alarm state is cleared when AIS defects are absent for 10 seconds +/- 0.5 seconds.

Values
on
off

Default
off

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 lofAlarm (lofAlarm)

Access
Read only

Description
This attribute displays whether a LOF (Loss of Frame) alarm state has been entered. The LOF alarm state is entered when LOF defects (for DS1: 2 out of 5 framing bits in error; for E1: 3 consecutive frame alignment patterns in error) have been detected for 3 seconds +/- 0.5 seconds (for **3pDS1Atm**, **3pE1Atm**,

**8pDS1Atm**, and **8pE1Atm** cards: 2.5 seconds +/- 0.5 seconds). If the LOF defects are intermittently occurring, the LOF defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.
The port goes into an operational state of ***disabled*** until the LOF alarm state is cleared. Also, an RAI alarm is transmitted to the far end for the duration of the LOF alarm state
The condition is cleared when framing has been achieved for 10 seconds +/- 0.5 seconds.

Values
on
off

Default
off

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 rxRaiAlarm (rxRaiAlarm)

Access
Read only

Description
This attribute displays whether an RAI (Remote Alarm Indication) alarm state has been entered. An RAI alarm state is entered when the RAI defect indicator has been observed and accumulated for 3.5 seconds +/- 0.5 seconds. For **3pDS1Atm**, and **8pDS1Atm** cards: alarm is declared immediately upon observing the defect is present, with no integration time. For **3pE1Atm**, and **8pE1Atm** cards: alarm state is entered when the RAI defect indicator has been observed and accumulated for 2.5 seconds +/- 0.5 seconds. If the RAI defects are intermittently occurring, the RAI defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.
The RAI alarm state is cleared when the RAI defect indicator has been absent for 10 seconds +/- 0.5 seconds (for **3pDS1Atm**, and **8pDS1Atm** cards: alarm is cleared immediately upon observing the defect is absent, with no integration time).
The RAI alarm is usually an indication that the far end facility is unable to gain synchronization.

Values
on
off

Default
off

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 txAisAlarm (txAisAlarm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays whether an AIS (Alarm Indication Signal) alarm is being transmitted on the line. An AIS alarm is transmitted when the port is in a locked state. |
| Values | on<br>off |
| Default | off |

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 txRaiAlarm (txRaiAlarm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays whether a RAI signal is being sent on the outgoing line. The RAI signal is transmitted when the port detects a LOF alarm condition (for **3pDS1Atm**, **3pE1Atm**, **8pDS1Atm**, and **8pE1Atm** cards: RAI is transmitted when the port detects a LOS, LOF, or AIS condition). |
| Values | on<br>off |
| Default | off |

### GROUP Lp Sdh Vc4 Vc12 E1 E1Operational (E1Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all of the operational data for a E1 component that are not defined in the DSCommonOp group. |

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 multifrmLofAlarm (multiLofAlarm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether a multiframe LOF (loss of frame) alarm state is entered. A multiframe LOF alarm state is entered when a multiframe LOF defect (2 consecutive errors in the multiframe alignment signal) has been detected and accumulated for 2.5 seconds +/- 0.5 seconds. If the multiframe LOF defects are intermittently occurring, the multiframe LOF defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements |

based on a 200 ms polling cycle.
The alarm is cleared when the defect is not detected for 10 seconds +/- 0.5 seconds. When the multiframe LOF alarm is on, a multiframe RAI alarm indicator is transmitted on the line.

The ***8pE1Atm*** card does not support the multiframe LOF alarm.

Values
on
off

Default
off

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 rxMultifrmRaiAlarm (rxMultiRaiAlarm)

Access
Read only

Description
This attribute displays whether a multiframe RAI (remote alarm indicator) alarm state has been entered. A multiframe RAI alarm state is entered when a multiframe RAI alarm indicator (bit 6 of timeslot 16 in frame 0 is set to a one) is observed and accumulated for 2.5 seconds +/- 0.5 seconds. If the multiframe RAI indicator is intermittently received, the multiframe RAI defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.
The multiframe RAI alarm condition is cleared when the multiframe RAI alarm indication is not received for 10 seconds +/- 0.5 seconds. The multiframe RAI alarm is usually an indication that the far end facility is unable to gain multiframe synchronization.

The ***8pE1Atm*** card does not support the multiframe RAI alarm.

Values
on
off

Default
off

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 txMultifrmRaiAlarm (txMultiRaiAlarm)

Access
Read only

Description
This attribute displays whether a multiframe RAI (remote alarm indicator) alarm is being sent on the E1 line. This is transmitted when the E1 port detects a multiframe LOF condition.

The ***8pE1Atm*** card does not generate the multiframe RAI alarm.

Values
on
off

Default
off

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 ssmE1Tx

Access
Read only

Description
This attribute indicates the current Synchronization Status Message (SSM) transmitted on the E1 port within the Sa byte defined in ITU G.704.
This attribute is filtered when *ssmE1SaNumber* is set to ***none***.

Values
Decimal (0..15)

Default
No default

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 multifrmCRC4LofAlarm (multiCRC4LofAlarm)

Access
Read only

Description
This attribute indicates whether E1 CRC-4 multiframe LOF (loss of frame) alarm state is entered. A CRC-4 multiframe LOF alarm state is entered when a CRC-4 multiframe LOF defect (2 consecutive errors in the multiframe alignment signal) has been detected and accumulated for 2.5 seconds +/- 0.5 seconds. If the CRC-4 multiframe LOF defects are intermittently occurring, the CRC-4 multiframe LOF defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.
The alarm is cleared when the defect is not detected for 10 seconds +/- 0.5 seconds.
The *multifrmCRC4LofAlarm* is not implemented for the ***E1***, ***1pE1V***, ***1pE1Mvp***, ***1pE1Mvpe***, ***4pE1Mvpe***, ***8pE1Atm***, ***E1C*** and ***4pE1Aal1*** cards.

Values
on
off

Default
off

### GROUP Lp Sdh Vc4 Vc12 E1 Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the common statistical data for a component in a digital hierarchy interface. |

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 runningTime (runningTime)

| | |
|---|---|
| Access | Read only |
| Description | The number of seconds since the port component was activated. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 errorFreeSec (efs)

| | |
|---|---|
| Access | Read only |
| Description | The number of seconds that the port has been in an error free state. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 erroredSec (es)

| | |
|---|---|
| Access | Read only |
| Description | An errored second is declared when a second with one or more Code Violation Error events, or one or more Out Of Frame events occurs. A code violation error may be a CRC error or a BPV error. An Out Of Frame event occurs when 2 out of 5 framing bits are in error. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 sevErroredSec (ses)

| | |
|---|---|
| Access | Read only |
| Description | A severely errored second occurs when a second with 320 or more Code Violation Error events or one or more Out Of Frame events occurs. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 sevErroredFrmSec (sefs)

| | |
|---|---|
| Access | Read only |
| Description | A severely errored framing second occurs when a second with one or more Out Of Frame events occurs. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 unavailSec

| | |
|---|---|
| Access | Read only |
| Description | The total number of seconds that the interface is in an unavailable signal state. An unavailable signal state occurs at the onset of 10 consecutive Severely Errored Seconds. The state is cleared at the onset of 10 seconds with no Severely Errored Seconds. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 bpvErrors (bpvErrors)

| | |
|---|---|
| Access | Read only |
| Description | The current count of Bipolar Violations. A bipolar violation is an error in the alternate mark inversion pattern (AMI) on the line. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 crcErrors (crcErrors)

| | |
|---|---|
| Access | Read only |
| Description | If the interface is a DS1 line, it is the current count of CRC-6 errors. These will only be counted when the lineType is ESF. If the interface is an E1 line, it is the total number of CRC-4 errors. These will only be counted when crc4Mode is on. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 frmErrors (frmErrors)

| | |
|---|---|
| Access | Read only |
| Description | The current count of frame errors. A frame error is an error in the framing bits |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 losStateChanges (losChanges)

| | |
|---|---|
| Access | Read only |
| Description | The total number of times that the line lost signal. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 slipErrors (slipErrors)

| | |
|---|---|
| Access | Read only |
| Description | The total number of times that the line experienced a controlled frame slip. This attribute is incremented for ports on the voice cards (for example the 1pDS1V and the 1pE1V function processors) only. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT Lp Sdh Vc4 Vc12 E1 Channel (Chan)

| | |
|---|---|
| Instance | Decimal (0..31) |
| Groups | "GROUP Lp Sdh Vc4 Vc12 E1 Chan Provisioned (Prov)"<br>"GROUP Lp Sdh Vc4 Vc12 E1 Chan CustomerIdentifierData (CidData)"<br>"GROUP Lp Sdh Vc4 Vc12 E1 Chan IfEntryProv (IfEntry)"<br>"GROUP Lp Sdh Vc4 Vc12 E1 Chan OperationalStatus (OperStatus)"<br>"GROUP Lp Sdh Vc4 Vc12 E1 Chan OsiState (State)" |

| | |
|---|---|
| | "GROUP Lp Sdh Vc4 Vc12 E1 Chan Operational (Oper)"<br>"GROUP Lp Sdh Vc4 Vc12 E1 Chan AdminInfo (AdminInfo)" |
| Scope | Application |
| Description | *Channel*<br>The *Channel* component is configured to control a group of timeslots that form a fractional group on a DS1 or E1 port. Cell-based cards allow only one channel per port, and this is automatically provisioned with all available timeslots. |
| Opt. Subcomp. | "COMPONENT Lp Sdh Vc4 Vc12 E1 Chan AtmCell (Cell)"<br>"COMPONENT Lp Sdh Vc4 Vc12 E1 Chan TrunkConditioning (Tc)"<br>"COMPONENT Lp Sdh Vc4 Vc12 E1 Chan FrameLinkMonitoring (Flm)" |
| Dyn. Subcomp. | "COMPONENT Lp Sdh Vc4 Vc12 E1 Chan Test (Test)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

### GROUP Lp Sdh Vc4 Vc12 E1 Chan Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all of the provisional data for a *Channel* component. |

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Chan timeslots (ts)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute contains the list of timeslots that are used by the *Channel* component. Valid numbers are 1-24 for a *Channel* used by a *DS1* component, and 1-31 for a *Channel* used by an *E1* component. |

For the ***4pDS3Ch*** card, a timeslot value of ***none*** cannot be combined with other valid timeslot values. When ***none*** is selected, no timeslots are assigned and any service linked to the *Channel* does not function.

Set of

none
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31

Default

No default

## ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Chan timeslotDataRate (dataRate)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute selects the data rate of the timeslots in a channel of a DS1 component. For E1, the data rate of the timeslots will always be 64kbit/s regardless of this attribute.<br><br>When ***doNotOverride*** is selected for a channel on a DS1, the data rate of the channel's timeslots are dependant on the *zeroCoding* selection of the DS1 component. If the *zeroCoding* is ***B8ZS*** (where supported on the FP) or ***none***, the timeslot's data rate will be 64kbit/s. If the *zeroCoding* option is ***bit7Stuffing,*** the data rate of a timeslot will be 56kbit/s.<br><br>When ***56k*** is selected for a channel on a DS1, the least significant bit of each timeslot of this *Channel* will always be set to 1 and not used for data. The data rate for the timeslots of this channel is therefore restricted to 56kbit/s.<br><br>On the ***4pDS3Ch*** cards, the *zeroCoding* attribute is restricted to the value *none*, and so when the *timeslotDataRate* is set to ***doNotOverride***, the timeslot's data rate will be 64kbit/s. Timeslot data rate of ***56k*** is also available on this card.<br><br>On the ***4pDS3ChAal1*** card, the only allowed value for this attribute is ***doNotOverride***.<br><br>One application of this attribute is to allow a DS1 line to support mixing channels that originate from lines that use different *zeroCoding* schemes. |
| Values | 56k<br>doNotOverride |
| Default | doNotOverride |

## ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Chan applicationFramerName

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute defines the link to the software stack. It defines which application is running on top of this hardware component. |
| Values | Link (Service, interfaceName) |
| Default | No default |

### GROUP Lp Sdh Vc4 Vc12 E1 Chan CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Chan customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.<br><br>Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.<br><br>An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to "basic CIDs" in DPN) may be assigned to specific customers. |
| Values | Decimal (0; 1..8191) |
| Default | 0 |

### GROUP Lp Sdh Vc4 Vc12 E1 Chan IfEntryProv (IfEntry)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the ifEntry. |

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Chan ifAdminStatus (ifState)

| | |
|---|---|
| Access | Read and write |
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Chan ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP Lp Sdh Vc4 Vc12 E1 Chan OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Chan snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |

| | |
|---|---|
| Values | up<br>down<br>testing |
| Default | up |

### GROUP Lp Sdh Vc4 Vc12 E1 Chan OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Chan adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |

| | |
|---|---|
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Chan operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Chan usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
idle
active (activ)
busy

Default
idle

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Chan availabilityStatus (osiAvail)

Access
Read only

Description
If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.

The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.

The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.

The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.

The value ***offLine*** indicates the resource requires a routine

operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Chan proceduralStatus (osiProc)

Access

Read only

| | |
|---|---|
| Description | If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.<br><br>The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.<br><br>The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.<br><br>The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.<br><br>The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***. |
| Set of | initializationRequired (initRq)<br>notInitialized (notInit)<br>initializing (init)<br>reporting (report)<br>terminating (term) |
| Default | No default |

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Chan controlStatus (osiCntrl)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.<br><br>The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.<br><br>The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.<br><br>The value ***suspended*** indicates that the service has been administratively suspended. |
| Set of | subjectToTest (subTst)<br>partOfServicesLocked (partLk)<br>reservedForTest (rsrvd)<br>suspended (suspnd) |
| Default | No default |

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Chan alarmStatus (osiAlarm)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user. |

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

## ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Chan standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is

present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values
hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

Default
notSet

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Chan unknownStatus (osiUnknw)

Access
Read only

Description
This attribute indicates the OSI Unknown status of the component.

The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.

The value ***true*** indicates that the actual state of the component is not known for sure.

Values
false
true

Default
false

### GROUP Lp Sdh Vc4 Vc12 E1 Chan Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all of the operational data for a *Channel* component. |

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Chan actualChannelSpeed

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the measured link speed of the *Channel* component. |
| Values | Decimal (0..4294967295) |
| Units | bit/s |
| Default | 0 |

### GROUP Lp Sdh Vc4 Vc12 E1 Chan AdminInfo (AdminInfo)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attributes pertaining to the vendor of the equipment. |

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Chan vendor

| | |
|---|---|
| Access | Read and write |
| Description | This is the name of the vendor supplying the facility. |
| Values | String (0..20, ASCII) |
| Default | No default |

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Chan commentText

| | |
|---|---|
| Access | Read and write |
| Description | Any miscellaneous text about the facility. |
| Values | String (0..60, ASCII) |
| Default | No default |

## COMPONENT Lp Sdh Vc4 Vc12 E1 Chan Test (Test)

| | |
|---|---|
| Groups | "GROUP Lp Sdh Vc4 Vc12 E1 Chan Test OsiState (State)"<br>"GROUP Lp Sdh Vc4 Vc12 E1 Chan Test Setup (Setup)"<br>"GROUP Lp Sdh Vc4 Vc12 E1 Chan Test Results (Results)" |
| Scope | Application |
| Description | The *Test* component is configured to control a hardware facility test on a physical (*V35*, *X21*, *DS1*, *E1*, *DS3*, *E3* etc.) or a logical port. |
| Common Verbs | Help<br>List<br>Display |

## VERB START Lp Sdh Vc4 Vc12 E1 Chan Test

| | |
|---|---|
| Impact | Service |
| Description | This command invokes a test on the hardware component. Note that some test types requires the parent component (the hardware component) to be locked (using the *Lock* command) before a test can be started. |

## VERB STOP Lp Sdh Vc4 Vc12 E1 Chan Test

| | |
|---|---|
| Impact | Service |
| Description | This command stops a test running on the hardware component. |

## GROUP Lp Sdh Vc4 Vc12 E1 Chan Test OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

## ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Chan Test adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |

Description

This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values

locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default

unlocked

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Chan Test operationalState (osiOper)

Access

Read only

Description

This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values

enabled (ena)
disabled (dis)

Default

disabled

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Chan Test usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Lp Sdh Vc4 Vc12 E1 Chan Test Setup (Setup)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all of the operational data for a *Test* component. |

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Chan Test purpose (purpose)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute records the purpose of the test so that the test results can be associated and properly analyzed. |
| Values | String (0..40, ASCII) |
| Default | No default |

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Chan Test type (type)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the type of test to be run. The available test types include the following:<br>***card*** test sets up an internal loop on the board and runs a bit error rate test. |

***manual*** test assumes the line is looped back externally and a bit error rate test is performed.
***localLoop*** test loops back the local modem and performs a bit error rate test.
***remoteLoop*** test loops back the remote modem (or CSU) and performs a bit error rate test.
***externalLoop*** test loops back the line to the far end.
***payloadLoop*** test only loops back the payload data received from the incoming line.
***remoteLoopThisTrib*** loops this particular tributary back at the far end, using services provided by the parent.
***v54RemoteLoop*** initiates a V.54 Remote Loopback test.
***pn127RemoteLoop*** initiates a PN127 Remote Loopback test.
***lineBIP8Error*** tests line BIP 8 error generation and detection (B2 byte inverted).
***sectionBIP8Error*** tests section BIP 8 error generation and detection (B1 byte inverted).
***pathBIP8Error*** tests path BIP 8 error generation and detection (B3 byte inverted).
***pathBIP2Error*** tests path BIP 2 error generation and detection (bit 1-2 of V5 byte inverted).
Note that not all test types are not supported by all function processors.

Values

card
manual
localLoop
remoteLoop
externalLoop
payloadLoop
remoteLoopThisTrib
v54RemoteLoop
pn127RemoteLoop
lineBIP8Error
sectionBIP8Error
pathBIP8Error
pathBIP2Error

Default

card

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Chan Test frmSize (size)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the size of the test data frames in number of bytes.<br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |
| Values | Decimal (4..4096) |
| Units | bytes |
| Default | 1024 |

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Chan Test frmPatternType (fpt)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the type of data pattern generation to use. The following lists the available pattern types:<br>***ccitt32kBitPattern*** is a pseudo-random sequence of 32 kbit.<br>***ccitt8MBitPattern*** is a pseudo-random sequence of 8Mbit.<br>***customizedPattern*** is the pattern defined in the ***customizedPattern*** attribute. |
| Values | ccitt32kBitPattern<br>ccitt8MBitPattern<br>customizedPattern |
| Default | ccitt32kBitPattern |

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Chan Test customizedPattern (cp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute allows a customized 32 bit pattern to be defined for use in the test data frames. This attribute is used when the attribute *frmPatternType* is set to ***CustomizedPattern***. Note that a 55 hex pattern is an alternating 1 and 0 pattern. |
| Values | Hex (H.0..H.ffffffff) |
| Units | Hex |
| Default | H.55555555 |

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Chan Test dataStartDelay (dsd)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time delay (in seconds) between when the test expects the loop to have been set up, to when the test data actually starts to be transmitted. This attribute is to accommodate some non-standard equipment that requires extra time for setting up a requested loop.<br>This attribute is ignored when the test *type* is set to ***externalLoop***. |
| Values | Decimal (0..1814400) |
| Units | seconds |
| Default | 0 |

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Chan Test displayInterval (di)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the interval (in minutes) between which interim test results are to be displayed. Results are displayed at the operator console at which the test was started. When the test *type* is set to ***externalLoop***, this attribute is ignored. There will be no display of results if *displayInterval* is set to 0. This attribute can be changed anytime. |
| Values | Decimal (0..30240) |
| Units | minutes |
| Default | 5 |

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Chan Test duration

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the duration for which the test data will be transmitted. In the case of an ***externalLoop***, this is the time that the loop is in effect. Note that *dataStartDelay* does not apply to the ***externalLoop*** test type. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |

Default 1.00

## GROUP Lp Sdh Vc4 Vc12 E1 Chan Test Results (Results)

Properties Operational

Description This group contains all the statistics related attributes of the *Test* component.

## ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Chan Test causeOfTermination

Access Read only

Description This attribute indicates either the status of the test or the cause of the test's termination:

a value of ***neverStarted*** indicates that the test has not yet been started.

a value of ***testRunning*** indicates that the test has been started.

a value of ***stoppedByOperator*** indicates that the operator issued a stop command on a test that was running.

a value of ***testTimeExpired*** indicates that the test ran for the time specified by the test's *duration*.

a value of ***loopCodeSyncFailed*** indicates that the local end failed to synchronize to the loopCode pattern. The local end transmits the loopCode pattern to cause the remote end to apply a loopback, after which the local end should receive the loopCode pattern. The exact pattern used to request loopCode depends on the test *type*. This failure indicates a high rate of transmission errors, or that the remote end has failed to apply the loopback.

a value of ***patternSyncFailed*** indicates that the local end failed to synchronize to the *frmPatternType* test pattern, that should have been looped back at the remote end. This failure indicates a high rate of transmission errors or the absence of a loopback.

a value of ***patternSyncLost*** indicates that the local end gained and then lost synchronization to the returned *frmPatternType* test pattern. This failure indicates a sudden increase in transmission

errors, frame slippage, or the removal of an existing loopback.

a value of ***unknown*** is set when a reason to terminate other than those listed here is encountered.

Note: The *causeOfTermination* attribute values of ***loopCodeSyncFailed***, ***patternSyncFailed*** and ***patternSyncLost*** are supported only on MSA cards. *Test* components located on other cards or under an *Ima* component on an MSA card will never terminate the test under the conditions described by these values.

Values
testTimeExpired
stoppedByOperator
unknown
neverStarted
testRunning
hardwareReconfigured
loopCodeSyncFailed
patternSyncFailed
patternSyncLost

Default
neverStarted

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Chan Test bitsTx

Access
Read only

Description
This attribute counts the bits sent during the test period. As long as the line speed of the hardware interface is less than 70 Mbit/s, this counter is not expected to reach the maximum value.

Values
Long Integer

Default
No default

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Chan Test bytesTx

Access
Read only

Description
This attribute counts the bytes sent during the test period. This counter is not expected to reach its maximum value.

Values
Long Integer

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Chan Test frmTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames sent during the test period. This counter is not expected to reach its maximum value.<br><br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Chan Test bitsRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bits received during the test period. The counter wraps to zero when it exceeds the maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Chan Test bytesRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes received during the test period. The counter wraps to zero when it exceeds its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Chan Test frmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received during the test period. The counter wraps to zero when it exceeds its maximum value.<br><br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |

| | |
|---|---|
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Chan Test erroredFrmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute is not displayed for ATM and MSA32 cards. For ATM cards, the physical layer drops all errored frames at the controller interface. For MSA32 cards, the test does not generate any frame.<br><br>For all other card types, this attribute counts the errored frames received during the test period. The counter wraps to zero when it exceeds its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Chan Test bitErrorRate

| | |
|---|---|
| Access | Read only |
| Description | This attribute is not displayed for ATM cards because the physical layer drops all errored frames at the controller interface. For MSA32 cards, this attribute indicates the link bit error rate, regardless of the *frameSize*, which is not supported<br><br>For all other card types, this attribute is the calculated bit error rate on the link. Test data are generated and sent in frames of a preset size (*frameSize*). The *Test* component will try to estimate the number of bit errors in any errored frame which is identifiable. The statistics will be updated accordingly. A lost frame (may be due to an error on the flag sequence) will be discarded for the bit error rate calculation. The result is presented in the form of xEsyy, where x is the mantissa, syy is the exponent, for example 0E+00, 2E-09.<br>Note that the *bitErrorRate* is an estimate only. For more reliable test results, the test should be done over a long period. Multiple tests would also improve the confidence level of the test results. |
| Values | String (5, ASCII) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Chan Test elapsedTime

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the time elapsed since the test started for an ***externalLoop*** test. For a data test, it indicates time since test data was first transmitted. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 0.00 |

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Chan Test timeRemaining

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the length of time remaining before the test stops according to the *duration* attribute. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 0.00 |

### COMPONENT Lp Sdh Vc4 Vc12 E1 Chan AtmCell (Cell)

| | |
|---|---|
| Groups | "GROUP Lp Sdh Vc4 Vc12 E1 Chan Cell Provisioned (Prov)"<br>"GROUP Lp Sdh Vc4 Vc12 E1 Chan Cell Operational (Oper)"<br>"GROUP Lp Sdh Vc4 Vc12 E1 Chan Cell Statistics (Stats)" |
| Scope | Device |
| Description | The *AtmCell* component contains provisioning and operational attributes. The provisioning attributes are used to set the Loss of Cell Delineation (LCD) alarm activation delay and to turn cell payload scrambling on or off. The operational attributes are used to report about the quality of the ATM cells received by the interface and the cell capacity utilization. The *AtmCell* |

component appears under all port components running on ATM cards.

Common Verbs

Help
List
Display
Add
DELete

## GROUP Lp Sdh Vc4 Vc12 E1 Chan Cell Provisioned (Prov)

Properties: Provisioned

Description: This group contains the provisioning attributes for the *AtmCell* component.

## ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Chan Cell alarmActDelay (act)

Access: Read and write

Description: This attribute specifies the time during which a Loss of Cell Delineation (LCD) defect should be observed before declaring an LCD alarm (alarm 70115501). When the *Cell* component is provisioned under the *Sonet* or *Sdh* component, this attribute defaults to 500 milliseconds. When it is provisioned under the *Laps* component, the default is 2000 milliseconds. This is necessary to ensure that the services bound to the *Sts* or *Vc4* component are not disrupted during short lived LCD defects caused by a line switchover. Setting this attribute to a lower value when the *Laps* component is provisioned may result in a temporary service outage when a line switchover occurs.

Values: Decimal (0..2000)

Units: msec

Default: No default

## ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Chan Cell scrambleCellPayload (scramble)

Access: Read and write

Description: Cell scrambling, as defined by ITU-T Recommendation I.432., can provide a solution to the problem of transmission equipment which is sensitive to certain bit patterns in the ATM cell payload.

This attribute controls whether or not the cell payload is scrambled.
It defaults to ***off*** for *DS1* interfaces, and ***on*** for all other interfaces.
Note that this setting must be the same at both ends of the link.

Values
off
on

Default
No default

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Chan Cell correctSingleBitHeaderErrors

Access
Read and write

Description
This attribute specifies whether the port corrects single bit errors detected in the headers of received cells. If single bit errors are corrected, the affected cells are passed up to the ATM layer according to normal operation. If single bit errors are not corrected, these errored cells are discarded by the physical layer. Note that cells containing multiple bit errors in their headers are always discarded.

Single bit HEC error correction must remain ***off*** for the following card types: 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 2pJ6MAtm, 3pDS3Atm, and 3pE3Atm.

Values
off
on

Default
off

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Chan Cell clearDelay (clear)

Access
Read and write

Description
This attribute specifies the minimum elapsed time between the clearing of the Loss of Cell Delineation (LCD) defect and the port returning to service. The LCD defect should be absent for the entire period of elapsed time. This attribute value is specified in minutes. If the value of the *clearDelay* attribute is initially 0 (default), the time is actually about 10 seconds.
This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm.

| | |
|---|---|
| Values | Decimal (0..60) |
| Units | minutes |
| Default | 0 |

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Chan Cell hecSampleInterval (hSample)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the sampling interval (in seconds) for errors associated with the *uncorrectableHeaderErrors* attribute. When the sum of errors counted by the *uncorrectableHeaderErrors* attribute over the interval time is greater than or equal to the provisioned *hecErrorLimit* attribute, the sample interval is considered errored. If the number of consecutive errored intervals reaches the limit established in the *hecErrorIntervalLimit* attribute, an LCD alarm is declared and the port is disabled. If the attribute *hecSampleInterval* is set to the default, 0, then the attribute *uncorrectableHeaderErrors* cannot be used to bring down the port.<br>This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm. |
| Values | Decimal (0..25) |
| Units | seconds |
| Default | 0 |

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Chan Cell hecErrorLimit (hLimit)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the error threshold for a HEC error sampling interval beyond which a port is brought down. When the value of the *uncorrectableHeaderErrors* attribute accumulated over the provisioned value of the *hecSampleInterval* attribute is greater than or equal to the provisioned value of the *hecErrorLimit* attribute, the sample interval is considered errored. If the number of consecutive errored intervals reaches the limit established in the *hecErrorIntervalLimit* attribute, an LCD alarm is declared and the port is disabled. (Please note that a *hecErrorInterval* attribute value of 0 (default) disables the mechanism of using the value of the *uncorrectableHeaderErrors* |

attribute to disable a port.)
This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm.

Values: Decimal (1..250000)

Default: No default

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Chan Cell lcdStateDelay (delay)

Access: Read and write

Description: This attribute specifies the time during which an Out of Cell Delineation (OCD) defect should be observed before moving to the Loss of Cell Delineation (LCD) defect state. The time is specified in milliseconds. The valid values are 1 to 50 milliseconds if the *AtmCell c*omponent is located under the *Ds1* or *E1* component, and 1 to 5 milliseconds if under a *Ds3* or *E3* component.
This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm.

Values: Decimal (1..50)

Units: msec

Default: No default

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Chan Cell hecErrorIntervalLimit (hIntLimit)

Access: Read and write

Description: This attribute counts the instances of the *hecSamplingInterval* attribute for all HEC errors (specified by the *uncorrectableHeaderError* attribute) before an LCD alarm is generated. The alarm is only generated if the value of the *uncorrectableHeaderErrors* attribute in a given interval is greater than the value of the *hecErrorLimit* attribute. For example, if there are 20 HEC errors in 5 seconds, for three times in a row (the number of times in a row is represented by this attribute), an alarm is raised. If there are 24 HEC errors in the 5 seconds, and 14 in the next 5 seconds no alarm is generated because the number of HEC errors should also be more than 20 in the next instances.

This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm.

Values: Decimal (1..25)

Default: 1

### GROUP Lp Sdh Vc4 Vc12 E1 Chan Cell Operational (Oper)

Properties: Operational

Description: This group contains the common operational attributes for the *AtmCell* component.

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Chan Cell lcdAlarm (lcd)

Access: Read only

Description: This attribute displays whether the Loss of Cell Delineation (LCD) failure alarm state has been entered. This state is entered when LCD defects have been observed and accumulated for a period of time specified through the *alarmActDelay* attribute.
In ATM cell direct mapping mode, an LCD defect occurs when Out of Cell Delineation (OCD) anomaly persists for *x* milliseconds, and disappears when the Out of Cell Delineation (OCD) is absent for *x* msec. An OCD anomaly occurs when 7 consecutive incorrect HECs have been detected. An OCD anomaly terminates when 6 consecutive correct HECs have been detected.
For an *AtmCell* component located under a *DS3* or *E3* component with *mapping* = ***PLCP***, the LCD defect is directly derived from the PLCP LOF defect.
If LCD defects are intermittently occurring, the LCD defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle
The component under which is located the *AtmCell* component goes into an operational state of ***disabled*** until the LCD alarm condition is cleared. The condition is cleared after the LCD defect has not been reported for a period of 10 seconds +/- 0.5 seconds.
The *lcdAlarm* attribute is always set to off when the parent of the *AtmCell* component has been *locked* and left *offline*. This can also

| | |
|---|---|
| | happen when the *Path* or *Channel* component has been suspended since its parent has been locked. |
| Values | on<br>off |
| Default | off |

### GROUP Lp Sdh Vc4 Vc12 E1 Chan Cell Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the statistics attribute for the *AtmCell* component. Each attribute type is a non-negative integer which monotonically increases until it reaches a maximum value, at which point it wraps around and starts increasing again from zero. |

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Chan Cell uncorrectableHeaderErrors (ucErr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of uncorrectable ATM cell header errors that have been detected. Counting of *uncorrectableHeaderErrors* is inhibited when an Out of Cell Delineation (OCD) defect is present. An OCD defect occurs when seven consecutive incorrect HECs have been detected. An OCD defect terminates when six consecutive correct HECs have been detected. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Chan Cell sevErroredSec (ses)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of ATM Cell Severely Errored Seconds (SESs) that have been counted.<br><br>In direct mapping mode, an ATM Cell SES is declared for second intervals containing one or more Out of Cell Delineation (OCD) defects. An OCD defect occurs when seven consecutive incorrect HECs have been detected. An OCD defect terminates when six consecutive correct HECs have been detected. |

If the *AtmCell* component is located under a *Ds3* or *E3* component where the *mapping* attribute is set to ***plcp***, an ATM Cell SES is declared for second intervals containing one or more PLCP LOF defects.

Counting of *uncorrectableHeaderErrors* (*ucErr*) and *correctableHeaderErrors* (*cErr*) is inhibited when the OCD defect is present.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Chan Cell receiveCellUtilization (rxutil)

Access: Read only

Description: This attribute is the ratio of the number of valid, assigned cells received on the link to the nominal link capacity. The utilization is calculated over a period of one minute.
This attribute is always set to ***0*** when the parent of the *AtmCell* component has been *locked* and left *offline.* This can also happen when the *Path* or *Channel* component has been *suspended* since its parent has been *locked*.

Values: Decimal (0..100)

Units: %

Default: 0

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Chan Cell transmitCellUtilization (txutil)

Access: Read only

Description: This attribute is the ratio of the number of valid, assigned cells transmitted on the link to the nominal link capacity. The utilization is calculated over a period of one minute.
This attribute is always set to ***0*** when the parent of the *AtmCell* component has been *locked* and left *offline*. This can also happen when the *Path* or *Channel* component has been *suspended* since its parent has been *locked*.

Values: Decimal (0..100)

| | |
|---|---|
| Units | % |
| Default | 0 |

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Chan Cell correctableHeaderErrors (cErr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of correctable ATM cell header errors that have been detected and corrected. Counting of *correctableHeaderErrors* is inhibited when an Out of Cell Delineation (OCD) defect is present. An OCD defect occurs when seven consecutive incorrect HECs have been detected. An OCD defect terminates when six consecutive correct HECs have been detected |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT Lp Sdh Vc4 Vc12 E1 Chan TrunkConditioning (Tc)

| | |
|---|---|
| Groups | "GROUP Lp Sdh Vc4 Vc12 E1 Chan Tc Provisioned (Prov)"<br>"GROUP Lp Sdh Vc4 Vc12 E1 Chan Tc Operational (Op)" |
| Scope | Device |
| Description | *Lp/n Ds1/n Chan/n Tc*<br>*Lp/n E1/n Chan/n Tc*<br>*Lp/n Ds3/n Ds1/n Chan/n Tc*<br>*Lp/n Sdh/n Vc4/n Vc12/k,l,m E1 Chan/n Tc*<br>*Lp/n Sonet/n Sts/n Vt1dot5/l,m Ds1 Chan/n Tc*<br>*Laps/n* Vc4/n Vc12/k,l,m E1 Chan/n T*c*<br>*Laps/n* Sts/n Vt1dot5/l,m Ds1 Chan/n T*c*<br><br>The *Tc* component is used to provision and monitor trunk conditioning options. A separate instance of this component is required for each *Chan* on a Port which is offering a structured constant bit rate service.<br><br>Under certain failure alarm conditions, trunk conditioning *replacementData* is substituted into the *timeslots* as defined by the *Chan* component. Trunk conditioning signaling is also substituted into the appropriate Channel Associated Signaling (CAS) bits when a *lineType* that uses CAS has been defined. |

When used with AAL1 Circuit Emulation Service, trunk conditioning is transmitted towards the ATM network under the following conditions:
lossOfSignal (LOS)
lossOfFrame (LOF)
remoteAlarmIndication (RAI)
alarmIndicationSignal (AIS)
bufferUnderflow (BU)
and in addition for E1:
lossOfMultiframe (LOMF)
receiveMultiframeRemoteAlarmIndication (RMRAI)

When used with AAL1 Circuit Emulation Service, trunk conditioning is transmitted towards the PDH network under the following conditions:
bufferUnderflow (BU)
AAL1 protocol errors.

This component needs to be provisioned on 2pDs3cAal and 32pE1Aal FPs.

Common Verbs

Help
List
Display
Add
DELete

## GROUP Lp Sdh Vc4 Vc12 E1 Chan Tc Provisioned (Prov)

Properties: Provisioned

Description: This group contains all specific provisioning data for a *Tc* component.

## ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Chan Tc replacementData (data)

Access: Read and write

Description: This attribute specifies the trunk conditioning data byte to be substituted into the *timeslots* defined by the *Chan* component under fault conditions.

The attribute *replacementData* can be set to any two digit hexadecimal number. The following are recommended values:
DS1 MUX Out Of Service Code = 0x1A
E1 MUX Out Of Service Code = 0xFF

On the ***4pDS3ChAal1*** card, the only allowed value for this attribute is ***0xFF***.

On the ***4pOC3ChSmIr*** and ***2pOC3ChSmIrVsp3*** cards, the default value for this attribute is ***0x1A*** for DS1 and ***0xFF*** for E1. On all other cards the default value is ***0xFF***.

Values: Hex (H.0..H.ff)

Units: Hex

Default: No default

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Chan Tc signalOneDuration (duration)

Access: Read and write

Description: This attribute specifies the time duration in seconds for which *signalOne* is substituted into the appropriate signaling bits, when a *lineType* that uses CAS has been defined. When *signalOneDuration* has expired *signalTwo* is substituted into the appropriate signaling bits.

If *signalOneDuration* is set to zero then only *signalTwo* is substituted into the appropriate signaling bits during error conditions.

The *signalOneDuration* attribute can be set to any integer value from 0 to 60 seconds.

Values: Decimal (0..60)

Units: seconds

Default: 0

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Chan Tc noServiceResponse (resp)

Access: Read and write

Description

This attribute specifies the Channel's egress response when it has no service provisioned, or the service provisioned is unavailable due to a near end failure. The following responses are available:

***autoConfigure*** - automatically configure the channels response.
***tc*** - transmit trunk conditioning on all timeslots provisioned in the egress direction.
***ais*** - transmit AIS in the egress direction.
***noResponse*** - no response is sent in the egress direction.

A value of ***autoConfigure*** will result in TC being transmitted for all card types.

Values

autoConfigure
tc
ais
noResponse

Default

autoConfigure

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Chan Tc signalOne (sigOne)

Access

Read and write

Description

This attribute specifies the value to be substituted into the ABCD signaling bits for the *timeslots* defined by the *Chan* component under fault conditions. The value will be substituted for the duration provisioned in *signalOneDuration* when a *lineType* that uses CAS has been defined.

For a *lineType* of ***d4Cas*** (Super Frame), signaling bits C and D are required to equal bits A and B respectively.

Vector of

Decimal (0..1)

Index

D
C
B
A

Default

(1, 1, 1, 1)

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Chan Tc signalTwo (sigTwo)

Access

Read and write

| | |
|---|---|
| Description | This attribute specifies the value to be substituted into the ABCD signaling bits for the *timeslots* defined by the *Chan* component under fault conditions. The value will be substituted after the duration provisioned in *signalOneDuration* has expired and when a *lineType* that uses CAS has been defined.<br><br>For a *lineType* of ***d4Cas*** (Super Frame), signaling bits C and D are required to equal bits A and B respectively. |
| Vector of | Decimal (0..1) |
| Index | D<br>C<br>B<br>A |
| Default | (1, 1, 1, 1) |

### GROUP Lp Sdh Vc4 Vc12 E1 Chan Tc Operational (Op)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all specific operational data for a *Tc* component. |

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Chan Tc ingressConditioning (inCon)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the status of locally generated trunk conditioning towards the ATM network.<br><br>When trunk conditioning is being locally generated towards the ATM network, *ingressConditioning* is set to ***on.***<br><br>When trunk conditioning is not being locally generated towards the ATM network, *ingressConditioning* is set to ***off***.<br><br>Trunk conditioning is transmitted towards the ATM network under the following conditions:<br>lossOfSignal (LOS)<br>lossOfFrame (LOF)<br>remoteAlarmIndication (RAI)<br>alarmIndicationSignal (AIS) |

bufferUnderflow (BU)
and in addition for E1:
lossOfMultiframe (LOMF)
receiveMultiframeRemoteAlarmIndication (RMRAI)

Values
off
on

Default
off

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Chan Tc egressConditioning (egCon)

Access
Read only

Description
This attribute indicates the status of locally generated trunk conditioning towards the PDH line.

When trunk conditioning is being locally generated towards the PDH line, *egressConditioning* is set to ***on.***

When trunk conditioning is not being locally generated towards the PDH line, *egressConditioning* is set to ***off***.

Trunk conditioning is transmitted towards the PDH line under the following conditions:
bufferUnderflow (BU)
AAL1 protocol errors.

Values
off
on

Default
off

### COMPONENT Lp Sdh Vc4 Vc12 E1 Chan FrameLinkMonitoring (Flm)

Groups
"GROUP Lp Sdh Vc4 Vc12 E1 Chan Flm Provisioned (Prov)"
"GROUP Lp Sdh Vc4 Vc12 E1 Chan Flm Operational (Op)"

Scope
Device

Description
*Lp/n E1/n Chan/n FrameLinkMonitoring*

This component provides a monitoring function specific to a

Frame Relay Channel on an E1 line. It combines the status of E1 channel-associated-signalling A-bits and HDLC frame defect.

Common Verbs

Help
List
Display
Add
DELete

## GROUP Lp Sdh Vc4 Vc12 E1 Chan Flm Provisioned (Prov)

Properties: Provisioned

Description: This group contains all specific provisioning data for an *Flm* component.

## ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Chan Flm aBitMonitoring (aBit)

Access: Read and write

Description: This attribute controls the monitoring of A-bit defects.

Values: disabled
enabled

Default: enabled

## ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Chan Flm hdlcMonitoring (hdlc)

Access: Read and write

Description: This attribute controls the monitoring of HDLC defect.

Values: disabled
enabled

Default: No default

## GROUP Lp Sdh Vc4 Vc12 E1 Chan Flm Operational (Op)

Properties: Operational

Description: This group contains all specific operational data for an *Flm* component.

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Chan Flm flmStatus (status)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the status of a Frame Relay channel on an E1 line. By combining the E1 channel-associated-signalling (CAS) A-bits status, and HDLC defect, a single value indicates the likely cause of the failure. This mechanism assumes that the far end equipment loops back signaling A-bits for some or all of the timeslots in a channel. The A-bits in channel are transmitted as ‘0’. If they are all received as ‘0’, it is assumed that the E1 link is up in both directions. The presence of HDLC frames indicates that the service is connected.<br><br>When A-bits and HDLC frames are correctly received, ***frameLinkUp*** is indicated.<br><br>When neither are received, ***frameLinkDown*** is indicated.<br><br>When HDLC frames are not receive but A-bits are not at fault, ***lossOfHdlc*** is indicated.<br><br>When HDLC frames are received, but there is a fault in any of timeslot’s A-bits on a channel ***lossOfAbit*** is indicated. |
| Values | notMonitoring<br>frameLinkUp<br>frameLinkDown<br>lossOfHdlc<br>lossOfAbit |
| Default | No default |

### COMPONENT Lp Sdh Vc4 Vc12 E1 Test (Test)

| | |
|---|---|
| Groups | "GROUP Lp Sdh Vc4 Vc12 E1 Test OsiState (State)"<br>"GROUP Lp Sdh Vc4 Vc12 E1 Test Setup (Setup)"<br>"GROUP Lp Sdh Vc4 Vc12 E1 Test Results (Results)" |
| Scope | Application |

Description — The *Test* component is configured to control a hardware facility test on a physical (*V35*, *X21*, *DS1*, *E1*, *DS3*, *E3* etc.) or a logical port.

Common Verbs
- Help
- List
- Display

### VERB START Lp Sdh Vc4 Vc12 E1 Test

Impact — Service

Description — This command invokes a test on the hardware component. Note that some test types requires the parent component (the hardware component) to be locked (using the *Lock* command) before a test can be started.

### VERB STOP Lp Sdh Vc4 Vc12 E1 Test

Impact — Service

Description — This command stops a test running on the hardware component.

### GROUP Lp Sdh Vc4 Vc12 E1 Test OsiState (State)

Properties — Operational

Description — This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Test adminState (osiAdmin)

Access — Read only

Description — This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Test operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Test usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in

use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Lp Sdh Vc4 Vc12 E1 Test Setup (Setup)

Properties
Operational

Description
This group contains all of the operational data for a *Test* component.

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Test purpose (purpose)

Access
Read and write

Description
This attribute records the purpose of the test so that the test results can be associated and properly analyzed.

Values
String (0..40, ASCII)

Default
No default

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Test type (type)

Access
Read and write

Description
This attribute is the type of test to be run. The available test types include the following:
***card*** test sets up an internal loop on the board and runs a bit error rate test.
***manual*** test assumes the line is looped back externally and a bit error rate test is performed.
***localLoop*** test loops back the local modem and performs a bit error rate test.
***remoteLoop*** test loops back the remote modem (or CSU) and performs a bit error rate test.

***externalLoop*** test loops back the line to the far end.
***payloadLoop*** test only loops back the payload data received from the incoming line.
***remoteLoopThisTrib*** loops this particular tributary back at the far end, using services provided by the parent.
***v54RemoteLoop*** initiates a V.54 Remote Loopback test.
***pn127RemoteLoop*** initiates a PN127 Remote Loopback test.
***lineBIP8Error*** tests line BIP 8 error generation and detection (B2 byte inverted).
***sectionBIP8Error*** tests section BIP 8 error generation and detection (B1 byte inverted).
***pathBIP8Error*** tests path BIP 8 error generation and detection (B3 byte inverted).
***pathBIP2Error*** tests path BIP 2 error generation and detection (bit 1-2 of V5 byte inverted).
Note that not all test types are not supported by all function processors.

Values

card
manual
localLoop
remoteLoop
externalLoop
payloadLoop
remoteLoopThisTrib
v54RemoteLoop
pn127RemoteLoop
lineBIP8Error
sectionBIP8Error
pathBIP8Error
pathBIP2Error

Default

card

## ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Test frmSize (size)

Access

Read and write

Description

This attribute defines the size of the test data frames in number of bytes.
This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame.

| | |
|---|---|
| Values | Decimal (4..4096) |
| Units | bytes |
| Default | 1024 |

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Test frmPatternType (fpt)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the type of data pattern generation to use. The following lists the available pattern types:<br>***ccitt32kBitPattern*** is a pseudo-random sequence of 32 kbit.<br>***ccitt8MBitPattern*** is a pseudo-random sequence of 8Mbit.<br>***customizedPattern*** is the pattern defined in the ***customizedPattern*** attribute. |
| Values | ccitt32kBitPattern<br>ccitt8MBitPattern<br>customizedPattern |
| Default | ccitt32kBitPattern |

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Test customizedPattern (cp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute allows a customized 32 bit pattern to be defined for use in the test data frames. This attribute is used when the attribute *frmPatternType* is set to ***CustomizedPattern***. Note that a 55 hex pattern is an alternating 1 and 0 pattern. |
| Values | Hex (H.0..H.ffffffff) |
| Units | Hex |
| Default | H.55555555 |

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Test dataStartDelay (dsd)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time delay (in seconds) between when the test expects the loop to have been set up, to when the test data actually starts to be transmitted. This attribute is to accommodate some non-standard equipment that requires extra time for setting |

| | |
|---|---|
| | up a requested loop.<br>This attribute is ignored when the test *type* is set to ***externalLoop***. |
| Values | Decimal (0..1814400) |
| Units | seconds |
| Default | 0 |

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Test displayInterval (di)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the interval (in minutes) between which interim test results are to be displayed. Results are displayed at the operator console at which the test was started. When the test *type* is set to ***externalLoop***, this attribute is ignored. There will be no display of results if *displayInterval* is set to 0. This attribute can be changed anytime. |
| Values | Decimal (0..30240) |
| Units | minutes |
| Default | 5 |

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Test duration

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the duration for which the test data will be transmitted. In the case of an ***externalLoop***, this is the time that the loop is in effect. Note that *dataStartDelay* does not apply to the ***externalLoop*** test type. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 1.00 |

### GROUP Lp Sdh Vc4 Vc12 E1 Test Results (Results)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all the statistics related attributes of the *Test* component. |

## ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Test causeOfTermination

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates either the status of the test or the cause of the test's termination:<br><br>a value of ***neverStarted*** indicates that the test has not yet been started.<br><br>a value of ***testRunning*** indicates that the test has been started.<br><br>a value of ***stoppedByOperator*** indicates that the operator issued a stop command on a test that was running.<br><br>a value of ***testTimeExpired*** indicates that the test ran for the time specified by the test's *duration*.<br><br>a value of ***loopCodeSyncFailed*** indicates that the local end failed to synchronize to the loopCode pattern. The local end transmits the loopCode pattern to cause the remote end to apply a loopback, after which the local end should receive the loopCode pattern. The exact pattern used to request loopCode depends on the test *type*. This failure indicates a high rate of transmission errors, or that the remote end has failed to apply the loopback.<br><br>a value of ***patternSyncFailed*** indicates that the local end failed to synchronize to the *frmPatternType* test pattern, that should have been looped back at the remote end. This failure indicates a high rate of transmission errors or the absence of a loopback.<br><br>a value of ***patternSyncLost*** indicates that the local end gained and then lost synchronization to the returned *frmPatternType* test pattern. This failure indicates a sudden increase in transmission errors, frame slippage, or the removal of an existing loopback.<br><br>a value of ***unknown*** is set when a reason to terminate other than those listed here is encountered.<br><br>Note: The *causeOfTermination* attribute values of ***loopCodeSyncFailed***, ***patternSyncFailed*** and ***patternSyncLost*** are supported only on MSA cards. *Test* components located on |

other cards or under an *Ima* component on an MSA card will never terminate the test under the conditions described by these values.

Values
testTimeExpired
stoppedByOperator
unknown
neverStarted
testRunning
hardwareReconfigured
loopCodeSyncFailed
patternSyncFailed
patternSyncLost

Default
neverStarted

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Test bitsTx

Access
Read only

Description
This attribute counts the bits sent during the test period. As long as the line speed of the hardware interface is less than 70 Mbit/s, this counter is not expected to reach the maximum value.

Values
Long Integer

Default
No default

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Test bytesTx

Access
Read only

Description
This attribute counts the bytes sent during the test period. This counter is not expected to reach its maximum value.

Values
Long Integer

Default
No default

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Test frmTx

Access
Read only

Description
This attribute counts the frames sent during the test period. This counter is not expected to reach its maximum value.

| | |
|---|---|
| | This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Test bitsRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bits received during the test period. The counter wraps to zero when it exceeds the maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Test bytesRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes received during the test period. The counter wraps to zero when it exceeds its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Test frmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received during the test period. The counter wraps to zero when it exceeds its maximum value.<br><br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Test erroredFrmRx

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute is not displayed for ATM and MSA32 cards. For ATM cards, the physical layer drops all errored frames at the controller interface. For MSA32 cards, the test does not generate any frame.<br><br>For all other card types, this attribute counts the errored frames received during the test period. The counter wraps to zero when it exceeds its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Test bitErrorRate

| | |
|---|---|
| Access | Read only |
| Description | This attribute is not displayed for ATM cards because the physical layer drops all errored frames at the controller interface. For MSA32 cards, this attribute indicates the link bit error rate, regardless of the *frameSize*, which is not supported<br><br>For all other card types, this attribute is the calculated bit error rate on the link. Test data are generated and sent in frames of a preset size (*frameSize*). The *Test* component will try to estimate the number of bit errors in any errored frame which is identifiable. The statistics will be updated accordingly. A lost frame (may be due to an error on the flag sequence) will be discarded for the bit error rate calculation. The result is presented in the form of xEsyy, where x is the mantissa, syy is the exponent, for example 0E+00, 2E-09.<br>Note that the *bitErrorRate* is an estimate only. For more reliable test results, the test should be done over a long period. Multiple tests would also improve the confidence level of the test results. |
| Values | String (5, ASCII) |
| Default | No default |

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Test elapsedTime

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the time elapsed since the test started for an ***externalLoop*** test. For a data test, it indicates time since test data was first transmitted. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 0.00 |

### ATTRIBUTE Lp Sdh Vc4 Vc12 E1 Test timeRemaining

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the length of time remaining before the test stops according to the *duration* attribute. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 0.00 |

### COMPONENT Lp Sdh Vc4 Vc12 E1 Dsp

| | |
|---|---|
| Scope | Device |
| Description | *LogicalProcessor/n E1/0 Dsp*<br>The *Dsp* component presents the status of the Digital Signal Processors (DSPs) present on a voice card.<br>A voice card's *Dsp* component is created automatically whenever the parent E1 component becomes active, and remains in existence as long as the E1 component exists. *Dsp* components cannot be added or deleted. |
| Common Verbs | Help<br>List<br>Display |

### COMPONENT Lp Sdh Vc4 Vc12 E1 Audio

| | |
|---|---|
| Scope | Device |
| Description | *LogicalProcessor/n E1/0 Audio*<br>The *Audio* component presents the audio status of the channels on a voice card. |

A voice card's *Audio* component is created automatically whenever the parent E1 component becomes active, and remains in existence as long as the E1 component exists. *Audio* components cannot be added or deleted.

Common Verbs

Help
List
Display

## COMPONENT Lp Sdh OpticalModule (Om)

Groups

"GROUP Lp Sdh Om Provisioned (Prov)"
"GROUP Lp Sdh Om OsiState (State)"
"GROUP Lp Sdh Om Operational (Oper)"

Scope

Device

Description

*Lp/n Ethernet/n OpticalModule*
This component represents the optical module device of the port. The optical module is used to identify the type of connection for a port.

Common Verbs

Help
List
Display
Add
DELete

## GROUP Lp Sdh Om Provisioned (Prov)

Properties

Provisioned

Description

This group contains the provisioning data for the *OpticalModule* component.

## ATTRIBUTE Lp Sdh Om type

Access

Read and write

Description

This attribute specifies the expected optical module type. The values for the *type* and *insertedType* attributes must match; otherwise, an alarm is raised and the *OpticalModule* component is disabled.

***none***: This value indicates that no optical module type is specified..

***LX***: This value indicates that the optical module is a gigabit ethernet type using long wavelength laser devices over multimode and single-mode fiber.

***SX***: This value indicates that the optical module is a gigabit ethernet type using short wavelength laser devices over multimode fiber.

***OC3SmLr***: This value indicates that the optical module is an OC3 type using long wavelength laser devices over singlemode fiber.

***OC3SmIr***: This value indicates that the optical module is an OC3 type using intermediate wavelength laser devices over singlemode fiber.

***OC3MmSr***: This value indicates that the optical module is an OC3 type using short wavelength laser devices over multimode fiber.

Values
none
LX
SX
OC3SmLr
OC3SmIr
OC3MmSr

Default
none

## GROUP Lp Sdh Om OsiState (State)

Properties
Operational

Description
This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component

which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Lp Sdh Om adminState (osiAdmin)

Access: Read only

Description: This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values: locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default: unlocked

### ATTRIBUTE Lp Sdh Om operationalState (osiOper)

Access: Read only

Description: This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the

component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Lp Sdh Om usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Lp Sdh Om Operational (Oper)

Properties
Operational

Description
This group contains the operational data for the *OpticalModule* component.

### ATTRIBUTE Lp Sdh Om insertedType

Access
Read only

Description
This attribute indicates the inserted optical module type.

***none***: This value indicates that there is no optical module inserted to the card.

***LX***: This value indicates that the optical module is a gigabit ethernet type using long wavelength laser devices over multimode and single-mode fiber.

***SX***: This value indicates that the optical module is a gigabit ethernet type using short wavelength laser devices over multimode fiber.

***OC3SmLr***: This value indicates that the optical module is an OC3 type using long wavelength laser devices over singlemode fiber.

***OC3SmIr***: This value indicates that the optical module is an OC3 type using intermediate wavelength laser devices over singlemode fiber.

***OC3MmSr***: This value indicates that the optical module is an OC3 type using short wavelength laser devices over multimode fiber.

| | |
|---|---|
| Values | none<br>LX<br>SX<br>OC3SmLr<br>OC3SmIr<br>OC3MmSr |
| Default | none |

### ATTRIBUTE Lp Sdh Om serialNumber

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the serial number of the inserted optical module. |
| Values | String (0..64, Extended ASCII) |
| Default | "" |

### ATTRIBUTE Lp Sdh Om failureCause

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the cause for the optical module's failure. The possible values are:<br><br>***typeMismatch***: This error indicates a mismatch between the *type* and *insertedType* attributes.<br><br>***internalError***: This error indicates an internal diagnostic failure of the optical module.<br><br>***unsupportedOm:*** This error indicates that the inserted optical module is not supported on this card.<br><br>***absentOm***: This error indicates that no optical module are currently present on this port.<br><br>***noFailure***: There is no failure. |
| Values | typeMismatch<br>internalError<br>unsupportedOm<br>absentOm<br>noFailure |
| Default | noFailure |

## COMPONENT Lp JT2

| | |
|---|---|
| Instance | Decimal (0..1) |
| Groups | "GROUP Lp JT2 CustomerIdentifierData (CidData)"<br>"GROUP Lp JT2 Provisioned (Prov)"<br>"GROUP Lp JT2 IfEntryProv (IfEntry)"<br>"GROUP Lp JT2 OperationalStatus (OperStatus)"<br>"GROUP Lp JT2 OsiState (State)"<br>"GROUP Lp JT2 Operational (Oper)"<br>"GROUP Lp JT2 Statistics (Stats)"<br>"GROUP Lp JT2 AdminInfo (AdminInfo)" |
| Scope | Device |
| Description | *Lp/n JT2/n*<br>The *JT2* component controls and monitors a JT2 port on a |

2pJ6MAtm Function Processor. Up to two ports may be provisioned on the 2pJ6MAtm interface card.

Subcomponents "COMPONENT Lp JT2 AtmCell (Cell)"

Dyn. Subcomp. "COMPONENT Lp JT2 Test (Test)"

Common Verbs

Help
List
Display
Add
DELete
LOCK
Unlock

## GROUP Lp JT2 CustomerIdentifierData (CidData)

Properties Provisioned

Description This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs.

## ATTRIBUTE Lp JT2 customerIdentifier (cid)

Access Read and write

Description This attribute holds the Customer Identifier (CID).

Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.

Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.

An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of

| | |
|---|---|
| | any component. Values 1 to 8191 inclusive (equivalent to “basic CIDs” in DPN) may be assigned to specific customers. |
| Values | Decimal (0; 1..8191) |
| Default | 0 |

### GROUP Lp JT2 Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all of the JT2 specific provisioning data for a JT2 component. |

### ATTRIBUTE Lp JT2 clockingSource (clockingSource)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the source of the transmit clock for the JT2 line.<br>When the clocking source is selected from ***local***, the oscillator on the port generates the clocking for the line.<br>When the clocking source is selected from ***line***, the port synchronizes to the clock recovered from the incoming line signal.<br>When the clocking source is selected from ***module***, the port’s clock synchronizes to the clock provided by the oscillator on the active CP.<br>Note:- that when one port is set to ***local***, the other port must also be set to ***local***, and when one port is set to ***module***, the other port must also be set to ***module***. If one of the ports is set to ***line***, the other port must be set to ***otherPort***.<br>Also, if a CP reference clock is available when the JT2 component is added, the clocking source defaults to ***module***, whereas if a CP reference clock is not available when the component is added, the clocking source defaults to ***local***. |
| Values | local<br>line<br>module<br>otherPort |
| Default | No default |

### ATTRIBUTE Lp JT2 lineLength (length)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the line length for equalization calculations for the JT2 line. The range is between 0 and 480 feet (1 metre = 3.28 feet). |
| Values | Decimal (0..480) |
| Units | feet |
| Default | 0 |

### ATTRIBUTE Lp JT2 applicationFramerName

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the link to the software stack. It defines which application is running on top of the *JT2* component. |
| Values | Link (Service, interfaceName) |
| Default | No default |

### GROUP Lp JT2 IfEntryProv (IfEntry)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the ifEntry. |

### ATTRIBUTE Lp JT2 ifAdminStatus (ifState)

| | |
|---|---|
| Access | Read and write |
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE Lp JT2 ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP Lp JT2 OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

### ATTRIBUTE Lp JT2 snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### GROUP Lp JT2 OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific |

information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Lp JT2 adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Lp JT2 operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service. |

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Lp JT2 usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
idle
active (activ)
busy

Default
idle

### ATTRIBUTE Lp JT2 availabilityStatus (osiAvail)

Access
Read only

Description
If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is

defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.

The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.

The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.

The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.

The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a

rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

### ATTRIBUTE Lp JT2 proceduralStatus (osiProc)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.

The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

### ATTRIBUTE Lp JT2 controlStatus (osiCntrl)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

Set of

subjectToTest (subTst)
partOfServicesLocked (partLk)
reservedForTest (rsrvd)
suspended (suspnd)

Default

No default

### ATTRIBUTE Lp JT2 alarmStatus (osiAlarm)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms

may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

## ATTRIBUTE Lp JT2 standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values
hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

Default
notSet

### ATTRIBUTE Lp JT2 unknownStatus (osiUnknw)

Access
Read only

Description
This attribute indicates the OSI Unknown status of the component.

The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.

The value ***true*** indicates that the actual state of the component is not known for sure.

Values
false
true

Default
false

### GROUP Lp JT2 Operational (Oper)

Properties
Operational

Description
This group contains the JT2 specific operational data for a JT2 component in a digital hierarchy interface.

### ATTRIBUTE Lp JT2 losAlarm (los)

Access
Read only

Description
This attribute displays whether a LOS (Loss of Signal) alarm state is entered. An LOS alarm state is entered when LOS defects have been observed and accumulated for a period of 2.5 seconds +/- 0.5 seconds. An LOS defect is declared at the JT2 line interface when the input data is zero for 20 - 32 clock cycles. If

the LOS defects are intermittently occurring, the LOS defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.
An LOS failure alarm is cleared when the LOS defect is absent for a period of 10 seconds +/- 0.5 seconds. The JT2 port goes into an *operationalState* of ***disabled*** for the duration of the LOS alarm condition. While the port is in the LOS alarm state, the port also transmits the far-end RAI defect indicator on the out-going JT2 line.

Values
on
off

Default
off

### ATTRIBUTE Lp JT2 lofAlarm (lof)

Access
Read only

Description
This attribute indicates whether a LOF (Loss of Frame) alarm state is entered. A LOF alarm state is entered when LOF defects are observed and accumulated for 2.5 seconds +/- 0.5 seconds or more. A LOF defect occurs when seven or more consecutive incorrect frame alignment patterns (4 multiframes) are received. If the LOF defects are intermittently occurring, the LOF defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.
The LOF alarm is cleared when framing has been achieved for 10 seconds +/- 0.5 seconds. The port goes into an *operationalState* of ***disabled*** for the duration of the LOF alarm condition. While the port is in the LOF alarm state, the node also transmits the far-end RAI defect indicator on the out-going JT2 line.

Values
on
off

Default
off

### ATTRIBUTE Lp JT2 rxAisPhysicalAlarm (rxAisPhys)

Access
Read only

| | |
|---|---|
| Description | This attribute indicates whether a Physical AIS alarm state is entered. A Physical AIS alarm state is entered when a Physical AIS defect is observed and accumulated for a period of 2.5 seconds +/- 0.5 seconds. A Physical AIS defect is declared when the incoming signal has two or less zeros in a sequence of 3,156 bits (0.5 ms). If the physical AIS defects are intermittently occurring, the physical AIS defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.<br>A Physical AIS alarm is cleared when the Physical AIS defect is absent for a period of 10 seconds +/- 0.5 seconds. The port goes into an *operationalState* of ***disabled*** until the AIS alarm condition is cleared. While the port is in the Physical AIS alarm state, the node also transmits the far-end RAI defect indicator on the out-going JT2 line. |
| Values | on<br>off |
| Default | off |

### ATTRIBUTE Lp JT2 rxAisPayloadAlarm (rxAisPayld)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether a Payload AIS alarm state is entered. A Payload AIS alarm state is entered when a Payload AIS defect persists for a period of 2.5 seconds +/- 0.5 seconds. A Payload AIS defect is declared when the incoming signal of the 6312 kbit/s frame payload (TS1 - TS96) has two or less zeros in a sequence of 3,072 bits (0.5 ms). If the payload AIS defects are intermittently occurring, the payload AIS defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.<br>A Payload AIS failure alarm is cleared when the Payload AIS defect is absent for a period of 10 seconds +/- 0.5 seconds. The port goes into an *operationalState* of ***disabled*** until the AIS alarm condition is cleared. While the port is in the Payload AIS alarm state, the node also transmits the far-end RAI defect indicator on the out-going JT2 line. |

| | |
|---|---|
| Values | on<br>off |
| Default | off |

### ATTRIBUTE Lp JT2 rxRaiAlarm (rxRai)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether a Received RAI alarm state is entered. A received RAI alarm state is entered when the RAI signal is detected on the incoming JT2 Line (when 16 or more consecutive RAI patterns of 1111111100000000 are received on the 4 kbit/s data channel (m-bits) within the framing bits of the JT2 frame). The JT2 port goes into an *operationalState* of ***Disabled*** until the RAI alarm condition is cleared. The RAI alarm is cleared when four or more consecutive non-RAI patterns (anything other than 1111111100000000) are received. |
| Values | on<br>off |
| Default | off |

### ATTRIBUTE Lp JT2 txAisPhysicalAlarm (txAisPhys)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether an AIS (Alarm Indication Signal) alarm is being transmitted on the outgoing JT2 line. Currently the JT2 port only transmits a Physical AIS (no Payload AIS) on the outgoing JT2 line.<br>Since there is no Idle signal defined for JT2, the AIS signal is transmitted when the JT2 port is in the *operationalState* of ***locked.*** The AIS signal may also be transmitted for diagnostic testing. |
| Values | on<br>off |
| Default | off |

### ATTRIBUTE Lp JT2 txRaiAlarm (txRai)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates whether an RAI defect indication pattern is being sent on the out-going JT2 line. The RAI alarm pattern is transmitted in the 4 kbit/s data channel (m-bits) when the port detects a LOS, AIS or LOF alarm condition. |
| Values | on<br>off |
| Default | off |

### GROUP Lp JT2 Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the statistical data for a JT2 component in a digital hierarchy interface. |

### ATTRIBUTE Lp JT2 runningTime (runningTime)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of seconds since the JT2 component was activated and placed in an ***unlocked*** state or used for operational testing. All the other error counts that follow as well as each *JT2* subcomponent's error counts can be updated when this count is active. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp JT2 errorFreeSec (efs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of seconds that the JT2 port has been in an error free state. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp JT2 erroredSec (es)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the total number of errored seconds for the JT2 port. An errored second is declared when a second with one or more Code Violation Error events, or one or more LOF or LOS defects occur. A code violation error may be a cyclic redundancy check (CRC) error or a bipolar violation (BPV) error. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp JT2 sevErroredSec (ses)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of severely errored seconds for the JT2 port. A severely errored second occurs when a second with 255 or more Code Violation Error events or one or more LOF or LOS defects occur. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp JT2 sevErroredFrmSec (sefs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of severely errored framing seconds for the JT2 port. A severely errored framing second occurs when a second with one or more Framing Errors occur. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp JT2 unavailSec

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of seconds that the interface has been in an unavailable state. An unavailable state occurs at the onset of 10 consecutive Severely Errored Seconds. When the unavailable state is entered, the 10 Severely Errored Seconds are immediately transfered to the count of unavailableSeconds by incrementing the count of unavailSec by |

| | |
|---|---|
| | 10 and decrementing the count of sevErroredSec by 10. Whilst in the unavailable state, an unavailableSecond is counted for each SES or SEFS that occurs, and the count of SES and SEFS are both inhibited. The unavailable state is cleared at the onset of 10 consecutive seconds which are not Severely Errored Seconds. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp JT2 bpvErrors (bpv)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total count of bipolar violations (BPV). A bipolar violation is an error in the alternate mark inversion pattern (AMI) on the line. The value of this attribute will wrap to zero when it reaches its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp JT2 crcErrors (crcErr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of cyclic redundancy check (CRC-5) errors detected on the incoming JT2 line. The value of this attribute will wrap to 0 when its maximum value is reached. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Lp JT2 frameErrors (frmErr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of Framing Errors that have occured on the JT2 port. A Framing Error is an error in the framing bits. The value of this attribute will wrap to 0 when its maximum value is reached. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE Lp JT2 losStateChanges (losChanges)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of times that the incoming signal on the JT2 line has been lost. The value of this attribute will wrap to 0 when its maximum value is reached. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### GROUP Lp JT2 AdminInfo (AdminInfo)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attributes pertaining to the vendor of the equipment. |

### ATTRIBUTE Lp JT2 vendor

| | |
|---|---|
| Access | Read and write |
| Description | This is the name of the vendor supplying the facility. |
| Values | String (0..20, ASCII) |
| Default | No default |

### ATTRIBUTE Lp JT2 commentText

| | |
|---|---|
| Access | Read and write |
| Description | Any miscellaneous text about the facility. |
| Values | String (0..60, ASCII) |
| Default | No default |

### COMPONENT Lp JT2 Test (Test)

| | |
|---|---|
| Groups | "GROUP Lp JT2 Test OsiState (State)"<br>"GROUP Lp JT2 Test Setup (Setup)"<br>"GROUP Lp JT2 Test Results (Results)" |
| Scope | Application |

| | |
|---|---|
| Description | The *Test* component is configured to control a hardware facility test on a physical (*V35*, *X21*, *DS1*, *E1*, *DS3*, *E3* etc.) or a logical port. |
| Common Verbs | Help<br>List<br>Display |

### VERB START Lp JT2 Test

| | |
|---|---|
| Impact | Service |
| Description | This command invokes a test on the hardware component. Note that some test types requires the parent component (the hardware component) to be locked (using the *Lock* command) before a test can be started. |

### VERB STOP Lp JT2 Test

| | |
|---|---|
| Impact | Service |
| Description | This command stops a test running on the hardware component. |

### GROUP Lp JT2 Test OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Lp JT2 Test adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. |

When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Lp JT2 Test operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Lp JT2 Test usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Lp JT2 Test Setup (Setup)

Properties
Operational

Description
This group contains all of the operational data for a *Test* component.

### ATTRIBUTE Lp JT2 Test purpose (purpose)

Access
Read and write

Description
This attribute records the purpose of the test so that the test results can be associated and properly analyzed.

Values
String (0..40, ASCII)

Default
No default

### ATTRIBUTE Lp JT2 Test type (type)

Access
Read and write

Description
This attribute is the type of test to be run. The available test types include the following:
***card*** test sets up an internal loop on the board and runs a bit error rate test.
***manual*** test assumes the line is looped back externally and a bit error rate test is performed.
***localLoop*** test loops back the local modem and performs a bit error rate test.

***remoteLoop*** test loops back the remote modem (or CSU) and performs a bit error rate test.
***externalLoop*** test loops back the line to the far end.
***payloadLoop*** test only loops back the payload data received from the incoming line.
***remoteLoopThisTrib*** loops this particular tributary back at the far end, using services provided by the parent.
***v54RemoteLoop*** initiates a V.54 Remote Loopback test.
***pn127RemoteLoop*** initiates a PN127 Remote Loopback test.
***lineBIP8Error*** tests line BIP 8 error generation and detection (B2 byte inverted).
***sectionBIP8Error*** tests section BIP 8 error generation and detection (B1 byte inverted).
***pathBIP8Error*** tests path BIP 8 error generation and detection (B3 byte inverted).
***pathBIP2Error*** tests path BIP 2 error generation and detection (bit 1-2 of V5 byte inverted).
Note that not all test types are not supported by all function processors.

Values

card
manual
localLoop
remoteLoop
externalLoop
payloadLoop
remoteLoopThisTrib
v54RemoteLoop
pn127RemoteLoop
lineBIP8Error
sectionBIP8Error
pathBIP8Error
pathBIP2Error

Default

card

## ATTRIBUTE Lp JT2 Test frmSize (size)

Access

Read and write

Description

This attribute defines the size of the test data frames in number of bytes.

| | |
|---|---|
| | This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |
| Values | Decimal (4..4096) |
| Units | bytes |
| Default | 1024 |

### ATTRIBUTE Lp JT2 Test frmPatternType (fpt)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the type of data pattern generation to use. The following lists the available pattern types:<br>***ccitt32kBitPattern*** is a pseudo-random sequence of 32 kbit.<br>***ccitt8MBitPattern*** is a pseudo-random sequence of 8Mbit.<br>***customizedPattern*** is the pattern defined in the ***customizedPattern*** attribute. |
| Values | ccitt32kBitPattern<br>ccitt8MBitPattern<br>customizedPattern |
| Default | ccitt32kBitPattern |

### ATTRIBUTE Lp JT2 Test customizedPattern (cp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute allows a customized 32 bit pattern to be defined for use in the test data frames. This attribute is used when the attribute *frmPatternType* is set to ***CustomizedPattern***. Note that a 55 hex pattern is an alternating 1 and 0 pattern. |
| Values | Hex (H.0..H.ffffffff) |
| Units | Hex |
| Default | H.55555555 |

### ATTRIBUTE Lp JT2 Test dataStartDelay (dsd)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute specifies the time delay (in seconds) between when the test expects the loop to have been set up, to when the test data actually starts to be transmitted. This attribute is to accommodate some non-standard equipment that requires extra time for setting up a requested loop.<br>This attribute is ignored when the test *type* is set to ***externalLoop***. |
| Values | Decimal (0..1814400) |
| Units | seconds |
| Default | 0 |

### ATTRIBUTE Lp JT2 Test displayInterval (di)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the interval (in minutes) between which interim test results are to be displayed. Results are displayed at the operator console at which the test was started. When the test *type* is set to ***externalLoop***, this attribute is ignored. There will be no display of results if *displayInterval* is set to 0. This attribute can be changed anytime. |
| Values | Decimal (0..30240) |
| Units | minutes |
| Default | 5 |

### ATTRIBUTE Lp JT2 Test duration

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the duration for which the test data will be transmitted. In the case of an ***externalLoop***, this is the time that the loop is in effect. Note that *dataStartDelay* does not apply to the ***externalLoop*** test type. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 1.00 |

## GROUP Lp JT2 Test Results (Results)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all the statistics related attributes of the *Test* component. |

## ATTRIBUTE Lp JT2 Test causeOfTermination

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates either the status of the test or the cause of the test's termination:<br><br>a value of ***neverStarted*** indicates that the test has not yet been started.<br><br>a value of ***testRunning*** indicates that the test has been started.<br><br>a value of ***stoppedByOperator*** indicates that the operator issued a stop command on a test that was running.<br><br>a value of ***testTimeExpired*** indicates that the test ran for the time specified by the test's *duration*.<br><br>a value of ***loopCodeSyncFailed*** indicates that the local end failed to synchronize to the loopCode pattern. The local end transmits the loopCode pattern to cause the remote end to apply a loopback, after which the local end should receive the loopCode pattern. The exact pattern used to request loopCode depends on the test *type*. This failure indicates a high rate of transmission errors, or that the remote end has failed to apply the loopback.<br><br>a value of ***patternSyncFailed*** indicates that the local end failed to synchronize to the *frmPatternType* test pattern, that should have been looped back at the remote end. This failure indicates a high rate of transmission errors or the absence of a loopback.<br><br>a value of ***patternSyncLost*** indicates that the local end gained and then lost synchronization to the returned *frmPatternType* test pattern. This failure indicates a sudden increase in transmission errors, frame slippage, or the removal of an existing loopback. |

a value of ***unknown*** is set when a reason to terminate other than those listed here is encountered.

Note: The *causeOfTermination* attribute values of ***loopCodeSyncFailed***, ***patternSyncFailed*** and ***patternSyncLost*** are supported only on MSA cards. *Test* components located on other cards or under an *Ima* component on an MSA card will never terminate the test under the conditions described by these values.

Values
testTimeExpired
stoppedByOperator
unknown
neverStarted
testRunning
hardwareReconfigured
loopCodeSyncFailed
patternSyncFailed
patternSyncLost

Default
neverStarted

### ATTRIBUTE Lp JT2 Test bitsTx

Access
Read only

Description
This attribute counts the bits sent during the test period. As long as the line speed of the hardware interface is less than 70 Mbit/s, this counter is not expected to reach the maximum value.

Values
Long Integer

Default
No default

### ATTRIBUTE Lp JT2 Test bytesTx

Access
Read only

Description
This attribute counts the bytes sent during the test period. This counter is not expected to reach its maximum value.

Values
Long Integer

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Lp JT2 Test frmTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames sent during the test period. This counter is not expected to reach its maximum value.<br><br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp JT2 Test bitsRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bits received during the test period. The counter wraps to zero when it exceeds the maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp JT2 Test bytesRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes received during the test period. The counter wraps to zero when it exceeds its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp JT2 Test frmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received during the test period. The counter wraps to zero when it exceeds its maximum value.<br><br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |

| | |
|---|---|
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp JT2 Test erroredFrmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute is not displayed for ATM and MSA32 cards. For ATM cards, the physical layer drops all errored frames at the controller interface. For MSA32 cards, the test does not generate any frame.<br><br>For all other card types, this attribute counts the errored frames received during the test period. The counter wraps to zero when it exceeds its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp JT2 Test bitErrorRate

| | |
|---|---|
| Access | Read only |
| Description | This attribute is not displayed for ATM cards because the physical layer drops all errored frames at the controller interface. For MSA32 cards, this attribute indicates the link bit error rate, regardless of the *frameSize*, which is not supported<br><br>For all other card types, this attribute is the calculated bit error rate on the link. Test data are generated and sent in frames of a preset size (*frameSize*). The *Test* component will try to estimate the number of bit errors in any errored frame which is identifiable. The statistics will be updated accordingly. A lost frame (may be due to an error on the flag sequence) will be discarded for the bit error rate calculation. The result is presented in the form of xEsyy, where x is the mantissa, syy is the exponent, for example 0E+00, 2E-09.<br>Note that the *bitErrorRate* is an estimate only. For more reliable test results, the test should be done over a long period. Multiple tests would also improve the confidence level of the test results. |
| Values | String (5, ASCII) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Lp JT2 Test elapsedTime

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the time elapsed since the test started for an ***externalLoop*** test. For a data test, it indicates time since test data was first transmitted. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 0.00 |

### ATTRIBUTE Lp JT2 Test timeRemaining

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the length of time remaining before the test stops according to the *duration* attribute. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 0.00 |

### COMPONENT Lp JT2 AtmCell (Cell)

| | |
|---|---|
| Groups | "GROUP Lp JT2 Cell Provisioned (Prov)"<br>"GROUP Lp JT2 Cell Operational (Oper)"<br>"GROUP Lp JT2 Cell Statistics (Stats)" |
| Scope | Device |
| Description | The *AtmCell* component contains provisioning and operational attributes. The provisioning attributes are used to set the Loss of Cell Delineation (LCD) alarm activation delay and to turn cell payload scrambling on or off. The operational attributes are used to report about the quality of the ATM cells received by the interface and the cell capacity utilization. The *AtmCell* component appears under all port components running on ATM cards. |

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display |

## GROUP Lp JT2 Cell Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioning attributes for the *AtmCell* component. |

## ATTRIBUTE Lp JT2 Cell alarmActDelay (act)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time during which a Loss of Cell Delineation (LCD) defect should be observed before declaring an LCD alarm (alarm 70115501). When the *Cell* component is provisioned under the *Sonet* or *Sdh* component, this attribute defaults to 500 milliseconds. When it is provisioned under the *Laps* component, the default is 2000 milliseconds. This is necessary to ensure that the services bound to the *Sts* or *Vc4* component are not disrupted during short lived LCD defects caused by a line switchover. Setting this attribute to a lower value when the *Laps* component is provisioned may result in a temporary service outage when a line switchover occurs. |
| Values | Decimal (0..2000) |
| Units | msec |
| Default | No default |

## ATTRIBUTE Lp JT2 Cell scrambleCellPayload (scramble)

| | |
|---|---|
| Access | Read and write |
| Description | Cell scrambling, as defined by ITU-T Recommendation I.432., can provide a solution to the problem of transmission equipment which is sensitive to certain bit patterns in the ATM cell payload. This attribute controls whether or not the cell payload is |

scrambled.
It defaults to ***off*** for *DS1* interfaces, and ***on*** for all other interfaces.
Note that this setting must be the same at both ends of the link.

Values
off
on

Default
No default

### ATTRIBUTE Lp JT2 Cell correctSingleBitHeaderErrors

Access
Read and write

Description
This attribute specifies whether the port corrects single bit errors detected in the headers of received cells. If single bit errors are corrected, the affected cells are passed up to the ATM layer according to normal operation. If single bit errors are not corrected, these errored cells are discarded by the physical layer. Note that cells containing multiple bit errors in their headers are always discarded.

Single bit HEC error correction must remain ***off*** for the following card types: 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 2pJ6MAtm, 3pDS3Atm, and 3pE3Atm.

Values
off
on

Default
off

### ATTRIBUTE Lp JT2 Cell clearDelay (clear)

Access
Read and write

Description
This attribute specifies the minimum elapsed time between the clearing of the Loss of Cell Delineation (LCD) defect and the port returning to service. The LCD defect should be absent for the entire period of elapsed time. This attribute value is specified in minutes. If the value of the *clearDelay* attribute is initially 0 (default), the time is actually about 10 seconds.
This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm.

| | |
|---|---|
| Values | Decimal (0..60) |
| Units | minutes |
| Default | 0 |

### ATTRIBUTE Lp JT2 Cell hecSampleInterval (hSample)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the sampling interval (in seconds) for errors associated with the *uncorrectableHeaderErrors* attribute. When the sum of errors counted by the *uncorrectableHeaderErrors* attribute over the interval time is greater than or equal to the provisioned *hecErrorLimit* attribute, the sample interval is considered errored. If the number of consecutive errored intervals reaches the limit established in the *hecErrorIntervalLimit* attribute, an LCD alarm is declared and the port is disabled. If the attribute *hecSampleInterval* is set to the default, 0, then the attribute *uncorrectableHeaderErrors* cannot be used to bring down the port.<br>This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm. |
| Values | Decimal (0..25) |
| Units | seconds |
| Default | 0 |

### ATTRIBUTE Lp JT2 Cell hecErrorLimit (hLimit)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the error threshold for a HEC error sampling interval beyond which a port is brought down. When the value of the *uncorrectableHeaderErrors* attribute accumulated over the provisioned value of the *hecSampleInterval* attribute is greater than or equal to the provisioned value of the *hecErrorLimit* attribute, the sample interval is considered errored. If the number of consecutive errored intervals reaches the limit established in the *hecErrorIntervalLimit* attribute, an LCD alarm is declared and the port is disabled. (Please note that a *hecErrorInterval* attribute value of 0 (default) disables the |

mechanism of using the value of the *uncorrectableHeaderErrors* attribute to disable a port.)
This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm.

Values: Decimal (1..250000)

Default: No default

### ATTRIBUTE Lp JT2 Cell lcdStateDelay (delay)

Access: Read and write

Description: This attribute specifies the time during which an Out of Cell Delineation (OCD) defect should be observed before moving to the Loss of Cell Delineation (LCD) defect state. The time is specified in milliseconds. The valid values are 1 to 50 milliseconds if the *AtmCell c*omponent is located under the *Ds1* or *E1* component, and 1 to 5 milliseconds if under a *Ds3* or *E3* component.
This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm.

Values: Decimal (1..50)

Units: msec

Default: No default

### ATTRIBUTE Lp JT2 Cell hecErrorIntervalLimit (hIntLimit)

Access: Read and write

Description: This attribute counts the instances of the *hecSamplingInterval* attribute for all HEC errors (specified by the *uncorrectableHeaderError* attribute) before an LCD alarm is generated. The alarm is only generated if the value of the *uncorrectableHeaderErrors* attribute in a given interval is greater than the value of the *hecErrorLimit* attribute. For example, if there are 20 HEC errors in 5 seconds, for three times in a row (the number of times in a row is represented by this attribute), an alarm is raised. If there are 24 HEC errors in the 5 seconds, and 14 in the next 5 seconds no alarm is generated because the number of HEC errors should also be more than 20 in the next

instances.
This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm.

Values: Decimal (1..25)

Default: 1

### GROUP Lp JT2 Cell Operational (Oper)

Properties: Operational

Description: This group contains the common operational attributes for the *AtmCell* component.

### ATTRIBUTE Lp JT2 Cell lcdAlarm (lcd)

Access: Read only

Description: This attribute displays whether the Loss of Cell Delineation (LCD) failure alarm state has been entered. This state is entered when LCD defects have been observed and accumulated for a period of time specified through the *alarmActDelay* attribute.
In ATM cell direct mapping mode, an LCD defect occurs when Out of Cell Delineation (OCD) anomaly persists for *x* milliseconds, and disappears when the Out of Cell Delineation (OCD) is absent for *x* msec. An OCD anomaly occurs when 7 consecutive incorrect HECs have been detected. An OCD anomaly terminates when 6 consecutive correct HECs have been detected.
For an *AtmCell* component located under a *DS3* or *E3* component with *mapping* = ***PLCP***, the LCD defect is directly derived from the PLCP LOF defect.
If LCD defects are intermittently occurring, the LCD defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle
The component under which is located the *AtmCell* component goes into an operational state of ***disabled*** until the LCD alarm condition is cleared. The condition is cleared after the LCD defect has not been reported for a period of 10 seconds +/- 0.5 seconds.
The *lcdAlarm* attribute is always set to off when the parent of the

*AtmCell* component has been *locked* and left *offline*. This can also happen when the *Path* or *Channel* component has been suspended since its parent has been locked.

Values
on
off

Default
off

### GROUP Lp JT2 Cell Statistics (Stats)

Properties
Operational

Description
This group contains the statistics attribute for the *AtmCell* component. Each attribute type is a non-negative integer which monotonically increases until it reaches a maximum value, at which point it wraps around and starts increasing again from zero.

### ATTRIBUTE Lp JT2 Cell uncorrectableHeaderErrors (ucErr)

Access
Read only

Description
This attribute indicates the number of uncorrectable ATM cell header errors that have been detected. Counting of *uncorrectableHeaderErrors* is inhibited when an Out of Cell Delineation (OCD) defect is present. An OCD defect occurs when seven consecutive incorrect HECs have been detected. An OCD defect terminates when six consecutive correct HECs have been detected.

Values
Decimal (0..4294967295)

Default
0

### ATTRIBUTE Lp JT2 Cell sevErroredSec (ses)

Access
Read only

Description
This attribute indicates the total number of ATM Cell Severely Errored Seconds (SESs) that have been counted.

In direct mapping mode, an ATM Cell SES is declared for second intervals containing one or more Out of Cell Delineation (OCD) defects. An OCD defect occurs when seven consecutive incorrect

HECs have been detected. An OCD defect terminates when six consecutive correct HECs have been detected.

If the *AtmCell* component is located under a *Ds3* or *E3* component where the *mapping* attribute is set to ***plcp***, an ATM Cell SES is declared for second intervals containing one or more PLCP LOF defects.

Counting of *uncorrectableHeaderErrors* (*ucErr*) and *correctableHeaderErrors* (*cErr*) is inhibited when the OCD defect is present.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE Lp JT2 Cell receiveCellUtilization (rxutil)

Access: Read only

Description: This attribute is the ratio of the number of valid, assigned cells received on the link to the nominal link capacity. The utilization is calculated over a period of one minute.
This attribute is always set to ***0*** when the parent of the *AtmCell* component has been *locked* and left *offline.* This can also happen when the *Path* or *Channel* component has been *suspended* since its parent has been *locked*.

Values: Decimal (0..100)

Units: %

Default: 0

### ATTRIBUTE Lp JT2 Cell transmitCellUtilization (txutil)

Access: Read only

Description: This attribute is the ratio of the number of valid, assigned cells transmitted on the link to the nominal link capacity. The utilization is calculated over a period of one minute.
This attribute is always set to ***0*** when the parent of the *AtmCell* component has been *locked* and left *offline*. This can also happen

| | |
|---|---|
| | when the *Path* or *Channel* component has been *suspended* since its parent has been *locked*. |
| Values | Decimal (0..100) |
| Units | % |
| Default | 0 |

### ATTRIBUTE Lp JT2 Cell correctableHeaderErrors (cErr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of correctable ATM cell header errors that have been detected and corrected. Counting of *correctableHeaderErrors* is inhibited when an Out of Cell Delineation (OCD) defect is present. An OCD defect occurs when seven consecutive incorrect HECs have been detected. An OCD defect terminates when six consecutive correct HECs have been detected |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT Lp Hssi

| | |
|---|---|
| Instance | Decimal (0..0) |
| Groups | "GROUP Lp Hssi Provisioned (Prov)"<br>"GROUP Lp Hssi CustomerIdentifierData (CidData)"<br>"GROUP Lp Hssi AdminInfo (AdminInfo)"<br>"GROUP Lp Hssi IfEntryProv (IfEntry)"<br>"GROUP Lp Hssi OperationalStatus (OperStatus)"<br>"GROUP Lp Hssi OsiState (State)"<br>"GROUP Lp Hssi Operational (Oper)" |
| Scope | Application |

Description *Lp/m Hssi/0*

The *Hssi* component controls a Passport HSSI interface.

Dyn. Subcomp. "COMPONENT Lp Hssi Test (Test)"

Common Verbs

Help
List
Display
Add
DELete
LOCK
Unlock

## GROUP Lp Hssi Provisioned (Prov)

Properties Provisioned

Description This group contains the specific provisioning data for a *Hssi* component.

## ATTRIBUTE Lp Hssi linkMode (mode)

Access Read and write

Description This attribute defines the intended gender of the HSSI port. The actual gender of the port is determined by the hardware setup.

In ***dte*** mode, the *ta* line signal is driven as specified by the attribute *readyLineState* when the HSSI port passes its diagnostics. The *ta* line signal is then driven as specified by the attribute *dataTransferLineState* when the application is ready to transfer data. On the other hand, the input line signal *ca* is compared against those specified in the attributes *readyLineState* and *dataTransferLineState*. The application will be notified when the specified input line states are observed.

In ***dce*** mode, the ***Hssi*** component behaves similarly as when it is in ***dte*** mode. However, it will be driving the ***dce*** line signal ***(ca)*** and monitoring the ***dte*** line signal (*ta*) as specified by the attributes *readyLineState* and *dataTransferLineState*.

| | |
|---|---|
| Values | dte<br>dce |
| Default | dce |

### ATTRIBUTE Lp Hssi readyLineState (rls)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the line signal originating from the HSSI interface that will always be turned on, provided the HSSI interface passes it diagnostics. This set of signal is generally required for maintaining the connection. Note that both *dte* and *dce* signals are specified in this attribute. The appropriate set of specified signals will be turned on or checked according to the operational attribute *actualLinkMode.* See also *linkMode*. |
| Set of | ca<br>ta |
| Default | (ca, ta) |

### ATTRIBUTE Lp Hssi dataTransferLineState (dtls)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the line signals required to indicate that the external equipment is in a good state (that is, data transfer can proceed). Note that both ***dte*** and ***dce*** signals are specified in this attribute. The appropriate set of specified signals will be turned on or checked according to the operational attribute *actualLinkMode*. The value of this attribute must be a superset of that of the *readyLineState* attribute.<br>See also *linkMode*. |
| Set of | ca<br>ta |
| Default | (ca, ta) |

### ATTRIBUTE Lp Hssi lineSpeed (speed)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute defines the speed of the line for source clocking. This attribute is ignored if the interface is not providing a clock. Note that the actual clock rate are available in the operational attributes *actualTxLineSpeed* and *actualRxLineSpeed*. |
| Values | Decimal (1000000..50000000) |
| Units | bit/s |
| Default | 45000000 |

### ATTRIBUTE Lp Hssi applicationFramerName (framer)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute contains the component name of a *Framer* which is associated with the *Hssi* component. |
| Values | Link (Service, interfaceName) |
| Default | No default |

### GROUP Lp Hssi CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

### ATTRIBUTE Lp Hssi customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.<br><br>Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those |

| | |
|---|---|
| | components which have a matching CID.<br><br>An operator CID of 0 is used to identify the Network Manager (referred to as “NetMan” in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to “basic CIDs” in DPN) may be assigned to specific customers. |
| Values | Decimal (0; 1..8191) |
| Default | 0 |

### GROUP Lp Hssi AdminInfo (AdminInfo)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attributes pertaining to the vendor of the equipment. |

### ATTRIBUTE Lp Hssi vendor

| | |
|---|---|
| Access | Read and write |
| Description | This is the name of the vendor supplying the facility. |
| Values | String (0..20, ASCII) |
| Default | No default |

### ATTRIBUTE Lp Hssi commentText

| | |
|---|---|
| Access | Read and write |
| Description | Any miscellaneous text about the facility. |
| Values | String (0..60, ASCII) |
| Default | No default |

### GROUP Lp Hssi IfEntryProv (IfEntry)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the ifEntry. |

### ATTRIBUTE Lp Hssi ifAdminStatus (ifState)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE Lp Hssi ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP Lp Hssi OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

### ATTRIBUTE Lp Hssi snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |

Default up

### GROUP Lp Hssi OsiState (State)

Properties Operational

Description This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Lp Hssi adminState (osiAdmin)

Access Read only

Description This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default unlocked

### ATTRIBUTE Lp Hssi operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Lp Hssi usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |

| | |
|---|---|
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### ATTRIBUTE Lp Hssi availabilityStatus (osiAvail)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.<br><br>The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.<br><br>The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.<br><br>The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.<br><br>The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***. |

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

### ATTRIBUTE Lp Hssi proceduralStatus (osiProc)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the

user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.

The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of
initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default
No default

### ATTRIBUTE Lp Hssi controlStatus (osiCntrl)

Access
Read only

| | |
|---|---|
| Description | If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.<br><br>The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.<br><br>The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.<br><br>The value ***suspended*** indicates that the service has been administratively suspended. |
| Set of | subjectToTest (subTst)<br>partOfServicesLocked (partLk)<br>reservedForTest (rsrvd)<br>suspended (suspnd) |
| Default | No default |

### ATTRIBUTE Lp Hssi alarmStatus (osiAlarm)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions |

described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE Lp Hssi standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and

thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values
hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

Default
notSet

### ATTRIBUTE Lp Hssi unknownStatus (osiUnknw)

Access
Read only

Description
This attribute indicates the OSI Unknown status of the component.

The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.

The value ***true*** indicates that the actual state of the component is not known for sure.

Values
false
true

Default
false

### GROUP Lp Hssi Operational (Oper)

Properties
Operational

| | |
|---|---|
| Description | This group contains all specific operational data for a *Hssi* component. |

### ATTRIBUTE Lp Hssi actualLinkMode

| | |
|---|---|
| Access | Read only |
| Description | This attribute contains the actual link mode defined by the hardware. Note that the hardware overrides the provisionable data. The port behaves as a ***dce*** or ***dte*** according to the *actualLinkMode*. |
| Values | dte<br>dce |
| Default | No default |

### ATTRIBUTE Lp Hssi lineState

| | |
|---|---|
| Access | Read only |
| Description | This attribute contains the state of the interface signals. |
| Set of | ca<br>ta<br>tm<br>la<br>lb |
| Default | No default |

### ATTRIBUTE Lp Hssi actualTxLineSpeed

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the measured speed of the transmit clock. Note the reported transmit speed is in an error of +/- 10000 bit/s |
| Values | Decimal (0..4294967295) |
| Units | bit/s |
| Default | No default |

### ATTRIBUTE Lp Hssi actualRxLineSpeed

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute is the measured speed of the receive clock. Note the reported receive speed is in an error of +/- 10000 bit/s |
| Values | Decimal (0..4294967295) |
| Units | bit/s |
| Default | No default |

### ATTRIBUTE Lp Hssi dataXferStateChanges

| | |
|---|---|
| Access | Read only |
| Description | This attribute contains the number of times that the line has entered or exited the data transfer state. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT Lp Hssi Test (Test)

| | |
|---|---|
| Groups | "GROUP Lp Hssi Test OsiState (State)"<br>"GROUP Lp Hssi Test Setup (Setup)"<br>"GROUP Lp Hssi Test Results (Results)" |
| Scope | Application |
| Description | The *Test* component is configured to control a hardware facility test on a physical (*V*35, *X21*, *DS1*, *E1*, *DS3*, *E3* etc.) or a logical port. |
| Common Verbs | Help<br>List<br>Display |

### VERB START Lp Hssi Test

| | |
|---|---|
| Impact | Service |
| Description | This command invokes a test on the hardware component. Note that some test types requires the parent component (the hardware component) to be locked (using the *Lock* command) before a test can be started. |

### VERB STOP Lp Hssi Test

| | |
|---|---|
| Impact | Service |
| Description | This command stops a test running on the hardware component. |

### GROUP Lp Hssi Test OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Lp Hssi Test adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Lp Hssi Test operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Lp Hssi Test usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

## GROUP Lp Hssi Test Setup (Setup)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all of the operational data for a *Test* component. |

## ATTRIBUTE Lp Hssi Test purpose (purpose)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute records the purpose of the test so that the test results can be associated and properly analyzed. |
| Values | String (0..40, ASCII) |
| Default | No default |

## ATTRIBUTE Lp Hssi Test type (type)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the type of test to be run. The available test types include the following:<br>***card*** test sets up an internal loop on the board and runs a bit error rate test.<br>***manual*** test assumes the line is looped back externally and a bit error rate test is performed.<br>***localLoop*** test loops back the local modem and performs a bit error rate test.<br>***remoteLoop*** test loops back the remote modem (or CSU) and performs a bit error rate test.<br>***externalLoop*** test loops back the line to the far end.<br>***payloadLoop*** test only loops back the payload data received from the incoming line.<br>***remoteLoopThisTrib*** loops this particular tributary back at the far end, using services provided by the parent.<br>***v54RemoteLoop*** initiates a V.54 Remote Loopback test.<br>***pn127RemoteLoop*** initiates a PN127 Remote Loopback test.<br>***lineBIP8Error*** tests line BIP 8 error generation and detection (B2 byte inverted).<br>***sectionBIP8Error*** tests section BIP 8 error generation and detection (B1 byte inverted).<br>***pathBIP8Error*** tests path BIP 8 error generation and detection |

(B3 byte inverted).
***pathBIP2Error*** tests path BIP 2 error generation and detection (bit 1-2 of V5 byte inverted).
Note that not all test types are not supported by all function processors.

Values
card
manual
localLoop
remoteLoop
externalLoop
payloadLoop
remoteLoopThisTrib
v54RemoteLoop
pn127RemoteLoop
lineBIP8Error
sectionBIP8Error
pathBIP8Error
pathBIP2Error

Default
card

## ATTRIBUTE Lp Hssi Test frmSize (size)

Access
Read and write

Description
This attribute defines the size of the test data frames in number of bytes.
This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame.

Values
Decimal (4..4096)

Units
bytes

Default
1024

## ATTRIBUTE Lp Hssi Test frmPatternType (fpt)

Access
Read and write

Description
This attribute defines the type of data pattern generation to use.
The following lists the available pattern types:
***ccitt32kBitPattern*** is a pseudo-random sequence of 32 kbit.

***ccitt8MBitPattern*** is a pseudo-random sequence of 8Mbit.
***customizedPattern*** is the pattern defined in the ***customizedPattern*** attribute.

Values: ccitt32kBitPattern
ccitt8MBitPattern
customizedPattern

Default: ccitt32kBitPattern

### ATTRIBUTE Lp Hssi Test customizedPattern (cp)

Access: Read and write

Description: This attribute allows a customized 32 bit pattern to be defined for use in the test data frames. This attribute is used when the attribute *frmPatternType* is set to ***CustomizedPattern***. Note that a 55 hex pattern is an alternating 1 and 0 pattern.

Values: Hex (H.0..H.ffffffff)

Units: Hex

Default: H.55555555

### ATTRIBUTE Lp Hssi Test dataStartDelay (dsd)

Access: Read and write

Description: This attribute specifies the time delay (in seconds) between when the test expects the loop to have been set up, to when the test data actually starts to be transmitted. This attribute is to accommodate some non-standard equipment that requires extra time for setting up a requested loop.
This attribute is ignored when the test *type* is set to ***externalLoop***.

Values: Decimal (0..1814400)

Units: seconds

Default: 0

### ATTRIBUTE Lp Hssi Test displayInterval (di)

Access: Read and write

| | |
|---|---|
| Description | This attribute defines the interval (in minutes) between which interim test results are to be displayed. Results are displayed at the operator console at which the test was started. When the test *type* is set to ***externalLoop***, this attribute is ignored. There will be no display of results if *displayInterval* is set to 0. This attribute can be changed anytime. |
| Values | Decimal (0..30240) |
| Units | minutes |
| Default | 5 |

### ATTRIBUTE Lp Hssi Test duration

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the duration for which the test data will be transmitted. In the case of an ***externalLoop***, this is the time that the loop is in effect. Note that *dataStartDelay* does not apply to the ***externalLoop*** test type. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 1.00 |

### GROUP Lp Hssi Test Results (Results)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all the statistics related attributes of the *Test* component. |

### ATTRIBUTE Lp Hssi Test causeOfTermination

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates either the status of the test or the cause of the test's termination:<br><br>a value of ***neverStarted*** indicates that the test has not yet been started.<br><br>a value of ***testRunning*** indicates that the test has been started. |

a value of ***stoppedByOperator*** indicates that the operator issued a stop command on a test that was running.

a value of ***testTimeExpired*** indicates that the test ran for the time specified by the test's *duration*.

a value of ***loopCodeSyncFailed*** indicates that the local end failed to synchronize to the loopCode pattern. The local end transmits the loopCode pattern to cause the remote end to apply a loopback, after which the local end should receive the loopCode pattern. The exact pattern used to request loopCode depends on the test *type*. This failure indicates a high rate of transmission errors, or that the remote end has failed to apply the loopback.

a value of ***patternSyncFailed*** indicates that the local end failed to synchronize to the *frmPatternType* test pattern, that should have been looped back at the remote end. This failure indicates a high rate of transmission errors or the absence of a loopback.

a value of ***patternSyncLost*** indicates that the local end gained and then lost synchronization to the returned *frmPatternType* test pattern. This failure indicates a sudden increase in transmission errors, frame slippage, or the removal of an existing loopback.

a value of ***unknown*** is set when a reason to terminate other than those listed here is encountered.

Note: The *causeOfTermination* attribute values of ***loopCodeSyncFailed***, ***patternSyncFailed*** and ***patternSyncLost*** are supported only on MSA cards. *Test* components located on other cards or under an *Ima* component on an MSA card will never terminate the test under the conditions described by these values.

Values

testTimeExpired
stoppedByOperator
unknown
neverStarted
testRunning

| | |
|---|---|
| | hardwareReconfigured<br>loopCodeSyncFailed<br>patternSyncFailed<br>patternSyncLost |
| Default | neverStarted |

### ATTRIBUTE Lp Hssi Test bitsTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bits sent during the test period. As long as the line speed of the hardware interface is less than 70 Mbit/s, this counter is not expected to reach the maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Hssi Test bytesTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes sent during the test period. This counter is not expected to reach its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Hssi Test frmTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames sent during the test period. This counter is not expected to reach its maximum value.<br><br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Hssi Test bitsRx

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the bits received during the test period. The counter wraps to zero when it exceeds the maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Hssi Test bytesRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes received during the test period. The counter wraps to zero when it exceeds its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Hssi Test frmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received during the test period. The counter wraps to zero when it exceeds its maximum value.<br><br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Hssi Test erroredFrmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute is not displayed for ATM and MSA32 cards. For ATM cards, the physical layer drops all errored frames at the controller interface. For MSA32 cards, the test does not generate any frame.<br><br>For all other card types, this attribute counts the errored frames received during the test period. The counter wraps to zero when it exceeds its maximum value. |
| Values | Long Integer |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Lp Hssi Test bitErrorRate

| | |
|---|---|
| Access | Read only |
| Description | This attribute is not displayed for ATM cards because the physical layer drops all errored frames at the controller interface. For MSA32 cards, this attribute indicates the link bit error rate, regardless of the *frameSize*, which is not supported<br><br>For all other card types, this attribute is the calculated bit error rate on the link. Test data are generated and sent in frames of a preset size (*frameSize*). The *Test* component will try to estimate the number of bit errors in any errored frame which is identifiable. The statistics will be updated accordingly. A lost frame (may be due to an error on the flag sequence) will be discarded for the bit error rate calculation. The result is presented in the form of xEsyy, where x is the mantissa, syy is the exponent, for example 0E+00, 2E-09.<br>Note that the *bitErrorRate* is an estimate only. For more reliable test results, the test should be done over a long period. Multiple tests would also improve the confidence level of the test results. |
| Values | String (5, ASCII) |
| Default | No default |

### ATTRIBUTE Lp Hssi Test elapsedTime

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the time elapsed since the test started for an ***externalLoop*** test. For a data test, it indicates time since test data was first transmitted. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 0.00 |

### ATTRIBUTE Lp Hssi Test timeRemaining

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the length of time remaining before the test stops according to the *duration* attribute. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 0.00 |

## COMPONENT Lp IlsForwarder (IlsFwdr)

| | |
|---|---|
| Instance | Decimal (0) |
| Groups | "GROUP Lp IlsFwdr Provisioned (Prov)"<br>"GROUP Lp IlsFwdr IfEntryProv (IfEntry)"<br>"GROUP Lp IlsFwdr OsiState (State)"<br>"GROUP Lp IlsFwdr OperationalStatus (OperStatus)"<br>"GROUP Lp IlsFwdr Statistics (Stats)" |
| Scope | Device |
| Description | *Lp/n IlsForwarder/0*<br>This component defines an instance of a IlsForwarder. At least one instance of this component must be provisioned if there is any *AtmMpe* component provisioned. |
| Subcomponents | "COMPONENT Lp IlsFwdr LanTest (Lt)"<br>"COMPONENT Lp IlsFwdr Test" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP Lp IlsFwdr Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioning data for *IlsForwarder* component. |

### ATTRIBUTE Lp IlsFwdr linkToTrafficSource

| | |
|---|---|
| Access | Read only |
| Description | This attribute contains a list of components that are using this *IlsForwarder.* |
| List of | Link (Service, ilsForwarder) |
| List Size | 256 |
| Default | No default |

### GROUP Lp IlsFwdr IfEntryProv (IfEntry)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the ifEntry. |

### ATTRIBUTE Lp IlsFwdr ifAdminStatus (ifState)

| | |
|---|---|
| Access | Read and write |
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE Lp IlsFwdr ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

## GROUP Lp IlsFwdr OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

## ATTRIBUTE Lp IlsFwdr adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

## ATTRIBUTE Lp IlsFwdr operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component. |

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Lp IlsFwdr usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Lp IlsFwdr OperationalStatus (OperStatus)

Properties
Operational

Description
This group includes the Operational Status attribute. This attribute defines the current operational state of this component.

## ATTRIBUTE Lp IlsFwdr snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

## GROUP Lp IlsFwdr Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational frame statistics related attributes of the *IlsForwarder* component. |

## ATTRIBUTE Lp IlsFwdr framesReceived

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames that have been received by this card. This counter will wrap around after it reaches its maximum value. |
| Values | Long Integer |
| Default | No default |

## ATTRIBUTE Lp IlsFwdr processedCount

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames successfully processed by this card. This counter will wrap around after it reaches its maximum value. |
| Values | Long Integer |
| Default | No default |

## ATTRIBUTE Lp IlsFwdr errorCount

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of internal errors detected in transferring frames from an ATM card to this card. A continuous increment of this count indicates that the hardware may probably be defective. This counter will wrap around after it reaches its maximum value. |
| Values | Long Integer |
| Default | No default |

## ATTRIBUTE Lp IlsFwdr framesDiscarded

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames which are discarded due to local buffer congestion. This counter will wrap around after it reaches its maximum value. |
| Values | Long Integer |
| Default | No default |

## COMPONENT Lp IlsFwdr LanTest (Lt)

| | |
|---|---|
| Groups | "GROUP Lp IlsFwdr Lt TestOp (Top)" |
| Scope | Device |
| Description | *Lp/n Fddi/n LanTest*, or<br>*Lp/n Ethernet/n LanTest*, or<br>*Lp/n TokenRing/n LanTest, or*<br>*Lp/n IlsForwarder/n LanTest*<br>The LanTest component is used to control testing on LAN interfaces. This includes LLC layer loopback, on-card loopback, SNMP required tests, and any testing to be done in the lab or manufacturing. |

| | |
|---|---|
| Dyn. Subcomp. | "COMPONENT Lp IlsFwdr Lt FrameCompare (FrmCmp)"<br>"COMPONENT Lp IlsFwdr Lt FrameCopy (FrmCpy)"<br>"COMPONENT Lp IlsFwdr Lt PortConfig (PrtCfg)"<br>"COMPONENT Lp IlsFwdr Lt FrameBuild (Fb)"<br>"COMPONENT Lp IlsFwdr Lt Control (Cntl)" |
| Common Verbs | Help<br>List<br>Display |

### VERB Start Lp IlsFwdr Lt

| | |
|---|---|
| Impact | Service |
| Description | This verb is used to start a test as per the attributes set within each subcomponent of LanTest. |

### VERB Stop Lp IlsFwdr Lt

| | |
|---|---|
| Impact | Service |
| Description | This verb is used to stop a test. |

### VERB Reset Lp IlsFwdr Lt

| | |
|---|---|
| Impact | Service |
| Description | This verb is used to reset the LanTest component. |

### VERB Get Lp IlsFwdr Lt

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters for the LanTest component. This includes attributes set using the Set verb. |

### VERB Tlist Lp IlsFwdr Lt

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to an attribute. |

### GROUP Lp IlsFwdr Lt TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

### ATTRIBUTE Lp IlsFwdr Lt tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

### COMPONENT Lp IlsFwdr Lt FrameCompare (FrmCmp)

| | |
|---|---|
| Groups | "GROUP Lp IlsFwdr Lt FrmCmp TestOp (Top)" |
| Scope | Device |
| Description | This component compares frames received from the hardware and emulator during testing. |
| Common Verbs | Help<br>List<br>Display |

### VERB Get Lp IlsFwdr Lt FrmCmp

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters for the LanTest FrameCompare component. This includes attributes set using the Set verb. |

### VERB Tlist Lp IlsFwdr Lt FrmCmp

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

### GROUP Lp IlsFwdr Lt FrmCmp TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

### ATTRIBUTE Lp IlsFwdr Lt FrmCmp tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

### COMPONENT Lp IlsFwdr Lt FrameCopy (FrmCpy)

| | |
|---|---|
| Groups | "GROUP Lp IlsFwdr Lt FrmCpy TestOp (Top)" |
| Scope | Device |
| Description | This component receives its input from FrameBuild and places it upon the hardware which sends it to the appropriate emulator. |
| Common Verbs | Help<br>List<br>Display |

### VERB Get Lp IlsFwdr Lt FrmCpy

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters for the LanTest FrameCopy component. This includes attributes set using the Set verb. |

### VERB Tlist Lp IlsFwdr Lt FrmCpy

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

### GROUP Lp IlsFwdr Lt FrmCpy TestOp (Top)

| | |
|---|---|
| Properties | Operational |

| | |
|---|---|
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

### ATTRIBUTE Lp IlsFwdr Lt FrmCpy tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

### COMPONENT Lp IlsFwdr Lt PortConfig (PrtCfg)

| | |
|---|---|
| Groups | "GROUP Lp IlsFwdr Lt PrtCfg TestOp (Top)" |
| Scope | Device |
| Description | This component controls the emulator and hardware to ensure frames output from each will match in FrameCompare. |
| Common Verbs | Help<br>List<br>Display |

### VERB Get Lp IlsFwdr Lt PrtCfg

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters for the LanTest PortConfig component. This includes attributes set using the Set verb. |

### VERB Tlist Lp IlsFwdr Lt PrtCfg

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

### GROUP Lp IlsFwdr Lt PrtCfg TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

### ATTRIBUTE Lp IlsFwdr Lt PrtCfg tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

### COMPONENT Lp IlsFwdr Lt FrameBuild (Fb)

| | |
|---|---|
| Groups | "GROUP Lp IlsFwdr Lt Fb TestOp (Top)" |
| Scope | Device |
| Description | LanTest Framebuild<br>This component controls the building of all frames built and sent by the LanTest component. Each component under FrameBuild builds a portion of a packet or frame. |
| Dyn. Subcomp. | "COMPONENT Lp IlsFwdr Lt Fb TransmitInfo (TxInfo)"<br>"COMPONENT Lp IlsFwdr Lt Fb FddiMac (MacFddi)"<br>"COMPONENT Lp IlsFwdr Lt Fb EthernetMac (MacEnet)"<br>"COMPONENT Lp IlsFwdr Lt Fb TokenRingMac (MacTr)"<br>"COMPONENT Lp IlsFwdr Lt Fb DataField (Data)"<br>"COMPONENT Lp IlsFwdr Lt Fb IpHeader (IpH)"<br>"COMPONENT Lp IlsFwdr Lt Fb LlcHeader (Llch)"<br>"COMPONENT Lp IlsFwdr Lt Fb AppleHeader (AppleH)"<br>"COMPONENT Lp IlsFwdr Lt Fb IpxHeader (IpxH)" |
| Common Verbs | Help<br>List<br>Display |

### VERB Get Lp IlsFwdr Lt Fb

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters for the LanTest FrameBuild component. This includes attributes set using the Set verb. |

### VERB Tlist Lp IlsFwdr Lt Fb

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

### GROUP Lp IlsFwdr Lt Fb TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

### ATTRIBUTE Lp IlsFwdr Lt Fb tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

### COMPONENT Lp IlsFwdr Lt Fb TransmitInfo (TxInfo)

| | |
|---|---|
| Groups | "GROUP Lp IlsFwdr Lt Fb TxInfo TestOp (Top)" |
| Scope | Device |
| Description | LanTest TransmitInfo<br>This component builds a transmit header which is attached to all frames transmitted on LAN interfaces. |
| Common Verbs | Help<br>List<br>Display |

### VERB Get Lp IlsFwdr Lt Fb TxInfo

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters for the LanTest TransmitInfo component. This includes attributes set using the Set verb. |

### VERB Tlist Lp IlsFwdr Lt Fb TxInfo

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

### GROUP Lp IlsFwdr Lt Fb TxInfo TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

### ATTRIBUTE Lp IlsFwdr Lt Fb TxInfo tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

### COMPONENT Lp IlsFwdr Lt Fb FddiMac (MacFddi)

| | |
|---|---|
| Groups | "GROUP Lp IlsFwdr Lt Fb MacFddi TestOp (Top)" |
| Scope | Device |
| Description | LanTest FddiMac<br>This component builds an FDDI MAC header which is attached to all FDDI frames. |
| Common Verbs | Help<br>List<br>Display |

### VERB Get Lp IlsFwdr Lt Fb MacFddi

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters for the LanTest FddiMac component. This includes attributes set using the Set verb. |

### VERB Tlist Lp IlsFwdr Lt Fb MacFddi

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

### GROUP Lp IlsFwdr Lt Fb MacFddi TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

### ATTRIBUTE Lp IlsFwdr Lt Fb MacFddi tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

### COMPONENT Lp IlsFwdr Lt Fb EthernetMac (MacEnet)

| | |
|---|---|
| Groups | "GROUP Lp IlsFwdr Lt Fb MacEnet TestOp (Top)" |
| Scope | Device |
| Description | LanTest EthernetMac<br>This component builds an Ethernet MAC header which is attached to all Ethernet frames. |
| Common Verbs | Help<br>List<br>Display |

### VERB Get Lp IlsFwdr Lt Fb MacEnet

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters LanTest EthernetMac component. This includes attributes set using the Set verb. |

### VERB Tlist Lp IlsFwdr Lt Fb MacEnet

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

### GROUP Lp IlsFwdr Lt Fb MacEnet TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

### ATTRIBUTE Lp IlsFwdr Lt Fb MacEnet tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

### COMPONENT Lp IlsFwdr Lt Fb TokenRingMac (MacTr)

| | |
|---|---|
| Groups | "GROUP Lp IlsFwdr Lt Fb MacTr TestOp (Top)" |
| Scope | Device |
| Description | LanTest TokenRingMac<br>This component builds a Token Ring MAC header which is attached to all Token Ring frames. |
| Common Verbs | Help<br>List<br>Display |

### VERB Get Lp IlsFwdr Lt Fb MacTr

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters for the LanTest TokenRingMac component. This includes attributes set using the Set verb. |

### VERB Tlist Lp IlsFwdr Lt Fb MacTr

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

### GROUP Lp IlsFwdr Lt Fb MacTr TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

### ATTRIBUTE Lp IlsFwdr Lt Fb MacTr tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

### COMPONENT Lp IlsFwdr Lt Fb DataField (Data)

| | |
|---|---|
| Groups | "GROUP Lp IlsFwdr Lt Fb Data TestOp (Top)" |
| Scope | Device |
| Description | This component adds a data field to frame. |
| Common Verbs | Help<br>List<br>Display |

### VERB Get Lp IlsFwdr Lt Fb Data

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters for the LanTest DataField component. This includes attributes set using the Set verb. |

### VERB Tlist Lp IlsFwdr Lt Fb Data

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

### GROUP Lp IlsFwdr Lt Fb Data TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

### ATTRIBUTE Lp IlsFwdr Lt Fb Data tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

### COMPONENT Lp IlsFwdr Lt Fb IpHeader (IpH)

| | |
|---|---|
| Groups | "GROUP Lp IlsFwdr Lt Fb IpH TestOp (Top)" |
| Scope | Device |
| Description | LanTest IpHeader<br>This component adds an IP header to a frame or packet. |
| Common Verbs | Help<br>List<br>Display |

### VERB Get Lp IlsFwdr Lt Fb IpH

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters for the LanTest IpHeader component. This includes attributes set using the Set verb. |

### VERB Tlist Lp IlsFwdr Lt Fb IpH

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

### GROUP Lp IlsFwdr Lt Fb IpH TestOp (Top)

| | |
|---|---|
| Properties | Operational |

| | |
|---|---|
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

### ATTRIBUTE Lp IlsFwdr Lt Fb IpH tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

### COMPONENT Lp IlsFwdr Lt Fb LlcHeader (Llch)

| | |
|---|---|
| Groups | "GROUP Lp IlsFwdr Lt Fb Llch TestOp (Top)" |
| Scope | Device |
| Description | LanTest LlcHeader<br>This component adds an LLC 802.2 or Ethernet header to a frame or packet. |
| Common Verbs | Help<br>List<br>Display |

### VERB Get Lp IlsFwdr Lt Fb Llch

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters for the LanTest LlcHeader component. This includes attributes set using the SET verb. |

### VERB Tlist Lp IlsFwdr Lt Fb Llch

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

### GROUP Lp IlsFwdr Lt Fb Llch TestOp (Top)

| | |
|---|---|
| Properties | Operational |

| | |
|---|---|
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

### ATTRIBUTE Lp IlsFwdr Lt Fb Llch tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

### COMPONENT Lp IlsFwdr Lt Fb AppleHeader (AppleH)

| | |
|---|---|
| Groups | "GROUP Lp IlsFwdr Lt Fb AppleH TestOp (Top)" |
| Scope | Device |
| Description | This component adds an AppleTalk header to a frame or packet. |
| Common Verbs | Help<br>List<br>Display |

### VERB Get Lp IlsFwdr Lt Fb AppleH

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters for the LanTest AppleHeader component. This includes attributes set using the Set verb. |

### VERB Tlist Lp IlsFwdr Lt Fb AppleH

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

### GROUP Lp IlsFwdr Lt Fb AppleH TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

### ATTRIBUTE Lp IlsFwdr Lt Fb AppleH tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

### COMPONENT Lp IlsFwdr Lt Fb IpxHeader (IpxH)

| | |
|---|---|
| Groups | "GROUP Lp IlsFwdr Lt Fb IpxH TestOp (Top)" |
| Scope | Device |
| Description | This component adds an IPX header to a frame or packet. |
| Common Verbs | Help<br>List<br>Display |

### VERB Get Lp IlsFwdr Lt Fb IpxH

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters forLanTest IpxHeader component. This includes attributes set using the Set verb. |

### VERB Tlist Lp IlsFwdr Lt Fb IpxH

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

### GROUP Lp IlsFwdr Lt Fb IpxH TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

### ATTRIBUTE Lp IlsFwdr Lt Fb IpxH tData (td)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

### COMPONENT Lp IlsFwdr Lt Control (Cntl)

| | |
|---|---|
| Groups | "GROUP Lp IlsFwdr Lt Cntl TestOp (Top)" |
| Scope | Device |
| Description | LanTest Control<br>This component controls the overall testing by telling the FrameBuild component to start and check the FrameCompare component to see if the test is complete. |
| Common Verbs | Help<br>List<br>Display |

### VERB Get Lp IlsFwdr Lt Cntl

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters for the LanTest Control component. This includes attributes set using the Set verb. |

### VERB Tlist Lp IlsFwdr Lt Cntl

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

### GROUP Lp IlsFwdr Lt Cntl TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

### ATTRIBUTE Lp IlsFwdr Lt Cntl tData (td)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

### COMPONENT Lp IlsFwdr Test

| | |
|---|---|
| Groups | "GROUP Lp IlsFwdr Test PortTestOp (PTO)"<br>"GROUP Lp IlsFwdr Test Results (Results)" |
| Scope | Device |
| Description | *Lp/n Fddi/n Test*, or<br>*Lp/n Ethernet/n Test*, or<br>*Lp/n TokenRing/n Test, or*<br>*Lp/n IlsForwarder/n Test*<br>The Test component is used to do StartUp port test for LAN cards. |
| Common Verbs | Help<br>List<br>Display |

### VERB Start Lp IlsFwdr Test

| | |
|---|---|
| Impact | Service |
| Description | This verb is used to start a test as per the attributes set within each subcomponent of Test. |

### VERB Stop Lp IlsFwdr Test

| | |
|---|---|
| Impact | Service |
| Description | This verb is used to stop a test. |

### VERB Reset Lp IlsFwdr Test

| | |
|---|---|
| Impact | Service |
| Description | This verb is used to reset the Test component. |

### GROUP Lp IlsFwdr Test PortTestOp (PTO)

| | |
|---|---|
| Properties | Operational |

| | |
|---|---|
| Description | This group contains the operational data for the LanPortTest component. |

### ATTRIBUTE Lp IlsFwdr Test type (type)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the type of test to be run. The available test types include the following: card test sets up an internal loop on the board and runs a bit error rate test; manual test assumes the line is looped back externally and a bit error rate test is performed; localLoop test loops back the local modem and performs a bit error rate test; remoteLoop test loops back the remote modem (or CSU) and performs a bit error rate test; externalLoop test loops back the line to the far end; payloadLoop test only loops back the payload data received from the incoming line; Note that localLoop, remoteLoop and payloadLoop are not supported by all function processors. |
| Values | onCard<br>normal<br>wrapA<br>wrapB<br>thruA<br>thruB<br>extWrapA<br>extWrapB<br>extThruA<br>extThruB<br>extWrapAB<br>extWrapBA |
| Default | No default |

### ATTRIBUTE Lp IlsFwdr Test frmSize (size)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the size of the test data frames in number of bytes. |
| Values | Decimal (4..4096) |
| Units | bytes |

| | |
|---|---|
| Default | 1024 |

### ATTRIBUTE Lp IlsFwdr Test duration (duration)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the duration (in minutes) that test data will be transmitted. In the case of an externalLoop, this is the time that the loop is in effect. Note that dataStartDelay does not apply to the externalLoop. |
| Values | Decimal (1..30240) |
| Units | minutes |
| Default | 1 |

### GROUP Lp IlsFwdr Test Results (Results)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all the statistics related attributes of the Test component. |

### ATTRIBUTE Lp IlsFwdr Test elapsedTime

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the number of minutes elapsed since the test started for an externalLoop test. For a data test, this is the time since test data was first transmitted. |
| Values | Decimal (0..4294967295) |
| Units | minutes |
| Default | 0 |

### ATTRIBUTE Lp IlsFwdr Test timeRemaining

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the number of minutes remaining before the test is to be stopped according to the duration attribute. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Units | minutes |
| Default | 0 |

### ATTRIBUTE Lp IlsFwdr Test causeOfTermination

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the reason the test is terminated. |
| Values | testTimeExpired<br>stoppedByOperator<br>unknown<br>neverStarted<br>testRunning |
| Default | neverStarted |

### ATTRIBUTE Lp IlsFwdr Test frmTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of frames sent during the test period. This counter is not expected to reach its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp IlsFwdr Test bitsTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of bits sent during the test period. This counter is not expected to reach its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp IlsFwdr Test frmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of frames received during the test period. This counter is not expected to reach its maximum |

| | |
|---|---|
| | value. The counter will wrap around to 0 if it does reach its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp IlsFwdr Test bitsRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of bits received during the test period. This counter is not expected to reach its maximum value. The counter will wrap around to 0 if it does reach its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp IlsFwdr Test erroredFrmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of errored frames received during the test period. This counter is not expected to reach its maximum value. The counter will wrap around to 0 if it does reach its maximum value. |
| Values | Long Integer |
| Default | No default |

## COMPONENT Lp InverseMultiplexerAtm (Ima)

| | |
|---|---|
| Instance | Decimal (0..113) |
| Groups | "GROUP Lp Ima Provisioned (Prov)"<br>"GROUP Lp Ima Operational (Oper)"<br>"GROUP Lp Ima Statistics (Stats)"<br>"GROUP Lp Ima CustomerIdentifierData (CidData)"<br>"GROUP Lp Ima OsiState (State)" |
| Scope | Device |

Description

*Lp/n InverseMultiplexerAtm/n*
*Lp/n Ds3/n InverseMultiplexerAtm/n*

This component is used to define an inverse multiplexing for ATM (IMA) group. IMA provides a data rate greater than DS1 E1 in increments of DS1 E1. To use IMA on an 8pDS1E1, MSA32, or 2pSTM1eCh function processor, add an *Lp/n InverseMultiplexerAtm/n* component. To use IMA on a 4pDS3ChAtm function processor, add an *Lp/n Ds3/n InverseMultiplexerAtm/n* component.

The instance range 0..7 applies to 8pDS1Atm and 8pE1Atm cards. The instance range 0..13 applies to 4pDS3ChAtm cards. The instance range 0..29 applies to MSA32 cards. The instance range 0..113 applies to 2pStm1eCh cards.

The instance number of an *IMA* group must not be the same as the instance number of a *DS1*/*E1* “ATM UNI port” under the same *Lp*. An “ATM UNI port” is a *DS1* or *E1* component with a single *Chan* whose *applicationFramer* attribute is linked to an *AtmIf* component. On an MSA32 card, ports that are used as IMA links have two immiscible sub-ranges: 0..15 and 16..31. The instance number of an *IMA* group must be in the same sub-range as all of its ports. IMA sub-ranges also exist on a 2pStm1eCh card, instances 0..56 are allowed on port SDH 0, and instances 57..113 are allowed on port SDH 1.

Opt. Subcomp. "COMPONENT Lp Ima Link (Lk)"

Dyn. Subcomp. "COMPONENT Lp Ima Test (Test)"

Common Verbs

Help
List
Display
Add
DELete
LOCK
Unlock

## GROUP Lp Ima Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the *Ima* component.<br>The default values of *linkSelectionCriterion* and *linkRetryTimeout* depend on card type. |

## ATTRIBUTE Lp Ima linkSelectionCriterion (select)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the method to be used by the IMA group when selecting links to be activated. This comes into effect only when the configured links do not respect the maximum differential delay (otherwise all links are accepted).<br><br>If ***leastDelay*** is chosen, first the link having the smallest delay is selected as the reference link. The IMA group includes all links which respect the maximum differential delay relative to the reference link.<br><br>If ***maxBandwidth*** is chosen, the IMA group selects the maximum possible number of links, with each selected link respecting the maximum differential delay relative to every other selected link. When more than one possibility exists, the combination which offers the least delay is selected.<br><br>The default value for Multi-Service Access cards is ***leastDelay***, and for all other cards is ***maxBandwidth***. On Multi-Service Access cards ***leastDelay*** is the only acceptable provisionable value. |
| Values | leastDelay<br>maxBandwidth |
| Default | No default |

## ATTRIBUTE Lp Ima maxDiffDelay (delay)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute specifies the maximum differential delay between links acceptable in the IMA group. If a link violates that maximum differential delay, it will not be active in the IMA group and an alarm will be generated.<br><br>For the 4pDS3ChAtm card, the value must not exceed 70. |
| Values | Decimal (1..100) |
| Units | msec |
| Default | 25 |

### ATTRIBUTE Lp Ima linkRetryTimeout (retry)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the amount of time before reactivation of a link is attempted after it recovers from a failure condition.<br><br>The default value for Multi-Service Access cards is ***1***, and for all other cards is ***10***. On Multi-Service Access cards ***1*** is the only acceptable provisionable value. |
| Values | Decimal (0..1000) |
| Units | seconds |
| Default | No default |

### ATTRIBUTE Lp Ima applicationFramerName (framer)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the link to the *AtmIf* component using the *Ima*. An example is *AtmIf/31*. |
| Values | Link (Service, interfaceName) |
| Default | No default |

### ATTRIBUTE Lp Ima transmitClockMode (clock)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute specifies the transmit clocking mode.<br>If ***itc*** (Independent Transmit Clock) is chosen, the physical ports used by the IMA group may have different clocking sources.<br>If ***ctc*** (Common Transmit Clock) is chosen, it is recommended that the physical ports used by the IMA group have the same clocking source. However, if the physical ports have different clocking sources, the operator should ensure that all the clocking sources have the same rate. |
| Values | itc<br>ctc |
| Default | itc |

### ATTRIBUTE Lp Ima protocol (prot)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies which IMA protocol the component should run.<br>If ***atmForum10*** is chosen, the ATM Forum's IMA protocol (version 1.0) will be used and signalled in outgoing IMA Control Protocol (ICP) cells.The IMA group will come up only if the far end IMA also uses the ATM Forum's IMA protocol 1.0. Feature ***imaAtmForum*** must be provisioned on the LP for this protocol to be used.<br>If ***atmForum11*** is chosen, the ATM Forum's IMA protocol (version 1.1) will be used and signalled in outgoing IMA Control Protocol (ICP) cells.The IMA group will come up only if the far end IMA uses the ATM Forum's IMA protocol 1.0 or 1.1. Feature ***imaAtmForum*** must be provisioned on the LP for this protocol to be used. If the far end is 1.0, then the near end downgrades to 1.0. After the downgrade, this attribute continues to specify the provisioned protocol version, while the *activeProtocol* operational attribute of the IMA component specifies the protocol version effectively running.<br>If ***proprietary*** is chosen, Nortel’s proprietary IMA protocol will be used. The IMA group will come up only if the far end IMA also uses Nortel’s proprietary IMA protocol. This IMA group will not inter-operate with IMA implementations from other vendors. Feature ***ima*** must be provisioned on the LP for this protocol to be |

used.

The DEFAULT on 2pStm1eCh function processor is atmForum11.

Values: atmForum10
proprietary
atmForum11

Default: No default

### GROUP Lp Ima Operational (Oper)

Properties: Operational

Description: This group contains the operational attributes for the *Ima* component.

### ATTRIBUTE Lp Ima failureCause (cause)

Access: Read only

Description: This attribute indicates the cause of the current local end failure experienced by the IMA group. The failure may have occurred during a start-up procedure or during normal operation. Possible values are:
***noFailure***: no local end failure.
***noGoodLinksInStartup***: no good links were available during IMA start-up.
***badGidInStartup***: during start-up, different group identifiers (GIDs) were received on the links.
***badLidInStartup***: during start-up, duplicate link identifiers (LIDs) were received on the links.
***unsupportedFrameLengthInStartup***: during start-up, an unsupported frame length was received.
***timeoutInStartup***: a time-out has occurred during start-up.
***noGoodLinks***: no good links are available in the IMA group.
***remoteFailure***: the far end is down.
***unsupportedSymmetryInStartup***: the symmetry proposed by the far end is not supported on the near-end. This value will occur when the IMA group is running the ATM Forum protocol and the far end is proposing a group symmetry other than “symmetric configuration and operation”.

***unsupportedVersionInStartup***: the ima version proposed by the far end is not supported on the near-end.

Values

noFailure
noGoodLinksInStartup
badGidInStartup
badLidInStartup
unsupportedFrameLengthInStartup
timeoutInStartup
noGoodLinks
remoteFailure
unsupportedSymmetryInStartup
unsupportedVersionInStartup

Default

No default

## ATTRIBUTE Lp Ima remoteDefect (remDef)

Access

Read only

Description

This attribute indicates the cause of the current far end defect experienced by the IMA group.
For the ATM Forum IMA protocol, possible values are:
***noDefect***: no defect.
***unsupportedFrameLengthInStartup***: during the far end's start-up, an unsupported frame length was received.
***unsupportedSymmetryInStartup***: during the far end's start-up, an unsupported symmetry configuration was received.
***otherAbortStartup***: the far end has aborted its start-up for another reason. This could be because different Gids were received on the links or if duplicate link identifiers (LIDs) were received.
***insufficientLinks***: the far end does not have sufficient links active. This value will be displayed if the far end IMA group is locked.
***blocked***: the far end IMA group is blocked.

For the proprietary IMA protocol, possible values are:
***noDefect***: no defect.
***noGoodLinksInStartup***: no good links were available during the far end’s start-up.
***badGidInStartup***: during the far end’s start-up, different GIDs were received on the links.

***badLidInStartup***: during the far end's start-up, duplicate link identifiers (LIDs) were received on the links.
***unsupportedFrameLengthInStartup***: during the far end's start-up, an unsupported frame length was received.
***timeoutInStartup***: a time out has occurred during the far end's start-up.
***noGoodLinks***: no good links are available in the far end IMA group.
***blocked***: the far end IMA group is locked.
***unsupportedVersionInStartup***: the ima version proposed by the far end is not supported on the near-end.

Values

noDefect
noGoodLinksInStartup
badGidInStartup
badLidInStartup
unsupportedFrameLengthInStartup
timeoutInStartup
noGoodLinks
locked
unsupportedSymmetryInStartup
otherAbortStartup
insufficientLinks
blocked
unsupportedVersionInStartup

Default

No default

### ATTRIBUTE Lp Ima remoteLidsConfig (remConf)

Access

Read only

Description

This attribute indicates all the links which have been configured in the remote IMA group. For example, if links 1, 3 and 5 have been configured in the remote IMA group, this attribute would contain ***1 3 5***.

Set of

Decimal (0..31)

Default

No default

### ATTRIBUTE Lp Ima remoteLidsActive (remAct)

Access

Read only

| | |
|---|---|
| Description | This attribute indicates all the links which are active in the remote IMA group. For example, if links 1 and 5 are active in the remote IMA, this attribute would contain ***1 5***. |
| Set of | Decimal (0..31) |
| Default | No default |

### ATTRIBUTE Lp Ima cellCapacity (cap)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total cell capacity (in cells per second) which is provided to the ATM layer. This cell capacity takes into account the physical and IMA level overheads. |
| Values | Decimal (0..4294967295) |
| Units | cell/s |
| Default | No default |

### ATTRIBUTE Lp Ima remoteGid (remGid)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the IMA group identifier (GID) used by the remote IMA. A value of 0 will be displayed if the group is not receiving IMA Control Protocol (ICP) cells.<br>This attribute will always have a value of 0 if the *protocol for the IMA group is* ***proprietary.*** |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE Lp Ima clockingModeMismatch (mismatch)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether or not both ends of the IMA group are using the same transmit clocking mode (***itc***/***ctc***). Its value will be ***yes*** if both ends are not using the same transmit clocking mode. A clocking mode mismatch does not prevent an IMA group from coming up and can be corrected by using the same clocking mode at both ends. |

| | |
|---|---|
| | This attribute will always have a value of ***no*** if the *protocol* for the IMA group is ***proprietary***. |
| Values | no<br>yes |
| Default | No default |

### ATTRIBUTE Lp Ima activeProtocol (activeProt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates which IMA protocol the *Ima* component is effectively running.<br>This attribute is supported on the 8pDs1Atm, 8pE1Atm, 4pDS3ChAtm, and 2pStm1eCh cards. This attribute is not supported on the MSA32 cards.<br>The value of this attribute is the same as the provisioned *protocol* attribute if the IMA is operating at the provisioned protocol version. The value of this attribute indicates the dongraded protocol version if the IMA has gone through a protocol version downgrade upon IMA 1.1 to IMA 1.0 interworking. |
| Values | atmForum10<br>proprietary<br>atmForum11 |
| Default | No default |

### GROUP Lp Ima Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the statistics data for the *Ima* component. |

### ATTRIBUTE Lp Ima runningTime (running)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the length of time (in seconds) for which the *Ima* component has been in the unlocked state or has been used for operational testing. |
| Values | Decimal (0..4294967295) |
| Units | seconds |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Lp Ima unavailSec (unavail)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of one second intervals during which the *Ima* component has been unlocked and out of service. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp Ima failures (fail)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of complete failures, during start-up or normal operation, that the *Ima* component has experienced since being added. It must be noted that a service degradation, such as 1 of the 3 links in an IMA group being down, is not counted as a failure. If an *Ima* component is in a failure loop and does not come up, this count will only increase by 1. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp Ima receiveCellUtilization (rxutil)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the ratio of the number of valid, assigned user cells received on the IMA group to the IMA cell capacity (based on the number of active links). The utilization is calculated over a one minute period.<br><br>This attribute will always have a value of 0 if the *protocol for the IMA group is* ***proprietary.*** |
| Values | Decimal (0..100) |
| Units | % |
| Default | No default |

### ATTRIBUTE Lp Ima transmitCellUtilization (txutil)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the ratio of the number of user cells transmitted on the IMA group to the IMA cell capacity (based on the number of active links). The utilization is calculated over a one minute period.<br><br>This attribute will always have a value of 0 if the *protocol for the IMA group is* ***proprietary.*** |
| Values | Decimal (0..100) |
| Units | % |
| Default | No default |

### GROUP Lp Ima CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

### ATTRIBUTE Lp Ima customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.<br><br>Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.<br><br>An operator CID of 0 is used to identify the Network Manager |

(referred to as “NetMan” in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to “basic CIDs” in DPN) may be assigned to specific customers.

Values — Decimal (0; 1..8191)

Default — 0

### GROUP Lp Ima OsiState (State)

Properties — Operational

Description — This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Lp Ima adminState (osiAdmin)

Access — Read only

Description — This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

| | |
|---|---|
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Lp Ima operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Lp Ima usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
idle
active (activ)
busy

Default
idle

### ATTRIBUTE Lp Ima availabilityStatus (osiAvail)

Access
Read only

Description
If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.

The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.

The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.

The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.

The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

## ATTRIBUTE Lp Ima proceduralStatus (osiProc)

Access

Read only

| | |
|---|---|
| Description | If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.<br><br>The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.<br><br>The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.<br><br>The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.<br><br>The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***. |
| Set of | initializationRequired (initRq)<br>notInitialized (notInit)<br>initializing (init)<br>reporting (report)<br>terminating (term) |
| Default | No default |

### ATTRIBUTE Lp Ima controlStatus (osiCntrl)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.<br><br>The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.<br><br>The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.<br><br>The value ***suspended*** indicates that the service has been administratively suspended. |
| Set of | subjectToTest (subTst)<br>partOfServicesLocked (partLk)<br>reservedForTest (rsrvd)<br>suspended (suspnd) |
| Default | No default |

### ATTRIBUTE Lp Ima alarmStatus (osiAlarm)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user. |

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE Lp Ima standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not

supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values
hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

Default
notSet

### ATTRIBUTE Lp Ima unknownStatus (osiUnknw)

Access
Read only

Description
This attribute indicates the OSI Unknown status of the component.

The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.

The value ***true*** indicates that the actual state of the component is not known for sure.

Values
false
true

Default
false

## COMPONENT Lp Ima Test (Test)

| | |
|---|---|
| Groups | "GROUP Lp Ima Test OsiState (State)"<br>"GROUP Lp Ima Test Setup (Setup)"<br>"GROUP Lp Ima Test Results (Results)" |
| Scope | Application |
| Description | The *Test* component is configured to control a hardware facility test on a physical (*V35*, *X21*, *DS1*, *E1*, *DS3*, *E3* etc.) or a logical port. |
| Common Verbs | Help<br>List<br>Display |

## VERB START Lp Ima Test

| | |
|---|---|
| Impact | Service |
| Description | This command invokes a test on the hardware component. Note that some test types requires the parent component (the hardware component) to be locked (using the *Lock* command) before a test can be started. |

## VERB STOP Lp Ima Test

| | |
|---|---|
| Impact | Service |
| Description | This command stops a test running on the hardware component. |

## GROUP Lp Ima Test OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

## ATTRIBUTE Lp Ima Test adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |

Description

This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values

locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default

unlocked

## ATTRIBUTE Lp Ima Test operationalState (osiOper)

Access

Read only

Description

This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values

enabled (ena)
disabled (dis)

Default

disabled

### ATTRIBUTE Lp Ima Test usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Lp Ima Test Setup (Setup)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all of the operational data for a *Test* component. |

### ATTRIBUTE Lp Ima Test purpose (purpose)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute records the purpose of the test so that the test results can be associated and properly analyzed. |
| Values | String (0..40, ASCII) |
| Default | No default |

### ATTRIBUTE Lp Ima Test type (type)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the type of test to be run. The available test types include the following:<br>***card*** test sets up an internal loop on the board and runs a bit error |

rate test.
***manual*** test assumes the line is looped back externally and a bit error rate test is performed.
***localLoop*** test loops back the local modem and performs a bit error rate test.
***remoteLoop*** test loops back the remote modem (or CSU) and performs a bit error rate test.
***externalLoop*** test loops back the line to the far end.
***payloadLoop*** test only loops back the payload data received from the incoming line.
***remoteLoopThisTrib*** loops this particular tributary back at the far end, using services provided by the parent.
***v54RemoteLoop*** initiates a V.54 Remote Loopback test.
***pn127RemoteLoop*** initiates a PN127 Remote Loopback test.
***lineBIP8Error*** tests line BIP 8 error generation and detection (B2 byte inverted).
***sectionBIP8Error*** tests section BIP 8 error generation and detection (B1 byte inverted).
***pathBIP8Error*** tests path BIP 8 error generation and detection (B3 byte inverted).
***pathBIP2Error*** tests path BIP 2 error generation and detection (bit 1-2 of V5 byte inverted).
Note that not all test types are not supported by all function processors.

Values

card
manual
localLoop
remoteLoop
externalLoop
payloadLoop
remoteLoopThisTrib
v54RemoteLoop
pn127RemoteLoop
lineBIP8Error
sectionBIP8Error
pathBIP8Error
pathBIP2Error

Default

card

### ATTRIBUTE Lp Ima Test frmSize (size)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the size of the test data frames in number of bytes.<br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |
| Values | Decimal (4..4096) |
| Units | bytes |
| Default | 1024 |

### ATTRIBUTE Lp Ima Test frmPatternType (fpt)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the type of data pattern generation to use. The following lists the available pattern types:<br>***ccitt32kBitPattern*** is a pseudo-random sequence of 32 kbit.<br>***ccitt8MBitPattern*** is a pseudo-random sequence of 8Mbit.<br>***customizedPattern*** is the pattern defined in the ***customizedPattern*** attribute. |
| Values | ccitt32kBitPattern<br>ccitt8MBitPattern<br>customizedPattern |
| Default | ccitt32kBitPattern |

### ATTRIBUTE Lp Ima Test customizedPattern (cp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute allows a customized 32 bit pattern to be defined for use in the test data frames. This attribute is used when the attribute *frmPatternType* is set to ***CustomizedPattern***. Note that a 55 hex pattern is an alternating 1 and 0 pattern. |
| Values | Hex (H.0..H.ffffffff) |
| Units | Hex |
| Default | H.55555555 |

### ATTRIBUTE Lp Ima Test dataStartDelay (dsd)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time delay (in seconds) between when the test expects the loop to have been set up, to when the test data actually starts to be transmitted. This attribute is to accommodate some non-standard equipment that requires extra time for setting up a requested loop.<br>This attribute is ignored when the test *type* is set to ***externalLoop***. |
| Values | Decimal (0..1814400) |
| Units | seconds |
| Default | 0 |

### ATTRIBUTE Lp Ima Test displayInterval (di)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the interval (in minutes) between which interim test results are to be displayed. Results are displayed at the operator console at which the test was started. When the test *type* is set to ***externalLoop***, this attribute is ignored. There will be no display of results if *displayInterval* is set to 0. This attribute can be changed anytime. |
| Values | Decimal (0..30240) |
| Units | minutes |
| Default | 5 |

### ATTRIBUTE Lp Ima Test duration

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the duration for which the test data will be transmitted. In the case of an ***externalLoop***, this is the time that the loop is in effect. Note that *dataStartDelay* does not apply to the ***externalLoop*** test type. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |

| | |
|---|---|
| Default | 1.00 |

### GROUP Lp Ima Test Results (Results)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all the statistics related attributes of the *Test* component. |

### ATTRIBUTE Lp Ima Test causeOfTermination

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates either the status of the test or the cause of the test's termination:<br><br>a value of ***neverStarted*** indicates that the test has not yet been started.<br><br>a value of ***testRunning*** indicates that the test has been started.<br><br>a value of ***stoppedByOperator*** indicates that the operator issued a stop command on a test that was running.<br><br>a value of ***testTimeExpired*** indicates that the test ran for the time specified by the test's *duration*.<br><br>a value of ***loopCodeSyncFailed*** indicates that the local end failed to synchronize to the loopCode pattern. The local end transmits the loopCode pattern to cause the remote end to apply a loopback, after which the local end should receive the loopCode pattern. The exact pattern used to request loopCode depends on the test *type*. This failure indicates a high rate of transmission errors, or that the remote end has failed to apply the loopback.<br><br>a value of ***patternSyncFailed*** indicates that the local end failed to synchronize to the *frmPatternType* test pattern, that should have been looped back at the remote end. This failure indicates a high rate of transmission errors or the absence of a loopback.<br><br>a value of ***patternSyncLost*** indicates that the local end gained and then lost synchronization to the returned *frmPatternType* test pattern. This failure indicates a sudden increase in transmission |

errors, frame slippage, or the removal of an existing loopback.

a value of ***unknown*** is set when a reason to terminate other than those listed here is encountered.

Note: The *causeOfTermination* attribute values of ***loopCodeSyncFailed***, ***patternSyncFailed*** and ***patternSyncLost*** are supported only on MSA cards. *Test* components located on other cards or under an *Ima* component on an MSA card will never terminate the test under the conditions described by these values.

Values
testTimeExpired
stoppedByOperator
unknown
neverStarted
testRunning
hardwareReconfigured
loopCodeSyncFailed
patternSyncFailed
patternSyncLost

Default
neverStarted

### ATTRIBUTE Lp Ima Test bitsTx

Access
Read only

Description
This attribute counts the bits sent during the test period. As long as the line speed of the hardware interface is less than 70 Mbit/s, this counter is not expected to reach the maximum value.

Values
Long Integer

Default
No default

### ATTRIBUTE Lp Ima Test bytesTx

Access
Read only

Description
This attribute counts the bytes sent during the test period. This counter is not expected to reach its maximum value.

| | |
|---|---|
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Ima Test frmTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames sent during the test period. This counter is not expected to reach its maximum value.<br><br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Ima Test bitsRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bits received during the test period. The counter wraps to zero when it exceeds the maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Ima Test bytesRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes received during the test period. The counter wraps to zero when it exceeds its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Ima Test frmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received during the test period. The counter wraps to zero when it exceeds its maximum value. |

This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame.

Values: Long Integer

Default: No default

### ATTRIBUTE Lp Ima Test erroredFrmRx

Access: Read only

Description: This attribute is not displayed for ATM and MSA32 cards. For ATM cards, the physical layer drops all errored frames at the controller interface. For MSA32 cards, the test does not generate any frame.

For all other card types, this attribute counts the errored frames received during the test period. The counter wraps to zero when it exceeds its maximum value.

Values: Long Integer

Default: No default

### ATTRIBUTE Lp Ima Test bitErrorRate

Access: Read only

Description: This attribute is not displayed for ATM cards because the physical layer drops all errored frames at the controller interface. For MSA32 cards, this attribute indicates the link bit error rate, regardless of the *frameSize*, which is not supported

For all other card types, this attribute is the calculated bit error rate on the link. Test data are generated and sent in frames of a preset size (*frameSize*). The *Test* component will try to estimate the number of bit errors in any errored frame which is identifiable. The statistics will be updated accordingly. A lost frame (may be due to an error on the flag sequence) will be discarded for the bit error rate calculation. The result is presented in the form of xEsyy, where x is the mantissa, syy is the exponent, for example 0E+00, 2E-09.
Note that the *bitErrorRate* is an estimate only. For more reliable

| | |
|---|---|
| | test results, the test should be done over a long period. Multiple tests would also improve the confidence level of the test results. |
| Values | String (5, ASCII) |
| Default | No default |

### ATTRIBUTE Lp Ima Test elapsedTime

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the time elapsed since the test started for an ***externalLoop*** test. For a data test, it indicates time since test data was first transmitted. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 0.00 |

### ATTRIBUTE Lp Ima Test timeRemaining

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the length of time remaining before the test stops according to the *duration* attribute. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 0.00 |

### COMPONENT Lp Ima Link (Lk)

| | |
|---|---|
| Instance | Decimal (0..31) |
| Groups | "GROUP Lp Ima Lk Provisioned (Prov)"<br>"GROUP Lp Ima Lk Operational (Oper)"<br>"GROUP Lp Ima Lk Statistics (Stats)"<br>"GROUP Lp Ima Lk OsiState (State)" |
| Scope | Device |
| Description | *Lp/n Ima/n Link/n*<br>*Lp/n Ds3/n Ima/n Link/n* |

This component is used to define a DS1/E1 link belonging to an IMA group. The instance number of the *Link* subcomponent corresponds to the link identifier (LID) used by the link in IMA Control Protocol (ICP) cells. To use Ima on an 8pDS1E1 function processor, add *Lp/n Ima/n Link/n*. To use Ima on a 4pDS3ChAtm function processor, add *Lp/n Ds3/n Ima/n Link/n*.

Common Verbs

Help
List
Display
Add
DELete

## GROUP Lp Ima Lk Provisioned (Prov)

Properties: Provisioned

Description: This group contains the provisionable attributes for the *Link* subcomponent.

## ATTRIBUTE Lp Ima Lk interfaceName

Access: Read and write

Criticality: Component

Description: This attribute associates the *Link* subcomponent with a specific interface on a function processor, for example *Lp/5 E1/3 Chan/0*. If IMA groups and independent links coexist on a card running IMA and per-VC queueing is enabled, plan the selection of DS1 or E1 ports to be used by the IMA group carefully. For a 4pDS3ChAtm function processor there is no per-VC queueing.

Values: Link (Hardware, applicationFramerName)

Default: No default

## GROUP Lp Ima Lk Operational (Oper)

Properties: Operational

Description: This group contains the operational attributes for the *Link* subcomponent.

## ATTRIBUTE Lp Ima Lk failureCause (cause)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the failure cause on this link. Possible values are:<br>***noFailure***: there is no failure on this link.<br>***interfaceDown***: the physical port used by the link is down.<br>***lif***: the link is in loss of IMA frame (LIF) state.<br>***lods***: the link is in loss of delay synchronization (LODS) state; that is, it has exhibited a differential delay which is greater than the maximum differential delay tolerated by the IMA group. It must be noted that hysteresis is used for the LODS condition.<br>***protocolError***: the link is down because of a time-out or because bad values are being received in IMA Control Protocol (ICP) cells.<br>***remoteFailure***: the far end link is down.<br>***misconnected***: the link is down because the IMA group has declared, after using its transmit test pattern procedure, that this link is not properly connected. This value can occur only if the *protocol for the IMA group is* ***atmForum10.***<br>***unsupportedFrameLength***: the link is down because it is receiving from the far end a frame length which is not supported by the local IMA group. This value can occur only if the *protocol for the IMA group is* ***atmForum10.***<br>***unsupportedSymmetry***: the link is down because it is receiving from the far end a group symmetry which is not supported by the local IMA group. This value can occur only if the *protocol for the IMA group is* ***atmForum10.***<br>***noIcp***: the link is down because it is not receiving IMA Control Protocol (ICP) cells. This value can occur only if the *protocol* for the IMA group is ***atmForum10***.<br>***unsupportedVersion***: the link is down because it is receiving from the far end a group version that is not supported by the local IMA group. |
| Values | noFailure<br>interfaceDown<br>lif<br>lods<br>protocolError<br>remoteFailure |

| | |
|---|---|
| | misconnected<br>unsupportedFrameLength<br>unsupportedSymmetry<br>noIcp<br>unsupportedVersion |
| Default | No default |

### ATTRIBUTE Lp Ima Lk remoteDefect (remDef)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the IMA remote defect indicator (RDI) currently being received on this link. Possible values are:<br>***noDefect***: no defect.<br>***physicalLayerDefect***: the interface used by the remote link has a physical layer defect. This value can occur only if the *protocol for the IMA group is* ***atmForum10.***<br>***interfaceDown***: the physical interface used by the remote link is down.This value can occur only if the *protocol for the IMA group is* ***proprietary.***<br>***lif***: the remote link has a loss of IMA frame (LIF) defect.<br>***lods***: the remote link has a loss of delay synchronization (LODS) defect; that is, it has exhibited a differential delay which is greater than the maximum differential delay tolerated by the IMA group. |
| Values | noDefect<br>interfaceDown<br>lif<br>lods<br>physicalLayerDefect |
| Default | No default |

### ATTRIBUTE Lp Ima Lk remoteLid (remLid)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the link identifier (LID) used by the remote IMA group on the physical link. A value of 0 will be displayed if the link is not receiving IMA Control Protocol (ICP) cells or if the physical layer is down. |

| | |
|---|---|
| Values | Decimal (0..31) |
| Default | No default |

### ATTRIBUTE Lp Ima Lk relativeDelay (rel)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the latest measured differential delay (rounded up in milliseconds) between this link and the link, in the same IMA group, having the least delay. A value of 4294967295 indicates that the relative delay could not be measured. This can be due to physical layer problems or to no IMA Control Protocol (ICP) cells being received on the link. |
| Values | Decimal (0..4294967295) |
| Units | msec |
| Default | No default |

### ATTRIBUTE Lp Ima Lk lastOifCause (oif)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the cause of the last out of IMA frame (OIF) anomaly on the link. It will always have a value of ***noOif*** if the *protocol* for the IMA group is ***proprietary***.<br>Possible values are:<br>***noOif***: no OIF was detected.<br>***badFrameLength***: an IMA Control Protocol (ICP) cell with an unexpected frame length was received.<br>***badGid***: an ICP cell with an unexpected group identifier (GID) was received.<br>***badLid***: an ICP cell with an unexpected link identifier (LID) was received.<br>***badOffset***: an ICP cell with an unexpected cell offset was received.<br>***badSequenceNumber***: an ICP cell with an unexpected frame sequence number was received.<br>***stuffError***: an illegal stuffing sequence was received.<br>***missingIcp***: an expected ICP cell was not received.<br>***unexpectedIcp***: an unexpected ICP cell was received.<br>***erroredIcp***: two consecutive errored ICP cells were received. |

***noCells***: no cells are being received on the link.
***idleCell***: an idle cell was received on the link.
***badOamLabel***: an ICP cell with an unexpected oam label was received.

Values
noOif
badFrameLength
badGid
badLid
badOffset
badSequenceNumber
stuffError
missingIcp
unexpectedIcp
erroredIcp
noCells
idleCell
badOamLabel

Default: No default

### GROUP Lp Ima Lk Statistics (Stats)

Properties: Operational

Description: This group contains the statistics data for the *Link* subcomponent.

### ATTRIBUTE Lp Ima Lk runningTime (running)

Access: Read only

Description: This attribute counts the length of time (in seconds) for which the *Link* component has been running.

Values: Decimal (0..4294967295)

Units: seconds

Default: No default

### ATTRIBUTE Lp Ima Lk unavailSec (unavail)

Access: Read only

| | |
|---|---|
| Description | For an IMA group whose *protocol* is ***atmForum10***, this attribute counts the number of unavailable seconds. Unavailability begins at the start of 10 contiguous severely errored seconds (SES) and ends at the start of 10 contiguous seconds with no SES.<br>For an IMA group whose *protocol* is ***proprietary***, this attribute counts the number of one second intervals during which the *Link* component has been out of service. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp Ima Lk failures (fail)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of failures, during link addition or normal operation, that the link has experienced. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp Ima Lk unusableSec (uus)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of one second intervals during which the near end has been in an unusable state.<br>This attribute will always have a value of 0 if the *protocol for the IMA group is* ***proprietary.*** |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp Ima Lk sevErroredSec (ses)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of one second intervals in which at least 30 percent of the IMA Control Protocol (ICP) cells were counted as ICP violations or at least one link defect (physical layer, LIF and LODS defects) was detected. This attribute will not increment during UAS (Unavailable Second) conditions. |

| | |
|---|---|
| | This attribute will always have a value of 0 if the *protocol for the IMA group is* ***proprietary.*** |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp Ima Lk farEndUnusableSec (feUus)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of one second intervals during which the “Tx/Rx Unusable” condition has been received from the far end.<br>This attribute will always have a value of 0 if the *protocol for the IMA group is* ***proprietary.*** |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp Ima Lk farEndSevErroredSec (feSes)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of one second intervals containing one or more RDI defects. This attribute will not increment during FEUAS (Far-End Unavailable Second) conditions.<br>This attribute will always have a value of 0 if the *protocol for the IMA group is* ***proprietary.*** |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp Ima Lk farEndUnavailSec (feUnavail)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of unavailable seconds at the far end. Unavailability begins at the start of 10 contiguous severely errored seconds (SES) at the far end and ends at the start of 10 contiguous seconds at the far end with no SES.<br>This attribute will always have a value of 0 if the *protocol for the IMA group is* ***proprietary.*** |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp Ima Lk icpViolations (iv)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of errored, invalid or missing IMA Control Protocol (ICP) cells during non-SES (Severely Errored Second) and non-UAS (Unavailable Seconds) conditions. This attribute will always have a value of 0 if the *protocol for the IMA group is* ***proprietary.*** |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp Ima Lk txStuffEvents (txStuff)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of Stuff events transmitted during non-SES (Severely Errored Second) and non-UAS (Unavailable Seconds) conditions.<br>This attribute will always have a value of 0 if the *protocol for the IMA group is* ***proprietary.*** |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp Ima Lk rxStuffEvents (rxStuff)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of Stuff events received during non-SES (Severely Errored Second) and non-UAS (Unavailable Seconds) conditions.<br>This attribute will always have a value of 0 if the *protocol for the IMA group is* ***proprietary.*** |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp Ima Lk idleCellSec (idle)

| | |
|---|---|
| Access | Read only |
| Description | This attributes counts the number of one second intervals during which one or more idle cells was received. The reception of idle cells is an abnormal condition which could be caused by the remote IMA using the Common Transmit Clock mode with ports whose clock sources are not synchronized.<br>This attribute will always have a value of 0 if the *protocol for the IMA group is* ***proprietary.*** |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Lp Ima Lk OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Lp Ima Lk adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down. |

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Lp Ima Lk operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Lp Ima Lk usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
idle
active (activ)
busy

Default
idle

### ATTRIBUTE Lp Ima Lk availabilityStatus (osiAvail)

Access
Read only

Description
If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.

The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.

The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.

The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.

The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

| | |
|---|---|
| Set of | inTest<br>failed<br>dependency (depend)<br>powerOff (pwrOff)<br>offLine<br>offDuty<br>degraded (degrad)<br>notInstalled (notIn)<br>logFull<br>migrating |
| Default | No default |

### ATTRIBUTE Lp Ima Lk proceduralStatus (osiProc)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.<br><br>The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.<br><br>The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***. |

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

## ATTRIBUTE Lp Ima Lk controlStatus (osiCntrl)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

Set of

subjectToTest (subTst)
partOfServicesLocked (partLk)
reservedForTest (rsrvd)
suspended (suspnd)

Default

No default

### ATTRIBUTE Lp Ima Lk alarmStatus (osiAlarm)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE Lp Ima Lk standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values

hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

Default notSet

### ATTRIBUTE Lp Ima Lk unknownStatus (osiUnknw)

Access Read only

Description This attribute indicates the OSI Unknown status of the component.

The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.

The value ***true*** indicates that the actual state of the component is not known for sure.

Values false
true

Default false

### COMPONENT Lp Engineering (Eng)

Scope Device

Description *Lp Engineering*
This component has various subcomponents which hold engineering/control parameters and corresponding indicator statistics for this LP. The subcomponents can be defined for selected services or be common to a number of services.

This component has no data of its own.

Description "COMPONENT Lp Eng DataStream (Ds)"
"COMPONENT Lp Eng FrameRelaySystem (Frs)"
"COMPONENT Lp Eng HuntGroupService (Hgs)"
"COMPONENT Lp Eng AtmResourceControl (Arc)"
"COMPONENT Lp Eng FrameCoreResourceControl (Fcrc)"
"COMPONENT Lp Eng AtmPathTrace (PTrace)"
"COMPONENT Lp Eng ActiveAlarmList (AAList)"

Common Verbs
Help
List
Display

## COMPONENT Lp Eng DataStream (Ds)

| | |
|---|---|
| Instance | accounting (acc)<br>alarm (ala)<br>log<br>debug (deb)<br>scn<br>trap<br>stats<br>rtStats (rts)<br>applicationSpecific (appl) |
| Groups | "GROUP Lp Eng Ds Operational (Oper)" |
| Scope | Device |
| Description | *Lp Eng DataStream/<type>*<br>This component holds engineering parameters used by DCS on this LP for a particular DCS stream. |
| Opt. Subcomp. | "COMPONENT Lp Eng Ds Override (Ov)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Lp Eng Ds Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational attributes for the *DataStream* components under *Lp Engineering*. |

## ATTRIBUTE Lp Eng Ds agentQueueSize (agentQ)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the maximum size of the DCS Agent queue size maximum for a DCS data stream on the LP. It is the maximum size to which the *Agent*'s *currentQueueSize* can grow. When the queue is full and more data is offered to the *Agent*, it will be discarded. |

The following are the system defaults (in number of records):
- alarm: 100
- accounting: 10000
- debug: 0
- log: 50
- scn: 200
- trap: 50
- stats: 0
- rtStats: 0
- applicationSpecific: 200

To override the system defaults, see *Lp Eng Ds Ov*'s *agentQueueSize* attribute.

Values: Decimal (0..4294967295)

Default: No default

## COMPONENT Lp Eng Ds Override (Ov)

Groups: "GROUP Lp Eng Ds Ov Provisioned (Prov)"

Scope: Device

Description: *Lp Eng Ds/<type> Override*
This component holds provisionable engineering parameters used by DCS on this LP for a particular DCS stream.

Common Verbs:
Help
List
Display
Add
DELete

## GROUP Lp Eng Ds Ov Provisioned (Prov)

Properties: Provisioned

Description: This group contains provisionable attributes for the *DataStream Ov* components under *Lp Engineering*.

## ATTRIBUTE Lp Eng Ds Ov agentQueueSize (agentQ)

Access: Read and write

Description

This attribute specifies the maximum size of the DCS Agent's queue for this data stream on this LP. For more details on the defaults and other information, refer to the parent component's *agentQueueSize* attribute.
The size should be set to 0 if absolutely no data is to be accepted from applications. There are threshold alarms based on the value of the Agent's *currentQueueSize* attribute (a Set when the queue becomes 75% full and a Clear after dropping back to 50% full). To properly determine what to set this to, consult the "Magellan Passport Engineering Notes and Guidelines".

Values: Decimal (0..4294967295)

Default: No default

## COMPONENT Lp Eng FrameRelaySystem (Frs)

Groups: "GROUP Lp Eng Frs Operational (Oper)"

Scope: Device

Description: *Lp Eng FrameRelaySystem*
This component holds engineering parameters and statistics used by Frame Relay on this LP.

Opt. Subcomp.: "COMPONENT Lp Eng Frs Override (Ov)"

Common Verbs:
- Help
- List
- Display
- Add
- DELete

## GROUP Lp Eng Frs Operational (Oper)

Properties: Operational

Description: This group contains the Frame Relay default or current engineering parameters and statistics for this LP.

## ATTRIBUTE Lp Eng Frs maxCalls

Access: Read only

| | |
|---|---|
| Description | This attribute indicates the maximum number of Frame Relay (FR) calls of any type (PVC, SPVC, or SVC) which can be simultaneously “current” on the LP. Note that “current” doesn’t necessarily mean that the call is in data transfer. It minimally means that such a call can subsequently generate accounting records. When the value of *currentCalls* reaches the value of *maxCalls* for FR on this LP, subsequent call attempts are rejected by the FR service. |
| Values | Decimal (0..1000000) |
| Default | 1000000 |

### ATTRIBUTE Lp Eng Frs headroomCalls

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates a number which allows a network engineer to do some statistical multiplexing for admitting calls when certain overload conditions are reached. For setting this, refer to the Engineering Guidelines. It depends on conditions such as the expected sustained SVC call setup/clear rates and how conservative one wants to be in certain “error” conditions where many calls are cleared simultaneously. |
| Values | Decimal (0..1000000) |
| Default | 1000000 |

### ATTRIBUTE Lp Eng Frs currentCalls

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of Frame Relay calls (initially just FrUni and FrNni) which are “current”. Note that “current” doesn’t necessarily mean that the call is in data transfer. It minimally means that such a call can subsequently generate accounting records. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp Eng Frs callsRefused

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of call connections (including calls from the link as well as calls from the subnet) that have been refused because *currentCalls* has reached the limits, as specified by the engineering formulas for *Frs* on this LP. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT Lp Eng Frs Override (Ov)

| | |
|---|---|
| Groups | "GROUP Lp Eng Frs Ov Provisioned (Prov)" |
| Scope | Device |
| Description | *Lp Eng Frs Override*<br>This component holds provisionable engineering parameters used by Frame Relay on this LP. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Lp Eng Frs Ov Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the Frame Relay provisionable engineering parameters for this LP. |

### ATTRIBUTE Lp Eng Frs Ov maxCalls

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum number of Frame Relay calls of any type (PVC, SPVC, or SVC) which can be simultaneously “current” on this LP. Note that “current” doesn’t necessarily mean that the call is in data transfer. It minimally |

means that such a call can subsequently generate accounting records. When the value of *currentCalls* reaches the value of *maxCalls* for FR on this LP, subsequent call attempts are rejected by the FR services.

Values: Decimal (0..1000000)

Default: 1000000

### ATTRIBUTE Lp Eng Frs Ov headroomCalls

Access: Read and write

Description: This attribute specifies a number which allows a network engineer to do some statistical multiplexing for admitting calls when certain overload conditions are reached. For setting this, refer to the Engineering Guidelines. It depends on conditions such as the expected sustained SVC call setup/clear rates and how conservative one wants to be in certain “error” conditions where many calls are cleared simultaneously.

Values: Decimal (0..1000000)

Default: 1000000

### COMPONENT Lp Eng HuntGroupService (Hgs)

Groups: "GROUP Lp Eng Hgs Operational"

Scope: Device

Description: *Lp Eng HuntGroupService*
The *HuntGroupService* component contains engineering statistics for all hunt groups on the FP.

Common Verbs:
Help
List
Display
Add
DELete

### GROUP Lp Eng Hgs Operational

Properties: Operational

| | |
|---|---|
| Description | The *Operational* group contains attributes for all hunt groups on the LP. |

### ATTRIBUTE Lp Eng Hgs huntGroups

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of hunt groups provisioned on the LP. |
| Values | Decimal (0..65535) |
| Default | 0 |

### ATTRIBUTE Lp Eng Hgs huntAttempts

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of hunt attempts made by all hunt groups. The count includes both initial and subsequent hunt attempts. Individual hunt groups maintain this counter within the *huntAttempts* attribute of the *Hg/n* component. This counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT Lp Eng AtmResourceControl (Arc)

| | |
|---|---|
| Groups | "GROUP Lp Eng Arc Operational (Oper)" |
| Scope | Device |
| Description | *Lp/n Eng AtmResourceControl*<br>This component describes the usage of ATM-specific resources on an FP running ATM services. This component is always dynamically created under any *LP Eng* which supports an FP. |

| | |
|---|---|
| Opt. Subcomp. | "COMPONENT Lp Eng Arc Override (Ov)" |
| Opt. Subcomp. | "COMPONENT Lp Eng Arc Cqc (Cqc)"<br>"COMPONENT Lp Eng Arc Aqm (Aqm)"<br>"COMPONENT Lp Eng Arc Apc (Apc)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Lp Eng Arc Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group describes the usage of ATM-specific resources on a Logical Processor running ATM services.<br>The attributes listed represent Queue Controller resource usage for all ATM cards (CQC for CQC based cards and PQC for ATM IP cards). |

## ATTRIBUTE Lp Eng Arc multicastBranchesAvailable (mcastAvail)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of available multicast branches for unspared *AtmIf*s on this FP. |
| Values | Decimal (0..16384) |
| Default | No default |

## ATTRIBUTE Lp Eng Arc multicastBranchesUsage (mcastUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of multicast branches that are in use on this FP for unspared *AtmIf*s. |
| Values | Decimal (0..16384) |

Default No default

### ATTRIBUTE Lp Eng Arc txCellMemoryAllocation (txCell)

Access Read only

Description This attribute indicates the fraction of the transmit memory which is allocated for the transmission of cells on the FP. Cell memory is used for ATM Bearer Services, ATM SVCs and ATM PVCs.

The remaining transmit memory is allocated for the transmission of frames. Frame memory is used for trunks, ATM VCC testing and for inter-card communication.

This attribute is not available on APC-based and QRD-based FPs. On APC-based and QRD-based FPs, Tx cell memory is completely separated among individual ports.

Values Decimal (1..99)

Units %

Default No default

### ATTRIBUTE Lp Eng Arc txCellMemoryCongestionState (txCellCong)

Access Read only

Description This attribute indicates the congestion state of the transmit cell memory for this FP.

This attribute indicates which *txCellMemoryThresholds* corresponds to the current value of *txCellMemoryUsage*. The congestion state is used to determine if cells of a particular discard priority (DP) are discarded before being queued for transmit.

The congestion state of transmit cell memory is indicated by a numeric value ranging from 3 to 0. When transmit cell memory is in congestion state “x”, traffic with DP > “x” is discarded before transmit. Traffic with DP < “x” may be queued for transmit, depending on the congestion level of the connection transmit

queue. Traffic with DP = “x” may be either queued or discarded depending on how close the value of *txCellMemoryUsage* is to the next threshold as displayed in *txCellMemoryThresholds*. For example, CLP1 traffic is queued until the value indicated by *txCellMemoryUsage* equals the value indicated in *txCellMemoryThresholds* 3. At that point, CLP1 traffic is discarded.

This attribute is not displayed on APC-based and QRD-based FPs.

Values: Decimal (0..3)

Default: No default

### ATTRIBUTE Lp Eng Arc rxCellMemoryAllocation (rxCell)

Access: Read only

Description: This attribute indicates the fraction of the receive memory which is allocated for the reception of cells on the FP. Cell memory is used for ATM Bearer Services, ATM SVCs and ATM PVCs.

The remaining receive memory is allocated to the reception of frame. Frame memory is used for trunks, ATM VCC testing and for inter-card communication.

This attribute is not available on APC-based and QRD-based FPs.

Values: Decimal (1..99)

Units: %

Default: No default

### ATTRIBUTE Lp Eng Arc rxCellMemoryCongestionState (rxCellCong)

Access: Read only

Description: This attribute indicates the congestion state of the receive cell memory on this FP.

This attribute indicates which *rxCellMemoryThresholds*

corresponds to the current value of *rxCellMemoryUsage*. The congestion state is used to determine if cells of a particular discard priority (DP) are discarded before being queued for processing on this FP.

The congestion state of receive cell memory is indicated by a numeric value ranging from 3 to 0. When receive cell memory is in congestion state “x”, traffic with DP > “x” is discarded before processing. Traffic with DP < “x” may be queued for processing, depending on the congestion level of the processor or bus queue. Traffic with DP = “x” may be either queued or discarded depending on how close the value of *rxCellMemoryUsage* is to the next threshold as displayed in *rxCellMemoryThresholds*. For example, CLP1 traffic is queued until the value indicated by *rxCellMemoryUsage* equals the value indicated in *rxCellMemoryThresholds* 3. At that point, CLP1 traffic is discarded.

This attribute is not displayed on APC-based and QRD-based FPs.

Values: Decimal (0..3)

Default: No default

### ATTRIBUTE Lp Eng Arc protectedConnectionPoolAvailable (protConnAvail)

Access: Read only

Description: This attribute indicates the number of available connection resources for spared *AtmIfs* (VCC and VPC) that can be used on this FP.

One resource is used for VCC and VPC connections.

Values: Decimal (0..64000)

Default: No default

### ATTRIBUTE Lp Eng Arc protectedConnectionPoolUsage (protConnUsage)

Access: Read only

| | |
|---|---|
| Description | This attribute indicates the number of connection resources in use on this FP for spared *AtmIfs* (VCC and VPC). |
| Values | Decimal (0..64000) |
| Default | No default |

### ATTRIBUTE Lp Eng Arc protectedMcastBranchesAvailable (protMcastAvail)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of available multicast branches for spared *AtmIfs* on this FP. |
| Values | Decimal (0..16384) |
| Default | No default |

### ATTRIBUTE Lp Eng Arc protectedMcastBranchesUsage (protMcastUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of multicast branches that are in use on this FP for spared *AtmIfs*. |
| Values | Decimal (0..16384) |
| Default | No default |

### ATTRIBUTE Lp Eng Arc connectionPoolAvailable (connAvail)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of available connection resources for use by unspared *AtmIfs* (VCC, VPC, and VPT) and for spared *AtmIfs* (VPT only) on this FP.<br><br>One resource is used for VCC and VPC connections, two resources for a basic VPT and three resources for a standard VPT. |
| Values | Decimal (0..64000) |
| Default | No default |

### ATTRIBUTE Lp Eng Arc connectionPoolUsage (connUsage)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the number of connection resources in use on this FP for unspared *AtmIfs* (VCC, VPC, and VPT) and for spared *AtmIfs* (VPT only). |
| Values | Decimal (0..64000) |
| Default | No default |

### ATTRIBUTE Lp Eng Arc txCellMemoryMaxUsage (txCellMaxUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the maximum number which has recently occurred for the *txCellMemoryUsage* attribute.<br><br>On CQC-based ATM FPs, this number indicates the maximum usage of transmit cells for all ports on this FP.<br><br>On ATM IP FPs, this number indicates the maximum usage of transmit cells in the Passport Queue Controller (PQC) ASIC. Queuing of ATM cells for transmit normally occurs in the ATM Queue Manager (AQM) ASIC, which is indicated in the *Lp Eng Arc Aqm/*x *txCellMemoryUsage* attribute. Transmit cells should only be queued in the PQC under circumstances of extreme transient congestion.<br><br>This attribute is not available on APC-based and QRD-based FPs. On APC-based and QRD-based FPs, Tx cell memory is completely separated among individual ports. The max Tx cell memory usage is available on a per-APC basis under each individual Lp Eng Arc Apc/x component.<br><br>This value is reset to the current usage every 15 minutes and when the card is reset. |
| Values | Decimal (0..163839) |
| Units | cells |
| Default | No default |

### ATTRIBUTE Lp Eng Arc txCellMemoryUsage (txCellUsage)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the current number of transmit cells which are in use for this FP.<br><br>On CQC-based ATM FPs, this number indicates the total transmit cells which are in use for all ports on this FP.<br><br>On ATM IP FPs, this number indicates the number of transmit cells which are in use in the Passport Queue Controller (PQC) ASIC. Queuing of ATM cells for transmit normally occurs in the ATM Queue Manager (AQM) ASIC, which is indicated in the *Lp Eng Arc Aqm/x txCellMemoryUsage* attribute. Transmit cells should only be queued in the PQC under circumstances of extreme transient congestion.<br><br>This attribute is not available on APC-based and QRD-based FPs. On APC-based FPs, Tx cell memory is completely separated among individual ports. |
| Values | Decimal (0..163839) |
| Units | cells |
| Default | No default |

### ATTRIBUTE Lp Eng Arc rxCellMemoryMaxUsage (rxCellMaxUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the maximum usage of receive cells for all ports on this FP. Receive cell memory is used for storing ATM cells received by this FP which are currently queued either for handling by the processor on this FP or queued for transmitting over the backplane to other FPs.<br><br>This value is reset to the current usage every 15 minutes and when the card is reset.<br><br>This attribute is not displayed on APC-based and QRD-based FPs. |
| Values | Decimal (0..163839) |
| Units | cells |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Lp Eng Arc rxCellMemoryUsage (rxCellUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current number of receive cells which are in use for all ports on this FP. Receive cell memory is used for storing ATM cells received by this FP which are currently queued either for handling by the processor on this FP or queued for transmitting over the backplane to other FPs on this switch.<br><br>This attribute is not displayed on APC-based and QRD-based FPs. |
| Values | Decimal (0..163839) |
| Units | cells |
| Default | No default |

### ATTRIBUTE Lp Eng Arc perVcQueueAvailable (queueAvail)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of available perVc queue resources for use by connections on this FP.<br><br>Whether or not a connection requires a perVc queue resource is determined by the connection's ATM service category provisioning. A perVc queue resource is required when the ATM service category has the *trafficShaping* attribute provisioned as either ***enabled*** or ***inverseUpc*** and also when the ATM service category has the *unshapedTransmitQueueing* attribute provisioned as ***perVc***.<br><br>This attribute is only applicable to the 16pOC3PosAtm card and is filtered from the display on all other cards |
| Values | Decimal (0..32767) |
| Default | No default |

### ATTRIBUTE Lp Eng Arc perVcQueueUsage (queueUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of perVC queue resources in use by connections on this FP.<br><br>Whether or not a connection requires a perVc queue resource is determined by the connection's ATM service category provisioning. A perVc queue resource is required when the ATM service category has the *trafficShaping* attribute provisioned as either ***enabled*** or ***inverseUpc*** and also when the ATM service category has the *unshapedTransmitQueueing* attribute provisioned as ***perVc***.<br><br>This attribute is only applicable to the 16pOC3PosAtm card and is filtered from the display on all other cards. |
| Values | Decimal (0..32767) |
| Default | No default |

### ATTRIBUTE Lp Eng Arc txCellMemoryThresholds (txCellThresh)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is a vector which indicates the size and three discard thresholds for transmit cell memory for this FP. The transmit cell memory is used for storing ATM cells to be transmitted by this FP.<br><br>This attribute is not applicable and is not displayed on APC-based and QRD-based FPs.<br><br>The first value indicates the transmit cell memory size. This is derived based on the total transmit memory capacity of this FP, and the value of the *connectionPoolCapacity* and the *txCellMemoryAllocation* attributes.<br><br>The current value of *txCellMemoryUsage* together with the vector of values in *txCellMemoryThresholds* determines the *txCellMemoryCongestionState*. The congestion state determines whether cells of a given discard priority (DP) are discarded or |

queued for transmit.

When the *txCellMemoryUsage* attribute is between threshold 0 and threshold 1, the *txCellMemoryCongestionState* indicates the value 0. In congestion state 0, traffic with DP > 0 is discarded. Threshold 1 is set approximately at 90 percent of threshold 0, the total transmit cell memory size.

When the *txCellMemoryUsage* attribute is between threshold 1 and threshold 2, the *txCellMemoryCongestionState* indicates the value 1. In congestion state 1, traffic with DP > 1 is discarded. Threshold 2 is set approximately at 85 percent of threshold 0, the total transmit cell memory size.

When the *txCellMemoryUsage* attribute is between threshold 2 and threshold 3, the *txCellMemoryCongestionState* indicates the value 2. In congestion state 2, traffic with DP > 2 is discarded. Threshold 3 is set approximately at 75 percent of threshold 0, the total transmit cell memory size.

When the *txCellMemoryUsage* attribute is below threshold 3, the *txCellMemoryCongestionState* indicates the value 3. In congestion state 3, traffic with DP=3 is queued.

| | |
|---|---|
| Vector of | Decimal (0..163839) |
| Units | cells |
| Index | Decimal (0..3) |
| Default | No default |

### ATTRIBUTE Lp Eng Arc rxCellMemoryThresholds (rxCellThresh)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is a vector which indicates the size and three discard thresholds for receive cell memory for this FP. Receive cell memory is used for storing ATM cells received by this FP which are queued either for handling by the processor on this FP or queued for transmitting over the backplane to other FPs on this switch. |

The first value indicates the receive cell memory size. This is derived based on the total receive memory capacity of this FP, and the value of the *connectionPoolCapacity* and the *rxCellMemoryAllocation* attributes.

The current value of *rxCellMemoryUsage* together with the vector of values in *rxCellMemoryThresholds* determines the *rxCellMemoryCongestionState*. The congestion state determines whether cells of a given discard priority (DP) are discarded or queued.

When the *rxCellMemoryUsage* attribute is between threshold 0 and threshold 1, the *rxCellMemoryCongestionState* indicates the value 0. In congestion state 0, traffic with DP > 0 is discarded. Threshold 1 is set approximately at 90 percent of threshold 0, the total receive cell memory size.

When the *rxCellMemoryUsage* attribute is between threshold 1 and threshold 2, the *rxCellMemoryCongestionState* indicates the value 1. In congestion state 1, traffic with DP > 1 is discarded. Threshold 2 is set approximately at 85 percent of threshold 0, the total receive cell memory size.

When the *rxCellMemoryUsage* attribute is between threshold 2 and threshold 3, the *rxCellMemoryCongestionState* indicates the value 2. In congestion state 2, traffic with DP > 2 is discarded. Threshold 3 is set approximately at 75 percent of threshold 0, the total receive cell memory size.

When the *rxCellMemoryUsage* attribute is below threshold 3, the *rxCellMemoryCongestionState* indicates the value 3. In congestion state 3, traffic with DP=3 is queued.

This attribute is not displayed on APC-based and QRD-based FPs.

| | |
|---|---|
| Vector of | Decimal (0..163839) |
| Units | cells |
| Index | Decimal (0..3) |

| | |
|---|---|
| Default | No default |

## COMPONENT Lp Eng Arc Override (Ov)

| | |
|---|---|
| Groups | "GROUP Lp Eng Arc Ov Provisioned (Prov)" |
| Scope | Device |
| Description | *Lp/n Eng Arc Override*<br>This component is used to configure the usage of ATM-specific resources on a Logical Processor running ATM services. The attributes listed represent Queue Controller resource configuration for all ATM cards (CQC for CQC based cards and PQC for ATM IP cards). This component is only permitted under the Logical Processors which are linked to ATM card types. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Lp Eng Arc Ov Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group specifies the configuration of processor-wide ATM-specific resources on a Logical Processor running ATM services on ATM cards. Note that altering any of these parameters will result in a card reboot. |

## ATTRIBUTE Lp Eng Arc Ov multicastBranchesCapacity (mcastCap)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the number of multicast branches that can be established for all unspared *AtmIfs* on this FP.<br><br>A multicast branch is used for cell replication on a VCC connection whose *Vcc distributionType* is ***pointToMultipoint***. A branch represents one ATM destination for the replicated cells. |

Increasing the value of this attribute reduces the memory available for the cell and frame memory.

This attribute is ignored for the ***1pOC48ChSmIrAtm*** card as it does not support multicast connections.

For CQC-based ATM FPs, the maximum value for this attribute is 10752.

Values: Decimal (0..16384)

Default: 0

### ATTRIBUTE Lp Eng Arc Ov txCellMemoryAllocation (txCell)

Access: Read and write

Criticality: Process

Description: This attribute specifies the fraction of the transmit memory which should be allocated to the transmission of cells on an FP. The remaining memory is allocated for the transmission of frames. Frame memory is used for trunks, ATM VCC testing and for inter-card communication. Cell memory is used for ATM Bearer Service, ATM SVCs and ATM PVCs.

There is an absolute minimum quantity of frame buffers which is required by ATM software on the FP. If the value of this attribute is smaller than the absolute minimum, the ATM software allocates the minimum required, rather than the actual number requested.

The actual percentage of the transmit memory allocated to the transmit cell memory is indicated by the *Arc txCellMemoryAllocation* attribute. A difference between the provisioned and the operational values may exist due to the requirement for a minimum number of frame buffers or rounding during computation within the FP.

Values: Decimal (1..99)

Units: %

Default: 50

### ATTRIBUTE Lp Eng Arc Ov rxCellMemoryAllocation (rxCell)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the fraction of the receive memory which should be allocated to the reception of cells on an FP. The remaining receive memory is allocated for the reception of frames. Frame memory is used for trunks, ATM VCC testing and for inter-card communication. Cell memory is used for ATM Bearer Service, ATM SVCs and ATM PVCs.<br><br>There is an absolute minimum quantity of frame buffers which is required by ATM software on the FP. If the value of this attribute is smaller than the absolute minimum, the ATM software allocates the minimum required, rather than the actual number requested.<br><br>The actual percentage of the receive memory allocated to the receive cell memory is indicated by the *Arc rxCellMemoryAllocation* attribute. A difference between the provisioned and the operational values may exist due to the requirement for a minimum number of frame buffers or rounding during computation within the FP. |
| Values | Decimal (1..99) |
| Units | % |
| Default | 20 |

### ATTRIBUTE Lp Eng Arc Ov protectedMcastBranchesCapacity (protMcastCap)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the number of multicast branches that can be established for all spared *AtmIfs* on this FP.<br><br>A multicast branch is used for cell replication on a VCC connection whose *Vcc distributionType* is ***pointToMultipoint***. A branch represents one ATM destination for the replicated cells. |

This attribute can only be non-zero if the *LogicalProcessor* is associated with a *Card* of one of the following *cardTypes*: ***4pOC3SmIrAtm***, ***4pOC3MmAtm***, ***12pDS3Atm***, ***12pE3Atm***, or ***1pOC12SmLrAtm***.

If any port on the *LogicalProcessor* is provisioned in an intercard *LAPS* configuration, then this attribute must have the same value on both associated *LogicalProcessors*

Increasing the value of this attribute reduces the memory available for the cell and frame memory.

Values: Decimal (0..16384)

Default: 0

## ATTRIBUTE Lp Eng Arc Ov connectionPoolCapacity (connCap)

Access: Read and write

Criticality: Process

Description: This attribute specifies the maximum number of unspared *AtmIf* connections (VCC, VPC, and VPT) that can be established on this FP. One connection resource is used for VCC and VPC connections, two connection resources for a basic VPT and three connection resources for a standard VPT.

If the Logical Processor is associated with a card of a card type other than one of the following: ***3pE3Atm***, ***3pDS3Atm***, ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE1Atm***, ***3pDS1Atm***, ***2pJ6MAtm***; the value of the attribute restricts the sum of the (*maxVccs + maxVpcs+ (maxVpts * 3) + 1)* for all *AtmIfs* bound to this Logical Processor.

If the Logical Processor is associated with a card of one of the following card types: ***3pE3Atm***, ***3pDS3Atm***, ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE1Atm***, ***3pDS1Atm***, ***2pJ6MAtm***; the number of available connections are distributed equally across the ports on the FP. The number of connections associated to a particular port limits the size of the VCC space which can be defined by the *ConnMap* of the *AtmIf* linked to the port. If the *ConnMap*

component does not exist, its default settings are used for this check. Furthermore, the value of this attribute is restricted based on the number of ports on the card. For one port cards, the minimum is 512, the maximum is 4096 and the value must be divisible by 256. For two port cards, the minimum is 1024, the maximum is 8192 and the value must be divisible by 512. For three port cards, the minimum is 1536, the maximum is 7680 and the value must be divisible by 768.

If the Logical Processor is associated with a card of one of the following card types: ***8pE1Atm*** *or* ***8pDS1Atm***, the maximum value for this attribute is 10752.

If the Logical Processor is associated with a card of one of the following card types: ***32pDS1Msa*** or ***32pE1Msa***, the default value of the attribute is 4096.

If the Logical Processor is associated with a card of one of the following card types: ***1pOC48SmSrPos*** or ***1pOC48SmIrPos***, the maximum value for this attribute is 24000.

If the Logical Processor is associated with a card of one of the following card types: ***32pDS1MsaMtp***, ***32pE1MsaMtp***, ***32pDS1MsaMt, 32pE1MsaMt, 32pDS1MsaStp, 32pE1MsaStp, 32pDS1MsaSt*** *or* ***32pE1MsaSt***; the default value of the attribute is 8192.

The default value of the attribute is 3072 for Logical Processor associated with all other card types.

The maximum number of supported connections per APC is 16000 for ***16pOC3SmIrAtm, 4pOC12SmIrAtm,*** and ***4pOC12SmLrAtm*** cards.

For ATM IP cards, the *Connmap* attributes are set to their default values.

Increasing the value of this attribute reduces the memory available for cell and frame memory.

This attribute must be set to 0 if the *connectionPoolCapacity*

attribute of the *Arc Cqc Ov* component is set to non-zero values.

The actual size of the pool is reflected in the *Lp Eng Arc connnectionPoolAvailable* attribute.

If the Logical Processor is associated with a card of one of the following card types: ***16pOC3SmIrAtm, 4pOC12SmIrAtm***, ***4pOC12SmLrAtm, 1pOC48ChSmIrAtm***, the maximum value for operational attribute *connectionPoolAvailable* is 56000.

To achieve the maximum *connectionPoolAvailable*, the *Lp Eng Fcrc Pqc* Ov *ipRoutesPoolCapacity* must be provisioned to 0. This requires there to be no IP features in the relevant *sw lpt featurelist.*

If the total number of connections defined by adding the values of the *protectedConnectionPoolCapacity* and the *connectionPoolCapacity* attributes can not be satisfied, then the *protectedConnectionPoolCapacity* requirements are satisfied before the requirements of the *connectionPoolCapacity.*

| | |
|---|---|
| Values | Decimal (0..64000) |
| Default | No default |

## ATTRIBUTE Lp Eng Arc Ov protectedConnectionPoolCapacity (protConnCap)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the maximum number of spared *AtmIf* connections (VCC, VPC, and VPT) that can be established on this FP. One connection resource is used for VCC and VPC connections. Three connection resources are used for a VPT connection.<br><br>This attribute can only be non-zero if the *LogicalProcessor* is associated with a *Card* of one of the following *cardTypes*: ***4pOC3SmIrAtm***, ***4pOC3MmAtm***, ***12pDS3Atm***, ***12pE3Atm***, ***1pOC12SmLrAtm***, ***4pOC12SmIrAtm***, ***4pOC12SmLrAtm***, |

***1pOC48ChSmIrAtm***, ***4pDS3ChAtm***, *or* ***2pSTM1eCh***.

If the Logical Processor is associated with ***2pSTM1eCh***, the default value of the attribute is 3072.

The default value of the attribute is 0 for Logical Processor associated with all other card types.

If any port on the *LogicalProcessor* is provisioned in an intercard *LAPS* configuration, then this attribute must have the same value on both associated *LogicalProcessors*

The value of the attribute restricts the sum of the (*maxVccs* + *maxVpcs* + 3**maxVpts* + 1) across all spared *AtmIfs* bound to this *LogicalProcessor.*

The maximum number of supported connections per APC is 16000 for ***16pOC3SmIrAtm, 4pOC12SmIrAtm***, and ***4pOC12SmLrAtm*** cards.

Increasing the value of this attribute reduces the memory available for cell and frame memory.

The actual size of the pool is reflected in the *Lp Eng Arc protectedConnectionPoolAvailable* attribute.

If the *LogicalProcessor* is associated with a card of one of the following card types: ***16pOC3SmIrAtm, 4pOC12SmIrAtm***, ***4pOC12SmLrAtm, 1pOC48ChSmIrAtm,*** the maximum value for operational attribute *protectedConnectionPoolAvailable* is 56000.

To achieve the maximum *protectedConnectionPoolAvailable*, the *Lp Eng Fcrc Pqc* Ov *ipRoutesPoolCapacity* must be provisioned to 0. This requires there to be no IP features in the relevant *sw lpt featurelist.*

If the total number of connections defined by adding the values of the *protectedConnectionPoolCapacity* and the *connectionPoolCapacity* attributes can not be satisfied, then the *protectedConnectionPoolCapacity* requirements are satisfied before the requirements of the *connectionPoolCapacity.*

| | |
|---|---|
| Values | Decimal (0..64000) |
| Default | No default |

### COMPONENT Lp Eng Arc Cqc (Cqc)

| | |
|---|---|
| Groups | "GROUP Lp Eng Arc Cqc Operational (Oper)" |
| Scope | Device |
| Description | *Lp/n Eng Arc Cqc*<br>The *Cqc* component describes the usage of ATM-specific resources on a *LogicalProcessor* running ATM services on CQC-based ATM cards. This component is always dynamically created under the *LP Eng Arc* which supports a CQC-based FP. |
| Subcomponents | "COMPONENT Lp Eng Arc Cqc Override (Ov)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Lp Eng Arc Cqc Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group describes the usage of ATM-specific resources on a Logical Processor running ATM services on a CQC-based card. |

### ATTRIBUTE Lp Eng Arc Cqc cdvReduction (cdv)

| | |
|---|---|
| Access | Read only |
| Criticality | Process |
| Description | This attribute indicates if the reduction of the maximum Cell Delay Variation (CDV) of shaped transmit traffic is applicable.<br><br>When the value of this attribute is ***disabled,*** the CDV value can be determined by the following equation: |

CDV <= 2/ASR + 1/LS

where ASR is the Actual Shaping Rate of the connection and LS is the Link Speed of the interface.

When the value of this attribute is ***enabled,*** the CDV relationship changes to the following equation:

CDV <= 1/ASR + 1/LS

Values
disabled
enabled
cardDependent

Default
No default

## COMPONENT Lp Eng Arc Cqc Override (Ov)

Groups
"GROUP Lp Eng Arc Cqc Ov Provisioned (Prov)"

Scope
Device

Description
*Lp/n Eng Arc Cqc Override*
This component is used to configure the usage of ATM-specific resources on a Logical Processor running ATM services on CQC-based cards. (This component is only permitted under Logical Processors which are linked to ATM card types.)

Common Verbs
Help
List
Display

## GROUP Lp Eng Arc Cqc Ov Provisioned (Prov)

Properties
Provisioned

Description
This group specifies the configuration of processor-wide ATM-specific resources on a Logical Processor running ATM services. Note that altering any of these parameters will result in a card reboot.

### ATTRIBUTE Lp Eng Arc Cqc Ov perVcQueueInterfaces (perVcIf)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the number of independent ports or IMA components which support shaping and per-VC queuing on this FP.<br><br>When this attribute is not zero, at most 4 independent ports or 4 *Ima* virtual links are supported, regardless of whether or not traffic shaping is enabled on the associated *AtmIf* components. In this case only independent port instances 0-3 or *Ima* instances 0-3 can be supported on an associated *AtmIf* component.<br><br>For 2 ports cards, the valid values for this attribute are 0, 1, or 2.<br>For 3 ports cards, the valid values for this attribute are 0, 1, 2 or 3.<br>For 8 ports cards, the valid values for this attribute are 0, 1, 2, or 4. |
| Values | Decimal (0..4) |
| Default | 0 |

### ATTRIBUTE Lp Eng Arc Cqc Ov shapingScalingFactor (scFactor)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the scaling factor which is to be applied to all shaping rates for this FP. The scaling factor is an inverse factor which is applied to the chosen shaping rate to produce an actual shaping rate. For example, if a shaping rate of 25 Mbit/s is used with a scaling factor of 2, the actual shaping rate is 12.5 Mbit/s. |
| Values | Decimal (1.0; 1.4; 2.0; 2.8; 4.0; 5.6) |
| Default | 1.0 |

## ATTRIBUTE Lp Eng Arc Cqc Ov cdvReduction (cdv)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the reduction of the maximum Cell Delay Variation (CDV) of shaped transmit traffic.<br><br>When the value of this attribute is set to ***disabled,*** the CDV value can be determined by the following equation:<br><br>CDV <= 2/ASR + 1/LS<br><br>where ASR is the Actual Shaping Rate of the connection and LS is the Link Speed of the interface.<br><br>When the value of this attribute is set to ***enabled,*** the CDV relationship changes to the following equation:<br><br>CDV <= 1/ASR + 1/LS<br><br>As can be noted from the equations above, setting this attribute to ***enabled*** can reduce the CDV significantly. CDV reduction may be used to conform to policers which have strict Cell Delay Variance Tolerance (CDVT). However using this function reduces the transmit bandwidth utilization of the following cards: ***3pDS3Atm***, ***3pOC3Atm***, ***2pJ6MAtm.***<br><br>When the value is ***cardDependent***, CDV reduction is disabled for cardtypes ***3pDS3Atm***, ***3pOC3Atm***, ***2pJ6MAtm***, ***4pDs1Aal1***, ***4pE1Aal1*** and enabled for all other cards. |
| Values | disabled<br>enabled<br>cardDependent |
| Default | cardDependent |

## ATTRIBUTE Lp Eng Arc Cqc Ov portCongestionPolicy (portCong)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |

Description

This attribute specifies the congestion behavior of all ports on this FP. It applies only to transmit traffic served on the common queues and does not apply to per-VC queues.

When the value is ***aggregate***, the enqueue decision of cells or frames to a common queue is based upon the congestion state of the entire port to which the queue belongs. A port is defined to be as congested as the most congested queue amongst all its common queues: the low, medium and high emission priority queues. Thus, for example, if the low priority queue is congested, the high priority queue also experiences discards even though the high priority queue may itself not be congested. Setting this attribute to ***aggregate*** assures that the low priority queues are also serviced in the event of congestion.

When the value of this attribute is set to ***individualQueue***, the enqueue decision of cells or frames to a common queue is based solely upon the congestion state of that queue, not the port. This setting assures that the absolute priority of the traffic is taken into account, regardless of whether the lower priority queues are being served.

Values

aggregate
individualQueue

Default

aggregate

## ATTRIBUTE Lp Eng Arc Cqc Ov connectionPoolCapacity (connCap)

Access

Read and write

Criticality

Process

Description

This attribute is provided for backward compatibility and can only be used if the *LogicalProcessor* is associated with a *Card* of one of the following card types: ***3pE3Atm***, ***3pDS3Atm***, ***3pOC3MmAtm***, ***3pOC3SmAtm***, ***3pE1Atm***, ***3pDS1Atm***, ***2pJ6MAtm***. This attribute can be used when the desired distribution of connections across ports cannot be achieved using the *connectionPoolCapacity* attribute of the *Lp Eng Arc Ov* component.

This attribute defines the maximum number of connections (VCC, VPC and VPT) that are available on each port. VCC and VPC connections use one resource, whereas a basic *VPT* uses two connection resources. The entries are indexed by port number. This number limits the range of the *ConnMap* entries. If the *Connmap* component does not exist, its default settings are used for this check. Note that the value of this attribute must be evenly divisible by 256, and that port 2 supports at most 2560 connections, not the full 4096.

The connection pool for each port must be set to 0 if the *connectionPoolCapacity* attribute in the *Lp Eng Arc Ov* component is set to a non-zero value.

| | |
|---|---|
| Vector of | Decimal (0; 512..4096) |
| Index | Decimal (0..2) |
| Default | ([3] 0) |

## COMPONENT Lp Eng Arc Aqm (Aqm)

| | |
|---|---|
| Instance | Decimal (0..3) |
| Groups | "GROUP Lp Eng Arc Aqm Operational (Oper)" |
| Scope | Device |
| Description | *Lp/n Eng Arc Aqm/n*<br>The *Aqm* component describes the usage of ATM-specific resources on a *LogicalProcessor* running ATM services for a specific ATM Queue Manager. This component is always dynamically created under any *LP Eng* which supports an ATM IP FP. The number of instances depends upon the type of card.<br><br>For the 4-port OC3 cards, in unprotected mode one *AQM* instance is used per *Sonet* or *SDH* port, where the *AQM* instance is the same as the *Sonet* or *SDH* port instance. For example, Sonet/0 uses AQM/0. In protected mode, ports 0 and 1 work together and ports 2 and 3 work together. If ports 0 and 1 are a protection pair, then AQM/0 is used. AQM/1 is dormant. If ports 2 and 3 are a protection pair, then AQM/2 is used. AQM/3 is dormant. |

For the ***32pE1MsaMtp, 32pE1MsaMt, 32pDS1MsaMtp, 32pDS1MsaMt, 32pE1MsaStp, 32pE1MsaSt, 32pDS1MsaStp*** *and* ***32pDS1MsaSt*** cards, AQM/0 exists for the *E1* or *DS1* electrical ports and AQM/1 exisits for the *Sonet* or *SDH* optical ports. Optical ports 0 and 1 can only both exist, as a protected pair.

For the ***32pE1Msa*** *and* ***32pDS1Msa*** cards, only AQM/0 exists for the *E1* or *DS1* electrical ports.

For the ***1pOC12SmLrAtm*** card, only AQM/0 exists. Two physical ports exist, but if both ports are provisioned the second may be used for protection only.

For ***12pDS3Atm*** and ***12pE3Atm*** cards, an *AQM* instance exists for each set of three ports. As clarification, DS3/0, DS3/1, and DS3/2 use AQM/0. DS3/3, DS3/4, and DS3/5 use AQM/1. DS3/6, DS3/7, and DS3/8 use AQM/2. DS3/9, DS3/10, and DS3/11 use AQM/3.

Subcomponents: "COMPONENT Lp Eng Arc Aqm Override (Ov)"

Common Verbs:
- Help
- List
- Display
- Add
- DELete

## GROUP Lp Eng Arc Aqm Operational (Oper)

Properties: Operational

Description: This group describes the usage of ATM-specific resources for a specific AQM or APC on a Logical Processor running ATM services.

## ATTRIBUTE Lp Eng Arc Aqm connectionPoolAvailable (connPoolAvail)

Access: Read only

Description: This attribute indicates the number of connection resources available (VCC, VPC and VPT) that can be configured on the AQM or APC instance of the *LogicalProcessor.*

One connection resource is used for VCC and VPC connections, two connection resources for a basic VPT and three connection resources for a standard VPT.

Values: Decimal (0..16000)

Default: No default

### ATTRIBUTE Lp Eng Arc Aqm connectionPoolUsage (connPoolUsage)

Access: Read only

Description: This attribute indicates the total number of configured VCCs and VPCs in *AtmIf components* associated with the AQM or APC instance of the *LogicalProcessor*.

One connection resource is used for VCC and VPC connections, two connection resources for a basic VPT and three connection resources for a standard VPT.

Values: Decimal (0..16000)

Default: No default

### ATTRIBUTE Lp Eng Arc Aqm txCellMemoryCongestionState (txCellCong)

Access: Read only

Description: This attribute indicates the congestion state of the transmit cell memory for the ATM Queue Manager (AQM) ASIC on this FP.

This attribute indicates which *txCellMemoryThresholds* corresponds to the current value of *txCellMemoryUsage*. The congestion state is used to determine if cells of a particular discard priority (DP) are discarded before being queued for transmit.

The congestion state of transmit cell memory is indicated by a numeric value ranging from 3 to 0. When transmit cell memory is in congestion state “x”, traffic with DP > “x” is discarded before transmit. Traffic with DP < “x” may be queued for transmit, depending on the congestion level of the connection transmit queue. Traffic with DP = “x” may be either queued or discarded

depending on how close the value of *txCellMemoryUsage* is to the next threshold as displayed in *txCellMemoryThresholds*. For example, CLP1 traffic is queued until the value indicated by *txCellMemoryUsage* equals the value indicated in *txCellMemoryThresholds* 3. At that point, CLP1 traffic is discarded.

This attribute is not available on APC-based and QRD-based FPs since the txCellMemoryUsage attribute is not available.

Values: Decimal (0..3)

Default: No default

### ATTRIBUTE Lp Eng Arc Aqm txCellMemoryMaxUsage (txCellMaxUsage)

Access: Read only

Description: This attribute indicates the maximum number which has recently occurred for the *txCellMemoryUsage* attribute.

Transmit cell memory is used for storing ATM cells to be transmitted by connections for the ATM Queue Manager (AQM) or APC ASIC on this FP. It includes all cells in all connections at all service categories.

This attribute is not available on APC-based and QRD-based FPs.

This attribute is reset to the current usage every 15 minutes and when the card is reset.

Values: Decimal (0..163839)

Units: cells

Default: No default

### ATTRIBUTE Lp Eng Arc Aqm txCellMemoryUsage (txCellUsage)

Access: Read only

Description: This attribute indicates the current number of transmit cells which are in use on this FP.

Transmit cell memory is used for storing ATM cells to be

transmitted by connections for the ATM Queue Manager (AQM) ASIC on this FP. It includes all cells in all connections at all service categories.

This attribute is not available on APC-based and QRD-based FPs. On APC-based FPs, Tx cell memory per APC device is completely partitioned among emission priorities (and also among the ports per-APC). The usage of cell memory per APC device does not adequately reflect the usage of cell memory for individual emission priorities.

Values: Decimal (0..163839)

Units: cells

Default: No default

### ATTRIBUTE Lp Eng Arc Aqm txCellMemoryThresholds (txCellThresh)

Access: Read only

Description: This attribute is a vector which indicates the size and three discard thresholds for transmit cell memory for the ATM Queue Manager (AQM) ASIC on this FP. Transmit cell memory is used for storing ATM cells to be transmitted by connections. It includes all cells in all connections at all service categories.

The first value indicates the transmit cell memory size. It is the amount of transmit memory which is available for cell queuing, after the amount of memory specified by *connectionPoolCapacity.*

The current value of *txCellMemoryUsage* together with the vector of values in *txCellMemoryThresholds* determines the *txCellMemoryCongestionState*. The congestion state determines whether cells of a given discard priority (DP) are discarded or queued for transmit.

When the *txCellMemoryUsage* attribute is between threshold 0 and threshold 1, the *txCellMemoryCongestionState* indicates the value 0. In congestion state 0, traffic with DP > 0 is discarded. Threshold 1 is set approximately at 90 percent of threshold 0, the total transmit cell memory size.

When the *txCellMemoryUsage* attribute is between threshold 1 and threshold 2, the *txCellMemoryCongestionState* indicates the value 1. In congestion state 1, traffic with DP > 1 is discarded. Threshold 2 is set approximately at 85 percent of threshold 0, the total transmit cell memory size.

When the *txCellMemoryUsage* attribute is between threshold 2 and threshold 3, the *txCellMemoryCongestionState* indicates the value 2. In congestion state 2, traffic with DP > 2 is discarded. Threshold 3 is set approximately at 75 percent of threshold 0, the total transmit cell memory size.

When the *txCellMemoryUsage* attribute is below threshold 3, the *txCellMemoryCongestionState* indicates the value 3. In congestion state 3, traffic with DP=3 is queued.

This attribute is not available on APC-based and QRD-basedFPs since the txCellMemoryUsage attribute is not available.

| | |
|---|---|
| Vector of | Decimal (0..163839) |
| Units | cells |
| Index | Decimal (0..3) |
| Default | No default |

## COMPONENT Lp Eng Arc Aqm Override (Ov)

| | |
|---|---|
| Groups | "GROUP Lp Eng Arc Aqm Ov Provisioned (Prov)" |
| Scope | Device |
| Description | *Lp/n Eng Arc Aqm/n Override*<br>The *Aqm Override* component is used to configure the usage of ATM-specific resources for a specific AQM on a Logical Processor running ATM services. (This component is only permitted under Logical Processors which are linked to AQM-based FPs.) |

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display |

## GROUP Lp Eng Arc Aqm Ov Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group specifies the configuration of processor-wide ATM-specific resources on a Logical Processor running ATM services on AQM-based cards. Note that altering any of these parameters results in a card reboot. |

## ATTRIBUTE Lp Eng Arc Aqm Ov connectionPoolCapacity (connCap)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the maximum number of connections (VCC, VPC, and VPT) that can be configured on the AQM instance of the *LogicalProcessor*. One connection resource is used for VCC and VPC connections, two connection resources for a basic VPT and three connection resources for a standard VPT.<br><br>The value of this attribute restricts the sum of the (maxVccs + maxVpcs + ( maxVpts * 3 ) + 1) across all *AtmIf components* bound to this AQM instance. Note that 3 connections are used for each standard VPT and 2 for each basic VPT.<br><br>The value of this attribute should be less than or equal to the sum of the *connectionPoolCapacity* plus the *protectedConnectionPoolCapacity* attributes of the *Arc* component.<br><br>The default value ***derivedFromArc*** is obtained using the following equation: |

*(connectionPoolCapacity + protectedConnectionPoolCapacity)/* number of AQM components on the FP.)

Values: Decimal (1..16000)
derivedFromArc

Default: derivedFromArc

### ATTRIBUTE Lp Eng Arc Aqm Ov highPriorityEpdOffset (hiEpdO)

Access: Read and write

Criticality: Process

Description: This attribute specifies the high priority Early Packet Discard (EPD) offset for connection queues. On ATM IP FPs a given connection queue is associated with one of eight emission priorities (EP). These include six unshaped EPs, one exclusive VBR shaper EP and one ABR/VBR shaper EP. This attribute specifies the EPD offset for the exclusive VBR shaper EP and the first four (higher priority) unshaped EPs.

This offset is used to derive a connection EPD threshold for a given Congestion Control (CC) level by subtracting the offset from the All Packet Discard (APD) threshold at the same CC level. The APD thresholds are themselves derived from the transmit queue limit.

The EPD threshold only applies to a connection if the Packet-Wise Discard feature is requested. The Packet-Wise Discard feature can be enabled only if the transmit queue limit is at least 5.71 times the EPD offset. This ensures that the derived EPD threshold will never be less than 17.5 % of the transmit queue limit. If this condition is not satisfied, the Packet-Wise Discard feature for the connection is automatically disabled.

Due to the above constraint, if the operator wishes to decrease the transmit queue limit and still have Packet-Wise Discard feature enabled on the connection then this offset must be set to a lower value that meets the above requirement.

Due to hardware granularity the actual value of the EPD offset may not match exactly the value provisioned. The actual value is

displayed under the ATM Connection Administrator service category subcomponents on ATM IP FPs.

This attribute does not apply to CQC FPs.

Values: Decimal (5..1024)

Units: cells

Default: 28

### ATTRIBUTE Lp Eng Arc Aqm Ov lowPriorityEpdOffset (loEpdO)

Access: Read and write

Criticality: Process

Description: This attribute specifies the low priority Early Packet Discard (EPD) offset for connection queues. On ATM IP FPs a given connection queue is associated with one of eight emission priorities (EP). These include six unshaped EPs, one exclusive VBR shaper EP and one ABR/VBR shaper EP. This attribute specifies the EPD offset for the exclusive ABR/VBR shaper EP and the last two (lower priority) unshaped EPs.

This offset is used to derive a connection EPD threshold for a given Congestion Control (CC) level by subtracting the offset from the All Packet Discard (APD) threshold at the same CC level. The APD thresholds are themselves derived from the transmit queue limit.

The EPD threshold only applies to a connection if the Packet-Wise Discard feature is requested. The Packet-Wise Discard feature can be enabled only if the transmit queue limit is at least 5.71 times the EPD offset. This ensures that the derived EPD threshold will never be less than 17.5 % of the transmit queue limit. If this condition is not satisfied, the Packet-Wise Discard feature for the connection is automatically disabled.

Due to the above constraint, if the operator wishes to decrease the transmit queue limit and still have the Packet-Wise Discard feature enabled on the connection then this offset must be set to a lower value that meets the above requirement.

Due to hardware granularity the actual value of the EPD offset may not match exactly the value provisioned. The actual value is displayed under the ATM Connection Administrator service category subcomponents on ATM IP FPs.

This attribute does not apply to CQC FPs.

Values: Decimal (5..1024)

Units: cells

Default: 200

## ATTRIBUTE Lp Eng Arc Aqm Ov portCongestionPolicy (portCong)

Access: Read and write

Criticality: Process

Description: This attribute specifies the congestion behavior of all ports on this FP. It applies only to transmit traffic and does not apply to the CBR service category.

When the value is ***aggregate***, the enqueue decision of cells or frames to a queue is based upon the congestion state of the entire port to which the queue belongs. A port is defined to be as congested as the most congested queue amongst all its queues. Thus, for example, if an nrt-VBR queue is congested, the rt-VBR queue also experiences discards even though the rt-VBR queue may itself not be congested. Setting this attribute to ***aggregate*** assures that the low priority queues are also serviced in the event of congestion. If this attribute is set to ***aggregate*** then rt-VBR must not be configured to do common queuing and its emissionPriority should be set to a number numerically smaller than or equal to 3. Another impact of setting this attribute to ***aggregate*** is that the per connection queue limits for nrt-VBR and UBR connections will be increased to the link pool size and their discard thresholds will be modified to be aligned with the free list discard thresholds.

When the value of this attribute is set to ***individualQueue***, the enqueue decision of cells or frames to a queue is based solely

upon the congestion state of that queue, not the port. This setting assures that the absolute priority of the traffic is taken into account, regardless of whether the lower priority queues are being served. On 3pOC3SmAtm2 and 3pOC3MmAtm2 cards, if more than one override component exists, they must have the same setting for this attribute. Otherwise, setting the attribute under one override component applies to the entire card.

| | |
|---|---|
| Values | aggregate<br>individualQueue |
| Default | individualQueue |

## COMPONENT Lp Eng Arc Apc (Apc)

| | |
|---|---|
| Instance | Decimal (0..3) |
| Groups | "GROUP Lp Eng Arc Apc Operational (Oper)" |
| Scope | Device |
| Description | *Lp/n Eng Arc Apc/n*<br>The *Apc* component is similar to the Aqm component. Apc has an additional provisional attribute, Lp/n Eng Arc Apc/n Ov bufferLimitPerEP used to specify the maximum buffer spaces allowed to the emission priorities on an Apc instance. |
| Subcomponents | "COMPONENT Lp Eng Arc Apc Override (Ov)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Lp Eng Arc Apc Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group describes the usage of ATM-specific resources for a specific AQM or APC on a Logical Processor running ATM services. |

### ATTRIBUTE Lp Eng Arc Apc connectionPoolAvailable (connPoolAvail)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of connection resources available (VCC, VPC and VPT) that can be configured on the AQM or APC instance of the *LogicalProcessor.*<br><br>One connection resource is used for VCC and VPC connections, two connection resources for a basic VPT and three connection resources for a standard VPT. |
| Values | Decimal (0..16000) |
| Default | No default |

### ATTRIBUTE Lp Eng Arc Apc connectionPoolUsage (connPoolUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of configured VCCs and VPCs in *AtmIf components* associated with the AQM or APC instance of the *LogicalProcessor.*<br><br>One connection resource is used for VCC and VPC connections, two connection resources for a basic VPT and three connection resources for a standard VPT. |
| Values | Decimal (0..16000) |
| Default | No default |

### ATTRIBUTE Lp Eng Arc Apc txCellMemoryCongestionState (txCellCong)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the congestion state of the transmit cell memory for the ATM Queue Manager (AQM) ASIC on this FP.<br><br>This attribute indicates which *txCellMemoryThresholds* corresponds to the current value of *txCellMemoryUsage*. The congestion state is used to determine if cells of a particular discard priority (DP) are discarded before being queued for transmit. |

The congestion state of transmit cell memory is indicated by a numeric value ranging from 3 to 0. When transmit cell memory is in congestion state “x”, traffic with DP > “x” is discarded before transmit. Traffic with DP < “x” may be queued for transmit, depending on the congestion level of the connection transmit queue. Traffic with DP = “x” may be either queued or discarded depending on how close the value of *txCellMemoryUsage* is to the next threshold as displayed in *txCellMemoryThresholds*. For example, CLP1 traffic is queued until the value indicated by *txCellMemoryUsage* equals the value indicated in *txCellMemoryThresholds* 3. At that point, CLP1 traffic is discarded.

This attribute is not available on APC-based and QRD-based FPs since the txCellMemoryUsage attribute is not available.

Values: Decimal (0..3)

Default: No default

### ATTRIBUTE Lp Eng Arc Apc txCellMemoryMaxUsage (txCellMaxUsage)

Access: Read only

Description: This attribute indicates the maximum number which has recently occurred for the *txCellMemoryUsage* attribute.

Transmit cell memory is used for storing ATM cells to be transmitted by connections for the ATM Queue Manager (AQM) or APC ASIC on this FP. It includes all cells in all connections at all service categories.

This attribute is not available on APC-based and QRD-based FPs.

This attribute is reset to the current usage every 15 minutes and when the card is reset.

Values: Decimal (0..163839)

Units: cells

Default: No default

### ATTRIBUTE Lp Eng Arc Apc txCellMemoryUsage (txCellUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current number of transmit cells which are in use on this FP.<br><br>Transmit cell memory is used for storing ATM cells to be transmitted by connections for the ATM Queue Manager (AQM) ASIC on this FP. It includes all cells in all connections at all service categories.<br><br>This attribute is not available on APC-based and QRD-based FPs. On APC-based FPs, Tx cell memory per APC device is completely partitioned among emission priorities (and also among the ports per-APC). The usage of cell memory per APC device does not adequately reflect the usage of cell memory for individual emission priorities. |
| Values | Decimal (0..163839) |
| Units | cells |
| Default | No default |

### ATTRIBUTE Lp Eng Arc Apc txCellMemoryThresholds (txCellThresh)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is a vector which indicates the size and three discard thresholds for transmit cell memory for the ATM Queue Manager (AQM) ASIC on this FP. Transmit cell memory is used for storing ATM cells to be transmitted by connections. It includes all cells in all connections at all service categories.<br><br>The first value indicates the transmit cell memory size. It is the amount of transmit memory which is available for cell queuing, after the amount of memory specified by *connectionPoolCapacity.*<br><br>The current value of *txCellMemoryUsage* together with the vector of values in *txCellMemoryThresholds* determines the *txCellMemoryCongestionState*. The congestion state determines whether cells of a given discard priority (DP) are discarded or |

queued for transmit.

When the *txCellMemoryUsage* attribute is between threshold 0 and threshold 1, the *txCellMemoryCongestionState* indicates the value 0. In congestion state 0, traffic with DP > 0 is discarded. Threshold 1 is set approximately at 90 percent of threshold 0, the total transmit cell memory size.

When the *txCellMemoryUsage* attribute is between threshold 1 and threshold 2, the *txCellMemoryCongestionState* indicates the value 1. In congestion state 1, traffic with DP > 1 is discarded. Threshold 2 is set approximately at 85 percent of threshold 0, the total transmit cell memory size.

When the *txCellMemoryUsage* attribute is between threshold 2 and threshold 3, the *txCellMemoryCongestionState* indicates the value 2. In congestion state 2, traffic with DP > 2 is discarded. Threshold 3 is set approximately at 75 percent of threshold 0, the total transmit cell memory size.

When the *txCellMemoryUsage* attribute is below threshold 3, the *txCellMemoryCongestionState* indicates the value 3. In congestion state 3, traffic with DP=3 is queued.

This attribute is not available on APC-based and QRD-basedFPs since the txCellMemoryUsage attribute is not available.

| | |
|---|---|
| Vector of | Decimal (0..163839) |
| Units | cells |
| Index | Decimal (0..3) |
| Default | No default |

## COMPONENT Lp Eng Arc Apc Override (Ov)

| | |
|---|---|
| Groups | "GROUP Lp Eng Arc Apc Ov Provisioned (Prov)" |
| Scope | Device |
| Description | *Lp/n Eng Arc Apc/n Override*<br>The *Apc Override* component is used to configure the usage of |

ATM-specific resources for a specific APC on a Logical Processor running ATM services. (This component is only permitted under Logical Processors which are linked to APC-based FPs)

Common Verbs

Help
List
Display

## GROUP Lp Eng Arc Apc Ov Provisioned (Prov)

Properties

Provisioned

Description

This group specifies the configuration of processor-wide ATM-specific resources on a Logical Processor running ATM services on APC-based cards. Note that altering any of these parameters results in a card reboot.

## ATTRIBUTE Lp Eng Arc Apc Ov connectionPoolCapacity (connCap)

Access

Read and write

Criticality

Process

Description

This attribute specifies the maximum number of connections (VCC, VPC, and VPT) that can be configured on the APC instance of the *LogicalProcessor.* One connection resource is used for VCC and VPC connections, two connection resources for a basic VPT and three connection resources for a standard VPT.

The value of this attribute restricts the sum of the (maxVccs + maxVpcs + ( maxVpts * 3 ) + 1) across all *AtmIf* components bound to this APC instance. Note that 3 connections are used for each standard VPT and 2 for each basic VPT.

The value of this attribute should be less than or equal to the sum of the *connectionPoolCapacity* plus the *protectedConnectionPoolCapacity* of the *Arc* component.

The default value ***derivedFromArc*** is obtained using the following equation:

*(connectionPoolCapacity* + p*rotectedConnectionPoolCapacity*)/ number of APC components on the FP.

Values — Decimal (1..16000)
derivedFromArc

Default — derivedFromArc

### ATTRIBUTE Lp Eng Arc Apc Ov highPriorityEpdOffset (hiEpdO)

Access — Read and write

Criticality — Process

Description — This attribute specifies the high priority Early Packet Discard (EPD) offset for connection queues. On ATM IP FPs a given connection queue is associated with one of eight emission priorities (EP). These include six unshaped EPs, one exclusive VBR shaper EP and one ABR/VBR shaper EP. This attribute specifies the EPD offset for the exclusive VBR shaper EP and the first four (higher priority) unshaped EPs.

This offset is used to derive a connection EPD threshold for a given Congestion Control (CC) level by subtracting the offset from the All Packet Discard (APD) threshold at the same CC level. The APD thresholds are themselves derived from the transmit queue limit.

The EPD threshold only applies to a connection if the Packet-Wise Discard feature is requested. The Packet-Wise Discard feature can be enabled only if the transmit queue limit is at least 5.71 times the EPD offset. This ensures that the derived EPD threshold will never be less than 17.5 % of the transmit queue limit. If this condition is not satisfied, the Packet-Wise Discard feature for the connection is automatically disabled.

Due to the above constraint, if the operator wishes to decrease the transmit queue limit and still have the Packet-Wise Discard feature enabled on the connection then this offset must be set to a lower value that meets the above requirement.

Due to hardware granularity the actual value of the EPD offset may not match exactly the value provisioned. The actual value is

displayed under the ATM Connection Administrator service category subcomponents on ATM IP FPs.

This attribute does not apply to CQC FPs.

Values: Decimal (5..1024)

Units: cells

Default: 28

### ATTRIBUTE Lp Eng Arc Apc Ov lowPriorityEpdOffset (loEpdO)

Access: Read and write

Criticality: Process

Description: This attribute specifies the low priority Early Packet Discard (EPD) offset for connection queues. On ATM IP FPs a given connection queue is associated with one of eight emission priorities (EP). These include six unshaped EPs, one exclusive VBR shaper EP and one ABR/VBR shaper EP. This attribute specifies the EPD offset for the exclusive ABR/VBR shaper EP and the last two (lower priority) unshaped EPs.

This offset is used to derive a connection EPD threshold for a given Congestion Control (CC) level by subtracting the offset from the All Packet Discard (APD) threshold at the same CC level. The APD thresholds are themselves derived from the transmit queue limit.

The EPD threshold only applies to a connection if the Packet-Wise Discard feature is requested. The Packet-Wise Discard feature can be enabled only if the transmit queue limit is at least 5.71 times the EPD offset. This ensures that the derived EPD threshold will never be less than 17.5 % of the transmit queue limit. If this condition is not satisfied, the Packet-Wise Discard feature for the connection is automatically disabled.

Due to the above constraint, if the operator wishes to decrease the transmit queue limit and still have the Packet-Wise Discard feature enabled on the connection then this offset must be set to a lower value that meets the above requirement.

Due to hardware granularity the actual value of the EPD offset may not match exactly the value provisioned. The actual value is displayed under the ATM Connection Administrator service category subcomponents on ATM IP FPs.

This attribute does not apply to CQC FPs.

Values: Decimal (5..1024)

Units: cells

Default: 200

### ATTRIBUTE Lp Eng Arc Apc Ov portCongestionPolicy (portCong)

Access: Read and write

Criticality: Process

Description: This attribute specifies the congestion behavior of all ports on this FP. It applies only to transmit traffic and does not apply to the CBR service category.

When the value is ***aggregate***, the enqueue decision of cells or frames to a queue is based upon the congestion state of the entire port to which the queue belongs. A port is defined to be as congested as the most congested queue amongst all its queues. Thus, for example, if an nrt-VBR queue is congested, the rt-VBR queue also experiences discards even though the rt-VBR queue may itself not be congested. Setting this attribute to ***aggregate*** assures that the low priority queues are also serviced in the event of congestion. If this attribute is set to ***aggregate*** then rt-VBR must not be configured to do common queuing and its emissionPriority should be set to a number numerically smaller than or equal to 3. Another impact of setting this attribute to ***aggregate*** is that the per connection queue limits for nrt-VBR and UBR connections will be increased to the link pool size and their discard thresholds will be modified to be aligned with the free list discard thresholds.

When the value of this attribute is set to ***individualQueue***, the enqueue decision of cells or frames to a queue is based solely

upon the congestion state of that queue, not the port. This setting assures that the absolute priority of the traffic is taken into account, regardless of whether the lower priority queues are being served. On 3pOC3SmAtm2 and 3pOC3MmAtm2 cards, if more than one override component exists, they must have the same setting for this attribute. Otherwise, setting the attribute under one override component applies to the entire card.

Values: aggregate
individualQueue

Default: individualQueue

### ATTRIBUTE Lp Eng Arc Apc Ov bufferLimitPerEP (buffPerEP)

Access: Read and write

Criticality: Process

Description: This attribute specifies the maximum buffer size allowed for each of the eight emission priorities of traffic towards the link.

A class buffer pool limit is designed to prevent one emission priority from consuming all the available buffer space. The eight *bufferLimitPerEP* values represent maximum buffer size per emission priority, in number of cells. To guarantee proper buffer isolation among emission priorities, the sum of *bufferLimitPerEP* values for all emission priorities must not exceed the total buffer space available, which is 261118 cells.

The default values are approximately 15%, 0%, 15%, 50%, 15%, 0%, 0%, and 5% of total available buffer space for emission priorities 0 through 7 respectively.

Vector of: Decimal (0..523264)

Units: cells

Index: Decimal (0..7)

Default: (39168, 0, 39168, 130559, 39168, 0, 0, 13055)

### COMPONENT Lp Eng FrameCoreResourceControl (Fcrc)

Groups: "GROUP Lp Eng Fcrc Operational (Oper)"

| | |
|---|---|
| Scope | Device |
| Description | *Lp/n Eng FrameCoreResourceControl*<br>This component is used to view the usage of frame specific resources on a *LogicalProcessor* running Frame based services.<br><br>The *FrameCoreResourceControl* provisioned component is not supported on the 32 port Multi-Service Access Functional Processor. |
| Opt. Subcomp. | "COMPONENT Lp Eng Fcrc Override (Ov)" |
| Opt. Subcomp. | "COMPONENT Lp Eng Fcrc Pqc (Pqc)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Lp Eng Fcrc Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group indicates the configuration of processor-wide frame specific resources on a *LogicalProcessor.* |

## ATTRIBUTE Lp Eng Fcrc subConnectionPoolAvailable (subConnAvail)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of sub-connections available for the *LogicalProcessor.*<br><br>A sub-connection is used for interworking the ATM services with the frame oriented services such as Frame Relay and Path Oriented Routing System (PORS). When a frame is received at a sub-connection, the frame header is modified to be compatible with the service it is to be forwarded to.<br><br>This pool is used for connection oriented services only. Each of the following components uses one sub-connection from this pool: |

*FrAtm/n Dlci/n Siwf*
*McsMgr Frf5EpG/n Frf5Ep/n Lmi*
*McsMgr Frf5EpG/n Frf5Ep/n Dlci/n*

Note: When the value of this attribute reaches zero, no more connections are accepted for any of the services which utilize this pool. To increase the size of this pool, use the *Lp Eng Fcrc Ov subConnectionPoolCapacity* attribute.

Values: Decimal (0..49152)

Default: No default

### ATTRIBUTE Lp Eng Fcrc subConnectionPoolUsage (subConnUsage)

Access: Read only

Description: This attribute indicates the number of sub-connections being utilized by the *LogicalProcessor*. It is only applicable to PQC-based ATM IP cards.

A sub-connection is used for interworking the ATM services with the frame oriented services such as Frame Relay and Path Oriented Routing System (PORS). When a frame is received at a sub-connection, the frame header is modified to be compatible with the service it is to be forwarded to.

This pool is used for connection oriented services only. Each of the following components uses one sub-connection from this pool:
*FrAtm/n Dlci/n Siwf*
*McsMgr Frf5EpG/n Frf5Ep/n Lmi*
*McsMgr Frf5EpG/n Frf5Ep/n Dlci/n*

Values: Decimal (0..49152)

Default: No default

### ATTRIBUTE Lp Eng Fcrc InnConnectionPoolAvailable (InnConnAvail)

Access: Read only

Description: This attribute indicates the number of resource records available for the connections which utilize Logical Network Number

(LNN) on the *LogicalProcessor.*

A logical network is a subset of Passport modules together with a subset of trunks that interconnect those modules. It carries the traffic for a defined set of network protocols. An LNN is used to identify a logical network. The connectionless services which utilize the logical networks require some processing at the intermediate nodes. This pool is allocated at the intermediate nodes to sustain these connectionless services.

If the *McsMgr DprsMcsEpG/n Ep/n EpD transportConnectionPreference* attribute is set to ***atmOnly***, each instance of the *McsMgr DprsMcsEpG/n Ep/n* component uses one resource record from this pool, otherwise it does not use this pool.

When the value of this attribute reaches zero, no more connections are accepted for any of the services which utilize this pool. To increase the size of this pool, use the *Fcrc Ov lnnConnectionPoolCapacity* attribute.

Values — Decimal (0..2048)

Default — No default

### ATTRIBUTE Lp Eng Fcrc lnnConnectionPoolUsage (lnnConnUsage)

Access — Read only

Description — This attribute indicates the number of resource records being utilized for the connections which use Logical Network Number (LNN) on the *LogicalProcessor.* It is only applicable to PQC-based ATM IP cards.

A logical network is a subset of Passport modules together with a subset of trunks that interconnect those modules. It carries the traffic for a defined set of network protocols. An LNN is used to identify a logical network. The connectionless services which utilize the logical networks require some processing at the intermediate nodes. This pool is applied at the intermediate nodes to sustain these connectionless services.

If the *McsMgr DprsMcsEpG/n Ep/n EpD transportConnectionPreference* attribute is set to ***atmOnly***, each instance of the *McsMgr DprsMcsEpG/n Ep/n* component uses one resource record from this pool, otherwise it does not use this pool.

Values: Decimal (0..2048)

Default: No default

### ATTRIBUTE Lp Eng Fcrc txFrameMemoryCongestionState (txFrCong)

Access: Read only

Description: This attribute indicates the congestion state of the transmit frame memory for this FP.

This attribute indicates which *txFrameMemoryThresholds* corresponds to the current value of *txFrameMemoryUsage*. The congestion state is used to determine if frames of a particular discard priority (DP) are discarded before being queued for transmit.

The congestion state of transmit frame memory is indicated by a numeric value ranging from 3 to 0. When transmit frame memory is in congestion state “x”, traffic with DP > “x” is discarded before transmit. Traffic with DP < “x” may be queued for transmit, depending on the congestion level of the transmit queue. Traffic with DP = “x” may be either queued or discarded depending on how close the value of *txFrameMemoryUsage* is to the next threshold as displayed in *txFrameMemoryThresholds*. For example, DP=3 traffic is queued until the value indicated by *txFrameMemoryUsage* equals the value indicated in *txFrameMemoryThresholds* 3. At that point, DP=3 traffic is discarded.

Values: Decimal (0..3)

Default: No default

### ATTRIBUTE Lp Eng Fcrc rxFrameMemoryCongestionState (rxFrCong)

Access: Read only

Description

This attribute indicates the congestion state of the receive frame memory for this FP.

This attribute indicates which *rxFrameMemoryThresholds* corresponds to the current value of *rxFrameMemoryUsage*. The congestion state is used to determine if frames of a particular discard priority (DP) are discarded before being queued for processing on this FP.

The congestion state of receive frame memory is indicated by a numeric value ranging from 3 to 0. When receive frame memory is in congestion state “x”, traffic with DP > “x” is discarded before processing. Traffic with DP < “x” may be queued for processing, depending on the congestion level of the processor or bus queue. Traffic with DP = “x” may be either queued or discarded depending on how close the value of *rxFrameMemoryUsage* is to the next threshold as displayed in *rxFrameMemoryThresholds*. For example, DP=3 traffic is queued until the value indicated by *rxFrameMemoryUsage* equals the value indicated in *rxFrameMemoryThresholds* 3. At that point, DP=3 traffic is discarded.

Values

Decimal (0..3)

Default

No default

### ATTRIBUTE Lp Eng Fcrc txFrameMemoryMaxUsage (txFrMaxUsage)

Access

Read only

Description

This attribute indicates the maximum number which has recently occurred for the *txFrameMemoryUsage* attribute.

On CQC-based ATM FPs, this number indicates the maximum usage of transmit frames for all ports on this FP.

On ATM IP FPs, this number indicates the maximum usage of transmit frames in the Passport Queue Controller (PQC) ASIC. Queuing of frames for transmit only occurs in the PQC.

This value is reset to the current usage every 15 minutes and when the card is reset.

| | |
|---|---|
| Values | Decimal (0..32767) |
| Units | frameBlocks |
| Default | No default |

### ATTRIBUTE Lp Eng Fcrc txFrameMemoryUsage (txFrUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current number of transmit frames which are in use for this FP.<br><br>On CQC-based ATM FPs, this number indicates the total transmit frames which are in use for all ports on this FP.<br><br>On ATM IP FPs, this number indicates the number of transmit frames which are in use in the Passport Queue Controller (PQC) ASIC. Queuing of frames for transmit only occurs in the PQC. |
| Values | Decimal (0..32767) |
| Units | frameBlocks |
| Default | No default |

### ATTRIBUTE Lp Eng Fcrc rxFrameMemoryMaxUsage (rxFrMaxUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the maximum number which has recently occurred for the *rxFrameMemorySize* attribute.<br><br>On CQC-based ATM FPs, this number indicates the maximum usage of receive frames for all ports on this FP.<br><br>On ATM IP FPs, this number indicates the maximum usage of received frames in the Passport Queue Controller (PQC) ASIC. Queuing of received frames only occurs in the PQC.<br><br>This value is reset to the current usage every 15 minutes and when the card is reset. |
| Values | Decimal (0..32767) |

| | |
|---|---|
| Units | frameBlocks |
| Default | No default |

### ATTRIBUTE Lp Eng Fcrc rxFrameMemoryUsage (rxFrUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current number of receive frames which are in use for this FP.<br><br>On CQC-based ATM FPs, this number indicates the total receive frames which are in use for all ports on this FP.<br><br>On ATM IP FPs, this number indicates the number of receive frames which are in use in the Passport Queue Controller (PQC) ASIC. Queuing of received frames only occurs in the PQC. |
| Values | Decimal (0..32767) |
| Units | frameBlocks |
| Default | No default |

### ATTRIBUTE Lp Eng Fcrc txFrameMemoryThresholds (txFrThresh)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is a vector which indicates the size and three discard thresholds for transmit frame memory for this FP. The transmit frame memory is used for storing frames to be transmitted by this FP.<br><br>The first value indicates the transmit frame memory size. This is derived based on the total transmit memory capacity of this FP, and the number of connections specified.<br><br>The current value of *txFrameMemoryUsage* together with the vector of values in *txFrameMemoryThresholds* determines the *txFrameMemoryCongestionState*. The congestion state determines whether frames of a given discard priority (DP) are discarded or queued for transmit.<br><br>When the *txFrameMemoryUsage* attribute is between threshold 0 |

and threshold 1, the *txFrameMemoryCongestionState* indicates the value 0. In congestion state 0, traffic with DP > 0 is discarded. Threshold 1 is set approximately at 90 percent of threshold 0, the total transmit frame memory size.

When the *txFrameMemoryUsage* attribute is between threshold 1 and threshold 2, the *txFrameMemoryCongestionState* indicates the value 1. In congestion state 1, traffic with DP > 1 is discarded. Threshold 2 is set approximately at 85 percent of threshold 0, the total transmit frame memory size.

When the *txFrameMemoryUsage* attribute is between threshold 2 and threshold 3, the *txFrameMemoryCongestionState* indicates the value 2. In congestion state 2, traffic with DP > 2 is discarded. Threshold 3 is set approximately at 75 percent of threshold 0, the total transmit frame memory size.

When the *txFrameMemoryUsage* attribute is below threshold 3, the *txFrameMemoryCongestionState* indicates the value 3. In congestion state 3, traffic with DP=3 is queued.

| | |
|---|---|
| Vector of | Decimal (0..32767) |
| Units | frameBlocks |
| Index | Decimal (0..3) |
| Default | No default |

### ATTRIBUTE Lp Eng Fcrc rxFrameMemoryThresholds (rxFrThresh)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is a vector which indicates the size and three discard thresholds for receive frame memory for this FP. The receive frame memory is used for storing frames received by this FP.<br><br>The first value indicates the total receive frame memory size. This is derived based on the total receive memory capacity of this FP, and the number of connections specified.<br><br>The current value of *rxFrameMemoryUsage* together with the |

vector of values in *rxFrameMemoryThresholds* determines the *rxFrameMemoryCongestionState*. The congestion state determines whether frames of a given discard priority (DP) are discarded or queued for processing.

When the *rxFrameMemoryUsage* attribute is between threshold 0 and threshold 1, the *rxFrameMemoryCongestionState* indicates the value 0. In congestion state 0, traffic with DP > 0 is discarded. Threshold 1 is set approximately at 90 percent of threshold 0, the total receive frame memory size.

When the *rxFrameMemoryUsage* attribute is between threshold 1 and threshold 2, the *rxFrameMemoryCongestionState* indicates the value 1. In congestion state 1, traffic with DP > 1 is discarded. Threshold 2 is set approximately at 85 percent of threshold 0, the total receive frame memory size.

When the *rxFrameMemoryUsage* attribute is between threshold 2 and threshold 3, the *rxFrameMemoryCongestionState* indicates the value 2. In congestion state 2, traffic with DP > 2 is discarded. Threshold 3 is set approximately at 75 percent of threshold 0, the total receive frame memory size.

When the *rxFrameMemoryUsage* attribute is below threshold 3, the *rxFrameMemoryCongestionState* indicates the value 3. In congestion state 3, traffic with DP=3 is queued.

| | |
|---|---|
| Vector of | Decimal (0..32767) |
| Units | frameBlocks |
| Index | Decimal (0..3) |
| Default | No default |

## COMPONENT Lp Eng Fcrc Override (Ov)

| | |
|---|---|
| Groups | "GROUP Lp Eng Fcrc Ov Provisioned (Prov)" |
| Scope | Device |
| Description | *Lp Eng Fcrc Override*<br>This component holds provisionable engineering parameters used |

by frame services on this *LogicalProcessor.*

Common Verbs

Help
List
Display
Add
DELete

## GROUP Lp Eng Fcrc Ov Provisioned (Prov)

Properties: Provisioned

Description: This group contains frame services provisionable engineering parameters for this *LogicalProcessor.* Note that altering any of these parameters will result in a card reset.

## ATTRIBUTE Lp Eng Fcrc Ov subConnectionPoolCapacity (subConnCap)

Access: Read and write

Criticality: Process

Description: This attribute indicates the maximum number of sub-connections for the *LogicalProcessor.*

A sub-connection is used for interworking the ATM services with the frame oriented services such as Frame Relay and Path Oriented Routing System (PORS). When a frame is received at a sub-connection, the frame header is modified to be compatible with the service it is to be forwarded to.

Due to limited resources, not all of the sub-connections requested by this attribute may be allocated. The desired number of sub-connections allocated is indicated by the sum of *fcrc subConnectionPoolAvailable* and *fcrc subConnectionPoolUsage* attributes.

This pool is used for connection oriented services only. Each of the following components uses one sub-connection from this pool:
*FrAtm/n Dlci/n Siwf*
*McsMgr Frf5EpG/n Frf5Ep/n Lmi*

*McsMgr Frf5EpG/n Frf5Ep/n Dlci/n*

When the sub-connection pool is exhausted, no more connections are accepted from the services which utilize this pool.

Note: Ip Routing entries also compete for this memory.

The maximum size of this pool is 8192 for CQC based cards. The default ***cardDependent*** has the effect of setting *subConnectionPoolCapacity* to 1024 for both CQC cards and SGAF cards.

| | |
|---|---|
| Values | Decimal (0..49152)<br>cardDependent |
| Default | cardDependent |

### ATTRIBUTE Lp Eng Fcrc Ov InnConnectionPoolCapacity (InnConnCap)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute indicates the maximum number of resource records for the connections which utilize Logical Network Number (LNN) on the *LogicalProcessor.* |

A logical network is a subset of passport modules together with a subset of trunks that interconnect those modules. It carries the traffic for a defined set of network protocols. An LNN is used to identify a logical network. The connectionless services which utilize the logical networks require some processing at the intermediate nodes. This pool is allocated at the intermediate nodes to sustain these connectionless services.

If the *McsMgr DprsMcsEpG/n Ep/n EpD transportConnectionPreference* attribute is set to ***atmOnly***, each instance of the *McsMgr DprsMcsEpG/n Ep/n* component uses one resource record from this pool, otherwise it does not use this pool.

Note: Frame and Cell queues also compete for this memory.

Each DPRS instance requires two resource records from this pool.
The maximum size of this pool is 256 for CQC based cards. The default ***cardDependent*** has the effect of setting *lnnConnectionPoolCapacity* to 128 for CQC cards and 256 for SGAF cards.

Values: Decimal (1..2048)
cardDependent

Default: cardDependent

## COMPONENT Lp Eng Fcrc Pqc (Pqc)

Groups: "GROUP Lp Eng Fcrc Pqc Operational (Oper)"

Scope: Device

Description: *Lp Eng Fcrc Pqc*
This component is used to view the usage of resources specific to frame services on a PQC based FP.

Subcomponents: "COMPONENT Lp Eng Fcrc Pqc Override (Ov)"

Common Verbs:
- Help
- List
- Display
- Add
- DELete

## GROUP Lp Eng Fcrc Pqc Operational (Oper)

Properties: Operational

Description: This group describes the usage of resources specific to frame services on a PQC based FP.

## ATTRIBUTE Lp Eng Fcrc Pqc ipRoutesPoolSize (ipRts)

Access: Read only

Description: This attribute indicates the number of IP routing entries permitted on the Logical Processor. If there are enough resources on the card, this value is equal to the provisioned attribute (in *Fcrc Pqc Ov*) *ipRoutesPoolCapacity.*

| | |
|---|---|
| Values | Decimal (0..100000) |
| Default | No default |

### ATTRIBUTE Lp Eng Fcrc Pqc ipRoutesPoolUsage (ipRtsUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute represents the current number of IP routing entries that are in use. |
| Values | Decimal (0..100000) |
| Default | No default |

### ATTRIBUTE Lp Eng Fcrc Pqc ipRoutesPoolAvailableEst (ipRtsAvail)

| | |
|---|---|
| Access | Read only |
| Description | Each IP routing resource can hold between one and three IP routing entries. Therefore, it is not possible to know exactly how many more IP routing entries can be added to the IP routing table. This attribute specifies the estimated number of IP routing entries that are available on the Logical Processor. It is an approximation based on the current average number of IP routing entries per IP routing resource. |
| Values | Decimal (0..100000) |
| Default | No default |

### ATTRIBUTE Lp Eng Fcrc Pqc ipInputRecordsPoolSize (ipInput)

| | |
|---|---|
| Access | Read only |
| Description | This attribute contains the maximum number of IP input records that are available on a PQC based Logical Processor. IP input records are used by IP-aware media associated to a *Vr Pp* component. In general, one IP input record is used per Layer 2 connection used by IP-aware media. |
| Values | Decimal (0..32768) |
| Default | No default |

### ATTRIBUTE Lp Eng Fcrc Pqc ipInputRecordsPoolUsage (ipInputUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current number of IP input records that are used by the IP instances on this Logical Processor.If this number exceeds *ipInputRecordsPoolSize*, some IP-aware media protocol ports will not be able to receive traffic. |
| Values | Decimal (0..32768) |
| Default | No default |

### ATTRIBUTE Lp Eng Fcrc Pqc ipOutputRecordsPoolSize (ipOutput)

| | |
|---|---|
| Access | Read only |
| Description | This attribute contains the maximum number of IP output records that are available on this Logical Processor. |
| Values | Decimal (0..32768) |
| Default | No default |

### ATTRIBUTE Lp Eng Fcrc Pqc ipOutputRecordsPoolUsage (ipOutputUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute contains the current number of IP output records that are used by the IP instances currently active on a PQC based Logical Processor. IP output records are used by every active IP next hop onto which a flow has been exercised. If Equal-Cost Multi-Path (ECMP) IP routes are used on this node, IP output records can become exhausted rapidly. ECMP can be turned off by setting *Vr Ip Ospf ecmpStatus* attribute to ***disabled***. |
| Values | Decimal (0..32768) |
| Default | No default |

### COMPONENT Lp Eng Fcrc Pqc Override (Ov)

| | |
|---|---|
| Groups | "GROUP Lp Eng Fcrc Pqc Ov Provisioned (Prov)" |
| Scope | Device |

| | |
|---|---|
| Description | *Lp Eng Fcrc Pqc Ov*<br>This component is used to configure resources specific to frame services on a PQC based Logical Processor. |
| Common Verbs | Help<br>List<br>Display |

## GROUP Lp Eng Fcrc Pqc Ov Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group is used for fine tuning resource configuration of frame services on a PQC based Logical Processor. |

## ATTRIBUTE Lp Eng Fcrc Pqc Ov ipRoutesPoolCapacity (ipRtsCap)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute indicates the number of desired IP routing entries for the Logical Processor. It is used to determine the number of IP routing resources to be allocated on the card.<br><br>Each IP routing resource can hold between one and three IP routing entries. To calculate the number of IP routing resources required, an average of 2 IP routing entries per IP routing resource is used.<br><br>If there are not enough resources on the card, a smaller pool is allocated. Operational attribute (in Fcrc Pqc) *ipRoutesPoolSize* indicates the actual size of the pool. |
| Values | Decimal (0..100000) |
| Default | 4096 |

## COMPONENT Lp Eng AtmPathTrace (PTrace)

| | |
|---|---|
| Groups | "GROUP Lp Eng PTrace Operational (Oper)" |
| Scope | Device |

| | |
|---|---|
| Description | *Lp/n Eng AtmPathTrace*<br>This component holds the path trace engineering parameters and statistics for the following features: ***AtmUni***, ***AtmPnni***, and ***AtmIisp*** on this *Lp*. |
| Opt. Subcomp. | "COMPONENT Lp Eng PTrace Override (Ov)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Lp Eng PTrace Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the current engineering parameters and statistics for path trace for the following features: ***AtmUni***, ***AtmPnni,*** and ***AtmIisp*** on this *Lp*. |

## ATTRIBUTE Lp Eng PTrace maxTraceRecords (mRecords)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the maximum number of path trace records that are allowed to be stored on this *Lp*. Once the maximum has been reached, each *AtmPathTraceFilter* component manages the records it owns. |
| Values | Decimal (0..200) |
| Default | No default |

## ATTRIBUTE Lp Eng PTrace currentTraceRecords (cRecords)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current number of Path Trace records that are stored on this *Lp*. |
| Values | Decimal (0..200) |
| Default | No default |

### ATTRIBUTE Lp Eng PTrace maxConcurrentTraceRequests (mcRequests)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the maximum number of concurrent trace requests on this *Lp*. Once the maximum has been reached, the Trace Transit List IE in the connection setup request is dropped and the setup request proceeds. |
| Values | Decimal (1..200) |
| Default | No default |

### ATTRIBUTE Lp Eng PTrace currentTraceRequests (cRequests)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of active current trace requests on this *Lp*. |
| Values | Decimal (0..200) |
| Default | No default |

### COMPONENT Lp Eng PTrace Override (Ov)

| | |
|---|---|
| Groups | "GROUP Lp Eng PTrace Ov Provisioned (Prov)" |
| Scope | Device |
| Description | *Lp Eng PTrace Override*<br>This component holds provisionable engineering parameters used to override the default maximum values allowed on this *Lp*. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Lp Eng PTrace Ov Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |

| | |
|---|---|
| Description | This group contains the provisionable engineering parameters for this *Lp*. |

### ATTRIBUTE Lp Eng PTrace Ov maxTraceRecords

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the maximum number of records allowed to be stored on this *Lp*. Once the maximum has been reached, each *AtmPathTraceFilter* component manages the records it owns.<br><br>If the value is set to zero, all *AtmPathTraceFilter* components are removed.<br><br>If the existing value is changed from a higher value to a lower value by a difference of 20, all records on the *Lp* are lost<br><br>If the existing value is changed from a lower value to a higher value, all records remain. |
| Values | Decimal (0..200) |
| Default | 0 |

### ATTRIBUTE Lp Eng PTrace Ov maxConcurrentTraceRequests

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute indicates the maximum number of concurrent trace requests on this *Lp*. Once the maximum has been reached, the Trace Transit List IE in the connection setup request is dropped and the setup request proceeds. |
| Values | Decimal (1..200) |
| Default | 20 |

### COMPONENT Lp Eng ActiveAlarmList (AAList)

| | |
|---|---|
| Groups | "GROUP Lp Eng AAList Operational (Oper)" |
| Scope | Device |

| | |
|---|---|
| Description | *Lp Eng ActiveAlarmList*<br>This component holds the engineering parameters and operational statistics for the active alarms on this LP. |
| Opt. Subcomp. | "COMPONENT Lp Eng AAList Override (Ov)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Lp Eng AAList Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational attributes for the ActiveAlarmList component. |

## ATTRIBUTE Lp Eng AAList maxListSize (size)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the maximum number of active alarms this LP can hold.<br><br>**Possible Values:**<br>*Disabled:*Do not store active alarms on this LP.<br>*10..200*:<br>*Unlimited*: This value indicates that the system should not limit the number of active alarms on this LP. Alarms can still be discarded if the memory resources are congested. |
| Values | Decimal (10..200)<br>disabled (dis)<br>unlimited (unl) |
| Default | No default |

## ATTRIBUTE Lp Eng AAList alarmsRx

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the active alarms that have been received from this LP. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp Eng AAList alarmsDiscarded

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the active alarms that have been discarded on this LP.<br><br>Alarms are discarded when the number of active alarms received on this LP exceeds what it can hold, or the memory resource of the LP is congested. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp Eng AAList currentListSize

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current number of active alarms stored on this LP. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp Eng AAList peakListSize (peak)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the peak number of the active alarms that have been received on this LP since the last time the LP came up. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT Lp Eng AAList Override (Ov)

| | |
|---|---|
| Groups | "GROUP Lp Eng AAList Ov Provisioned (Prov)" |

| | |
|---|---|
| Scope | Device |
| Description | *Lp Eng AAList Override*<br>This component holds provisionable engineering parameters for the active alarms on this LP. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Lp Eng AAList Ov Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisionable attributes for the *ActiveAlarmList Override* components under the *Lp Engineering* component. |

## ATTRIBUTE Lp Eng AAList Ov maxListSize (size)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum number of active alarms on this LP. For more details on the default and other information, refer to the parent component's *maxListSize* attribute.<br><br>**Possible Values:**<br>*Disabled:* Do not store active alarms on this LP.<br>*10..200*:<br>*AutoConfigured*: System Supplied. A value of 100 is selected in this release.<br>*Unlimited*: This value indicates that the system should not limit the number of active alarms on this LP. Alarms can still be discarded if the memory resources are congested. |
| Values | Decimal (10..200)<br>disabled (dis)<br>autoConfigured (auto)<br>unlimited (unl) |
| Default | autoConfigured |

## COMPONENT Lp VoiceServicesProcessor (Vsp)

| | |
|---|---|
| Groups | "GROUP Lp Vsp Provisioned (Op)"<br>"GROUP Lp Vsp OsiState (State)" |
| Scope | Device |
| Description | *Lp/n VoiceServicesProcessor*<br>*Dlep/n VoiceServicesProcessor*<br><br>This component represents a Voice Services Processor FP.<br><br>When added, *PModule* subcomponents are added automatically. For the ***12mVspAal*** and ***Vsp2*** cards, 12 *PModule* instances are added.<br>For the ***2pGeMmSrVsp3*** card, 24 *PModule* instances are added.<br>For the ***2pOc3ChSmIrVsp3*** card, 23 *PModule* instances are added. |
| Subcomponents | "COMPONENT Lp Vsp ProcessingModule (PModule)" |
| Opt. Subcomp. | "COMPONENT Lp Vsp Ethernet1000BaseSX (GigE)" |
| Dyn. Subcomp. | "COMPONENT Lp Vsp Test (Test)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP Lp Vsp Provisioned (Op)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisioning data for the *Vsp* Component. |

## ATTRIBUTE Lp Vsp linkToApplication (lta)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |

| | |
|---|---|
| Description | This attribute specifies a service link to an *Nsta* component that defines the application services available in the VSP card. |
| Values | Link (Service, linkToServer) |
| Default | No default |

### GROUP Lp Vsp OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Lp Vsp adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Lp Vsp operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Lp Vsp usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

## COMPONENT Lp Vsp ProcessingModule (PModule)

| | |
|---|---|
| Instance | Decimal (1..24) |
| Groups | "GROUP Lp Vsp PModule Provisioned (Prov)"<br>"GROUP Lp Vsp PModule OsiState (State)"<br>"GROUP Lp Vsp PModule Operational (Oper)" |
| Scope | Device |
| Description | *Lp/n Vsp ProcessingModule/n*<br>*Dlep/n Vsp ProcessingModule/n*<br><br>A *ProcessingModule* (*PModule*) component instance represents a distinct physical processing module on a Voice Services Processor (VSP) FP.<br><br>Each *PModule* instance is uniquely identified by a number that corresponds to a specific physical location on the VSP FP. |
| Dyn. Subcomp. | "COMPONENT Lp Vsp PModule ProcessingBlock (PBlock)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Lp Vsp PModule Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisioning data for a *ProcessingModule*. |

## ATTRIBUTE Lp Vsp PModule moduleType (modType)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the type of processing module expected for this *ProcessingModule* instance.<br><br>A value of ***vpm*** refers to a processing module instance that is |

capable of processing voice, voiceband data, and data.
A value of ***spm*** refers to a processing module instance that is capable of processing signaling, and hosting a media or signaling gateway.
A value of ***none*** refers to a processing module instance that is unavailable for use.

Values
none
vpm
spm

Default
none

### GROUP Lp Vsp PModule OsiState (State)

Properties
Operational

Description
This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Lp Vsp PModule adminState (osiAdmin)

Access
Read only

Description
This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is

administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Lp Vsp PModule operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Lp Vsp PModule usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

| | |
|---|---|
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Lp Vsp PModule Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group indicates operational information for a *ProcessingModule*. |

### ATTRIBUTE Lp Vsp PModule insertedModuleType (insModType)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the type of processing module currently present in the physical position on a Voice Services Processor FP.<br><br>A value of ***vpm*** indicates the presence of a processing module capable of processing voice, voiceband data, and data.<br>A value of ***spm*** indicates the presence of a processing module capable of processing signaling, and hosting a media or signaling gateway.<br>A value of ***none*** indicates that no processing module is present.<br>A value of ***unknown*** indicates the presence of a processing module with capabilities not known by the software. |
| Values | none<br>unknown<br>vpm<br>spm |
| Default | No default |

### ATTRIBUTE Lp Vsp PModule productCode (prc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the product engineering code and release of the *ProcessingModule*. |
| Values | String (0..12, ASCII) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Lp Vsp PModule failureCause (failCause)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the reason why the physical processing module has failed.<br>The various failure causes are:<br>***none*** - There is no failure.<br>***cannotLoadFirmware*** - A module has been detected, but the firmware load operation failed.<br>***failedDiagnostics*** - The diagnostics cycle has completed and an error has been detected within the module.<br>***mismatched*** - The *insertedModuleType* of the *PModule* does not match its provisioned *moduleType*.<br>***connectivityFailed*** - The test cycle has run and an error has been detected on one of the *PBlock*s within the *PModule*.<br>***notResponding*** - One of the *PBlock*s within the *PModule* is not responding. |
| Values | none<br>cannotLoadFirmware<br>failedDiagnostics<br>mismatched<br>connectivityFailed<br>notResponding |
| Default | none |

### COMPONENT Lp Vsp PModule ProcessingBlock (PBlock)

| | |
|---|---|
| Instance | Decimal (1..2) |
| Groups | "GROUP Lp Vsp PModule PBlock Operational (Oper)"<br>"GROUP Lp Vsp PModule PBlock Utilization (Util)" |
| Scope | Device |
| Description | *Lp/n Vsp PModule/n ProcessingBlock/n*<br>*Dlep/n Vsp PModule/n ProcessingBlock/n*<br><br>This dynamic component represents a block of Data Processors within a *ProcessingModule*. |

The Processing Block is the smallest unit on the Voice Services Processor (VSP) FP on which different Data Processing software algorithms may be executed, or on which diagnostics may be performed.

Common Verbs

Help
List
Display

### GROUP Lp Vsp PModule PBlock Operational (Oper)

Properties: Operational

Description: This group contains status information about the *ProcessingBlock* component.

### ATTRIBUTE Lp Vsp PModule PBlock serviceList (servList)

Access: Read only

Description: This attribute indicates the components that have resources allocated on this *ProcessingBlock* component.

This attribute is not displayed if the *Shelf Card cardType* attribute is set to ***2pOc3ChSmIrVsp3***.

List of: The name of the component

Default: No default

### GROUP Lp Vsp PModule PBlock Utilization (Util)

Properties: Operational

Description: This group contains information about processing utilization of this *PBlock* component.

This group is filtered if the *modType* attribute of the parent *PModule* component is not set to ***spm***, or on the ***12mVspAal*** card.

### ATTRIBUTE Lp Vsp PModule PBlock timeInterval

Access: Read only

| | |
|---|---|
| Description | This attribute indicates the time period for which the average, minimum, and maximum utilization values are calculated.<br><br>If the associated *Vsp* component is locked this attribute will be reset to ***0***.<br><br>This attribute is reset to ***0*** every 15 minutes. |
| Values | Decimal (0..14) |
| Units | minutes |
| Default | No default |

### ATTRIBUTE Lp Vsp PModule PBlock cpuUtil

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the approximate processing utilization of this *PBlock* component. |
| Values | Decimal (0..100) |
| Units | % |
| Default | No default |

### ATTRIBUTE Lp Vsp PModule PBlock cpuUtilAvg

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates average processing utilization of this *PBlock* component over the time period indicated in the *timeInterval* attribute. |
| Values | Decimal (0..100) |
| Units | % |
| Default | No default |

### ATTRIBUTE Lp Vsp PModule PBlock cpuUtilAvgMin

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the minimum average processing utilization of this *PBlock* component over the time period indicated in the *timeInterval* attribute. |
| Values | Decimal (0..100) |
| Units | % |
| Default | No default |

### ATTRIBUTE Lp Vsp PModule PBlock cpuUtilAvgMax

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the maximum average processing utilization of this *PBlock* component over the time period indicated in the *timeInterval* attribute. |
| Values | Decimal (0..100) |
| Units | % |
| Default | No default |

### COMPONENT Lp Vsp Test (Test)

| | |
|---|---|
| Groups | "GROUP Lp Vsp Test OsiState (State)"<br>"GROUP Lp Vsp Test Setup (Setup)"<br>"GROUP Lp Vsp Test Results (Results)" |
| Scope | Application |
| Description | The *Test* component is configured to control a hardware facility test on a physical (*V*35, *X21*, *DS1*, *E1*, *DS3*, *E3* etc.) or a logical port. |
| Common Verbs | Help<br>List<br>Display |

### VERB START Lp Vsp Test

| | |
|---|---|
| Impact | Service |
| Description | This command invokes a test on the hardware component. Note that some test types requires the parent component (the hardware component) to be locked (using the *Lock* command) before a test can be started. |

### VERB STOP Lp Vsp Test

| | |
|---|---|
| Impact | Service |
| Description | This command stops a test running on the hardware component. |

### GROUP Lp Vsp Test OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Lp Vsp Test adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is |

administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Lp Vsp Test operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Lp Vsp Test usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

| | |
|---|---|
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Lp Vsp Test Setup (Setup)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all of the operational data for a *Test* component. |

### ATTRIBUTE Lp Vsp Test purpose (purpose)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute records the purpose of the test so that the test results can be associated and properly analyzed. |
| Values | String (0..40, ASCII) |
| Default | No default |

### ATTRIBUTE Lp Vsp Test type (type)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the type of test to be run. The available test types include the following:<br>***card*** test sets up an internal loop on the board and runs a bit error rate test.<br>***manual*** test assumes the line is looped back externally and a bit error rate test is performed.<br>***localLoop*** test loops back the local modem and performs a bit error rate test.<br>***remoteLoop*** test loops back the remote modem (or CSU) and performs a bit error rate test.<br>***externalLoop*** test loops back the line to the far end.<br>***payloadLoop*** test only loops back the payload data received from the incoming line.<br>***remoteLoopThisTrib*** loops this particular tributary back at the far end, using services provided by the parent.<br>***v54RemoteLoop*** initiates a V.54 Remote Loopback test.<br>***pn127RemoteLoop*** initiates a PN127 Remote Loopback test. |

***lineBIP8Error*** tests line BIP 8 error generation and detection (B2 byte inverted).
***sectionBIP8Error*** tests section BIP 8 error generation and detection (B1 byte inverted).
***pathBIP8Error*** tests path BIP 8 error generation and detection (B3 byte inverted).
***pathBIP2Error*** tests path BIP 2 error generation and detection (bit 1-2 of V5 byte inverted).
Note that not all test types are not supported by all function processors.

Values
card
manual
localLoop
remoteLoop
externalLoop
payloadLoop
remoteLoopThisTrib
v54RemoteLoop
pn127RemoteLoop
lineBIP8Error
sectionBIP8Error
pathBIP8Error
pathBIP2Error

Default
card

## ATTRIBUTE Lp Vsp Test frmSize (size)

Access
Read and write

Description
This attribute defines the size of the test data frames in number of bytes.
This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame.

Values
Decimal (4..4096)

Units
bytes

Default
1024

### ATTRIBUTE Lp Vsp Test frmPatternType (fpt)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the type of data pattern generation to use. The following lists the available pattern types:<br>***ccitt32kBitPattern*** is a pseudo-random sequence of 32 kbit.<br>***ccitt8MBitPattern*** is a pseudo-random sequence of 8Mbit.<br>***customizedPattern*** is the pattern defined in the ***customizedPattern*** attribute. |
| Values | ccitt32kBitPattern<br>ccitt8MBitPattern<br>customizedPattern |
| Default | ccitt32kBitPattern |

### ATTRIBUTE Lp Vsp Test customizedPattern (cp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute allows a customized 32 bit pattern to be defined for use in the test data frames. This attribute is used when the attribute *frmPatternType* is set to ***CustomizedPattern***. Note that a 55 hex pattern is an alternating 1 and 0 pattern. |
| Values | Hex (H.0..H.ffffffff) |
| Units | Hex |
| Default | H.55555555 |

### ATTRIBUTE Lp Vsp Test dataStartDelay (dsd)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time delay (in seconds) between when the test expects the loop to have been set up, to when the test data actually starts to be transmitted. This attribute is to accommodate some non-standard equipment that requires extra time for setting up a requested loop.<br>This attribute is ignored when the test *type* is set to ***externalLoop***. |
| Values | Decimal (0..1814400) |
| Units | seconds |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE Lp Vsp Test displayInterval (di)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the interval (in minutes) between which interim test results are to be displayed. Results are displayed at the operator console at which the test was started. When the test *type* is set to ***externalLoop***, this attribute is ignored. There will be no display of results if *displayInterval* is set to 0. This attribute can be changed anytime. |
| Values | Decimal (0..30240) |
| Units | minutes |
| Default | 5 |

### ATTRIBUTE Lp Vsp Test duration

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the duration for which the test data will be transmitted. In the case of an ***externalLoop***, this is the time that the loop is in effect. Note that *dataStartDelay* does not apply to the ***externalLoop*** test type. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 1.00 |

### GROUP Lp Vsp Test Results (Results)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all the statistics related attributes of the *Test* component. |

### ATTRIBUTE Lp Vsp Test causeOfTermination

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates either the status of the test or the cause of the test's termination: |

a value of ***neverStarted*** indicates that the test has not yet been started.

a value of ***testRunning*** indicates that the test has been started.

a value of ***stoppedByOperator*** indicates that the operator issued a stop command on a test that was running.

a value of ***testTimeExpired*** indicates that the test ran for the time specified by the test's *duration*.

a value of ***loopCodeSyncFailed*** indicates that the local end failed to synchronize to the loopCode pattern. The local end transmits the loopCode pattern to cause the remote end to apply a loopback, after which the local end should receive the loopCode pattern. The exact pattern used to request loopCode depends on the test *type*. This failure indicates a high rate of transmission errors, or that the remote end has failed to apply the loopback.

a value of ***patternSyncFailed*** indicates that the local end failed to synchronize to the *frmPatternType* test pattern, that should have been looped back at the remote end. This failure indicates a high rate of transmission errors or the absence of a loopback.

a value of ***patternSyncLost*** indicates that the local end gained and then lost synchronization to the returned *frmPatternType* test pattern. This failure indicates a sudden increase in transmission errors, frame slippage, or the removal of an existing loopback.

a value of ***unknown*** is set when a reason to terminate other than those listed here is encountered.

Note: The *causeOfTermination* attribute values of ***loopCodeSyncFailed***, ***patternSyncFailed*** and ***patternSyncLost*** are supported only on MSA cards. *Test* components located on other cards or under an *Ima* component on an MSA card will never terminate the test under the conditions described by these values.

| | |
|---|---|
| Values | testTimeExpired<br>stoppedByOperator<br>unknown<br>neverStarted<br>testRunning<br>hardwareReconfigured<br>loopCodeSyncFailed<br>patternSyncFailed<br>patternSyncLost |
| Default | neverStarted |

### ATTRIBUTE Lp Vsp Test bitsTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bits sent during the test period. As long as the line speed of the hardware interface is less than 70 Mbit/s, this counter is not expected to reach the maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Vsp Test bytesTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes sent during the test period. This counter is not expected to reach its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Vsp Test frmTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames sent during the test period. This counter is not expected to reach its maximum value.<br><br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |
| Values | Long Integer |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Lp Vsp Test bitsRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bits received during the test period. The counter wraps to zero when it exceeds the maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Vsp Test bytesRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes received during the test period. The counter wraps to zero when it exceeds its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Vsp Test frmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received during the test period. The counter wraps to zero when it exceeds its maximum value.<br><br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Vsp Test erroredFrmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute is not displayed for ATM and MSA32 cards. For ATM cards, the physical layer drops all errored frames at the controller interface. For MSA32 cards, the test does not generate any frame. |

For all other card types, this attribute counts the errored frames received during the test period. The counter wraps to zero when it exceeds its maximum value.

Values: Long Integer

Default: No default

### ATTRIBUTE Lp Vsp Test bitErrorRate

Access: Read only

Description: This attribute is not displayed for ATM cards because the physical layer drops all errored frames at the controller interface. For MSA32 cards, this attribute indicates the link bit error rate, regardless of the *frameSize*, which is not supported

For all other card types, this attribute is the calculated bit error rate on the link. Test data are generated and sent in frames of a preset size (*frameSize*). The *Test* component will try to estimate the number of bit errors in any errored frame which is identifiable. The statistics will be updated accordingly. A lost frame (may be due to an error on the flag sequence) will be discarded for the bit error rate calculation. The result is presented in the form of xEsyy, where x is the mantissa, syy is the exponent, for example 0E+00, 2E-09.
Note that the *bitErrorRate* is an estimate only. For more reliable test results, the test should be done over a long period. Multiple tests would also improve the confidence level of the test results.

Values: String (5, ASCII)

Default: No default

### ATTRIBUTE Lp Vsp Test elapsedTime

Access: Read only

Description: This attribute indicates the time elapsed since the test started for an ***externalLoop*** test. For a data test, it indicates time since test data was first transmitted.

Values: Decimal (0.00..30240.00)

Units: minutes

| | |
|---|---|
| Default | 0.00 |

### ATTRIBUTE Lp Vsp Test timeRemaining

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the length of time remaining before the test stops according to the *duration* attribute. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 0.00 |

### COMPONENT Lp Vsp Ethernet1000BaseSX (GigE)

| | |
|---|---|
| Instance | Decimal (0..1) |
| Groups | "GROUP Lp Vsp GigE OsiState (State)"<br>"GROUP Lp Vsp GigE Eth1000Operational (Oper)"<br>"GROUP Lp Vsp GigE Eth1000Statistics (Stats)" |
| Scope | Device |
| Description | *Lp/n Vsp GigE/n*<br><br>This component monitors and provides access to statistical measurements of the *VspEth1000BaseSX* ports on the card, when the ***vspIpGigE*** or the ***vgpIpG729GigE*** feature is provisioned.<br><br>Two *VspEth1000BaseSX* ports are supported on the ***2pGeMmSrVsp3*** Function Processor. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Lp Vsp GigE OsiState (State)

| | |
|---|---|
| Properties | Operational |

Description — This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Lp Vsp GigE adminState (osiAdmin)

Access — Read only

Description — This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values — locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default — unlocked

### ATTRIBUTE Lp Vsp GigE operationalState (osiOper)

Access — Read only

Description — This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be

providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Lp Vsp GigE usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Lp Vsp GigE Eth1000Operational (Oper)

Properties
Operational

Description
This group contains the port operational attributes of the *VspEth1000BaseSX* component.

### ATTRIBUTE Lp Vsp GigE macAddress (macAdd)

Access
Read only

| | |
|---|---|
| Description | This attribute indicates the medium access controller address. The value of this attribute will be assigned by the system. The medium access controller address is displayed in canonical format. |
| Values | String (6, Dashed Hex) |
| Default | No default |

### ATTRIBUTE Lp Vsp GigE autoNegotiationStatus (negStatus)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the status of the auto negotiation at the physical level.<br><br>Possible values are:<br><br>***succeeded*** – auto-negotiation has completed successfully.<br><br>***failed*** – auto-negotiation has failed to negotiate a compatible set of capabilities.<br><br>***inProgress*** – auto-negotiation is currently in progress.<br><br>***disabled*** – the port has detected that the far end does not support auto-negotiation. |
| Values | succeeded<br>failed<br>inProgress<br>disabled |
| Default | No default |

### ATTRIBUTE Lp Vsp GigE ingressFlowControlStatus (ingFcStatus)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether the ingress flow control has been successfully negotiated with the link partner.<br><br>Possible values are: |

***enabled*** - this state will generate pause frames when internal congestion is detected.

***disabled*** - in this state, no pause frames are generated. In addition, there is a risk that the received packets may be discarded due to lack of internal resources.

Values: enabled
disabled

Default: No default

### ATTRIBUTE Lp Vsp GigE lossofSyncAlarm (syncAlarm)

Access: Read only

Description: This attribute indicates whether the loss of synchronization alarm is ***on*** or ***off***.

Possible values are:

***on*** - the alarm is set.

***off*** - the alarm is clear.

Values: on
off

Default: No default

### ATTRIBUTE Lp Vsp GigE autoNegIncompleteAlarm (negAlarm)

Access: Read only

Description: This attribute indicates whether the auto-negotiation incomplete alarm is ***on*** or ***off***.

Possible values are:

***on*** - the alarm is set.

***off*** - the alarm is clear.

| | |
|---|---|
| Values | on<br>off |
| Default | No default |

### ATTRIBUTE Lp Vsp GigE remoteFaultIndicationAlarm (remFaultAlarm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether the remote fault indication alarm is ***on*** or ***off***.<br><br>Possible values are:<br><br>***on*** - the alarm is set.<br><br>***off*** - the alarm is clear. |
| Values | on<br>off |
| Default | No default |

### GROUP Lp Vsp GigE Eth1000Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the statistics for the *VspEth1000BaseSX* component. |

### ATTRIBUTE Lp Vsp GigE framesTransmittedOk (frmTxOk)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames that were transmitted without errors. This counter wraps to zero after it reaches its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Vsp GigE framesReceivedOk (frmRxOk)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the number of frames that were received without errors. This counter wraps to zero after it reaches its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Vsp GigE octetsTransmittedOk (octetsTxOk)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the octets that were transmitted without errors. This counter wraps to zero after it reaches its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Vsp GigE octetsReceivedOk (octetsRxOk)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the octets that were received without errors. This counter wraps to zero after it reaches its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Vsp GigE pauseFramesTransmitted (txPause)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the pause medium access controller control frames transmitted. This counter wraps to zero after it reaches its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Vsp GigE pauseFramesReceived (rxPause)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the pause medium access controller control frames received. This counter wraps to zero after it reaches its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Vsp GigE undersizeFrames (underFrm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames that were received but were less than the minimum size (64 bytes). This counter wraps to zero after it reaches its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Vsp GigE framesTooLong (longFrm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames that were received but were greater than the maximum size. The count includes frames which have a bad frame check sequence. This counter wraps to zero after it reaches its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Vsp GigE frameCheckSequenceErrors (fcsErr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received that were an integral number of octets in length and did not pass the FCS check. This count does not include frames received that were too long or too short. This counter wraps to zero after it reaches its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Vsp GigE symbolErrors (symErr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the times a valid length frame was received and had at least one occurance of a data reception or symbol error. This counter increments once per valid Carrier Event as defined by the specification IEEE 802.3 - 2000 edition. This counter wraps to zero after it reaches its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Vsp GigE broadcastFramesReceivedOk (bcastRxOk)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the valid broadcast frames received without errors. This counter wraps to zero after it reaches its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Vsp GigE discardedFrames (discFrm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the valid frames discarded because of a lack of resources available to receive them. This counter wraps to zero after it reaches its maximum value. |
| Values | Long Integer |
| Default | No default |

### COMPONENT Lp Ethernet100BaseT (Eth100)

| | |
|---|---|
| Instance | Decimal (0..1) |
| Groups | "GROUP Lp Eth100 CustomerIdentifierData (CidData)"<br>"GROUP Lp Eth100 IfEntryProv (IfEntry)"<br>"GROUP Lp Eth100 Provisioned (Prov)"<br>"GROUP Lp Eth100 AdminInfo (AdminInfo)" |

"GROUP Lp Eth100 OsiState (State)"
"GROUP Lp Eth100 OperationalStatus (OperStatus)"
"GROUP Lp Eth100 Operational (Oper)"
"GROUP Lp Eth100 Eth100Statistics (Eth100Stats)"
"GROUP Lp Eth100 Statistics (Stats)"

Scope: Device

Description: *Lp/n Ethernet100BaseT/n*
This component defines an instance of a 100BaseT Ethernet station attached to a bus. One instance of this component must be created for each hardware interface.

Subcomponents: "COMPONENT Lp Eth100 LanTest (Lt)"
"COMPONENT Lp Eth100 Test"

Common Verbs:
- Help
- List
- Display
- Add
- DELete
- LOCK
- Unlock

## GROUP Lp Eth100 CustomerIdentifierData (CidData)

Properties: Provisioned

Description: This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs.

## ATTRIBUTE Lp Eth100 customerIdentifier (cid)

Access: Read and write

Description: This attribute holds the Customer Identifier (CID).

Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.

Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.

An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to "basic CIDs" in DPN) may be assigned to specific customers.

| | |
|---|---|
| Values | Decimal (0; 1..8191) |
| Default | 0 |

### GROUP Lp Eth100 IfEntryProv (IfEntry)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the ifEntry. |

### ATTRIBUTE Lp Eth100 ifAdminStatus (ifState)

| | |
|---|---|
| Access | Read and write |
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE Lp Eth100 ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |

| | |
|---|---|
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP Lp Eth100 Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes of the *Eth100BaseT* component. |

### ATTRIBUTE Lp Eth100 duplexMode

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the duplex mode of the port. This attribute is ignored if auto negotiation is successful. |
| Values | half<br>full |
| Default | half |

### ATTRIBUTE Lp Eth100 lineSpeed

| | |
|---|---|
| Access | Read and write |
| Description | This attribute sets the operating speed for the Ethernet 100BaseT port. This attribute is ignored if auto negotiation is successful. |
| Values | Decimal (10; 100) |
| Units | Mbit/s |
| Default | 100 |

### ATTRIBUTE Lp Eth100 autoNegotiation

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to select whether or not the port does auto negotiation. The provisionable values of *duplexMode* and *lineSpeed* are ignored if auto negotiation is successful. Refer to the operational attribute *autoNegStatus* for auto negotiation results. |

| | |
|---|---|
| Values | enabled<br>disabled |
| Default | enabled |

### ATTRIBUTE Lp Eth100 applicationFramerName (framer)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute contains the component name of a Framer which is associated with the Eth100BaseT component. This defines which Lan Application will be using this Eth100BaseT interface. |
| Values | Link (Service, interfaceName) |
| Default | No default |

### ATTRIBUTE Lp Eth100 switchoverOnFailure (switch)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies if a FP switchover should occur when a port or link failure is detected by the initial test process or if a steady state link failure is observed. The switchover occurs only if the standby FP's port is operational. This value '***enabled***' specifies that a switchover should take place if a port or link failure is detected. This value '***disabled***' specifies that a switchover should not take place when a port or link failure is detected. |
| Values | enabled<br>disabled |
| Default | disabled |

### ATTRIBUTE Lp Eth100 switchoverHoldoff (soHoldoff)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time interval between detection of a port or link failure and initiation of FP switchover. This attribute is ignored if *switchoverOnFailure* is ***disabled***. The switchover occurs only if the standby FP's port is operational. The attribute gives the customer a choice to have a switchover immediate upon changing cable or hold-off time up to 3 minutes. The default |

| | |
|---|---|
| | value is 0 (no hold-off). Note that a non-zero value will result in outage but will allow the link time to recover before initiating a switchover. |
| Values | Decimal (0..180) |
| Units | seconds |
| Default | 0 |

### GROUP Lp Eth100 AdminInfo (AdminInfo)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attributes pertaining to the vendor of the equipment. |

### ATTRIBUTE Lp Eth100 vendor

| | |
|---|---|
| Access | Read and write |
| Description | This is the name of the vendor supplying the facility. |
| Values | String (0..20, ASCII) |
| Default | No default |

### ATTRIBUTE Lp Eth100 commentText

| | |
|---|---|
| Access | Read and write |
| Description | Any miscellaneous text about the facility. |
| Values | String (0..60, ASCII) |
| Default | No default |

### GROUP Lp Eth100 OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

## ATTRIBUTE Lp Eth100 adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

## ATTRIBUTE Lp Eth100 operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |

| | |
|---|---|
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Lp Eth100 usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Lp Eth100 OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

### ATTRIBUTE Lp Eth100 snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |

| | |
|---|---|
| Values | up<br>down<br>testing |
| Default | up |

### GROUP Lp Eth100 Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the Port operational attributes of the *Eth100BaseT* component. |

### ATTRIBUTE Lp Eth100 macAddress

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the medium access controller (MAC) address. The MAC address is displayed in canonical format. |
| Values | String (6, Dashed Hex) |
| Default | No default |

### ATTRIBUTE Lp Eth100 autoNegStatus

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the status of the auto negotiation at the Phy level. |
| Values | succeeded<br>failed<br>disabled |
| Default | No default |

### ATTRIBUTE Lp Eth100 actualLineSpeed

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the line speed of the Eth100BaseT port. |
| Values | Decimal (10; 100) |
| Units | Mbit/s |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Lp Eth100 actualDuplexMode

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether the hardware is in half duplex or full duplex mode. |
| Values | half<br>full |
| Default | No default |

### ATTRIBUTE Lp Eth100 activeStatus

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the status of the Ethernet port on the active FP. |
| Values | available<br>notavailable |
| Default | No default |

### ATTRIBUTE Lp Eth100 standbyStatus

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the status of the Ethernet port on the standby FP. |
| Values | available<br>notavailable |
| Default | No default |

### GROUP Lp Eth100 Eth100Statistics (Eth100Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the statistical attributes for the *Eth100BaseT* component. |

### ATTRIBUTE Lp Eth100 framesTransmittedOk (frmTxOk)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames which were transmitted without errors. This counter wraps to zero after it reaches its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp Eth100 framesReceivedOk (frmRxOk)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames which were received without errors. This counter wraps to zero after it reaches its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp Eth100 octetsTransmittedOk (octetsTxOk)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of octets which were transmitted without errors. This counter wraps to zero after it reaches its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp Eth100 octetsReceivedOk (octetsRxOk)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of octets which were received without errors. This counter wraps to zero after it reaches its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp Eth100 undersizeFrames (undersizeFrm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames that were received but were less than the minimum size (64 bytes). This counter wraps to zero after it reaches its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp Eth100 receivedOctetsIntoRouterBr (rxOctetsRtrBr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of octets that were not hardware switched but were passed the Router or Bridge software. This counter wraps to zero after it reaches its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp Eth100 receivedFramesIntoRouterBr (rxFrmRtrBr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames which were not hardware switched but were passed to the Router or Bridge software. This counter wraps to zero after it reaches its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Lp Eth100 Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistical attributes for the *Ethernet* component. |

### ATTRIBUTE Lp Eth100 alignmentErrors

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | The *alignmentErrors* counter indicates the number of frames received which were not an integral number of octets in length. Frames will be checked for *alignmentErrors* before they are checked for Frame Check Sequence (FCS) errors. If there is an alignment error, the error will only be counted here and not in *fcsErrors*. This counter wraps around after it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp Eth100 fcsErrors

| | |
|---|---|
| Access | Read only |
| Description | The *fcsErrors*, Frame Check Sequence (FCS) error, counter indicates the number of frames received which were an integral number of octets in length and did not pass the FCS check. This counter wraps around after it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp Eth100 singleCollisionFrames

| | |
|---|---|
| Access | Read only |
| Description | The *singleCollisionFrames* counter indicates the number of frames successfully transmitted which experienced exactly one collision. This counter wraps around after it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp Eth100 multipleCollisionFrames

| | |
|---|---|
| Access | Read only |
| Description | The *multipleCollisionFrames* counter indicates the number of frames successfully transmitted which experienced more than one collision. This counter wraps around after it exceeds its maximum value. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp Eth100 sqeTestErrors

| | |
|---|---|
| Access | Read only |
| Description | The *sqeTestErrors*, Signal Quality Error (SQE) Test errors, counter indicates the number of times the “SQE Test Error” message has been generated for the station. This counter wraps around after it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp Eth100 deferredTransmissions

| | |
|---|---|
| Access | Read only |
| Description | The *deferredTransmissions* counter indicates the number of frames which experienced a transmission delay because the medium was busy. This counter wraps around after it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp Eth100 lateCollisions

| | |
|---|---|
| Access | Read only |
| Description | The *lateCollisions* counter indicates the number of times a collision was detected later than 512 bit-times into the transmission of a packet. This counter wraps around after it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp Eth100 excessiveCollisions

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | The *excessiveCollisions* counter indicates the number of frames which failed to get transmitted due to excessive collisions. This counter wraps around after it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp Eth100 macTransmitErrors

| | |
|---|---|
| Access | Read only |
| Description | The Medium Access Controller (MAC) transmit error counter indicates the number of times that a transmission failed due to internal MAC transmit errors. This counter wraps around after it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp Eth100 carrierSenseErrors

| | |
|---|---|
| Access | Read only |
| Description | The carrier sense error counter indicates the number of times that the carrier sense condition was lost or never asserted when attempting to transmit a frame. This counter wraps around after it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp Eth100 frameTooLongs

| | |
|---|---|
| Access | Read only |
| Description | The frame too long counter indicates the number of frames received which exceeded the maximum frame size. This counter wraps around after it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## ATTRIBUTE Lp Eth100 macReceiveErrors

| | |
|---|---|
| Access | Read only |
| Description | The Medium Access Controller (MAC) receive error counter indicates the number of times a receive failed due to internal MAC receive errors. This counter wraps around after it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## COMPONENT Lp Eth100 LanTest (Lt)

| | |
|---|---|
| Groups | "GROUP Lp Eth100 Lt TestOp (Top)" |
| Scope | Device |
| Description | *Lp/n Fddi/n LanTest*, or<br>*Lp/n Ethernet/n LanTest*, or<br>*Lp/n TokenRing/n LanTest, or*<br>*Lp/n IlsForwarder/n LanTest*<br>The LanTest component is used to control testing on LAN interfaces. This includes LLC layer loopback, on-card loopback, SNMP required tests, and any testing to be done in the lab or manufacturing. |
| Dyn. Subcomp. | "COMPONENT Lp Eth100 Lt FrameCompare (FrmCmp)"<br>"COMPONENT Lp Eth100 Lt FrameCopy (FrmCpy)"<br>"COMPONENT Lp Eth100 Lt PortConfig (PrtCfg)"<br>"COMPONENT Lp Eth100 Lt FrameBuild (Fb)"<br>"COMPONENT Lp Eth100 Lt Control (Cntl)" |
| Common Verbs | Help<br>List<br>Display |

## VERB Start Lp Eth100 Lt

| | |
|---|---|
| Impact | Service |
| Description | This verb is used to start a test as per the attributes set within each subcomponent of LanTest. |

### VERB Stop Lp Eth100 Lt

| | |
|---|---|
| Impact | Service |
| Description | This verb is used to stop a test. |

### VERB Reset Lp Eth100 Lt

| | |
|---|---|
| Impact | Service |
| Description | This verb is used to reset the LanTest component. |

### VERB Get Lp Eth100 Lt

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters for the LanTest component. This includes attributes set using the Set verb. |

### VERB Tlist Lp Eth100 Lt

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to an attribute. |

### GROUP Lp Eth100 Lt TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

### ATTRIBUTE Lp Eth100 Lt tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

### COMPONENT Lp Eth100 Lt FrameCompare (FrmCmp)

| | |
|---|---|
| Groups | "GROUP Lp Eth100 Lt FrmCmp TestOp (Top)" |
| Scope | Device |

| | |
|---|---|
| Description | This component compares frames received from the hardware and emulator during testing. |
| Common Verbs | Help<br>List<br>Display |

### VERB Get Lp Eth100 Lt FrmCmp

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters for the LanTest FrameCompare component. This includes attributes set using the Set verb. |

### VERB Tlist Lp Eth100 Lt FrmCmp

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

### GROUP Lp Eth100 Lt FrmCmp TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

### ATTRIBUTE Lp Eth100 Lt FrmCmp tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

### COMPONENT Lp Eth100 Lt FrameCopy (FrmCpy)

| | |
|---|---|
| Groups | "GROUP Lp Eth100 Lt FrmCpy TestOp (Top)" |
| Scope | Device |

| | |
|---|---|
| Description | This component receives its input from FrameBuild and places it upon the hardware which sends it to the appropriate emulator. |
| Common Verbs | Help<br>List<br>Display |

### VERB Get Lp Eth100 Lt FrmCpy

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters for the LanTest FrameCopy component. This includes attributes set using the Set verb. |

### VERB Tlist Lp Eth100 Lt FrmCpy

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

### GROUP Lp Eth100 Lt FrmCpy TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

### ATTRIBUTE Lp Eth100 Lt FrmCpy tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

### COMPONENT Lp Eth100 Lt PortConfig (PrtCfg)

| | |
|---|---|
| Groups | "GROUP Lp Eth100 Lt PrtCfg TestOp (Top)" |
| Scope | Device |

| | |
|---|---|
| Description | This component controls the emulator and hardware to ensure frames output from each will match in FrameCompare. |
| Common Verbs | Help<br>List<br>Display |

### VERB Get Lp Eth100 Lt PrtCfg

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters for the LanTest PortConfig component. This includes attributes set using the Set verb. |

### VERB Tlist Lp Eth100 Lt PrtCfg

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

### GROUP Lp Eth100 Lt PrtCfg TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

### ATTRIBUTE Lp Eth100 Lt PrtCfg tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

### COMPONENT Lp Eth100 Lt FrameBuild (Fb)

| | |
|---|---|
| Groups | "GROUP Lp Eth100 Lt Fb TestOp (Top)" |
| Scope | Device |
| Description | LanTest Framebuild<br>This component controls the building of all frames built and sent |

by the LanTest component. Each component under FrameBuild builds a portion of a packet or frame.

Dyn. Subcomp.

"COMPONENT Lp Eth100 Lt Fb TransmitInfo (TxInfo)"
"COMPONENT Lp Eth100 Lt Fb FddiMac (MacFddi)"
"COMPONENT Lp Eth100 Lt Fb EthernetMac (MacEnet)"
"COMPONENT Lp Eth100 Lt Fb TokenRingMac (MacTr)"
"COMPONENT Lp Eth100 Lt Fb DataField (Data)"
"COMPONENT Lp Eth100 Lt Fb IpHeader (IpH)"
"COMPONENT Lp Eth100 Lt Fb LlcHeader (Llch)"
"COMPONENT Lp Eth100 Lt Fb AppleHeader (AppleH)"
"COMPONENT Lp Eth100 Lt Fb IpxHeader (IpxH)"

Common Verbs

Help
List
Display

### VERB Get Lp Eth100 Lt Fb

Impact: Passive

Description: This verb is used to get and display operational parameters for the LanTest FrameBuild component. This includes attributes set using the Set verb.

### VERB Tlist Lp Eth100 Lt Fb

Impact: Passive

Description: This verb is used to display the list of arguments to a component.

### GROUP Lp Eth100 Lt Fb TestOp (Top)

Properties: Operational

Description: This group contains the operational data for the LanTest component and its subcomponents.

### ATTRIBUTE Lp Eth100 Lt Fb tData (td)

Access: Read and write

Description: This attribute is used to display and set attributes.

Values: String (0..255, ASCII)

| | |
|---|---|
| Default | No default |

### COMPONENT Lp Eth100 Lt Fb TransmitInfo (TxInfo)

| | |
|---|---|
| Groups | "GROUP Lp Eth100 Lt Fb TxInfo TestOp (Top)" |
| Scope | Device |
| Description | LanTest TransmitInfo<br>This component builds a transmit header which is attached to all frames transmitted on LAN interfaces. |
| Common Verbs | Help<br>List<br>Display |

### VERB Get Lp Eth100 Lt Fb TxInfo

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters for the LanTest TransmitInfo component. This includes attributes set using the Set verb. |

### VERB Tlist Lp Eth100 Lt Fb TxInfo

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

### GROUP Lp Eth100 Lt Fb TxInfo TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

### ATTRIBUTE Lp Eth100 Lt Fb TxInfo tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

## COMPONENT Lp Eth100 Lt Fb FddiMac (MacFddi)

| | |
|---|---|
| Groups | "GROUP Lp Eth100 Lt Fb MacFddi TestOp (Top)" |
| Scope | Device |
| Description | LanTest FddiMac<br>This component builds an FDDI MAC header which is attached to all FDDI frames. |
| Common Verbs | Help<br>List<br>Display |

### VERB Get Lp Eth100 Lt Fb MacFddi

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters for the LanTest FddiMac component. This includes attributes set using the Set verb. |

### VERB Tlist Lp Eth100 Lt Fb MacFddi

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

### GROUP Lp Eth100 Lt Fb MacFddi TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

### ATTRIBUTE Lp Eth100 Lt Fb MacFddi tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

## COMPONENT Lp Eth100 Lt Fb EthernetMac (MacEnet)

| | |
|---|---|
| Groups | "GROUP Lp Eth100 Lt Fb MacEnet TestOp (Top)" |
| Scope | Device |
| Description | LanTest EthernetMac<br>This component builds an Ethernet MAC header which is attached to all Ethernet frames. |
| Common Verbs | Help<br>List<br>Display |

### VERB Get Lp Eth100 Lt Fb MacEnet

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters LanTest EthernetMac component. This includes attributes set using the Set verb. |

### VERB Tlist Lp Eth100 Lt Fb MacEnet

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

### GROUP Lp Eth100 Lt Fb MacEnet TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

### ATTRIBUTE Lp Eth100 Lt Fb MacEnet tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

## COMPONENT Lp Eth100 Lt Fb TokenRingMac (MacTr)

| | |
|---|---|
| Groups | "GROUP Lp Eth100 Lt Fb MacTr TestOp (Top)" |
| Scope | Device |
| Description | LanTest TokenRingMac<br>This component builds a Token Ring MAC header which is attached to all Token Ring frames. |
| Common Verbs | Help<br>List<br>Display |

### VERB Get Lp Eth100 Lt Fb MacTr

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters for the LanTest TokenRingMac component. This includes attributes set using the Set verb. |

### VERB Tlist Lp Eth100 Lt Fb MacTr

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

### GROUP Lp Eth100 Lt Fb MacTr TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

### ATTRIBUTE Lp Eth100 Lt Fb MacTr tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

## COMPONENT Lp Eth100 Lt Fb DataField (Data)

| | |
|---|---|
| Groups | "GROUP Lp Eth100 Lt Fb Data TestOp (Top)" |
| Scope | Device |
| Description | This component adds a data field to frame. |
| Common Verbs | Help<br>List<br>Display |

## VERB Get Lp Eth100 Lt Fb Data

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters for the LanTest DataField component. This includes attributes set using the Set verb. |

## VERB Tlist Lp Eth100 Lt Fb Data

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

## GROUP Lp Eth100 Lt Fb Data TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

## ATTRIBUTE Lp Eth100 Lt Fb Data tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

## COMPONENT Lp Eth100 Lt Fb IpHeader (IpH)

| | |
|---|---|
| Groups | "GROUP Lp Eth100 Lt Fb IpH TestOp (Top)" |
| Scope | Device |

| | |
|---|---|
| Description | LanTest IpHeader<br>This component adds an IP header to a frame or packet. |
| Common Verbs | Help<br>List<br>Display |

### VERB Get Lp Eth100 Lt Fb IpH

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters for the LanTest IpHeader component. This includes attributes set using the Set verb. |

### VERB Tlist Lp Eth100 Lt Fb IpH

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

### GROUP Lp Eth100 Lt Fb IpH TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

### ATTRIBUTE Lp Eth100 Lt Fb IpH tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

### COMPONENT Lp Eth100 Lt Fb LlcHeader (Llch)

| | |
|---|---|
| Groups | "GROUP Lp Eth100 Lt Fb Llch TestOp (Top)" |
| Scope | Device |

| | |
|---|---|
| Description | LanTest LlcHeader<br>This component adds an LLC 802.2 or Ethernet header to a frame or packet. |
| Common Verbs | Help<br>List<br>Display |

### VERB Get Lp Eth100 Lt Fb Llch

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters for the LanTest LlcHeader component. This includes attributes set using the SET verb. |

### VERB Tlist Lp Eth100 Lt Fb Llch

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

### GROUP Lp Eth100 Lt Fb Llch TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

### ATTRIBUTE Lp Eth100 Lt Fb Llch tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

### COMPONENT Lp Eth100 Lt Fb AppleHeader (AppleH)

| | |
|---|---|
| Groups | "GROUP Lp Eth100 Lt Fb AppleH TestOp (Top)" |
| Scope | Device |

| | |
|---|---|
| Description | This component adds an AppleTalk header to a frame or packet. |
| Common Verbs | Help<br>List<br>Display |

### VERB Get Lp Eth100 Lt Fb AppleH

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters for the LanTest AppleHeader component. This includes attributes set using the Set verb. |

### VERB Tlist Lp Eth100 Lt Fb AppleH

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

### GROUP Lp Eth100 Lt Fb AppleH TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

### ATTRIBUTE Lp Eth100 Lt Fb AppleH tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

### COMPONENT Lp Eth100 Lt Fb IpxHeader (IpxH)

| | |
|---|---|
| Groups | "GROUP Lp Eth100 Lt Fb IpxH TestOp (Top)" |
| Scope | Device |

| | |
|---|---|
| Description | This component adds an IPX header to a frame or packet. |
| Common Verbs | Help<br>List<br>Display |

### VERB Get Lp Eth100 Lt Fb IpxH

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters forLanTest IpxHeader component. This includes attributes set using the Set verb. |

### VERB Tlist Lp Eth100 Lt Fb IpxH

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

### GROUP Lp Eth100 Lt Fb IpxH TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

### ATTRIBUTE Lp Eth100 Lt Fb IpxH tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

### COMPONENT Lp Eth100 Lt Control (Cntl)

| | |
|---|---|
| Groups | "GROUP Lp Eth100 Lt Cntl TestOp (Top)" |
| Scope | Device |
| Description | LanTest Control<br>This component controls the overall testing by telling the |

FrameBuild component to start and check the FrameCompare component to see if the test is complete.

Common Verbs

Help
List
Display

### VERB Get Lp Eth100 Lt Cntl

Impact: Passive

Description: This verb is used to get and display operational parameters for the LanTest Control component. This includes attributes set using the Set verb.

### VERB Tlist Lp Eth100 Lt Cntl

Impact: Passive

Description: This verb is used to display the list of arguments to a component.

### GROUP Lp Eth100 Lt Cntl TestOp (Top)

Properties: Operational

Description: This group contains the operational data for the LanTest component and its subcomponents.

### ATTRIBUTE Lp Eth100 Lt Cntl tData (td)

Access: Read and write

Description: This attribute is used to display and set attributes.

Values: String (0..255, ASCII)

Default: No default

### COMPONENT Lp Eth100 Test

Groups: "GROUP Lp Eth100 Test PortTestOp (PTO)"
"GROUP Lp Eth100 Test Results (Results)"

Scope: Device

| | |
|---|---|
| Description | *Lp/n Fddi/n Test*, or<br>*Lp/n Ethernet/n Test*, or<br>*Lp/n TokenRing/n Test, or*<br>*Lp/n IlsForwarder/n Test*<br>The Test component is used to do StartUp port test for LAN cards. |
| Common Verbs | Help<br>List<br>Display |

### VERB Start Lp Eth100 Test

| | |
|---|---|
| Impact | Service |
| Description | This verb is used to start a test as per the attributes set within each subcomponent of Test. |

### VERB Stop Lp Eth100 Test

| | |
|---|---|
| Impact | Service |
| Description | This verb is used to stop a test. |

### VERB Reset Lp Eth100 Test

| | |
|---|---|
| Impact | Service |
| Description | This verb is used to reset the Test component. |

### GROUP Lp Eth100 Test PortTestOp (PTO)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanPortTest component. |

### ATTRIBUTE Lp Eth100 Test type (type)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the type of test to be run. The available test types include the following: card test sets up an internal loop on the board and runs a bit error rate test; manual test assumes the line is looped back externally and a bit error rate test is performed; |

| | |
|---|---|
| | localLoop test loops back the local modem and performs a bit error rate test; remoteLoop test loops back the remote modem (or CSU) and performs a bit error rate test; externalLoop test loops back the line to the far end; payloadLoop test only loops back the payload data received from the incoming line; Note that localLoop, remoteLoop and payloadLoop are not supported by all function processors. |
| Values | onCard<br>normal<br>wrapA<br>wrapB<br>thruA<br>thruB<br>extWrapA<br>extWrapB<br>extThruA<br>extThruB<br>extWrapAB<br>extWrapBA |
| Default | No default |

### ATTRIBUTE Lp Eth100 Test frmSize (size)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the size of the test data frames in number of bytes. |
| Values | Decimal (4..4096) |
| Units | bytes |
| Default | 1024 |

### ATTRIBUTE Lp Eth100 Test duration (duration)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the duration (in minutes) that test data will be transmitted. In the case of an externalLoop, this is the time that the loop is in effect. Note that dataStartDelay does not apply to the externalLoop. |

| | |
|---|---|
| Values | Decimal (1..30240) |
| Units | minutes |
| Default | 1 |

### GROUP Lp Eth100 Test Results (Results)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all the statistics related attributes of the Test component. |

### ATTRIBUTE Lp Eth100 Test elapsedTime

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the number of minutes elapsed since the test started for an externalLoop test. For a data test, this is the time since test data was first transmitted. |
| Values | Decimal (0..4294967295) |
| Units | minutes |
| Default | 0 |

### ATTRIBUTE Lp Eth100 Test timeRemaining

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the number of minutes remaining before the test is to be stopped according to the duration attribute. |
| Values | Decimal (0..4294967295) |
| Units | minutes |
| Default | 0 |

### ATTRIBUTE Lp Eth100 Test causeOfTermination

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the reason the test is terminated. |
| Values | testTimeExpired<br>stoppedByOperator |

| | |
|---|---|
| | unknown<br>neverStarted<br>testRunning |
| Default | neverStarted |

### ATTRIBUTE Lp Eth100 Test frmTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of frames sent during the test period. This counter is not expected to reach its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Eth100 Test bitsTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of bits sent during the test period. This counter is not expected to reach its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Eth100 Test frmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of frames received during the test period. This counter is not expected to reach its maximum value. The counter will wrap around to 0 if it does reach its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Eth100 Test bitsRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of bits received during the test period. This counter is not expected to reach its maximum value. |

| | |
|---|---|
| | The counter will wrap around to 0 if it does reach its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Eth100 Test erroredFrmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of errored frames received during the test period. This counter is not expected to reach its maximum value. The counter will wrap around to 0 if it does reach its maximum value. |
| Values | Long Integer |
| Default | No default |

### COMPONENT Lp OamEthernet (OamEnet)

| | |
|---|---|
| Instance | Decimal (0..0) |
| Groups | "GROUP Lp OamEnet CustomerIdentifierData (CidData)"<br>"GROUP Lp OamEnet IfEntryProv (IfEntry)"<br>"GROUP Lp OamEnet Provisioned (Prov)"<br>"GROUP Lp OamEnet AdminInfo (AdminInfo)"<br>"GROUP Lp OamEnet OsiState (State)"<br>"GROUP Lp OamEnet OperationalStatus (OperStatus)"<br>"GROUP Lp OamEnet Operational (Oper)"<br>"GROUP Lp OamEnet OamEnetStatistics (OamEnetStats)"<br>"GROUP Lp OamEnet Statistics (Stats)" |
| Scope | Device |
| Description | Lp/0 OamEthernet<br>This component represents an Ethernet port on the control processor. Only one instance of this component may be created corresponding to the one hardware port on the control processor. This port is designed specifically and exclusively for Passport Operations, Administration and Maintenance purposes; any other use of this port is unsupported and not advised. |

| | |
|---|---|
| Dyn. Subcomp. | "COMPONENT Lp OamEnet LanTest (Lt)"<br>"COMPONENT Lp OamEnet Test" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>Unlock |

## VERB LOCK Lp OamEnet

| | |
|---|---|
| Impact | Service |
| Description | *Lock [-force] [-forever] <component name>*<br>This verb causes the *OamEthernet* component to first enter the OSI shuttingDown state. In this state all connections to the OAM Ethernet port are severed and any new connections are not accepted. Once shuttingDown state is reached the OSI state will change to locked. When the port is locked it can be tested using the *Test* component.<br><br>The default behavior for this verb is for the port to remain locked for a period of five minutes before automatically unlocking. This behavior can be overridden with the forever option.<br><br>Options:<br>-force<br>If this option is present, service to current clients is terminated and the locked state is entered immediately (that is, without first going through the shuttingDown state). Without this option, *Lock* behaves as described above.<br>-forever<br>If this option is present, then after the locked state is entered an *Unlock* command is required to get the service into the unlocked state. |

### GROUP Lp OamEnet CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

### ATTRIBUTE Lp OamEnet customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.<br><br>Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.<br><br>An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to "basic CIDs" in DPN) may be assigned to specific customers. |
| Values | Decimal (0; 1..8191) |
| Default | 0 |

### GROUP Lp OamEnet IfEntryProv (IfEntry)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the ifEntry. |

### ATTRIBUTE Lp OamEnet ifAdminStatus (ifState)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE Lp OamEnet ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP Lp OamEnet Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisioned attributes for the *OamEthernet* component. |

### ATTRIBUTE Lp OamEnet applicationFramerName (framer)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies which *Lan Application* is running on this port. |
| Values | Link (Service, interfaceName) |
| Default | No default |

## ATTRIBUTE Lp OamEnet switchoverOnFailure (switch)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies if a CP switchover should occur if a port or link failure is detected by the initial test process or if a steady state link failure is observed. The switchover will occur only if the standby CP's port is operational.<br><br>This attribute can be set to one of the following values:<br>***enabled***: This value indicates that a switchover will take place if a port or link failure is detected.<br><br>***disabled***: This value indicates that a switchover will not take place if a port or link failure is detected. |
| Values | enabled<br>disabled |
| Default | enabled |

## ATTRIBUTE Lp OamEnet extendedStatistics (extStats)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies if extended statistics are to be collected for the *OamEthernet* component.<br><br>The extended statistics include: *singleCollisionFrames*, *multipleCollisionFrames*, *lateCollisions*, *excessiveCollisions*, *carrierSenseErrors*, and *clearToSendSignalLoss*. These statistics all require extra processing to gather and store which may have a negative impact on the overall performance of the OAM Ethernet port.<br><br>If *extendedStatistics* is set to disabled, then these particular statistical attributes will be suppressed from display operations. |
| Values | enabled<br>disabled |
| Default | disabled |

### ATTRIBUTE Lp OamEnet lineSpeed

| | |
|---|---|
| Access | Read and write |
| Description | This attribute sets the operating speed for the OAM Ethernet port. The operating speed is either tenMeg, hundredMeg or autoConfig. If the attribute is set to autoConfig then the operating speed is determined by the autoNegotiation process. The actual line speed will then be displayed by the operational attribute, actualLineSpeed. |
| Values | tenMeg<br>hundredMeg<br>autoConfig |
| Default | autoConfig |

### ATTRIBUTE Lp OamEnet duplexMode

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the duplex mode for the OAM Ethernet port. The duplex mode is either half, full or autoConfig. If the attribute is set to autoConfig then the duplex mode determined by the autoNegitiation process. The actual duplex mode will then be displayed by the operational attribute, actualDuplexMode. |
| Values | half<br>full<br>autoConfig |
| Default | autoConfig |

### ATTRIBUTE Lp OamEnet switchoverHoldoff (soHoldoff)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time interval between detection of a port or link failure and initiation of CP switchover. This attribute is ignored if *switchoverOnFailure* is ***disabled***. The switchover will occur only if the standby CP's port is operational. |
| Values | Decimal (10..60) |
| Units | seconds |

| | |
|---|---|
| Default | 30 |

### GROUP Lp OamEnet AdminInfo (AdminInfo)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attributes pertaining to the vendor of the equipment. |

### ATTRIBUTE Lp OamEnet vendor

| | |
|---|---|
| Access | Read and write |
| Description | This is the name of the vendor supplying the facility. |
| Values | String (0..20, ASCII) |
| Default | No default |

### ATTRIBUTE Lp OamEnet commentText

| | |
|---|---|
| Access | Read and write |
| Description | Any miscellaneous text about the facility. |
| Values | String (0..60, ASCII) |
| Default | No default |

### GROUP Lp OamEnet OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Lp OamEnet adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component. |

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Lp OamEnet operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Lp OamEnet usageState (osiUsage)

Access
Read only

| | |
|---|---|
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Lp OamEnet OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

### ATTRIBUTE Lp OamEnet snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### GROUP Lp OamEnet Operational (Oper)

| | |
|---|---|
| Properties | Operational |

| | |
|---|---|
| Description | This group contains the operational attributes of the *OamEthernet* component. |

### ATTRIBUTE Lp OamEnet macAddress

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the medium access controller (MAC) address automatically assigned to the *Oam Ethernet* port by the system. The MAC address is displayed in canonical format. |
| Values | String (6, Dashed Hex) |
| Default | No default |

### ATTRIBUTE Lp OamEnet activeStatus

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the status of the *Oam Ethernet* port on the active CP. |
| Values | available<br>notAvailable |
| Default | No default |

### ATTRIBUTE Lp OamEnet standbyStatus

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the status of the *Oam Ethernet* port on the standby CP. |
| Values | available<br>notAvailable |
| Default | No default |

### ATTRIBUTE Lp OamEnet actualLineSpeed

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the actual line speed of the *Oam Ethernet* port. |
| Values | Decimal (10; 100) |

| | |
|---|---|
| Units | Mbit/s |
| Default | No default |

### ATTRIBUTE Lp OamEnet actualDuplexMode

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the actual duplex mode of operation, half or full. |
| Values | half<br>full |
| Default | No default |

### GROUP Lp OamEnet OamEnetStatistics (OamEnetStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistical attributes for the *OamEthernet* component. |

### ATTRIBUTE Lp OamEnet clearToSendSignalLoss

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of times that the clear to send signal was lost when attempting to transmit a frame. This counter wraps to zero when it exceeds its maximum value.<br><br>This attribute is only active if the *extendedStatistics* attribute is enabled. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp OamEnet frameTooShort

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of frames received whose length is less than the allowed minimum frame length. This counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Lp OamEnet numberOfRxCollisions

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of collisions detected during reception. This counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp OamEnet lackOfResourcesDiscards

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of good frames discarded because of a lack of resources available to contain them on the system. This counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp OamEnet overrunErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of frames known to be lost because the local system bus was not available. This counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Lp OamEnet Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistical attributes for the *Ethernet* component. |

### ATTRIBUTE Lp OamEnet alignmentErrors

| | |
|---|---|
| Access | Read only |
| Description | The *alignmentErrors* counter indicates the number of frames received which were not an integral number of octets in length. Frames will be checked for *alignmentErrors* before they are checked for Frame Check Sequence (FCS) errors. If there is an alignment error, the error will only be counted here and not in *fcsErrors*. This counter wraps around after it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp OamEnet fcsErrors

| | |
|---|---|
| Access | Read only |
| Description | The *fcsErrors*, Frame Check Sequence (FCS) error, counter indicates the number of frames received which were an integral number of octets in length and did not pass the FCS check. This counter wraps around after it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp OamEnet singleCollisionFrames

| | |
|---|---|
| Access | Read only |
| Description | The *singleCollisionFrames* counter indicates the number of frames successfully transmitted which experienced exactly one collision. This counter wraps around after it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp OamEnet multipleCollisionFrames

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | The *multipleCollisionFrames* counter indicates the number of frames successfully transmitted which experienced more than one collision. This counter wraps around after it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp OamEnet sqeTestErrors

| | |
|---|---|
| Access | Read only |
| Description | The *sqeTestErrors*, Signal Quality Error (SQE) Test errors, counter indicates the number of times the “SQE Test Error” message has been generated for the station. This counter wraps around after it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp OamEnet deferredTransmissions

| | |
|---|---|
| Access | Read only |
| Description | The *deferredTransmissions* counter indicates the number of frames which experienced a transmission delay because the medium was busy. This counter wraps around after it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp OamEnet lateCollisions

| | |
|---|---|
| Access | Read only |
| Description | The *lateCollisions* counter indicates the number of times a collision was detected later than 512 bit-times into the transmission of a packet. This counter wraps around after it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Lp OamEnet excessiveCollisions

| | |
|---|---|
| Access | Read only |
| Description | The *excessiveCollisions* counter indicates the number of frames which failed to get transmitted due to excessive collisions. This counter wraps around after it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp OamEnet macTransmitErrors

| | |
|---|---|
| Access | Read only |
| Description | The Medium Access Controller (MAC) transmit error counter indicates the number of times that a transmission failed due to internal MAC transmit errors. This counter wraps around after it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp OamEnet carrierSenseErrors

| | |
|---|---|
| Access | Read only |
| Description | The carrier sense error counter indicates the number of times that the carrier sense condition was lost or never asserted when attempting to transmit a frame. This counter wraps around after it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp OamEnet frameTooLongs

| | |
|---|---|
| Access | Read only |
| Description | The frame too long counter indicates the number of frames received which exceeded the maximum frame size. This counter wraps around after it exceeds its maximum value. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp OamEnet macReceiveErrors

| | |
|---|---|
| Access | Read only |
| Description | The Medium Access Controller (MAC) receive error counter indicates the number of times a receive failed due to internal MAC receive errors. This counter wraps around after it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT Lp OamEnet LanTest (Lt)

| | |
|---|---|
| Groups | "GROUP Lp OamEnet Lt TestOp (Top)" |
| Scope | Device |
| Description | *Lp/n Fddi/n LanTest*, or<br>*Lp/n Ethernet/n LanTest*, or<br>*Lp/n TokenRing/n LanTest, or*<br>*Lp/n IlsForwarder/n LanTest*<br>The LanTest component is used to control testing on LAN interfaces. This includes LLC layer loopback, on-card loopback, SNMP required tests, and any testing to be done in the lab or manufacturing. |
| Dyn. Subcomp. | "COMPONENT Lp OamEnet Lt FrameCompare (FrmCmp)"<br>"COMPONENT Lp OamEnet Lt FrameCopy (FrmCpy)"<br>"COMPONENT Lp OamEnet Lt PortConfig (PrtCfg)"<br>"COMPONENT Lp OamEnet Lt FrameBuild (Fb)"<br>"COMPONENT Lp OamEnet Lt Control (Cntl)" |
| Common Verbs | Help<br>List<br>Display |

### VERB Start Lp OamEnet Lt

| | |
|---|---|
| Impact | Service |
| Description | This verb is used to start a test as per the attributes set within each subcomponent of LanTest. |

### VERB Stop Lp OamEnet Lt

| | |
|---|---|
| Impact | Service |
| Description | This verb is used to stop a test. |

### VERB Reset Lp OamEnet Lt

| | |
|---|---|
| Impact | Service |
| Description | This verb is used to reset the LanTest component. |

### VERB Get Lp OamEnet Lt

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters for the LanTest component. This includes attributes set using the Set verb. |

### VERB Tlist Lp OamEnet Lt

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to an attribute. |

### GROUP Lp OamEnet Lt TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

### ATTRIBUTE Lp OamEnet Lt tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |

| | |
|---|---|
| Default | No default |

### COMPONENT Lp OamEnet Lt FrameCompare (FrmCmp)

| | |
|---|---|
| Groups | "GROUP Lp OamEnet Lt FrmCmp TestOp (Top)" |
| Scope | Device |
| Description | This component compares frames received from the hardware and emulator during testing. |
| Common Verbs | Help<br>List<br>Display |

### VERB Get Lp OamEnet Lt FrmCmp

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters for the LanTest FrameCompare component. This includes attributes set using the Set verb. |

### VERB Tlist Lp OamEnet Lt FrmCmp

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

### GROUP Lp OamEnet Lt FrmCmp TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

### ATTRIBUTE Lp OamEnet Lt FrmCmp tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

## COMPONENT Lp OamEnet Lt FrameCopy (FrmCpy)

| | |
|---|---|
| Groups | "GROUP Lp OamEnet Lt FrmCpy TestOp (Top)" |
| Scope | Device |
| Description | This component receives its input from FrameBuild and places it upon the hardware which sends it to the appropriate emulator. |
| Common Verbs | Help<br>List<br>Display |

## VERB Get Lp OamEnet Lt FrmCpy

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters for the LanTest FrameCopy component. This includes attributes set using the Set verb. |

## VERB Tlist Lp OamEnet Lt FrmCpy

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

## GROUP Lp OamEnet Lt FrmCpy TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

## ATTRIBUTE Lp OamEnet Lt FrmCpy tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

## COMPONENT Lp OamEnet Lt PortConfig (PrtCfg)

| | |
|---|---|
| Groups | "GROUP Lp OamEnet Lt PrtCfg TestOp (Top)" |

| | |
|---|---|
| Scope | Device |
| Description | This component controls the emulator and hardware to ensure frames output from each will match in FrameCompare. |
| Common Verbs | Help<br>List<br>Display |

### VERB Get Lp OamEnet Lt PrtCfg

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters for the LanTest PortConfig component. This includes attributes set using the Set verb. |

### VERB Tlist Lp OamEnet Lt PrtCfg

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

### GROUP Lp OamEnet Lt PrtCfg TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

### ATTRIBUTE Lp OamEnet Lt PrtCfg tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

### COMPONENT Lp OamEnet Lt FrameBuild (Fb)

| | |
|---|---|
| Groups | "GROUP Lp OamEnet Lt Fb TestOp (Top)" |
| Scope | Device |

| | |
|---|---|
| Description | LanTest Framebuild<br>This component controls the building of all frames built and sent by the LanTest component. Each component under FrameBuild builds a portion of a packet or frame. |
| Dyn. Subcomp. | "COMPONENT Lp OamEnet Lt Fb TransmitInfo (TxInfo)"<br>"COMPONENT Lp OamEnet Lt Fb FddiMac (MacFddi)"<br>"COMPONENT Lp OamEnet Lt Fb EthernetMac (MacEnet)"<br>"COMPONENT Lp OamEnet Lt Fb TokenRingMac (MacTr)"<br>"COMPONENT Lp OamEnet Lt Fb DataField (Data)"<br>"COMPONENT Lp OamEnet Lt Fb IpHeader (IpH)"<br>"COMPONENT Lp OamEnet Lt Fb LlcHeader (Llch)"<br>"COMPONENT Lp OamEnet Lt Fb AppleHeader (AppleH)"<br>"COMPONENT Lp OamEnet Lt Fb IpxHeader (IpxH)" |
| Common Verbs | Help<br>List<br>Display |

### VERB Get Lp OamEnet Lt Fb

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters for the LanTest FrameBuild component. This includes attributes set using the Set verb. |

### VERB Tlist Lp OamEnet Lt Fb

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

### GROUP Lp OamEnet Lt Fb TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

### ATTRIBUTE Lp OamEnet Lt Fb tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |

| | |
|---|---|
| Values | String (0..255, ASCII) |
| Default | No default |

### COMPONENT Lp OamEnet Lt Fb TransmitInfo (TxInfo)

| | |
|---|---|
| Groups | "GROUP Lp OamEnet Lt Fb TxInfo TestOp (Top)" |
| Scope | Device |
| Description | LanTest TransmitInfo<br>This component builds a transmit header which is attached to all frames transmitted on LAN interfaces. |
| Common Verbs | Help<br>List<br>Display |

### VERB Get Lp OamEnet Lt Fb TxInfo

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters for the LanTest TransmitInfo component. This includes attributes set using the Set verb. |

### VERB Tlist Lp OamEnet Lt Fb TxInfo

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

### GROUP Lp OamEnet Lt Fb TxInfo TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

### ATTRIBUTE Lp OamEnet Lt Fb TxInfo tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |

| | |
|---|---|
| Default | No default |

## COMPONENT Lp OamEnet Lt Fb FddiMac (MacFddi)

| | |
|---|---|
| Groups | "GROUP Lp OamEnet Lt Fb MacFddi TestOp (Top)" |
| Scope | Device |
| Description | LanTest FddiMac<br>This component builds an FDDI MAC header which is attached to all FDDI frames. |
| Common Verbs | Help<br>List<br>Display |

## VERB Get Lp OamEnet Lt Fb MacFddi

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters for the LanTest FddiMac component. This includes attributes set using the Set verb. |

## VERB Tlist Lp OamEnet Lt Fb MacFddi

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

## GROUP Lp OamEnet Lt Fb MacFddi TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

## ATTRIBUTE Lp OamEnet Lt Fb MacFddi tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

## COMPONENT Lp OamEnet Lt Fb EthernetMac (MacEnet)

| | |
|---|---|
| Groups | "GROUP Lp OamEnet Lt Fb MacEnet TestOp (Top)" |
| Scope | Device |
| Description | LanTest EthernetMac<br>This component builds an Ethernet MAC header which is attached to all Ethernet frames. |
| Common Verbs | Help<br>List<br>Display |

### VERB Get Lp OamEnet Lt Fb MacEnet

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters LanTest EthernetMac component. This includes attributes set using the Set verb. |

### VERB Tlist Lp OamEnet Lt Fb MacEnet

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

### GROUP Lp OamEnet Lt Fb MacEnet TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

### ATTRIBUTE Lp OamEnet Lt Fb MacEnet tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

## COMPONENT Lp OamEnet Lt Fb TokenRingMac (MacTr)

| | |
|---|---|
| Groups | "GROUP Lp OamEnet Lt Fb MacTr TestOp (Top)" |
| Scope | Device |
| Description | LanTest TokenRingMac<br>This component builds a Token Ring MAC header which is attached to all Token Ring frames. |
| Common Verbs | Help<br>List<br>Display |

### VERB Get Lp OamEnet Lt Fb MacTr

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters for the LanTest TokenRingMac component. This includes attributes set using the Set verb. |

### VERB Tlist Lp OamEnet Lt Fb MacTr

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

### GROUP Lp OamEnet Lt Fb MacTr TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

### ATTRIBUTE Lp OamEnet Lt Fb MacTr tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

## COMPONENT Lp OamEnet Lt Fb DataField (Data)

| | |
|---|---|
| Groups | "GROUP Lp OamEnet Lt Fb Data TestOp (Top)" |
| Scope | Device |
| Description | This component adds a data field to frame. |
| Common Verbs | Help<br>List<br>Display |

## VERB Get Lp OamEnet Lt Fb Data

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters for the LanTest DataField component. This includes attributes set using the Set verb. |

## VERB Tlist Lp OamEnet Lt Fb Data

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

## GROUP Lp OamEnet Lt Fb Data TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

## ATTRIBUTE Lp OamEnet Lt Fb Data tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

## COMPONENT Lp OamEnet Lt Fb IpHeader (IpH)

| | |
|---|---|
| Groups | "GROUP Lp OamEnet Lt Fb IpH TestOp (Top)" |
| Scope | Device |

| | |
|---|---|
| Description | LanTest IpHeader<br>This component adds an IP header to a frame or packet. |
| Common Verbs | Help<br>List<br>Display |

### VERB Get Lp OamEnet Lt Fb IpH

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters for the LanTest IpHeader component. This includes attributes set using the Set verb. |

### VERB Tlist Lp OamEnet Lt Fb IpH

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

### GROUP Lp OamEnet Lt Fb IpH TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

### ATTRIBUTE Lp OamEnet Lt Fb IpH tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

### COMPONENT Lp OamEnet Lt Fb LlcHeader (Llch)

| | |
|---|---|
| Groups | "GROUP Lp OamEnet Lt Fb Llch TestOp (Top)" |
| Scope | Device |

| | |
|---|---|
| Description | LanTest LlcHeader<br>This component adds an LLC 802.2 or Ethernet header to a frame or packet. |
| Common Verbs | Help<br>List<br>Display |

### VERB Get Lp OamEnet Lt Fb Llch

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters for the LanTest LlcHeader component. This includes attributes set using the SET verb. |

### VERB Tlist Lp OamEnet Lt Fb Llch

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

### GROUP Lp OamEnet Lt Fb Llch TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

### ATTRIBUTE Lp OamEnet Lt Fb Llch tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

### COMPONENT Lp OamEnet Lt Fb AppleHeader (AppleH)

| | |
|---|---|
| Groups | "GROUP Lp OamEnet Lt Fb AppleH TestOp (Top)" |
| Scope | Device |

| | |
|---|---|
| Description | This component adds an AppleTalk header to a frame or packet. |
| Common Verbs | Help<br>List<br>Display |

### VERB Get Lp OamEnet Lt Fb AppleH

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters for the LanTest AppleHeader component. This includes attributes set using the Set verb. |

### VERB Tlist Lp OamEnet Lt Fb AppleH

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

### GROUP Lp OamEnet Lt Fb AppleH TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

### ATTRIBUTE Lp OamEnet Lt Fb AppleH tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

### COMPONENT Lp OamEnet Lt Fb IpxHeader (IpxH)

| | |
|---|---|
| Groups | "GROUP Lp OamEnet Lt Fb IpxH TestOp (Top)" |
| Scope | Device |

| | |
|---|---|
| Description | This component adds an IPX header to a frame or packet. |
| Common Verbs | Help<br>List<br>Display |

### VERB Get Lp OamEnet Lt Fb IpxH

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters forLanTest IpxHeader component. This includes attributes set using the Set verb. |

### VERB Tlist Lp OamEnet Lt Fb IpxH

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

### GROUP Lp OamEnet Lt Fb IpxH TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

### ATTRIBUTE Lp OamEnet Lt Fb IpxH tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

### COMPONENT Lp OamEnet Lt Control (Cntl)

| | |
|---|---|
| Groups | "GROUP Lp OamEnet Lt Cntl TestOp (Top)" |
| Scope | Device |
| Description | LanTest Control<br>This component controls the overall testing by telling the FrameBuild component to start and check the FrameCompare |

component to see if the test is complete.

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display |

### VERB Get Lp OamEnet Lt Cntl

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to get and display operational parameters for the LanTest Control component. This includes attributes set using the Set verb. |

### VERB Tlist Lp OamEnet Lt Cntl

| | |
|---|---|
| Impact | Passive |
| Description | This verb is used to display the list of arguments to a component. |

### GROUP Lp OamEnet Lt Cntl TestOp (Top)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the LanTest component and its subcomponents. |

### ATTRIBUTE Lp OamEnet Lt Cntl tData (td)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to display and set attributes. |
| Values | String (0..255, ASCII) |
| Default | No default |

### COMPONENT Lp OamEnet Test

| | |
|---|---|
| Groups | "GROUP Lp OamEnet Test Operational (Oper)"<br>"GROUP Lp OamEnet Test Results" |
| Scope | Device |

Description — Lp/0 OamEthernet Test
The *Test* component appears only for 10BaseT OAM Ethernet ports on the CP. It is used to run the port test for the OAM Ethernet port.

Common Verbs
- Help
- List
- Display

### VERB Start Lp OamEnet Test

Impact — System_admin

Description — This verb is used to start a port test on the OAM Ethernet port as per the configuration of the *Test* component's attributes.

If the port is not in the locked state when the *Start* command is issued it will automatically be locked by the *Test* component before the tests are run.

### GROUP Lp OamEnet Test Operational (Oper)

Properties — Operational

Description — This group contains the operational data for the Test component.

### ATTRIBUTE Lp OamEnet Test type

Access — Read: System_admin
Write: System_admin

Description — This attribute is the type of test to be run. The four types of tests available are: the port hardware logic test, the configure and dump memory registers test, the memory mapping test and the Time Domain Reflectometry (TDR) test.

The possible values of this attribute are:
***hardwareLogic***: this test checks the port hardware controller for logic errors in some of the on-chip counters and shift registers.

***configuration***: this test configures the memory registers of the hardware controller in a predetermined way and then dumps the registers and checks their contents for errors.

***memoryMap***: this test does an extensive test of the memory structures used by the OAM Ethernet port to verify that they are configured correctly and are error-free.

***tdr***: this test is used to detect and locate cable faults caused by either a short or an open circuit on the coaxial cable.

Values
hardwareLogic
configuration
memoryMap
tdr

Default
No default

## GROUP Lp OamEnet Test Results

Properties
Operational

Description
This group contains all the statistics related attributes of the *Test* component.

## ATTRIBUTE Lp OamEnet Test causeOfTermination

Access
Read only

Description
This attribute records the reason why the test terminated.

The possible values of this attribute are:
***testTimeExpired***: this value indicates the time allotted for the test to run has expired which caused the test terminate. If the port is locked without the forever option then it will remain locked for only five minutes before being automatically unlocked. If the port unlocks itself after five minutes while the test is running then this attribute will be set to ***testTimeExpired***. If the forever option is used then the test will run until completion, failure, or a *Stop* command.

***stoppedByOperator***: this value indicates that the test was terminated when an operator issued a *Stop* command.

***unknown***: this value indicates that the test terminated for an unknown reason.

***neverStarted***: this value indicates that the test never started because the port could not be locked or because there is a hardware failure preventing the tests from running.

***testRunning***: this value indicates that the test is currently running.

***testComplete***: this value indicates that the test completed normally.

Values
testTimeExpired
stoppedByOperator
unknown
neverStarted
testRunning
testComplete

Default
neverStarted

### ATTRIBUTE Lp OamEnet Test testResult

Access
Read only

Description
This attribute records the result of last port test executed on the OAM Ethernet port. The result can be one of the following values.
***pass***: the test passed
***fail***: the test failed
***neverRun***: the test has not been run
***running***: the test is running

Values
running
pass
fail
neverRun

Default
No default

### COMPONENT Lp EDS1

Instance
Decimal (0..1)

| | |
|---|---|
| Groups | "GROUP Lp EDS1 Provisioned (Prov)"<br>"GROUP Lp EDS1 OperationalStatus (OperStatus)"<br>"GROUP Lp EDS1 OsiState (State)"<br>"GROUP Lp EDS1 Operational (Oper)" |
| Scope | Application |
| Description | *Lp/0 EDS1/n*<br>The *EDS1* component controls a DS1 external timing port on a ***CPeD*** and ***CP*** Control Processor. The *EDS1* component can only be added under the *LP/0* component and only if the CP type is ***CPeD*** or ***CP***. The Control Processor supports up to two external timing ports. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP Lp EDS1 Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all of the provisioning data for an *EDS1* component. |

## ATTRIBUTE Lp EDS1 lineType (lineType)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the framing format of the DS1 line. The option ***d4*** defines a framing pattern of 12 frames per multiframe. The option ***esf*** defines a framing pattern of 24 frames per multiframe. The default option ***esf*** is permitted. |
| Values | d4<br>esf |
| Default | esf |

### ATTRIBUTE Lp EDS1 ssmRxDefault

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the default Synchronization Status Message (SSM) reported to the NS component. The SSM is used by the NS component to select the most suitable clock synchronization reference based on the SSM values recommended by Bellcore standard GR.253 with relative Quality Levels of 0 through 8 and 15 where 1 is the highest quality, 8 is the lowest, 0 indicates “Quality Unknown” and 15 indicates “Do Not Use For Synchronization”. The default SSM is used when the received SSM indicates Quality Unknown or when the SSM is not reported by the hardware. |
| Values | Decimal (0..8; 15) |
| Default | 2 |

### GROUP Lp EDS1 OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

### ATTRIBUTE Lp EDS1 snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### GROUP Lp EDS1 OsiState (State)

| | |
|---|---|
| Properties | Operational |

Description

This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

## ATTRIBUTE Lp EDS1 adminState (osiAdmin)

Access

Read only

Description

This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values

locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default

unlocked

## ATTRIBUTE Lp EDS1 operationalState (osiOper)

Access

Read only

Description

This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values

enabled (ena)
disabled (dis)

Default

disabled

### ATTRIBUTE Lp EDS1 usageState (osiUsage)

Access

Read only

Description

This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values

idle
active (activ)
busy

Default

idle

## ATTRIBUTE Lp EDS1 availabilityStatus (osiAvail)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.<br><br>The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.<br><br>The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.<br><br>The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.<br><br>The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.<br><br>The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***. |

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

## ATTRIBUTE Lp EDS1 proceduralStatus (osiProc)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.

The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

### ATTRIBUTE Lp EDS1 controlStatus (osiCntrl)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the

attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

Set of

subjectToTest (subTst)
partOfServicesLocked (partLk)
reservedForTest (rsrvd)
suspended (suspnd)

Default

No default

### ATTRIBUTE Lp EDS1 alarmStatus (osiAlarm)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are

outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE Lp EDS1 standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and

containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values
hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

Default
notSet

### ATTRIBUTE Lp EDS1 unknownStatus (osiUnknw)

Access
Read only

Description
This attribute indicates the OSI Unknown status of the component.

The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.

The value ***true*** indicates that the actual state of the component is not known for sure.

Values
false
true

Default
false

### GROUP Lp EDS1 Operational (Oper)

Properties
Operational

Description
This group contains the common operational data for *EE1* and *EDS1* components.

### ATTRIBUTE Lp EDS1 losAlarm (losAlarm)

Access
Read only

| | |
|---|---|
| Description | This attribute indicates whether a LOS (Loss of Signal) alarm state has been entered. A LOS alarm is declared after LOS defects have been observed and accumulated for a period of 2 seconds +/- 0.5 second . A LOS defect is detected upon observing all zeros for 150 ms . If the LOS defects are intermittently occurring, the LOS defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.<br>The port goes into an operational state of ***disabled*** until the LOS alarm state is cleared. The LOS alarm state is cleared when LOS defects are absent for 10 seconds +/- 0.5 second. |
| Values | on<br>off |
| Default | off |

### ATTRIBUTE Lp EDS1 lofAlarm (lofAlarm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether a LOF (Loss of Frame) alarm state has been entered. The LOF alarm state is entered when LOF defects (for DS1: 2 out of 5 framing bits in error; for E1: 3 consecutive frame alignment patterns in error) have been detected for 3 seconds +/- 0.5 second . If the LOF defects are intermittently occurring, the LOF defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.<br>The port goes into an operational state of ***disabled*** until the LOF alarm state is cleared. The condition is cleared when framing has been achieved for 10 seconds +/- 0.5 second. |
| Values | on<br>off |
| Default | off |

### ATTRIBUTE Lp EDS1 rxAisAlarm (rxAisAlarm)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates whether an AIS (Alarm Indication Signal) alarm has been entered. The AIS Alarm state is entered when AIS defects have been observed and accumulated for 2.5 seconds +/- 0.5 second. An AIS defect is detected after having received less than 3 zeros in a 2048 bit period. If the AIS defects are intermittently occurring, the AIS defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurement based on a 200 ms polling cycle. The port goes into an operational state of ***disabled*** for the duration of an AIS alarm state. The AIS alarm state is cleared when AIS defects are absent for 10 seconds +/- 0.5 second. |
| Values | on<br>off |
| Default | off |

## COMPONENT Lp EE1

| | |
|---|---|
| Instance | Decimal (0..1) |
| Groups | "GROUP Lp EE1 Provisioned (Prov)"<br>"GROUP Lp EE1 OperationalStatus (OperStatus)"<br>"GROUP Lp EE1 OsiState (State)"<br>"GROUP Lp EE1 Operational (Oper)" |
| Scope | Application |
| Description | *Lp/0 EE1/n*<br>The *EE1* component controls an E1 external timing port on a ***CPeE*** and ***CP*** Control Processor. The *EE1* component can only be added under the *LP/0* component and only if the CP type is ***CPeE*** or ***CP***. The Control Processor supports up to two external timing ports. |

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP Lp EE1 Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all of the provisioning data for an *EE1* component. |

## ATTRIBUTE Lp EE1 rxSynchClk

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies if the E1 BIT port is receiving a 2.048 MHz square wave synchronization (analog) clock or a E1 data frame signal as input. A value of ***squareWave*** indicates that the analog clock is received. A value of ***e1Signal*** indicates the E1 data frame signal is received. The default value is ***e1Signal***. |
| Values | e1Signal<br>squareWave |
| Default | e1Signal |

## ATTRIBUTE Lp EE1 ssmRxDefault

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the default Synchronization Status Message (SSM) reported to the NS component. The SSM is used by the NS component to select the most suitable clock synchronization reference based on the SSM values recommended by ITU standard G.704 with relative Quality Levels of 0 through 8 and 15 where 1 is the highest quality, 8 is the lowest, 0 indicates “Quality Unknown” and 15 indicates “Do |

| | |
|---|---|
| | Not Use For Synchronization". The default SSM is used when the received SSM indicates Quality Unknown or when the SSM is not reported by the hardware. |
| Values | Decimal (0..8; 15) |
| Default | 0 |

### GROUP Lp EE1 OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

### ATTRIBUTE Lp EE1 snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### GROUP Lp EE1 OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Lp EE1 adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |

Description

This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values

locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default

unlocked

### ATTRIBUTE Lp EE1 operationalState (osiOper)

Access

Read only

Description

This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Lp EE1 usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
idle
active (activ)
busy

Default
idle

### ATTRIBUTE Lp EE1 availabilityStatus (osiAvail)

Access
Read only

Description
If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.

The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.

The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.

The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.

The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

### ATTRIBUTE Lp EE1 proceduralStatus (osiProc)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.

The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***initializing*** indicates that initialization has been

initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

### ATTRIBUTE Lp EE1 controlStatus (osiCntrl)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is

administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

Set of: subjectToTest (subTst)
partOfServicesLocked (partLk)
reservedForTest (rsrvd)
suspended (suspnd)

Default: No default

### ATTRIBUTE Lp EE1 alarmStatus (osiAlarm)

Access: Read only

Description: If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or

***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE Lp EE1 standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values

hotStandby (hot)
coldStandby (cold)

| | |
|---|---|
| | providingService (serv)<br>notSet (nSet) |
| Default | notSet |

### ATTRIBUTE Lp EE1 unknownStatus (osiUnknw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Unknown status of the component.<br><br>The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.<br><br>The value ***true*** indicates that the actual state of the component is not known for sure. |
| Values | false<br>true |
| Default | false |

### GROUP Lp EE1 Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the common operational data for *EE1* and *EDS1* components. |

### ATTRIBUTE Lp EE1 losAlarm (losAlarm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether a LOS (Loss of Signal) alarm state has been entered. A LOS alarm is declared after LOS defects have been observed and accumulated for a period of 2 seconds +/- 0.5 second . A LOS defect is detected upon observing all zeros for 150 ms . If the LOS defects are intermittently occurring, the LOS defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.<br>The port goes into an operational state of ***disabled*** until the LOS alarm state is cleared. The LOS alarm state is cleared when LOS defects are absent for 10 seconds +/- 0.5 second. |

| | |
|---|---|
| Values | on<br>off |
| Default | off |

### ATTRIBUTE Lp EE1 lofAlarm (lofAlarm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether a LOF (Loss of Frame) alarm state has been entered. The LOF alarm state is entered when LOF defects (for DS1: 2 out of 5 framing bits in error; for E1: 3 consecutive frame alignment patterns in error) have been detected for 3 seconds +/- 0.5 second . If the LOF defects are intermittently occurring, the LOF defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.<br>The port goes into an operational state of ***disabled*** until the LOF alarm state is cleared. The condition is cleared when framing has been achieved for 10 seconds +/- 0.5 second. |
| Values | on<br>off |
| Default | off |

### ATTRIBUTE Lp EE1 rxAisAlarm (rxAisAlarm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether an AIS (Alarm Indication Signal) alarm has been entered. The AIS Alarm state is entered when AIS defects have been observed and accumulated for 2.5 seconds +/- 0.5 second. An AIS defect is detected after having received less than 3 zeros in a 2048 bit period. If the AIS defects are intermittently occurring, the AIS defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurement based on a 200 ms polling cycle. The port goes into an operational state of ***disabled*** for the duration of an AIS alarm state. The AIS alarm state is cleared when AIS defects are absent for 10 seconds +/- 0.5 second. |

| | |
|---|---|
| Values | on<br>off |
| Default | off |

## COMPONENT Lp PCUServicesProcessor (Pcusp)

| | |
|---|---|
| Groups | "GROUP Lp Pcusp Provisioned (Op)"<br>"GROUP Lp Pcusp OsiState (State)"<br>"GROUP Lp Pcusp Operational (Oper)" |
| Scope | Device |
| Description | *Lp/n PCUServicesProcessor*<br>This component contains a group of processing modules on a Packet Control Unit Services Processor FP. There is one *Pcusp* instance for each *Pcusa*. When added, the *ProcessingModule* subcomponents are added automatically. For the ***12mPcusp*** card, there are 12 *PModule*s added. |
| Subcomponents | "COMPONENT Lp Pcusp ProcessingModule (PModule)" |
| Dyn. Subcomp. | "COMPONENT Lp Pcusp Test (Test)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP Lp Pcusp Provisioned (Op)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisioning data for the *Pcusp* Component. |

## ATTRIBUTE Lp Pcusp linkToApplication (l2a)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |

| | |
|---|---|
| Description | This attribute specifies a service link to an *Pcusa* component which provides the application services available in the PCUSP. |
| Values | Link (Service, linkToServer) |
| Default | No default |

### GROUP Lp Pcusp OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Lp Pcusp adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |

| | |
|---|---|
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Lp Pcusp operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Lp Pcusp usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
idle
active (activ)
busy

Default
idle

### ATTRIBUTE Lp Pcusp availabilityStatus (osiAvail)

Access
Read only

Description
If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.

The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.

The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.

The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.

The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

### ATTRIBUTE Lp Pcusp proceduralStatus (osiProc)

Access

Read only

| | |
|---|---|
| Description | If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.<br><br>The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.<br><br>The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.<br><br>The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.<br><br>The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***. |
| Set of | initializationRequired (initRq)<br>notInitialized (notInit)<br>initializing (init)<br>reporting (report)<br>terminating (term) |
| Default | No default |

### ATTRIBUTE Lp Pcusp controlStatus (osiCntrl)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.<br><br>The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.<br><br>The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.<br><br>The value ***suspended*** indicates that the service has been administratively suspended. |
| Set of | subjectToTest (subTst)<br>partOfServicesLocked (partLk)<br>reservedForTest (rsrvd)<br>suspended (suspnd) |
| Default | No default |

### ATTRIBUTE Lp Pcusp alarmStatus (osiAlarm)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user. |

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE Lp Pcusp standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not

supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values
hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

Default
notSet

### ATTRIBUTE Lp Pcusp unknownStatus (osiUnknw)

Access
Read only

Description
This attribute indicates the OSI Unknown status of the component.

The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.

The value ***true*** indicates that the actual state of the component is not known for sure.

Values
false
true

Default
false

## GROUP Lp Pcusp Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains status information about the *Pcusp* component. |

## ATTRIBUTE Lp Pcusp standbyPModulesStatus (stdbPmod)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates an overview of the status of *Pmodule* component on the standby PCUSP card.<br>The various attribute values are:<br>***available***<br>***cantLoadFirmware*** - A *PModule* component has been detected, but the firmware load operation failed.<br>***failedDiagnostics*** - The diagnostics cycle has completed and an error has been detected within the *PModule* component.<br>***mismatched*** - The *insertedModuleType* attribute of the *PModule* component does not match its provisioned *moduleType* attribute.<br>***connectivityFailed*** - The test cycle has run and an error was detected on one *PBlock*s component within the *PModule* component.<br>***notResponding*** - One *PBlock* within the *PModule* component is not responding.<br>***reset InProgress*** - The *PModule* component is resetting. |
| Vector of | available<br>cantLoadFirmware<br>failedDiagnostic<br>mismatched<br>connectivityFailed<br>notResponding<br>resetInProgress<br>notAvailable |
| Index | Decimal (1..12) |
| Default | ([12] notAvailable) |

## COMPONENT Lp Pcusp ProcessingModule (PModule)

| | |
|---|---|
| Instance | Decimal (1..12) |
| Groups | "GROUP Lp Pcusp PModule Provisioned (Prov)"<br>"GROUP Lp Pcusp PModule OsiState (State)"<br>"GROUP Lp Pcusp PModule Operational (Oper)" |
| Scope | Device |
| Description | *Lp/n Pcusp ProcessingModule/n*<br>A *ProcessingModule* (*PModule*) represents a single voice/data processing module on a Packet Control Unit Services Processor (PCUSP) FP.<br>The *PModule* are automatically added when the *Pcusp* is provisioned. |
| Dyn. Subcomp. | "COMPONENT Lp Pcusp PModule ProcessingBlock (PBlock)" |
| Common Verbs | Help<br>List<br>Display<br>Add |

## VERB RESET Lp Pcusp PModule

| | |
|---|---|
| Impact | Service |
| Description | *Lp/n Pcusp ProcessingModule RESET*<br>The *Reset* verb is used to reset a processing module. It can be used when a failure has occured on a signal processing module. |

## GROUP Lp Pcusp PModule Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisioning data for a *ProcessingModule*. |

## ATTRIBUTE Lp Pcusp PModule moduleType (modType)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |

Description

This attribute specifies the type of Processing Module expected for this *ProcessingModule* instance.

The module types are:
***none*** - No module has been detected.
***spm*** - A module type of SPM has been detected.

Values

none
spm

Default

spm

## GROUP Lp Pcusp PModule OsiState (State)

Properties

Operational

Description

This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

## ATTRIBUTE Lp Pcusp PModule adminState (osiAdmin)

Access

Read only

Description

This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

| | |
|---|---|
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Lp Pcusp PModule operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Lp Pcusp PModule usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |

| | |
|---|---|
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Lp Pcusp PModule Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group indicates operational information on the *ProcessingModule*. |

### ATTRIBUTE Lp Pcusp PModule insertedModuleType (insModType)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the type of *ProcessingModule* currently present in the physical position on a Packet Control Unit Services Processor FP.<br><br>The module types are:<br>***spm*** **-** A module type of Signal Processing Module has been detected.<br>***none*** - No module has been detected.<br>***unknown*** - The module is of a type not known by the software. |
| Values | none<br>unknown<br>spm |
| Default | No default |

### ATTRIBUTE Lp Pcusp PModule productCode (prc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the product engineering code and release of the *ProcessingModule*. |
| Values | String (0..12, ASCII) |
| Default | No default |

## ATTRIBUTE Lp Pcusp PModule failureCause (failCause)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the reason why the *ProcessingModule* has failed.<br><br>The various failure causes are:<br>***none*** - There is no failure.<br>***cantLoadFirmware*** - A *PModule* has been detected, but the firmware load operation failed.<br>***failedDiagnostics*** - The diagnostics cycle has completed and an error has been detected within the *PModule*.<br>***mismatched*** - The *insertedModuleType* of the *PModule* does not match its provisioned *moduleType*.<br>***connectivityFailed*** - The test cycle has run and an error was detected on one *PBlock*s within the *PModule*.<br>***notResponding*** - One *PBlock* within the *PModule* is not responding.<br>***reset InProgress*** - The *PModule* is resetting. |
| Values | none<br>cantLoadFirmware<br>failedDiagnostics<br>mismatched<br>connectivityFailed<br>notResponding<br>resetInProgress |
| Default | none |

## COMPONENT Lp Pcusp PModule ProcessingBlock (PBlock)

| | |
|---|---|
| Instance | Decimal (1..2) |
| Groups | "GROUP Lp Pcusp PModule PBlock Operational (Oper)"<br>"GROUP Lp Pcusp PModule PBlock PBlockStatistics (Stats)" |

"COLLECTED STATS LogicalProcessor PCUServicesProcessor ProcessingModule ProcessingBlock"

| | |
|---|---|
| Scope | Device |

| | |
|---|---|
| Description | *Lp/n Pcusp PModule/n ProcessingBlock/n*<br>This dynamic component represents a Processing Block within a *ProcessingModule*.<br>The Processing Block is the smallest unit on the PCUSA card on which different Data Processing software sets may be loaded, or on which diagnostics may be performed. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Lp Pcusp PModule PBlock Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains status information about the *ProcessingBlock*. |

### ATTRIBUTE Lp Pcusp PModule PBlock serviceList (servList)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates which *Pcusa/n Conn/n PcmLink* components have allocated timeslot resources on this *ProcessingBlock*. |
| List of | The name of the component |
| Default | No default |

### GROUP Lp Pcusp PModule PBlock PBlockStatistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistical data. |

### ATTRIBUTE Lp Pcusp PModule PBlock cpuPBlockUtil (util)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current load of the SPM MPC processor. |
| Values | Decimal (0..100) |
| Units | % |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Lp Pcusp PModule PBlock cpuPBlockUtilAvg (avg)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the average PBlock CPU load. |
| Values | Decimal (0..100) |
| Units | % |
| Default | No default |

### ATTRIBUTE Lp Pcusp PModule PBlock cpuPBlockUtilMin (min)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the minimum PBlock CPU load. |
| Values | Decimal (0..100) |
| Units | % |
| Default | No default |

### ATTRIBUTE Lp Pcusp PModule PBlock cpuPBlockUtilMax (max)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the maximum PBlock CPU load. |
| Values | Decimal (0..100) |
| Units | % |
| Default | No default |

### ATTRIBUTE Lp Pcusp PModule PBlock memoryUsage (mem)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the percentage of RAM memory used by the PCU application. |
| Values | Decimal (0..100) |
| Units | % |

| | |
|---|---|
| Default | No default |
| Default | COLLECTED STATS LogicalProcessor PCUServicesProcessor ProcessingModule ProcessingBlock |
| Description | The statistics record generated by the LogicalProcessor PCUServicesProcessor ProcessingModule ProcessingBlock component. |

### ATTRIBUTE Lp Pcusp PModule PBlock cpuPBlockUtilAvg (avg)

| | |
|---|---|
| Description | This attribute indicates the average PBlock CPU load during the statistics collection interval. |
| Values | Decimal (0..100) |
| Units | % |

### ATTRIBUTE Lp Pcusp PModule PBlock cpuPBlockUtilMin (min)

| | |
|---|---|
| Description | This attribute indicates the minimum PBlock CPU load during the statistics collection interval. |
| Values | Decimal (0..100) |
| Units | % |

### ATTRIBUTE Lp Pcusp PModule PBlock cpuPBlockUtilMax (max)

| | |
|---|---|
| Description | This attribute indicates the maximum PBlock CPU load during the statistics collection interval. |
| Values | Decimal (0..100) |
| Units | % |

### COMPONENT Lp Pcusp Test (Test)

| | |
|---|---|
| Groups | "GROUP Lp Pcusp Test OsiState (State)"<br>"GROUP Lp Pcusp Test Setup (Setup)"<br>"GROUP Lp Pcusp Test Results (Results)" |
| Scope | Application |

| | |
|---|---|
| Description | The *Test* component is configured to control a hardware facility test on a physical (*V35*, *X21*, *DS1*, *E1*, *DS3*, *E3* etc.) or a logical port. |
| Common Verbs | Help<br>List<br>Display |

### VERB START Lp Pcusp Test

| | |
|---|---|
| Impact | Service |
| Description | This command invokes a test on the hardware component. Note that some test types requires the parent component (the hardware component) to be locked (using the *Lock* command) before a test can be started. |

### VERB STOP Lp Pcusp Test

| | |
|---|---|
| Impact | Service |
| Description | This command stops a test running on the hardware component. |

### GROUP Lp Pcusp Test OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Lp Pcusp Test adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. |

When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Lp Pcusp Test operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Lp Pcusp Test usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

## GROUP Lp Pcusp Test Setup (Setup)

Properties
Operational

Description
This group contains all of the operational data for a *Test* component.

## ATTRIBUTE Lp Pcusp Test purpose (purpose)

Access
Read and write

Description
This attribute records the purpose of the test so that the test results can be associated and properly analyzed.

Values
String (0..40, ASCII)

Default
No default

## ATTRIBUTE Lp Pcusp Test type (type)

Access
Read and write

Description
This attribute is the type of test to be run. The available test types include the following:
***card*** test sets up an internal loop on the board and runs a bit error rate test.
***manual*** test assumes the line is looped back externally and a bit error rate test is performed.
***localLoop*** test loops back the local modem and performs a bit error rate test.

***remoteLoop*** test loops back the remote modem (or CSU) and performs a bit error rate test.
***externalLoop*** test loops back the line to the far end.
***payloadLoop*** test only loops back the payload data received from the incoming line.
***remoteLoopThisTrib*** loops this particular tributary back at the far end, using services provided by the parent.
***v54RemoteLoop*** initiates a V.54 Remote Loopback test.
***pn127RemoteLoop*** initiates a PN127 Remote Loopback test.
***lineBIP8Error*** tests line BIP 8 error generation and detection (B2 byte inverted).
***sectionBIP8Error*** tests section BIP 8 error generation and detection (B1 byte inverted).
***pathBIP8Error*** tests path BIP 8 error generation and detection (B3 byte inverted).
***pathBIP2Error*** tests path BIP 2 error generation and detection (bit 1-2 of V5 byte inverted).
Note that not all test types are not supported by all function processors.

Values

card
manual
localLoop
remoteLoop
externalLoop
payloadLoop
remoteLoopThisTrib
v54RemoteLoop
pn127RemoteLoop
lineBIP8Error
sectionBIP8Error
pathBIP8Error
pathBIP2Error

Default

card

## ATTRIBUTE Lp Pcusp Test frmSize (size)

Access

Read and write

Description

This attribute defines the size of the test data frames in number of bytes.

| | |
|---|---|
| | This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |
| Values | Decimal (4..4096) |
| Units | bytes |
| Default | 1024 |

### ATTRIBUTE Lp Pcusp Test frmPatternType (fpt)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the type of data pattern generation to use. The following lists the available pattern types:<br>***ccitt32kBitPattern*** is a pseudo-random sequence of 32 kbit.<br>***ccitt8MBitPattern*** is a pseudo-random sequence of 8Mbit.<br>***customizedPattern*** is the pattern defined in the ***customizedPattern*** attribute. |
| Values | ccitt32kBitPattern<br>ccitt8MBitPattern<br>customizedPattern |
| Default | ccitt32kBitPattern |

### ATTRIBUTE Lp Pcusp Test customizedPattern (cp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute allows a customized 32 bit pattern to be defined for use in the test data frames. This attribute is used when the attribute *frmPatternType* is set to ***CustomizedPattern***. Note that a 55 hex pattern is an alternating 1 and 0 pattern. |
| Values | Hex (H.0..H.ffffffff) |
| Units | Hex |
| Default | H.55555555 |

### ATTRIBUTE Lp Pcusp Test dataStartDelay (dsd)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute specifies the time delay (in seconds) between when the test expects the loop to have been set up, to when the test data actually starts to be transmitted. This attribute is to accommodate some non-standard equipment that requires extra time for setting up a requested loop.<br>This attribute is ignored when the test *type* is set to ***externalLoop***. |
| Values | Decimal (0..1814400) |
| Units | seconds |
| Default | 0 |

### ATTRIBUTE Lp Pcusp Test displayInterval (di)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the interval (in minutes) between which interim test results are to be displayed. Results are displayed at the operator console at which the test was started. When the test *type* is set to ***externalLoop***, this attribute is ignored. There will be no display of results if *displayInterval* is set to 0. This attribute can be changed anytime. |
| Values | Decimal (0..30240) |
| Units | minutes |
| Default | 5 |

### ATTRIBUTE Lp Pcusp Test duration

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the duration for which the test data will be transmitted. In the case of an ***externalLoop***, this is the time that the loop is in effect. Note that *dataStartDelay* does not apply to the ***externalLoop*** test type. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 1.00 |

## GROUP Lp Pcusp Test Results (Results)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all the statistics related attributes of the *Test* component. |

## ATTRIBUTE Lp Pcusp Test causeOfTermination

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates either the status of the test or the cause of the test's termination:<br><br>a value of ***neverStarted*** indicates that the test has not yet been started.<br><br>a value of ***testRunning*** indicates that the test has been started.<br><br>a value of ***stoppedByOperator*** indicates that the operator issued a stop command on a test that was running.<br><br>a value of ***testTimeExpired*** indicates that the test ran for the time specified by the test's *duration*.<br><br>a value of ***loopCodeSyncFailed*** indicates that the local end failed to synchronize to the loopCode pattern. The local end transmits the loopCode pattern to cause the remote end to apply a loopback, after which the local end should receive the loopCode pattern. The exact pattern used to request loopCode depends on the test *type*. This failure indicates a high rate of transmission errors, or that the remote end has failed to apply the loopback.<br><br>a value of ***patternSyncFailed*** indicates that the local end failed to synchronize to the *frmPatternType* test pattern, that should have been looped back at the remote end. This failure indicates a high rate of transmission errors or the absence of a loopback.<br><br>a value of ***patternSyncLost*** indicates that the local end gained and then lost synchronization to the returned *frmPatternType* test pattern. This failure indicates a sudden increase in transmission errors, frame slippage, or the removal of an existing loopback. |

a value of ***unknown*** is set when a reason to terminate other than those listed here is encountered.

Note: The *causeOfTermination* attribute values of ***loopCodeSyncFailed***, ***patternSyncFailed*** and ***patternSyncLost*** are supported only on MSA cards. *Test* components located on other cards or under an *Ima* component on an MSA card will never terminate the test under the conditions described by these values.

Values
testTimeExpired
stoppedByOperator
unknown
neverStarted
testRunning
hardwareReconfigured
loopCodeSyncFailed
patternSyncFailed
patternSyncLost

Default
neverStarted

### ATTRIBUTE Lp Pcusp Test bitsTx

Access
Read only

Description
This attribute counts the bits sent during the test period. As long as the line speed of the hardware interface is less than 70 Mbit/s, this counter is not expected to reach the maximum value.

Values
Long Integer

Default
No default

### ATTRIBUTE Lp Pcusp Test bytesTx

Access
Read only

Description
This attribute counts the bytes sent during the test period. This counter is not expected to reach its maximum value.

Values
Long Integer

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Lp Pcusp Test frmTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames sent during the test period. This counter is not expected to reach its maximum value.<br><br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Pcusp Test bitsRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bits received during the test period. The counter wraps to zero when it exceeds the maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Pcusp Test bytesRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes received during the test period. The counter wraps to zero when it exceeds its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Pcusp Test frmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received during the test period. The counter wraps to zero when it exceeds its maximum value.<br><br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |

| | |
|---|---|
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Pcusp Test erroredFrmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute is not displayed for ATM and MSA32 cards. For ATM cards, the physical layer drops all errored frames at the controller interface. For MSA32 cards, the test does not generate any frame.<br><br>For all other card types, this attribute counts the errored frames received during the test period. The counter wraps to zero when it exceeds its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Pcusp Test bitErrorRate

| | |
|---|---|
| Access | Read only |
| Description | This attribute is not displayed for ATM cards because the physical layer drops all errored frames at the controller interface. For MSA32 cards, this attribute indicates the link bit error rate, regardless of the *frameSize*, which is not supported<br><br>For all other card types, this attribute is the calculated bit error rate on the link. Test data are generated and sent in frames of a preset size (*frameSize*). The *Test* component will try to estimate the number of bit errors in any errored frame which is identifiable. The statistics will be updated accordingly. A lost frame (may be due to an error on the flag sequence) will be discarded for the bit error rate calculation. The result is presented in the form of xEsyy, where x is the mantissa, syy is the exponent, for example 0E+00, 2E-09.<br>Note that the *bitErrorRate* is an estimate only. For more reliable test results, the test should be done over a long period. Multiple tests would also improve the confidence level of the test results. |
| Values | String (5, ASCII) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Lp Pcusp Test elapsedTime

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the time elapsed since the test started for an ***externalLoop*** test. For a data test, it indicates time since test data was first transmitted. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 0.00 |

### ATTRIBUTE Lp Pcusp Test timeRemaining

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the length of time remaining before the test stops according to the *duration* attribute. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 0.00 |

### COMPONENT Lp MultiLinkFrameRelay (Mlfr)

| | |
|---|---|
| Instance | Decimal (0..111) |
| Groups | "GROUP Lp Mlfr Provisioned (Prov)"<br>"GROUP Lp Mlfr Operational (Oper)"<br>"GROUP Lp Mlfr Statistics (Stats)"<br>"GROUP Lp Mlfr CustomerIdentifierData (CidData)"<br>"GROUP Lp Mlfr OsiState (State)" |
| Scope | Application |
| Description | *Lp/n MultiLinkFrameRelay/n*<br><br>This component represents a group of DS1 links, called a bundle. Multi-Link Frame Relay (MLFR) provides a data rate greater |

| | |
|---|---|
| | than DS1 and less than DS3, in increments of DS1. The *Mlfr* component may be created only if the *cardType* is . |
| Subcomponents | "COMPONENT Lp Mlfr Link (Lk)" |
| Dyn. Subcomp. | "COMPONENT Lp Mlfr Test (Test)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

### GROUP Lp Mlfr Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the *Mlfr* component. |

### ATTRIBUTE Lp Mlfr applicationFramerName (framer)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the link to the *Framer* component using the *Mlfr component*. An example is *Framer/3*. |
| Values | Link (Service, interfaceName) |
| Default | No default |

### ATTRIBUTE Lp Mlfr activationClass (actClass)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the conditions under which the bundle is activated. There are four classes of activation:<br>***class A***: One or more bundle links are up.<br>***class B***: All bundle links are up.<br>***class C***: A minimum threshold is provisioned. The threshold represents the minimum number of bundle links that must up. |

| | |
|---|---|
| Values | classA<br>classB<br>classC |
| Default | classA |

### ATTRIBUTE Lp Mlfr activationThreshold (thresh)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the minimum number of links that must be up before the bundle will be up. The value of this attribute is only used when the *activationClass* attribute is set to ***classC***. |
| Values | Decimal (1..28) |
| Default | 1 |

### ATTRIBUTE Lp Mlfr maxDiffDelay (delay)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum acceptable differential delay between links in the MLFR bundle. An alarm is generated for links violating the maximum differential delay. Such links are not allowed to remain up. |
| Values | Decimal (80..600) |
| Units | msec |
| Default | 132 |

### ATTRIBUTE Lp Mlfr helloTimer (hello)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the amount of time between consecutive HELLO messages, sent on each link that is up. |
| Values | Decimal (1..180) |
| Units | seconds |
| Default | 10 |

### ATTRIBUTE Lp Mlfr ackTimer (ack)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum time period to wait for an ADD_LINK_ACK, HELLO_ACK, or REMOVE_LINK_ACK message. If *ackTimer* expires before a bundle link endpoint receives a HELLO_ACK or ADD_LINK_ACK message, then every *ackTimer* seconds a HELLO message is sent and every (*maxRetries* + 1) **ackTimer* seconds an ADD_LINK message is sent. If *ackTimer* expires before a bundle link endpoint receives a REMOVE_LINK_ACK message, then every *ackTimer* seconds a HELLO message is sent and after (*maxRetries* + 1) **ackTimer* seconds the bundle link enters in idle state. |
| Values | Decimal (1..10) |
| Units | seconds |
| Default | 4 |

### ATTRIBUTE Lp Mlfr maxRetries (retries)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum number of retransmission attempts for consecutive HELLO or REMOVE_LINK messages following the expiration of *ackTimer.* |
| Values | Decimal (1..5) |
| Default | 2 |

### ATTRIBUTE Lp Mlfr resequenceTimer (reseqTim)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the interval of time to wait for receiving out-of-order fragments and frames. The value ***autoConfigure*** means that the *resequenceTimer* is internally calculated. The computed value is visible in *opResequenceTimer*. |
| Values | Decimal (1..132)<br>autoConfigure |
| Units | msec |

| | |
|---|---|
| Default | autoConfigure |

### ATTRIBUTE Lp Mlfr fragmenting (frag)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether fragmentation of transmitted frames is permitted. If the value is ***enabled***, frames which are at least *fragmentingThreshold* octets in length are divided into fragments which are at most *fragmentSize* octets long. The value enabled may be used only if the remote end can accept fragmented frames. If the value is ***disabled***, frames are always transmitted without fragmentation. Fragmentation of received frames is always acceptable, regardless of the value of this attribute. |
| Values | enabled<br>disabled |
| Default | disabled |

### ATTRIBUTE Lp Mlfr fragmentSize (fragSize)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the fragment size. A frame is divided in data fragments which are sent over different links in a bundle. The fragment size is configured in the transmitter, and two peer transmitters need not use the same fragment size. The value of this attribute is only used when the *fragmenting* attribute is set to ***enabled***. |
| Values | Decimal (10..8000) |
| Units | octets |
| Default | 128 |

### ATTRIBUTE Lp Mlfr fragmentingThreshold (fragTresh)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the minimum size a frame must have in order to be fragmented. The value of this attribute is only used when the *fragmenting* attribute is set to ***enabled***. Frames smaller |

| | |
|---|---|
| | than this size will not be fragmented. The *fragmentingThreshold* value must be bigger or equal to *fragmentSize* value. |
| Values | Decimal (10..8000) |
| Units | octets |
| Default | 192 |

### GROUP Lp Mlfr Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for the *Mlfr* component. |

### ATTRIBUTE Lp Mlfr remoteName (remName)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the name of the remote bundle, as it was received from the *Link* component. |
| Values | String (1..49, ASCII) |
| Default | No default |

### ATTRIBUTE Lp Mlfr opResequenceTimer (opReseqTim)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the current value for the *resequenceTimer* attribute. |
| Values | Decimal (0..132) |
| Units | msec |
| Default | 0 |

### GROUP Lp Mlfr Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the statistics data for the *Mlfr* component. |

### ATTRIBUTE Lp Mlfr runningTime (running)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the length of time for which the *Mlfr* component has been in the ***unlocked*** state or has been used for operational testing. When the maximum count is exceeded, the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Units | seconds |
| Default | No default |

### ATTRIBUTE Lp Mlfr unavailSec (unavail)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the length of time for which the *Mlfr* component has been ***unlocked*** and ***disabled***. When the maximum count is exceeded, the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Units | seconds |
| Default | No default |

### ATTRIBUTE Lp Mlfr resequenceErrors (reseqErr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the resequencing errors. These are the errors caused by lost or duplicated frames or data fragments. When the maximum count is exceeded, the count wraps to zero.<br>For example, sequence number 56, 59 and 60 are received for DLCI 100. It is decided by some means that sequence 57 and 58 are lost. This counter whould then be incremented by one, even though two frames were lost. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp Mlfr discardedFrames (discFrames)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts frames discarded by the receiver bundle due to re sequencing errors. When the maximum count is exceeded, the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Lp Mlfr CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

### ATTRIBUTE Lp Mlfr customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.<br><br>Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.<br><br>An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to "basic CIDs" in DPN) may be assigned to specific customers. |
| Values | Decimal (0; 1..8191) |
| Default | 0 |

## GROUP Lp Mlfr OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

## ATTRIBUTE Lp Mlfr adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

## ATTRIBUTE Lp Mlfr operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component. |

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Lp Mlfr usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### COMPONENT Lp Mlfr Test (Test)

Groups
"GROUP Lp Mlfr Test OsiState (State)"
"GROUP Lp Mlfr Test Setup (Setup)"
"GROUP Lp Mlfr Test Results (Results)"

Scope
Application

Description — The *Test* component is configured to control a hardware facility test on a physical (*V35*, *X21*, *DS1*, *E1*, *DS3*, *E3* etc.) or a logical port.

Common Verbs
- Help
- List
- Display

### VERB START Lp Mlfr Test

Impact — Service

Description — This command invokes a test on the hardware component. Note that some test types requires the parent component (the hardware component) to be locked (using the *Lock* command) before a test can be started.

### VERB STOP Lp Mlfr Test

Impact — Service

Description — This command stops a test running on the hardware component.

### GROUP Lp Mlfr Test OsiState (State)

Properties — Operational

Description — This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Lp Mlfr Test adminState (osiAdmin)

Access — Read only

Description — This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component.

When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Lp Mlfr Test operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Lp Mlfr Test usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

## GROUP Lp Mlfr Test Setup (Setup)

Properties
Operational

Description
This group contains all of the operational data for a *Test* component.

## ATTRIBUTE Lp Mlfr Test purpose (purpose)

Access
Read and write

Description
This attribute records the purpose of the test so that the test results can be associated and properly analyzed.

Values
String (0..40, ASCII)

Default
No default

## ATTRIBUTE Lp Mlfr Test type (type)

Access
Read and write

Description
This attribute is the type of test to be run. The available test types include the following:
***card*** test sets up an internal loop on the board and runs a bit error rate test.
***manual*** test assumes the line is looped back externally and a bit error rate test is performed.
***localLoop*** test loops back the local modem and performs a bit error rate test.

***remoteLoop*** test loops back the remote modem (or CSU) and performs a bit error rate test.
***externalLoop*** test loops back the line to the far end.
***payloadLoop*** test only loops back the payload data received from the incoming line.
***remoteLoopThisTrib*** loops this particular tributary back at the far end, using services provided by the parent.
***v54RemoteLoop*** initiates a V.54 Remote Loopback test.
***pn127RemoteLoop*** initiates a PN127 Remote Loopback test.
***lineBIP8Error*** tests line BIP 8 error generation and detection (B2 byte inverted).
***sectionBIP8Error*** tests section BIP 8 error generation and detection (B1 byte inverted).
***pathBIP8Error*** tests path BIP 8 error generation and detection (B3 byte inverted).
***pathBIP2Error*** tests path BIP 2 error generation and detection (bit 1-2 of V5 byte inverted).
Note that not all test types are not supported by all function processors.

Values
card
manual
localLoop
remoteLoop
externalLoop
payloadLoop
remoteLoopThisTrib
v54RemoteLoop
pn127RemoteLoop
lineBIP8Error
sectionBIP8Error
pathBIP8Error
pathBIP2Error

Default
card

## ATTRIBUTE Lp MIfr Test frmSize (size)

Access
Read and write

Description
This attribute defines the size of the test data frames in number of bytes.

| | |
|---|---|
| | This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |
| Values | Decimal (4..4096) |
| Units | bytes |
| Default | 1024 |

### ATTRIBUTE Lp Mlfr Test frmPatternType (fpt)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the type of data pattern generation to use. The following lists the available pattern types:<br>***ccitt32kBitPattern*** is a pseudo-random sequence of 32 kbit.<br>***ccitt8MBitPattern*** is a pseudo-random sequence of 8Mbit.<br>***customizedPattern*** is the pattern defined in the ***customizedPattern*** attribute. |
| Values | ccitt32kBitPattern<br>ccitt8MBitPattern<br>customizedPattern |
| Default | ccitt32kBitPattern |

### ATTRIBUTE Lp Mlfr Test customizedPattern (cp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute allows a customized 32 bit pattern to be defined for use in the test data frames. This attribute is used when the attribute *frmPatternType* is set to ***CustomizedPattern***. Note that a 55 hex pattern is an alternating 1 and 0 pattern. |
| Values | Hex (H.0..H.ffffffff) |
| Units | Hex |
| Default | H.55555555 |

### ATTRIBUTE Lp Mlfr Test dataStartDelay (dsd)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute specifies the time delay (in seconds) between when the test expects the loop to have been set up, to when the test data actually starts to be transmitted. This attribute is to accommodate some non-standard equipment that requires extra time for setting up a requested loop.<br>This attribute is ignored when the test *type* is set to ***externalLoop***. |
| Values | Decimal (0..1814400) |
| Units | seconds |
| Default | 0 |

### ATTRIBUTE Lp Mlfr Test displayInterval (di)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the interval (in minutes) between which interim test results are to be displayed. Results are displayed at the operator console at which the test was started. When the test *type* is set to ***externalLoop***, this attribute is ignored. There will be no display of results if *displayInterval* is set to 0. This attribute can be changed anytime. |
| Values | Decimal (0..30240) |
| Units | minutes |
| Default | 5 |

### ATTRIBUTE Lp Mlfr Test duration

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the duration for which the test data will be transmitted. In the case of an ***externalLoop***, this is the time that the loop is in effect. Note that *dataStartDelay* does not apply to the ***externalLoop*** test type. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 1.00 |

## GROUP Lp Mlfr Test Results (Results)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all the statistics related attributes of the *Test* component. |

## ATTRIBUTE Lp Mlfr Test causeOfTermination

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates either the status of the test or the cause of the test's termination:<br><br>a value of ***neverStarted*** indicates that the test has not yet been started.<br><br>a value of ***testRunning*** indicates that the test has been started.<br><br>a value of ***stoppedByOperator*** indicates that the operator issued a stop command on a test that was running.<br><br>a value of ***testTimeExpired*** indicates that the test ran for the time specified by the test's *duration*.<br><br>a value of ***loopCodeSyncFailed*** indicates that the local end failed to synchronize to the loopCode pattern. The local end transmits the loopCode pattern to cause the remote end to apply a loopback, after which the local end should receive the loopCode pattern. The exact pattern used to request loopCode depends on the test *type*. This failure indicates a high rate of transmission errors, or that the remote end has failed to apply the loopback.<br><br>a value of ***patternSyncFailed*** indicates that the local end failed to synchronize to the *frmPatternType* test pattern, that should have been looped back at the remote end. This failure indicates a high rate of transmission errors or the absence of a loopback.<br><br>a value of ***patternSyncLost*** indicates that the local end gained and then lost synchronization to the returned *frmPatternType* test pattern. This failure indicates a sudden increase in transmission errors, frame slippage, or the removal of an existing loopback. |

a value of ***unknown*** is set when a reason to terminate other than those listed here is encountered.

Note: The *causeOfTermination* attribute values of ***loopCodeSyncFailed***, ***patternSyncFailed*** and ***patternSyncLost*** are supported only on MSA cards. *Test* components located on other cards or under an *Ima* component on an MSA card will never terminate the test under the conditions described by these values.

Values
testTimeExpired
stoppedByOperator
unknown
neverStarted
testRunning
hardwareReconfigured
loopCodeSyncFailed
patternSyncFailed
patternSyncLost

Default
neverStarted

### ATTRIBUTE Lp MIfr Test bitsTx

Access
Read only

Description
This attribute counts the bits sent during the test period. As long as the line speed of the hardware interface is less than 70 Mbit/s, this counter is not expected to reach the maximum value.

Values
Long Integer

Default
No default

### ATTRIBUTE Lp MIfr Test bytesTx

Access
Read only

Description
This attribute counts the bytes sent during the test period. This counter is not expected to reach its maximum value.

Values
Long Integer

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Lp MIfr Test frmTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames sent during the test period. This counter is not expected to reach its maximum value.<br><br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp MIfr Test bitsRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bits received during the test period. The counter wraps to zero when it exceeds the maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp MIfr Test bytesRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes received during the test period. The counter wraps to zero when it exceeds its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp MIfr Test frmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received during the test period. The counter wraps to zero when it exceeds its maximum value.<br><br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |

| | |
|---|---|
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Mlfr Test erroredFrmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute is not displayed for ATM and MSA32 cards. For ATM cards, the physical layer drops all errored frames at the controller interface. For MSA32 cards, the test does not generate any frame.<br><br>For all other card types, this attribute counts the errored frames received during the test period. The counter wraps to zero when it exceeds its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Mlfr Test bitErrorRate

| | |
|---|---|
| Access | Read only |
| Description | This attribute is not displayed for ATM cards because the physical layer drops all errored frames at the controller interface. For MSA32 cards, this attribute indicates the link bit error rate, regardless of the *frameSize*, which is not supported<br><br>For all other card types, this attribute is the calculated bit error rate on the link. Test data are generated and sent in frames of a preset size (*frameSize*). The *Test* component will try to estimate the number of bit errors in any errored frame which is identifiable. The statistics will be updated accordingly. A lost frame (may be due to an error on the flag sequence) will be discarded for the bit error rate calculation. The result is presented in the form of xEsyy, where x is the mantissa, syy is the exponent, for example 0E+00, 2E-09.<br>Note that the *bitErrorRate* is an estimate only. For more reliable test results, the test should be done over a long period. Multiple tests would also improve the confidence level of the test results. |
| Values | String (5, ASCII) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Lp Mlfr Test elapsedTime

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the time elapsed since the test started for an ***externalLoop*** test. For a data test, it indicates time since test data was first transmitted. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 0.00 |

### ATTRIBUTE Lp Mlfr Test timeRemaining

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the length of time remaining before the test stops according to the *duration* attribute. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 0.00 |

### COMPONENT Lp Mlfr Link (Lk)

| | |
|---|---|
| Instance | Decimal (0..27) |
| Groups | "GROUP Lp Mlfr Lk Provisioned (Prov)"<br>"GROUP Lp Mlfr Lk Operational (Oper)"<br>"GROUP Lp Mlfr Lk Statistics (Stats)"<br>"GROUP Lp Mlfr Lk OsiState (State)" |
| Scope | Application |
| Description | *Lp/n Mlfr/n Link/m*<br>This component is used to define a DS1 link belonging to an *Mlfr* component. |

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Lp Mlfr Lk Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the *Link* subcomponent. |

## ATTRIBUTE Lp Mlfr Lk interfaceName

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the *Link* subcomponent associated with a specific interface on a function processor, for example: *Lp/5 Ds3/0 Ds1/3 Chan/0*. The following checks are performed:<br>1. The *Link*'s *interfaceName* must link to a *DS1 Channel/0* component on the same *Lp* as the *Mlfr* component.<br>2. All the *Link*s of the same *Mlfr* component must be bound to *DS1 Channel/0* components under the same *DS3*.<br>3. All the *Link*s of the same *Mlfr* component must be bound to *DS1 Channel/0* components having the same value for *timeslotDataRate*.<br>4. All the 24 timeslots of the *DS1 Channel/0* component must be provisioned. |
| Values | Link (Hardware, applicationFramerName) |
| Default | No default |

## GROUP Lp Mlfr Lk Operational (Oper)

| | |
|---|---|
| Properties | Operational |

| | |
|---|---|
| Description | This group contains the operational attributes for the *Link* subcomponent. |

### ATTRIBUTE Lp Mlfr Lk errorCause (cause)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the error cause on the near end of this link. Possible values are:<br>***noError***: there is no error on the near end of this link.<br>***inconsistentBundle***: Possible configuration mismatch detected for the remote name of the MLFR bundle.<br>***unknownVendor***: Unrecognized Organizationally Unique Identifier (OUI) received.<br>***linkIdle***: The link is not *operational*.<br>***linkDown***: The link physical layer is *down*.<br>***diffDelay***: The link differential delay exceeds the maximum allowed.<br>***loopbackDetected***: The link has detected a potential loopback condition.<br>***unexpectedAddLink***: An ADD_LINK message was received when the link was up. |
| Values | noError<br>inconsistentBundle<br>unknownVendor<br>linkIdle<br>linkDown<br>diffDelay<br>loopbackDetected<br>other<br>unexpectedAddLink |
| Default | No default |

### ATTRIBUTE Lp Mlfr Lk remoteCause (remCause)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the error cause on the far end of his link. Possible values are:<br>***noError***: there is no error on the far end of this link.<br>***inconsistentBundle***: Possible configuration mismatch detected |

for the remote name of the MLFR bundle.
***unknownVendor***: Unrecognized Organizationally Unique Identifier (OUI) received.
***linkIdle***: The link is not *operational*.
***linkDown***: The link physical layer is *down*.
***diffDelay***: The link differential delay exceeds the maximum allowed.
***loopbackDetected***: The link has detected a potential loopback condition.
***unexpectedAddLink***: An ADD_LINK message was received when the link was up.
**""**: No error cause was received yet from the far end.

Values
noError
inconsistentBundle
unknownVendor
linkIdle
linkDown
diffDelay
loopbackDetected
other
unexpectedAddLink

Default
No default

### ATTRIBUTE Lp Mlfr Lk remoteName (remName)

Access
Read only

Description
This attribute indicates the name of the remote link.

Values
String (1..49, ASCII)

Default
No default

### ATTRIBUTE Lp Mlfr Lk diffDelay (diff)

Access
Read only

Description
This attribute indicates the differential delay between this link and the link, in the same MLFR bundle, having the least delay. The value ***notMeasured*** means that the relative delay could not be measured. This can be due to physical layer problems or to no

| | |
|---|---|
| | MLFR Link Integrity Protocol (LIP) messages being received on the link. |
| Values | Decimal (0..4294967294)<br>notMeasured |
| Units | msec |
| Default | No default |

### GROUP Lp Mlfr Lk Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the statistics data for the *Link* subcomponent. |

### ATTRIBUTE Lp Mlfr Lk runningTime (running)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the length of time for which the *Link* component has been in the *unlocked* state or has been used for operational testing. When the maximum count is exceeded, the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Units | seconds |
| Default | No default |

### ATTRIBUTE Lp Mlfr Lk unavailSec (unavail)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the length of time for which the *Link* component has been ***unlocked*** and out of service. When the maximum count is exceeded, the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Units | seconds |
| Default | No default |

### ATTRIBUTE Lp Mlfr Lk failures (fail)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of failures that the *Link* component has experienced since being created. When the maximum count is exceeded, the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp Mlfr Lk framesLipTx (lipTx)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of Link Integrity Protocol (LIP) frames sent on the link. When the maximum count is exceeded, the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp Mlfr Lk framesLipRx (lipRx)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of LIP frames received on the link. When the maximum count is exceeded, the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp Mlfr Lk framesLipInvalid (lipInv)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of invalid LIP frames received on the link. When the maximum count is exceeded, the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp Mlfr Lk timerExpired (timExp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times the HELLO or ACK timers expired. When the maximum count is exceeded, the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp Mlfr Lk loopback (loop)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times a loopback has been suspected on the link. When the maximum count is exceeded, the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Lp Mlfr Lk mismatch (mis)

| | |
|---|---|
| Access | Read only |
| Description | This attributes counts the number of times far end bundle name doesn't correspond to *remoteName* for *Mlfr* component. When the maximum count is exceeded, the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Lp Mlfr Lk OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Lp Mlfr Lk adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Lp Mlfr Lk operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |

| | |
|---|---|
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Lp Mlfr Lk usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### COMPONENT Lp AdjunctProcessor (Ap)

| | |
|---|---|
| Instance | Decimal (0..31) |
| Groups | "GROUP Lp Ap OsiState (State)"<br>"GROUP Lp Ap Properties (Prop)"<br>"GROUP Lp Ap Utilization (Util)" |
| Scope | Device |
| Description | *Lp/n Ap/n*<br>This component represents an Adjunct Processor on a Functional Processor (FP). |

| | |
|---|---|
| Dyn. Subcomp. | "COMPONENT Lp Ap RncApplication (RncAp)" |
| Common Verbs | Help<br>List<br>Display |

### VERB RESET Lp Ap

| | |
|---|---|
| Impact | Service |
| Description | *Reset Lp/n Ap/m*<br>This command is used to reset a single adjunct processor card. Resetting a processor card implies: (1) resetting the hardware (as if the card had just been powered on), (2) performing the card's self-tests, and (3) reloading the software.. |

### GROUP Lp Ap OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Lp Ap adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***. |

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Lp Ap operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Lp Ap usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### ATTRIBUTE Lp Ap availabilityStatus (osiAvail)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present. |

The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.

The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.

The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.

The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

| | |
|---|---|
| Set of | inTest<br>failed<br>dependency (depend)<br>powerOff (pwrOff)<br>offLine<br>offDuty<br>degraded (degrad)<br>notInstalled (notIn)<br>logFull<br>migrating |
| Default | No default |

### ATTRIBUTE Lp Ap proceduralStatus (osiProc)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.<br><br>The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.<br><br>The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***. |

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

### ATTRIBUTE Lp Ap controlStatus (osiCntrl)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

| | |
|---|---|
| | The value ***suspended*** indicates that the service has been administratively suspended. |
| Set of | subjectToTest (subTst)<br>partOfServicesLocked (partLk)<br>reservedForTest (rsrvd)<br>suspended (suspnd) |
| Default | No default |

### ATTRIBUTE Lp Ap alarmStatus (osiAlarm)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.<br><br>The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.<br><br>The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.<br><br>The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***. |

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE Lp Ap standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values

hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

| | |
|---|---|
| Default | notSet |

### ATTRIBUTE Lp Ap unknownStatus (osiUnknw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Unknown status of the component.<br><br>The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.<br><br>The value ***true*** indicates that the actual state of the component is not known for sure. |
| Values | false<br>true |
| Default | false |

### GROUP Lp Ap Properties (Prop)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes which specify characteristics of the Adjunct Processor. |

### ATTRIBUTE Lp Ap productCode (pec)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the product code for the Adjunct Processor. |
| Values | String (0..12, ASCII) |
| Default | No default |

### ATTRIBUTE Lp Ap serialNumber

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Adjunct Processor serial number. |
| Values | String (0..16, ASCII) |
| Default | No default |

### ATTRIBUTE Lp Ap memoryCapacity

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total amount of memory present on the Adjunct Processor. |
| Values | Decimal (0..2147483647) |
| Units | kbyte |
| Default | No default |

### ATTRIBUTE Lp Ap sharedMsgBlockCapacity

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Adjunct Processor's shared message block memory capacity. |
| Values | Decimal (0..2147483647) |
| Units | kbyte |
| Default | No default |

### ATTRIBUTE Lp Ap localMsgBlockCapacity

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Adjunct Processor's local message block memory capacity. These message blocks are used for local messaging on the card. |
| Values | Decimal (0..2147483647) |
| Units | kbyte |
| Default | No default |

### ATTRIBUTE Lp Ap ipAddress (ipAddr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the IP address of the Adjunct Processor. |
| Values | IP address |

| | |
|---|---|
| Default | No default |

### GROUP Lp Ap Utilization (Util)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes that specify the Adjunct Processor's utilization levels. |

### ATTRIBUTE Lp Ap cpuUtilization (cpuUtil)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates an approximation of the current Adjunct Processor utilization level. |
| Values | Decimal (0..100) |
| Units | % |
| Default | No default |

### ATTRIBUTE Lp Ap memoryUtilization

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Adjunct Processor's current memory utilization. |
| Values | Decimal (0..2147483647) |
| Units | kbyte |
| Default | No default |

### ATTRIBUTE Lp Ap sharedMsgBlockUsage

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Adjunct Processor's current shared message block memory utilization. |
| Values | Decimal (0..2147483647) |
| Units | kbyte |
| Default | No default |

### ATTRIBUTE Lp Ap sharedMsgBlockUsageAvg

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Adjunct Processor's average memory utilization of shared message blocks, over the past 15 minutes. This utilization value is calculated using 15 second samples. |
| Values | Decimal (0..2147483647) |
| Units | kbyte |
| Default | No default |

### ATTRIBUTE Lp Ap sharedMsgBlockUsageAvgMin

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Adjunct Processor's minimum memory utilization of shared message blocks, over the past 15 minutes. This utilization value is calculated using 15 second samples. |
| Values | Decimal (0..2147483647) |
| Units | kbyte |
| Default | No default |

### ATTRIBUTE Lp Ap sharedMsgBlockUsageAvgMax

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Adjunct Processor's maximum memory utilization of shared message blocks, over the past 15 minutes. This utilization value is calculated using 15 second samples. |
| Values | Decimal (0..2147483647) |
| Units | kbyte |
| Default | No default |

### ATTRIBUTE Lp Ap localMsgBlockUsage

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the Adjunct Processor's current memory utilization of message blocks which are used for local messaging on the card. |
| Values | Decimal (0..2147483647) |
| Units | kbyte |
| Default | No default |

### ATTRIBUTE Lp Ap localMsgBlockUsageAvg

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Adjunct Processor's average memory utilization of message blocks used for local messaging on the card over the past 15 minutes. This utilization value is calculated using 15 second samples. |
| Values | Decimal (0..2147483647) |
| Units | kbyte |
| Default | No default |

### ATTRIBUTE Lp Ap localMsgBlockUsageAvgMax

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Adjunct Processor's maximum memory utilization of message blocks used for local messaging on the card over the past 15 minutes. This utilization value is updated at 15 second intervals. |
| Values | Decimal (0..2147483647) |
| Units | kbyte |
| Default | No default |

### ATTRIBUTE Lp Ap localMsgBlockUsageAvgMin

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Adjunct Processor's minimum memory utilization of message blocks used for local messaging |

on the card over the past 15 minutes. This utilization value is updated at 15 second intervals.

| | |
|---|---|
| Values | Decimal (0..2147483647) |
| Units | kbyte |
| Default | No default |

## COMPONENT Lp Ap RncApplication (RncAp)

| | |
|---|---|
| Groups | "GROUP Lp Ap RncAp Operational (Oper)" |
| Scope | Device |
| Description | *Lp/n Ap/n RncApplication*<br>This component represents an RNC application running on this Adjunct Processor. |
| Common Verbs | Help<br>List<br>Display |

## GROUP Lp Ap RncAp Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes of *RncApplication*. |

## ATTRIBUTE Lp Ap RncAp processorRole (role)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the functional behavior of the Adjunct Processor. Possible values are:<br>- ***none*** indicates that this Adjunct Processor has not been assigned a role yet. This value is only attained when the Adjunct Processor is disabled or just after it has become enabled. Within a few minutes at most, the role will take on one of the 4 pending values, and quickly change the corresponding permanent value.<br>- ***protocolConverterPending*** indicates that initialization of the Adjunct Processor is still in progress. Once initialization is complete, the role will take on the value of protocolConverter.<br>- ***radioAccessBearerPending*** indicates that initialization of the |

Adjunct Processor is still in progress. Once initialization is complete, the role will take on the value of radioAccessBearer.
- ***activeMasterPending*** indicates that initialization of the Adjunct Processor is still in progress. Once initialization is complete, the role will take on the value of activeMaster.
- ***standbyMasterPending*** indicates that initialization of the Adjunct Processor is still in progress. Once initialization is complete, the role will take on the value of standbyMaster.
- ***protocolConverter*** indicates that this Adjunct Processor is responsible for converting packets to and from AAL2 for Iub and IuCS.
- ***radioAccessBearer*** indicates that this Adjunct Processor is responsible for supporting all radio protocols.
- ***activeMaster*** indicates that this Adjunct Processor handles all shelf-wide Packet Server support.
- ***standbyMaster*** indicates that this Adjunct Processor is a spare for the activeMaster.

Set of

none (none)
radioAccessBearer (rab)
protocolConverter (pc)
activeMaster (aMaster)
standbyMaster (sMaster)
radioAccessBearerPending (rabPend)
protocolConverterPending (pcPend)
activeMasterPending (aMstPend)
standbyMasterPending (sMstPend)

Default

No default

## COMPONENT Lp Ethernet

Instance

Decimal (0..3)

Groups

"GROUP Lp Enet Provisioned (Prov)"
"GROUP Lp Enet CustomerIdentifierData (CidData)"
"GROUP Lp Enet AdminInfo (AdminInfo)"
"GROUP Lp Enet IfEntryProv (IfEntry)"
"GROUP Lp Enet OperationalStatus (OperStatus)"
"GROUP Lp Enet OsiState (State)"
"GROUP Lp Enet Operational (Oper)"
"GROUP Lp Enet Statistics (Stats)"

| | |
|---|---|
| Scope | Device |
| Description | Lp/n Ethernet/n<br>The *Ethernet* component controls and monitors an Ethernet port on a function processor. The number of ports supported depends on the type of the card. The instance number of the *Ethernet* component corresponds to the physical port number on the card. |
| Subcomponents | "COMPONENT Lp Ethernet TrafficManager (Tm)" |
| Opt. Subcomp. | "COMPONENT Lp Ethernet OpticalModule (Om)" |
| Dyn. Subcomp. | "COMPONENT Lp Enet Test" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP Lp Ethernet Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioning data for an *Ethernet* component. |

## ATTRIBUTE Lp Ethernet applicationFramerName (framer)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies which application uses the *Ethernet* component. |
| Values | Link (Service, interfaceName) |
| Default | No default |

## ATTRIBUTE Lp Ethernet maxFrameSize

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute specifies the maximum frame size allowed on the link. The definition include the ethernet header and, CRC or FCS octets. This attribute should be changed only for uses of Ethernet over ATM (EoATM) service. |
| Values | Decimal (1518..1600) |
| Default | 1518 |

### ATTRIBUTE Lp Ethernet autoNegotiation

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies that auto negotiation is turned on or off for the ethernet port. This attribute must be set to off, if the far-end does not support auto-negotiation. |
| Values | off<br>on |
| Default | on |

### GROUP Lp Ethernet CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

### ATTRIBUTE Lp Ethernet customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.<br><br>Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those |

| | |
|---|---|
| | components which have a matching CID.<br><br>An operator CID of 0 is used to identify the Network Manager (referred to as “NetMan” in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to “basic CIDs” in DPN) may be assigned to specific customers. |
| Values | Decimal (0; 1..8191) |
| Default | 0 |

### GROUP Lp Ethernet AdminInfo (AdminInfo)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attributes pertaining to the vendor of the equipment. |

### ATTRIBUTE Lp Ethernet vendor

| | |
|---|---|
| Access | Read and write |
| Description | This is the name of the vendor supplying the facility. |
| Values | String (0..20, ASCII) |
| Default | No default |

### ATTRIBUTE Lp Ethernet commentText

| | |
|---|---|
| Access | Read and write |
| Description | Any miscellaneous text about the facility. |
| Values | String (0..60, ASCII) |
| Default | No default |

### GROUP Lp Ethernet IfEntryProv (IfEntry)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the ifEntry. |

### ATTRIBUTE Lp Ethernet ifAdminStatus (ifState)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE Lp Ethernet ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP Lp Ethernet OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

### ATTRIBUTE Lp Ethernet snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |

Default up

### GROUP Lp Ethernet OsiState (State)

Properties Operational

Description This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Lp Ethernet adminState (osiAdmin)

Access Read only

Description This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default unlocked

## ATTRIBUTE Lp Ethernet operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

## ATTRIBUTE Lp Ethernet usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |

| | |
|---|---|
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### ATTRIBUTE Lp Ethernet availabilityStatus (osiAvail)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.<br><br>The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.<br><br>The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.<br><br>The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.<br><br>The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***. |

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

### ATTRIBUTE Lp Ethernet proceduralStatus (osiProc)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the

user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.

The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

### ATTRIBUTE Lp Ethernet controlStatus (osiCntrl)

Access

Read only

| | |
|---|---|
| Description | If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.<br><br>The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.<br><br>The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.<br><br>The value ***suspended*** indicates that the service has been administratively suspended. |
| Set of | subjectToTest (subTst)<br>partOfServicesLocked (partLk)<br>reservedForTest (rsrvd)<br>suspended (suspnd) |
| Default | No default |

### ATTRIBUTE Lp Ethernet alarmStatus (osiAlarm)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions |

described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE Lp Ethernet standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and

thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values
hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

Default
notSet

### ATTRIBUTE Lp Ethernet unknownStatus (osiUnknw)

Access
Read only

Description
This attribute indicates the OSI Unknown status of the component.

The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.

The value ***true*** indicates that the actual state of the component is not known for sure.

Values
false
true

Default
false

### GROUP Lp Ethernet Operational (Oper)

Properties
Operational

Description This group contains the operational data for an *Ethernet* component.

## ATTRIBUTE Lp Ethernet failureCause

Access Read only

Description This attribute indicates the failure cause of an Ethernet port. The port enters a failed state after the condition has been observed for a period of 2.5 seconds +/-0.5 seconds. The port comes out of the failed state when the condition has been cleared for a period of 10 seconds +/- 0.5 seconds. The attribute is set to one of the following values while the OSI *availabilityStatus* attribute is set to ***failed***:

***lossOfSync***: Port synchronization cannot be achieved.

***remoteOffline***: The far end is offline.

***remoteLinkFailure***: The far end has detected a link failure.

***autoNegError***: The far end does not support a compatible set of auto-negotiation capabilities, or auto-negotiation has failed.

***noFailure***: There is no failure.

Values lossOfSync
remoteLinkFailure
remoteOffline
autoNegError
noFailure

Default noFailure

## ATTRIBUTE Lp Ethernet autoNegStatus

Access Read only

Description This attribute indicates the status of the Ethernet port auto-negotiation. The possible values are:

***succeeded***: Auto-negotiation has completed successfully.

***failed***: Auto-negotiation has failed to mediate a compatible set of capabilities.

***inProgress***: Auto-negotiation is currently in progress.

***disabled****:* The far end does not support auto-negotiation.

Values
succeeded
failed
inProgress
disabled

Default No default

## GROUP Lp Ethernet Statistics (Stats)

Properties Operational

Description This group contains the statistics data for an *Ethernet* component. Each attribute is a positive integer that monotonically increases until it reaches a maximum value, at which point it wraps around and starts increasing again from zero.

## ATTRIBUTE Lp Ethernet framesTransmittedOk (frmTxOk)

Access Read only

Description This attribute counts the frames that were transmitted without error.

Values Long Integer

Default No default

## ATTRIBUTE Lp Ethernet framesReceivedOk (frmRxOk)

Access Read only

Description This attribute counts the frames that were received without error.

Values Long Integer

Default No default

### ATTRIBUTE Lp Ethernet octetsTransmittedOk (octTxOk)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the octets that were transmitted without error. The count includes data, padding octets, destination address (DA), source address (SA), length field, and frame check sequence (FCS), but excludes preamble and source field delimiter (SFD). |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Ethernet octetsReceviedOk (octRxOk)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the octets that were received without error. The count includes data, padding octets, destination address (DA), source address (SA), length field, and frame check sequence (FCS), but excludes preamble and source field delimiter (SFD). The count also excludes octets contained within received frames that are classified as being errored (fcsErrors etc.). |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Ethernet undersizeFrames

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the discarded frames that were received with less than the minimum size (64 bytes). |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Ethernet fragments

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the discarded frames that were received with less than the minimum size (64 bytes) with a bad frame check sequence (FCS). |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Ethernet framesTooLong

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the discarded frames that were received and exceeds the maximum permitted frame size. The maximum size of a frame depends on it supported encapsulated types. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Ethernet jabbers

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the discarded frames that were received and exceeds the maximum permitted frame size with a bad frame check sequence (FCS). The maximum size of a frame depends on it supported encapsulated types. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Ethernet fcsErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the discarded received frames with an integral number of octets in length and did not pass the Frame Check Sequence (FCS). The count does not include frames received that are too long (jabbers) or too short (fragments). |
| Values | Long Integer |
| Default | No default |

## ATTRIBUTE Lp Ethernet symbolErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the discarded received frames with a valid length, but at least one data reception error or one symbol error was observed. This counter increments once per valid Carrier Event. |
| Values | Long Integer |
| Default | No default |

## ATTRIBUTE Lp Ethernet pauseFramesReceived

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the PAUSE Media Access Control (MAC) control frames received. |
| Values | Long Integer |
| Default | No default |

## COMPONENT Lp Ethernet TrafficManager (Tm)

| | |
|---|---|
| Scope | Device |
| Description | *Lp/x Ethernet/y Tm*<br>This component contains the emission priority queue (*GrmEmissionPriority*), and service category (*GrmServiceCategory*) subcomponents. It provides traffic management capabilities for absolute (strict) queueing and fair-weighted queueing.<br>This component is required for the 4pGE FP. |
| Opt. Subcomp. | "COMPONENT Lp Ethernet Tm EmissionPriority (Ep)"<br>"COMPONENT Lp Ethernet Tm ServiceCategory (Sc)" |
| Common Verbs | Help<br>List<br>Display |

## COMPONENT Lp Ethernet Tm EmissionPriority (Ep)

| | |
|---|---|
| Instance | Decimal (0..7) |
| Groups | "GROUP Lp Ethernet Tm Ep Operational (Oper)"<br>"GROUP Lp Ethernet Tm Ep ProvQueue (ProvQ)" |
| Scope | Application |
| Description | *Lp/x Ethernet/y Tm Ep/n*<br>This component defines the characteristics of the corresponding emission priority queue for the associated physical links.<br><br>This component have instances of *Ep/0* and *Ep/1* which are absolute priority queues having precedence over queues under *Ep2* to *Ep7* components. Component *Ep/0* has the highest priority. All traffic in *Ep/0* is transmitted on the link first, then traffic from component *Ep/1* is transmitted. When all traffic at *Ep/0* and *Ep/1* have been sent, other *Ep* component queues get the opportunity to transmit with the residual bandwidth.<br><br>This component has instances from *Ep/2* to *Ep/7* that operate under the weighted fair queue strategy, with each queue using a bandwidth attribute for weight to allocate service opportunities left over by *Ep/0* and *Ep/1*. |
| Common Verbs | Help<br>List<br>Display |

## GROUP Lp Ethernet Tm Ep Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational attributes of the *Ep* component. |

## ATTRIBUTE Lp Ethernet Tm Ep percentMinimumBandwidthGuarantee (pMinBw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the weight as a percentage of the link residual bandwidth available to this queue. |

| | |
|---|---|
| Values | Decimal (0.00..100.00)<br>abs |
| Units | % |
| Default | No default |

### ATTRIBUTE Lp Ethernet Tm Ep minimumBandwidthGuaranteeOp (minBwOp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the minimum bandwidth guaranteed for this queue. |
| Values | Decimal (0.00..100.00)<br>abs |
| Default | No default |

### ATTRIBUTE Lp Ethernet Tm Ep congestionState (cs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the congestion control discard priority (CCDP) of traffic destined for each of the 8 queues (*Ep/0* to *Ep/7*). There are 4 discard priorities (***ccdp0*** to ***ccdp3*** corresponding to values 0 to 3, respectively) with ***ccdp0*** traffic being the most sensitive to loss. For example, when the count of cell blocks currently in the queue is greater than the ***ccdp0*** discard threshold, the hardware device discards the arriving ***ccdp0*** traffic. |
| Values | ccdp0<br>ccdp1<br>ccdp2<br>ccdp3 |
| Default | No default |

### ATTRIBUTE Lp Ethernet Tm Ep txQueueSizeOp (qsOp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the queue size associated with the queue for buffering traffic. |
| Values | Decimal (0..7168000) |

| | |
|---|---|
| Units | bytes |
| Default | No default |

### ATTRIBUTE Lp Ethernet Tm Ep txQueueUsage (qu)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current usage of the queue as a percentage of the total queue bandwidth. |
| Values | Decimal (0.00..100.00) |
| Units | % |
| Default | No default |

### ATTRIBUTE Lp Ethernet Tm Ep txQueueMin (qmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the lowest count of bytes allocated to traffic in the queue. |
| Values | Decimal (0..7168000) |
| Units | bytes |
| Default | No default |

### ATTRIBUTE Lp Ethernet Tm Ep txQueueMax (qmax)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the largest count of bytes allocated to traffic in the queue. |
| Values | Decimal (0..7168000) |
| Units | bytes |
| Default | No default |

### GROUP Lp Ethernet Tm Ep ProvQueue (ProvQ)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes of the *Ep* component. |

### ATTRIBUTE Lp Ethernet Tm Ep minimumBandwidthGuarantee (minBw)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the weight available to this queue. It determines the relative amount of residual bandwidth left by components *Ep/0* and *Ep/1* that is allocated to this queue.<br><br>The amount of bandwidth allocated is the weight of this queue divided by the sum of the weights of components *Ep/2* through *Ep/7* multiplied against the residual bandwidth. For example, if the weight of this queue divided by the sum of the weights from *Ep/2* through *Ep/7* is 2%, and 80% of the link bandwidth is left after *Ep/0* and *Ep/1* traffic is sent, then the amount of bandwidth available to this *Ep* queue is 2% of 80% (or 1.6%) of the link bandwidth.<br><br>The default weight values are 50, 25, 10, 7, 5, 3 assigned to components *Ep/2*, *Ep/3*, *Ep/4*, *Ep/5*, *Ep/6*, and *Ep/7*, respectively. |
| Values | Decimal (0.00..100.00)<br>autoConfig |
| Default | autoConfig |

### ATTRIBUTE Lp Ethernet Tm Ep redMode (red)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether random early packet discard is set to a value of either ***disable*** or ***enable*** for the queue. It serves as an early warning of congestion with the occasional packet being discarded when the queue begins to be congested, but it is not a congestion control mechanism in itself.<br>No frame is randomly discarded if this attribute is set to ***disable***. If it is set to ***enable***, only the frames whose red bit is set are targeted to be randomly discarded. In PCR5.1, the upstream device sets the red bit of every frame so that random eary discard is controlled by the setting of this attribute.<br>The default is ***disable***. |
| Values | disable<br>enable |

| | |
|---|---|
| Default | disable |

### ATTRIBUTE Lp Ethernet Tm Ep txQueueSize (qs)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum size of the link associated with the queue for buffering traffic.<br>For the 4pGE card, each of the port's 8 *Ep/x* queues have a maximum queue size for its *txQueueSize* attribute. The maximum queue sizes are 500K, 500K, 500K, 500K, 7M, 4.2M, 3M, and 2.2M for each *Ep/0*, *Ep/1*, *Ep/2*, *Ep/3*, *Ep/4*, *Ep/5*, *Ep/6* and *Ep/7* components, respectively. The default values are 100K, 300K, 300K, 300K, 7M, 4.2M, 3M, and 2.2M for each of *Ep/0*, *Ep/1*, *Ep/2*, *Ep/3*, *Ep/4*, *Ep/5*, *Ep/6* and *Ep/7* components, respectively. The autoConfig sets the *txQueueSize* to the default value corresponding to the component instance. |
| Values | Decimal (0..7168000)<br>autoConfig |
| Units | bytes |
| Default | autoConfig |

### COMPONENT Lp Ethernet Tm ServiceCategory (Sc)

| | |
|---|---|
| Instance | Decimal (0..7) |
| Groups | "GROUP Lp Ethernet Tm Sc Operational (Oper)" |
| Scope | Application |
| Description | *Lp/x Ethernet/y Tm Sc*<br>This component displays the default characteristics of the service category for queue scheduling. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Lp Ethernet Tm Sc Operational (Oper)

| | |
|---|---|
| Properties | Operational |

Description This group contains the operational attributes of the *Sc* component.

### ATTRIBUTE Lp Ethernet Tm Sc scToEpMappingOp (epOp)

Access Read only

Description This attribute indicates the emission queue which is used for this *Sc* component. The default values are ***ep0***, ***ep1***, ***ep2, ep3***, ***ep4***, ***ep5***, ***ep6*** and ***ep7*** assigned to *Sc/7*, *Sc/6*, *Sc/5*, *Sc/4*, *Sc/3*, *Sc/2*, *Sc/1*, and *Sc/0*, respectively.

Values
ep0
ep1
ep2
ep3
ep4
ep5
ep6
ep7

Default No default

### COMPONENT Lp Ethernet OpticalModule (Om)

Groups
"GROUP Lp Ethernet Om Provisioned (Prov)"
"GROUP Lp Ethernet Om OsiState (State)"
"GROUP Lp Ethernet Om Operational (Oper)"

Scope Device

Description *Lp/n Ethernet/n OpticalModule*
This component represents the optical module device of the port. The optical module is used to identify the type of connection for a port.

Common Verbs
Help
List
Display
Add
DELete

## GROUP Lp Ethernet Om Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioning data for the *OpticalModule* component. |

## ATTRIBUTE Lp Ethernet Om type

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the expected optical module type. The values for the *type* and *insertedType* attributes must match; otherwise, an alarm is raised and the *OpticalModule* component is disabled.<br><br>***none***: This value indicates that no optical module type is specified..<br><br>***LX***: This value indicates that the optical module is a gigabit ethernet type using long wavelength laser devices over multimode and single-mode fiber.<br><br>***SX***: This value indicates that the optical module is a gigabit ethernet type using short wavelength laser devices over multimode fiber.<br><br>***OC3SmLr***: This value indicates that the optical module is an OC3 type using long wavelength laser devices over singlemode fiber.<br><br>***OC3SmIr***: This value indicates that the optical module is an OC3 type using intermediate wavelength laser devices over singlemode fiber.<br><br>***OC3MmSr***: This value indicates that the optical module is an OC3 type using short wavelength laser devices over multimode fiber. |
| Values | none<br>LX<br>SX<br>OC3SmLr |

| | |
|---|---|
| | OC3SmIr<br>OC3MmSr |
| Default | none |

## GROUP Lp Ethernet Om OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

## ATTRIBUTE Lp Ethernet Om adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

## ATTRIBUTE Lp Ethernet Om operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

## ATTRIBUTE Lp Ethernet Om usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

## GROUP Lp Ethernet Om Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the *OpticalModule* component. |

## ATTRIBUTE Lp Ethernet Om insertedType

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the inserted optical module type.<br><br>***none***: This value indicates that there is no optical module inserted to the card.<br><br>***LX***: This value indicates that the optical module is a gigabit ethernet type using long wavelength laser devices over multimode and single-mode fiber.<br><br>***SX***: This value indicates that the optical module is a gigabit ethernet type using short wavelength laser devices over multimode fiber.<br><br>***OC3SmLr***: This value indicates that the optical module is an OC3 type using long wavelength laser devices over singlemode fiber.<br><br>***OC3SmIr***: This value indicates that the optical module is an OC3 type using intermediate wavelength laser devices over singlemode fiber.<br><br>***OC3MmSr***: This value indicates that the optical module is an OC3 type using short wavelength laser devices over multimode fiber. |
| Values | none<br>LX<br>SX<br>OC3SmLr<br>OC3SmIr<br>OC3MmSr |

| | |
|---|---|
| Default | none |

### ATTRIBUTE Lp Ethernet Om serialNumber

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the serial number of the inserted optical module. |
| Values | String (0..64, Extended ASCII) |
| Default | "" |

### ATTRIBUTE Lp Ethernet Om failureCause

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the cause for the optical module's failure. The possible values are:<br><br>***typeMismatch***: This error indicates a mismatch between the *type* and *insertedType* attributes.<br><br>***internalError***: This error indicates an internal diagnostic failure of the optical module.<br><br>***unsupportedOm:*** This error indicates that the inserted optical module is not supported on this card.<br><br>***absentOm***: This error indicates that no optical module are currently present on this port.<br><br>***noFailure***: There is no failure. |
| Values | typeMismatch<br>internalError<br>unsupportedOm<br>absentOm<br>noFailure |
| Default | noFailure |

## COMPONENT Lp Ethernet Test (Test)

| | |
|---|---|
| Groups | "GROUP Lp Ethernet Test OsiState (State)"<br>"GROUP Lp Ethernet Test Setup (Setup)"<br>"GROUP Lp Enet Test Results (Results)" |
| Scope | Application |
| Description | The *Test* component is configured to control a hardware facility test on a physical (*V35*, *X21*, *DS1*, *E1*, *DS3*, *E3* etc.) or a logical port. |
| Common Verbs | Help<br>List<br>Display |

## VERB START Lp Ethernet Test

| | |
|---|---|
| Impact | Service |
| Description | This command invokes a test on the hardware component. Note that some test types requires the parent component (the hardware component) to be locked (using the *Lock* command) before a test can be started. |

## VERB STOP Lp Ethernet Test

| | |
|---|---|
| Impact | Service |
| Description | This command stops a test running on the hardware component. |

## GROUP Lp Ethernet Test OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

## ATTRIBUTE Lp Ethernet Test adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |

Description

This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values

locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default

unlocked

### ATTRIBUTE Lp Ethernet Test operationalState (osiOper)

Access

Read only

Description

This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values

enabled (ena)
disabled (dis)

Default

disabled

### ATTRIBUTE Lp Ethernet Test usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Lp Ethernet Test Setup (Setup)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all of the operational data for a *Test* component. |

### ATTRIBUTE Lp Ethernet Test purpose (purpose)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute records the purpose of the test so that the test results can be associated and properly analyzed. |
| Values | String (0..40, ASCII) |
| Default | No default |

### ATTRIBUTE Lp Ethernet Test type (type)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the type of test to be run. The available test types include the following:<br>***card*** test sets up an internal loop on the board and runs a bit error |

rate test.
***manual*** test assumes the line is looped back externally and a bit error rate test is performed.
***localLoop*** test loops back the local modem and performs a bit error rate test.
***remoteLoop*** test loops back the remote modem (or CSU) and performs a bit error rate test.
***externalLoop*** test loops back the line to the far end.
***payloadLoop*** test only loops back the payload data received from the incoming line.
***remoteLoopThisTrib*** loops this particular tributary back at the far end, using services provided by the parent.
***v54RemoteLoop*** initiates a V.54 Remote Loopback test.
***pn127RemoteLoop*** initiates a PN127 Remote Loopback test.
***lineBIP8Error*** tests line BIP 8 error generation and detection (B2 byte inverted).
***sectionBIP8Error*** tests section BIP 8 error generation and detection (B1 byte inverted).
***pathBIP8Error*** tests path BIP 8 error generation and detection (B3 byte inverted).
***pathBIP2Error*** tests path BIP 2 error generation and detection (bit 1-2 of V5 byte inverted).
Note that not all test types are not supported by all function processors.

Values

card
manual
localLoop
remoteLoop
externalLoop
payloadLoop
remoteLoopThisTrib
v54RemoteLoop
pn127RemoteLoop
lineBIP8Error
sectionBIP8Error
pathBIP8Error
pathBIP2Error

Default

card

### ATTRIBUTE Lp Ethernet Test frmSize (size)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the size of the test data frames in number of bytes.<br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |
| Values | Decimal (4..4096) |
| Units | bytes |
| Default | 1024 |

### ATTRIBUTE Lp Ethernet Test frmPatternType (fpt)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the type of data pattern generation to use. The following lists the available pattern types:<br>***ccitt32kBitPattern*** is a pseudo-random sequence of 32 kbit.<br>***ccitt8MBitPattern*** is a pseudo-random sequence of 8Mbit.<br>***customizedPattern*** is the pattern defined in the ***customizedPattern*** attribute. |
| Values | ccitt32kBitPattern<br>ccitt8MBitPattern<br>customizedPattern |
| Default | ccitt32kBitPattern |

### ATTRIBUTE Lp Ethernet Test customizedPattern (cp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute allows a customized 32 bit pattern to be defined for use in the test data frames. This attribute is used when the attribute *frmPatternType* is set to ***CustomizedPattern***. Note that a 55 hex pattern is an alternating 1 and 0 pattern. |
| Values | Hex (H.0..H.ffffffff) |
| Units | Hex |
| Default | H.55555555 |

### ATTRIBUTE Lp Ethernet Test dataStartDelay (dsd)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time delay (in seconds) between when the test expects the loop to have been set up, to when the test data actually starts to be transmitted. This attribute is to accommodate some non-standard equipment that requires extra time for setting up a requested loop.<br>This attribute is ignored when the test *type* is set to ***externalLoop***. |
| Values | Decimal (0..1814400) |
| Units | seconds |
| Default | 0 |

### ATTRIBUTE Lp Ethernet Test displayInterval (di)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the interval (in minutes) between which interim test results are to be displayed. Results are displayed at the operator console at which the test was started. When the test *type* is set to ***externalLoop***, this attribute is ignored. There will be no display of results if *displayInterval* is set to 0. This attribute can be changed anytime. |
| Values | Decimal (0..30240) |
| Units | minutes |
| Default | 5 |

### ATTRIBUTE Lp Ethernet Test duration

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the duration for which the test data will be transmitted. In the case of an ***externalLoop***, this is the time that the loop is in effect. Note that *dataStartDelay* does not apply to the ***externalLoop*** test type. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |

Default 1.00

### GROUP Lp Ethernet Test Results (Results)

Properties Operational

Description This group contains all the statistics related attributes of the *Test* component.

### ATTRIBUTE Lp Ethernet Test causeOfTermination

Access Read only

Description This attribute indicates either the status of the test or the cause of the test's termination:

a value of ***neverStarted*** indicates that the test has not yet been started.

a value of ***testRunning*** indicates that the test has been started.

a value of ***stoppedByOperator*** indicates that the operator issued a stop command on a test that was running.

a value of ***testTimeExpired*** indicates that the test ran for the time specified by the test's *duration*.

a value of ***loopCodeSyncFailed*** indicates that the local end failed to synchronize to the loopCode pattern. The local end transmits the loopCode pattern to cause the remote end to apply a loopback, after which the local end should receive the loopCode pattern. The exact pattern used to request loopCode depends on the test *type*. This failure indicates a high rate of transmission errors, or that the remote end has failed to apply the loopback.

a value of ***patternSyncFailed*** indicates that the local end failed to synchronize to the *frmPatternType* test pattern, that should have been looped back at the remote end. This failure indicates a high rate of transmission errors or the absence of a loopback.

a value of ***patternSyncLost*** indicates that the local end gained and then lost synchronization to the returned *frmPatternType* test pattern. This failure indicates a sudden increase in transmission

errors, frame slippage, or the removal of an existing loopback.

a value of ***unknown*** is set when a reason to terminate other than those listed here is encountered.

Note: The *causeOfTermination* attribute values of ***loopCodeSyncFailed***, ***patternSyncFailed*** and ***patternSyncLost*** are supported only on MSA cards. *Test* components located on other cards or under an *Ima* component on an MSA card will never terminate the test under the conditions described by these values.

| | |
|---|---|
| Values | testTimeExpired<br>stoppedByOperator<br>unknown<br>neverStarted<br>testRunning<br>hardwareReconfigured<br>loopCodeSyncFailed<br>patternSyncFailed<br>patternSyncLost |
| Default | neverStarted |

### ATTRIBUTE Lp Ethernet Test bitsTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bits sent during the test period. As long as the line speed of the hardware interface is less than 70 Mbit/s, this counter is not expected to reach the maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Ethernet Test bytesTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes sent during the test period. This counter is not expected to reach its maximum value. |

| | |
|---|---|
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Ethernet Test frmTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames sent during the test period. This counter is not expected to reach its maximum value.<br><br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Ethernet Test bitsRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bits received during the test period. The counter wraps to zero when it exceeds the maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Ethernet Test bytesRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes received during the test period. The counter wraps to zero when it exceeds its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Lp Ethernet Test frmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received during the test period. The counter wraps to zero when it exceeds its maximum value. |

This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame.

Values: Long Integer

Default: No default

### ATTRIBUTE Lp Ethernet Test erroredFrmRx

Access: Read only

Description: This attribute is not displayed for ATM and MSA32 cards. For ATM cards, the physical layer drops all errored frames at the controller interface. For MSA32 cards, the test does not generate any frame.

For all other card types, this attribute counts the errored frames received during the test period. The counter wraps to zero when it exceeds its maximum value.

Values: Long Integer

Default: No default

### ATTRIBUTE Lp Ethernet Test bitErrorRate

Access: Read only

Description: This attribute is not displayed for ATM cards because the physical layer drops all errored frames at the controller interface. For MSA32 cards, this attribute indicates the link bit error rate, regardless of the *frameSize*, which is not supported

For all other card types, this attribute is the calculated bit error rate on the link. Test data are generated and sent in frames of a preset size (*frameSize*). The *Test* component will try to estimate the number of bit errors in any errored frame which is identifiable. The statistics will be updated accordingly. A lost frame (may be due to an error on the flag sequence) will be discarded for the bit error rate calculation. The result is presented in the form of xEsyy, where x is the mantissa, syy is the exponent, for example 0E+00, 2E-09.
Note that the *bitErrorRate* is an estimate only. For more reliable

| | |
|---|---|
| | test results, the test should be done over a long period. Multiple tests would also improve the confidence level of the test results. |
| Values | String (5, ASCII) |
| Default | No default |

### ATTRIBUTE Lp Ethernet Test elapsedTime

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the time elapsed since the test started for an ***externalLoop*** test. For a data test, it indicates time since test data was first transmitted. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 0.00 |

### ATTRIBUTE Lp Ethernet Test timeRemaining

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the length of time remaining before the test stops according to the *duration* attribute. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 0.00 |

Passport 7400, 15000, 20000

# Component Lp

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component McsMgr

241-5701-060

Passport 7400, 15000, 20000

# Component McsMgr

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT McsManager (McsMgr)

| | |
|---|---|
| Groups | "GROUP McsMgr Provisioned (Prov)"<br>"GROUP McsMgr OsiState (State)"<br>"GROUP McsMgr Operational (Oper)" |
| Scope | Network |
| Description | *McsManager*<br>There is at most one *McsManager* per module. The *McsManager* is required for FRF5 PVC and DPRS MCS functionality. The *McsManager* can run on one of a number of LPs. The LP of the active *McsManager* can be determined by looking at the *currentLp* operational attribute. |
| Opt. Subcomp. | "COMPONENT McsMgr Frf5EndPointGroup (Frf5EpG)" |
| Opt. Subcomp. | "COMPONENT McsMgr DprsMcsEndPointGroup (DprsMcsEpG)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP McsMgr Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes of the *McsManager*. |

### ATTRIBUTE McsMgr maxEps (mEps)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the number of end points that will be allowed on the module.This includes end points originating from and terminating on this module. When this limit is reached calls requiring the creation of an end point are rejected. The current number of EPs is indicated by the *currentEps* attribute. |
| Values | Decimal (1..16384) |
| Default | 512 |

### ATTRIBUTE McsMgr epAlarmThreshold (epThresh)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum number of end points that can exist before an alarm is raised. When *currentEps* exceeds this value an alarm is generated. The alarm is cleared when *currentEps* falls below this value. |
| Values | Decimal (1..16384) |
| Default | 128 |

### ATTRIBUTE McsMgr overrideNsapAddress (oNsap)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the NSAP address to use as the address of the *McsManager*. If this attribute is left empty the default *McsManager* NSAP address is used. The *nsapAddress* attribute indicates the NSAP address used by the *McsManager*.<br>The default NSAP address for the *McsManager* takes the form:<br><26 byte module prefix>0020480d100100 |
| Values | String (0..44, AESANsapAddress) |
| Default | "" |

### ATTRIBUTE McsMgr security (sec)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute enables or disables security for the *McsManager*. In the case of DPRS MCS Switched Paths, if security is set to ***on*** this node must have a *DprsMcsEpGroup* with the *nsapAddress* of the *Addr* subcomponent set to the same value as the node originating the call setup for the call to be accepted.If this attribute is set to ***off*** this node will accept DPRS MCS setup requests from any other node in the network.<br>This attribute has no effect on the setup of FRF5 switched paths since an originating and terminating EP are required to establish an FRF5 switched path. |
| Values | off<br>on |
| Default | off |

### GROUP McsMgr OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE McsMgr adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***. |

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE McsMgr operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
enabled (ena)
disabled (dis)

Default
disabled

## ATTRIBUTE McsMgr usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

## ATTRIBUTE McsMgr availabilityStatus (osiAvail)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present. |

The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.

The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.

The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.

The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

| | |
|---|---|
| Set of | inTest<br>failed<br>dependency (depend)<br>powerOff (pwrOff)<br>offLine<br>offDuty<br>degraded (degrad)<br>notInstalled (notIn)<br>logFull<br>migrating |
| Default | No default |

### ATTRIBUTE McsMgr proceduralStatus (osiProc)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.<br><br>The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.<br><br>The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***. |

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

## ATTRIBUTE McsMgr controlStatus (osiCntrl)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

Set of

subjectToTest (subTst)
partOfServicesLocked (partLk)
reservedForTest (rsrvd)
suspended (suspnd)

Default

No default

### ATTRIBUTE McsMgr alarmStatus (osiAlarm)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE McsMgr standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values

hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

| | |
|---|---|
| Default | notSet |

### ATTRIBUTE McsMgr unknownStatus (osiUnknw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Unknown status of the component.<br><br>The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.<br><br>The value ***true*** indicates that the actual state of the component is not known for sure. |
| Values | false<br>true |
| Default | false |

### GROUP McsMgr Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes of the *McsManager* component. |

### ATTRIBUTE McsMgr currentLp (curLp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current LP on which the *McsManager* resides. If this attribute is blank then no *McsManager* is available. |
| Values | The name of the component |
| Default | No default |

### ATTRIBUTE McsMgr currentEps (totalEps)

| | |
|---|---|
| Access | Read only |
| Description | The indicates the number of EPs both originating and terminating on this module. |
| Values | Decimal (0..16384) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE McsMgr nsapAddress (nsap)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the NSAP address of the *McsManager* on this node. The value of this attributed depends on how the *overrideNsapAddress* attribute is set. All DPRS MCS and FRF5 switched paths that are to terminate on this node must specify this NSAP address as their destination. |
| Values | String (0..44, ASCII) |
| Default | No default |

### ATTRIBUTE McsMgr candidateLps (canLps)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the set of LPs capable of running the *McsManager*. If this attribute is blank then there are no candidate LPs. |
| List of | The name of the component |
| Default | No default |

### COMPONENT McsMgr DprsMcsEndPointGroup (DprsMcsEpG)

| | |
|---|---|
| Instance | Decimal (1..8191) |
| Groups | "GROUP McsMgr DprsMcsEpG Operational (Oper)" |
| Scope | Network |
| Description | *McsMgr DprsMcsEndPointGroup/n*<br>The *DprsMcsEndPointGroup* component contains all of the provisioned End Points or all of the dynamic End Points that share a common destination NSAP address, thereby terminating on the same destination node.<br>This means that there could be at most two *DprsMcsEndPointGroups* to the same destination, a provisioned *DprsMcsEpG* and a dynamic *DprsMcsEpG*.<br>The associated group is indicated by the *associatedEpGroupName* attribute. |

| | |
|---|---|
| | *DprsMcsEpG* component instances in the 1-4096 range can be provisioned.<br>*DprsMcsEpG* component instances in the 4097-8191 range are dynamic. |
| Subcomponents | "COMPONENT McsMgr DprsMcsEpG Address (Addr)" |
| Subcomponents | "COMPONENT McsMgr DprsMcsEpG EndPoint (Ep)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP McsMgr DprsMcsEpG Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes of the *DprsMcsEpG* component. |

### ATTRIBUTE McsMgr DprsMcsEpG remoteAddress (rAddr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the NSAP address of the *McsMgr* at the destination module to which all *EndPoints* of this group are connected. |
| Values | String (0..44, ASCII) |
| Default | No default |

### ATTRIBUTE McsMgr DprsMcsEpG associatedEpGroupName (assocEpGrpName)

| | |
|---|---|
| Access | Read only |
| Description | For a provisioned *DprsMcsEpG*, this attribute indicates the name of the *DprsMcsEpG* that contains the dynamic *Eps* to the same destination.<br>For a dynamic *DprsMcsEpG*, this attribute indicates the name of the<br>*DprsMcsEpG* that contains the provisioned Eps to the same |

| | |
|---|---|
| | destination.<br>A null component name indicates that there is no *DprsMcsEpG* associated with this group. |
| Values | The name of the component |
| Default | No default |

### COMPONENT McsMgr DprsMcsEpG Address (Addr)

| | |
|---|---|
| Groups | "GROUP McsMgr DprsMcsEpG Addr Provisioned (Prov)" |
| Scope | Application |
| Description | *McsMgr DprsMcsEpG/n Address*<br>This component contains the destination NSAP address used by all DPRS MCS End Points provisioned under a *DprsMcsEpG*. |
| Common Verbs | Help<br>List<br>Display |

### GROUP McsMgr DprsMcsEpG Addr Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes of the *Address* component. |

### ATTRIBUTE McsMgr DprsMcsEpG Addr remoteAddress (rAddr)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the NSAP address of the *McsMgr* at the destination module. This address is used by the *EndPoints* provisioned under this *DprsMcsEpG* to establish a DPRS MCS Switched Path. |
| Values | String (1..44, AESANsapAddress) |
| Default | No default |

## ATTRIBUTE McsMgr DprsMcsEpG Addr commentText

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies additional textual information to be added by the network operator. Typical use of this attribute is to specify the destination module name. |
| Values | String (0..60, ASCII) |
| Default | "" |

## COMPONENT McsMgr DprsMcsEpG EndPoint (Ep)

| | |
|---|---|
| Instance | Decimal (1..256) |
| Groups | "GROUP McsMgr DprsMcsEpG Ep OsiState (State)"<br>"GROUP McsMgr DprsMcsEpG Ep Operational (Oper)"<br>"GROUP McsMgr DprsMcsEpG Ep Statistics (Stats)" |

"COLLECTED STATS McsManager DprsMcsEndPointGroup EndPoint"

| | |
|---|---|
| Scope | Network |
| Description | *McsMgr DprsMcsEpG/n EndPoint/n*<br>The *EndPoint* component represents the DPRS MCS Switched Path. It multiplexes multiple Frame Relay DLCIs and transports them over an underlying PORS or ATM connection. |

| | |
|---|---|
| Subcomponents | "COMPONENT McsMgr DprsMcsEpG Ep EndPointDescriptor (EpD)" |
| Dyn. Subcomp. | "COMPONENT McsMgr DprsMcsEpG Ep AtmConnection (AtmCon)"<br>"COMPONENT McsMgr DprsMcsEpG Ep LogicalConnection (LCo)"<br>"COMPONENT McsMgr DprsMcsEpG Ep Connection (Con)" |
| Dyn. Subcomp. | "COMPONENT McsMgr DprsMcsEpG Ep CallAdmissionControl (Cac)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

### VERB Ping McsMgr DprsMcsEpG Ep

| | |
|---|---|
| Impact | Passive |
| Description | *Ping McsMgr DprsMcsEpG/n Ep/n*<br>A *Ping* issued against the *Ep* causes a query packet to be sent to the remote *Ep*, allowing the user to verify that the underlying PORS or ATM transport connection is up.<br>The ping query packet sent includes 10 octets of data and 4 octets of ping packet headers.<br>A ping reply packet expected in response to a ping query also includes 10 octets of data and 4 octets of packet headers. |

### GROUP McsMgr DprsMcsEpG Ep OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values |

and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE McsMgr DprsMcsEpG Ep adminState (osiAdmin)

Access: Read only

Description: This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values:
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default: unlocked

### ATTRIBUTE McsMgr DprsMcsEpG Ep operationalState (osiOper)

Access: Read only

Description: This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for

operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE McsMgr DprsMcsEpG Ep usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
idle
active (activ)
busy

Default
idle

### ATTRIBUTE McsMgr DprsMcsEpG Ep availabilityStatus (osiAvail)

Access
Read only

Description

If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.

The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.

The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.

The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.

The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is

one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

## ATTRIBUTE McsMgr DprsMcsEpG Ep proceduralStatus (osiProc)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has

not been initiated. The *operationalState* is ***disabled***.

The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

### ATTRIBUTE McsMgr DprsMcsEpG Ep controlStatus (osiCntrl)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but

tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

Set of

subjectToTest (subTst)
partOfServicesLocked (partLk)
reservedForTest (rsrvd)
suspended (suspnd)

Default

No default

### ATTRIBUTE McsMgr DprsMcsEpG Ep alarmStatus (osiAlarm)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE McsMgr DprsMcsEpG Ep standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the

role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values
hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

Default
notSet

### ATTRIBUTE McsMgr DprsMcsEpG Ep unknownStatus (osiUnknw)

Access
Read only

Description
This attribute indicates the OSI Unknown status of the component.

The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.

The value ***true*** indicates that the actual state of the component is not known for sure.

Values
false
true

Default
false

### GROUP McsMgr DprsMcsEpG Ep Operational (Oper)

Properties
Operational

Description
This group contains the operational attributes of the *EndPoint* component.

### ATTRIBUTE McsMgr DprsMcsEpG Ep lastTransportConnectionClearCause (lastTrConClearCause)

Access
Read only

Description
This attribute indicates the most recent clear cause for the transport connection.

| | |
|---|---|
| | This indicates the causes provided by the network.<br>A value of zero indicates that the transport connection has never been cleared.<br>A value of 1000 indicates that the network has not provided a clear<br>cause for the transport connection clearing.<br>Section 5.4.5.15 of the ATMF UNI 3.1 specification lists the clear causes provided by the network. |
| Values | Decimal (0..1000) |
| Default | No default |

### ATTRIBUTE McsMgr DprsMcsEpG Ep type

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the type of the end point. If the value is ***originating***, this *Ep* is provisioned and is responsible for initiating the SPVC call to set up the PORS or ATM connection. If the value is ***terminating***, this *Ep* is created dynamically by the McsMgr at the destination node when it receives a call setup request. |
| Values | originating (orig)<br>terminating (term) |
| Default | originating |

### ATTRIBUTE McsMgr DprsMcsEpG Ep supportedTransferPriorities (supTps)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Frame Relay transfer priorities supported by the transport connection. |
| Set of | Decimal (0..15) |
| Default | No default |

### ATTRIBUTE McsMgr DprsMcsEpG Ep connectionTransferPriority (connTp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the transfer priority used to establish the transport connection. |

| | |
|---|---|
| Values | Decimal (0..15) |
| Default | No default |

### ATTRIBUTE McsMgr DprsMcsEpG Ep serviceCategory (sc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the ATM service category of the transport connection. |
| Values | ubr<br>cbr<br>rtVbr<br>nrtVbr |
| Default | No default |

### ATTRIBUTE McsMgr DprsMcsEpG Ep remoteComponentName (remoteName)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the component name of the remote *Ep*, learned from the remote end.<br>For example: *"EM/NODEY2D0 McsMgr DprsMcsEpG/1 Ep/1"*.<br>The value is a null string if the transport connection is down. |
| Values | String (0..46, ASCII) |
| Default | No default |

### ATTRIBUTE McsMgr DprsMcsEpG Ep remoteRoutingId (remoteRid)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the routing identifier (RID) associated with the Passport node on which the remote *Ep* resides. The remote RID is learned from the remote *Ep*.<br>The value is valid when the transport connection is up and zero otherwise. |
| Values | Decimal (0..126) |
| Default | No default |

### ATTRIBUTE McsMgr DprsMcsEpG Ep remoteModuleId (remoteMid)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the module identifier (MID) associated with the Passport node on which the remote *Ep* resides. The remote MID is learned from the remote *Ep*.<br>The value is valid when the transport connection is up and zero otherwise. |
| Values | Decimal (0..1909) |
| Default | No default |

### ATTRIBUTE McsMgr DprsMcsEpG Ep lastTrConnDiagCode (lastTrConnDiagCode)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the diagnostic code of the most recently cleared transport connection.<br>This indicates the diagnostic code (associated with the lastTransportConnectionClearCause) provided by the network.<br>A string containing only a 0 or 00 (zero) indicates that the network has not provided a diagnostic code for the most recently cleared transport connection.<br>Section 5.4.5.15 of the ATMF UNI 3.1 specification lists the diagnostic codes that can be provided by the network. |
| Values | String (0..10, Hex) |
| Default | No default |

### ATTRIBUTE McsMgr DprsMcsEpG Ep forwardBandwith (fBw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the bandwidth at which the transport connection agrees to transfer information in the forward (from the originating to the dynamic End Point) direction. |
| Values | Decimal (0..155000000) |
| Units | bit/s |
| Default | No default |

### ATTRIBUTE McsMgr DprsMcsEpG Ep reverseBandwidth (rBw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the bandwidth at which the transport connection agrees to transfer information in the reverse (from the dynamic to the to the originating End Point) direction. |
| Values | Decimal (0..155000000) |
| Units | bit/s |
| Default | No default |

### GROUP McsMgr DprsMcsEpG Ep Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistics of traffic received on the DPRS MCS Switched Path. |

### ATTRIBUTE McsMgr DprsMcsEpG Ep setupAttempts

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of attempts made to set up the transport connection. The counter wraps around to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE McsMgr DprsMcsEpG Ep pktDiscErroredFromMcs

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts errored packets received on the DPRS MCS Switched Path; these packets are discarded.<br>The counter wraps around to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE McsMgr DprsMcsEpG Ep pktFromMcs

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the packets received on the DPRS MCS Switched Path for each discard priority.<br>This attribute is a vector with four entries. Each vector entry is a counter indexed by one of four discard priorities, namely, discard priority 0 (***dp0***), discard priority 1 (***dp1***), discard priority 2 (***dp2***), or discard priority 3 (***dp3***).<br>Each entry (counter) wraps around to zero when the maximum value is exceeded. |
| Vector of | Long Integer |
| Index | discardPriority0 (dp0)<br>discardPriority1 (dp1)<br>discardPriority2 (dp2)<br>discardPriority3 (dp3) |
| Default | No default |

### ATTRIBUTE McsMgr DprsMcsEpG Ep octetsFromMcs

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the octets received on the DPRS MCS Switched Path for each discard priority.<br>This attribute is a vector with four entries. Each vector entry is a counter indexed by one of four discard priorities, namely, discard priority 0 (***dp0***), discard priority 1 (***dp1***), discard priority 2 (***dp2***), or discard priority 3 (***dp3***).<br>Each entry (counter) wraps around to zero when the maximum value is exceeded. |
| Vector of | Long Integer |
| Index | discardPriority0 (dp0)<br>discardPriority1 (dp1)<br>discardPriority2 (dp2)<br>discardPriority3 (dp3) |
| Default | No default |

### ATTRIBUTE McsMgr DprsMcsEpG Ep pktDiscCongestedFromMcs

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts packets received on the DPRS MCS Switched Path for each discard priority that have been discarded at the transport card due to congestion at the access card.<br>This attribute is a vector with four entries. Each vector entry is a counter indexed by one of four discard priorities, namely, discard priority 0 (***dp0***), discard priority 1 (***dp1***), discard priority 2 (***dp2***), or discard priority 3 (***dp3***).<br>Each entry (counter) wraps around to zero when the maximum value is exceeded. |
| Vector of | Decimal (0..4294967295) |
| Index | discardPriority0 (dp0)<br>discardPriority1 (dp1)<br>discardPriority2 (dp2)<br>discardPriority3 (dp3) |
| Default | No default |

## COLLECTED STATS McsManager DprsMcsEndPointGroup EndPoint

| | |
|---|---|
| Description | The statistics record generated by the McsManager DprsMcsEndPointGroup EndPoint component. |

### ATTRIBUTE McsMgr DprsMcsEpG Ep remoteComponentName (remoteName)

| | |
|---|---|
| Description | This attribute indicates the component name of the remote *Ep*, learned from the remote end.<br>For example: *"EM/NODEY2D0 McsMgr DprsMcsEpG/1 Ep/1"*.<br>The value will be a null string if the transport connection is down at the end of the statistics collection interval. |
| Values | String (0..46, ASCII) |

### ATTRIBUTE McsMgr DprsMcsEpG Ep bandwidthHWM

| | |
|---|---|
| Description | This attribute indicates the high-water mark of the bandwidth at which the transport connection agrees to transfer data during the last statistics collection interval. The value for this attribute is equal to the provisioned bandwidth when the connection is up, |

and is 0 when the transport connection is down.
This attribute, when combined with *bandwidthLWM* can also be used to indicate a transport connection outage occurrence.

Values: Decimal (0..155000000)

Units: bit/s

### ATTRIBUTE McsMgr DprsMcsEpG Ep bandwidthLWM

Description: This attribute indicates the low-water mark of the bandwidth at which the transport connection agrees to transfer data during the last statistics collection interval. The value for this attribute is equal to the provisioned bandwidth when the connection is up, and is 0 when the transport connection is down.
This attribute, when combined with *bandwidthHWM* can also be used to indicate a transport connection outage occurrence.

Values: Decimal (0..155000000)

Units: bit/s

### ATTRIBUTE McsMgr DprsMcsEpG Ep serviceCategory (sc)

Description: This attribute indicates the ATM service category of the transport connection.

Values:
ubr
cbr
rtVbr
nrtVbr

### ATTRIBUTE McsMgr DprsMcsEpG Ep pktFromMcs

Description: This attribute indicates the number of packets received on the DPRS MCS Switched Path End Point for each discard priority in the last statistics collection interval.
This attribute is a vector with four entries. Each vector entry is a counter indexed by one of four discard priorities, namely, discard priority 0(***dp0***), discard priority 1 (***dp1***), discard priority 2 (***dp2***), or discard priority 3 (***dp3***).

| | |
|---|---|
| Vector of | Long Integer |
| Index | discardPriority0 (dp0)<br>discardPriority1 (dp1)<br>discardPriority2 (dp2)<br>discardPriority3 (dp3) |

### ATTRIBUTE McsMgr DprsMcsEpG Ep octetsFromMcs

| | |
|---|---|
| Description | This attribute indicates the octets received on the DPRS MCS Switched Path End Point for each discard priority in the last statistics collection interval.<br>This attribute is a vector with four entries. Each vector entry is a counter indexed by one of four discard priorities, namely, discard priority 0 (***dp0***), discard priority 1 (***dp1***), discard priority 2 (***dp2***), or discard priority 3 (***dp3***). |
| Vector of | Long Integer |
| Index | discardPriority0 (dp0)<br>discardPriority1 (dp1)<br>discardPriority2 (dp2)<br>discardPriority3 (dp3) |

### ATTRIBUTE McsMgr DprsMcsEpG Ep pktDiscCongestedFromMcs

| | |
|---|---|
| Description | This attribute indicates the number of packets received on the DPRS MCS Switched Path End Point for each discard priority that have been discarded at the transport card in the last statistics collection interval due to congestion at the access card.<br>This attribute is a vector with four entries. Each vector entry is a counter indexed by one of four discard priorities, namely, discard priority 0 (***dp0***), discard priority 1 (***dp1***), discard priority 2 (***dp2***), or discard priority 3 (***dp3***). |
| Vector of | Decimal (0..4294967295) |
| Index | discardPriority0 (dp0)<br>discardPriority1 (dp1)<br>discardPriority2 (dp2)<br>discardPriority3 (dp3) |

### ATTRIBUTE McsMgr DprsMcsEpG Ep pktDiscErroredFromMcs

| | |
|---|---|
| Description | This attribute the number of errored packets received on the DPRS MCS Switched Path End Point that have been discarded in the last statistics collection interval. |
| Values | Decimal (0..4294967295) |

### COMPONENT McsMgr DprsMcsEpG Ep EndPointDescriptor (EpD)

| | |
|---|---|
| Groups | "GROUP McsMgr DprsMcsEpG Ep EpD Provisioned (Prov)" |
| Scope | Network |
| Description | *McsMgr DprsMcsEpG/n Ep/n EndPointDescriptor*<br>This component establishes the underlying PORS or ATM connection. There can only be one DPRS MCS Switched Path for a given Frame Relay transfer priority between a pair of nodes. Therefore, the *supportedTransferPriorities* on this *EndPoint* must be mutually exclusive with the *supportedTransferPriorities* of all other *EndPoints* within this *DprsMcsEndPointGroup*. |
| Common Verbs | Help<br>List<br>Display |

### GROUP McsMgr DprsMcsEpG Ep EpD Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the parameters used to establish the transport connection for this *Ep*. |

### ATTRIBUTE McsMgr DprsMcsEpG Ep EpD connectionTransferPriority (connTp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the transfer priority used to establish the transport connection. It references the *ModuleData Frs AtmNet Tpm* to determine the ATM service category to be used by the transport connection.<br>This attribute is used by the *Ep* solely for the purpose of determining the service category that should be used to establish the transport connection. |

| | |
|---|---|
| Values | Decimal (0..15) |
| Default | No default |

### ATTRIBUTE McsMgr DprsMcsEpG Ep EpD transportConnectionPreference (transConPref)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the preference of routing system to be used to set up the transport connection.<br>If a value of ***atmOnly*** is specified, attempts to set up the transport connection will be made using only the ATM routing system's network facilities.<br>If a value of ***porsOnly*** is specified, attempts to set up the transport connection will be made using only PORS network facilities. |
| Values | atmOnly<br>porsOnly |
| Default | porsOnly |

### ATTRIBUTE McsMgr DprsMcsEpG Ep EpD profile (prof)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the PORS profile to be used for the transport connection when it is set up using PORS. This attribute is ignored if the *transportConnectionPreference* is ***atmOnly***. |
| Values | Link (Service, users) |
| Default | No default |

### ATTRIBUTE McsMgr DprsMcsEpG Ep EpD porsManualPath (mpath)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the PORS manual path to be used for the transport connection when it is set up using PORS. The manual path that this attribute is linked to specifies the sequence of Trunks that will be used when PORS chooses and instantiates the route. |

This attribute is ignored if the *transportConnectionPreference* is ***atmOnly***.

Values: Link (Service, users)

Default: No default

### ATTRIBUTE McsMgr DprsMcsEpG Ep EpD supportedTransferPriorities (supTps)

Access: Read and write

Description: This attribute specifies the Frame Relay transfer priorities that are supported through the transport connection. It is used to determine which *EndPoint* within a *DprsMcsEndPointGroup* is to multiplex a particular Frame Relay DLCI.
A particular transfer priority can be specified on at most one *EndPoint* within a *DprsMcsEndPointGroup.*

Set of: Decimal (0..15)

Default: (0)

### ATTRIBUTE McsMgr DprsMcsEpG Ep EpD forwardBandwidth (fBw)

Access: Read and write

Description: This attribute specifies the bandwidth this End Point will request when setting up a transfer connection which the transport in the forward (from the originating to the terminating End Point) direction.
A conservative value would be the sum of the committed information rates (CIRs) of all individual Frame Relay DLCIs multiplexed on the transport connection.
For ATM connections, the value is converted to an equivalent Peak Cell Rate (PCR01) for all cells with Cell Loss Priority (CLP), CLP = 0 and CLP = 1.
Note that the conversion to an equivalent cell rate for ATM connections may result in some wasted bandwidth depending on the average frame size to cell ratio.

Values: Decimal (56000..155000000)

Units: bit/s

| | |
|---|---|
| Default | 512000 |

### ATTRIBUTE McsMgr DprsMcsEpG Ep EpD reverseBandwidth (rBw)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the bandwidth this End Point will request when setting up a transfer connection which the transport in the reverse (from the terminating to the originating End Point) direction.<br>A conservative value would be the sum of the committed information rates (CIRs) of all individual Frame Relay DLCIs multiplexed on the transport connection.<br>For ATM connections, the value is converted to an equivalent Peak Cell Rate (PCR01) for all cells with Cell Loss Priority (CLP), CLP = 0 and CLP = 1.<br>Note that the conversion to an equivalent cell rate for ATM connections may result in some wasted bandwidth depending on the average frame size to cell ratio. |
| Values | Decimal (56000..155000000)<br>sameAsForward |
| Units | bit/s |
| Default | sameAsForward |

### COMPONENT McsMgr DprsMcsEpG Ep AtmConnection (AtmCon)

| | |
|---|---|
| Groups | "GROUP McsMgr DprsMcsEpG Ep AtmCon Operational (Oper)" |
| Scope | Device |
| Description | An AtmConnection component is created for each ATM connection established by an application. It shows where the data traffic for this connection is directed. |
| Common Verbs | Help<br>List<br>Display |

### GROUP McsMgr DprsMcsEpG Ep AtmCon Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains the operational attributes for the *NapAtmConnection* component. |

### ATTRIBUTE McsMgr DprsMcsEpG Ep AtmCon nextHop

| | |
|---|---|
| Access | Read only |
| Description | This attribute shows the component name of the *AtmIf Vcc Ep* or *AtmCon* component to which this switched connection is established. |
| Values | The name of the component |
| Default | No default |

### COMPONENT McsMgr DprsMcsEpG Ep LogicalConnection (LCo)

| | |
|---|---|
| Groups | "GROUP McsMgr DprsMcsEpG Ep LCo PathData"<br>"GROUP McsMgr DprsMcsEpG Ep LCo Statisitics (Stats)" |
| Scope | Application |
| Description | ...*Lc*<br>This component contains all of the operation attributes for a Path Oriented Logical Connection. |
| Common Verbs | Help<br>List<br>Display |

### VERB RERoute McsMgr DprsMcsEpG Ep LCo

| | |
|---|---|
| Impact | Service |
| Description | RERoute ..Lc<br>This command is used to request a *LogicalConnection (LCo)* to attempt a reroute. A new path will be established if it is better than the current path. The current path will not be interrupted if the *RERoute* command is not completely successful. The connection must not be attempting rerouting at present. This command is only valid on components with the *PLC remoteName* specified.<br>This command is intended to be used on the calling end of a connection. For a single region call, it may be used on the called end of a connection if all the *PLC* parameters match. Note that the calling end or the called end of a connection means the *end* attribute of an *LCo* is equal to the value of ***calling*** or ***called*** respectively.<br><br>When used on an *LCo* with *pathType* attribute set to ***manual*** or ***forced,*** this command can be used to re-setup the path.<br><br>If this command is attempted on a connection that is not up but its *state* attribute is equal to ***pathDownRetrying,*** an immediate route request is sent. |

### GROUP McsMgr DprsMcsEpG Ep LCo PathData

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all operational attributes for the path oriented LCo. |

### ATTRIBUTE McsMgr DprsMcsEpG Ep LCo state

| | |
|---|---|
| Access | Read only |
| Description | This attribute reflects the current state of the connection. The ***pathDown*** state indicates a connection that has no remote end provisioned or the application has not yet signaled for a path. The ***selectingRoute*** state occurs when a request has been sent to route selector and it has not yet responded. The ***connectingState*** occurs while a path is being established. The ***pathUp*** state is the normal operational state of a path. The ***pathDownRetrying*** state indicates |

a path that attempted route selection but received no route and is now waiting to retry route selection again.

Values
pathDown
selectingRoute
connecting
pathUp
pathDownRetrying

Default
No default

### ATTRIBUTE McsMgr DprsMcsEpG Ep LCo overrideRemoteName (orn)

Access
Read: All
Write: All

Description
If set ***and*** the current PLC remoteName is blank this remoteName will override the blank PLC remoteName. Usually you would set this attribute and then lock/unlock the service component which will result in this new overrideRemoteName being used as if it had been provisioned into the PLC remoteName. The advantage of this attribute is that the connection's remoteName can be changed immediately without having to "activate prov" but the disadvantage is that the overrideRemoteName is not permanent and if the card or switch is reset the override will be lost.

Values
String (0..40, ASCII)

Default
""

### ATTRIBUTE McsMgr DprsMcsEpG Ep LCo end

Access
Read only

Description
This attribute identifies whether this is the calling or called end of the path.

Values
calling
called

Default
No default

### ATTRIBUTE McsMgr DprsMcsEpG Ep LCo costMetric (cost)

Access
Read only

| | |
|---|---|
| Description | This attribute gives the route's total cost metric. It is calculated as the sum of the cost metric of all trunks in the path at the time the connection was established. The cost metric of a trunk is defined by the *trunkCost* attribute of the Trunk component. The *costMetric* for an LCo that is originated and terminated on the same module is 0. |
| Values | Decimal (0..65535) |
| Default | No default |

### ATTRIBUTE McsMgr DprsMcsEpG Ep LCo delayMetric (delay)

| | |
|---|---|
| Access | Read only |
| Description | This attribute gives the total delay of the route as the one way delay for a 512 byte packet. It is calculated as the sum of the delays of all trunks in the path stored in topology at the time the connection was established. The delay for an LCo that is originated and terminated on the same module is 0. |
| Values | Decimal (0..100000) |
| Units | msec |
| Default | No default |

### ATTRIBUTE McsMgr DprsMcsEpG Ep LCo roundTripDelay (rtd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the time taken for a packet (cell) of 44 bytes to be transmitted inband to the remote *LCo* and return to this LCo. The value reported is rounded to the nearest millisecond.<br>For Unack PORS trunks and AAL5 MUX PORS trunks, the test packet is sent inband and receives the same treatment as regular data packets, giving a round trip delay which corresponds to regular data traffic.<br>For SPO MUX PORS trunks and MAP PORS trunks, the test packet is sent along the parent trunk's VCC, giving a round trip delay which corresponds to the parent trunk's round trip delay. The round trip delay does not directly reflect the round trip delay of data packets travelling on the non-parent VCC.<br>When the *LCo* is originated and terminated on the same module, |

| | |
|---|---|
| | a value of 1 millisecond is reported. The value of 1 millisecond is the minimum reported time even though the delay may be less than 1 millisecond. |
| Values | Decimal (0..200000) |
| Units | msec |
| Default | No default |

### ATTRIBUTE McsMgr DprsMcsEpG Ep LCo setupPriority (spri)

| | |
|---|---|
| Access | Read only |
| Description | This attribute gives the priority at which the current path is established. Zero is the highest priority and four is the lowest. The *holdingPriority*, a complementary attribute of this component, indicates the priority a path maintains once it is established. |
| Values | Decimal (0..4) |
| Default | No default |

### ATTRIBUTE McsMgr DprsMcsEpG Ep LCo holdingPriority (hpri)

| | |
|---|---|
| Access | Read only |
| Description | This attribute gives the priority at which a path holds its current path once the path is established. Zero is the highest priority and four is the lowest. The *setupPriority*, a complementary attribute, indicates the priority of a path at establishment time. |
| Values | Decimal (0..4) |
| Default | No default |

### ATTRIBUTE McsMgr DprsMcsEpG Ep LCo requiredTxBandwidth (tbw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute gives the actual bandwidth (in bits per second) reserved by this path on each of the trunks of its route. This attribute represents the bandwidth for traffic outgoing to the remote end point. The originating end of the connection determines this value. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Units | bit/s |
| Default | No default |

### ATTRIBUTE McsMgr DprsMcsEpG Ep LCo requiredRxBandwidth (rbw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute gives the actual bandwidth (in bits per second) reserved by this path on each of trunks of its route. This attribute represents the bandwidth for traffic incoming from the remote end point. The originating end of the connection determines this value |
| Values | Decimal (0..4294967295) |
| Units | bit/s |
| Default | No default |

### ATTRIBUTE McsMgr DprsMcsEpG Ep LCo requiredTrafficType (rttyp)

| | |
|---|---|
| Access | Read only |
| Description | This operational attribute indicates the type of traffic transmitted over the path. There are eight possible traffic types, and the path can transmit only one of them. The originating end of the connection determines the type. These are arbitrary designations for traffic type. The ***voice***, ***data*** and ***video*** traffic types are defined, and five other arbitrary traffic types can be defined by the network administration. This attribute is used in the route selection process to restrict the route to trunks that support this traffic type. The *supportedTrafficType* trunk attribute lists all the types of traffic allowed on the trunk. For example, if *requiredTrafficType* is specified as ***trafficType1*** then only trunks that include ***trafficType1*** in *supportedTrafficType***,** will be candidates for this connection. |
| Values | voice<br>data<br>video<br>trafficType1 (tt1)<br>trafficType2 (tt2) |

trafficType3 (tt3)
trafficType4 (tt4)
trafficType5 (tt5)

Default — No default

### ATTRIBUTE McsMgr DprsMcsEpG Ep LCo permittedTrunkTypes (pttyp)

Access — Read only

Description — This operational attribute lists up to eight types of trunk that can be used on the route. The originating end of the connection determines the types. The ***terrestrial*** and ***satellite*** trunk types have been defined, leaving six remaining arbitrary types that can be defined by the network administration. The trunk's type is indicated in the *trunkType* attribute of the Trunk component. When selecting a route, PORS only chooses trunks whose *trunkType* are in the *permittedTrunkTypes* for the path.

Set of — terrestrial
satellite
trunkType1 (tt1)
trunkType2 (tt2)
trunkType3 (tt3)
trunkType4 (tt4)
trunkType5 (tt5)
trunkType6 (tt6)

Default — No default

### ATTRIBUTE McsMgr DprsMcsEpG Ep LCo requiredSecurity (rsec)

Access — Read only

Description — This attribute indicates the required minimum level of security of the trunks on the route. Zero represents the most secure and seven represents the least secure. The trunk's security is indicated by the *trunkSecurity* attribute of the Trunk component, and has values identical in range and meaning to the *requiredSecurity* attribute. PORS ensures that any route selected does not contain a trunk whose *trunkSecurity* attribute is numerically greater than the *requiredSecurity.*

Values — Decimal (0..7)

Default No default

### ATTRIBUTE McsMgr DprsMcsEpG Ep LCo requiredCustomerParameter (rcparm)

Access Read only

Description This attribute indicates the allowed customer defined parameter of the trunks on the route.The originating end of the connection determines the customer defined parameter. Its value, a number from zero to seven, is chosen by a network administration to have a meaning specific to their network, thus allowing them to customize the use of their trunks. A complementary trunk attribute, *customerParameter*, also has a value from zero to seven. The route selection process does not consider trunks whose *customerParameter* is greater than the *requiredCustomerParameter* of the path.

Values Decimal (0..7)

Default No default

### ATTRIBUTE McsMgr DprsMcsEpG Ep LCo emissionPriority (epri)

Access Read only

Description This attribute indicates the urgency with which packets on the path are emitted by the trunks on the route. The originating end of the connection selects the *emissionPriority. EmissionPriority* of zero indicates the highest emission priority, while two indicates the lowest emission priority. Packets with a higher *emissionPriority* (or numerically less) are serviced and sent out before the packets of lower *emissionPriority* (or numerically higher).

Values Decimal (0..2)

Default No default

### ATTRIBUTE McsMgr DprsMcsEpG Ep LCo discardPriority (dpri)

Access Read only

Description This attribute indicates the importance of the packets on the path. The originating end of the connection sets *discardPriority.* One is used for paths carrying the most important traffic, and three is used for paths carrying the least important traffic. Packets with

lower *discardPriority*(numerically) are discarded after packets with a higher *discardPriority*(numerically).

Values: Decimal (1..3)

Default: No default

### ATTRIBUTE McsMgr DprsMcsEpG Ep LCo pathType (pType)

Access: Read only

Description: This attribute indicates whether the path for this PLC was determined automatically or by static provisioning. ***Normal*** *pathTypes* are selected automatically by Route Selector.The other *pathTypes* are both manual *pathTypes* where the operator must specify, through provisioning, a static route termed the *manualPath*. A manual *pathType* connection is nearly identical to a normal path type connection with the exception that the route is pre-provisioned. For a manual *pathType*, bandwidth reservations are respected along the path exactly as in a normal path. The last type, the ***forced*** *pathType*, is also a manual path but regardless of the bandwidth available the route is granted provided the trunks are operational and there are sufficient Logical Channels (LChs).

The ***forced*** *pathType* could result in over committing the reserved bandwidth allowed on a trunk. A better way to achieve the effects of a ***forced*** *pathType* is to use a ***manual*** *pathType* with *setupPriority* = ***0*** and *holdingPriority* = ***0***. In this manner the path will reserve correct bandwidth and it will bump other paths if required while not being bumped itself.

Values:
normal
manual
forced

Default: No default

### ATTRIBUTE McsMgr DprsMcsEpG Ep LCo retryCount (rcount)

Access: Read only

Description: This attribute is the count of the number of times the path chosen during route selection could not be instantiated. This count should be three or below if the network is performing adequately.

| | |
|---|---|
| | A high value indicates that the route selection is often performed using an out-of-date view of available network bandwidth and/or topology.<br>This attribute will only increase at the calling end of an un-segmented connection. The attribute should be ignored for segmented connections.This attribute is reset each time a path reconnects and stops counting when it reaches its maximum value. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE McsMgr DprsMcsEpG Ep LCo pathFailureCount (pfcount)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the count of the number of times the path has successfully connected. It is set to zero the first time the path is up. If a path fails anytime after connecting this count will be incremented when the path is up again. Failed route requests do not count in this statistic. See *retryCount* above. This attribute stops counting at its maximum value. |
| Values | Decimal (0..65535) |
| Default | No default |

### ATTRIBUTE McsMgr DprsMcsEpG Ep LCo reasonForNoRoute (rnr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the route selection's *reasonForNoRoute* and provides a brief reason for which a route was not selected. The reasons are essentially self-explanatory. Perhaps two reasons for no route require some explanation. The reason ***unknownRemoteNodeName*** is issued when the remote node name is not in the topological database. The reason ***plcAttributesNotMet*** is issued when there is no network connectivity at a level specified by the PLC attributes. This reason is also issued when there is no physical connectivity between two end nodes. |
| Values | none<br>destinationNameTooLong |

destinationNotSpecified
unknownDestinationName
incorrectDestination
incorrectDestinationEndPoint
unknownSource
unknownDestination
sameNode
routeCostTooMuch
routesDelayTooLong
attributesNotMet
anError
attributeProfileProblem
manualPathIndexProblem

Default none

### ATTRIBUTE McsMgr DprsMcsEpG Ep LCo lastTearDownReason

Access Read only

Description This attribute reflects the last tear down reason for a connection (LCo). In many cases this displays the reason for a momentary service interruption. This attribute applies to the last path failure only. If a path is no longer up, this may give an indication to the reason that the path has failed. In many cases an alarm will also be generated with more specific information. The following is a brief description of the reasons:
***none*** - This path has no information for the teardown this is typical of a path provisioned with no *remoteName* that has not been up.
***normalShutDown*** - This path has gone down due to normal call termination.
***insufficientTxLcOrBandwidth*** - At present there is either no available bandwidth or logical channel numbers available on one or more of the trunks for this path in the transmit direction.
***insufficientRxLcOrBandwidth*** - At present there is either no available bandwidth or logical channel numbers available on one or more of the trunks for this path in the receive direction.
***trunkFailure***- A trunk on the path has failed or has gone down due to a provisioning change of a critical attribute.
***trunkCardFailure***- A trunk FP card has failed along the path.
***accessCardFailure***- The FP on which the peer access service was

running has failed.
***operatorForced***- The path has terminated due to the operator locking a trunk along the path.
***lostLcnClash***- The path has terminated because the PA's at both ends of an intermediate trunk have allocated the same LC to different calls. When this happens both calls must go down and then try to come up again a fraction of a second later (effectively ensuring that they will now be assigned different LC's). It is normal to get the odd clash especially when the PA's usedLC is approaching the PA's maxLC.
***networkCongestion*** - The path has failed due to control information being lost and not recoverable.
***trunkNotFound*** - Occurs on a ***manual*** path usually. Check for trunks not up or names provisioned incorrectly.
***farEndNotFound*** - The far end is not provisioned or is not up. Check remote Name.
***wrongModuleReached*** - This may occur on a ***manual*** path. Check provisioning for correct trunk and service names. For a ***normal*** path, the network Topology may be changing check *remoteName*.
***farEndBusy*** - The far end has been reached but it is busy. Check *remoteName* and remote end provisioning.
***callLoopedBack*** - This LCo is provisioned to call itself. Re-provision since this is invalid.
***unknownReason*** - The failure was not resolved.
***farEndNotReady*** - The remote end was reached but the connection was refused due to the remote end not being enabled.
***remoteNameMismatch*** - The remote end has alarmed and rejected this setup due to remoteName provisioning.
***serviceTypeMismatch*** - The remote Service Type does not match this service type. Check provisioning.
***reconnectFromFarEnd*** - The remote end re-established this connection. Check the remote end *lastTearDownReason* to determine the real reason.
***bumped*** - Another call bumped this path from a trunk to get bandwidth (or an LC) which it required to come up. This other path had a higher *setupPriority* than this path's *holdingPriority* hence it was allowed to steal the bandwidth (or LC) from this path.
***optimized*** - This call has been rerouted due to the optimization feature. The call is still active this just indicates why the path

changed.
***trunkOrFarEndDidNotSupportMode*** - This call was unable to complete because a mode required by the service was not supported by one of the trunks the route went through or by the far end service it connected to. Currently the only mode that this applies to is the map/mux mode on TRUNK PA ATM component. Map mode was required by the application (CES/FrAtm etc.) but was not available on the TRUNK PA ATM component through which the call was routed or the far end CES/FrAtm component did not specify the same mode.

Values

none
normalShutDown
insufficientTxLcOrBandwidth
insufficientRxLcOrBandwidth
trunkFailure
trunkCardFailure
operatorForced
lostLcnClash
networkCongestion
trunkNotFound
farEndNotFound
wrongModuleReached
farEndBusy
callLoopedBack
unknownReason
farEndNotReady
remoteNameMismatch
serviceTypeMismatch
reconnectFromFarEnd
bumped
accessCardFailure
optimized
overrideRemoteName
trunkOrFarEndDidNotSupportMode

Default

none

## ATTRIBUTE McsMgr DprsMcsEpG Ep LCo pathFailureAction

Access

Read only

Description

This attribute displays whether the application is set to tolerate momentary interruption of a path while a new path is selected. If ***disconnectConnection*** is displayed, the application is informed as soon as possible about a failure by disconnection. If the attribute displays ***reRoutePath***, the path may attempt an immediate reroute, provided the failure is a recoverable failure. If rerouting fails the application is informed of the failure.
With this option set to ***reRoutePath*** the LCo may wait up to 30 seconds before informing the service of complete disconnection in order to allow both ends to attempt to reconnect. Note that if PLC components are different at both ends only the calling end is allowed to reconnect.

All *pathTypes* respect this attribute. Also on a *manualPath* with both ends provisioned with independent paths (at least with respect to the failure) this option will have the desired effect that the path is rerouted without complete disconnection at both ends

Values

reRoutePath
disconnectConnection

Default

No default

### ATTRIBUTE McsMgr DprsMcsEpG Ep LCo bumpPreference (bpref)

Access

Read only

Description

This attribute specifies when bumping will occur during route selection process. Bumping may occur when necessary or always. It will be necessary for a connection to bump if there is not enough resources for the connection to be established and these resources are occupied by a connection whose *setupPriority* is lower (numerically higher) than the connection's *setupPriority*. A connection may also always bump in order to obtain the best route.

Values

bumpWhenNecessary
bumpToObtainBestRoute

Default

No default

### ATTRIBUTE McsMgr DprsMcsEpG Ep LCo optimization (opt)

Access

Read only

| | |
|---|---|
| Description | This attribute is used to specify whether this connection should attempt to optimize its path when requested by the routing PORS component. Every path is as optimal as it can be when it is established, but as network traffic patterns and configurations change this path may no longer be as optimal as it could be. The PORS connection manager on a module requests circuits to optimize at the optimization interval. |
| Values | disabled<br>enabled |
| Default | No default |

### ATTRIBUTE McsMgr DprsMcsEpG Ep LCo pathUpDateTime

| | |
|---|---|
| Access | Read: Service<br>Write: Illegal |
| Description | This is the time stamp when the current path was established or reestablished. |
| Values | Time (DHMS) |
| Default | No default |

### ATTRIBUTE McsMgr DprsMcsEpG Ep LCo path

| | |
|---|---|
| Access | Read only |
| Description | This attribute contains the trunk component names over which the path has been instantiated and the remote end point name terminating the path. |
| List of | String (0..40, ASCII) |
| List Size | 21 |
| Default | No default |

### GROUP McsMgr DprsMcsEpG Ep LCo Statisitics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational statistics attributes for the path oriented LCo. |

### ATTRIBUTE McsMgr DprsMcsEpG Ep LCo pktsToNetwork

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of packets transmitted to the network over this Logical Connection. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE McsMgr DprsMcsEpG Ep LCo bytesToNetwork

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of bytes sent to the network over this Logical Connection. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE McsMgr DprsMcsEpG Ep LCo pktsFromNetwork

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of packets received from the remote LCo via the network. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE McsMgr DprsMcsEpG Ep LCo bytesFromNetwork

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of bytes received from the remote LCo via the network. |
| Values | Long Integer |
| Default | No default |

## COMPONENT McsMgr DprsMcsEpG Ep CallAdmissionControl (Cac)

Groups "GROUP McsMgr DprsMcsEpG Ep Cac Operational (Oper)"

"COLLECTED STATS McsManager DprsMcsEndPointGroup EndPoint CallAdmissionControl"

Scope Network

Description *McsMgr DprsMcsEpG/n Ep/n CallAdmissionControl*
This component indicates the operational values of the attributes specified by the *McsMgr DprsMcsEpG/n Ep/n Cac Cacd* component.
Provisioning this component under an *EndPoint* forces each Frame Relay service connection using the switched path created by the given *EndPoint* to perform a service level CAC as the VC for the Frame Relay service connection is being established. Each Frame Relay service connection is either accepted or rejected based on the CAC attributes specified through the *Cacd* subcomponent.
This component is optional on the originating End Point and Call Admission Control is not performed when this component is not provisioned on the originating End Point.
This component is dynamic on the dynamic End Point and is present when there is a provisioned instance of the *CallAdmissionControl* component on the originating End Point.

Subcomponents "COMPONENT McsMgr DprsMcsEpG Ep Cac CallAdmissionControlDescriptor (Cacd)"

Common Verbs
- Help
- List
- Display
- Add
- DELete

## GROUP McsMgr DprsMcsEpG Ep Cac Operational (Oper)

Properties Operational

Description This group contains the operational attributes of the *CallAdmissionControl* component.

### ATTRIBUTE McsMgr DprsMcsEpG Ep Cac effectiveBandwidth (eBw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total bandwidth which is used as the bandwidth pool for tracking call admission requests.<br>On the originating End Point the *effectiveBandwidth* is equal to the *forwardBandwidth* attribute specified in this End Point's *Epd* component multiplied by the *forwardOversubFactor* specified in the *Cacd* subcomponent.<br>On the terminating End Point the *effectiveBandwidth* is equal to the *reverseBandwidth* attribute specified in this End Point's *Epd* component multiplied by this End Point's *reverseOversubFactor* specified in the *Cacd* subcomponent.<br>This value indicates CIR bandwidth when the *cacType* attribute of the *Cacd* subcomponent is specified as ***cir***.<br>This value indicates EIR bandwidth when the *cacType* attribute of the *Cacd* subcomponent is specified as ***eir***. |
| Values | Long Integer |
| Units | bit/s |
| Default | No default |

### ATTRIBUTE McsMgr DprsMcsEpG Ep Cac effectiveBandwidthAvailable (eBwAvail)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the effective bandwidth that is still available in the bandwidth pool for use by Frame Relay service connections requesting bandwidth. This value is the amount of *effectiveBandwith* less the amount reserved by Frame Relay service connections that have been admitted.<br>To display the specific Frame Relay service connections which have successfully completed call admission and to see the amount of bandwidth they have reserved, the network operator can use the following command:<br>*Display McsMgr DprsMcsEpG/n Ep/n Connection/**<br>This value indicates CIR bandwidth when the *cacType* attribute of the *Cac* subcomponent is specified as ***cir***.<br>This value indicates EIR bandwidth when the *cacType* attribute of the *Cac* subcomponent is specified as ***eir***. |

| | |
|---|---|
| Values | Long Integer |
| Units | bit/s |
| Default | No default |

### ATTRIBUTE McsMgr DprsMcsEpG Ep Cac numberOfCallsActive (numOfCalls)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of Frame Relay service connections which have successfully completed call admission and are currently in service.<br>To display the specific Frame Relay service connections which have successfully completed call admission and to see the amount of bandwidth they have reserved the network operator can use the following command:<br>*Display McsMgr DprsMcsEpG/n Ep/n Connection/**  |
| Values | Decimal (0..512) |
| Default | No default |

### ATTRIBUTE McsMgr DprsMcsEpG Ep Cac cacPolicy (cacp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the CAC policy in use at this end of the switched path.<br>For the originating End Point this is the value specified by the *forwardCacPolicy* attribute of the *Cacd* subcomponent.<br>For the terminating End Point this is the value specified by the *reverseCacPolicy* attribute of the *Cacd* subcomponent of the originating End Point at the other end of the switched path. To determine the component name of the originating End Point, the following command can be used:<br>*Display McsMgr DprsMcsEpG/n Ep/n remoteComponentName* |
| Values | enforced (enf)<br>monitored (mon) |
| Default | No default |

### ATTRIBUTE McsMgr DprsMcsEpG Ep Cac cacType (cact)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the CAC type in use at this end of the switched path.<br>For the originating End Point this is the value specified by the *forwardCacType* attribute of the *Cacd* subcomponent.<br>For the terminating End Point this is the value specified by the *reverseCacType* attribute of the *Cacd* subcomponent of the originating End Point at the other end of the switched path.To determine the component name of the originating End Point, the following command can be used:<br>*Display McsMgr DprsMcsEpG/n Ep/n remoteComponentName* |
| Values | eir<br>cir |
| Default | No default |

### ATTRIBUTE McsMgr DprsMcsEpG Ep Cac maximumSvcBandwidth (maxSvcBw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the largest amount of SVC bandwidth which can be reserved for a single Frame Relay service connection using the switched path.<br>For the originating End Point this is the value specified by the *forwardMaximumSvcBw* attribute of the *Cacd* subcomponent.<br>For the terminating End Point this is the value specified by the *reverseMaximumSvcBw* attribute of the *Cacd* subcomponent by the originating End Point at the other end of the switched path.<br>This value indicates CIR bandwidth when the *cacType* attribute of the *Cac* subcomponent is ***cir***.<br>This value indicates EIR bandwidth when the *cacType* attribute of the *Cac* subcomponent is ***eir***.<br>The value of ***noMaximum*** for this attribute indicates that this attribute has either been provisioned not to have a maximum value or that the *cacPolicy* is ***monitored.*** |
| Values | Decimal (0..155000000)<br>noMaximum |
| Units | bit/s |
| Default | No default |

### ATTRIBUTE McsMgr DprsMcsEpG Ep Cac maximumPvcBandwidth (maxPvcBw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the largest amount of PVC bandwidth allowed to be reserved for a single Frame Relay service connection using the switched path. For the originating End Point this is the value specified by the *forwardMaximumSvcBw* attribute of the *Cacd* subcomponent.<br>For the terminating End Point this is the value specified by the *reverseMaximumSvcBw* attribute of the *Cacd* subcomponent by the originating End Point at the other end of the switched path.<br>This value indicates CIR bandwidth when the *cacType* attribute of the *Cac* subcomponent is ***cir***.<br>This value indicates EIR bandwidth when the *cacType* attribute of the *Cac* subcomponent is ***eir.***<br>The value of ***noMaximum*** for this attribute indicates that this attribute has either been provisioned not to have a maximum value or that the *cacPolicy* is ***monitored.*** |
| Values | Decimal (0..155000000)<br>noMaximum |
| Units | bit/s |
| Default | No default |

### ATTRIBUTE McsMgr DprsMcsEpG Ep Cac numberOfCacFailures (numCacFailed)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of Frame Relay service connections which have failed to successfully complete call admission on the given switched path. This number does not increase if the *cacPolicy* attribute of the *McsMgr DprsMcsEpG/n EndPoint/m Cac* component is set to ***monitored***.<br>This value wraps back to 0 when its maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE McsMgr DprsMcsEpG Ep Cac lastFailedFrDlci (lastFldFrDlci)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the component name of the last Frame Relay service connection which did not successfully complete call admission. This value is empty if no call admission failure has occurred. |
| Values | The name of the component |
| Default | No default |

### ATTRIBUTE McsMgr DprsMcsEpG Ep Cac lastFailedReason (failedReason)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the reason for the failure of the last Frame Relay service connection's attempt at call admission.<br>***none*** indicates that there has been no call admission failure.<br>***noBandwidthAvailable*** indicates that there was insufficient ***effectiveBandwidthAvailable*** to admit the Frame Relay service connection.<br>***maxSvcExceeded*** indicates that an SVC was attempting to reserve more bandwidth than that specified by *maximumSvcBandwidth* attribute.<br>***maxPvcExceeded*** indicates that an SVC was attempting to reserve more bandwidth than that specified by *maximumPvcBandwidth* attribute.<br>***endPointCacUnavailable*** indicates that the End Point was not in a state in which it could process the call admission request. The Frame Relay service should attempt call admission again after a suitable backoff period.<br>***maxConsExceeded*** indicates that 512 call admission connections have already been accepted on this End Point. |
| Values | none<br>noBandwidthAvailable (noBw)<br>maxSvcExceeded (maxSvc)<br>maxPvcExceeded (maxPvc)<br>epCacUnavailable (epCacUnavail)<br>maxConsExceeded (maxCons) |
| Default | none |

### ATTRIBUTE McsMgr DprsMcsEpG Ep Cac overSubscriptionFactor (osFactor)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the oversubscription factor that is applied to the forward and reverse bandwidth attributes of the parent component to determine the *effectiveBandwidth*.<br>On the originating side of the switched path this value is equal to the *forwardOsFactor* specified in the *Cacd* subcomponent.<br>On the terminating side of the switched path this value is equal to the *reverseOsFactor* attribute of the *Cacd* subcomponent at the originating end of the switched path. |
| Values | Decimal (0.00..100.00) |
| Default | No default |

### ATTRIBUTE McsMgr DprsMcsEpG Ep Cac alarmThreshold

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the alarm threshold values that are used at this end of the switched path.<br>On the originating end of the switch path these values are those specified by the *forwardAlarmThresholds* attribute of the *Cacd* subcomponent.<br>On the terminating end of the switched path these values are those specified by the *reverseAlarmThresholds* attribute of the *Cacd* subcomponent on the originating end of the switched path |
| Vector of | Decimal (0..100) |
| Index | minor<br>major<br>critical |
| Default | No default |
| Default | COLLECTED STATS McsManager DprsMcsEndPointGroup EndPoint CallAdmissionControl |
| Description | The statistics record generated by the McsManager DprsMcsEndPointGroup EndPoint CallAdmissionControl component. |

### ATTRIBUTE McsMgr DprsMcsEpG Ep Cac effectiveBandwidth

| | |
|---|---|
| Description | This value indicates the level of effective bandwidth available during the last statistics collection interval, as indicated by the |

*effectiveBandwidth* attribute of the *McsMgr DprsMcsEpG/m EndPoint/n Cac* component in thousands of bits per second.

Values: Decimal (0..4294967295)

Units: kbit/s

### ATTRIBUTE McsMgr DprsMcsEpG Ep Cac effectiveBandwidthAvailableLWM

Description: This value indicates the lowest level of effective bandwidth available as indicated by the *effectiveBandwidthAvailable* attribute of the *McsMgr DprsMcsEp/m EndPoint/n Cac* component, in thousands of bits per second during the last statistics collection interval.

Values: Decimal (0..4294967295)

Units: kbit/s

### ATTRIBUTE McsMgr DprsMcsEpG Ep Cac numberOfCallsActiveHWM

Description: This value indicates the highest level of the *numberOfCallsActive* attribute of the *McsMgr DprsMcsEp/m EndPoint/n Cac* component, during the last statistics collection interval.

Values: Decimal (0..512)

### ATTRIBUTE McsMgr DprsMcsEpG Ep Cac numberOfCacFailures

Description: This value indicates the number of call admission failures in the last statistics collection interval. This value equals the increase in the *numberOfCacFailures* attribute of the *McsMgr DprsMcsEp/m EndPoint/n Cac* component during the last statistics collection interval.

Values: Decimal (0..4294967295)

### COMPONENT McsMgr DprsMcsEpG Ep Cac CallAdmissionControlDescriptor (Cacd)

Groups: "GROUP McsMgr DprsMcsEpG Ep Cac Cacd Forward (Frwd)"
"GROUP McsMgr DprsMcsEpG Ep Cac Cacd Reverse (Rvrs)"

Scope: Network

Description: The component allows the network operator to specify the CAC attributes used for call admission for the originating and

terminating End Points of this switched path. This component is provisioned at the originating End Point only.

Common Verbs

Help
List
Display

## GROUP McsMgr DprsMcsEpG Ep Cac Cacd Forward (Frwd)

Properties: Provisioned

Description: This group contains the parameters that are used to specify the call admission control characteristics for the given End Point in the forward direction.

## ATTRIBUTE McsMgr DprsMcsEpG Ep Cac Cacd forwardCacPolicy (fCacP)

Access: Read and write

Description: This attribute specifies the call admission policy which is to be used in the forward direction.
When this attribute is set to ***enforced***, a Frame Relay service connection fails call admission if there is insufficient *effectiveBandwidth* available in the forward direction, the *forwardMaximumSvcBw* is exceeded, or the *forwardMaximumPvcBw* is exceeded. Call admission failure causes the Frame Relay service connection to clear.
When this attribute is set to ***monitored*** no Frame Relay service call will ever fail call admission.

Values: enforced (enf)
monitored (mon)

Default: monitored

## ATTRIBUTE McsMgr DprsMcsEpG Ep Cac Cacd forwardCacType (fCacT)

Access: Read and write

Description: This attributes specifies whether the *effectiveBandwidth* in the forward direction is treated as ***eir*** or ***cir*** bandwidth.

Values: eir
cir

Default cir

### ATTRIBUTE McsMgr DprsMcsEpG Ep Cac Cacd forwardOversubFactor (fOsFactor)

Access Read and write

Description This attribute specifies the level of oversubscription to be used when calculating the parent component's *effectiveBandwidth* in the forward direction. The *forwardBandwidth* attribute of the *McsMgr DprsMcsEpG/m Ep/n Epd* subcomponent is multiplied by this attribute to determine the *effectiveBandwidth* attribute.

Values Decimal (0.00..100.00)

Default 1.00

### ATTRIBUTE McsMgr DprsMcsEpG Ep Cac Cacd forwardMaximumSvcBw (fMaxSvcBw)

Access Read and write

Description This attribute specifies the maximum bandwidth that can be reserved by a Frame Relay SVC. The *forwardCacType* parameter specifies if this value is to be treated as an EIR or CIR value.
If this attribute is set to ***noMaximum*** or the *forwardCacPolicy* is set to ***monitored*** this check is not made.

Values Decimal (0..155000000)
noMaximum

Units bit/s

Default noMaximum

### ATTRIBUTE McsMgr DprsMcsEpG Ep Cac Cacd forwardMaximumPvcBw (fMaxPvc)

Access Read and write

Description This attribute specifies the maximum bandwidth that can be reserved by a Frame Relay PVC. The *forwardCacType* parameter specifies if this value is to be treated as an EIR or CIR value.
If this attribute is set to ***noMaximum*** or the *forwardCacPolicy* is set to ***monitored*** this check is not made.

Values Decimal (0..155000000)
noMaximum

Units bit/s

| | |
|---|---|
| Default | noMaximum |

### ATTRIBUTE McsMgr DprsMcsEpG Ep Cac Cacd forwardAlarmThresholds (fAlarmThresh)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the bandwidth reservation level at which the minor, major, and critical alarms are raised at in the forward direction. By default all alarms are set to 0 disables alarm generation.<br>Each of these threshold alarms is cleared when the reservation level falls 10% below the respective threshold level. |
| Vector of | Decimal (0..100) |
| Index | minor<br>major<br>critical |
| Default | (0, 0, 0) |

### GROUP McsMgr DprsMcsEpG Ep Cac Cacd Reverse (Rvrs)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the parameters that are used to specify the call admission control characteristics for the given End Point in the reverse direction. |

### ATTRIBUTE McsMgr DprsMcsEpG Ep Cac Cacd reverseCacPolicy (rCacPolicy)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to specify the CAC policy to be used in the reverse direction.<br>When this attribute is set to ***enforced*** a Frame Relay service connection will fail call admission if there insufficient *effectiveBandwidth* in the reverse direction, the *reverseMaximumSvcBw* is exceeded or the *reverseMaximumPvcBw* is exceeded. Call admission failure causes the Frame Relay service connection clear.<br>When this attribute is set to ***monitored*** no Frame Relay service call is ever rejected.<br>When this attribute is set to ***sameAsForward*** the *reverseCacPolicy* is the same as that specified by the *forwardCacPolicy* attribute. |

| | |
|---|---|
| Values | enforced (enf)<br>monitored (mon)<br>sameAsForward (sameAsForw) |
| Default | sameAsForward |

### ATTRIBUTE McsMgr DprsMcsEpG Ep Cac Cacd reverseCacType (rCacType)

| | |
|---|---|
| Access | Read and write |
| Description | This attributes specifies if the *effectiveBandwidth* in the reverse direction is treated as ***eir*** or ***cir*** bandwidth.<br>When this attribute is set to ***sameAsForward*** the *reverseCacType* is the same as that specified by the *forwardCacType* attribute. |
| Values | eir<br>cir<br>sameAsForward (sameAsFor) |
| Default | sameAsForward |

### ATTRIBUTE McsMgr DprsMcsEpG Ep Cac Cacd reverseCacOverSub (rOsFactor)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the level of over subscription to be used when calculating the parent component's *effectiveBandwidth* in the reverse direction.<br>The *reverseBandwidth* attribute of the *McsMgr DprsMcsEpG/m Ep/n Epd* subcomponent is multiplied by this attribute to determine the *effectiveBandwidth* in the reverse direction.<br>When this attribute is set to ***sameAsForward*** the *reverseCacOverSub* is the same as that specified by the *forwardCacOverSub* attribute. |
| Values | Decimal (0.00..100.00)<br>sameAsForward |
| Default | sameAsForward |

### ATTRIBUTE McsMgr DprsMcsEpG Ep Cac Cacd reverseMaxSvcBw (rMaxSvcBw)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum bandwidth that can be reserved by a Frame Relay SVC. The *reverseCacType* parameter |

specifies if this value is to be treated as an EIR or CIR value.
If the *reverseCacPolicy* is set to ***monitored*** or the value of this attribute is set to ***noMaximum*** this check is not made.
When this attribute is set to ***sameAsForward*** the *reverseMaxSvcBw* is the same as that specified by the *forwardMaxSvcBw* attribute.

Values
Decimal (0..155000000)
noMaximum
sameAsForward

Default
sameAsForward

### ATTRIBUTE McsMgr DprsMcsEpG Ep Cac Cacd reverseMaxPvcBw (rMaxPvcBw)

Access
Read and write

Description
This attribute specifies the maximum bandwidth that can be reserved by a Frame Relay PVC. The *reverseCacType* parameter specifies if this value is to be treated as an EIR or CIR value.
If the *reverseCacPolicy* is set to ***monitored*** or the value of this attribute is set to ***noMaximum*** this check is not made.
When this attribute is set to ***sameAsForward*** the *reverseMaxPvcBw* is the same as that specified by the *forwardMaxPvcBw* attribute.

Values
Decimal (0..155000000)
noMaximum
sameAsForward

Default
sameAsForward

### ATTRIBUTE McsMgr DprsMcsEpG Ep Cac Cacd reverseAlarmThresholds (rAlarmThresh)

Access
Read and write

Description
This attribute specifies the reservation level at which the minor, major, and critical alarms are raised in the reverse direction. By default all alarms are set to 0 which is the off setting.
Each of these threshold alarms are cleared when the reservation level falls 10% below each respective threshold level.

| | |
|---|---|
| Vector of | Decimal (0..100) |
| Index | minor<br>major<br>critical |
| Default | (0, 0, 0) |

### COMPONENT McsMgr DprsMcsEpG Ep Connection (Con)

| | |
|---|---|
| Instance | Decimal (1..512) |
| Groups | "GROUP McsMgr DprsMcsEpG Ep Con Operational (Oper)" |
| Scope | Network |
| Description | *McsMgr DprsMcsEpG/n Ep/n Connection/n*<br>This component represents a Frame Relay service connection which has successfully completed call admission on a given switched path. |
| Common Verbs | Help<br>List<br>Display |

### GROUP McsMgr DprsMcsEpG Ep Con Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes of the *Connection* component. |

### ATTRIBUTE McsMgr DprsMcsEpG Ep Con frameRelayDlci (frDlci)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the DLCI of a Frame Relay service connection that has successfully completed call admission and has reserved bandwidth on this switched path. |
| Values | The name of the component |
| Default | No default |

### ATTRIBUTE McsMgr DprsMcsEpG Ep Con reservedBandwidth (rBw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the amount of bandwidth reserved by the given Frame Relay service connection. To determine if this is EIR or CIR bandwidth see the *cacType* attribute for this *EndPoint*. |
| Values | Decimal (0..155000000) |
| Units | bit/s |
| Default | No default |

### COMPONENT McsMgr Frf5EndPointGroup (Frf5EpG)

| | |
|---|---|
| Instance | Decimal (1..8191) |
| Scope | Application |
| Description | *McsMgr Frf5EndPointGroup/n*<br>The *Frf5EpG* component contains FRF.5 End Points that share a common destination NSAP address, and a list of address prefixes. |
| Subcomponents | "COMPONENT McsMgr Frf5EpG Address (Addr)" |
| Opt. Subcomp. | "COMPONENT McsMgr Frf5EpG EndPoint (Ep)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### COMPONENT McsMgr Frf5EpG Address (Addr)

| | |
|---|---|
| Groups | "GROUP McsMgr Frf5EpG Addr Provisioned (Prov)" |
| Scope | Application |
| Description | *McsMgr Frf5EpG/n Address*<br>This component contains the destination NSAP address used by all FRF.5 End Points provisioned under an *Frf5EpG*. The *Address* |

also provides the list of address prefixes directed to the end points under this group.

Common Verbs

Help
List
Display

### GROUP McsMgr Frf5EpG Addr Provisioned (Prov)

Properties: Provisioned

Description: This group contains the provisionable attributes of the *Address* component.

### ATTRIBUTE McsMgr Frf5EpG Addr remoteAddress (rAddr)

Access: Read and write

Description: This attribute specifies the ATM End System Address (AESA) in the ISO NSAP format that is used by each *EndPoint* under this *Frf5EpG* to establish a VCC. For example, NSAP ATM address “45000006138292323F000000000020480D002900”.

Values: String (0..44, ASCII)

Default: No default

### ATTRIBUTE McsMgr Frf5EpG Addr commentText

Access: Read and write

Description: This optional attribute contains additional textual information to be added by the network operator.

Values: String (0..750, ASCII)

Default: ""

### ATTRIBUTE McsMgr Frf5EpG Addr addressPrefix (addrPre)

Access: Read and write

Description: This attribute specifies the list of prefixes directed to the *EndPoints* under this *Frf5EndPointGroup*. The individual end point is selected for each subconnection on the basis of its

| | |
|---|---|
| | *supportedTransferPriorities*.<br>For example, E.164 prefix “e.613722”, X.121 prefix “x.302”. |
| List of | String (3..17, ASCII) |
| Default | No default |

## COMPONENT McsMgr Frf5EpG EndPoint (Ep)

| | |
|---|---|
| Instance | Decimal (0..15) |
| Groups | "GROUP McsMgr Frf5EpG Ep OsiState (State)"<br>"GROUP McsMgr Frf5EpG Ep Operational (Oper)" |
| Scope | Application |
| Description | *McsMgr Frf5EpG/n EndPoint/n*<br>The *EndPoint* component represents a single ATM VCC that can multiplex multiple Frame Relay DLCIs. |
| Subcomponents | "COMPONENT McsMgr Frf5EpG Ep EndPointDescriptor (Epd)" |
| Opt. Subcomp. | "COMPONENT McsMgr Frf5EpG Ep LocalManagementInterface (Lmi)" |
| Dyn. Subcomp. | "COMPONENT McsMgr Frf5EpG Ep DataLinkConnectionIdentifier (Dlci)"<br>"COMPONENT McsMgr Frf5EpG Ep AtmConnection (AtmCon)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP McsMgr Frf5EpG Ep OsiState (State)

| | |
|---|---|
| Properties | Operational |

Description

This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

## ATTRIBUTE McsMgr Frf5EpG Ep adminState (osiAdmin)

Access

Read only

Description

This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values

locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default

unlocked

## ATTRIBUTE McsMgr Frf5EpG Ep operationalState (osiOper)

Access

Read only

Description

This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values

enabled (ena)
disabled (dis)

Default

disabled

### ATTRIBUTE McsMgr Frf5EpG Ep usageState (osiUsage)

Access

Read only

Description

This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values

idle
active (activ)
busy

Default

idle

## ATTRIBUTE McsMgr Frf5EpG Ep availabilityStatus (osiAvail)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.<br><br>The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.<br><br>The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.<br><br>The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.<br><br>The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.<br><br>The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***. |

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

### ATTRIBUTE McsMgr Frf5EpG Ep proceduralStatus (osiProc)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.

The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

### ATTRIBUTE McsMgr Frf5EpG Ep controlStatus (osiCntrl)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the

attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

Set of

subjectToTest (subTst)
partOfServicesLocked (partLk)
reservedForTest (rsrvd)
suspended (suspnd)

Default

No default

## ATTRIBUTE McsMgr Frf5EpG Ep alarmStatus (osiAlarm)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are

outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE McsMgr Frf5EpG Ep standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and

containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values
hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

Default
notSet

### ATTRIBUTE McsMgr Frf5EpG Ep unknownStatus (osiUnknw)

Access
Read only

Description
This attribute indicates the OSI Unknown status of the component.

The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.

The value ***true*** indicates that the actual state of the component is not known for sure.

Values
false
true

Default
false

### GROUP McsMgr Frf5EpG Ep Operational (Oper)

Properties
Operational

Description
This group contains the operational attributes for the FRF.5 ATM connection.

### ATTRIBUTE McsMgr Frf5EpG Ep lastVccClearCause

Access
Read only

| | |
|---|---|
| Description | This attribute indicates the clear cause value of the last SPVC release message received on the FRF.5 end point Vcc pipe. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE McsMgr Frf5EpG Ep connectionTransferPriority (conntp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the transfer priority used to establish the ATM connection and to multiplex the Frame Relay DLCIs. |
| Values | Decimal (0..15) |
| Default | No default |

### ATTRIBUTE McsMgr Frf5EpG Ep serviceCategory (sc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the ATM service category that is used for this connection. |
| Values | ubr<br>cbr<br>rtVbr<br>nrtVbr |
| Default | No default |

### ATTRIBUTE McsMgr Frf5EpG Ep peakCellRate01 (pcr01)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Peak Cell Rate (PCR) of the FRF.5 ATM VCC for all cells (with CLP=0 and CLP=1).<br>The *pcr01* is derived from the End Point traffic parameters using the conversion policy of the *connectionTransferPriority.* The conversion policy is defined under the *ModuleData FrameRelayService AtmNetworking TransferPriority/n* component. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Units | cell/s |
| Default | No default |

### ATTRIBUTE McsMgr Frf5EpG Ep sustainedCellRate0 (scr0)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Sustained Cell Rate (SCR) of the FRF.5 ATM VCC for high priority cells (with CLP=0).<br>The *scr0* is derived from the End Point traffic parameters using the conversion policy of the *connectionTransferPriority.* The conversion policy is defined under the *ModuleData FrameRelayService AtmNetworking TransferPriority/n* component. |
| Values | Decimal (0..4294967295) |
| Units | cell/s |
| Default | No default |

### ATTRIBUTE McsMgr Frf5EpG Ep sustainedCellRate01 (scr01)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Sustained Cell Rate (SCR) of the FRF.5 ATM VCC for all cells (with CLP=0 and CLP=1).<br>The *scr01* is derived from the End Point traffic parameters using the conversion policy of the *connectionTransferPriority.* The conversion policy is defined under the *ModuleData FrameRelayService AtmNetworking TransferPriority/n* component. |
| Values | Decimal (0..4294967295) |
| Units | cell/s |
| Default | No default |

### ATTRIBUTE McsMgr Frf5EpG Ep maximumBurstSize0 (mbs0)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Maximum Burst Size (MBS) of the FRF.5 ATM VCC for high priority cells (with CLP=0). |

| | |
|---|---|
| | The *mbs0* is derived from the End Point traffic parameters using the conversion policy of the *connectionTransferPriority.* The conversion policy is defined under the *ModuleData FrameRelayService AtmNetworking TransferPriority/n* component. |
| Values | Decimal (0..4294967295) |
| Units | cells |
| Default | No default |

### ATTRIBUTE McsMgr Frf5EpG Ep maximumBurstSize01 (mbs01)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Maximum Burst Size (MBS) of the FRF.5 ATM VCC for all cells (with CLP=0 and CLP=1).<br>The *mbs01* is derived from the End Point traffic parameters using the conversion policy of the *connectionTransferPriority.* The conversion policy is defined under the *ModuleData FrameRelayService AtmNetworking TransferPriority/n* component. |
| Values | Decimal (0..4294967295) |
| Units | cells |
| Default | No default |

### ATTRIBUTE McsMgr Frf5EpG Ep avgFrameSize (afs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the average frame size that is used in the traffic parameter conversion policy calculations for this end point. |
| Values | Decimal (1..8187) |
| Units | bytes |
| Default | 128 |

### ATTRIBUTE McsMgr Frf5EpG Ep trafficParmConvPolicy (tpcp)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the traffic parameter conversion policy used to specify the equivalent ATM bandwidth rate at this end point.<br><br>Policy 3 characterizes the traffic in the following way:<br>- ATM traffic descriptor type 6 is selected<br>- PCR0+1 is based on the AR<br>- SCR0+1 is based on the CIR and EIR<br>- MBS0+1 is based on Bc,Be,CIR,EIR and AR<br>- Takes into account that the instantaneous rate of the frame relay stream can burst above CIR and up to the AR.<br><br>Policy 4 characterizes the traffic in the following way:<br>- ATM traffic descriptor type 7 or 8 is selected. Type 7 is chosen when non-conforming cells are to be discarded and type 8 when non-conforming cells are tagged by UPC traffic policer.<br>- PCR0+1 is based on the AR<br>- SCR0 is based on the CIR<br>- MBS0 is based on Bc,CIR and AR<br>- There is no direct characterization of EIR. The allowed EIR can be derived using the difference between the AR and CIR.<br><br>Policy 5 characterizes the traffic in the following way:<br>- ATM traffic descriptor type 7 or 8 is selected . Type 7 is chosen when non-conforming cells are to be discarded and type 8 when non-conforming cells are tagged by UPC traffic policer<br>- PCR0+1 is based on CIR and EIR<br>- SCR0 is based on the CIR<br>- MBS0 is based on the Bc,CIR and AR<br>- The maximum PCR is no longer based on AR but based on the CIR and EIR.<br><br>Policy 6 characterizes the traffic in the following way:<br>- ATM traffic descriptor type 3 is selected<br>- PCR0+1 is based only on CIR. |
| Values | 3<br>4<br>5<br>6 |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE McsMgr Frf5EpG Ep type

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the FRF.5 End Point type. If the value is ***master***, this End Point is responsible for initiating the call to set up the FRF.5 ATM VCC. If the value is ***slave***, this End Point receives call setup requests from the remote end. |
| Values | master<br>slave |
| Default | No default |

### ATTRIBUTE McsMgr Frf5EpG Ep lastVccCauseDiag

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the diagnostic value of the last SPVC release message received on the FRF.5 end point Vcc pipe. |
| Values | String (1..8, Hex) |
| Default | No default |

### COMPONENT McsMgr Frf5EpG Ep LocalManagementInterface (Lmi)

| | |
|---|---|
| Groups | "GROUP McsMgr Frf5EpG Ep Lmi ProtocolParameters (Parms)"<br>"GROUP McsMgr Frf5EpG Ep Lmi NniProtocolParameters (NniParms)"<br>"GROUP McsMgr Frf5EpG Ep Lmi OsiState (State)"<br>"GROUP McsMgr Frf5EpG Ep Lmi ProtocolStatusInfo (Psi)"<br>"GROUP McsMgr Frf5EpG Ep Lmi Statistics (Stats)" |
| Scope | Application |

Description — *DsMgr Frf5EpG/n Ep/m LocalManagementInterface*
This component defines the parameters for implementing the Frame Relay Forum FRF.5 Local Management Interface protocol.

Common Verbs
- Help
- List
- Display
- Add
- DELete

## GROUP McsMgr Frf5EpG Ep Lmi ProtocolParameters (Parms)

Properties — Provisioned

Description — This group contains the provisionable attributes of the Local Management Interface component.

## ATTRIBUTE McsMgr Frf5EpG Ep Lmi procedures (proc)

Access — Read and write

Description — This attribute selects the procedures to be used for the Local Management Interface. The following are the supported procedures:

***none***: no Local Management Interface procedures are running on the ATM VCC. This accommodates remote interworking functions which do not implement LMI procedures. In this case, the remaining attributes of this group will be ignored.

***ccitt***: Local Management Interface procedures from the CCITT specification are supported. *Dlci/0* is used for the LMI protocol, to comply with FRF.5.

***ansi***: Local Management Interface procedures from the ANSI specification are supported. *DLCI 0* is used for the LMI protocol.

Values
- none
- ansi
- ccitt

Default — ccitt

### ATTRIBUTE McsMgr Frf5EpG Ep Lmi asyncStatusReport (asr)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute selects the use of asynchronous PVC status report procedures as specified in the CCITT specification (ITU-T Q.933, Annex A), and the ANSI specification Annex D. |
| Values | off<br>on |
| Default | on |

### ATTRIBUTE McsMgr Frf5EpG Ep Lmi errorEventThreshold (n392)

| | |
|---|---|
| Access | Read and write |
| Description | For the network side procedure, an event is defined as follows: (1) receipt of a STATUS ENQUIRY message, or (2) expiration of timer T392. An error event is (1) nonreceipt of STATUS ENQUIRY in T392 seconds; (2) invalid format of an LMI message; (3) invalid receive sequence number.<br>For the user side procedure, an event is defined as a polling cycle or a status enquiry and status report exchange. An error event is (1) non-receipt of a STATUS within the polling cycle, or (2) invalid format of an LMI message, or (3) invalid sequence number.<br><br>This attribute specifies the number of error events which, if they occur within *eventCount* events, will cause a protocol error condition. The condition is cleared after *eventCount* sequential correct events occur.<br><br>It must be less than or equal to *eventCount* (n393). |
| Values | Decimal (1..10) |
| Default | 3 |

### ATTRIBUTE McsMgr Frf5EpG Ep Lmi eventCount (n393)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the number of contiguous events within which no more than *eventErrorThreshold* error events are |

| | |
|---|---|
| | allowed.<br><br>It must be greater than or equal to *errorEventThreshold* (n392). |
| Values | Decimal (1..10) |
| Default | 4 |

### ATTRIBUTE McsMgr Frf5EpG Ep Lmi checkPointTimer (t392)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute selects the time (in seconds) within which a STATUS ENQUIRY message is expected. It must be greater than *linkVerificationTimer* (t391). |
| Values | Decimal (5..255) |
| Units | seconds |
| Default | 200 |

### ATTRIBUTE McsMgr Frf5EpG Ep Lmi side

| | |
|---|---|
| Access | Read and write |
| Description | This attribute selects the user side procedure (DTE), or the network side procedure (DCE), or both the user side and the network side procedures of the LMI.<br><br>This attribute can be set to ***user, network*** or ***both***. |
| Values | network<br>user<br>both |
| Default | both |

### GROUP McsMgr Frf5EpG Ep Lmi NniProtocolParameters (NniParms)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes of the FRF.5 LMI procedures which are unique to NNI. |

### ATTRIBUTE McsMgr Frf5EpG Ep Lmi fullStatusPollingCycles (n391)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies how frequently the FRF.5 LMI initiates a Status Enquiry for a full PVC status report. A polling cycle is a Status Enquiry and Status Report exchange. |
| Values | Decimal (1..255) |
| Default | 1 |

### ATTRIBUTE McsMgr Frf5EpG Ep Lmi linkVerificationTimer (t391)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies how frequently the FRF.5 LMI initiates a Status Enquiry for link integrity verification. It must be less than *checkPointTimer* (t392). |
| Values | Decimal (5..255) |
| Units | seconds |
| Default | 180 |

### GROUP McsMgr Frf5EpG Ep Lmi OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE McsMgr Frf5EpG Ep Lmi adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. |

When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE McsMgr Frf5EpG Ep Lmi operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE McsMgr Frf5EpG Ep Lmi usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

## GROUP McsMgr Frf5EpG Ep Lmi ProtocolStatusInfo (Psi)

Properties
Operational

Description
This group provides the protocol status of the Local Management Interface.

## ATTRIBUTE McsMgr Frf5EpG Ep Lmi protocolStatus

Access
Read only

Description
This attribute indicates whether the LMI is in an error condition or whether the protocol is behaving normally. This attribute will be set to ***errorCondition*** after enough LMI errors have been detected to warrant a change in condition. This occurs when *n392* of the last *n393* events are in error.
The error condition is lifted when a sufficient number of consecutive events has occurred without error. This occurs when *n393* consecutive good events take place.
The consequence of an error condition is that all DLCIs on this interface will become inactive in both directions.

Values
errorCondition
normalCondition

Default
normalCondition

### ATTRIBUTE McsMgr Frf5EpG Ep Lmi opProcedures (opProc)

| | |
|---|---|
| Access | Read only |
| Criticality | Process |
| Description | This attribute indicates the procedures being used for the Local Management Interface. This attribute should be ignored if *protocolStatus* is not ***normalCondition***. The following procedures are supported:<br><br>***none***: Local Management Interface procedures are not running on this interface. This accommodates Frame Relay user equipment that has not implemented any LMI procedures.<br><br>***ansi***: Local Management Interface procedures from the ANSI specification are being used. DLCI 0 is used for the LMI protocol.<br><br>***itu***: Local Management Interface procedures from the ITU-T specification are being used. DLCI 0 is used for the LMI protocol. |
| Values | none<br>ansi<br>itu |
| Default | No default |

### GROUP McsMgr Frf5EpG Ep Lmi Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational statistics for the FRF.5 NNI Local Management Interface. |

### ATTRIBUTE McsMgr Frf5EpG Ep Lmi keepAliveStatusToInterface (kasti)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the Local Management Interface keep alive status messages sent to the ATM VCC in response to a status enquiry for keep alive status. When the maximum count is reached it wraps to zero. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE McsMgr Frf5EpG Ep Lmi fullStatusToInterface (fsti)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the Local Management Interface full status messages sent to the ATM VCC in response to a status enquiry for keep alive or full status. When the maximum count is reached it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE McsMgr Frf5EpG Ep Lmi keepAliveStatusEnqFromInterface (kafi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the Local Management Interface valid keep alive status enquiry messages received from the ATM VCC. When the maximum count is reached it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE McsMgr Frf5EpG Ep Lmi fullStatusEnqFromInterface (fsfi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the Local Management Interface valid full status enquiry messages received from the ATM VCC. When the maximum count is reached it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE McsMgr Frf5EpG Ep Lmi networkSideEventHistory (nsh)

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the Local Management Interface network side procedure event history in order of occurrence. An event is represented by a single symbol. A ‘+’ symbol indicates a good |

| | |
|---|---|
| | event. An ‘X‘ symbol indicates a protocol error event. The left most event is the most recent to occur. The provisioned *eventCount* dictates the maximum number of events displayed. A good event is triggered by receipt of a valid status enquiry message. An error event is either a T392 timer expiry or receipt of a status enquiry with an incorrect sequence number. |
| Values | String (1..10, ASCII) |
| Default | No default |

### ATTRIBUTE McsMgr Frf5EpG Ep Lmi userSideEventHistory (ush)

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the Local Management Interface user side procedure event history in order of occurrence. An event is represented by a single symbol. A ‘+’ symbol indicates a good event. An ‘X‘ symbol indicates a protocol error event. The left most event is the most recent to occur. The provisioned *eventCount* dictates the maximum number of events displayed. A good event is triggered by receipt of a valid status message. An error event is either a T391 timer expiry or receipt of a status message with an incorrect sequence number. |
| Values | String (1..10, ASCII) |
| Default | No default |

### ATTRIBUTE McsMgr Frf5EpG Ep Lmi protocolErrors (proto)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of Local Management Interface protocol errors. It is the sum of the sequence (*sequenceErrors* and *statusSequenceErrors*) and timeout (*pollingVerifTimeouts* and *noStatusReportCount*) errors. When the maximum count is reached it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE McsMgr Frf5EpG Ep Lmi unexpectedIes (uie)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the number of Local Management Interface frames received with an Information Element identifier that is unknown or unexpected. An unexpected Information Element is not a protocol error. When the maximum count is reached, this counter wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE McsMgr Frf5EpG Ep Lmi sequenceErrors (seq)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of Local Management Interface Status Enquiry message sequence errors. A sequence error is receipt of a Status Enquiry message with a receive sequence number not equal to the last send sequence number. When the maximum count is reached the counter wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE McsMgr Frf5EpG Ep Lmi statusSequenceErrors (stseq)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of Local Management Interface Status message sequence errors. A sequence error is receipt of a Status message with a receive sequence number not equal to the last send sequence number. When the maximum count is reached the counter wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE McsMgr Frf5EpG Ep Lmi unexpectedReports (ur)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of Local Management Interface frames received with an unknown or unexpected report type. An |

| | |
|---|---|
| | unexpected report type is not a protocol error. When the maximum count is reached the counter wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE McsMgr Frf5EpG Ep Lmi pollingVerifTimeouts (tmo)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the *checkPointTimer* (T392) expiries occurring on the Local Management Interface. When the maximum count is reached the counter wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE McsMgr Frf5EpG Ep Lmi noStatusReportCount (nsrc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times when no status report or an invalid status report comes from the external network. This attribute is incremented:<br>i) after a status enquiry is sent out and the T391 timer expires without having a status report received.<br>ii) if an invalid status report is received.<br><br>When the maximum count is reached it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE McsMgr Frf5EpG Ep Lmi keepAliveEnqToIf (kaeti)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of Local Management Interface keep alive enquiry status messages sent to the external user device for keep alive status. When the maximum count is reached it wraps to zero. |
| Values | Decimal (0..4294967295) |

Default 0

### ATTRIBUTE McsMgr Frf5EpG Ep Lmi fullStatusEnqToIf (fseti)

Access Read only

Description This attribute counts the number of Local Management Interface full status messages sent to the external user device in response to a status enquiry for keep alive or full status. When the maximum count is reached it wraps to zero.

Values Decimal (0..4294967295)

Default 0

### COMPONENT McsMgr Frf5EpG Ep EndPointDescriptor (Epd)

Groups "GROUP McsMgr Frf5EpG Ep Epd Provisioned (Prov)"
"GROUP McsMgr Frf5EpG Ep Epd CustomerIdentifierData (CidData)"

Scope Application

Description *McsMgr Frf5EpG/n Ep/n EndPointDescriptor*
This component describes the ATM SPVC which supports the FRF.5 connection.

Common Verbs
Help
List
Display

### GROUP McsMgr Frf5EpG Ep Epd Provisioned (Prov)

Properties Provisioned

Description This group contains the provisionable attributes of the FRF.5 End Point.

### ATTRIBUTE McsMgr Frf5EpG Ep Epd remoteConnectionIdentifier (rci)

Access Read and write

Description This attribute specifies the remote connection identifier. It either represents the VPI.VCI logical channel number assignment of a

| | |
|---|---|
| | remote ATM interface, or the *Endpoint.Frf5EndPointGroup* instances of a remote Passport FRF.5 EndPoint. |
| Values | Integer Sequence (0..255; 0..16128) |
| Default | No default |

### ATTRIBUTE McsMgr Frf5EpG Ep Epd connectionTransferPriority (conntp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the transfer priority used to establish the ATM connection. The *EndPoint* references the *ModuleData FrameRelayService AtmNetworking TransferPriority/n* component to determine the ATM service category to be used by the connection.<br>This attribute is also used to determine which *EndPoint* within an *Frf5EndPointGroup* is to multiplex a particular *FrAtm Dlci*. |
| Values | Decimal (0..15) |
| Default | No default |

### ATTRIBUTE McsMgr Frf5EpG Ep Epd committedInformationRate (cir)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the committed information rate (CIR), and represents the rate at which the network FRF.5 ATM VCC agrees to transfer information under normal conditions. A conservative CIR value would be the sum of the CIRs of all the individual *FrAtm Dlci*s multiplexed by the VCC.<br>The *cir* is converted into ATM service parameters according to the conversion policy specified by the *connectionTransferPriority* attribute. The conversion policy is defined under the *ModuleData FrameRelayService AtmNetworking TransferPriority/n* component. |
| Values | Decimal (0..50000000) |
| Units | bit/s |
| Default | 64000 |

### ATTRIBUTE McsMgr Frf5EpG Ep Epd excessInformationRate (eir)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the excess information rate (EIR), and represents the rate at which the network FRF.5 ATM VCC attempts to transfer information. A conservative EIR value would be the sum of the EIRs of all the individual *FrAtm Dlci*s multiplexed by the VCC.<br>The *eir* is converted into ATM service parameters according to the conversion policy specified by the *connectionTransferPriority* attribute. The conversion policy is defined under the *ModuleData FrameRelayService AtmNetworking TransferPriority/n* component. |
| Values | Decimal (0..50000000) |
| Units | bit/s |
| Default | 0 |

### ATTRIBUTE McsMgr Frf5EpG Ep Epd committedBurstSize (bc)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the committed burst size (Bc), and represents the amount of data that the network FRF.5 ATM VCC agrees to transfer under normal conditions. A conservative Bc value would be the sum of the Bcs of all the individual *FrAtm Dlci*s multiplexed by the VCC.<br>The *bc* is converted into ATM service parameters according to the conversion policy specified by the *connectionTransferPriority* attribute. The conversion policy is defined under the *ModuleData FrameRelayService AtmNetworking TransferPriority/n* component. |
| Values | Decimal (0..50000000) |
| Units | bits |
| Default | 16000 |

### ATTRIBUTE McsMgr Frf5EpG Ep Epd type

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute specifies the FRF.5 End Point type. If the value is provisioned as ***master***, this End Point is responsible for initiating the SPVC call to set up the FRF.5 ATM VCC. If the value is provisioned as ***slave***, this End Point receives call setup requests from a master remote end. |
| Values | master<br>slave |
| Default | master |

### ATTRIBUTE McsMgr Frf5EpG Ep Epd accessRate (ar)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute represents the access rate of the FRF.5 EndPoint. A conservative value would be the sum of the access rates of all the *FrAtms'* that have DLCIs multiplexed by the VCC. The access rate is converted into ATM service parameters when conversion policies 3, 4 and 5 are used. For policy 6, this attribute is ignored. |
| Values | Decimal (0..50000000) |
| Units | bit/s |
| Default | 1536000 |

### ATTRIBUTE McsMgr Frf5EpG Ep Epd excessBurstSize (be)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the excess burst size (Be), and represents the amount of uncommitted data that the network FRF.5 ATM VCC agrees to transfer under normal conditions. A conservative Be value would be the sum of the Bes of all the individual *FrAtm Dlci*s multiplexed by the VCC.<br>The *be* is converted into ATM service parameters according to the conversion policy specified by the *connectionTransferPriority* attribute. The conversion policy is defined under the *ModuleData FrameRelayService AtmNetworking TransferPriority/n* component. |
| Values | Decimal (0..50000000) |
| Units | bits |

| | |
|---|---|
| Default | 0 |

### GROUP McsMgr Frf5EpG Ep Epd CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

### ATTRIBUTE McsMgr Frf5EpG Ep Epd customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.<br><br>Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.<br><br>An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to "basic CIDs" in DPN) may be assigned to specific customers. |
| Values | Decimal (0; 1..8191) |
| Default | 0 |

### COMPONENT McsMgr Frf5EpG Ep DataLinkConnectionIdentifier (Dlci)

| | |
|---|---|
| Instance | Decimal (16..1007; 1022) |
| Groups | "GROUP McsMgr Frf5EpG Ep Dlci Operational (Oper)" |
| Scope | Application |

Description — *McsMgr Frf5EpGrp/n Ep/n DataLinkConnectionIdentifier/n*
This component represents a logical connection multiplexed inside the FRF.5 ATM VCC.

Common Verbs
Help
List
Display

### GROUP McsMgr Frf5EpG Ep Dlci Operational (Oper)

Properties — Operational

Description — This group contains the operational attributes for the FRF.5 DLCI.

### ATTRIBUTE McsMgr Frf5EpG Ep Dlci aBitStatusToIf (abti)

Access — Read only

Description — This attribute indicates the most recent A-bit status sent to the ATM VCC. If the value is ***inactive***, the reason for the LMI failure is given by the *aBitReasonToNetwork*.

Values
inactive
active

Default — inactive

### ATTRIBUTE McsMgr Frf5EpG Ep Dlci aBitReasonToIf (abrti)

Access — Read only

Description — This attribute indicates the reason for the latest inactive A-bit status sent to the ATM VCC.
The value is ***notApplicable*** when the *aBitStatusToNetwork* is ***active***.
The value is ***remoteUserSignaled*** if the *FrAtm* originating the A-Bit status has detected that the virtual circuit is down at the remote network through the LMI protocol. The *FrAtm* must be running network site LMI protocol for this A-Bit status reason to be sent.
The value is ***localLmiError*** if the LMI protocol is down at this *Ep*.
The value is ***remoteLmiError*** if the LMI protocol is down at the

*FrAtm* originating this A-Bit status reason.
The value is ***localLinkDown*** if the physical interface is disabled at this *Ep*.
The value is ***pvcDown*** if no A-Bit status has been sent to this *Ep* (i.e., no A-Bit status has been relayed from the *FrAtm*).
The value is ***remoteLinkDown*** if the physical interface is disabled at the *FrAtm* originating this A-Bit status reason.

Values
notApplicable
remoteUserSignaled
localLmiError
remoteLmiError
localLinkDown
remoteLinkDown
pvcDown

Default
notApplicable

### ATTRIBUTE McsMgr Frf5EpG Ep Dlci aBitStatusFromIf (abfi)

Access
Read only

Description
This attribute indicates the most recent A-bit status received from the ATM VCC. If the value is ***inactive***, the reason for the LMI failure is given by the *aBitReasonFromNetwork*.

Values
inactive
active

Default
inactive

### ATTRIBUTE McsMgr Frf5EpG Ep Dlci aBitReasonFromIf (abrfi)

Access
Read only

Description
This attributes indicates the reason for the latest inactive A-bit status received from the ATM VCC.
The value is ***notApplicable*** when the *aBitStatusFromNetwork* is ***active***.
The value is ***remoteUserSignaled*** if the remote FRF.5 End Point originating the A-Bit status has detected that the virtual circuit is down at the remote network through the LMI protocol. The remote FRF.5 End Point must be running network site LMI protocol for this A-Bit status reason to be sent.

The value is ***localLmiError*** if the LMI protocol is down at this *Ep*.
The value is ***localLinkDown*** if the physical interface is disabled at this *Ep*.
The value is ***missingFromLmiReport*** if the remote FRF.5 End Point did not provide a reason along with the inactive A-Bit status.

Values
notApplicable
remoteUserSignalled
localLmiError
localLinkDown
missingFromLmiReport

Default
notApplicable

## ATTRIBUTE McsMgr Frf5EpG Ep Dlci accessConnectionComponent (acc)

Access
Read only

Description
This attribute identifies the *FrAtm Dlci* to which this *Dlci* component is bound.

Values
String (0..26, ASCII)

Default
No default

## COMPONENT McsMgr Frf5EpG Ep AtmConnection (AtmCon)

Groups
"GROUP McsMgr Frf5EpG Ep AtmCon Operational (Oper)"

Scope
Device

Description
An AtmConnection component is created for each ATM connection established by an application. It shows where the data traffic for this connection is directed.

Common Verbs
Help
List
Display

## GROUP McsMgr Frf5EpG Ep AtmCon Operational (Oper)

Properties
Operational

| | |
|---|---|
| Description | This attribute group contains the operational attributes for the *NapAtmConnection* component. |

### ATTRIBUTE McsMgr Frf5EpG Ep AtmCon nextHop

| | |
|---|---|
| Access | Read only |
| Description | This attribute shows the component name of the *AtmIf Vcc Ep* or *AtmCon* component to which this switched connection is established. |
| Values | The name of the component |
| Default | No default |

Passport 7400, 15000, 20000

# Component McsMgr

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component MmTx

241-5701-060

Passport 7400, 15000, 20000

# Component MmTx

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT MaintenanceMonitorTx (MmTx)

| | |
|---|---|
| Instance | Decimal (1..15) |
| Groups | "GROUP MmTx CustomerIdentifierData (CidData)"<br>"GROUP MmTx Provisioned (Prov)"<br>"GROUP MmTx OsiState (State)"<br>"GROUP MmTx Operational (Oper)" |
| Scope | Application |
| Description | *MaintenanceMonitorTx/n* |

A *MaintenanceMonitorTx* component identifies an instance of the MaintenanceMonitor AAL1 Circuit Emulation Service. The service that is used to transport the copy of the monitored traffic to a local or remote observer is basic structured AAL1 CES. This stream is mono directional from the monitor point to the observer. Any ATM traffic that is received from the observer (which may occur if the observer uses a standard AAL1 CES service) is discarded at the monitoring point.

A separate instance of this component is required for each monitored channel.

Instance numbers, which are used to uniquely identify *MaintenanceMonitorTx* component instances, are arbitrary.

Only one instance of *MaintenanceMonitorTx* may be linked to a particular *LogicalProcessor*.

Opt. Subcomp. "COMPONENT MmTx NailedUpAdaptationPoint (Nap)"

Common Verbs

Help
List
Display
Add
DELete

## GROUP MmTx CustomerIdentifierData (CidData)

Properties Provisioned

Description This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs.

## ATTRIBUTE MmTx customerIdentifier (cid)

Access Read and write

Description This attribute holds the Customer Identifier (CID).

Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.

Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.

An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to "basic CIDs" in DPN) may be assigned to specific customers.

Values Decimal (0; 1..8191)

| | |
|---|---|
| Default | 0 |

### GROUP MmTx Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains basic provisioning data for the Maintenance Monitor Transmitter (MmTx). A MmTx represents a mono-directional AAL1 Circuit Emulation Service. AAL1 CES attributes in this group are essential information to the operator about the AAL1 CES service that must be matched in the *Aal1Ces* component that receives the monitored stream.<br><br>The check escape checks that only one instance of a *MaintenanceMonitorTx* is linked to any one *Lp*. |

### ATTRIBUTE MmTx linkToLogicalProcessor (lpName)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the instance of a hardware component to which an instance of this component is linked. Only *Lp* components may be linked. |
| Values | Link (Hardware, linkToApplications) |
| Default | No default |

### ATTRIBUTE MmTx monitoredDirection (direction)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the direction of the monitored traffic.<br><br>When ***ingress*** value is specified, the traffic coming from the interface and going to the backplane is monitored and specified by *chanToMonitor.*<br><br>When ***Egress*** value is specified, the traffic coming from the backplane and going to the interface is monitored and specified by *chanToMonitor.* |

| | |
|---|---|
| Values | ingress<br>egress |
| Default | ingress |

### ATTRIBUTE MmTx serviceType (servType)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the service type of the CES.<br><br>The *serviceType* attribute in the receiving *Aal1Ces* component must have the same value as this attribute. |
| Values | basicStructured |
| Default | basicStructured |

### ATTRIBUTE MmTx partialFill (partFill)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the number of octets that are carried in an ATM cell by the AAL1 CES service. A full cell contains 47 octets.<br><br>The *partialFill* attribute in the receiving *Aal1Ces* component must have the same value as this attribute. |
| Values | Decimal (47) |
| Units | octets |
| Default | 47 |

### GROUP MmTx OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values |

and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE MmTx adminState (osiAdmin)

Access: Read only

Description: This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values:
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default: unlocked

### ATTRIBUTE MmTx operationalState (osiOper)

Access: Read only

Description: This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for

operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE MmTx usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
idle
active (activ)
busy

Default
idle

### ATTRIBUTE MmTx availabilityStatus (osiAvail)

Access
Read only

Description

If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.

The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.

The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.

The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.

The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is

one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

## ATTRIBUTE MmTx proceduralStatus (osiProc)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***initializationRequired*** indicates (for a resource which doesn’t initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has

not been initiated. The *operationalState* is ***disabled***.

The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

### ATTRIBUTE MmTx controlStatus (osiCntrl)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but

tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

Set of: subjectToTest (subTst)
partOfServicesLocked (partLk)
reservedForTest (rsrvd)
suspended (suspnd)

Default: No default

### ATTRIBUTE MmTx alarmStatus (osiAlarm)

Access: Read only

Description: If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE MmTx standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the

role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values
hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

Default
notSet

### ATTRIBUTE MmTx unknownStatus (osiUnknw)

Access
Read only

Description
This attribute indicates the OSI Unknown status of the component.

The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.

The value ***true*** indicates that the actual state of the component is not known for sure.

Values
false
true

Default
false

### GROUP MmTx Operational (Oper)

Properties
Operational

Description
This group contains status information about the AAL1 Circuit Emulation Service and the related ATM service. It also specifies the Channel to be monitored.

### ATTRIBUTE MmTx connectionStatus (connStatus)

Access
Read only

Description
This attribute indicates if a service is non-operational because of a problem with the service interface side of the service (in which

case, it is set to ***channelNotReady***) or because of a problem with the ATM side of the service (in which case, it is set to ***atmNotConfigured*** or ***atmNotReady***).

When this attribute is set to ***channelNotReady***, it is an indication that the corresponding *Chan* component (as defined by the attribute *interfaceName*) or the *Chan* component's parent port component (*Lp/n Ds1/m* or *Lp/n E1/m*) is locked.

When this attribute is set to ***atmNotConfigured***, it is an indication that no sub-component has been provisioned, and thus no ATM connection has been configured for the service.

When this attribute is set to ***atmNotReady***, it is an indication that the ATM connection with which the service is associated (as defined by a sub-component) has been lost or that it is currently unable to carry CES data.

When this attribute is set to ***channelNotSpecified***, it is an indication that the *chanToMonitor* attribute is not set to a valid channel.

This attribute is set to ***connected*** when a service is operational (that is, the OSI attribute *operationalState* is ***enabled***.)

Values
connected
channelNotReady
atmNotReady
atmNotConfigured
channelNotSpecified

Default
channelNotReady

## ATTRIBUTE MmTx chanToMonitor (chan)

Access
Read and write

Description
*chanToMonitor* specifies the LP, port (*E1* or *DS1*), and channel to monitor. The LP must be the same LP specified in the provisionable attribute *linkToLogicalProcessor*. This attribute's value is of the form Lp/x E1/y Chan/z or Lp/x DS1/y Chan/z.

Values
The name of the component

| | |
|---|---|
| Default | No default |

## COMPONENT MmTx NailedUpAdaptationPoint (Nap)

| | |
|---|---|
| Groups | "GROUP MmTx Nap Provisioned (Prov)" |
| Scope | Application |
| Description | *Aal1Ces/n NailedUpAdaptationPoint*<br><br>A *NailedUpAdaptationPoint* is a nailed-up point which straddles the CBR/ATM domains and which is associated with the adaptation of CBR data to/from ATM cells.<br><br>If a *NailedUpAdaptationPoint* component is provisioned under an *Aal1Ces* component, no other components may be provisioned under the same *Aal1Ces* component. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP MmTx Nap Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioning data for the *NailedUpAdaptationPoint* component. |

## ATTRIBUTE MmTx Nap atmConnection (ac)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the identity of the component to which the *NailedUpAdaptationPoint* is linked. This is an *AtmIf Vcc NailedUpEndPoint* or an *AtmIf Vpt Vcc NailedUpEndPoint* (the AAL1 cells are transported off the switch over an ATM UNI, where they are routed to the appropriate AAL1 entity at the other end by the ATM bearer service). |

| | |
|---|---|
| Values | Link (Service, applicationName) |
| Default | No default |

Passport 7400, 15000, 20000

# Component MmTx

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component Mod

241-5701-060

Passport 7400, 15000, 20000

# Component Mod

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT ModuleData (Mod)

| | |
|---|---|
| Groups | "GROUP Mod Provisioned (Prov)" |
| Scope | Network |
| Description | Module wide provisioning data is used to define a number of attributes used by various systems within the module. |
| Subcomponents | "COMPONENT Mod FrameRelaySystem (Frs)" |
| Opt. Subcomp. | "COMPONENT Mod VirtualCircuitSystem (Vcs)" |
| Common Verbs | Help<br>List<br>Display |

## GROUP Mod Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | *Mod Provisionable*<br>This group provides attributes that are used by internal and external systems to identify the module. |

## ATTRIBUTE Mod nodeId

| | |
|---|---|
| Access | Read and write |
| Criticality | Module |
| Description | The *nodeId* is a number that uniquely identifies a Magellan Passport module in a Passport network.<br><br>Changing the value of the nodeId will cause the node to restart. |

| | |
|---|---|
| Values | Decimal (1..4095) |
| Default | No default |

### ATTRIBUTE Mod nodeName

| | |
|---|---|
| Access | Read and write |
| Criticality | Module |
| Description | The *nodeName* is a 12 character ASCII string that is unique to every Passport module in a Passport network. This name is the component instance value of EM - the root of the Passport component hierarchy. It has, therefore, the same restriction and behavior as any ASCII string instance value, e.g., it is converted to upper case.<br><br>Note that the EM component is typically suppressed on output.<br><br>Changing the value of the *nodeName* will cause the node to restart. |
| Values | String (1..12, ASCII) |
| Default | NONAME |

### ATTRIBUTE Mod namsId

| | |
|---|---|
| Access | Read and write |
| Criticality | Module |
| Description | This attribute stores the Network Administration (Nams) Identifier associated with the Passport node. It must be unique across the entire network of Passport nodes supporting the transport of DPN traffic as well as all RMs and AMs in the network.<br><br>The *namsId* must be set when a *DpnAddressPlan* component is configured on an Passport node.<br><br>The *namsId* is used in the accounting record, statistics record and in time change accounting record and identifies nodes in these records. |

The Nams Id is to be assigned by the network administrator. Value 49151 indicates that no Nams Id was assigned to the module.

Changing the value of the *namsId* will cause the node to restart.

Values: Decimal (256..49151)

Default: 49151

### ATTRIBUTE Mod regionId

Access: Read and write

Description: This attribute identifies the Topology Region to which the node belongs. Nodes will only exchange topological information with connected nodes in the same region.

Changing the value of the *regionId* will NOT cause the node to restart.

Values: Decimal (0..126)

Default: 0

### ATTRIBUTE Mod nodePrefix

Access: Read and write

Criticality: Module

Description: This attribute specifies an NSAP prefix which is distributed to all other Passport nodes whose *clusterNode* attribute under the *Rtg* component is provisioned with the same value as this node within a Topology region. The attribute can be used to identify this node. This prefix is used by PORS, PNNI routing, and MCS.

PORS calls that use NSAP addressing (for example, CES) will look for the node with the longest NSAP prefix that matches the called party address. The NSAP prefixes that PORS matches against are the *nodePrefix* and the *alternatePorsPrefixes*.

PNNI forms the default value of the *nodeAddressPrefix* under the

*AtmPnni* component with this NSAP prefix followed by a unique MAC address.

MCS uses the *nodePrefix* to form an NSAP address that is registered with the Networking API. This NSAP address is used to identify this node when establishing an MCS switched path.

The value entered must be 26 characters long. All characters must be hexadecimal with the following restrictions:
- the first two characters are in the range of ‘10’ to ‘FE’, inclusive.
- if the first two characters are ‘45’, the 18th character must be an ‘f’ or an ‘F’

| | |
|---|---|
| Values | String (0..26, ASCII) |
| Default | "" |

### ATTRIBUTE Mod alternatePorsPrefixes

| | |
|---|---|
| Access | Read and write |
| Criticality | Module |
| Description | This attribute specifies four NSAP prefixes which are distributed to all other Passport nodes whose *clusterNode* attribute under the *Rtg* component is provisioned with the same value as this node within a Topology region. The attribute can be used to identify this node. These prefixes are used by PORS.<br><br>PORS calls that use NSAP addressing (for example, CES) will look for the node with the longest NSAP prefix that matches the called party address. The NSAP prefixes that PORS matches against are the *alternatePorsPrefixes* and the *nodePrefix*.<br><br>These prefixes may contain up to 40 hexadecimal characters. |
| Vector of | String (0..40, ASCII) |
| Index | Decimal (0..3) |
| Default | ([4] "") |

## COMPONENT Mod VirtualCircuitSystem (Vcs)

| | |
|---|---|
| Groups | "GROUP Mod Vcs AccountingOptions (AccOpt)"<br>"GROUP Mod Vcs WindowOptions (WinOpt)"<br>"GROUP Mod Vcs AddressingOptions (AddOpt)"<br>"GROUP Mod Vcs InterfaceOptions (IntOpt)" |
| Scope | Application |
| Description | *ModuleData Vcs*<br>*ModuleData VirtualCircuitSystem* is used to define a number of general characteristics for all *Vcs* that originate from or terminate on a particular module. As an example, the *Vc* Window matrix is defined on a module basis to provide the expected virtual circuit window sizes to associate with all *Vcs* on the module. All the modules in the network should have identical *VirtualCircuitSystem* attributes. If these attributes are not consistent across the network applications which need *Vc* may not be able to establish calls. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Mod Vcs AccountingOptions (AccOpt)

| | |
|---|---|
| Properties | Provisioned |
| Description | Accounting information is owned by the *Vc* System; it is stored in the *Vc* Accounting component, which itself is considered to be a component on the switch. The Accounting Component contains a bit map indicating which of the accounting facilities are to be spooled in the accounting record - for example, bit '0' if set indicates that the accounting facility with facility code H.00 should be spooled if present in the *Vc* for accounting purposes. The data contained in the *Vc* Accounting must be identical network wide even though the component can be changed and upgraded on a module by module basis. |

### ATTRIBUTE Mod Vcs segmentSize

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the segment size for accounting of national calls. Minimum allowed segment size is ***1***. If data segment is sent which is less than *segmentSize* it is still counted as one segment. |
| Values | 1<br>2<br>4<br>8<br>16<br>32<br>64<br>128<br>256<br>512<br>1024<br>2048<br>4096 |
| Default | 128 |

### ATTRIBUTE Mod Vcs unitsCounted

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies what is counted by frame services. If set to frames, frames are counted, else segments are counted. |
| Values | segments<br>frames |
| Default | segments |

### ATTRIBUTE Mod Vcs accountingFax (afax)

| | |
|---|---|
| Access | Read and write |
| Description | Each value corresponds to an accounting facility code, of which there are currently 10 facility codes defined with codes H.00 to H.09, and corresponding to the above 10 facilities. |

Each of the above facilities may or may not be present and stored in the Vc for accounting purposes, depending on the nature of the call. For example, only those Vcs where a NUI (Network User Identifier) is used for charging or identification purposes will have a NUI stored in the Vc.

| | |
|---|---|
| Set of | originalCalledAddressFax |
| Default | (originalCalledAddressFax) |

### ATTRIBUTE Mod Vcs generationMode (genMod)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies part of the rules by which the network generates accounting records. If set to ***bothEnds***, then both ends of the *Vc* generate accounting records. If set to ***singleEnd***, then the charged end of the *Vc* generates accounting records. In single end generation mode, if the call does not clear gracefully, both ends of the *Vc* will generate accounting record. |
| Values | bothEnds<br>singleEnd |
| Default | singleEnd |

### GROUP Mod Vcs WindowOptions (WinOpt)

| | |
|---|---|
| Properties | Provisioned |
| Description | *WindowOptions group* defines attributes used when establishing *Vc*.<br>These attributes are common to each *Vc* unless overridden by other options in a call. For example X.25 options used in call request. |

### ATTRIBUTE Mod Vcs windowSize (wins)

| | |
|---|---|
| Access | Read and write |
| Description | This is the *windowSize* corresponding to the given packet size and throughput class. All *Vcs* using the windowSize matrix support large *Vc* windows on both ends of the *Vc*, and support the signaling of the chosen *Vc* window size from the destination |

(called) end to the source (calling) end. This is the only matrix supported.
The *windowSize* should be configured in the same way network wide, though it can be upgraded on a module by module basis. *Vcs* using the *windowSize* matrix will run properly if the matrices on different nodes differ since the *Vc* window is selected by the destination (called) side of the *Vc*.

Array of Decimal (1..63)

Row packetSize (pkt) [16
32
64
128
256
512
1024
2048
4096
8192
32768
65535]

Column throughputClass (tpt) [Decimal (0..15)]

Default ([12 * 16] 4)

## GROUP Mod Vcs AddressingOptions (AddOpt)

Properties Provisioned

Description The *Vc AddressingOptions* group describes the addressing parameters. It is currently owned by the *Vc*.

Most of the data contained in the *Vc AddressingOptions* group is identical network wide even though the group can be changed and upgraded on a module by module basis.

## ATTRIBUTE Mod Vcs defaultNumberingPlan (npi)

Access Read and write

Criticality Process

| | |
|---|---|
| Description | This attribute specifies the numbering plan used which determines the address format: X.121-- the international numbering plan for public packet switched data networks or E.164-- the international numbering plan for ISDN and PSTN.<br><br>The default numbering plan does not need to be consistent across all of the nodes in the network. |
| Values | x121<br>e164 |
| Default | x121 |

### ATTRIBUTE Mod Vcs networkIdType (nit)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies whether the network uses a DNIC or INIC. It is used by X.75 Gateways to indicate whether in network the DNIC or INIC is used in various utilities. If it is DNIC it can be DNIC or DCC type. If it is INIC it can be 4 digits only. |
| Values | dnic<br>inic |
| Default | dnic |

### ATTRIBUTE Mod Vcs x121Type (xtyp)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies whether DNIC mode or DCC mode is used in X.121 address of international calls.<br><br>If DCC is specified, then the first 3 digits of each DNA must be the Network ID Code.<br>If this attribute is changed all Dnas in the network must start with this code. Numbering plan is affected by the change. |
| Values | dnic<br>dcc |
| Default | dnic |

### ATTRIBUTE Mod Vcs networkIdCode (nic)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the DNIC (Data Network ID Code) of the network or DCC code. |
| Values | BCD (3..4) |
| Default | No default |

### ATTRIBUTE Mod Vcs x121IntlAddresses (xia)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates if any DTE is allowed to signal international addresses. |
| Values | disallowed<br>allowed |
| Default | allowed |

### ATTRIBUTE Mod Vcs x121IntllPrefixDigit (xipd)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates the prefix digit to be used for X.121 international calls. When this digit is provided the call will have full international address. |
| Values | Decimal (0..9) |
| Default | 9 |

### ATTRIBUTE Mod Vcs x121MinAddressLength (xmial)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates minimum length of x121 address. |
| Values | Decimal (1..16) |
| Default | 1 |

### ATTRIBUTE Mod Vcs x121MaxAddressLength (xmaal)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute indicates maximum length of x121 address. |
| Values | Decimal (1..16) |
| Default | 15 |

### ATTRIBUTE Mod Vcs x121ToE164EscapeSignificance (xtees)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether an X.121 to E.164 escape digit has significance in selecting an X.32 (analog) or an ISDN switched path. If two values are significant (the value 0 or the value 9) then yes is set to this attribute. If the value of the originally entered escape digit is not significant in routing the call then value of no is assigned to this attribute. |
| Values | no<br>yes |
| Default | no |

### ATTRIBUTE Mod Vcs e164IntlFormatAllowed (eifa)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates whether or not to allow national format E.164 addresses. If this attribute is set to a value of Yes (=1) then national format E.164 addresses are not allowed and international format addresses only are allowed. If this attribute is set to a value of No (=0), then national format E.164 addresses are allowed.<br><br>If only international format E.164 addresses are allowed, then the 'e164NatlPrefixDigit' attribute is not required, nor is the 'e164IntlPrefixDigits' required. |
| Values | disallowed<br>allowed |
| Default | allowed |

### ATTRIBUTE Mod Vcs e164IntlPrefixDigits (eipd)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute specifies the E.164 international prefix digits. If applicable, it is specified as 1 to 3 BCD digits.<br><br>The 3 BCD digits are stored with the length of the international prefix in the low order nibble, nibble [0] followed by the most significant digit of the international prefix in the next low order nibble, nibble [1], etc.<br><br>This attribute is not required if the corresponding attribute, 'e164IntlFormatOnly' is set to a value of Yes (=1). |
| Values | BCD (0..3) |
| Default | 0 |

### ATTRIBUTE Mod Vcs e164NatlPrefixDigit (enpd)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute contains the E.164 national prefix which may be added in front of E.164 local or national call. If e164IntlFormatOnly is set to 1, this attribute is not needed. |
| Values | Decimal (0..9) |
| Default | 1 |

### ATTRIBUTE Mod Vcs e164LocalAddressLength (elal)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates the length of a local E.164 DNA on this module. This attribute is not required if the corresponding attribute, e164IntlFormatOnly is set to a value of yes.<br><br>This attribute does not need to be consistent across all of the nodes in the network. |
| Values | Decimal (4..15) |
| Default | 7 |

### ATTRIBUTE Mod Vcs e164TeleCountryCode (etcc)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute specifies the E.164 Telephone Country Code (TCC) for the country in which the network resides. If applicable, it is specified as 1 to 3 BCD digits.<br><br>The 3 BCD digits are stored with the length of the TCC in the low order nibble, nibble [0] followed by the most significant digit of the TCC in the next low order nibble, nibble [1], etc. |
| Values | BCD (1..4) |
| Default | 1 |

### ATTRIBUTE Mod Vcs e164NatlMinAddressLength (enmial)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates minimum length of e164 national address. |
| Values | Decimal (1..16) |
| Default | 1 |

### ATTRIBUTE Mod Vcs e164NatlMaxAddressLength (enmaal)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates maximum length of e164 national address. |
| Values | Decimal (1..16) |
| Default | 15 |

### ATTRIBUTE Mod Vcs e164IntlMinAddressLength (eimial)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates minimum length of e164 international address. |
| Values | Decimal (1..16) |
| Default | 1 |

### ATTRIBUTE Mod Vcs e164IntlMaxAddressLength (eimaal)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute indicates maximum length of e164 international address. |
| Values | Decimal (1..16) |
| Default | 15 |

### ATTRIBUTE Mod Vcs e164LocalMinAddressLength (elmial)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates minimum length of e164 local address. |
| Values | Decimal (1..16) |
| Default | 1 |

### ATTRIBUTE Mod Vcs e164LocalMaxAddressLength (elmaal)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates maximum length of e164 local address. |
| Values | Decimal (1..16) |
| Default | 15 |

### GROUP Mod Vcs InterfaceOptions (IntOpt)

| | |
|---|---|
| Properties | Provisioned |
| Description | The *Vc InterfaceOptions* group defines *Vc* system parameters common in the network. It is owned by the *Vc* and is considered to be a module wide component on the switch.<br><br>The data contained in the *Vc InterfaceOptions* group must be identical network wide even though this group can be changed and upgraded on a module by module basis. |

### ATTRIBUTE Mod Vcs highPriorityPacketSizes (hpps)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates which packet sizes are supported for high priority calls within the network. |
| Set of | 16<br>32<br>64<br>128<br>256<br>512<br>1024<br>2048<br>4096 |
| Default | (16, 32, 64, 128, 256, 512, 1024, 2048, 4096) |

### ATTRIBUTE Mod Vcs maxSubnetPacketSize (msps)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum subnet packet size used for the connections originating or terminating on this module. All modules in the same network should have the same *maxSubnetPacketSize*.<br><br>If this value is not identical throughout the network, the following points need to be considered:<br><br>a) When Passport and DPN switches are connected in the same network, the *maxSubnetPacketSize* on a DPN switch can be at most 2048 and the DPN part of the network must be configured with hardware which supports this size:<br><br>- Dedicated PE386 Network link/Trunk<br>- Minimum measured link speed of 256Kbits/sec<br><br>This hardware has to be present on every potential data path between connecting end points!<br><br>b) The calling end of the connection signals the *maxSubnetPacketSize* value to the called end. The called end then compares this value to its own provisioned value and selects the smaller value. Note that this smaller value is not signaled back to |

the calling end. The calling and called ends can therefore have different *maxSubnetPacketSize* values.

Values
16
32
64
128
256
512
1024
2048
4096

Default 512

### ATTRIBUTE Mod Vcs callSetupTimer (cst)

Access Read and write

Description This attribute specifies the *Vc callSetupTimer* in units of 1 second ticks. This timer specifies how long the *Vc* will wait, after sending
a subnet Call Request packet into the network, for a response from the remote end of the *Vc* (in the form of a subnet Raccept packet). If, after sending a subnet Call packet into the network, a response is not received within this time period, the *Vc* will time out, clearing the call in the assumption that the remote end is unreachable. This timer must be long enough to take into account the time required for routing the subnet Call Request through the Source Call Routing and the Destination Call Routing systems in order to be delivered to the final destination.

Values Decimal (5..100)

Default 5

### ATTRIBUTE Mod Vcs callRetryTimer (crt)

Access Read and write

Description This attribute specifies, for *Vc* implementing Direct Calls with the auto-call retry feature (including PVCs), the *Vc callRetryTimer* in

units of 1 second ticks. This timer specifies how long the *Vc* will wait between unsuccessful call attempts.

Values: Decimal (30..300)

Default: 60

### ATTRIBUTE Mod Vcs delaySubnetAcks (dsa)

Access: Read and write

Description: This attribute specifies delay acknowledgment timer mechanism. If this attribute is set to ***no***, then the *Vc* will automatically return acknowledgment packets without delay. If this attribute is set to ***yes***, then the *Vc* will wait for one second in an attempt to piggyback the acknowledgment packet on another credit or data packet. If the *Vc* cannot piggyback the acknowledgment packet within this time, then the packet is returned without piggybacking.

Values:
no
yes

Default: no

### COMPONENT Mod FrameRelaySystem (Frs)

Scope: Application

Description: *Mod FrameRelaySystem*
The *Frs* component defines the overall module wide data that is applicable to the Frame Relay system.

Subcomponents:
"COMPONENT Mod Frs AtmNetworking (AtmNet)"
"COMPONENT Mod Frs DprsNetworking (DprsNet)"
"COMPONENT Mod Frs IpCosToFrQos (IpCosToFrQos)"

Common Verbs:
Help
List
Display
Unlock

## COMPONENT Mod Frs AtmNetworking (AtmNet)

| | |
|---|---|
| Groups | "GROUP Mod Frs AtmNet Provisioned (Prov)" |
| Scope | Application |
| Description | *Mod Frs AtmNetworking*<br>*AtmNetworking* is used to define a number of general characteristics for all Frame Relay to ATM interworking on module. All the modules in the network should have identical *AtmNetworking* attributes. If these attributes are not consistent across the network, then the service may be degraded. |
| Subcomponents | "COMPONENT Mod Frs AtmNet TransferPriorityMapping (Tpm)" |
| Common Verbs | Help<br>List<br>Display |

## GROUP Mod Frs AtmNet Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains information related to the Frame Relay to ATM interworking. |

## ATTRIBUTE Mod Frs AtmNet retryTimerPeriod (rtp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the module wide retry timer interval for failed SPVC calls using Frame Relay to ATM Networking. Changes to this attribute will take effect on subsequent call setups. |
| Values | Decimal (30..300) |
| Units | seconds |
| Default | 60 |

## COMPONENT Mod Frs AtmNet TransferPriorityMapping (Tpm)

| | |
|---|---|
| Instance | Decimal (0..15) |

| | |
|---|---|
| Groups | "GROUP Mod Frs AtmNet Tpm Provisioned (Prov)" |
| Scope | Application |
| Description | *Mod Frs AtmNet TransferPriorityMapping/n*<br>This component specifies call setup parameters for Frame Relay to ATM interworking using transfer priority *n*. The changed parameters will take effect on new calls.<br><br>Some attributes can be overridden on per interface basis by *FrAtm Ca Tpm* component. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>Unlock |

### GROUP Mod Frs AtmNet Tpm Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group specifies the mapping from Frame Relay parameters to ATM parameters for a Frame Relay using the defined transfer priority. |

### ATTRIBUTE Mod Frs AtmNet Tpm emissionPriority (ep)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the egress emission priority at the FR to ATM interface. A value of 3 specifies the highest priority, whereas a value of 0 specifies the lowest priority. |
| Values | Decimal (0..3) |
| Default | 0 |

### ATTRIBUTE Mod Frs AtmNet Tpm atmServiceCategory (sc)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the ATM class of service value to be used on a transport connection. |

| | |
|---|---|
| Values | ubr<br>cbr<br>rtVbr<br>nrtVbr |
| Default | nrtVbr |

### ATTRIBUTE Mod Frs AtmNet Tpm avgFrameSize (afs)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the average frame size that is used in the traffic parameter conversion policy calculations for this transfer priority to determine the overhead factor for FR to ATM interworking. The overhead factor affects the granularity of the bandwidth requirements. The values should be identical across the network. Otherwise, there may result in bandwidth conversion inconsistencies. |
| Values | Decimal (1..8187) |
| Units | bytes |
| Default | 128 |

### ATTRIBUTE Mod Frs AtmNet Tpm trafficParmConvPolicy (tpcp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the traffic parameter conversion policy to use for this transfer priority to specify the equivalent bandwidth rate at the FrAtm interface.<br><br>Policy 3 characterizes the traffic in the following way:<br>- ATM traffic descriptor type 6 is selected<br>- PCR0+1 is based on the AR<br>- SCR0+1 is based on the CIR and EIR<br>- MBS0+1 is based on Bc,Be,CIR,EIR and AR<br>- Takes into account that the instantaneous rate of the frame relay stream can burst above CIR and up to the AR.<br><br>Policy 4 characterizes the traffic in the following way:<br>- ATM traffic descriptor type 7 or 8 is selected. Type 7 is chosen when non-conforming cells are to be discarded and type 8 when |

non-conforming cells are tagged by UPC traffic policer.
- PCR0+1 is based on the AR
- SCR0 is based on the CIR
- MBS0 is based on Bc,CIR and AR
- There is no direct characterization of EIR. The allowed EIR can be derived using the difference between the AR and CIR.

Policy 5 characterizes the traffic in the following way:
- ATM traffic descriptor type 7 or 8 is selected . Type 7 is chosen when non-conforming cells are to be discarded and type 8 when non-conforming cells are tagged by UPC traffic policer
- PCR0+1 is based on CIR and EIR
- SCR0 is based on the CIR
- MBS0 is based on the Bc,CIR and AR
- The maximum PCR is no longer based on AR but based on the CIR and EIR.

Policy 6 characterizes the traffic in the following way:
- ATM traffic descriptor type 3 is selected
- PCR0+1 is based only on CIR.

Values
3
4
5
6

Default
6

### ATTRIBUTE Mod Frs AtmNet Tpm assignedBandwidthPool (asgBwPool)

Access
Read and write

Description
This attribute specifies the bandwidth pool which is used to support this transfer priority. The bandwidth pool is defined in the *frAtm Ca* component.

Values
0
1
2
3
4
5
6

| | |
|---|---|
| | 7<br>8<br>9<br>10<br>11<br>12<br>13<br>14<br>15 |
| Default | 0 |

## COMPONENT Mod Frs DprsNetworking (DprsNet)

| | |
|---|---|
| Scope | Application |
| Description | *Mod Frs DprsNetworking*<br>*DprsNetworking* is used to define a number of general characteristics for all Frame Relay connections using DPRS networking. All the modules in the network should have identical *DprsNetworking* attributes. If these attributes are not consistent across the network, then the service may be degraded. |
| Subcomponents | "COMPONENT Mod Frs DprsNet TransferPriorityMappingDprsNet (Tpm)" |
| Common Verbs | Help<br>List<br>Display |

## COMPONENT Mod Frs DprsNet TransferPriorityMappingDprsNet (Tpm)

| | |
|---|---|
| Instance | Decimal (0..15) |
| Groups | "GROUP Mod Frs DprsNet Tpm Provisioned (Prov)" |
| Scope | Application |

| | |
|---|---|
| Description | *Mod Frs DprsNet TransferPriorityMappingDprsNet/n*<br>This component represents default transfer priority mappings for Frame Relay connections using DPRS networking. |
| Common Verbs | Help<br>List<br>Display<br>Add |

## GROUP Mod Frs DprsNet Tpm Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group specifies the mapping from the defined transfer priority to the egress emission priority and routing class of service.<br>The mapping of transfer priority to egress emission priority and routing class of service may be modified by the user. Any changes to transfer priority mappings take effect on new calls. Existing connections are not affected by changes to transfer priority mappings unless the service is reset by locking and unlocking the connection or resetting the card where the service resides. |

## ATTRIBUTE Mod Frs DprsNet Tpm emissionPriority (ep)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the egress emission priority at the Frame Relay interface. A value of ***3*** specifies the highest priority, whereas a value of ***0*** specifies the lowest priority. |
| Values | Decimal (0..3) |
| Default | 0 |

## ATTRIBUTE Mod Frs DprsNet Tpm routingClassOfService (rcos)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the routing class of service value to be used on a transport connection. A value of ***multimedia*** specifies the highest class of service and a value of ***throughput*** specifies the lowest class of service. |

| | |
|---|---|
| Values | throughput<br>delay<br>multimedia |
| Default | throughput |

### ATTRIBUTE Mod Frs DprsNet Tpm assignedIngressBandwidthPool (asgInBwPool)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the ingress bandwidth pool which is used to support this transfer priority at the *FrUni* and *FrNni* interface. For *FrUni* and *FrNni*, this pool is defined by provisioning attributes *ingressCirBandwidthPool* and *ingressEirBandwidthPool* under the *FrUni Ca* and *FrNni Ca* component respectively. The value of this attribute can be overridden at the interface level by provisioning attribute *assignedIngressBandwidthPool* under the *FrUni Ca Tpm/n* and *FrNni Ca Tpm/n* component respectively. |
| Values | Decimal (0..15) |
| Default | 0 |

### ATTRIBUTE Mod Frs DprsNet Tpm assignedEgressBandwidthPool (asgEgBwPool)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the egress bandwidth pool which is used to support this transfer priority at the *FrUni* and *FrNni* interface. For *FrUni* and *FrNni*, this pool is defined by provisioning attributes *egressCirBandwidthPool* and *egressEirBandwidthPool* under the *FrUni Ca* and *FrNni Ca* component respectively. The value of this attribute can be overridden at the interface level by provisioning attribute *assignedEgressBandwidthPool* under the *FrUni Ca Tpm/n* and *FrNni Ca Tpm/n* component respectively. |
| Values | Decimal (0..15) |
| Default | 0 |

### COMPONENT Mod Frs IpCosToFrQos (IpCosToFrQos)

| | |
|---|---|
| Scope | Application |

| | |
|---|---|
| Description | *Mod Frs IpCosToFrQos*<br>This component is used to define a number of general characteristics for all Frame Relay connections using Frame Relay IP Traffic management. All the modules in the network should have identical *IpCosToFrQos* attributes. If these attributes are not consistent across the network, then the service may be degraded. |
| Subcomponents | "COMPONENT Mod Frs IpCosToFrQos TypeOfServiceMapping (Tosm)" |
| Common Verbs | Help<br>List<br>Display |

## COMPONENT Mod Frs IpCosToFrQos TypeOfServiceMapping (Tosm)

| | |
|---|---|
| Instance | Decimal (0..255) |
| Groups | "GROUP Mod Frs IpCosToFrQos Tosm Provisioned (Prov)" |
| Scope | Application |
| Description | *Mod Frs IpCosToFrQos TypeOfServiceMapping/n*<br>This component represents the type of service mappings for Frame Relay connections using Frame Relay IP Traffic Management.<br><br>The instance corresponds to a particular IP TOS value. All 256 possible instances are always present. Instances of this component cannot be deleted. |
| Common Verbs | Help<br>List<br>Display<br>Add |

## GROUP Mod Frs IpCosToFrQos Tosm Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |

| | |
|---|---|
| Description | This group specifies the mapping from the IP type of service value to the egress emission priority and discard priority. Any changes to TOS mappings will immediately take effect on new calls. |

### ATTRIBUTE Mod Frs IpCosToFrQos Tosm emissionPriority (ep)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the egress emission priority at the Frame Relay interface. A value of ***3*** specifies the highest priority, whereas a value of ***0*** specifies the lowest priority.<br><br>Changes to this attribute effect only new calls. |
| Values | Decimal (0..3) |
| Default | 0 |

### ATTRIBUTE Mod Frs IpCosToFrQos Tosm discardPriority (dp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the egress discard priority at the Frame Relay interface. A value of ***normal*** specifies the lowest priority (more readily discarded), whereas a value of ***high*** specifies the highest priority (less readily discarded).<br><br>Changes to this attribute effect only new calls. |
| Values | normal<br>high |
| Default | normal |

Passport 7400, 15000, 20000

# Component Mod

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component Mpanl

241-5701-060

Passport 7400, 15000, 20000

# Component Mpanl

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT MpaNetworkLink (Mpanl)

| | |
|---|---|
| Instance | Decimal (1..65535) |
| Groups | "GROUP Mpanl CustomerIdentifierData (CidData)"<br>"GROUP Mpanl Provisioned (Prov)"<br>"GROUP Mpanl EmissionPriorityQs"<br>"GROUP Mpanl OsiState (State)"<br>"GROUP Mpanl Statistics (Stats)"<br>"GROUP Mpanl TrafficStatistics (TrafficStats)"<br>"GROUP Mpanl IfEntryProv (IfEntry)"<br>"GROUP Mpanl OperationalStatus (OperStatus)"<br>"GROUP Mpanl Operational (Oper)" |
| Scope | Network |
| Description | *MpaNetworkLink/<n>*<br>This component defines an instance of the MPA Network Link (MPANL) service. The component instance value n is a unique positive integer within a module. |

| | |
|---|---|
| Subcomponents | "COMPONENT Mpanl DataNetworkAddress (Dna)"<br>"COMPONENT Mpanl Signaling (Sig)"<br>"COMPONENT Mpanl LocalManagementInterface (Lmi)"<br>"COMPONENT Mpanl VoiceOverFrameRelay (VoFr)"<br>"COMPONENT Mpanl Voice" |
| Opt. Subcomp. | "COMPONENT Mpanl Framer"<br>"COMPONENT Mpanl FrMuxSetup"<br>"COMPONENT Mpanl Isdn" |
| Dyn. Subcomp. | "COMPONENT Mpanl PrefixDataNetworkAddress (PrefixDna)"<br>"COMPONENT Mpanl DataLinkConnectionIdentifier (Dlci)"<br>"COMPONENT Mpanl SignalingMpanl (SigMpanl)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP Mpanl CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attribute for the MPANL component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

## ATTRIBUTE Mpanl customerIdentifier (cid)

| | |
|---|---|
| Access | Read only |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0. |

Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.

An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to "basic CIDs" in DPN) may be assigned to specific customers.

| | |
|---|---|
| Values | Decimal (0; 1..8191) |
| Default | 0 |

### GROUP Mpanl Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisionable attributes of the MPANL service. |

### ATTRIBUTE Mpanl commentText

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the name the customer wishes to associate with this MPANL interface. |
| Values | String (0..40, ASCII) |
| Default | No default |

### GROUP Mpanl EmissionPriorityQs

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attribute to specify the number of Frame Relay egress emission priority queues to be used on that Frame Relay Interface |

### ATTRIBUTE Mpanl numberOfEmissionQs

| | |
|---|---|
| Access | Read only |
| Criticality | Process |
| Description | This attribute specifies the number of egress emission priority queues that will be used for that Frame Relay interface. The possible values of this attribute are 2 or 4:<br>For V.35, V.11, HSSI, E1, DS1, E3, DS3 or 8pDS1 the possible values are: 2 (in which case they are hardware queues), or 4 (in which case they are software queues).<br>For DS1C, E1C or DS3C the possible values are 2, 4 (in all cases they are software queues). |
| Values | Decimal (2; 4) |
| Default | 4 |

### GROUP Mpanl OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Mpanl adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is |

administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Mpanl operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Mpanl usageState (osiUsage)

Access
Read only

Description

This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values

idle
active (activ)
busy

Default

idle

### ATTRIBUTE Mpanl availabilityStatus (osiAvail)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.

The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is

***disabled***.

The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.

The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.

The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

| | |
|---|---|
| Set of | inTest<br>failed<br>dependency (depend)<br>powerOff (pwrOff)<br>offLine<br>offDuty<br>degraded (degrad)<br>notInstalled (notIn)<br>logFull<br>migrating |
| Default | No default |

### ATTRIBUTE Mpanl proceduralStatus (osiProc)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.<br><br>The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.<br><br>The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***. |

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

### ATTRIBUTE Mpanl controlStatus (osiCntrl)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

Set of

subjectToTest (subTst)
partOfServicesLocked (partLk)
reservedForTest (rsrvd)
suspended (suspnd)

Default

No default

### ATTRIBUTE Mpanl alarmStatus (osiAlarm)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE Mpanl standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values

hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

| | |
|---|---|
| Default | notSet |

### ATTRIBUTE Mpanl unknownStatus (osiUnknw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Unknown status of the component.<br><br>The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.<br><br>The value ***true*** indicates that the actual state of the component is not known for sure. |
| Values | false<br>true |
| Default | false |

### GROUP Mpanl Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | FrUni/n Statistics<br>This group contains the statistics about the operational behavior of the service at the interface level. |

### ATTRIBUTE Mpanl lastUnknownDlci (ludlc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute identifies the most recent DLCI which user frames were received on for which a DLCI has not been provisioned on the port. |
| Values | Decimal (0..1023) |
| Default | 0 |

### ATTRIBUTE Mpanl unknownDlciFramesFromIf (unknown)

| | |
|---|---|
| Access | Read only |
| Description | This attribute contains a count of the number of frames received from the interface with an unknown DLCI (DLCI which is not |

| | |
|---|---|
| | provisioned). When the maximum is reached the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Mpanl invalidHeaderFramesFromIf (invalid)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames received from the interface with an invalid header format. When the maximum is reached the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### GROUP Mpanl TrafficStatistics (TrafficStats)

| | |
|---|---|
| Properties | Operational |
| Description | This operational group provides the traffic statistics of the service at the interface level. Each attribute type is a non-negative integer which monotonically increases until it reaches a maximum value, at which point it wraps around and starts increasing again from zero. |

### ATTRIBUTE Mpanl frmToIf

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts frames transmitted to the interface. This count may differ from its framer counterpart because Voice over Frame Relay function may fragment and pack the Frame Relay frames before transmission. When the maximum is reached the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Mpanl octetToIf

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts octets transmitted to the interface. This count<br>may differ from its framer counterpart because Voice over Frame Relay function may fragment and pack the Frame Relay frames before transmission. When the maximum is reached the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Mpanl frmFromIf

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts frames received from the interface. This count<br>may differ from its framer counterpart because Voice over Frame Relay function may fragment and pack the Frame Relay frames before transmission. When the maximum is reached the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Mpanl octetFromIf

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts octets received from the interface. This count<br>may differ from its framer counterpart because Voice over Frame Relay function may fragment and pack the Frame Relay frames before transmission. When the maximum is reached the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Mpanl frmToIfByQueue

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the total number of frames transmitted to the interface per egress emission priority queue since the component has been activated. There is potentially a maximum of 4 emission priority queues. The number of available egress queues varies according to the value of the provisionable attribute *numberOfEmissionQs*. Egress queue 0 has the lowest priority, while egress queue 3 has the highest priority. |
| Values | Decimal (0..4294967295) |
| Replication | Decimal (0..3) |
| Default | No default |

### ATTRIBUTE Mpanl octetToIfByQueue

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of octets transmitted from the service to the interface per emission priority queue since the component has been activated. There is potentially a maximum of 4 emission priority queues. The number of available egress queues varies according to the value of the provisionable attribute *numberOfEmissionQs*. Egress queue 0 has the lowest priority, while egress queue 3 has the highest priority. |
| Values | Decimal (0..4294967295) |
| Replication | Decimal (0..3) |
| Default | No default |

### GROUP Mpanl IfEntryProv (IfEntry)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the ifEntry. |

### ATTRIBUTE Mpanl ifAdminStatus (ifState)

| | |
|---|---|
| Access | Read and write |
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed. |

| | |
|---|---|
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE MpanI ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP MpanI OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

### ATTRIBUTE MpanI snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### GROUP MpanI Operational (Oper)

| | |
|---|---|
| Properties | Operational |

| | |
|---|---|
| Description | This group contains miscellaneous operational attributes of the MPANL service. |

### ATTRIBUTE Mpanl roundTripDelay (rtd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the round trip delay of the MPANL interface. The round trip delay measurement is only made when this attribute is displayed. The measured value is rounded up to the next millisecond.<br><br>This attribute has the value 0, if the delay measurement cannot be made. |
| Values | Decimal (0..10000) |
| Units | msec |
| Default | No default |

### COMPONENT Mpanl DataNetworkAddress (Dna)

| | |
|---|---|
| Groups | "GROUP Mpanl Dna OutgoingOptions"<br>"GROUP Mpanl Dna CallOptions" |
| Scope | Network |
| Description | *Mpanl/<n> DataNetworkAddress*<br>This component contains the attributes necessary for creating a virtual circuit. These attributes indicate the default call setup capabilities for the interface. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Mpanl Dna OutgoingOptions

| | |
|---|---|
| Properties | Provisioned |
| Description | *DnaOutOptionsProv* group defines call options of a *Dna* for calls which are made out of the interface represented by *Dna*. All these |

options are not used for calls arriving to the interface represented by *Dna*.

### ATTRIBUTE Mpanl Dna defaultTransferPriority (dtp)

Access

Read and write

Description

This attribute specifies the default transfer priority to network for all outgoing calls using this particular *Dna*.

The transfer priority is a preference configured for an application according to its delay-sensitivity requirement. Frames with higher transfer priority are served by the network before the frames with lower priority. The transfer priority standard is defined to have 16 levels from 0 to 15.

Each transfer priority n, where n indicates the transfer priority index, contains a default setting for routing class of service (multimedia, delay or throughput) and frame relay egress queue (depending on the number of supported egress queues on the remote end interface) specified by the *routingClassOfServic*e and *emissionPriority* attributes provisioned in the *Mod Frs DprsNet Tpm/n* component. The default mapping can be altered by a user if required.

The default *defaultTransferPriority* is ***0***.

Values

0
1
2
3
4
5
6
7
8
9
10
11
12
13

| | |
|---|---|
| | 14<br>15 |
| Default | 0 |

### GROUP Mpanl Dna CallOptions

| | |
|---|---|
| Properties | Provisioned |
| Description | *DnaCallOptions* group defines additional options for calls not related directly to direction of a call. |

### ATTRIBUTE Mpanl Dna accountClass (acl)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the accounting class which is reserved for network operations usage. Its value is returned in the accounting record in the local and remote service type attributes. Use of this attribute is decided by network operator.<br>This attribute is returned by the local VC in the accounting record for all calls setup using this particular DNA. |
| Values | Decimal (0..255) |
| Default | 0 |

### ATTRIBUTE Mpanl Dna accountCollection (aco)

| | |
|---|---|
| Access | Read and write |
| Description | This set attribute indicates that accounting records are to be collected by the network for the various reasons: billing, test, study, auditing. The last of the parameters, force, indicates that accounting records are to be collected irrespective of other collection reasons. The force option is available for X.75 Gateways only. If none of these reasons are set, then accounting will be suppressed.<br>To set a specific accounting collection reason, the reason is entered and the corresponding bit in the structure is set to a value of 1. To turn off a specific accounting collection reason, the reason is entered preceded with the '^' character, and the corresponding bit in the structure is set to a value of 0.<br>The bit placement for the accounting collection reasons is as follows: |

Bit 0 - Bill
Bit 1 - Test
Bit 2 - Study
Bit 3 - Audit
Bit 4 - Force

Set of
bill
test
study
audit
force

Default (bill)

### ATTRIBUTE Mpanl Dna serviceExchange (sre)

Access Read and write

Description This attribute is an arbitrary number, Data Service Exchange, as entered by the network operator and reported in accounting record. It is converted into an internal 8-bit integer value for use in the accounting record as well as in various X.25 and X.75 Tariff utilities.

Values Decimal (0..255)

Default 0

### ATTRIBUTE Mpanl Dna egressAccounting (ega)

Access Read and write

Description

This attribute specifies if Egress accounting is enabled by the MPANL service. Disabling of Egress accounting means that only segment counts are collected by VC and there are no frame relay counts in accounting records for the MPANL service. Enabling of Egress accounting means that the accounting records for MPANL contain frame relay specific counts.

Values
yes
no

Default no

## COMPONENT Mpanl Framer

Groups
"GROUP Mpanl Framer Provisioned (Prov)"
"GROUP Mpanl Framer LinkOptions (Link)"
"GROUP Mpanl Framer OsiState (State)"
"GROUP Mpanl Framer Statistics (Stats)"
"GROUP Mpanl Framer LinkUtilization (Util)"

"COLLECTED STATS MpaNetworkLink Framer"

Scope
Network

Description
*Mpanl/<n> Framer*
The *Framer* component controls link layer framing for application components sending and receiving data on a link interface. It is also through *Framer*, that an application component is associated with a specific hardware link interface.

The *Framer* component provides provisionable attributes related to datapath aspects of the hardware interface (such as crc and frame length) rather than interface specific attributes (such as modem leads and clocking) which are associated with specific hardware components (such as *V35/n* or *DS1/n*). The *Framer* component also provides a provisionable attribute which binds the application component to a specific hardware component.

The *Framer* component contains operational attributes for link interface datapath statistics (such as frame counts and aborts).

Common Verbs
Help
List
Display
Add
DELete

## GROUP Mpanl Framer Provisioned (Prov)

Properties
Provisioned

Description
This group contains the base provisioning data for the *Framer* component. Application or hardware interface specific

provisioning data is contained in other provisionable *Framer* groups.

### ATTRIBUTE Mpanl Framer interfaceName

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute contains a hardware component name.<br><br>The attribute associates the application with a specific link. This defines the module processor on which *Framer*'s parent component (as well as *Framer* itself) will run. |
| Values | Link (Hardware, applicationFramerName) |
| Default | No default |

### GROUP Mpanl Framer LinkOptions (Link)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains attributes defining the framing of data on the link interface. |

### ATTRIBUTE Mpanl Framer dataInversion

| | |
|---|---|
| Access | Read and write |
| Description | This attribute determines whether data bits are to be inverted (1 to 0 and 0 to 1) before transmission of frames to the interface. If the value of this attribute is On, the incoming data bits will also be inverted when frames are received from the link before being processed.<br><br>This option is typically used in ***hdlc*** framing mode when inversion is used to guarantee 1's density.<br><br>Note that aborts (in ***hdlc*** and ***interrupting*** modes) are corrupted when data is inverted.<br><br>This attribute may only take its default value for non-MSA cards. |

| | |
|---|---|
| Values | off<br>on |
| Default | off |

### ATTRIBUTE Mpanl Framer frameCrcType

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the type of CRC used.<br><br>The CRC value calculated is appended to the end of the frames transmitted to the link. The CRC value is removed from the end of frames received from the link and checked for correctness. NoCrc means that CRC is not used.<br><br>This attribute may take only its default value for non-MSA cards. |
| Values | crc16<br>crc32<br>noCrc |
| Default | crc16 |

### ATTRIBUTE Mpanl Framer flagsBetweenFrames

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the number of flags that are inserted between frames sent to the link interface. The flagBetweenFrames can be set to only 1, 2, 4, 8 or 16 for 4pDS3Ch FrameRelay FP. |
| Values | Decimal (1..16) |
| Default | 1 |

### GROUP Mpanl Framer OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component |

which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Mpanl Framer adminState (osiAdmin)

Access: Read only

Description: This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values: locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default: unlocked

### ATTRIBUTE Mpanl Framer operationalState (osiOper)

Access: Read only

Description: This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the

component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Mpanl Framer usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Mpanl Framer Statistics (Stats)

Properties
Operational

Description
This group contains the operational statistics data for a Framer component.

### ATTRIBUTE Mpanl Framer aborts

Access
Read only

Description
This attribute is the total number of aborts received.

Values
Decimal (0..4294967295)

Default
0

### ATTRIBUTE Mpanl Framer crcErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of frames with CRC errors, occurring in the receive direction from the link. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Mpanl Framer lrcErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of frames with LRC errors, occurring in the Tx link prior to transmission onto the link. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Mpanl Framer nonOctetErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of frames that were non octet aligned. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Mpanl Framer overruns

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of frames received from the link for which overruns occurred. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Mpanl Framer underruns

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute is the total number of frames transmitted to the link for which underruns occurred. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Mpanl Framer largeFrmErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of frames received which were too large. The frame exceeded the *maximumFrameLengthLimit* provisioned attribute or it contained more than the 255 block hardware limit. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Mpanl Framer frmModeErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of frames detected with framing mode errors. A *framingModeError* is flagged when frames are inconsistent with the specified *framingType*, that is when interrupting frames are used while running in hdlc mode. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Mpanl Framer frmToIf

| | |
|---|---|
| Access | Read only |
| Description | The number of frames transmitted to the link interface by Framer.<br><br>Note: This does not include the number of frames transmitted directly to the hardware queue, thus bypassing the Framer component. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Mpanl Framer frmFromIf

| | |
|---|---|
| Access | Read only |
| Description | The number of frames received from the link interface by Framer. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Mpanl Framer octetFromIf

| | |
|---|---|
| Access | Read only |
| Description | The number of bytes received from the link interface by Framer. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Mpanl Framer ingressFrameDiscards

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of frames discarded at ingress PQC. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### GROUP Mpanl Framer LinkUtilization (Util)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the link utilization operational data for a Framer component. |

### ATTRIBUTE Mpanl Framer normPrioLinkUtilToIf

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the utilization of the normal and high priority data traffic (interruptible traffic) sent to the link as a percentage of the available bandwidth on the link. Note that this includes traffic with Transfer Priorities (TP) of 0, 6 and 9 and/or Emission |

| | |
|---|---|
| | Priority of 2 and 3. The utilization is the average for the last minute. |
| Values | Decimal (0..100) |
| Units | % |
| Default | 0 |

### ATTRIBUTE Mpanl Framer normPrioLinkUtilFromIf

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the utilization of the normal and high priority data traffic (interruptible traffic) received from the link as a percentage of the available bandwidth on the link. Note that this includes traffic with Transfer Priorities (TP) of 0, 6 and 9 and/or Emission Priority of 2 and 3. The utilization is the average for the last minute. |
| Values | Decimal (0..100) |
| Units | % |
| Default | 0 |

## COLLECTED STATS MpaNetworkLink Framer

| | |
|---|---|
| Description | The statistics record generated by the MpaNetworkLink Framer component. |

### ATTRIBUTE Mpanl Framer rxBytes

| | |
|---|---|
| Description | This attribute provides the number of bytes received on the link by the Framer in the last collection interval. |
| Values | Long Integer |

### ATTRIBUTE Mpanl Framer rxFrames

| | |
|---|---|
| Description | This attribute provides the number of frames received on the link interface by the Framer in the last collection interval. |
| Values | Long Integer |

### ATTRIBUTE Mpanl Framer txBytes

Description: This attribute provides the number of bytes transmitted to the link by the Framer in the last collection interval. This value could be zero if the application sends the frames directly to the link.

Values: Long Integer

### ATTRIBUTE Mpanl Framer txFrames

Description: This attribute provides the number of frames transmitted to the link interface by the Framer in the last collection interval. This value could be zero if the application sends the frames directly to the link.

Values: Long Integer

### ATTRIBUTE Mpanl Framer rxTotalLinkUtil

Description: This attribute provides the average total link utilization computed based on the total number of bytes received on the link in the last collection interval.

Values: Decimal (0..100)

### COMPONENT Mpanl PrefixDataNetworkAddress (PrefixDna)

Instance: numberingPlanIndicator [x121
e164]
dataNetworkAddress [BCD (1..15)]

Scope: Network

Description: *Mpanl/<n> PrefixDataNetworkAddress/<npi>,<dna>*
This component identifies a prefixDNA provided by the MPA DTE via the MPANL protocol. It has no attributes because all of the relevant information is contained in the indices of this component. The first index is the numbering plan indicator (x121/e164) and the second index is the prefixDNA digits.

Common Verbs:
Help
List
Display

## COMPONENT Mpanl DataLinkConnectionIdentifier (Dlci)

| | |
|---|---|
| Instance | Decimal (17..1007) |
| Groups | "GROUP Mpanl Dlci OsiState (State)"<br>"GROUP Mpanl Dlci CallData (Calld)"<br>"GROUP Mpanl Dlci ServiceParametersOp (SpOp)"<br>"GROUP Mpanl Dlci Statistics (Stats)"<br>"GROUP Mpanl Dlci IntervalData (Int)"<br>"GROUP Mpanl Dlci ABitStatus (Abit)" |
| Scope | Network |
| Description | *Mpanl/n DataLinkConnectionIdentifier/n*<br>This component is responsible for the Frame Relay U-plane (User-plane) protocol for the specified instance. There can be many instances of *Dlci* for each *Mpanl*. The instance value is used to identify the logical connection, multiplexed within the physical channel, with which a frame is associated. All frames carried within a particular physical channel and having the same DLCI value are associated with the same logical connection.<br><br>A DLCI refers to a switched virtual circuit (SVC) which is created dynamically through signaling. |
| Dyn. Subcomp. | "COMPONENT Mpanl Dlci LoopBack (Lb)"<br>"COMPONENT Mpanl Dlci Vc"<br>"COMPONENT Mpanl Dlci LogicalConnection (LCo)"<br>"COMPONENT Mpanl Dlci JunctorVc (Jvc)" |
| Common Verbs | Help<br>List<br>Display |

## VERB CLEAR Mpanl Dlci

| | |
|---|---|
| Impact | Service |
| Description | *Clear Mpanl/n Dlci/n*<br>This command is used to clear an MPANL connection. |

## GROUP Mpanl Dlci OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

## ATTRIBUTE Mpanl Dlci adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Mpanl Dlci operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Mpanl Dlci usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |

| | |
|---|---|
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### ATTRIBUTE Mpanl Dlci availabilityStatus (osiAvail)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.<br><br>The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.<br><br>The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.<br><br>The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.<br><br>The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***. |

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

### ATTRIBUTE Mpanl Dlci proceduralStatus (osiProc)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the

user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.

The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of
initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default
No default

## ATTRIBUTE Mpanl Dlci controlStatus (osiCntrl)

Access
Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

Set of

subjectToTest (subTst)
partOfServicesLocked (partLk)
reservedForTest (rsrvd)
suspended (suspnd)

Default

No default

### ATTRIBUTE Mpanl Dlci alarmStatus (osiAlarm)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions

described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

## ATTRIBUTE Mpanl Dlci standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and

thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values: hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

Default: notSet

### ATTRIBUTE Mpanl Dlci unknownStatus (osiUnknw)

Access: Read only

Description: This attribute indicates the OSI Unknown status of the component.

The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.

The value ***true*** indicates that the actual state of the component is not known for sure.

Values: false
true

Default: false

### GROUP Mpanl Dlci CallData (CallId)

Properties: Operational

Description This group of attributes describes the characteristics of the call such as call type and call state.

## ATTRIBUTE Mpanl Dlci q933CallState (qstate)

Access Read only

Description This attribute indicates the Q.933 state of an SVC call. In the description that follows, “local” refers to the user who has initiated the SETUP request, and “remote” refers to the user to whom the local user wishes to connect.

State description:
In the ***null*** state, the network has neither received nor sent call setup requests for this DLCI.
In the ***callInitiated*** state, the network has received a SETUP message from the local user.
In the ***outgoingCallProceeding*** state, the network has sent a CALL PROCEEDING message to the local user in response to the SETUP message.
In the ***callPresent*** state, the network has sent a SETUP message to the remote user.
In the ***incomingCallProceeding*** state, the network has received a CALL PROCEEDING message from the remote user in response to a SETUP message.
In the ***active*** state, either the network has sent a CONNECT message to the local user, or the network has received a CONNECT from the remote user.
In the ***disconnectRequest*** state, the network has received a DISCONNECT message from the local user.
In the ***disconnectIndication*** state, the network has sent a DISCONNECT to the local user.
In the ***releaseRequest*** state, the network has sent out a RELEASE message to the local user.
The ***notApplicable*** state indicates that this attribute is meaningless because the DLCI is a PVC.

Values
null
callInitiated
outgoingCallProceeding
callPresent
incomingCallProceeding

| | |
|---|---|
| | active<br>disconnectRequest<br>disconnectIndication<br>releaseRequest<br>notApplicable |
| Default | No default |

### ATTRIBUTE Mpanl Dlci q933CallReference (callref)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Q.933 call reference number associated with this DLCI. |
| Values | Decimal (0..32767) |
| Default | No default |

### GROUP Mpanl Dlci ServiceParametersOp (SpOp)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the service parameters specific to this instance of *Dlci*. |

### ATTRIBUTE Mpanl Dlci maximumFrameSize (n203)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the maximum number of octets which may be included in the information field. The frame relay header and CRC octets are not included in this definition. This attribute corresponds to the dN1 parameter described in the Frame Relay Vendor Forum Specification. |
| Values | Decimal (1..4096) |
| Units | octets |
| Default | No default |

### ATTRIBUTE Mpanl Dlci committedBurstSize (bc)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the committed burst size (Bc) in bits. *bc* is the amount of data that a network agrees to transfer under normal conditions over a measurement interval (*t*). Data marked DE=1 is not accounted for in Bc.<br><br>This attribute should be ignored when *rateEnforcement* is ***off***. |
| Values | Decimal (0..50000000) |
| Units | bits |
| Default | No default |

### ATTRIBUTE Mpanl Dlci excessBurstSize (be)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the excess burst size (Be) in bits. Be is the amount of uncommitted data that the network will attempt to deliver over measurement interval T. Data marked DE=1 by the user or by the network is accounted for here.<br><br>This attribute should be ignored when *rateEnforcement* is ***off***. |
| Values | Decimal (0..50000000) |
| Units | bits |
| Default | No default |

### ATTRIBUTE Mpanl Dlci accounting (ac)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether accounting data collection and record generation is turned on at this DLCI. For accounting data collection and record generation to be occur, the *accountingOn* attribute must be ***on*** and at least one of the *accountCollection* options in the *DataNetworkAddress* component must be selected. |
| Values | off<br>on |
| Default | No default |

### ATTRIBUTE Mpanl Dlci emissionPriorityToIf (epToIf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the emission priority of frames sent to the interface. A larger value denotes a higher priority. |
| Values | Decimal (0; 1; 2; 3) |
| Default | No default |

### ATTRIBUTE Mpanl Dlci transferPriorityToNetwork (tpToNwk)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the priority at which data is transferred to the network.<br><br>The transfer priority is a preference configured for an application according to its delay-sensitivity requirement. Frames with higher transfer priority are served by the network before the frames with lower priority. The transfer priority standard is defined to have 16 indices from 0 to 15.<br><br>Each transfer priority n, where n specifies the transfer priority index, contains a default setting for routing class of service (***multimedia***, ***delay*** or ***throughput***) and frame relay egress queue (depending on the number of supported egress queues on the remote end interface) specified by the *routingClassOfServic*e and *emissionPriority* attributes provisioned in the *Mod Frs DprsNet Tpm/n* component. The default mapping can be altered by a user if required. |
| Values | Decimal (0..15) |
| Default | No default |

### ATTRIBUTE Mpanl Dlci transferPriorityFromNetwork (tpFromNwk)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the priority at which data is transferred from<br>the network. |

The transfer priority is a preference configured for an application according to its delay-sensitivity requirement. Frames with higher transfer priority are served by the network before the frames with lower priority. The transfer priority standard is defined to have 16 indices from 0 to 15.

Each transfer priority n, where n specifies the transfer priority index, contains a default setting for routing class of service (***multimedia***, ***delay*** or ***throughput***) and frame relay egress queue (depending on the number of supported egress queues on the remote end interface) specified by the *routingClassOfServic*e and *emissionPriority* attributes provisioned in the *Mod Frs DprsNet Tpm/n* component. The default mapping can be altered by a user if required.

| | |
|---|---|
| Values | Decimal (0..15) |
| Default | No default |

### GROUP Mpanl Dlci Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational statistics for the MPANL Data Link Connection Identifier. |

### ATTRIBUTE Mpanl Dlci frmToIf (fti)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames sent out the interface. When the maximum count is reached the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Mpanl Dlci fecnFrmToIf (fecnti)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the frames sent to the interface with the Forward Explicit Congestion Notification (FECN) bit set. When the count reaches maximum it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Mpanl Dlci becnFrmToIf (becnti)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames sent to the interface with the Backward Explicit Congestion Notification (BECN) bit set. When the count reaches maximum it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Mpanl Dlci bciToSubnet (bcits)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames sent into the network with the Backward Congestion Indication (BCI) bit set. When the count reaches maximum it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Mpanl Dlci deFrmToIf (deti)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames sent to the interface with the Discard Eligibility (DE) bit set. When the count reaches maximum it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Mpanl Dlci discCongestedToIf (discardcti)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frame discards at the MPANL service due to local congestion in the direction toward the interface. When this count reaches maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Mpanl Dlci discDeCongestedToIf (discarddecti)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of discarded frames, with the Discard Eligibility (DE) bit set, at the MPANL service, due to local congestion in the direction toward the interface. When this count reaches maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Mpanl Dlci frmFromIf (ffi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received from the interface. Frames that are discarded due to error or excess are not counted. When the maximum count is reached the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Mpanl Dlci fecnFrmFromIf (fecnfi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received from the interface with the Forward Explicit Congestion Notification (FECN) bit set. When the count reaches maximum it wraps to zero. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE Mpanl Dlci becnFrmFromIf (becnfi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received from the interface with the Backward Explicit Congestion Notification (BECN) bit set. When the count reaches maximum it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Mpanl Dlci fciFromSubnet (fcifs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received from the network with the Forward Congestion Indication (FCI) bit set. When the count reaches maximum it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Mpanl Dlci bciFromSubnet (bcifsb)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received from the network with the Backward Congestion Indication (BCI) bit set. When the count reaches maximum it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Mpanl Dlci deFrmFromIf (defi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received from the interface with the Discard Eligibility (DE) bit set. When the count reaches maximum it wraps to zero. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE Mpanl Dlci excessFrmFromIf (excess)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received from the interface with the Discard Eligibility (DE) bit clear, but subsequently set by the network due to rate enforcement. When the count reaches maximum it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Mpanl Dlci discExcessFromIf (discardefi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames which were discarded due to rate enforcement. When the count reaches maximum it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Mpanl Dlci discFrameAbit (discfab)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frame discards at the MPANL Service, due to an inactive PVC status, in the direction toward the network. When this count reaches maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Mpanl Dlci discCongestedFromIf (discardcfi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frame discards at the MPANL service due to local congestion in the direction toward the network. When this count reaches maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE Mpanl Dlci discDeCongestedFromIf (discarddecfi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of discarded frames, with the Discard Eligibility (DE) bit set, at the MPANL service, due to local congestion, in the direction toward the network. When this count reaches maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Mpanl Dlci errorShortFrmFromIf (shortfi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received with 0 octets in the information field. When the count reaches maximum it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Mpanl Dlci errorLongFrmFromIf (longfi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received with number of octets in the information field greater than the subscribed maximum. When the count reaches maximum it wraps to zero. Frames whose lengths are greater than the hardware receive buffer are ignored by the hardware and are therefore not included in this count. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Mpanl Dlci becnFrmSetByService (becnset)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the number of frames with BECN set by the MPANL service. It is incremented whenever the MPANL service sets BECN on a frame upon detecting local congestion. This count is incremented regardless of whether the frame already bears a set BECN bit since its use is to determine the place of congestion. When the count reaches maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Mpanl Dlci bytesToIf (bti)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes sent out the interface. When the maximum count is reached the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Mpanl Dlci deBytesToIf (debti)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes sent to the interface with the Discard Eligibility (DE) bit set. When the count reaches maximum it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Mpanl Dlci discCongestedToIfBytes (discardctib)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of byte discards at the MPANL service due to local congestion in the direction toward the link. When this count reaches maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Mpanl Dlci discDeCongestedToIfBytes (discarddectib)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of discard eligible (DE=1) byte discards at the MPANL service due to local congestion in the direction toward the link. When the maximum count is reached the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Mpanl Dlci bytesFromIf (bfi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes received from the interface. Bytes that are discarded due to error or excess are not counted. When the maximum count is reached the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Mpanl Dlci deBytesFromIf (debi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes received from the interface with the Discard Eligibility (DE) bit set. When the count reaches maximum it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Mpanl Dlci excessBytesFromIf (excessb)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes received from the interface with the Discard Eligibility (DE) bit clear, but subsequently set by the network due to rate enforcement. When the count reaches maximum it wraps to zero. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE Mpanl Dlci discExcessFromIfBytes (discardebi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes which were discarded due to rate enforcement. When the count reaches maximum it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Mpanl Dlci discByteAbit (discbab)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes which were discarded due to aBit turned off. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Mpanl Dlci discCongestedFromIfBytes (discardcbib)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of byte discards at the MPANL service due to local congestion in the direction toward the network. When this count reaches maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Mpanl Dlci discDeCongestedFromIfBytes (discarddecbib)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of discard eligible (DE=1) byte discards at the MPANL service due to local congestion in the direction toward the network. When the maximum count is reached the count wraps to zero. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE Mpanl Dlci errorLongBytesFromIf (longbi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes received with number of octets in the information field greater than the subscribed maximum. When the count reaches maximum it wraps to zero. Bytes whose lengths are greater than the hardware receive buffer are ignored by the hardware and are therefore not included in this count. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### GROUP Mpanl Dlci IntervalData (Int)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational statistics for the MPANL Data Link Connection Identifier interval data. |

### ATTRIBUTE Mpanl Dlci startTime

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the start time of this interval period. If the *Vc* spans 12 hour time or time of day change, *startTime* reflects new time as recorded at 12 hour periods or time of day changes. A new interval period is started each time an accounting record is generated. |
| Values | Time (DHMS) |
| Default | No default |

### ATTRIBUTE Mpanl Dlci totalIngressBytes (tib)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total bytes received from the interface since the start of the interval period. The start of the interval period is captured in the *startTime* attribute. The count is reset to zero when an accounting record is generated. |

| | |
|---|---|
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Mpanl Dlci totalEgressBytes

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total bytes sent to the interface since the start of the interval period. The start of the interval period is captured in the *startTime* attribute. The count is reset to zero when an accounting record is generated. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Mpanl Dlci eirIngressBytes

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total bytes with the Discard Eligibility (DE) bit set sent to the subnet since the start of the interval period. The start of the interval period is captured in the *startTime* attribute. The count is reset to zero when an accounting record is generated. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Mpanl Dlci eirEgressBytes

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total bytes with the Discard Eligibility (DE) bit set sent to the interface since the start of the interval period. The start of the interval period is captured in the *startTime* attribute. The count is reset to zero when an accounting record is generated. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Mpanl Dlci discardedBytes

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total bytes in invalid frames received from the interface and discarded at the DLCI since the start of the interval period. This count is a sum of octets in frames discarded due to the number of octets in the information field greater than the subscribed maximum or equal to 0, due to aBit turned off, or due to rate enforcement. The start of the interval period is captured in the *startTime* attribute. The count is reset to zero when an accounting record is generated. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Mpanl Dlci totalIngressSegFrm

| | |
|---|---|
| Access | Read only |
| Description | If the value of the *unitsCounted* attribute in *moduleData* component is *segments*, this attribute counts the total number of segments in frames received from the interface since the start of the interval period. If the value of the *unitsCounted* attribute in *moduleData* component is *frames*, this attribute counts the total number of frames received from the interface since the start of the interval period. The start of the interval period is captured in the *startTime* attribute. The count is reset to zero when an accounting record is generated. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Mpanl Dlci totalEgressSegFrm

| | |
|---|---|
| Access | Read only |
| Description | If the value of the *unitsCounted* attribute in *moduleData* component is *segments*, this attribute counts the total number of segments in frames sent to the interface since the start of the interval period. If the value of the *unitsCounted* attribute in |

*moduleData* component is *frames*, this attribute counts the total number of frames sent to the interface since the start of the interval period. The start of the interval period is captured in the *startTime* attribute. The count is reset to zero when an accounting record is generated.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE Mpanl Dlci eirIngressSegFrm

Access: Read only

Description: If the value of the *unitsCounted* attribute in *moduleData* component is *segments*, this attribute counts the number of segments in frames with the Discard Eligibility (DE) bit set sent to the subnet since the start of the interval period. If the value of the *unitsCounted* attribute in *moduleData* component is *frames*, this attribute counts the number of frames with the Discard Eligibility (DE) bit set sent to the subnet since the start of the interval period. The start of the interval period is captured in the *startTime* attribute. The count is reset to zero when an accounting record is generated.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE Mpanl Dlci eirEgressSegFrm

Access: Read only

Description: If the value of the *unitsCounted* attribute in *moduleData* component is *segments*, this attribute counts the number of segments in frames with the Discard Eligibility (DE) bit set sent to the interface since the start of the interval period. If the value of the *unitsCounted* attribute in *moduleData* component is *frames*, this attribute counts the number of frames with the Discard Eligibility (DE) bit set sent to the interface since the start of the interval period. The start of the interval period is captured

| | |
|---|---|
| | in the *startTime* attribute. The count is reset to zero when an accounting record is generated. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Mpanl Dlci discardedSegFrm

| | |
|---|---|
| Access | Read only |
| Description | If the value of the *unitsCounted* attribute in *moduleData* component is ***segments***, this attribute counts the number of segments in invalid frames received from the interface and discarded at the DLCI. If the value of the *unitsCounted* attribute in *moduleData* component is ***frames***, this attribute counts the number of invalid frames received from the interface and discarded at the DLCI. Segments of frames are counted since the start of the interval period. The count is reset to zero when an accounting record is generated. The count is a sum of segments in frames or frames discarded due to the number of octets in the information field greater than the subscribed maximum or equal to 0, due to aBit turned off, or due to rate enforcement. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Mpanl Dlci callReferenceNumber

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the call reference number which is a unique number generated by the switch.The same Call Reference Number is stored in the interval data (accounting record) at both ends of the call. It can be used as one of the attributes in matching duplicate records generated at each end of the call. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Mpanl Dlci elapsedDifference

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the elapsed time representing the period of this interval data. It is elapsed time in 0.1 second increments since the call started. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### GROUP Mpanl Dlci ABitStatus (Abit)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the A-Bit status information for this Data Link Connection Identifier.<br><br>A-Bit status information is only applicable for SPVCs. For SVCs, the values of attributes under this group are all **notApplicable**. |

### ATTRIBUTE Mpanl Dlci aBitStatusToIf (abti)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the most recent A-Bit status sent to the interface. The A-Bit status is originated from the SPVC end point at the remote end of the Passport subnet and it is relayed to the interface by *Mpanl*. When an inactive setting is sent out, *Mpanl* will discard any data offered from the interface. When an active setting is sent out, *Mpanl* will try to relay all data offered from the interface to the other end of the SPVC. |
| Values | inactive<br>active<br>notApplicable |
| Default | inactive |

### ATTRIBUTE Mpanl Dlci aBitReasonToIf (abrti)

| | |
|---|---|
| Access | Read only |

Description

This attribute provides the reason (if any) for an inactive status to be sent to the interface. This reason is not applicable for an active status.

A-Bit status reason description:
The A-Bit status reason is ***notApplicable*** when the A-Bit status is active.
The A-Bit status reason is ***remoteUserSignaled*** if the SPVC end point originating the A-Bit status has detected that the virtual circuit is down at the remote network through the LMI protocol. The SPVC end point must be running network site LMI protocol for this A-Bit status reason to be sent.
The A-Bit status reason is ***remoteLmiError*** if the LMI protocol is down at the SPVC end point originating this A-Bit status reason.
The A-Bit status reason is ***remoteLinkDown*** if the physical interface is disabled at the SPVC end point originating this A-Bit status reason.
The A-Bit reason is ***vcDown*** if no A-Bit status has been sent to the interface (i.e., no A-Bit status has been relayed).

Values

notApplicable
remoteUserSignaled
remoteLmiError
remoteLinkDown
vcDown

Default

vcDown

### ATTRIBUTE Mpanl Dlci aBitStatusFromIf (abfi)

Access

Read only

Description

This attribute is the most recent A-Bit status received from the interface. It is an indication from the equipment attached to the interface on whether it is ready to accept data. *Mpanl* relays the A-Bit status from interface to the other end of the SPVC. When an inactive setting is received, *Mpanl* will discard any data offered from the subnet. When an active setting is received, *Mpanl* will try to relay all data offered from the subnet to the interface.

Values
inactive
active
notApplicable

Default
inactive

### ATTRIBUTE Mpanl Dlci aBitReasonFromIf (abrfi)

Access
Read only

Description
This attribute provides the reason (if any) for an inactive status to be sent to the subnet. This reason is not applicable for an active status.

A-Bit status reason description:
The A-Bit status reason is ***notApplicable*** when the A-Bit status is active.
The A-Bit status reason is ***remoteUserSignaled*** if the SPVC end point originating the A-Bit status has detected that the DLCI is inactive at the remote network through the LMI protocol. The SPVC end point must be running network site LMI protocol for this A-Bit status reason to be sent.
The A-Bit status reason is ***remoteLmiError*** if the LMI protocol is down at the SPVC end point originating this A-Bit status reason.
The A-Bit status reason is ***remoteLinkDown*** if the physical interface is disabled at the SPVC end point originating this A-Bit status reason.
The A-Bit reason is ***vcDown*** if no A-Bit status has been received from the interface (i.e., no A-Bit status has been relayed).

Values
notApplicable
remoteUserSignaled
remoteLmiError
remoteLinkDown
vcDown

Default
vcDown

### ATTRIBUTE Mpanl Dlci loopbackState

Access
Read only

Description
This attribute has the value ***on*** when the DLCI is in loopback mode and ***off*** otherwise. This loopback command verbs *start* and

*stop* are used to initiate and terminate the loopback mode for a DLCI. While *loopbackState is* ***on, an active A-bit signal will be reliably propagated across the subnet to the remote DLCI.***

Values
off
on

Default
off

## COMPONENT Mpanl Dlci LoopBack (Lb)

Groups
"GROUP Mpanl Dlci Lb Statistics (Stats)"

Scope
Application

Description
*FrUni/n Dlci/n LoopBackFrNni/n Dlci/n LoopBack*This component is the data loopback tool for the parent *DLCI*.

Common Verbs
Help
List
Display

## VERB START Mpanl Dlci Lb

Impact
Service

Description
*start FrUni/n Dlci/n LoopBack*
*start FrNni/n Dlci/n LoopBack*This command resets the *LoopbackStatistics* and initiates the loopback mode. The *loopbackState* for this *DLCI* is set to ***on*** for the duration of the loopback mode. When a *DLCI* is in loopback mode, frames coming from the link are returned to the link, incrementing the local loopback statistics. Also, frames coming from the VC are returned to the VC, incrementing the remote loopback statistics. The loopback mode is ended using the stop command.

## VERB STOP Mpanl Dlci Lb

Impact
Service

Description
*stop FrUni/n Dlci/n LoopBack stop FrNni/n Dlci/n LoopBack*
This command terminates the loopback mode and displays the loopback statistics.

### GROUP Mpanl Dlci Lb Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all the statistics for the data loopback tool. |

### ATTRIBUTE Mpanl Dlci Lb localTotalFrm (ltf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the number of frames looped back to the link since loopback was last started. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Mpanl Dlci Lb localTotalBytes (ltb)

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the number of bytes looped back to the link since loopback mode was started. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Mpanl Dlci Lb localFecnFrm (lff)

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the number of frames with the Forward Explicit Congestion Notification (FECN) bit set, looped back to the link since the loopback mode was started. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Mpanl Dlci Lb localBecnFrm (lbf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the number of frames with the Backward Explicit Congestion Notification (BECN) bit set, looped back to the link since the loopback mode was started. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Mpanl Dlci Lb localDeFrm (ldf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the number of frames with the Discard Eligibility (DE) bit set, looped back to the link since the loopback mode was started. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Mpanl Dlci Lb localDeBytes (ldb)

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the number of bytes in frames with the Discard Eligibility (DE) bit set, looped back to the link since the loopback mode was started. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Mpanl Dlci Lb remoteTotalFrm (rtf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the number of frames looped back to the subnet since loopback was last started. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Mpanl Dlci Lb remoteTotalBytes (rtb)

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the number of bytes looped back to the subnet since loopback was last started. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE Mpanl Dlci Lb remoteFecnFrm (rff)

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the number of frames with the Forward Explicit Congestion Notification (FECN) bit set, looped back to the subnet since the loopback mode was started. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Mpanl Dlci Lb remoteBecnFrm (rbf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the number of frames with the Backward Explicit Congestion Notification (BECN) bit set, looped back to the subnet since the loopback mode was started. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Mpanl Dlci Lb remoteDeFrm (rdf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the number of frames with the Discard Eligibility (DE) bit set, looped back to the subnet since the loopback mode was started. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Mpanl Dlci Lb remoteDeBytes (rdb)

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the number of bytes in frames with the Discard Eligibility (DE) bit set, looped back to the subnet since the loopback mode was started. |
| Values | Decimal (0..4294967295) |

Default 0

## COMPONENT Mpanl Dlci Vc

Groups "GROUP Mpanl Dlci Vc CallData (Cad)"
"GROUP Mpanl Dlci Vc IntervalData (Intd)"
"GROUP Mpanl Dlci Vc FrameRelayData (Frd)"

Scope Network

Description *Mpanl/<n> Dlci/<n> Vc*
This component defines attributes collected by *Mpanl/n Dlci/n Vc*.

Common Verbs
Help
List
Display

## VERB Ping Mpanl Dlci Vc

Impact Passive

Description *Ping [-roundTripDelay] [-sendPktDataSize(octets)] [-returnPktDataSize(octets)] Mpanl/<n> Dlci/<n> Vc*

*Ping* causes a query packet to be sent to the destination module where an MPANL Frame Relay DLCI VC terminates. This command can only be used on an MPANL Frame Relay VC type. It can be used to either display the path of the VC being used by the Frame Relay DLCI or to measure the round trip delay of the Frame Relay DLCI connection. Since the query packet carries the same path selector as the Frame Relay data packets and the Frame Relay VC's transfer priority (TP) is used to set the RCOS, reliability and emission priority of the query packet, the path taken by the *ping* query packet will be the same as that of the Frame Relay data except at the source and destination module. The *ping* packets originate from the CP rather than the MPANL Frame Relay DLCI's FP. At the far end, it is also the CP that receives the ping packets and returns them, rather than the MPANL FP.

Note that this command does not provide any information

regarding the status of the far end VC process. If, however, the destination module is unreachable or the VC path is congested, the operator will be notified.

The *ping* command can be issued with or without options. If no options are specified, the command reports the path of the VC associated with the Frame Relay DLCI. When the command is used to find the VC path, it displays the RID and MID of each module that the query packet passes through on its way to the destination. If the *roundTripDelay* option is specified, the command reports the time taken to reach the destination and back. For the *roundTripDelay* option, the path taken by the query packets in both directions (from the source to the destination and from the destination back to the source) is the same as that of the Frame Relay data except at the source and destination where the *ping* packets are generated and bounced back by the CP rather than the MPANL Frame Relay DLCI's FP.

The *ping* command supports the following options:

-*roundTripDelay (-rtd):* If this option is selected, the round trip delay time to reach the destination and back will be reported. The round trip delay is calculated by timing how long it takes to send five packets to the destination node and back. The packet size can be specified using the *sendPktSize* and *returnPktSize* options. The minimum, maximum and average time taken by the returned packets are reported. If this option is not selected, the path taken to the destination is displayed.

-*sendPktDataSize:* This option specifies the number of data octets to be included in the round trip delay query packet. The rtd query packet consists of the Passport common header (2 octets), the subnet header (11 octets), plus the data. The minimum data size is 12, since 12 octets are required to carry the ping control information. If the value specified for this option is less than 12, 12 octets are sent to the destination. The actual number of data octets sent is displayed in the ping response. Note that the total packet size (headers plus data) is identical to that of a Frame Relay packet carrying the same number of octets of data.

If this option is not selected the default value is 64 octets if

*transferPriority* of the *Frame Relay DLCI Dc* is 11, and 128 octets otherwise. This option is ignored if the *-rtd* option is not specified. If the specified packet data size exceeds the capability of some facilities on the path, the packet will be discarded and the operator will get the timeout response.

*-returnPktDataSize:* This option specifies the number of data octets to be included in the round trip delay acknowledge packet. The rtd acknowledge packet consists of the Passport common header (2 octets), the subnet header (11 octets), plus the data. The minimum data size is 12, since 12 octets are required to carry the ping control information. If the value specified for this option is less than 12, 12 octets are returned to the source. The actual number of data octets returned is displayed in the ping response. Note that the total packet size (headers plus data) is identical to that of a Frame Relay packet carrying the same number of octets of data.

If this option is not selected the default value is 64 octets if *transferPriority* of the *Frame Relay DLCI Dc* is 11, and 128 octets otherwise. This option is ignored if the *-rtd* option is not specified. If the specified packet data size exceeds the capability of some facilities on the path, the packet will be discarded and the operator will get the timeout response.

## GROUP Mpanl Dlci Vc CallData (Cad)

| | |
|---|---|
| Properties | Operational |
| Description | This group represents operational call data related to Frame Relay *Vc*. It can be displayed only for Frame Relay *Vc* which is created by application. |

## ATTRIBUTE Mpanl Dlci Vc type

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the type of call, ***pvc***, ***svc, spvc*** or ***frf10spvc***. |
| Values | pvc<br>svc |

| | |
|---|---|
| | spvc<br>frf10spvc |
| Default | No default |

### ATTRIBUTE Mpanl Dlci Vc state

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the state of call control. P5 state is not supported but is listed for completeness. Transitions from one state to another take very short time. *state* most often displayed is ***dataTransferP4***. |
| Values | creating<br>readyP1<br>dteWaitingP2<br>dceWaitingP3<br>dataTransferP4<br>unsupportedP5<br>dteClearRequestP6<br>dceClearIndicationP7<br>termination |
| Default | No default |

### ATTRIBUTE Mpanl Dlci Vc previousState

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the previous state of call control. This is a valuable field to determine how the processing is progressing. |
| Values | creating<br>readyP1<br>dteWaitingP2<br>dceWaitingP3<br>dataTransferP4<br>unsupportedP5<br>dteClearRequestP6<br>dceClearIndicationP7<br>termination |
| Default | No default |

### ATTRIBUTE Mpanl Dlci Vc diagnosticCode

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the internal substate of call control. It is used to further refine *state* of call processing. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE Mpanl Dlci Vc previousDiagnosticCode

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the internal substate of call control. It is used to further refine *state* of call processing. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE Mpanl Dlci Vc calledNpi

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the Numbering Plan Indicator (NPI) of the called end. |
| Values | x121<br>e164 |
| Default | No default |

### ATTRIBUTE Mpanl Dlci Vc calledDna

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the Data Network Address (*Dna*) of the called (destination) DTE to which this call is sent. This address if defined at receiving end will complete *Vc* connection. |
| Values | BCD (1..15) |
| Default | No default |

### ATTRIBUTE Mpanl Dlci Vc calledLcn

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the Logical Channel Number of the called end. It is valid only after both ends of *Vc* exchanged relevant information. |
| Values | Decimal (1..65535) |
| Default | No default |

### ATTRIBUTE Mpanl Dlci Vc callingNpi

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the Numbering Plan Indicator (NPI) of the calling end. |
| Values | x121<br>e164 |
| Default | No default |

### ATTRIBUTE Mpanl Dlci Vc callingDna

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the Data Network Address (*Dna*) of the calling end. |
| Values | BCD (1..15) |
| Default | No default |

### ATTRIBUTE Mpanl Dlci Vc callingLcn

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the Logical Channel Number of the calling end. |
| Values | Decimal (1..65535) |
| Default | No default |

### ATTRIBUTE Mpanl Dlci Vc accountingEnabled

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates that this optional section of accounting record is suppressed or permitted. If *accountingEnabled* is ***yes***, conditions for generation of accounting record were met. These conditions include billing options, vc recovery conditions and Module wide accounting data options. |
| Values | yes<br>no |
| Default | No default |

### ATTRIBUTE Mpanl Dlci Vc fastSelectCall

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays that this is a fast select call. |
| Values | yes<br>no |
| Default | No default |

### ATTRIBUTE Mpanl Dlci Vc pathReliability

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the path reliability. |
| Values | high<br>normal |
| Default | No default |

### ATTRIBUTE Mpanl Dlci Vc accountingEnd

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates if this end should generate an accounting record. Normally, ***callingEnd*** is the end to generate an accounting record. |
| Values | callingEnd<br>calledEnd |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Mpanl Dlci Vc priority

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays whether the call is a ***normal*** or a ***high*** priority call. |
| Values | normal<br>high |
| Default | No default |

### ATTRIBUTE Mpanl Dlci Vc segmentSize

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the segment size (in bytes) used on the call. It is used to calculate the number of segments transmitted and received. |
| Values | Decimal (0..4096) |
| Default | No default |

### ATTRIBUTE Mpanl Dlci Vc maxSubnetPktSize

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the maximum packet size allowed on the *Vc*. |
| Values | Decimal (0..4096) |
| Default | No default |

### ATTRIBUTE Mpanl Dlci Vc rcosToNetwork (rcosto)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the routing metric routing class of service to<br>the network. |

| | |
|---|---|
| Values | throughput<br>delay<br>multimedia |
| Default | No default |

### ATTRIBUTE Mpanl Dlci Vc rcosFromNetwork (rcosfrom)

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the routing metric Routing Class of Service from the Network. |
| Values | throughput<br>delay<br>multimedia |
| Default | No default |

### ATTRIBUTE Mpanl Dlci Vc emissionPriorityToNetwork (epto)

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the network internal emission priority to the<br>network. |
| Values | normal<br>high<br>interrupting |
| Default | No default |

### ATTRIBUTE Mpanl Dlci Vc emissionPriorityFromNetwork (epfrom)

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the network internal emission priority from the network. |
| Values | normal<br>high<br>interrupting |
| Default | No default |

### ATTRIBUTE Mpanl Dlci Vc dataPath (dapa)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the data path used by the connection. The data path is provisioned in *Dna* and *DirectCall* components. The displayed value of this attribute can be different from the provisioned value.<br><br>If the connection is using ***dprsOnly*** data path, the string ***dprsOnly*** is displayed. (dynamic packet routing system)<br><br>If the connection is using ***dprsMcsOnly*** data path, the string ***dprsMcsOnly*** is displayed.<br><br>If the connection is using ***dprsMcsFirst*** data path, the string ***dprsMcsFirst*** is displayed. |
| Values | String (0..32, ASCII) |
| Default | No default |

### ATTRIBUTE Mpanl Dlci Vc dprsMcsEndPoint (dmep)

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the data path used by the connection. Data path is provisioned in *Dna* and *DirectCall* components.<br><br>If the connection is using ***dprsOnly*** data path, this attribute is empty.<br><br>If the connection is using ***dprsMcsOnly*** or ***dprsMcsFirst*** data path, this attribute displays component name of the dprsMcsEndPoint. |
| List of | The name of the component |
| Default | No default |

### GROUP Mpanl Dlci Vc IntervalData (Intd)

| | |
|---|---|
| Properties | Operational |

| | |
|---|---|
| Description | This group defines display of interval data collected by *Vc*. Data in this group is variable and may depend on time when this *display* command is issued. |

### ATTRIBUTE Mpanl Dlci Vc elapsedTimeTillNow

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the elapsed time representing the period of this interval data. It is elapsed time in 0.1 second increments since *Vc* started. |
| Values | Decimal (0..16777215) |
| Default | No default |

### ATTRIBUTE Mpanl Dlci Vc segmentsRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of segments received at the time command was issued. This is the segment received count maintained by accounting at each end of the *Vc*. This counter is updated only when the packet cannot be successfully delivered out of the sink *Vc* and to the sink AP Conditions in which packets may be discarded by the sink *Vc* include: missing packets due to subnet discards, segmentation protocol violations due to subnet discard, duplicated and out-of-ranged packets and packets that arrive while *Vc* is in path recovery state. |
| Values | Decimal (0..16777215) |
| Default | No default |

### ATTRIBUTE Mpanl Dlci Vc segmentsSent

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of segments sent at the time command was issued. This is the segment sent count maintained by accounting at the source *Vc*. *Vc* only counts packets that *Vc* thinks can be delivered successfully into the subnet. In reality, these packets may be dropped by trunking, for instance. This counter is not updated when splitting fails, when *Vc* is in a path |

recovery state, when packet forwarding fails to forward this packet and when subsequent packets have to be discarded as we want to minimize the chance of out-of-sequence and do not intentionally send out-of-sequenced packets into the subnet.

Values: Decimal (0..16777215)

Default: No default

### ATTRIBUTE Mpanl Dlci Vc startTime

Access: Read only

Description: This attribute displays the start time of this interval period. If *Vc* spans 12 hour time or time of day change *startTime* reflects new time as recorded at 12 hour periods or time of day changes.

Values: Time (DHMS)

Default: No default

### ATTRIBUTE Mpanl Dlci Vc callReferenceNumber

Access: Read only

Description: This attribute displays the call reference number which is a unique number generated by the switch.The same Call Reference Number is stored in the interval data (accounting record) at both ends of the call. It can be used as one of the attributes in matching duplicate records generated at each end of the call.

Values: Decimal (0..4294967295)

Default: No default

### GROUP Mpanl Dlci Vc FrameRelayData (Frd)

Properties: Operational

Description:

This group defines Frame Relay attributes collected by Frame Relay *Vc*.
The purpose of *Vc* attributes is to aid end users and verification people to understand the *Vc* internal behavior. This is particularly useful when the network has experienced abnormality and we want to isolate problems and pinpoint trouble spots.

Attributes are collected on a per *Vc* basis. Until a need is identified, statistics are not collected at a processor level. Each attribute is stored in a 32 bit field and is initialized to zero when a *Vc* enters into the data transfer state. When a PVC is disconnected and then connected again, the attributes will be reset. Attributes cannot be reset through other methods.
Frame Relay *Vc* uses a best effort data packet delivery protocol and a different packet segmentation and combination methods from the General *Vc*. The Frame Relay *Vc* uses the same call setup and control mechanism (e.g. the support of non-flow control data packets) as in a General *Vc*. Most General *Vc* statistics and internal variables are used in a Frame Relay *Vc* and are displayed by software developers

### ATTRIBUTE Mpanl Dlci Vc frmCongestedToSubnet

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of frames from link discarded due to lack of resources. It keeps track of the number of frames from link that have to be discarded. The discard reasons include insufficient memory for splitting the frame into smaller subnet packet size. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE Mpanl Dlci Vc cannotForwardToSubnet

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of discarded packets that can not be forwarded into the subnet because of subnet congestion. Number of frames from link discarded due to failure in forwarding a packet from *Vc* into the subnet.- This attribute is increased when packet forwarding fails to forward a packet into the subnet. If a frame is split into multiple subnet packets and a partial packet has to be discarded, all subsequent partial packets that have not yet been delivered to the subnet will be discarded as well. |
| Values | Decimal (0..5000) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Mpanl Dlci Vc notDataXferToSubnet

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the number of frames from link discarded when the *Vc* tries to recover from internal path failure. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE Mpanl Dlci Vc outOfRangeFrmFromSubnet

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of frames from subnet discarded due to out of sequence range for arriving too late. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE Mpanl Dlci Vc combErrorsFromSubnet

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the number of subnet packets discarded at the sink *Vc* due to the *Vc* segmentation and combination protocol error. Usually, this occurs when the subnet discards packets and thus this statistics can be used to guest the number of subnet packets that are not delivered to the *Vc*. It cannot be used as an actual measure because some subnet packets may have been delivered to *Vc* but have to be discarded because these are partial packets to a frame in which some other partial packets have not been properly delivered to *Vc* |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE Mpanl Dlci Vc duplicatesFromSubnet

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute displays the number of subnet packets discarded due to duplication. Although packets are not retransmitted by the Frame Relay *Vc*, it is possible for the subnet to retransmit packets. When packets are out-of-sequenced and copies of the same packets arrive, then this attribute is increased. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE Mpanl Dlci Vc notDataXferFromSubnet

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of subnet packets discarded when data transfer is suspended in *Vc* recovery. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE Mpanl Dlci Vc frmLossTimeouts

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of lost frame timer expiries. When this count is excessive, the network is very congested and packets have been discarded in the subnet. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE Mpanl Dlci Vc ooSeqByteCntExceeded

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number times that the out of sequence byte threshold is exceeded. When the threshold is exceeded, this condition is treated as if the loss frame timer has expired and all frames queued at the sink *Vc* are delivered to the AP. We need to keep this count to examine if the threshold is engineered properly. This should be used in conjunction with the peak value of out-of-sequenced queue and the number of times the loss frame timer has expired. This count should be relatively small when compared with loss frame timer expiry count. |

| | |
|---|---|
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE Mpanl Dlci Vc peakOoSeqPktCount

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the frame relay peak packet count of the out of sequence queue. This attribute records the maximum queue length of the out-of-sequenced queue. The counter can be used to deduce the message buffer requirement on a *Vc*. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE Mpanl Dlci Vc peakOoSeqFrmForwarded

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the frame relay peak size of the sequence packet queue. The subnet may deliver packets out-of-sequenced. These packets are then queued in an out-of-sequenced queue, waiting for a packet with the expected sequence number to come. When that packet arrives, this attribute records the maximum number of packets that were out-of-sequenced, but now have become in-sequenced. The statistics is used to measure expected queue size due to normal subnet packet disorder (not due to subnet packet discard). Current implementation also uses this statistics to set a maximum size for the out-of-sequenced queue. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE Mpanl Dlci Vc sendSequenceNumber

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the Vc internal packet's send sequence number. Note that a "packet" in this context, may be either a user data packet, or an OAM frame. |
| Values | Decimal (0..1048575) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Mpanl Dlci Vc pktRetryTimeouts

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of packets which have retransmission time-outs. When this count is excessive, the network is very congested and packets have been discarded in the subnet. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE Mpanl Dlci Vc peakRetryQueueSize

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the peak size of retransmission queue. This attribute is used as an indicator of the acknowledgment behavior across the subnet. Records the largest body of unacknowledged packets. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE Mpanl Dlci Vc subnetRecoveries

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of successful *Vc* recovery attempts. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE Mpanl Dlci Vc ooSeqPktCntExceeded

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number times that the out of sequence packet threshold is exceeded. When the threshold is exceeded, this condition is treated as if the loss frame timer has expired and all frames queued at the sink *Vc* are delivered to the AP. We need |

to keep this count to examine if the threshold is engineered properly. This should be used in conjunction with the peak value of out-of-sequenced queue and the number of times the loss frame timer has expired. This count should be relatively small when compared with loss frame timer expiry count.

Values: Decimal (0..255)

Default: No default

### ATTRIBUTE Mpanl Dlci Vc peakOoSeqByteCount

Access: Read only

Description: This attribute displays the frame relay peak byte count of the out of sequence queue. This attribute records the maximum queue length of the out-of-sequenced queue. The counter can be used to deduce the message buffer requirement on a *Vc*.

Values: Decimal (0..50000)

Default: No default

### COMPONENT Mpanl Dlci LogicalConnection (LCo)

Groups: "GROUP Mpanl Dlci LCo PathData"
"GROUP Mpanl Dlci LCo Statistics (Stats)"
"GROUP Mpanl Dlci LCo CallData"

Scope: Application

Description: *Mpanl/n Dlci/m LCo*
This component contains all of the operation attributes for a Path Oriented Logical Connection.

Common Verbs:
Help
List
Display

### VERB RERoute Mpanl Dlci LCo

| | |
|---|---|
| Impact | Service |
| Description | RERoute.Lc<br>This command is used to request a *Logical Connection (LCo)* to attempt a reroute. A new path will be established if it is better than the current path. The current path will not be interrupted if the RERoute is not completely successful. The connection must not be attempting rerouting at present.<br>If this command is attempted on a connection that is not up but is in state pathDownRetrying an immediate route request is sent. |

### GROUP Mpanl Dlci LCo PathData

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all operational attributes for the path oriented LCo. |

### ATTRIBUTE Mpanl Dlci LCo state

| | |
|---|---|
| Access | Read only |
| Description | This attribute reflects the current state of the connection. The ***pathDown*** state indicates that the application has not yet signaled for a path. The ***selectingRoute*** state occurs when a request has been sent to the route selector and it has not yet responded. The ***connectingState*** occurs while a path is being established. The ***pathUp*** state is the normal operational state of a path. The ***pathDownRetrying*** state indicates a path that attempted route selection but received no route and is now waiting to retry route selection again. |
| Values | pathDown<br>selectingRoute<br>connecting<br>pathUp<br>pathDownRetrying |
| Default | No default |

### ATTRIBUTE Mpanl Dlci LCo end

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute identifies whether this is the calling or called end of the path. |
| Values | calling<br>called |
| Default | No default |

### ATTRIBUTE Mpanl Dlci LCo costMetric (cost)

| | |
|---|---|
| Access | Read only |
| Description | This attribute gives the route's total cost metric. It is calculated as the sum of the cost metric of all trunks in the path at the time the connection was established. The cost metric of a trunk is defined by the *trunkCost* attribute of the Trunk component. The *costMetric* for an *LCo* that is originated and terminated on the same module is 0. |
| Values | Decimal (0..65535) |
| Default | No default |

### ATTRIBUTE Mpanl Dlci LCo delayMetric (delay)

| | |
|---|---|
| Access | Read only |
| Description | This attribute gives the total delay of the route as the one way delay for a 512 byte packet. It is calculated as the sum of the delays of all trunks in the path stored in topology at the time the connection was established. The delay for an *LCo* that is originated and terminated on the same module is 0. |
| Values | Decimal (0..100000) |
| Units | msec |
| Default | No default |

### ATTRIBUTE Mpanl Dlci LCo roundTripDelay (rtd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the time taken for a packet (cell) of 44 bytes to be transmitted inband to the remote *LCo* and return to this LCo. The value reported is rounded to the nearest |

millisecond.
For Unack PORS trunks and AAL5 MUX PORS trunks, the test packet is sent inband and receives the same treatment as regular data packets, giving a round trip delay which corresponds to regular data traffic.
For SPO MUX PORS trunks and MAP PORS trunks, the test packet is sent along the parent trunk's VCC, giving a round trip delay which corresponds to the parent trunk's round trip delay. The round trip delay does not directly reflect the round trip delay of data packets travelling on the non-parent VCC.
When the *LCo* is originated and terminated on the same module, a value of 1 millisecond is reported. The value of 1 millisecond is the minimum reported time even though the delay may be less than 1 millisecond.

| | |
|---|---|
| Values | Decimal (0..200000) |
| Units | msec |
| Default | No default |

### ATTRIBUTE Mpanl Dlci LCo setupPriority (spri)

| | |
|---|---|
| Access | Read only |
| Description | This attribute gives the priority at which the current path is established. Zero is the highest priority and four is the lowest. The *holdingPriority*, a complementary attribute of this component, indicates the priority a path maintains once it is established. |
| Values | Decimal (0..4) |
| Default | No default |

### ATTRIBUTE Mpanl Dlci LCo holdingPriority (hpri)

| | |
|---|---|
| Access | Read only |
| Description | This attribute gives the priority at which a path holds its current path once the path is established. Zero is the highest priority and four is the lowest. The *setupPriority*, a complementary attribute, indicates the priority of a path at establishment time. |
| Values | Decimal (0..4) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Mpanl Dlci LCo requiredTxBandwidth (tbw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute gives the actual bandwidth (in bits per second) reserved by this path on each of the trunks of its route. This attribute represents the bandwidth for traffic outgoing to the remote end point. The originating end of the connection determines this value. |
| Values | Decimal (0..2048000) |
| Units | bit/s |
| Default | No default |

### ATTRIBUTE Mpanl Dlci LCo requiredRxBandwidth (rbw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute gives the actual bandwidth (in bits per second) reserved by this path on each of trunks of its route. This attribute represents the bandwidth for traffic incoming from the remote end point. The originating end of the connection determines this value |
| Values | Decimal (0..2048000) |
| Units | bit/s |
| Default | No default |

### ATTRIBUTE Mpanl Dlci LCo requiredTrafficType (rttyp)

| | |
|---|---|
| Access | Read only |
| Description | This operational attribute indicates the type of traffic transmitted over the path. There are eight possible traffic types, and the path can transmit only one of them. The originating end of the connection determines the type. These are arbitrary designations for traffic type. The ***voice***, ***data*** and ***video*** traffic types are defined, and five other arbitrary traffic types can be defined by the network administration. This attribute is used in the route selection process to restrict the route to trunks that support this |

traffic type. The *supportedTrafficType* trunk attribute lists all the types of traffic allowed on the trunk. For example, if *requiredTrafficType* is specified as ***trafficType1*** then only trunks that include ***trafficType1*** in *supportedTrafficType***,** will be candidates for this connection.

Values
voice
data
video
trafficType1 (tt1)
trafficType2 (tt2)
trafficType3 (tt3)
trafficType4 (tt4)
trafficType5 (tt5)

Default
No default

### ATTRIBUTE Mpanl Dlci LCo permittedTrunkTypes (pttyp)

Access
Read only

Description
This operational attribute lists up to eight types of trunk that can be used on the route. The originating end of the connection determines the types. The ***terrestrial*** and ***satellite*** trunk types have been defined, leaving six remaining arbitrary types that can be defined by the network administration. The trunk's type is indicated in the *trunkType* attribute of the Trunk component. When selecting a route, PORS only chooses trunks whose *trunkType* are in the *permittedTrunkTypes* for the path.

Set of
terrestrial
satellite
trunkType1 (tt1)
trunkType2 (tt2)
trunkType3 (tt3)
trunkType4 (tt4)
trunkType5 (tt5)
trunkType6 (tt6)

Default
No default

### ATTRIBUTE Mpanl Dlci LCo requiredSecurity (rsec)

Access
Read only

| | |
|---|---|
| Description | This attribute indicates the required minimum level of security of the trunks on the route. Zero represents the most secure and seven represents the least secure. The trunk's security is indicated by the *trunkSecurity* attribute of the Trunk component, and has values identical in range and meaning to the *requiredSecurity* attribute. PORS ensures that any route selected does not contain a trunk whose *trunkSecurity* attribute is numerically greater than the *requiredSecurity.* |
| Values | Decimal (0..7) |
| Default | No default |

### ATTRIBUTE Mpanl Dlci LCo requiredCustomerParameter (rcparm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the allowed customer defined parameter of the trunks on the route.The originating end of the connection determines the customer defined parameter. Its value, a number from zero to seven, is chosen by a network administration to have a meaning specific to their network, thus allowing them to customize the use of their trunks. A complementary trunk attribute, *customerParameter*, also has a value from zero to seven. The route selection process does not consider trunks whose *customerParameter* is greater than the *requiredCustomerParameter* of the path. |
| Values | Decimal (0..7) |
| Default | No default |

### ATTRIBUTE Mpanl Dlci LCo emissionPriority (epri)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the urgency with which packets on the path are emitted by the trunks on the route. The originating end of the connection selects the *emissionPriority. EmissionPriority* of zero indicates the highest emission priority, while two indicates the lowest emission priority. Packets with a higher *emissionPriority* (or numerically less) are serviced and sent out before the packets of lower *emissionPriority* (or numerically higher). |

| | |
|---|---|
| Values | Decimal (0..2) |
| Default | No default |

### ATTRIBUTE Mpanl Dlci LCo discardPriority (dpri)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the importance of the packets on the path. The originating end of the connection sets *discardPriority.* One is used for paths carrying the most important traffic, and three is used for paths carrying the least important traffic. Packets with lower *discardPriority*(numerically) are discarded after packets with a higher *discardPriority*(numerically). |
| Values | Decimal (1..3) |
| Default | No default |

### ATTRIBUTE Mpanl Dlci LCo retryCount (rcount)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the count of the number of times the path chosen during route selection could not be instantiated. This count should be three or below if the network is performing adequately. A high value indicates that the route selection is often performed using an out-of-date view of available network bandwidth and/or topology.<br>This attribute will only increase at the calling end of the connection.<br>This attribute is reset each time a path reconnects and stops counting when it reaches its maximum value. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE Mpanl Dlci LCo pathFailureCount (pfcount)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the count of the number of times the path has successfully reconnected. It is set to zero the first time the path is up. If a path fails anytime after connecting, this count will be |

incremented when the path is up again. Failed route requests do not count in this statistic. See retryCount(rcount) - page 78. This attribute stops counting at its maximum value.

Values: Decimal (0..65535)

Default: No default

### ATTRIBUTE Mpanl Dlci LCo reasonForNoRoute (rnr)

Access: Read only

Description: This attribute is the route selection's *reasonForNoRoute* and provides a brief reason for which a route was not selected. The reasons are essentially self-explanatory.

Values:
none
destinationNameTooLong
destinationNotSpecified
unknownDestinationName
incorrectDestination
incorrectDestinationEndPoint
unknownSource
unknownDestination
sameNode
routeCostTooMuch
routesDelayTooLong
attributesNotMet
anError
attributeProfileProblem
manualPathIndexProblem

Default: none

### ATTRIBUTE Mpanl Dlci LCo lastTearDownReason

Access: Read only

Description: This attribute reflects the last tear down reason for a connection (LCo). In many cases this displays the reason for a momentary service interruption. This attribute applies to the last path failure only. If a path is no longer up, this may indicate why the path has failed. In many cases an alarm will also be generated with more specific information. The following is a brief description of the

reasons:
***none*** - This path has no information for the teardown.
***normalShutDown*** - This path has gone down due to normal call termination.
***insufficientTxLcOrBandwidth*** - At present there is either no available bandwidth or logical channel numbers available on one or more of the trunks for this path in the transmit direction.
***insufficientRxLcOrBandwidth*** - At present there is either no available bandwidth or logical channel numbers available on one or more of the trunks for this path in the receive direction.
***trunkFailure***- A trunk on the path has failed or has gone down due to a provisioning change of a critical attribute.
***trunkCardFailure***- A trunk FP card has failed along the path.
***accessCardFailure***- The FP on which the peer access service was running has failed.
***operatorForced***- The path has terminated due to the operator locking a trunk along the path.
***lostLcnClash***- The path has terminated because the PAs at both ends of an intermediate trunk have allocated the same LC to different calls. When this happens both calls must go down and then try to come up again a fraction of a second later (effectively ensuring that they will now be assigned different LCs). It is normal to get the odd clash especially when the PA's usedLC is approaching the PA's maxLC.
***networkCongestion*** - The path has failed due to control information being lost and not recoverable.
***trunkNotFound*** - Occurs on a ***manual*** path usually. Check for trunks not up or names provisioned incorrectly.
***farEndNotFound*** - The far end is not provisioned or is not up. Check remote Name.
***wrongModuleReached*** - This may occur on a ***manual*** path. Check provisioning for correct trunk and service names. For a ***normal*** path, the network Topology may be changing. Check remote provisioned DNA.
***farEndBusy*** - The far end has been reached but it is busy. Check remote provisioned DNA and remote end provisioning.
***unknownReason*** - The failure was not resolved.
***farEndNotReady*** - The remote end was reached but the connection was refused due to the remote end not being enabled.
***serviceTypeMismatch*** - The remote service type does not match this service type. Check provisioning.

***reconnectFromFarEnd*** - The remote end re-established this connection. Check the remote end *lastTearDownReason* to determine the real reason.
***bumped*** - Another call bumped this path from a trunk to get bandwidth (or an LC) which it required to come up. This other path had a higher *setupPriority* than this path's *holdingPriority*, hence it was allowed to steal the bandwidth (or LC) from this path.
***optimized*** - This call has been rerouted due to the optimization feature. The call is still active; this just indicates why the path changed.

Values

none
normalShutDown
insufficientTxLcOrBandwidth
insufficientRxLcOrBandwidth
trunkFailure
trunkCardFailure
operatorForced
lostLcnClash
networkCongestion
trunkNotFound
farEndNotFound
wrongModuleReached
farEndBusy
callLoopedBack
unknownReason
farEndNotReady
remoteNameMismatch
serviceTypeMismatch
reconnectFromFarEnd
bumped
accessCardFailure
optimized
overrideRemoteName

Default none

## ATTRIBUTE Mpanl Dlci LCo pathFailureAction

Access Read only

| | |
|---|---|
| Description | This attribute displays whether the application is set to tolerate a momentary interruption of a path while a new path is selected. If ***disconnectConnection*** is displayed, the application is informed as soon as possible about a failure by disconnection. If the attribute displays ***reRoutePath***, the path may attempt an immediate reroute, provided the failure is a recoverable failure. If rerouting fails the application is informed of the failure.<br>With this option set to ***reRoutePath*** the LCo may wait up to 30 seconds before informing the service of complete disconnection in order to allow both ends to attempt to reconnect. All *pathTypes* respect this attribute. Also, on a *manualPath* with both ends provisioned with independent paths (at least with respect to the failure) this option will have the desired effect that the path is rerouted without complete disconnection at both ends. |
| Values | reRoutePath<br>disconnectConnection |
| Default | No default |

### ATTRIBUTE Mpanl Dlci LCo bumpPreference (bpref)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies when bumping will occur during the route selection process. Bumping may occur when necessary or always. It will be necessary for a connection to bump if there is not enough resources for the connection to be established and these resources are occupied by a connection whose *holdingPriority* is lower (numerically higher) than the connection's *setupPriority*. A connection may also always bump in order to obtain the best route. |
| Values | bumpWhenNecessary<br>bumpToObtainBestRoute |
| Default | No default |

### ATTRIBUTE Mpanl Dlci LCo optimization (opt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is used to specify whether this connection should attempt to optimize its path when requested by the routing PORS |

component. Every path is as optimal as it can be when it is established, but as network traffic patterns and configurations change this path may no longer be as optimal as it could be. The PORS connection manager on a module requests circuits to optimize at the optimization interval.

| | |
|---|---|
| Values | disabled<br>enabled |
| Default | No default |

### ATTRIBUTE Mpanl Dlci LCo pathUpDateTime

| | |
|---|---|
| Access | Read: Service<br>Write: Illegal |
| Description | This is the time stamp when the current path was established or reestablished. |
| Values | Time (DHMS) |
| Default | No default |

### ATTRIBUTE Mpanl Dlci LCo path

| | |
|---|---|
| Access | Read only |
| Description | This attribute contains the trunk component names over which the path has been instantiated and the remote end point name terminating the path. |
| List of | String (0..40, ASCII) |
| List Size | 21 |
| Default | No default |

### GROUP Mpanl Dlci LCo Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational statistics attributes for the path oriented LCo. |

### ATTRIBUTE Mpanl Dlci LCo pktsToNetwork

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the number of packets transmitted to the network over this Logical Connection. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Mpanl Dlci LCo bytesToNetwork

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of bytes sent to the network over this Logical Connection. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Mpanl Dlci LCo pktsFromNetwork

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of packets received from the remote *LCo* via the network. This attribute wraps to 0. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Mpanl Dlci LCo bytesFromNetwork

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of bytes received from the remote *LCo* via the network. This attribute wraps to 0. |
| Values | Long Integer |
| Default | No default |

### GROUP Mpanl Dlci LCo CallData

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all operational attributes for the path oriented LCo. |

### ATTRIBUTE Mpanl Dlci LCo callingNpi

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the Numbering Plan Indicator (NPI) of the calling end. |
| Values | x121<br>e164 |
| Default | x121 |

### ATTRIBUTE Mpanl Dlci LCo callingDna

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the Data Network Address (DNA) of the calling end. |
| Values | BCD (0..15) |
| Default | No default |

### ATTRIBUTE Mpanl Dlci LCo elapsedTimeTillNow

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the total duration in tenths of miliseconds that a connection has been up for a call. |
| Values | Decimal (0..16777215) |
| Default | No default |

### ATTRIBUTE Mpanl Dlci LCo callReferenceNumber

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the call reference number which is a unique number generated by the switch.The same Call Reference Number is stored in the interval data (accounting record) at both ends of the call. It can be used as one of the attributes in matching duplicate records generated at each end of the call. |
| Values | Hex (H.0..H.ffffff) |
| Default | No default |

### ATTRIBUTE Mpanl Dlci LCo calledNpi

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Numbering Plan Indicator (NPI) of the called end. |
| Values | x121<br>e164 |
| Default | x121 |

### ATTRIBUTE Mpanl Dlci LCo calledDna

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Data Network Address (DNA) of the called (destination) DTE to which this call is sent. This address if defined at the receiving end will complete the logical connection. |
| Values | BCD (0..15) |
| Default | No default |

### COMPONENT Mpanl Dlci JunctorVc (Jvc)

| | |
|---|---|
| Groups | "GROUP Mpanl Dlci Jvc Operational (Oper)"<br>"GROUP Mpanl Dlci Jvc Statisticsl (Stat)" |
| Scope | Network |
| Description | *Mpanl/n Dlci/n JunctorVc*<br>This component extends the GVC connectivity across MPANL. It allows applications in a Legacy Data Module (LDM) subnet to establish GVC connections with applications in the Magellan subnet. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Mpanl Dlci Jvc Operational (Oper)

| | |
|---|---|
| Properties | Operational |

Description This group contains the operational attributes of the *Jvc* component.

### ATTRIBUTE Mpanl Dlci Jvc currentState

Access Read only

Description This attribute indicates the current state of the JVC process. The state can be one of:
***null***: waiting for an incoming call or a call request from MPANL,
***callRequest***: waiting for the call connected from MPANL,
***callIndication***: waiting for the call packet from MPANL,
***callBlockPresent***: waiting for the Raccept packet from the subnet,
***active***: relaying packets between the subnet and MPANL,
***discInitiated***: not used by the DCE JVC,
***discPktPresent***: not used by the DCE JVC,
***callDisconnected***: waiting for the termination request from MPANL,
***callTerminated***: waiting for the termination by MPANL.

Values null
callRequest
callIndication
callBlockPresent
active
discInitiated
discPktPresent
callDisconnected
callTerminated

Default No default

### ATTRIBUTE Mpanl Dlci Jvc previousState (ps)

Access Read only

Description This attribute indicates the previous state of the JVC process. The state can be one of:
***null***: waiting for an incoming call or a call request from MPANL,
***callRequest***: waiting for the call connected from MPANL,
***callIndication***: waiting for the call packet from MPANL,
***callBlockPresent***: waiting for the Raccept packet from the

subnet,
***active***: relaying packets between the subnet and MPANL,
***discInitiated***: not used by the DCE JVC,
***discPktPresent***: not used by the DCE JVC,
***callDisconnected***: waiting for the termination request from MPANL,
***callTerminated***: waiting for the termination by MPANL.

Values
null
callRequest
callIndication
callBlockPresent
active
discInitiated
discPktPresent
callDisconnected
callTerminated

Default
No default

### ATTRIBUTE Mpanl Dlci Jvc callingNpi (clgNpi)

Access
Read only

Description
This attribute contains the numbering plan indicator of the calling address. This attribute value is retrieved from the call packet.

Values
x121
e164

Default
No default

### ATTRIBUTE Mpanl Dlci Jvc callingAddress (clgDna)

Access
Read only

Description
This attribute contains the calling *DataNetworkAddress* of the interface. It includes the DNIC (first 4 digits) for X.121, and the CC (Country Code) for the E.164 address of the calling end. The maximum length of this attribute is 15 digits. This attribute value is retrieved from the call packet.

Values
BCD (1..15)

Default
No default

### ATTRIBUTE Mpanl Dlci Jvc callingLcn (clgLcn)

| | |
|---|---|
| Access | Read only |
| Description | This attribute contains the calling LCN (logical channel number) of the interface. This number is assigned to the call request at the calling end. This attribute value is retrieved from the call packet. |
| Values | Decimal (1..4095) |
| Default | No default |

### ATTRIBUTE Mpanl Dlci Jvc calledNpi (cldNpi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute contains the numbering plan indicator of the called address. This attribute value is retrieved from the call packet. |
| Values | x121<br>e164 |
| Default | No default |

### ATTRIBUTE Mpanl Dlci Jvc calledAddress (cldDna)

| | |
|---|---|
| Access | Read only |
| Description | This attribute contains the called *DataNetworkAddress* of the interface. It includes the DNIC (first 4 digits) for X.121, and the CC (Country Code) for the E.164 address of the called end. The maximum length of this attribute is 15 digits. This attribute value is retrieved from the Raccept packet. |
| Values | BCD (1..15) |
| Default | No default |

### ATTRIBUTE Mpanl Dlci Jvc calledLcn (cldLcn)

| | |
|---|---|
| Access | Read only |
| Description | This attribute contains the called LCN (logical channel number) of the interface. This number is assigned to the call request at the called end. This attribute value is retrieved from the Raccept packet. |

| | |
|---|---|
| Values | Decimal (1..4095) |
| Default | No default |

### GROUP Mpanl Dlci Jvc Statisticsl (Stat)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the statistics collected by the *Jvc* component. |

### ATTRIBUTE Mpanl Dlci Jvc packetsFromSubnet (pfs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts all packets including control packets received from the subnet. This number reflects also the packets sent to the MPANL process since the JVC does not drop or generate packets in this direction.The value of this attribute wraps to 0 when the maximum value is reached. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Mpanl Dlci Jvc packetsToSubnet (pts)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts all packets including control packets sent into the subnet. This number includes Renew Call Timer Packets that are generated by the JVC. The value of this attribute wraps to 0 when the maximum value is reached. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Mpanl Dlci Jvc packetsDiscarded (pdis)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts discarded packets that can not be forwarded into the subnet because of subnet congestion. This attribute is increased when packet forwarding fails to forward a packet into the subnet. |
| Values | Decimal (0..4294967295) |

Default No default

### ATTRIBUTE Mpanl Dlci Jvc protocolErrors (err)

Access Read only

Description This attribute counts the number of protocol errors detected by the JVC in both the MPANL and the subnet directions. A protocol error is counted in the following cases:
- reception of a packet from MPANL while waiting for a Raccept packet from the subnet,
- reception of a packet from the subnet following a call packet and before the callAccepted is received from MPANL,
- reception of a packet from the subnet or from MPANL that is shorter than the subnet header.
The value of this attribute wraps to 0 when the maximum value is reached.

Values Decimal (0..4294967295)

Default No default

### COMPONENT Mpanl Signaling (Sig)

Groups "GROUP Mpanl Sig SystemParameters (SysParms)"
"GROUP Mpanl Sig LapfSystemParameters (LapfSys)"
"GROUP Mpanl Sig FrsSvcAcc (Svcacc)"
"GROUP Mpanl Sig OsiState (State)"
"GROUP Mpanl Sig Statistics (Stats)"
"GROUP Mpanl Sig LapfStatus (LapfStatus)"
"GROUP Mpanl Sig LapfStatistics (LapfStats)"

Scope Network

Description *Mpanl/<n> Signaling*
This component defines the Q.933 and Q.922 (LAPF) parameters for Frame Relay switched virtual circuits at the *Mpanl* interface.

Common Verbs
Help
List
Display

### GROUP Mpanl Sig SystemParameters (SysParms)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable Q.933 system parameters. |

### ATTRIBUTE Mpanl Sig callSetupTimer (t303)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time the network will wait for a response to the SETUP message sent to the called user. Upon timer expiry, the SETUP message is retransmitted. The second expiry of this timer causes the call to be cleared. This value is specified in seconds. |
| Values | Decimal (1..255) |
| Units | seconds |
| Default | 4 |

### ATTRIBUTE Mpanl Sig disconnectTimer (t305)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time the network will wait for a response to the DISCONNECT message sent to the user. Upon timer expiry, the RELEASE message is sent. This value is specified in seconds. |
| Values | Decimal (1..255) |
| Units | seconds |
| Default | 30 |

### ATTRIBUTE Mpanl Sig releaseTimer (t308)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time the network will wait for a response to the RELEASE message sent to the user. Upon timer expiry, the RELEASE message is retransmitted. The second expiry of the timer causes the call to be released. This value is specified in seconds. |

| | |
|---|---|
| Values | Decimal (1..255) |
| Units | seconds |
| Default | 4 |

### ATTRIBUTE Mpanl Sig callProceedingTimer (t310)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time the network will wait for the CONNECT message from the called user after the network has received the optional CALL PROCEEDING message from the called user. Upon timer expiry, the call is cleared. This value is specified in seconds. |
| Values | Decimal (1..255) |
| Units | seconds |
| Default | 10 |

### ATTRIBUTE Mpanl Sig networkType (type)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether this Frame Relay service is running on a public or a private network. This value is used solely in populating applicable information elements within those Q.933 messages that require a public or private network indication. |
| Values | private<br>public |
| Default | private |

### ATTRIBUTE Mpanl Sig restartReqTimer (t316)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time the network waits for the RESTART ACKNOWLEDGE message from the adjacent network after sending a first RESTART message. Upon timer expiry, another RESTART message is sent. After the second expiry, the interface is treated as idle. |

| | |
|---|---|
| | If the restartReqTimer attribute is set to the default value, then the interface is treated as idle when it receives an indication that the link is up and does not send a RESTART message. |
| Values | Decimal (0..255) |
| Units | seconds |
| Default | 0 |

### ATTRIBUTE Mpanl Sig restartRcvTimer (t317)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time the local network waits for the processing of a RESTART message received by the interface. Upon expiry of this timer, an alarm will be displayed to report the problem. The timer value must be less than the restartReqTimer provisioned value at the Passport 4400. |
| Values | Decimal (1..255) |
| Units | seconds |
| Default | 110 |

### GROUP Mpanl Sig LapfSystemParameters (LapfSys)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the SVC data link layer. The data link layer is governed primarily through ITU specification Q.922, and operates over DLCI 0.. |

### ATTRIBUTE Mpanl Sig windowSize (ws)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the window size. This is the maximum number of unacknowledged sequenced frames that may be outstanding from or to this interface at any one time. |
| Values | Decimal (1..127) |
| Default | 7 |

### ATTRIBUTE Mpanl Sig retransmitLimit (rtl)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the number of times a frame can be retransmitted by the SVC data link layer before appropriate recovery action is taken. |
| Values | Decimal (0..20) |
| Default | 3 |

### ATTRIBUTE Mpanl Sig ackTimer (at)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the period in milliseconds that the network will wait for an acknowledgment to a sent frame. The value set for *ackTimer* must be less than the value set for *idleProbeTimer.* |
| Values | Decimal (1000..10000) |
| Units | msec |
| Default | 1500 |

### ATTRIBUTE Mpanl Sig ackDelayTimer (adt)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum period in milliseconds that the network will wait before sending an acknowledgment for a received in-sequence I-frame. A value of 0 means there will be no delay in acknowledgment. |
| Values | Decimal (0..10000) |
| Units | msec |
| Default | 0 |

### ATTRIBUTE Mpanl Sig idleProbeTimer (ipt)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time period in milliseconds the link will be permitted to remain idle (that is, no frames are exchanged |

on the data link). Upon expiry of this timer, the network's side link layer polls its peer for status. The value set for *idleProbeTimer* must be greater than the value set for *ackTimer.*

| | |
|---|---|
| Values | Decimal (1000..65535000) |
| Units | msec |
| Default | 30000 |

### GROUP Mpanl Sig FrsSvcAcc (Svcacc)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attribute to define the defaultAccounting attribute.. |

### ATTRIBUTE Mpanl Sig defaultAccounting (defAcc)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies whether accounting data collection and record generation is turned on at this DLCI. For accounting data collection and record generation to be turned on, the ***defaultAccounting*** bit and at least one of the ***accountCollection*** bits in the ***FrsDataNetworkAddress*** component must be set to on. |
| Values | off<br>on |
| Default | on |

### GROUP Mpanl Sig OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Mpanl Sig adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Mpanl Sig operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |

| | |
|---|---|
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Mpanl Sig usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Mpanl Sig Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the statistics related to the SVC signaling layer at the interface level. |

### ATTRIBUTE Mpanl Sig currentNumberOfSvcCalls (ncall)

| | |
|---|---|
| Access | Read only |
| Description | This attribute shows the number of Frame Relay SVCs currently existing on this interface. |
| Values | Decimal (0..991) |
| Default | No default |

### ATTRIBUTE Mpanl Sig inCalls (incall)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current number of incoming SVCs on this interface (that is, the number of SVCs for which this interface represents the destination end of the call). |
| Values | Decimal (0..991) |
| Default | No default |

### ATTRIBUTE Mpanl Sig inCallsRefused (icr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of incoming SVC call requests that are rejected by either this interface or by the called user. When this count reaches maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Mpanl Sig outCalls (outcall)

| | |
|---|---|
| Access | Read only |
| Description | This attribute shows the current number of outgoing SVCs on this interface (that is, the number of SVCs for which this interface represents the source end of the call). |
| Values | Decimal (0..991) |
| Default | No default |

### ATTRIBUTE Mpanl Sig outCallsFailed (ocf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of outgoing SVC call requests that are rejected by either this interface, or by the network side of the destination end, or by the called user. When this count reaches maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |

Default No default

### ATTRIBUTE Mpanl Sig protocolErrors (pe)

Access Read only

Description This attribute counts the number of times a Q.933 protocol error has occurred. Any one of the following events constitutes a protocol error:
1. In the user-signaled *Link Layer Core Parameters* IE within the SETUP or CONNECT messages, *Cir*, *Bc* and *Be* are all zero;
2. In the user-signaled *Link Layer Core Parameters* IE within the SETUP or CONNECT messages, *Cir* is zero but *Bc* is non-zero, or *Bc* is zero but *Cir* is non-zero;
3. In the user-signaled *Link Layer Core Parameters* IE within the SETUP or CONNECT messages, the *minimum acceptable Cir* is greater than *Cir*;
4. At the destination end, any of the destination to source direction
link layer core parameters has been increased in the CONNECT message from the called user;
5. At the destination end, the destination to source direction *Cir* in the CONNECT message is smaller than the corresponding *minimum acceptable Cir* signaled to the called user;
6. At the source end, any of the source to destination direction link layer core parameters in the CONNECT message from the destination end has been increased;
7. At the source end, the source to destination direction *Cir*, after negotiation, is smaller than the corresponding *minimum acceptable Cir*;
8. The network has received a STATUS message from the user with an incompatible Q.933 state.

When this count reaches maximum, it wraps to zero.

Values Decimal (0..4294967295)

Default No default

### ATTRIBUTE Mpanl Sig qualityOfServiceNotAvailable (qosna)

Access Read only

| | |
|---|---|
| Description | This attribute counts the number of incoming and outgoing SVCs that are rejected because the quality of service requested cannot be met by the network. When this count reaches maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Mpanl Sig setupTimeout (setupt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times the T303 setup timer has expired. When this count reaches maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Mpanl Sig lastCauseInStatusMsgReceived (lcis)

| | |
|---|---|
| Access | Read only |
| Description | This attribute shows the cause value in the last received user's STATUS message to an existing call. The DLCI to which this STATUS message applies is specified in the *lastDlciReceivedStatus* attribute.<br><br>The initial value of this attribute is **0** which means that no STATUS message has been received for an existing call. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE Mpanl Sig lastStateInStatusMsgReceived (lsis)

| | |
|---|---|
| Access | Read only |
| Description | This attribute shows the state value in the last received user's STATUS message to an existing call. The DLCI to which this STATUS message applies is specified in the *lastDlciReceivedStatus* attribute.<br><br>The initial value of this attribute is ***notApplicable***. |

| | |
|---|---|
| Values | null<br>callInitiated<br>outgoingCallProceeding<br>callPresent<br>incomingCallProceeding<br>active<br>disconnectRequest<br>disconnectIndication<br>releaseRequest<br>notApplicable<br>2<br>4<br>5<br>7<br>8<br>13<br>14<br>15<br>16<br>17<br>18<br>21<br>22<br>23<br>24<br>25<br>26<br>27<br>28<br>29<br>30<br>31<br>32<br>33<br>34<br>35<br>36<br>37<br>38<br>39<br>40 |

41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63

Default No default

### ATTRIBUTE Mpanl Sig lastDlciReceivedStatus (ldrs)

Access Read only

Description This attribute shows the value of the DLCI that has most recently received a STATUS message from the user.

The initial value of this attribute is **0**.

Values Decimal (0; 17..1007)

Default No default

### ATTRIBUTE Mpanl Sig lastQ933StateReceivedStatus (lsrs)

Access Read only

Description

This attribute shows the network Q.933 state of the DLCI that has most recently received a STATUS message from the user. The DLCI to which this STATUS message applies is specified in the *lastDlciReceivedStatus* attribute.

The initial value of this attribute is ***notApplicable***.

Values

null
callInitiated
outgoingCallProceeding
callPresent
incomingCallProceeding
active
disconnectRequest
disconnectIndication
releaseRequest
notApplicable

Default

No default

### ATTRIBUTE Mpanl Sig lastTimeMsgBlockCongested (ltmbc)

Access

Read only

Description

This attribute displays the most recent time that an SVC DLCI has failed to get a message block due to message block congestion. Exceptional behavior can occur due to this. The DLCI that has most recently encountered this is indicated by the *lastDlciWithMsgBlockCongestion* attribute. However, all SVC DLCIs may be affected.

The initial value of this attribute is **0000-00-00 00:00**.

Values

Time (DHM)

Default

No default

### ATTRIBUTE Mpanl Sig lastDlciWithMsgBlockCongestion (ldmbc)

Access

Read only

Description

This attribute shows the value of the DLCI that has most recently failed to get a message block due to message block congestion.

The initial value of this attribute is **0**.

Values: Decimal (0; 16..1007)

Default: No default

### GROUP Mpanl Sig LapfStatus (LapfStatus)

Properties: Operational

Description: This group contains the Q.922 SVC data link layer status.

### ATTRIBUTE Mpanl Sig currentState (currState)

Access: Read only

Description: This attribute shows the current state of the SVC data link layer interface.

Values:
disconnected
linkSetup
disconnectRequest
informationTransfer
waitingAck

Default: No default

### ATTRIBUTE Mpanl Sig lastStateChangeReason (lscr)

Access: Read only

Description: This attribute shows the reason for the most recent state change.
notStarted - this is the default state after SVC data link has just been created.
abmeEntered - SVC data link has entered Asynchronous Balanced Mode after SABME or UA has been received.
abmeReset - the data link has been reset.
dmReceived - DM response received.
dmSent - DM sent.
discReceived - DISC response received.
discSent - DISC sent.
frmrReceived - FRMR received.
n200RetranTimeOut - *retransmitLimit* has been exceeded.
other - unspecified state change reasons. The most likely reason

for this is the transition from state **waitingAck** to state **informationTransfer**.

Values
notStarted
abmeEntered
abmeReset
dmReceived
dmSent
discReceived
discSent
frmrReceived
n200RetranTimeOut
other

Default No default

### ATTRIBUTE Mpanl Sig frmrReceive (frmrr)

Access Read only

Description This attribute shows the information field of the FRMR most recently received.

Values String (0..8, Hex)

Default No default

### ATTRIBUTE Mpanl Sig currentQueueSize (queues)

Access Read only

Description This attribute shows the current number of frames in the SVC data link layer transmit queue.

Values Decimal (0..4294967295)

Default No default

### GROUP Mpanl Sig LapfStatistics (LapfStats)

Properties Operational

Description This group contains the statistics for the SVC data link layer.

### ATTRIBUTE Mpanl Sig stateChange

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times the SVC data link layer interface has changed state. Frequent state changes may indicate a problem with the line quality. While the data link layer is in **informationTransfer** state, this counter will increment on each expiry of *idleProbeTimer* as its state goes from **informationTransfer** to **waitingAck** and back. When this count reaches maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Mpanl Sig remoteBusy

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times transmission of an I-frame was unsuccessful due to a perceived remote busy condition (window closed or remote busy). When this count reaches maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Mpanl Sig receiveRejectFrame

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of REJ frames received by the interface. When this count reaches maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Mpanl Sig ackTimeout

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times the *ackTimer* has expired. Frequent increments of this counter indicate a problem at |

| | |
|---|---|
| | the link or improper values have been chosen for *ackTimer* and *ackDelayTimer* between the local and remote sides. When this count reaches maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Mpanl Sig iFramesTransmitted

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of SVC I-frames transmitted to the interface on DLCI 0. An I-frame may be counted more than once if there are retransmissions at the SVC data link layer. When this count reaches maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Mpanl Sig iFramesTxDiscarded

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of SVC I-frames that are bound for the link but have been discarded. Discard reasons may be one of the following:<br>1.the frame length is beyond allow limit.<br>2.the SVC data link layer is in **disconnected** state.<br>3. the transmit queue has been purged because the queue length has reached the *reset* threshold.<br>4.the transmit queue or the queue waiting for acknowledgment has been purged because the link cannot be re-established.<br><br>When this count reaches maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Mpanl Sig iFramesReceived

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the number of SVC I-frames received from the interface. When this count reaches maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Mpanl Sig iFramesRcvdDiscarded

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of SVC I-frames received but have been discarded. The discard reasons are:<br>1. incorrect frame size<br>2. frame is out of sequence<br>3. frame received while the network side of the SVC data link layer is not in the **informationTransfer** or **waitingAck** state.<br><br>When this count reaches maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT Mpanl SignalingMpanl (SigMpanl)

| | |
|---|---|
| Groups | "GROUP Mpanl SigMpanl OsiState (State)"<br>"GROUP Mpanl SigMpanl Profile"<br>"GROUP Mpanl SigMpanl Statistics (Stats)"<br>"GROUP Mpanl SigMpanl LapfStatus (LapfStatus)"<br>"GROUP Mpanl SigMpanl LapfStatistics (LapfStats)" |
| Scope | Network |
| Description | *Mpanl/<n> SignalingMpanl*<br><br>This component contains attributes relating to the MPANL signaling DLCI at the MPANL interface. This includes operational Q.922 (LAPF) information for this DLCI. |
| Common Verbs | Help<br>List<br>Display |

## GROUP Mpanl SigMpanl OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

## ATTRIBUTE Mpanl SigMpanl adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

## ATTRIBUTE Mpanl SigMpanl operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component. |

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Mpanl SigMpanl usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Mpanl SigMpanl Profile

Properties
Operational

Description
This group contains attributes which are populated by the information received from the MPA in the Profile Association command of the MPANL protocol.

### ATTRIBUTE Mpanl SigMpanl dteCustomerId (dcid)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Customer ID of the MPA connected to this Mpanl interface. |
| Values | Decimal (0; 1..8191) |
| Default | No default |

### ATTRIBUTE Mpanl SigMpanl dteNodeId (dnid)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the nodeId that uniquely identifies the MPA connected to this Mpanl interface. |
| Values | Decimal (1..4095) |
| Default | No default |

### ATTRIBUTE Mpanl SigMpanl dteComponentName (dcn)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the component name provided by the MPA connected to this MPANL interface. |
| Values | String (1..255, ASCII) |
| Default | No default |

### ATTRIBUTE Mpanl SigMpanl highestDlci (hd)

| | |
|---|---|
| Access | Read only |
| Description | This gives the highest DLCI that the Mpanl interface will assign to an SVC. This value is populated by information provided in the DLCI Range Information Element of the MPANL Profile Association command received from the MPA. |
| Values | Decimal (0; 17..1007) |
| Default | No default |

## GROUP Mpanl SigMpanl Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the statistics related to the Mpanl signaling layer at the interface level. |

## ATTRIBUTE Mpanl SigMpanl protocolErrors (pe)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times an Mpanl protocol error has occurred. Any one of the following events constitutes a protocol error:<br>1. DNA association before profile association.<br>2. Mandatory IE absent in SAPcommands.<br>3. Invalid length of IE/sub-info fields in SAP command.<br>When this count reaches maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## ATTRIBUTE Mpanl SigMpanl sap0CommandsRx (sap0rx)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of SAP-0 commands received on the MPANL DLCI 16. This counter wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## ATTRIBUTE Mpanl SigMpanl sap0CommandsTx (sap0tx)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of SAP-0 commands sent on the MPANL DLCI 16. This counter wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Mpanl SigMpanl sapXCommandsRx (sapXrx)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of SAP-X commands received on the MPANL DLCI 16. This counter wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Mpanl SigMpanl sapXCommandsTx (sapXtx)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of SAP-X commands sent on the MPANL DLCI 16. This counter wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Mpanl SigMpanl LapfStatus (LapfStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the Q.922 SVC data link layer status. |

### ATTRIBUTE Mpanl SigMpanl currentState (currState)

| | |
|---|---|
| Access | Read only |
| Description | This attribute shows the current state of the SVC data link layer interface. |
| Values | disconnected<br>linkSetup<br>disconnectRequest<br>informationTransfer<br>waitingAck |
| Default | No default |

### ATTRIBUTE Mpanl SigMpanl lastStateChangeReason (lscr)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute shows the reason for the most recent state change.<br>notStarted - this is the default state after SVC data link has just been created.<br>abmeEntered - SVC data link has entered Asynchronous Balanced Mode after SABME or UA has been received.<br>abmeReset - the data link has been reset.<br>dmReceived - DM response received.<br>dmSent - DM sent.<br>discReceived - DISC response received.<br>discSent - DISC sent.<br>frmrReceived - FRMR received.<br>n200RetranTimeOut - *retransmitLimit* has been exceeded.<br>other - unspecified state change reasons. The most likely reason for this is the transition from state **waitingAck** to state **informationTransfer**. |
| Values | notStarted<br>abmeEntered<br>abmeReset<br>dmReceived<br>dmSent<br>discReceived<br>discSent<br>frmrReceived<br>n200RetranTimeOut<br>other |
| Default | No default |

### ATTRIBUTE Mpanl SigMpanl frmrReceive (frmrr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute shows the information field of the FRMR most recently received. |
| Values | String (0..8, Hex) |
| Default | No default |

### ATTRIBUTE Mpanl SigMpanl currentQueueSize (queues)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute shows the current number of frames in the SVC data link layer transmit queue. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Mpanl SigMpanl LapfStatistics (LapfStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the statistics for the SVC data link layer. |

### ATTRIBUTE Mpanl SigMpanl stateChange

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times the SVC data link layer interface has changed state. Frequent state changes may indicate a problem with the line quality. While the data link layer is in **informationTransfer** state, this counter will increment on each expiry of *idleProbeTimer* as its state goes from **informationTransfer** to **waitingAck** and back. When this count reaches maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Mpanl SigMpanl remoteBusy

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times transmission of an I-frame was unsuccessful due to a perceived remote busy condition (window closed or remote busy). When this count reaches maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Mpanl SigMpanl receiveRejectFrame

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the number of REJ frames received by the interface. When this count reaches maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Mpanl SigMpanl ackTimeout

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times the *ackTimer* has expired. Frequent increments of this counter indicate a problem at the link or improper values have been chosen for *ackTimer* and *ackDelayTimer* between the local and remote sides. When this count reaches maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Mpanl SigMpanl iFramesTransmitted

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of SVC I-frames transmitted to the interface on DLCI 0. An I-frame may be counted more than once if there are retransmissions at the SVC data link layer. When this count reaches maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Mpanl SigMpanl iFramesTxDiscarded

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of SVC I-frames that are bound for the link but have been discarded. Discard reasons may be one of the following:<br>1.the frame length is beyond allow limit.<br>2.the SVC data link layer is in **disconnected** state.<br>3. the transmit queue has been purged because the queue length has reached the *reset* threshold.<br>4.the transmit queue or the queue waiting for acknowledgment |

| | |
|---|---|
| | has been purged because the link cannot be re-established.<br><br>When this count reaches maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Mpanl SigMpanl iFramesReceived

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of SVC I-frames received from the interface. When this count reaches maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Mpanl SigMpanl iFramesRcvdDiscarded

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of SVC I-frames received but have been discarded. The discard reasons are:<br>1. incorrect frame size<br>2. frame is out of sequence<br>3. frame received while the network side of the SVC data link layer is not in the **informationTransfer** or **waitingAck** state.<br><br>When this count reaches maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT Mpanl LocalManagementInterface (Lmi)

| | |
|---|---|
| Groups | "GROUP Mpanl Lmi ProtocolParameters (Parms)"<br>"GROUP Mpanl Lmi OsiState (State)" |
| Scope | Application |

Description

*Mpanl/n Lmi*
This component defines the parameters for implementing the Local Management Interface protocol.

Common Verbs

Help
List
Display

## GROUP Mpanl Lmi ProtocolParameters (Parms)

Properties

Provisioned

Description

This group contains the provisionable attributes of the Local Management Interface component.

## ATTRIBUTE Mpanl Lmi procedures (proc)

Access

Read only

Criticality

Process

Description

This attribute selects the procedures to be used for the Local Management Interface. For the MPANL service this attribute is always set to ***none***.

***none***: no Local Management Interface procedures are running on this interface. This accommodates MPANL user equipment that have not implemented any LMI procedures. The remaining attributes of this group will be ignored.

***vendorForum***:Local Management Interface procedures from the Vendor Forum specification are supported on this interface. *DLCI 1023* is used for the LMI protocol.

***ansi***: Local Management Interface procedures from the ANSI specification are supported. *DLCI 0* is used for the LMI protocol.

***ccitt***: Local Management Interface procedures from the CCITT specification are supported. *DLCI 0* is used for the LMI protocol.

Values

none
vendorForum

| | |
|---|---|
| | ansi<br>ccitt |
| Default | none |

### GROUP Mpanl Lmi OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Mpanl Lmi adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Mpanl Lmi operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Mpanl Lmi usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

## COMPONENT Mpanl VoiceOverFrameRelay (VoFr)

| | |
|---|---|
| Groups | "GROUP Mpanl VoFr Operational (Oper)"<br>"GROUP Mpanl VoFr Statistics (Stats)" |
| Scope | Network |
| Description | *Mpanl/n VoiceOverFrameRelay*<br>This component, when provisioned, provides VoFr link layer framing capability to the containing *Mpanl* instance. |
| Common Verbs | Help<br>List<br>Display |

## GROUP Mpanl VoFr Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational attributes of the *VoFr* component. |

## ATTRIBUTE Mpanl VoFr maximumFrameSize

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the maximum size of VoFr frames transmitted to MPA. The size excludes HDLC flags and CRC octets. MPA signals the required value as part of the MPANL initial staging, which is then used to set the value of this attribute. Default value is used before MPANL staging is completed. |
| Values | Decimal (50..4100) |
| Units | octets |
| Default | 4100 |

## ATTRIBUTE Mpanl VoFr transmitInformationRate

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute indicates the maximum information rate towards MPA. Value may change over time, as signalled by MPA. Default value is used before MPANL staging is completed. |
| Values | Decimal (16000..4294967295) |
| Units | bit/s |
| Default | 16000 |

### GROUP Mpanl VoFr Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistics attributes of the *VoFr* component. |

### ATTRIBUTE Mpanl VoFr fragmentedHighestPriorityFrames

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts egress frames with the highest priority, which had to be fragmented because they were larger than *maximumFrameSize*. This could happen when a data call is setup to use the highest emission priority, or MPA is provisioned with too low maximum frame size. When the maximum is reached the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Mpanl VoFr lostFragmentsFromIf

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts lost VoFr fragments from the interface. Presence of lost fragments indicates a link problem. Note that lost whole frames cannot be detected. When the maximum is reached the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## ATTRIBUTE Mpanl VoFr protocolViolationsFromIf

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts VoFr protocol violations detected in the data from the interface. When the maximum is reached the count wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## COMPONENT Mpanl FrMuxSetup

| | |
|---|---|
| Groups | "GROUP Mpanl FrMuxSetup Operational (Op)" |
| Scope | Application |
| Description | *Mpanl/n FrMuxSetup*<br>This component contains operational attributes for egress traffic shaping as well as the component name of the *FrMux Dlci* to which this *Mpanl/n* is associated. |
| Subcomponents | "COMPONENT Mpanl FrMuxSetup PvcSetup" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Mpanl FrMuxSetup Operational (Op)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the following operational parameters: committedInformationRate of the PVC connection used for tunnelling the MPANL traffic, and the component name of the *Dlci* which carries the traffic for this MPANL. |

## ATTRIBUTE Mpanl FrMuxSetup committedInformationRate (cir)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute specifies, in bit/s, the committed information rate (CIR) to which the traffic transmitted towards the interface is shaped. |
| Values | Decimal (16000..4294967295) |
| Units | bit/s |
| Default | 16000 |

### ATTRIBUTE Mpanl FrMuxSetup dlciCompName

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the component name of the *Dlci* with which the application using this *FrMuxSetup* component is associated. The name is a string *FrMux/n Dlci/m.* For a PVC this is the same component name as provisioned under the subcomponent *FrMuxPvcSetup*. |
| Values | The name of the component |
| Default | No default |

### COMPONENT Mpanl FrMuxSetup PvcSetup

| | |
|---|---|
| Groups | "GROUP Mpanl FrMuxSetup PvcSetup Provisioned (Prov)" |
| Scope | Application |
| Description | *Mpanl/n FrMuxSetup PvcSetup*<br>This component contains provisionable attributes for setting up a *Dlci* associated with the application using this component. The *Dlci* is of a PVC type. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Mpanl FrMuxSetup PvcSetup Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |

| | |
|---|---|
| Description | This group contains provisionable attributes for setting up a *Dlci* associated with the application using the *FrMuxSetup* component. The *Dlci* is of the PVC type. |

### ATTRIBUTE Mpanl FrMuxSetup PvcSetup dlciName

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute is the link to the *Dlci* which is associated with the application using the *FrMuxSetup* component. |
| Values | Link (Hardware, applicationName) |
| Default | No default |

### COMPONENT Mpanl Isdn

| | |
|---|---|
| Groups | "GROUP Mpanl Isdn Provisioned (Prov)"<br>"GROUP Mpanl Isdn Operational (Oper)" |
| Scope | Network |
| Description | *Mpanl/n Isdn*<br>This component defines the parameters associated with the ISDN B-<br>Channel interface. Adding this component makes the *Mpanl* behave as an ISDN access to the MPA. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Mpanl Isdn Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes of the Isdn component. |

### ATTRIBUTE Mpanl Isdn t320

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the waiting time for a silent B-Channel (no active VCs associated with the *Mpanl*) to be disconnected and made available. Default is 60 seconds. 0 means t320 will never timeout. |
| Values | Decimal (0..255) |
| Units | seconds |
| Default | 60 |

### ATTRIBUTE Mpanl Isdn addressSignalling (asig)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute defines whether the ISDN Calling Party Number is to be signaled to the remote DTE during an SVC call establishment. Otherwise, no changes to the current behavior of SVC call establishment (i.e., Passport Dna is used in the calling party number information element). |
| Values | IsdnDna<br>normalBehavior |
| Default | normalBehavior |

### GROUP Mpanl Isdn Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes of the *Isdn* component. |

### ATTRIBUTE Mpanl Isdn dataSigChan

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the instance number of the *dataSigChan* component controlling the allocation of this *Mpanl Isdn* component. |
| Values | Decimal (1..255) |
| Default | No default |

### ATTRIBUTE Mpanl Isdn bChannelState (bState)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the state of the B-Channel. If the value is ***idle*** it means that no VCs are connected and this B-Channel is available. If the value is ***busy*** it means this B-Channel has been allocated and is not available. If the value is ***disabled*** it means the application interface or the port is locked or disabled. |
| Values | idle<br>busy<br>disabled |
| Default | No default |

### ATTRIBUTE Mpanl Isdn lastUsedCgpn (lucgpn)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the calling party number currently using the B-Channel. When the B-Channel is free, the null string is displayed. |
| Values | BCD (0..15) |
| Default | No default |

### ATTRIBUTE Mpanl Isdn bChanIntState (bInt)

| | |
|---|---|
| Access | Read only |
| Description | Debug information |
| Values | isdnInit<br>waitAccEnable<br>waitLnsResponse<br>waitFramerData |

| | |
|---|---|
| | enabling<br>waitAccRegAck<br>up<br>down<br>releasing |
| Default | No default |

### ATTRIBUTE Mpanl Isdn activeVirtualCircuitsCount (vcCount)

| | |
|---|---|
| Access | Read only |
| Description | Current number of virtual circuits (switched and permanent) in data transfer. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT Mpanl Voice

| | |
|---|---|
| Groups | "GROUP Mpanl Voice Provisioned (Prov)" |
| Scope | Device |
| Description | *Mpanl/n Vcp*<br>This component defines the Voice Control Point characteristics of an instance of the *Mpanl* top level component. This includes SAP-x control message tracing for the Mpanl and accounting for Voice Calls over this instance of *Mpanl*. |
| Subcomponents | "COMPONENT Mpanl Voice MpaVoiceAccounting (Acct)" |
| Common Verbs | Help<br>List<br>Display |

### GROUP Mpanl Voice Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioning attribute used for SPO connections. |

## ATTRIBUTE Mpanl Voice useSpo (spo)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | ATM Adaptation Layer Short Path Oriented (AALSPO) is used to optimize the voice traffic over ATM interfaces encapsulating a voice packet of an exact 45 byte size in a single ATM cell.<br>Using AAL5, two cells are required to transport 45 byte packet because an 8 byte AAL5 trailer is needed by the protocol. AALSPO optimizes the disassembly/reassembly mechanism performed at AAL level by replacing the AAL5 trailer with a small sized 3 byte LRC field.<br>By setting this attribute to ***yes*** the voice call will be routed on a AALSPO connection (specific to voice or video traffic) if a circuit of this type is properly provisioned. If not properly provisioned the system defaults to AAL5. The frame size for this virtual circuit will be 45 bytes, regardless of the frame size signaled by the MPA side.<br>If no ATM interfaces are used it is recommended that this attribute be set to the default value (***no***). |
| Values | no<br>yes |
| Default | no |

## COMPONENT Mpanl Voice MpaVoiceAccounting (Acct)

| | |
|---|---|
| Groups | "GROUP Mpanl Voice Acct Provisioned (Prov)" |
| Scope | Application |
| Description | *Mpanl/n Voice MpaVoiceAccounting*<br>The *VoiceAccounting* component defines the operational characteristics of the accounting system of the *Mpanl Voice* component. Accounting record generation for calls on the *Mpanl* is managed by this component. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Mpanl Voice Acct Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes of a *VoiceAccounting* component. |

### ATTRIBUTE Mpanl Voice Acct accountCollection (aco)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies that accounting records are to be collected for the various reasons: ***bill***, ***test***, ***study***, ***audit***. If none of these reasons is set, then accounting is suppressed. |
| Set of | bill<br>test<br>study<br>audit |
| Default | No default |

### ATTRIBUTE Mpanl Voice Acct accountClass (acl)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the accounting class which is reserved for network operations usage. Its value is returned in the accounting record in the local and remote service type attributes. The use of this attribute is decided by the network operator. |
| Values | Decimal (0..255) |
| Default | 0 |

### ATTRIBUTE Mpanl Voice Acct serviceExchange (sre)

| | |
|---|---|
| Access | Read: All<br>Write: All |

| | |
|---|---|
| Description | This attribute specifies a user defined value, Data Service Exchange, as entered by the network operator and reported in the accounting record. |
| Values | Decimal (0..255) |
| Default | 0 |

### ATTRIBUTE Mpanl Voice Acct digitsSuppressed (ds)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the number of trailing digits which will be suppressed in the *calledNumber* in the accounting records. Each of the specified number of trailing digits are replaced with an "X". This option exists to satisfy privacy requirements in a number of countries. |
| Values | Decimal (0..8) |
| Default | 0 |

### ATTRIBUTE Mpanl Voice Acct accountingOptions (ao)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies optional settings for the voice networking accounting system. The option is:<br>***suppressTerminatingEndRecords*** - setting this option suppresses the generation of accounting records at the destination node. This reduces the volume of accounting data. This option has local significance only. It only suppresses the generation of accounting records for calls received by this node. |
| Set of | suppressTerminatingEndRecords (ster) |
| Default | No default |

Passport 7400, 15000, 20000

# Component Mpanl

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component Mtp3

241-5701-060

Passport 7400, 15000, 20000

# Component Mtp3

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT MessageTransferPartLayer3 (Mtp3)

| | |
|---|---|
| Instance | Decimal (0..255) |
| Groups | "GROUP Mtp3 Provisioned (Prov)"<br>"GROUP Mtp3 OsiState (State)"<br>"GROUP Mtp3 Operational (Oper)"<br>"GROUP Mtp3 WlcCustomCounters (WlcCustomCntr)" |

"COLLECTED STATS MessageTransferPartLayer3"

| | |
|---|---|
| Scope | Application |
| Description | MessageTransferPartLayer3<br><br>This component represents an MTP 3 layer of the SS7 stack. |
| Subcomponents | "COMPONENT Mtp3 Linkset (Ls)"<br>"COMPONENT Mtp3 MemoryPoolManager (Mpm)" |
| Opt. Subcomp. | "COMPONENT Mtp3 ServiceIndicator (ServInd)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Mtp3 Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |

| | |
|---|---|
| Description | This group contains the provisionable attributes of this component. |

### ATTRIBUTE Mtp3 linkToLogicalProcessor (lp)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the Logical Processor that this component and its subcomponents are provisioned on. |
| Values | Link (Hardware, linkToApplications) |
| Default | No default |

### ATTRIBUTE Mtp3 linkToPort (lToPort)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies a link to *Gips IpAddr UDP Port* on an IP Server. This determines the IP Address and UDP port that all MTP layer 3 users use to address this MTP layer 3 component.<br><br>Changing this value can cause outstanding transactions to be affected.<br><br>*Check Prov* will fail if this attribute does not specify a *Gips IpAddr Udp Port* component. |
| Values | Link (Service, linkToApplication) |
| Default | No default |

### ATTRIBUTE Mtp3 mtpType

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the type of MTP3.<br><br>The possible values for *mtpType* are:<br>***mtp3*** - This is the standard MTP layer 3 from Q.704 that supports |

signalling units up to 272 octets in length.
***mtp3b*** - This is the MTP layer 3 broadband variant that supports signalling units up to 4096 octets in length.

For the SS7 stack on the Iu interface this attribute must be set to ***mtp3b***.

For the SS7 stack on the Call Server interface this attribute must be set to ***mtp3***.

Changing the value of this attribute causes all the linksets associated with the MTP3 layer to be restarted.

Values: mtp3
mtp3b

Default: mtp3

### ATTRIBUTE Mtp3 origPointCode (opc)

Access: Read: All
Write: All

Criticality: Process

Description: This attribute specifies the point code of the node that the MTP3 layer manages.

The point code must be provisioned in one of the following formats:

basic***:*** The point code is provisioned as a decimal number in the range ***1***..***16383***. A value of ***0*** is not valid.
segmented: The point code is provisioned as three integers, separated by dots. The first integer must be in the range ***0***..***7***, the second integer must be in the range ***0***..***255***, and the third integer must be in the range ***0***..***7***. A value of ***0.0.0*** is not valid.

This attribute must not specify a point code identical to that specified by *adjPointCode*.

Changing the value of this attribute causes all the linksets associated with this MTP3 layer to be restarted.

| | |
|---|---|
| Values | Integer Sequence |
| Default | No default |

### ATTRIBUTE Mtp3 networkIndicator (netInd)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies whether the network is a national network, or an international network.<br><br>This attribute determines the value that is filled in the Network Indicator field of the messages sent to the remote end.<br><br>This attribute must match what the peer MTP3 layer on the remote end expects in the messages.<br><br>Changing the value of this attribute causes all the linksets associated with this MTP3 layer to be restarted.<br><br>Each meaning of each valid value for *networkIndicator* is described in SS7 Mtp3 specification Q.704.<br><br>***international*** - MTP3 node is a member of an “International” network.<br><br>***internationalSpare*** - MTP3 node is a member of an “International Spare” network.<br><br>***national*** - MTP3 node is a member of a “National” network.<br><br>***nationalSpare*** - MTP3 node is a member of a “National Spare” network. |
| Values | international<br>internationalSpare<br>national<br>nationalSpare |

| | |
|---|---|
| Default | international |

### ATTRIBUTE Mtp3 changeoverHoldoffTimer (t1)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the value of the timer T1 defined in ITU-T recommendation Q.704. This timer value determines how long to wait for a failed link to become available when changeover is required, but there is no alternate link. It is used to avoid message mis-sequencing on changeover.<br><br>This timer is started when a link goes down and a changeover is required, but changeover messages cannot be exchanged on an alternate link.<br><br>This timer is stopped when the failed link becomes available.<br><br>Upon timer expiration, it sends all the retrieved (layer 2) and buffered (layer 3) messages down the new link and marks changeover as complete. |
| Values | Decimal (500..1200) |
| Units | msec |
| Default | 500 |

### ATTRIBUTE Mtp3 changeoverAckTimer (t2)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the value of the timer T2 defined in ITU-T recommendation Q.704.<br><br>This timer is started when MTP layer 3 receives a Backward Sequence Number of the next signalling unit to be Transmitted (BSNT) from a link in the changeover process.<br><br>This timer is stopped when the link becomes available, or when a changeover message is received while waiting for an ack. |

Upon timer expiration, the link is released.

The number of expiries of this timer is indicated by the attribute *changeoverAckTimeouts*.

Values: Decimal (700..2000)

Units: msec

Default: 700

### ATTRIBUTE Mtp3 changebackDiversionDelayTimer (t3)

Access: Read: All
Write: All

Description: This attribute specifies the timer value for the timer T3 defined in ITU-T recommendation Q.704. It provides time controlled diversion-delay to avoid mis-sequencing on changeback.

This timer is started when a link is in changeback and the signalling point at the remote end of newly available link is not accessible via an alternative link.

Upon timer expiry, traffic is restarted on the link.

Values: Decimal (500..1200)

Units: msec

Default: 500

### ATTRIBUTE Mtp3 firstAttemptChangebackAckTImer (t4)

Access: Read: All
Write: All

Description: This attribute specifies the timer value for the timer T4 defined in ITU-T recommendation Q.704.

This timer is started when a link is in changeback and the Signalling Point (SP) at the remote end of the newly available link is accessible via an alternative link.

This timer is stopped when a link has attempted changeback for

the first time and receives a changeback ack for every changeback declaration sent.

Upon timer expiration, *secondAttemptChangebackAckTimer* is started and all the unacknowledged changeback declarations are re-sent.

The number of resends of the changeback declarations is indicated by the attribute *changebackDeclarationTimeouts*.

Values: Decimal (500..1200)

Units: msec

Default: 500

### ATTRIBUTE Mtp3 secondAttemptChangebackAckTimer (t5)

Access: Read: All
Write: All

Description: This attribute specifies the timer value for the timer T5 defined in ITU-T recommendation Q.704. It creates a delay to avoid oscillation of initial alignment failure and link restart.

The timer is started when a link does not changeback in the first attempt with *firstAttemptChangeBackAckTimer*.

The timer is stopped when a link is in the second attempt of changeback and receives a changeback ack for every changeback declaration sent.

Upon timer expiration, changeback is terminated.

The number of expiries of this timer is indicated by the attribute *secondAttemptChangebackAckTimeouts*.

Values: Decimal (500..1200)

Units: msec

Default: 500

## ATTRIBUTE Mtp3 uninhibitAckTimer (t12)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the timer value for the timer T12 defined in ITU-T recommendation Q.704.<br><br>The timer is started every time a link *Uninhibit* command is executed.<br><br>The timer is stopped when the link uninhibit is acknowledged by the remote end.<br><br>Upon timer expiry, the uninhibit is started again for a maximum of one more time. If it fails this time, the uninhibit is cancelled.<br><br>The number of expiries of this timer is indicated by the attribute *uninhibitAckTimeouts*. |
| Values | Decimal (800..1500) |
| Units | msec |
| Default | 800 |

## ATTRIBUTE Mtp3 forceUninhibitTimer (t13)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the timer value for the timer T13 defined in ITU-T recommendation Q.704.<br><br>The timer is started when this end initiates a link force uninhibit.<br><br>The timer is stopped when the signalling link uninhibit is acknowledged.<br><br>Upon timer expiry, the uninhibit is started again one more time. If it fails this time, the uninhibit is cancelled. |

The number of expiries of this timer is indicated by the attribute *forceUninhibitTimeouts*.

Values: Decimal (800..1500)

Units: msec

Default: 800

### ATTRIBUTE Mtp3 inhibitAckTimer (t14)

Access: Read: All
Write: All

Description: This attribute specifies the value of the timer T14 defined in ITU-T recommendation Q.704. This timer waits for inhibition acknowledgement.

The timer is started when an *Inhibit* command is executed.

The timer is stopped when the local link inhibit is denied or successful.

Upon expiry, the local link inhibit request is cancelled.

Values: Decimal (2..3)

Units: seconds

Default: 2

### ATTRIBUTE Mtp3 initialAlignmentDelayTimer (t17)

Access: Read: All
Write: All

Description: This attribute specifies the value of the timer T17 defined in ITU-T recommendation Q.704. It creates a delay to avoid oscillation of initial alignment failure and link restart.

This timer is started when a signalling link is started.

Upon timer expiry, it sends a START message to layer 2.

Values: Decimal (800..1500)

| | |
|---|---|
| Units | msec |
| Default | 800 |

### ATTRIBUTE Mtp3 localInhibitTestTimer (t22)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the value of the timer T22 (Local inhibit test timer) defined in ITU-T recommendation Q.704.<br><br>This timer is started when a link becomes locally inhibited. Upon timer expiry, if the link is still unavailable and locally inhibited, the timer is restarted, and a local inhibit test message is sent to the remote end. |
| Values | Decimal (180..360) |
| Units | seconds |
| Default | 180 |

### ATTRIBUTE Mtp3 remoteInhibitTestTimer (t23)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the value of the timer T23 (Remote inhibit test timer) defined in ITU-T recommendation Q.704.<br><br>This timer is started when a link becomes remote inhibited. Upon timer expiry, if the link is still unavailable and remotely inhibited, the timer is restarted, and a remote inhibit test message is sent to the remote end |
| Values | Decimal (180..360) |
| Units | seconds |
| Default | 180 |

### ATTRIBUTE Mtp3 sltAckTimer (tQ707T1)

| | |
|---|---|
| Access | Read: All<br>Write: All |

| | |
|---|---|
| Description | This attribute specifies the value of the Supervision timer to wait for a signalling link test acknowledgement message.<br><br>This timer is started every time a Signalling Link Test Controller (SLTC) sends out a test message.<br><br>The timer is stopped when the SLTC receives an acknowledge message from the peer MTP3 layer.<br><br>Upon timer expiration, if this is the first attempt, this timer is restarted and a second attempt is made. If the timer expires after the second attempt, the MTP3 layer is informed of a broken link. |
| Values | Decimal (4..12) |
| Units | seconds |
| Default | 4 |

### ATTRIBUTE Mtp3 sltIntervalTimer (tQ707T2)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the value of the Interval timer defined in ITU-T recommendation Q.707 for sending signalling link test messages.<br><br>The timer is started when a link comes in service, and each time the timer expires if the link is still good.<br><br>The timer is stopped when the link fails, as determined by the *sltAckTimer*.<br><br>Upon timer expiry, another test message is sent to the peer and the timer is restarted. |
| Values | Decimal (30..90) |
| Units | seconds |
| Default | 30 |

## GROUP Mtp3 OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

## ATTRIBUTE Mtp3 adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

## ATTRIBUTE Mtp3 operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component. |

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Mtp3 usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Mtp3 Operational (Oper)

Properties
Operational

Description
This group contains the operational attributes of this component.

### ATTRIBUTE Mtp3 changeoverAckTimeouts (t2Tmouts)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the timeouts of timer T2, specified by the attribute *changeoverAckTimer*.<br><br>The counter wraps to zero when its maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Mtp3 firstAttemptChangebackAckTmouts (t4Tmouts)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the timeouts of timer T4, specified by the attribute *firstAttemptChangebackAckTimer*.<br><br>The counter wraps to zero when its maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Mtp3 secondAttemptChangebackAckTmouts (t5Tmouts)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the timeouts of timer T5, specified by the attribute *secondAttemptChangebackAckTimer*.<br><br>The counter wraps to zero when its maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Mtp3 forceUninhibitAckTimeouts (t13Tmouts)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the timeouts of timer T13, specified by the attribute *forceUninhibitAckTimer*.<br><br>The counter wraps to zero when its maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Mtp3 WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Mtp3 customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Mtp3 customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Mtp3 customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## COLLECTED STATS MessageTransferPartLayer3

| | |
|---|---|
| Description | The statistics record generated by the MessageTransferPartLayer3 component. |

### ATTRIBUTE Mtp3 linkSetsUnavailable (lsUnavail)

| | |
|---|---|
| Description | This attribute indicates the number of linkset unavailable conditions over the collection interval. |
| Values | Decimal (0..4294967295) |

### COMPONENT Mtp3 Linkset (Ls)

| | |
|---|---|
| Instance | Decimal (0..0) |
| Groups | "GROUP Mtp3 Ls Provisoned (Prov)"<br>"GROUP Mtp3 Ls OsiState (State)"<br>"GROUP Mtp3 Ls WlcCustomCounters (WlcCustomCntr)" |
| Scope | Application |
| Description | Mtp3/n Linkset/n<br><br>This component represents an MTP3 linkset. A linkset is a grouping of signalling links that are used to transfer signalling between this node and a specific adjacent signalling point. |

| | |
|---|---|
| Subcomponents | "COMPONENT Mtp3 Ls Link" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Mtp3 Ls Provisoned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes of this component. |

### ATTRIBUTE Mtp3 Ls adjPointCode (apc)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the point code of the node that this node directly connects to through this linkset.<br><br>The point code must be provisioned in one of the following formats:<br><br>basic***:*** The point code is provisioned as a decimal number in the range ***1***..***16383***. A value of ***0*** is not valid.<br>segmented: The point code is provisioned as three integers, separated by dots. The first integer must be in the range ***0***..***7***, the second integer must be in the range ***0***..***255***, and the third integer must be in the range ***0***..***7***. A value of ***0.0.0*** is not valid.<br><br>This attribute must not specify a point code identical to that specified by *origPointCode*.<br><br>Changing the value of this attribute causes all the linksets associated with the MTP3 layer to be restarted. |

| | |
|---|---|
| Values | Integer Sequence |
| Default | No default |

### GROUP Mtp3 Ls OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Mtp3 Ls adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Mtp3 Ls operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Mtp3 Ls usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

## GROUP Mtp3 Ls WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

## ATTRIBUTE Mtp3 Ls customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## ATTRIBUTE Mtp3 Ls customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## ATTRIBUTE Mtp3 Ls customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |

Default No default

## COMPONENT Mtp3 Ls Link

Instance Decimal (0..15)

Groups "GROUP Mtp3 Ls Link Provisoned (Prov)"
"GROUP Mtp3 Ls Link OsiState (State)"
"GROUP Mtp3 Ls Link Operational (Oper)"
"GROUP Mtp3 Ls Link WlcCustomCounters (WlcCustomCntr)"

"COLLECTED STATS MessageTransferPartLayer3 Linkset Link"

Scope Application

Description Mtp3/n Linkset/n Link/n

This component represents a SS7 signalling link that conveys signalling information between two signalling points.

Common Verbs
- Help
- List
- Display
- Add
- DELete
- Unlock

## VERB INHIBIT Mtp3 Ls Link

Impact Service

Description *Inhibit Mtp3/n Linkset/n Link/n*

This command requests that the signalling link represented by this component be locally inhibited, as per the ITU-T recommendation Q.704.

The *Inhibit* will be denied locally if the requested link is the last available link in the linkset, or if an uninhibit on the requested is in progress. The *Inhibit* can also be denied by the remote end.

If the link is inhibited successfully, all the traffic carried on the linkset will be distributed among the other links in the linkset.

## VERB UNINHIBIT Mtp3 Ls Link

| | |
|---|---|
| Impact | Service |
| Description | *Uninhibit Mtp3/n Linkset/n Link/n*<br><br>This command requests that the signalling link represented by this component be uninhibited, as per the ITU-T recommendation Q.704.<br><br>The *Uninhibit* will be denied locally if the requested link has not been inhibited from this end, or if an inhibit on the link is in progress.<br><br>If the link is uninhibited successfully, the link will be made available for traffic. |

## VERB LOCK Mtp3 Ls Link

| | |
|---|---|
| Impact | Service |
| Description | *Lock [-force] Mtp3/n Linkset/n Link/n*<br><br>This verb causes the specified *Link* component to immediately enter the OSI ***locked*** administrative state. Traffic flow ceases on the newly locked *Link* and is diverted to the remaining unlocked *Links* of the *LinkSet.*<br><br>The *Lock* command fails if executed on the last ***unlocked*** *Link* of a *LinkSet*. The last ***unlocked*** *Link* of a *LinkSet* must be locked using the *force* option.<br><br>**Options:**<br>*-force*<br>If this option is specified, the *Link* is locked even if it is the only unlocked *Link* in the *LinkSet*. |

## GROUP Mtp3 Ls Link Provisoned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes of this component. |

### ATTRIBUTE Mtp3 Ls Link remoteIpAddress (remIpAddr)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the remote IP address of the link layer entity that provides data link layer services for this link.<br><br>Any IP address is valid except ***0.0.0.0***.<br><br>Changing the value specified by this attribute causes a loss of service for this component. |
| Values | IP address |
| Default | No default |

### ATTRIBUTE Mtp3 Ls Link remoteUdpPort (remUdpPort)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the UDP port of the remote link layer entity that provides data link layer services for this link.<br><br>Changing the value specified by this attribute causes a loss of service for this component. |
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP Mtp3 Ls Link OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component |

which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Mtp3 Ls Link adminState (osiAdmin)

Access: Read only

Description: This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values: locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default: unlocked

### ATTRIBUTE Mtp3 Ls Link operationalState (osiOper)

Access: Read only

Description: This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the

component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Mtp3 Ls Link usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Mtp3 Ls Link Operational (Oper)

Properties
Operational

Description
This group contains the operational attributes of this component.

### ATTRIBUTE Mtp3 Ls Link pdusRx

Access
Read: All
Write: Illegal

Description
This attribute counts the Protocol Data Units (PDUs) received from layer 2.

This includes the PDUs with and without user payload.

| | |
|---|---|
| | The counter wraps to 0 when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Mtp3 Ls Link payloadPdusRx (plPdusRx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Protocol Data Units (PDUs) with payload received from layer 2.<br><br>The counter wraps to 0 when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Mtp3 Ls Link pdusTx

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Protocol Data Units sent to layer 2.<br><br>This includes the PDUs with and without user payload.<br><br>The counter wraps to 0 when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Mtp3 Ls Link payloadPdusTx (plPdusTx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Protocol Data Units (PDUs) with payload sent to layer 2.<br><br>The counter wraps to 0 when it exceeds the maximum value. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Mtp3 Ls Link invalidPdusRx (invPdusRx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of invalid Protocol Data Units received from Layer 2.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Mtp3 Ls Link WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Mtp3 Ls Link customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Mtp3 Ls Link customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a |

mechanism by which custom counters can be set up at runtime through a patch.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Mtp3 Ls Link customCounter3 (customCntr3)

Access: Read: All
Write: Illegal

Description: This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch.

Values: Decimal (0..4294967295)

Default: No default

## COLLECTED STATS MessageTransferPartLayer3 Linkset Link

Description: The statistics record generated by the MessageTransferPartLayer3 Linkset Link component.

### ATTRIBUTE Mtp3 Ls Link pdusRx

Description: This attribute indicates the number of Protocol Data Units (PDUs) received from layer 2 over the collection interval.

This includes the PDUs with and without user payload.

Values: Decimal (0..4294967295)

### ATTRIBUTE Mtp3 Ls Link payloadPdusRx

Description: This attribute indicates the number of Protocol Data Units (PDUs) with payload received from layer 2 over the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Mtp3 Ls Link pdusTx

| | |
|---|---|
| Description | This attribute indicates the number of Protocol Data Units (PDUs) sent to layer 2 over the collection interval.<br><br>This includes PDUs with and without user payload. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Mtp3 Ls Link payloadPdusTx

| | |
|---|---|
| Description | This attribute indicates the number of Protocol Data Units (PDUs) with payload sent to layer 2 over the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Mtp3 Ls Link invalidPdusRx

| | |
|---|---|
| Description | This attribute indicates the number of number of invalid Protocol Data Units received over the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Mtp3 Ls Link sltFailures

| | |
|---|---|
| Description | This attribute indicates the number of signalling link test message failure conditions over the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Mtp3 Ls Link changeovers

| | |
|---|---|
| Description | This attribute indicates the number of link changeover conditions over the collection interval. |
| Values | Decimal (0..4294967295) |

### COMPONENT Mtp3 ServiceIndicator (ServInd)

| | |
|---|---|
| Instance | Decimal (3; 12) |
| Groups | "GROUP Mtp3 ServInd Provisioned (Prov)"<br>"GROUP Mtp3 ServInd WlcCustomCounters (WlcCustomCntr)" |
| Scope | Application |

Description *Mtp3/n ServiceIndicator/<service indicator>*

This component represents an MTP layer 3 service indicator. A service indicator is a logical identifier that represents a particular user of MTP layer 3 services.

The SS7 specifications define which users are required to use a given service indicator.

Only one application can use a particular MTP layer 3 service indicator.

Common Verbs

Help
List
Display
Add
DELete

## GROUP Mtp3 ServInd Provisioned (Prov)

Properties Provisioned

Description This group contains the provisionable attributes of this component.

## ATTRIBUTE Mtp3 ServInd linkToMtp3Connection (lToMtp3Conn)

Access Read: All
Write: All

Description This attribute specifies a link to the application using the service represented by this service indicator.

This attribute must specify either *Sccp Mtp3Connection* or *Vmg Mtp3Connection*.

*SccpMtp3Connection* must be used for *Mtp3/n ServiceIndicator/3* and *Vmg Mtp3Connection* must be used for *Mtp3/n ServiceIndicator/12*.

Values Link (Service, linkToServiceIndicator)

Default No default

## GROUP Mtp3 ServInd WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

## ATTRIBUTE Mtp3 ServInd customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## ATTRIBUTE Mtp3 ServInd customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## ATTRIBUTE Mtp3 ServInd customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

## COMPONENT Mtp3 MemoryPoolManager (Mpm)

| | |
|---|---|
| Scope | Application |
| Description | *Gsc/n MemoryPoolManager*<br>*Gsd/n MemoryPoolManager*<br>*Gtl/n MemoryPoolManager*<br>*DnsAgent/<vr>,n MemoryPoolManager*<br><br>This component represents the memory resources of a given GPRS application that are managed as pools of objects. |
| Dyn. Subcomp. | "COMPONENT Mtp3 Mpm MemoryPoolClient (Mpc)" |
| Common Verbs | Help<br>List<br>Display |

## COMPONENT Mtp3 Mpm MemoryPoolClient (Mpc)

| | |
|---|---|
| Instance | String (1..30, ASCII) |
| Scope | Application |
| Description | *Gsc/n Mpm MemoryPoolClient/<name>*<br>*Gsd/n Mpm MemoryPoolClient/<name>*<br>*SgGtl/n Mpm MemoryPoolClient/<name>*<br>*DnsAgent/<vr>,n Mpm MemoryPoolClient/<name>*<br><br>This component represents a pool of objects of a particular class that a GPRS application currently owns as well as all the objects that could be owned by that application. All the objects in the pool are of the same class. The instance value of this component is a string which is the class name of the objects in the pool. |
| Common Verbs | Help<br>List<br>Display |

Passport 7400, 15000, 20000

# Component Mtp3

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component Nmis

241-5701-060

Passport 7400, 15000, 20000

# Component Nmis

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT NetworkManagementInterfaceSystem (Nmis)

| | |
|---|---|
| Scope | Device |
| Description | *Nmis*<br>The Network Management Interface System (NMIS) is the collection of software interfaces on Passport provided to administer the Passport. NMIS offers Telnet (server and client) and FTP (server) access, a directly-connected Local operator capability, and a proprietary FMIP Interface for use by Preside MDM.<br>The *Nmis* component is a placeholder component to collect all the Network Management Interface components below it. |
| Subcomponents | "COMPONENT Nmis Local"<br>"COMPONENT Nmis Telnet" |
| Dyn. Subcomp. | "COMPONENT Nmis Fmip"<br>"COMPONENT Nmis Ftp" |
| Common Verbs | Help<br>List<br>Display |

## COMPONENT Nmis Local

| | |
|---|---|
| Groups | "GROUP Nmis Local OsiState (State)"<br>"GROUP Nmis Local Operational (Oper)"<br>"GROUP Nmis Local Provisioned (Prov)" |
| Scope | Device |

| | |
|---|---|
| Description | *Nmis Local*<br>This network management interface is supported on the V.24 DCE port on the Control Processors. A VT-100 ASCII terminal must be connected to the V.24 DCE port to log in to the Local Operator Interface. The Local Operator Interface is otherwise identical to the Telnet operator interface. |
| Dyn. Subcomp. | "COMPONENT Nmis Local Session" |
| Common Verbs | Help<br>List<br>Display |

## GROUP Nmis Local OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

## ATTRIBUTE Nmis Local adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is |

| | |
|---|---|
| | administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Nmis Local operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Nmis Local usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |

| | |
|---|---|
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Nmis Local Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for an NMIS manager. This group is common to all NMIS managers. |

### ATTRIBUTE Nmis Local maxAllowedSessions

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the maximum number of simultaneous sessions the manager will allow. |
| Values | Decimal (2..35) |
| Default | No default |

### ATTRIBUTE Nmis Local activeSessions

| | |
|---|---|
| Access | Read only |
| Description | For FMIP, FTP, and Telnet interface, this attribute indicates the number of simultaneous sessions currently active under the manager of the particular interface. Note that there may be fewer *Session* components than what is shown here, since an active session could be in the midst of logging in and may not yet be fully up.<br><br>For Local Operator interface, this attribute indicates the number of users actually logged in at that particular instant. |
| Values | Decimal (0..35) |
| Default | No default |

### GROUP Nmis Local Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |

| | |
|---|---|
| Description | This group contains the provisionable attributes for the *Local* component. |

### ATTRIBUTE Nmis Local timeoutPeriod

| | |
|---|---|
| Access | Read: System_admin<br>Write: System_admin |
| Description | This attribute specifies the timeout period that is applicable to all Local sessions. If you change this value, the new value takes effect only for sessions created after the changes are activated.<br><br>Setting this attribute to a value between ***5*** and ***120*** minutes forces sessions that are left idle to be automatically terminated after the specified amount of time. Using shorter timeout values, while increasing security, forces operators to monitor sessions more closely.<br><br>This timeout period can be disabled for particular users by setting the value of the *timeoutProtocol* attribute of the *AccessControl Userid* component to ***disabled***. |
| Values | Decimal (5..120)<br>disabled |
| Units | minutes |
| Default | disabled |

### COMPONENT Nmis Local Session

| | |
|---|---|
| Instance | Decimal (1..2) |
| Groups | "GROUP Nmis Local Session Operational (Oper)" |
| Scope | Application |
| Description | *Nmis Local Session/n*<br>This *Session* component supports a single local operator logged in to a V.24 DCE port of a control processor. |
| Common Verbs | Help<br>List<br>Display |

## GROUP Nmis Local Session Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for a *Local Session* component. |

## ATTRIBUTE Nmis Local Session userid

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the ID of the user associated with the session.. |
| Values | String (1..8, ASCII) |
| Default | No default |

## ATTRIBUTE Nmis Local Session dataStreams

| | |
|---|---|
| Access | Read: Passive<br>Write: Passive |
| Description | This attribute indicates which data streams will be transmitted back to the operator through this session. Only a user with a command impact of system administration may register for logs. |
| Set of | alarm (ala)<br>debug (deb)<br>log<br>scn<br>rtStats (rts) |
| Default | No default |

## ATTRIBUTE Nmis Local Session hostCard (card)

| | |
|---|---|
| Access | Read only |
| Description | This attribute holds the name of the host control processor *Card* component servicing the local operator session. |
| Values | The name of the component |
| Default | No default |

### ATTRIBUTE Nmis Local Session screenWidth (width)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates the maximum width (in characters) of operator command responses. Beyond this maximum, responses are either truncated or wrapped onto the next line, as appropriate.<br><br>Asynchronous responses, such as alarms, are always displayed using a 79 character width. |
| Values | Decimal (79..2000) |
| Default | 79 |

### ATTRIBUTE Nmis Local Session loginTime

| | |
|---|---|
| Access | Read: Passive<br>Write: Illegal |
| Description | This attribute indicates the time at which the user logged in. |
| Values | Time (DHMS) |
| Default | No default |

### ATTRIBUTE Nmis Local Session idleTime

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the period of time the session has remained idle. |
| Values | Decimal (0..4294967295) |
| Units | minutes |
| Default | No default |

### ATTRIBUTE Nmis Local Session role

| | |
|---|---|
| Access | Read: System_admin<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute indicates the *Role* component associated with the user of this local session. A role is associated with a set of access privileges that is used for authorization. |
| Values | String (0..128, ASCII) |
| Default | No default |

## COMPONENT Nmis Telnet

| | |
|---|---|
| Groups | "GROUP Nmis Telnet OsiState (State)"<br>"GROUP Nmis Telnet Operational (Oper)"<br>"GROUP Nmis Telnet Provisioned (Prov)" |
| Scope | Device |
| Description | *Nmis Telnet*<br>Passport supports both the Telnet server and client. The *Session* subcomponent corresponds to the server connection, while the *Session*'s *Client* subcomponent corresponds to the client connection. The server (that is, the network management interface) is accessed from a remote computer using the Telnet protocol. The Telnet operator interface is otherwise identical to the local operator interface. Each server can set up a single client connection. Note that Telnet clients are accessible only from a Telnet session, not from Local, FMIP, or FTP sessions. |
| Dyn. Subcomp. | "COMPONENT Nmis Telnet Session" |
| Common Verbs | Help<br>List<br>Display<br>LOCK : System_admin<br>Unlock : System_admin |

## GROUP Nmis Telnet OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component |

which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Nmis Telnet adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Nmis Telnet operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the |

component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Nmis Telnet usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Nmis Telnet Operational (Oper)

Properties
Operational

Description
This group contains the operational attributes for an NMIS manager. This group is common to all NMIS managers.

### ATTRIBUTE Nmis Telnet maxAllowedSessions

Access
Read only

Description
This attribute indicates the maximum number of simultaneous sessions the manager will allow.

Values
Decimal (2..35)

Default
No default

### ATTRIBUTE Nmis Telnet activeSessions

| | |
|---|---|
| Access | Read only |
| Description | For FMIP, FTP, and Telnet interface, this attribute indicates the number of simultaneous sessions currently active under the manager of the particular interface. Note that there may be fewer *Session* components than what is shown here, since an active session could be in the midst of logging in and may not yet be fully up.<br><br>For Local Operator interface, this attribute indicates the number of users actually logged in at that particular instant. |
| Values | Decimal (0..35) |
| Default | No default |

### GROUP Nmis Telnet Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the *Telnet* component. |

### ATTRIBUTE Nmis Telnet timeoutPeriod

| | |
|---|---|
| Access | Read: System_admin<br>Write: System_admin |
| Description | This attribute specifies the timeout period that is applicable to all Telnet sessions. If you change this value, the new value takes effect only for sessions created after the changes are activated.<br><br>Setting this attribute to a value between ***5*** and ***120*** minutes forces sessions that are left idle to be automatically terminated after the specified amount of time. Using shorter timeout values, while increasing security, forces operators to monitor sessions more closely.<br><br>This timeout period can be disabled for particular users by setting the value of the *timeoutProtocol* attribute of the *AccessControl Userid* component to ***disabled***. |

| | |
|---|---|
| Values | Decimal (5..120)<br>disabled |
| Units | minutes |
| Default | disabled |

## COMPONENT Nmis Telnet Session

| | |
|---|---|
| Instance | Decimal (1..16) |
| Groups | "GROUP Nmis Telnet Session Operational (Oper)" |
| Scope | Application |
| Description | *Nmis Telnet Session/n*<br>This component supports a single remote Telnet operator logged in using the Telnet protocol. Optionally, a single outgoing Telnet client connection can be established from here. On a CP, the maximum number of concurrent telnet sessions supported is 8; on a CP2, it is 12; on a CP3, it is 16. |
| Dyn. Subcomp. | "COMPONENT Nmis Telnet Session Client" |
| Common Verbs | Help<br>List<br>Display |

## VERB CLEAR Nmis Telnet Session

| | |
|---|---|
| Impact | System_admin |
| Description | *Clear Nmis Telnet Session/n*<br>This command terminates the session connection as well as the client connection if it was up. |

## GROUP Nmis Telnet Session Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for a *Telnet Session* component. |

### ATTRIBUTE Nmis Telnet Session userid

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the ID of the user associated with the session. |
| Values | String (1..8, ASCII) |
| Default | No default |

### ATTRIBUTE Nmis Telnet Session dataStreams

| | |
|---|---|
| Access | Read: Passive<br>Write: Passive |
| Description | This attribute indicates which data streams (alarm, debug, log, scn and rtStats) will be transmitted back to the operator through this session. Only a user with a command impact of system administration may register for logs.<br><br>When a client connection is up through this interface, all of the values are turned off. This means that this data is discarded when the session has a Telnet client connection set up.<br><br>When the client connection terminates, the data which was being received prior to the client being set up is requested again. |
| Set of | alarm (ala)<br>debug (deb)<br>log<br>scn<br>rtStats (rts) |
| Default | No default |

### ATTRIBUTE Nmis Telnet Session remoteIpAddr (address)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the IP address of the remote device connected to the session. |
| Values | IP address |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Nmis Telnet Session remoteTcpPort (port)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the TCP port number of the Telnet client being used on the remote device connected to the session. |
| Values | Decimal (0..65535) |
| Default | No default |

### ATTRIBUTE Nmis Telnet Session screenWidth (width)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates the maximum width (in characters) of operator command responses. Beyond this maximum, responses are either truncated or wrapped onto the next line, as appropriate.<br><br>Asynchronous responses, such as alarms, are always displayed using a 79 character width. |
| Values | Decimal (79..2000) |
| Default | 79 |

### ATTRIBUTE Nmis Telnet Session loginTime

| | |
|---|---|
| Access | Read: Passive<br>Write: Illegal |
| Description | This attribute indicates the time at which the user logged in. |
| Values | Time (DHMS) |
| Default | No default |

### ATTRIBUTE Nmis Telnet Session idleTime

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the period of time the session has remained idle. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Units | minutes |
| Default | No default |

### ATTRIBUTE Nmis Telnet Session role

| | |
|---|---|
| Access | Read: System_admin<br>Write: Illegal |
| Description | This attribute indicates the *Role* component associated with the user of this telnet session. A role is associated with a set of access privileges that is used for authorization. |
| Values | String (0..128, ASCII) |
| Default | No default |

### COMPONENT Nmis Telnet Session Client

| | |
|---|---|
| Groups | "GROUP Nmis Telnet Session Client Operational (Oper)" |
| Scope | Application |
| Description | *Nmis Telnet Session/n Client*<br>This component represents a client connection to a remote node through this session. The client connection is established by invoking the *Telnet* command of a *Vr* component. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Nmis Telnet Session Client Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for a *Telnet Client* component. |

### ATTRIBUTE Nmis Telnet Session Client virtualRouter (vr)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the VR instance that determines which address space the remote IP address belongs to. |
| Values | The name of the component |
| Default | No default |

### ATTRIBUTE Nmis Telnet Session Client remoteIpAddr (address)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the IP address of the remote side of the client connection. |
| Values | IP address |
| Default | No default |

### ATTRIBUTE Nmis Telnet Session Client remoteTcpPort (port)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the TCP port number of the remote side of the client connection. |
| Values | Decimal (0..65535) |
| Default | No default |

### COMPONENT Nmis Fmip

| | |
|---|---|
| Groups | "GROUP Nmis Fmip OsiState (State)"<br>"GROUP Nmis Fmip Operational (Oper)" |
| Scope | Device |
| Description | *Nmis Fmip*<br>This network management interface is accessed by a Preside MDM calling the Passport for management purposes, using the proprietary FMIP protocol. |

| | |
|---|---|
| Dyn. Subcomp. | "COMPONENT Nmis Fmip Session" |
| Common Verbs | Help<br>List<br>Display<br>LOCK : System_admin<br>Unlock : System_admin |

## GROUP Nmis Fmip OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

## ATTRIBUTE Nmis Fmip adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |

| | |
|---|---|
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Nmis Fmip operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Nmis Fmip usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |

| | |
|---|---|
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Nmis Fmip Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for an NMIS manager. This group is common to all NMIS managers. |

### ATTRIBUTE Nmis Fmip maxAllowedSessions

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the maximum number of simultaneous sessions the manager will allow. |
| Values | Decimal (2..35) |
| Default | No default |

### ATTRIBUTE Nmis Fmip activeSessions

| | |
|---|---|
| Access | Read only |
| Description | For FMIP, FTP, and Telnet interface, this attribute indicates the number of simultaneous sessions currently active under the manager of the particular interface. Note that there may be fewer *Session* components than what is shown here, since an active session could be in the midst of logging in and may not yet be fully up.<br><br>For Local Operator interface, this attribute indicates the number of users actually logged in at that particular instant. |
| Values | Decimal (0..35) |
| Default | No default |

### COMPONENT Nmis Fmip Session

| | |
|---|---|
| Instance | Decimal (1..35) |

| | |
|---|---|
| Groups | "GROUP Nmis Fmip Session Operational (Oper)" |
| Scope | Application |
| Description | *Nmis Fmip Session/n*<br>This Session component supports a single FMIP connection from a remote Preside MDM. |
| Common Verbs | Help<br>List<br>Display |

### VERB CLEAR Nmis Fmip Session

| | |
|---|---|
| Impact | System_admin |
| Description | *Clear Nmis Fmip Session/n*<br>This command terminates the session and clears the TCP connection. |

### GROUP Nmis Fmip Session Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for an *Fmip Session* component. |

### ATTRIBUTE Nmis Fmip Session userid

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the ID of the user associated with the session. |
| Values | String (1..8, ASCII) |
| Default | No default |

### ATTRIBUTE Nmis Fmip Session dataStreams

| | |
|---|---|
| Access | Read: Passive<br>Write: Passive |

| | |
|---|---|
| Description | This attribute indicates which data streams will be transmitted back to the operator through this session. Only a user with a command impact of system administration may register for logs. |
| Set of | alarm (ala)<br>debug (deb)<br>log<br>scn<br>rtStats (rts) |
| Default | No default |

### ATTRIBUTE Nmis Fmip Session remoteIpAddr (address)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the IP address of the remote device connected to the session. |
| Values | IP address |
| Default | No default |

### ATTRIBUTE Nmis Fmip Session remoteTcpPort (port)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the TCP port number of the FMIP client being used on the remote device connected to the session. |
| Values | Decimal (0..65535) |
| Default | No default |

### ATTRIBUTE Nmis Fmip Session screenWidth (width)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates the maximum width (in characters) of operator command responses. Beyond this maximum, responses are either truncated or wrapped onto the next line, as appropriate.<br><br>Asynchronous responses, such as alarms, are always displayed using a 79 character width. |
| Values | Decimal (79..2000) |

| | |
|---|---|
| Default | 79 |

### ATTRIBUTE Nmis Fmip Session loginTime

| | |
|---|---|
| Access | Read: Passive<br>Write: Illegal |
| Description | This attribute indicates the time at which the user logged in. |
| Values | Time (DHMS) |
| Default | No default |

### ATTRIBUTE Nmis Fmip Session role

| | |
|---|---|
| Access | Read: System_admin<br>Write: Illegal |
| Description | This attribute indicates the *Role* component associated with the user of this FMIP session. A role is associated with a set of access privileges that is used for authorization. |
| Values | String (0..128, ASCII) |
| Default | No default |

### COMPONENT Nmis Ftp

| | |
|---|---|
| Groups | "GROUP Nmis Ftp OsiState (State)"<br>"GROUP Nmis Ftp Operational (Oper)" |
| Scope | Device |
| Description | *Nmis Ftp*<br>This network management interface is accessed from a remote computer using the FTP protocol. |
| Dyn. Subcomp. | "COMPONENT Nmis Ftp Session" |
| Common Verbs | Help<br>List<br>Display<br>LOCK : System_admin<br>Unlock : System_admin |

## GROUP Nmis Ftp OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

## ATTRIBUTE Nmis Ftp adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

## ATTRIBUTE Nmis Ftp operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component. |

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Nmis Ftp usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Nmis Ftp Operational (Oper)

Properties
Operational

Description
This group contains the operational attributes for an NMIS manager. This group is common to all NMIS managers.

### ATTRIBUTE Nmis Ftp maxAllowedSessions

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the maximum number of simultaneous sessions the manager will allow. |
| Values | Decimal (2..35) |
| Default | No default |

### ATTRIBUTE Nmis Ftp activeSessions

| | |
|---|---|
| Access | Read only |
| Description | For FMIP, FTP, and Telnet interface, this attribute indicates the number of simultaneous sessions currently active under the manager of the particular interface. Note that there may be fewer *Session* components than what is shown here, since an active session could be in the midst of logging in and may not yet be fully up.<br><br>For Local Operator interface, this attribute indicates the number of users actually logged in at that particular instant. |
| Values | Decimal (0..35) |
| Default | No default |

### COMPONENT Nmis Ftp Session

| | |
|---|---|
| Instance | Decimal (1..16) |
| Groups | "GROUP Nmis Ftp Session Operational (Oper)" |
| Scope | Application |
| Description | *Nmis Ftp Session/n*<br>This component supports a single remote FTP client logged in using the FTP protocol. |
| Common Verbs | Help<br>List<br>Display |

### VERB CLEAR Nmis Ftp Session

| | |
|---|---|
| Impact | System_admin |
| Description | *Clear Nmis Ftp Session/n*<br>This command terminates the session and clears the TCP connection. |

### GROUP Nmis Ftp Session Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for an *Ftp Session* component. |

### ATTRIBUTE Nmis Ftp Session userid

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the ID of the user associated with the session. |
| Values | String (1..8, ASCII) |
| Default | No default |

### ATTRIBUTE Nmis Ftp Session remoteIpAddr (address)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the IP address of the remote device connected to the session. |
| Values | IP address |
| Default | No default |

### ATTRIBUTE Nmis Ftp Session remoteTcpPort (port)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the TCP port number of the FTP control connection being used on the remote device connected to the session. |
| Values | Decimal (0..65535) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Nmis Ftp Session role

| | |
|---|---|
| Access | Read: System_admin<br>Write: Illegal |
| Description | This attribute indicates the *Role* component associated with the user of this FTP session. A role is associated with a set of access privileges that is used for authorization. |
| Values | String (0..128, ASCII) |
| Default | No default |

Passport 7400, 15000, 20000

# Component Nmis

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component Npi

241-5701-060

Passport 7400, 15000, 20000

# Component Npi

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT NumberingPlanIndicator (Npi)

| | |
|---|---|
| Instance | x121<br>e164 |
| Groups | "GROUP Npi Statistics (Stats)" |
| Scope | Device |
| Description | *NumberingPlanIndicator / <x121,e164>*<br>This component collects all DNAs for a particular numbering plan indicator e.g., X.121. |
| Dyn. Subcomp. | "COMPONENT Npi Dna" |
| Common Verbs | Help<br>List<br>Display |

## GROUP Npi Statistics (Stats)

| | |
|---|---|
| Properties | Provisioned |
| Description | *Npi/<x121,e164> Statistics*<br>This group of attributes contains the statistics kept for a particular numbering plan indicator. The only statistic present is the total number of DNAs provisioned for the numbering plan. |

## ATTRIBUTE Npi totalDnas

| | |
|---|---|
| Access | Read only |
| Description | This attribute holds the total number of Dnas that are in the numbering plan. If this attribute is displayed in provisioning mode, the number includes the Dnas that have been added/ |

| | |
|---|---|
| | deleted in that provisioning session, otherwise the number only includes the Dnas that have been activated. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## COMPONENT Npi Dna

| | |
|---|---|
| Instance | BCD (1..15) |
| Groups | "GROUP Npi Dna Information (Info)" |
| Scope | Application |
| Description | *Npi/<x121,e164> Dna/<BCD(1..15)>*<br>This component is a dynamic subcomponent of *NumberingPlanIndicator*. This subcomponent represents a DNA in the numbering plan. |
| Common Verbs | Help<br>List<br>Display |

## GROUP Npi Dna Information (Info)

| | |
|---|---|
| Properties | Provisioned |
| Description | *Npi/<x121,e164> Dna/<BCD(1..15)> Information*<br>This group of attributes contains the attributes for a DNA in the numbering plan. |

## ATTRIBUTE Npi Dna destinationName

| | |
|---|---|
| Access | Read only |
| Description | This attribute holds the Component Name of the application to which the DNA belongs. |
| Values | The name of the component |
| Default | No default |

Passport 7400, 15000, 20000

# Component Npi

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component Nsta

241-5701-060

Passport 7400, 15000, 20000

# Component Nsta

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT NarrowbandServicesTrunkOverATM (Nsta)

| | |
|---|---|
| Instance | Decimal (0..15999) |
| Groups | "GROUP Nsta Provisioned (Prov)"<br>"GROUP Nsta OsiState (State)"<br>"GROUP Nsta Statistics (Stats)" |
| Scope | Device |
| Description | *NarrowbandServicesTrunkOverATM/n*<br>This component represents the application which is responsible for managing voice services on a Voice Services Processor (VSP) card.<br><br>This component manages all *Connection* components provisioned on a single VSP card. The maximum number of *Connection* subcomponents is limited to 64. |
| Opt. Subcomp. | "COMPONENT Nsta Connection (Conn)"<br>"COMPONENT Nsta VoiceGateway (Vgs)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Nsta Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |

| | |
|---|---|
| Description | This group contains provisioning data for the *Nsta* Component. |

### ATTRIBUTE Nsta linkToServer (l2s)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies a hardware link to a *Vsp* component on a Voice Services Processor FP. |
| Values | Link (Hardware, linkToApplication) |
| Default | No default |

### ATTRIBUTE Nsta idlePattern (iPattern)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the pattern that is transmitted on the TDM interface when a particular timeslot is not used. |
| Values | Hex (H.0..H.ff) |
| Default | H.7f |

### GROUP Nsta OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Nsta adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively |

prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Nsta operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Nsta usageState (osiUsage)

Access
Read only

| | |
|---|---|
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Nsta Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains aggregate statistical data incorporating statistics from all *Nsta Connection*s. |

### ATTRIBUTE Nsta aal2PacketsDropped (pktsDrop)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of packets received on unconfigured CIDs. The *Brag cidList* holds all valid CIDs. Any packets received on a CID which is not valid will be dropped and counted.<br>The counter wraps to 0 when it exceeds its maximum value.<br><br>This attribute is not displayed if there is a *Vgs* component under the *Nsta* component. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta aal2LastDroppedPacketId (lastDropPktId)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the VPI, VCI and CID (AAL2 Channel ID) of the last dropped AAL2 packet received on an unprovisioned CID. The value is displayed in the format vpi.vci.cid.<br><br>This attribute is not displayed if there is a *Vgs* component under the *Nsta* component. |
| Values | Integer Sequence (0..65535; 0..255; 0..255) |
| Default | No default |

## COMPONENT Nsta Connection (Conn)

| | |
|---|---|
| Instance | Decimal (1..128) |
| Groups | "GROUP Nsta Conn CustomerIdentifierData (CidData)"<br>"GROUP Nsta Conn Provisioned (Prov)"<br>"GROUP Nsta Conn OsiState (State)"<br>"GROUP Nsta Conn Operational (Oper)"<br>"GROUP Nsta Conn Statistics (Stats)" |
| Scope | Device |
| Description | *Nsta/n Connection/n*<br><br>This component represents an *Nsta* connection.<br>When AAL5 is used there are two ATM VCCs associated with each *Nsta* connection. One ATM VCC is used to carry voice and one is used to carry CCS information.<br>When AAL2 is used the CCS information can either be transported over the same ATM VCC as the voice data or transported over a separate ATM VCC.<br>User provisionable basic rate services are defined in the *BasicRateGroup (Brag)* component.<br>There is only one instance of *Brag* per *Conn*. |

| | |
|---|---|
| Subcomponents | "COMPONENT Nsta Conn BasicRateGroup (Brag)" |
| Opt. Subcomp. | "COMPONENT Nsta Conn NailedUpAdaptionPoint (Nap)"<br>"COMPONENT Nsta Conn ActiveAccessPoint (Aap)"<br>"COMPONENT Nsta Conn PassiveAccessPoint (Pap)"<br>"COMPONENT Nsta Conn SpvcAccessPoint (SpvcAp)" |
| Dyn. Subcomp. | "COMPONENT Nsta Conn AtmConnection (AtmCon)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Nsta Conn CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

## ATTRIBUTE Nsta Conn customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.<br><br>Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID. |

| | |
|---|---|
| | An operator CID of 0 is used to identify the Network Manager (referred to as “NetMan” in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to “basic CIDs” in DPN) may be assigned to specific customers. |
| Values | Decimal (0; 1..8191) |
| Default | 0 |

### GROUP Nsta Conn Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisioning data for the *Connection*. |

### ATTRIBUTE Nsta Conn holdOverTime (hoTime)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the maximum period of time before a partially filled ATM cell is scheduled for transmission. It is also referred to as “combined use timer” (Timer_CU), in the ITU-T I.363.2.<br>The holdover time affects the packet delay and the bandwidth used by the connection. The longer the delay the higher the bandwidth efficiency of the ATM connection and vice versa.<br>The holdover time is rounded to the nearest multiple of 0.125 milliseconds. |
| Values | Decimal (0.500..15.875) |
| Units | msec |
| Default | 2.000 |

### ATTRIBUTE Nsta Conn pcrHighCongThreshold (phct)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the cell rate above which the most severe congestion management measures are invoked.<br>This threshold is defined as a percentage of PCR defined in *AtmIf Vcc Tm*.<br>The PCR and SCR thresholds are combined to give an overall |

congestion state which is used to determine a congestion management measure.
The value of this threshold must be set to a higher value than *pcrLowCongThreshold*.

Values: Decimal (50..100)

Units: %

Default: 90

### ATTRIBUTE Nsta Conn pcrLowCongThreshold (plct)

Access: Read and write

Description: This attribute specifies the upper cell rate threshold of normally acceptable operation for the PCR-based congestion control mechanism. In the region between this threshold and *pcrHighCongThreshold* mild congestion management measures are invoked.
This threshold is defined as a percentage of PCR defined in *AtmIf Vcc Tm*.
The PCR and SCR thresholds are combined to give an overall congestion state which is used to determine a congestion management measure.
The value of this threshold must be set to a lower value than *pcrHighCongThreshold*.

Values: Decimal (10..100)

Units: %

Default: 80

### ATTRIBUTE Nsta Conn scrHighCongThreshold (shct)

Access: Read and write

Description: This attribute specifies the lower threshold of the upper region of operation relative to SCR defined in *AtmIf Vcc Tm*.
This attribute is defined as a percentage of the expected number of cells received in *scrTrafficManagementInterval* at SCR.
The PCR and SCR thresholds are combined to give an overall congestion state which is used to determine a congestion management measure, for example down speeding.

| | |
|---|---|
| | The value of this threshold must be set to a higher value than *scrLowCongThreshold*. |
| Values | Decimal (100..150) |
| Units | % |
| Default | 125 |

### ATTRIBUTE Nsta Conn scrLowCongThreshold (slct)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the upper threshold of the lowest region of operation relative to SCR defined in *AtmIf Vcc Tm*.<br>This attribute is defined as a percentage of the expected number of<br>cells received in *scrTrafficManagementInterval* at SCR.<br>The PCR and SCR thresholds are combined to give an overall congestion state which is used to determine a congestion management measure, for example down speeding.<br>This threshold must be set to a lower value than *scrHighCongThreshold*. |
| Values | Decimal (50..100) |
| Units | % |
| Default | 75 |

### ATTRIBUTE Nsta Conn scrHighBurstCongestionThreshold (shbct)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the lower threshold of the upper region for accumulated SCR burst count. It is defined as a percentage of the cell burst limit which is defined in *AtmIf Vcc Tm*.<br>The PCR and SCR thresholds are combined to give an overall congestion state which is used to determine a congestion management measure, for example down speeding.<br>This threshold must be set to a higher value than *scrLowBurstCongestionThreshold.* |
| Values | Decimal (50..100) |

| | |
|---|---|
| Units | % |
| Default | 90 |

### ATTRIBUTE Nsta Conn scrLowBurstCongestionThreshold (slbct)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the upper threshold for the normally safe region for accumulated SCR burst count. It is defined as a percentage of the cell burst limit defined in *AtmIf Vcc Tm*.<br>The PCR and SCR thresholds are combined to give an overall congestion state which is used to determine a congestion management measure, for example down speeding.<br>This threshold must be set to a lower value than *scrHighBurstCongestionThreshold*. |
| Values | Decimal (0..100) |
| Units | % |
| Default | 70 |

### ATTRIBUTE Nsta Conn basicTrafficManagementInterval (basTrafManInt)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies how often the cell rate is sampled by the PCR congestion management algorithm.<br>The time interval should be short enough so that the system responds quickly to PCR violation.<br>It must however be long enough to allow the voice system to react to changes and for those changes to stabilize before the next sample. If the specified value is not a multiple of 50, the nearest multiple of 50 milliseconds is used as the sample interval. |
| Values | Decimal (50..500) |
| Units | msec |
| Default | 100 |

### ATTRIBUTE Nsta Conn scrTrafficManagementInterval (scrTrafManInt)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute specifies the time interval over which the cell rate is sampled by the SCR congestion management algorithm. It is defined as a multiplier of *basicTrafficManagementInterval*. The time interval should be set low relative to the maximum permitted burst duration so that the system meets SCR traffic criteria and maintains the required frame relay QOS on the link. It should however be long enough to avoid unnecessary downspeeding due to very transient load conditions. |
| Values | Decimal (1..5) |
| Default | 2 |

### ATTRIBUTE Nsta Conn networkLogLaw (nLaw)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the G711 log law to use on the network wide side of an NSTA trunk. If set to ***autoConfigure***, then the value used is derived from the type of TDM interface: ***muLaw*** is used for *DS1* trunks, and ***aLaw*** is used for *E1* trunks.<br><br>For *E1* trunks, ***muLaw*** is not permitted. |
| Values | autoConfigure<br>muLaw<br>aLaw |
| Default | autoConfigure |

### GROUP Nsta Conn OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Nsta Conn adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |

Description

This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values

locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default

unlocked

### ATTRIBUTE Nsta Conn operationalState (osiOper)

Access

Read only

Description

This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values

enabled (ena)
disabled (dis)

Default

disabled

### ATTRIBUTE Nsta Conn usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Nsta Conn Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains status information about the *Connection*. |

### ATTRIBUTE Nsta Conn aal2CpLossStatus (cpLossStatus)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether an AAL2 common part sublayer alarm has been raised. It is set to ***loss*** if start field errors persist for more than 2 seconds. It is set to ***noLoss*** when start field errors have been absent for at least 10 seconds. |
| Values | noLoss<br>loss |
| Default | No default |

### GROUP Nsta Conn Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistical data for a *Connection*. |

### ATTRIBUTE Nsta Conn aal2StartFieldErrors (sfErr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the cells received with an AAL2 Common Part Sublayer Protocol Data Unit (CPS-PDU) Start Field error. A Start Field error includes a cell with a parity error or a cell in which the packet pointed-to by the offset field (OSF) has a packet HEC error.<br>The counter will wrap to zero when it reaches its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Conn aal2SequenceErrors (seqErr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the cells received with an unexpected AAL2 Common Part Sublayer Protocol Data Unit (CPS-PDU) sequence number.<br>The counter will wrap to zero when it reaches its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT Nsta Conn BasicRateGroup (Brag)

| | |
|---|---|
| Instance | Decimal (0..159999) |
| Groups | "GROUP Nsta Conn Brag Provisioned (Prov)"<br>"GROUP Nsta Conn Brag Operational (Oper)"<br>"GROUP Nsta Conn Brag OsiState (State)" |
| Scope | Device |
| Description | *Nsta/n Conn/n BasicRateGroup/n*<br><br>This component defines a *BasicRateGroup* (*Brag*), comprising the 64k timeslots relayed either by a linked *Chan* component or a CES connection to a *Pap* subcomponent. All timeslots within a |

| | |
|---|---|
| | *Brag* have the same trunking services provisioned against them (for example, silence suppression).<br>There is only one instance of *Brag* per *Conn*. |
| Opt. Subcomp. | "COMPONENT Nsta Conn Brag ChannelAssocSignalingTransport (Cast)"<br>"COMPONENT Nsta Conn Brag CommonChannelSignalingTransport (Ccst)"<br>"COMPONENT Nsta Conn Brag PassiveAccessPoint (Pap)" |
| Dyn. Subcomp. | "COMPONENT Nsta Conn Brag BasicRateChannel (Brac)"<br>"COMPONENT Nsta Conn Brag AtmConnection (AtmCon)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Nsta Conn Brag Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioning data for the *BasicRateGroup* component. |

## ATTRIBUTE Nsta Conn Brag interfaceName (intName)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies which *Chan* component contains the timeslots for the *Brag*. The *Chan* component must be provisioned on a 2pDS3cAal FP or a 32pE1Aal FP.<br>This attribute must be empty if a *NstaBragPassiveAccessPoint* subcomponent is present. |
| Values | Link (Service, applicationFramerName) |
| Default | No default |

### ATTRIBUTE Nsta Conn Brag ccdTimeslotList (ccdList)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the timeslots that will be transported as clear channel data when active within the *Brag* component.<br>If the *interfaceName* attribute is not empty each timeslot specified in this list must be provisioned in the linked *Chan* component. |
| Set of | Decimal (1..31) |
| Default | No default |

### ATTRIBUTE Nsta Conn Brag bufferSize (bufSize)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the capacity of the packet delay variation (PDV) buffer in milliseconds of data.<br>To ensure that PDV can be tolerated, it is necessary to delay the transmission of initial packets received until a threshold is reached. When this threshold is reached packets are transmitted across the TDM network. The length of this delay is defined by *pdvt* and *bufferSize* attributes where the amount of data played out to the TDM network in the time specified by *pdvt* is equal to the time of the initial delay. There should be enough data in the reassembly buffer to allow transmission for a period of time defined by the *pdvt* before buffer underflow occurs due to the next delayed packet.<br>The *bufferSize* is the number of milliseconds worth of buffer space that is allocated to accommodate packet delay variation (or jitter).<br>A large buffer size reduces the probability of buffer overflow, thus reduces packet loss. The *bufferSize* attribute value and *pdvt* attribute value should be chosen appropriately to match the ATM network performance.<br>The value must be greater than the value of *pdvt*, usually twice the value. |
| Values | Decimal (5..100) |

| | |
|---|---|
| Units | msec |
| Default | 40 |

### ATTRIBUTE Nsta Conn Brag packetDelayVariationTolerance (pdvt)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the initial delay in milliseconds before any data is transmitted (normally set to be the mid-point of the reassembly buffer).<br>This attribute, together with the *bufferSize* attribute, can be configured to optimize the jitter tolerance versus absolute delay performance. |
| Values | Decimal (5..50) |
| Units | msec |
| Default | 20 |

### ATTRIBUTE Nsta Conn Brag silenceDetectionHangOverTime (silDetTime)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the time for which a silent timeslot's speech path is left on before being suppressed. This helps to prevent clipping at the end of words. |
| Values | Decimal (30..500) |
| Units | msec |
| Default | 200 |

### ATTRIBUTE Nsta Conn Brag lossIntegrationPeriod (intPeriod)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the interval of time for which a loss of packet condition must persist before the *packetLossStatus* is set to ***loss*** on a *BasicRateChannel* component. |

| | |
|---|---|
| Values | Decimal (1..60) |
| Units | seconds |
| Default | 2 |

### ATTRIBUTE Nsta Conn Brag lossClearPeriod (clrPeriod)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the interval of time for which a loss of packets condition must be absent before the *packetLossStatus* is set to ***noLoss*** on a *BasicRateChannel* component. |
| Values | Decimal (1..600) |
| Units | seconds |
| Default | 10 |

### ATTRIBUTE Nsta Conn Brag ingressGain (iGain)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the gain applied on the TDM ingress side to balance the network loss plan. |
| Values | Signed (-12..12) |
| Units | dB |
| Default | 0 |

### ATTRIBUTE Nsta Conn Brag egressGain (eGain)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the gain applied on the TDM egress side to balance the network loss plan. |
| Values | Signed (-12..12) |
| Units | dB |
| Default | 0 |

### ATTRIBUTE Nsta Conn Brag echoCancellation (eCan)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute enables or disables echo cancellation.<br>The value of this attribute will determine whether echo cancellation will be on or off when a 2100Hz tone is detected.<br>***g165Mode*** - Enables echo cancellation except when a 2100Hz tone with phase reversal is detected.<br>***alwaysOn*** - Enables echo cancellation regardless of whether a 2100Hz tone is detected.<br>***g164Mode*** - Disables echo cancellation only when a 2100Hz tone is detected, regardless of phase reversal.<br>***disabled*** - Disables echo cancellation. |
| Values | g165Mode<br>disabled<br>alwaysOn<br>g164Mode |
| Default | g165Mode |

### ATTRIBUTE Nsta Conn Brag minimumEchoReturnLoss (minEchoRetLoss)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the minimum echo return loss that can be expected on the line. |
| Values | Decimal (0; 3; 6) |
| Units | dB |
| Default | 6 |

### ATTRIBUTE Nsta Conn Brag echoCancelComfortNoiseGeneration (eCanComNoiseGen)

| | |
|---|---|
| Access | Read and write |
| Description | The attribute enables or disables comfort noise generation for the echo cancellation feature. This attribute has no effect if *echoCancellation* is ***disabled***. |
| Values | enabled<br>disabled |

| | |
|---|---|
| Default | enabled |

### ATTRIBUTE Nsta Conn Brag faxIdleSuppression (faxSup)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute enables or disables fax idle suppression. |
| Values | enabled<br>disabled |
| Default | enabled |

### ATTRIBUTE Nsta Conn Brag silenceSuppression (silSup)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies when silence suppression is performed.<br><br>A value of ***onCongestion*** indicates that silence suppression will be on only during periods of congestion on the ATM connection.<br>A value of ***enabled*** indicates that silence suppression will be on at all times.<br>A value of ***disabled*** indicates that silence suppression will never be on. |
| Values | enabled<br>disabled<br>onCongestion |
| Default | enabled |

### ATTRIBUTE Nsta Conn Brag silenceSuppressionThreshold (silSupThresh)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the level in dBm0 above which silence suppression is not performed. |
| Values | Signed (-60..-40) |
| Default | -40 |

### ATTRIBUTE Nsta Conn Brag maxVoiceRate (maxVRate)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute selects the encoding algorithm to be used for voice channels within the *Brag* under normal conditions transmitted along the ATM connection, (when no 2100 Hz tone is detected, and there is no ATM connection congestion).<br>This attribute must be set to a higher or equal bandwidth than the *minVoiceRate* attribute. |
| Values | 64kG711<br>32kG726<br>24kG726<br>16kG726<br>8kG729AB |
| Default | 32kG726 |

### ATTRIBUTE Nsta Conn Brag minVoiceRate (minVRate)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute selects the encoding algorithm to be used for voice channels within the *Brag* when the ATM capacity carrying the *Conn* component is congested.<br>When the number of channels with voiceband data is less than or equal to *voicebandDataMaxChannels* then this attribute has no affect on those voiceband data channels. When the number of voiceband data channels exceeds *voicebandDataMaxChannels* this attributes rate will be applied to the excess channels during congestion.<br>This attribute must be set to a lower or equal bandwidth than the *maxVoiceRate* attribute. |
| Values | 64kG711<br>32kG726<br>24kG726<br>16kG726<br>8kG729AB |
| Default | 16kG726 |

### ATTRIBUTE Nsta Conn Brag tone2100Rate (toneRate)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute selects the encoding algorithm to be used for AAL2 channels within the *Brag* on which 2100Hz tone is detected (regardless of phase reversal). |
| Values | 64kG711<br>32kG726 |
| Default | 64kG711 |

### ATTRIBUTE Nsta Conn Brag ccsClearDataMaxChannels (clrDataMaxChan)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the maximum number of channels permitted to transport clear data during congestion. |
| Values | Decimal (0..31) |
| Default | 0 |

### ATTRIBUTE Nsta Conn Brag voicebandDataMaxChannels (vbdMaxChan)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the maximum number of voice band data channels permitted at modem rate during congestion. |
| Values | Decimal (0..31) |
| Default | 12 |

### ATTRIBUTE Nsta Conn Brag tdmLogLaw (tLaw)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the G711 log law to use on the TDM side of an NSTA trunk.<br>If set to ***autoConfigure***, then the actual value used is derived from the facility, namely ***muLaw*** would be used for *DS1* trunks, while ***aLaw*** would be used by *E1* trunks. |

| | |
|---|---|
| Values | autoConfigure<br>muLaw<br>aLaw |
| Default | autoConfigure |

### ATTRIBUTE Nsta Conn Brag tdmResponseForFailures (tdmRsp)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies how the *Brag* responds to ATM failures. The possible values are:<br>***tc*** - trunk conditioning is transmitted in the TDM egress direction,<br>***ais*** - AIS is transmitted in the TDM egress direction. |
| Values | tc<br>ais |
| Default | ais |

### ATTRIBUTE Nsta Conn Brag dtmfTransport (dtmf)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies how DTMF tones are handled and is required because the ***8kG729AB*** rate cannot reliably transport DTMF tones.<br>If the voice compression rate is ***8kG729AB*** then an attribute value of ***upspeed*** will increase the rate to ***64kG711*** upon detection of DTMF tones.<br>If the voice compression rate is not ***8kG729AB*** then the attribute value should be ***disabled*** which causes DTMF tones to be treated as normal voice traffic and encoded at the current voice rate. |
| Values | disabled<br>upspeed |
| Default | No default |

### ATTRIBUTE Nsta Conn Brag trafficChannelIdentifierList (cidList)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |

| | |
|---|---|
| Description | This attribute specifies AAL2 Channel Identifiers (CIDs) to be used for the timeslots within the *BasicRateGroup*.<br>The lowest numbered timeslot corresponds to the first CID in the list, with further timeslots moving up the *cidList*. The *cidList* does not have to be in numerical order. The number of CIDs in the list must equal the number of bearer channel timeslots intended for user traffic.<br><br>If the *Brag* component is linked to a *Chan* component, via the *interfaceName* attribute, then an empty list means that the value used is derived from the TDM trunk, namely:<br><br>DS1 with CCS:8-30<br>DS1 without CCS:8-31<br>E1 with CCS:8-37<br>E1 without CCS:8-38<br><br>If a *PassiveAccessPoint* subcomponent is present under the *Brag* component then this attribute must be provisioned with a non empty value. |
| List of | Decimal (8..255) |
| Default | No default |

## GROUP Nsta Conn Brag Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains attributes which indicate the causes of any *BasicRateGroup* failure. |

## ATTRIBUTE Nsta Conn Brag failureCause (failCause)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the cause for a *Brag* failure.<br>The failure cause messages are:<br>***serviceChanNotReady*** - this failure cause message occurs if the TDM connection is not present.<br>***atmConnectionNotReady*** - the ATM *Lp* is down, or waiting for it to establish communication.<br>***operatorLock*** - this failure message occurs when a dependent |

component is locked by the operator.
***internalError*** - an internal error, which can not be determined has occurred.
***outOfResource*** - not enough hardware resource to handle current capacity.
***vspNotReady*** - the VSP card is down, or waiting for it to establish communication.
***activating*** - component creation is currently in progress.
***farEndFailure*** - A far end failure has occurred that has been reported locally.
***none*** - no failure.

Values

none
serviceChanNotReady
atmConnectionNotReady
operatorLock
internalError
outOfResource
vspNotReady
activating
farEndFailure

Default

none

## ATTRIBUTE Nsta Conn Brag tdmResponse (tRsp)

Access

Read only

Description

This attribute indicates the current response to ATM failures. The possible values are:
***tc*** - trunk condition is transmitted in the TDM egress direction.
***ais*** - AIS is transmitted in the TDM egress direction.
***unknown*** - there is an error condition which can not be determined.
***none*** - there are currently no ATM failures.
***rai*** - RAI is transmitted in the TDM egress direction.

Values

tc
ais
unknown
none
rai

Default none

## GROUP Nsta Conn Brag OsiState (State)

Properties Operational

Description This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

## ATTRIBUTE Nsta Conn Brag adminState (osiAdmin)

Access Read only

Description This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default unlocked

## ATTRIBUTE Nsta Conn Brag operationalState (osiOper)

Access Read only

| | |
|---|---|
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Nsta Conn Brag usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### COMPONENT Nsta Conn Brag ChannelAssocSignalingTransport (Cast)

| | |
|---|---|
| Groups | "GROUP Nsta Conn Brag Cast Provisioned (Prov)"<br>"GROUP Nsta Conn Brag Cast Operational (Oper)" |
| Scope | Device |

Description

*Nsta/n Conn/n Brag/n ChannelAssocSignalingTransport*
This optional component handles the transport of the Channel Associated Signaling (CAS) for the *BasicRateGroup*. When a *Cast* component is provisioned beneath a *Brag*, CAS signaling bits for all timeslots in the group are transported within AAL2 packets via the *Brag*'s ATM connection.

This component is mutually exclusive with the *CommonChannelSignalingTransport (Ccst*) component.

Common Verbs

Help
List
Display
Add
DELete

## GROUP Nsta Conn Brag Cast Provisioned (Prov)

Properties: Provisioned

Description: This group contains the provisioning data for the *ChannelAssocSignalingTransport* component.

## ATTRIBUTE Nsta Conn Brag Cast casMonitoring (casMonitor)

Access: Read and write

Criticality: Process

Description: This attribute specifies whether or not the CAS signaling bits for the timeslots in the group will be monitored. If *casMonitoring* is ***disabled*** then idle channel suppression will not be performed.

Values: enabled
disabled

Default: enabled

## ATTRIBUTE Nsta Conn Brag Cast signalingBits (sigBits)

Access: Read and write

Criticality: Process

Description: This attributes specifies whether AB or ABCD signaling is used.

| | |
|---|---|
| Values | AB<br>ABCD |
| Default | ABCD |

### ATTRIBUTE Nsta Conn Brag Cast ingressIdle (iIdle)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the AB or ABCD bit pattern, received from the TDM interface direction, that is to be interpreted as an idle signal.<br><br>For ***AB*** signaling the first two bits must be the same as the second two bits.<br><br>If *casMonitoring* is ***disabled*** then the value set in this attribute is ignored.<br><br>Each bit can either be 0, 1 or X, where X indicates no preference. |
| Values | String (4, ASCII) |
| Default | 0000 |

### ATTRIBUTE Nsta Conn Brag Cast egressIdle (eIdle)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the AB or ABCD bit pattern, received from the ATM interface direction, that is to be interpreted as an idle signal.<br><br>For ***AB*** signaling the first two bits must be the same as the second two bits.<br><br>If *casMonitoring* is ***disabled*** then the value set in this attribute is ignored.<br><br>Each bit can either be 0, 1 or X, where X indicates no preference. |

| | |
|---|---|
| Values | String (4, ASCII) |
| Default | 0000 |

### ATTRIBUTE Nsta Conn Brag Cast disconnectTime (disTime)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the time in milliseconds for which the ingress idle and the egress idle pattern, provisioned in the *ingressIdle* and *egressIdle* attributes, must persist before they are interpreted as valid disconnect signals.<br><br>If *casMonitoring* is ***disabled*** then the value set in this attribute is ignored.<br><br>The value of this attribute is rounded to the nearest 100 ms. |
| Values | Decimal (100..30000) |
| Units | msec |
| Default | 500 |

### GROUP Nsta Conn Brag Cast Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the status information for the *ChannelAssociatedSignalingTransport* component. |

### ATTRIBUTE Nsta Conn Brag Cast signalingProcessingBlock (sigProcBlock)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates which *ProcessingBlock* is processing the AAL2 trunk CAS signaling bits. |
| Values | The name of the component |
| Default | No default |

## COMPONENT Nsta Conn Brag CommonChannelSignalingTransport (Ccst)

| | |
|---|---|
| Groups | "GROUP Nsta Conn Brag Ccst Provisioned (Prov)"<br>"GROUP Nsta Conn Brag Ccst Aal2Statistics (Aal2Stats)"<br>"GROUP Nsta Conn Brag Ccst Operational (Oper)" |
| Scope | Device |
| Description | *Nsta/n Conn/n Brag/n CommonChannelSignalingTransport*<br>This optional component handles the transport of D Channel data for the basic rate group. When a *Ccst* component is provisioned beneath a *Brag*, all valid HDLC frames within the channel smaller than 512 octets in size are transported transparently. The adaptation layer type used is determined by the value provisioned with the *aalType* attribute.<br>Since D channel data include Common Channel signaling (CCS) information this component is mutually exclusive with the *ChannelAssocSignalingTransport* (*Cast*) component. |
| Opt. Subcomp. | "COMPONENT Nsta Conn Brag Ccst NailedUpAdaptionPoint (Nap)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Nsta Conn Brag Ccst Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioning data for the *CommonChannelSignalingTransport* component. |

## ATTRIBUTE Nsta Conn Brag Ccst timeslot (tSlot)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies which timeslot in the *Chan* component linked to the parent *BasicRateGroup* transports Common Channel Signaling information. |

| | |
|---|---|
| | The value of ***autoConfigure*** indicates that the value should be determined by the type of TDM trunk, namely ***24*** for DS1 or ***16*** for E1. |
| Values | Decimal (1..31)<br>autoConfigure |
| Default | autoConfigure |

### ATTRIBUTE Nsta Conn Brag Ccst ccsMonitoring (ccsMonitor)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies whether or not the CCS N-ISDN signaling for the timeslots in the group will be monitored.<br>When this is ***enabled***, idle channel suppression is activated and layer 2 status reporting is enabled. Note that ***enabled*** is not supported on E1 CCS trunks. |
| Values | enabled<br>disabled |
| Default | enabled |

### ATTRIBUTE Nsta Conn Brag Ccst aalType

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies which ATM Adaptation Layer type is used for Common Channel Signaling (CCS) information transport. If the AAL type provisioned is ***aal2*** then AAL2 will be used to transport CCS information and if the AAL type provisioned is ***aal5*** then AAL5 will be used to transport CCS information. When ***aal5*** is set then a different ATM VCC is used to transport CCS information from that of voice. When ***aal2*** is set then either the same or a separate ATM VCC can be used to transport the CCS information. |
| Values | aal2<br>aal5 |

| | |
|---|---|
| Default | aal5 |

### GROUP Nsta Conn Brag Ccst Aal2Statistics (Aal2Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains attributes with status information about AAL2 packets. |

### ATTRIBUTE Nsta Conn Brag Ccst aal2TxPackets (txPkt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the AAL2 packets transmitted since activation.<br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Conn Brag Ccst aal2RxPackets (rxPkt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the AAL2 packets received since the component was activated, including misinserted packets.<br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Conn Brag Ccst aal2LostPackets (lostPkt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the packets lost in the network prior to destination AAL2 packet header sequence number processing.<br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Conn Brag Ccst aal2SequenceErrors (seqErr)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the AAL2 packets received which contained an unexpected sequence number.<br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Conn Brag Ccst aal2SizeErrors (sizeErr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the packets received with an unexpected AAL2 packet header length indicator.<br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Nsta Conn Brag Ccst Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the status information for the *CommonChannelSignalingTransport* component. |

### ATTRIBUTE Nsta Conn Brag Ccst layer2Status (l2Stat)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the status of CCS layer 2. When *ccsMonitoring* is ***enabled*** this attribute will indicate whether the layer 2 is ***up*** or ***down*** on the signaling channel. When *ccsMonitoring* is ***disabled*** then the value of this attribute is set to ***notMonitored***. |
| Values | up<br>down<br>notMonitored |
| Default | No default |

### ATTRIBUTE Nsta Conn Brag Ccst hdlcTxFrames (txFrm)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the number of High Level Data Link Control (HDLC) frames transmitted towards the TDM interface since the component was activated.<br>The counter wraps to ***0*** when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Conn Brag Ccst hdlcRxFrames (rxFrm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of High Level Data Link Control (HDLC) frames received from the TDM interface since the component was activated. This count includes frames with FCS errors.<br>The counter wraps to ***0*** when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Conn Brag Ccst hdlcErroredFrames (errorFrm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of High Level Data Link Control (HDLC) frames received from the TDM interface with FCS errors since the component was activated.<br>The counter wraps to ***0*** when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Conn Brag Ccst atmRxMessages (atmRxMesg)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of signaling messages received from the ATM interface since the component was activated. This count includes messages with CRC errors.<br>The counter wraps to ***0*** when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Nsta Conn Brag Ccst atmTxMessages (atmTxMesg)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of signaling messages transmitted towards the ATM interface since the component was activated.<br>The counter wraps to ***0*** when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Conn Brag Ccst atmErroredMessages (atmErrorMesg)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of signaling messages received from the ATM interface with CRC errors since the component was activated.<br>The counter wraps to ***0*** when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Conn Brag Ccst signalingProcessingBlock (sigProcBlock)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates which *ProcessingBlock* is processing the AAL2 trunk's CCS information. |
| Values | The name of the component |
| Default | No default |

### COMPONENT Nsta Conn Brag Ccst NailedUpAdaptionPoint (Nap)

| | |
|---|---|
| Groups | "GROUP Nsta Conn Brag Ccst Nap Provisioned (Prov)" |
| Scope | Device |
| Description | *Nsta/n Conn/n NailedUpAdaptionPoint*<br>*Nsta/n Conn/n Brag/n Ccst NailedUpAdaptionPoint*<br>*Nsta/n Vgs AtmTConn/n NailedUpAdaptionPoint* |

*Nsta/n Vgs Control/n NailedUpAdaptionPoint*
*Nsta/n Vgs IpMConn NailedUpAdaptionPoint*

This component is used to provide access to a nailed-up ATM connection (an *Atmif Vcc Nep*).

Components in the *Nsta* component hierarchy which require access to such connections will have a *NailedUpAdaptionPoint* subcomponent.

Common Verbs

Help
List
Display
Add
DELete

## GROUP Nsta Conn Brag Ccst Nap Provisioned (Prov)

Properties: Provisioned

Description: This group contains provisioning data for a *Nap* component.

## ATTRIBUTE Nsta Conn Brag Ccst Nap atmConnection (atmConn)

Access: Read and write

Criticality: Process

Description: This attribute specifies the link to the *AtmIf Vcc Nep* component that defines the access to the ATM network.

Values: Link (Service, applicationName)

Default: No default

## COMPONENT Nsta Conn Brag BasicRateChannel (Brac)

Instance: Decimal (8..255)

Groups:
"GROUP Nsta Conn Brag Brac OsiState (State)"
"GROUP Nsta Conn Brag Brac Operational (Oper)"
"GROUP Nsta Conn Brag Brac Aal2Statistics (Aal2Stats)"
"GROUP Nsta Conn Brag Brac BufferStatistics (Stats)"

Scope: Device

Description *Nsta/n Conn/n Brag/n BasicRateChannel/<CID>*

This dynamic component represents an individual AAL2 channel within an ATM connection. It contains operational information on the current state of the AAL2 channel, including which services provisioned for the *Brag* are currently enabled for this particular channel.
The channel ID is selected from the *cidList* defined in the parent *Brag* component.

Dyn. Subcomp. "COMPONENT Nsta Conn Brag Brac ChannelAssocSignalingStatistics (CasStats)"

Common Verbs
Help
List
Display

## GROUP Nsta Conn Brag Brac OsiState (State)

Properties Operational

Description This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

## ATTRIBUTE Nsta Conn Brag Brac adminState (osiAdmin)

Access Read only

Description This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it

is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Nsta Conn Brag Brac operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Nsta Conn Brag Brac usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

## GROUP Nsta Conn Brag Brac Operational (Oper)

Properties
Operational

Description
This group contains status information about the *BasicRateChannel*.

## ATTRIBUTE Nsta Conn Brag Brac timeslots (tSlots)

Access
Read only

Description
This attribute indicates the timeslots carried within the *Brac* on the AAL2 connection.

Set of
Decimal (1..31)

Default
No default

## ATTRIBUTE Nsta Conn Brag Brac packetLossStatus (pktStat)

Access
Read only

Description
This attribute indicates packet loss status.
The possible values are:
***loss*** - a state change notification is sent when a buffer underflow condition persists for the period defined by the *Brag* component *packetLossIntegrationPeriod* attribute.
***noLoss*** - the buffer underflow condition is absent for the period defined by the *Brag* component *packetLossClearPeriod* attribute.
***notApplicable*** - the connection is not established.

Values
noLoss
loss
notApplicable

Default
No default

### ATTRIBUTE Nsta Conn Brag Brac echoCancellationStatus (eCanStat)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the status of echo cancellation.<br>The possible values are:<br>***active*** - echo cancellation is currently being performed.<br>***inactive*** - echo cancellation is not currently being performed.<br>***disabled*** - the *echoCancellation* attribute in the *Brag* component is set to ***disabled***.<br>***notApplicable*** - the connection is not established. |
| Values | active<br>inactive<br>disabled<br>notApplicable |
| Default | No default |

### ATTRIBUTE Nsta Conn Brag Brac faxIdleSuppressionStatus (faxStat)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the status of fax idle suppression.<br>The possible values are:<br>***disabled*** - the *faxIdleSuppression* attribute in the *Brag* component is set to ***disabled***, or if the call using this *Brac* is not a fax call.<br>If the *faxIdleSuppression* attribute in the *Brag* component is set to ***enabled*** and the call using this *Brac* is a fax call then it is set to ***active*** if fax idle suppression is currently being performed, so there is a fax idle period in the ingress direction. Otherwise it is set to ***inactive*** if fax idle suppression is not currently being performed, so there is a fax active period in the ingress direction.<br>It displays ***notApplicable*** when the connection is not established and the *callStatus* attribute is set to ***idle***. |
| Values | active<br>inactive<br>disabled<br>notApplicable |
| Default | No default |

### ATTRIBUTE Nsta Conn Brag Brac silenceSuppressionStatus (silStat)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the status of silence suppression.<br>It is set to ***disabled*** if the *silenceSuppression* attribute in the *Brag* component is set to ***disabled***, or if the call using this *Brac* is not a voice call.<br>It is set to ***active*** if the *silenceSuppression* attribute in the *Brag* component is set to ***enabled*** and the call using this *Brac* is a voice call.<br>If the *silenceSuppression* attribute in the *Brag* component is set to ***onCongestion*** and the call using this *Brac* is a voice call then it is set to ***active*** if silence suppression feature is currently active for this *Brac*. Otherwise it is set to ***inactive***.<br>When this attribute is set to ***active*** voice packets will not be transmitted towards ATM network during silence periods. It displays ***notApplicable*** when the connection is not established and the *callStatus* attribute is set to ***idle***. |
| Values | active<br>inactive<br>disabled<br>notApplicable |
| Default | No default |

### ATTRIBUTE Nsta Conn Brag Brac callStatus (callStat)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the status of this AAL2 channel.<br>It displays ***idle*** when the connection is not established or to ***ingressDisabled*** during the periods of TDM faults.<br>If there is a call using this *Brac* this attribute specifies the type of the call.<br>If there is a call using this *Brag* of a type other than ***voice***, ***voiceBandData***, ***voiceBandDataViolating***, ***clearChannelData*** or ***clearChannelDataViolating***, then this attribute is set to ***active.***<br><br>The value ***notMonitoring*** is no longer supported. |
| Values | idle<br>active |

notMonitoring
ingressDisabled
voice
voiceBandData (vbd)
voiceBandDataViolating (vbdv)
clearChannelData (ccd)
clearChannelDataViolating (ccdv)

Default: No default

### ATTRIBUTE Nsta Conn Brag Brac currentEncoding (coding)

Access: Read only

Description: This attribute indicates the encoding algorithm currently in use. It displays ***notApplicable*** when the connection is not established.

Values:
32kG726
24kG726
16kG726
notApplicable
64kG711MuLaw
64kG711ALaw
64kClearChannelData
8kG729AB

Default: No default

### ATTRIBUTE Nsta Conn Brag Brac voiceProcessingBlocks (vpBlocks)

Access: Read only

Description: This attribute indicates which *Lp/n Vsp ProcessingBlock* components are processing the data for this *Brac*.

List of: The name of the component

Default: No default

### GROUP Nsta Conn Brag Brac Aal2Statistics (Aal2Stats)

Properties: Operational

Description: This group contains attributes with status information about AAL2 packets.

### ATTRIBUTE Nsta Conn Brag Brac aal2TxPackets (txPkt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the AAL2 packets transmitted since activation.<br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Conn Brag Brac aal2RxPackets (rxPkt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the AAL2 packets received since the component was activated, including misinserted packets.<br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Conn Brag Brac aal2LostPackets (lostPkt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the packets lost in the network prior to destination AAL2 packet header sequence number processing.<br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Conn Brag Brac aal2SequenceErrors (seqErr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the AAL2 packets received which contained an unexpected sequence number.<br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Conn Brag Brac aal2SizeErrors (sizeErr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the packets received with an unexpected AAL2 packet header length indicator.<br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Nsta Conn Brag Brac BufferStatistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistical information on the *BasicRateChannel*. |

### ATTRIBUTE Nsta Conn Brag Brac aal2BufferUnderflows (buffUFlow)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the times the AAL2 reassembly buffer has underflowed.<br>Buffer underflow may occur due to an ATM link failure, or excessive packet delay variation or due to AAL2 common part sublayer failure. This can be resolved by checking the operational condition of the ATM interface, increasing the *pdvt* attribute of the *Brag* component or checking the provisioning in the remote inter-working function.<br>The counter wraps when it reaches its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Conn Brag Brac aal2BufferOverflows (buffOFlow)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the times the AAL2 reassembly buffer has overflowed.<br>Buffer underflow may occur due to an ATM link failure, small buffer size, or due to AAL2 common part sublayer failure. This can be resolved by checking the operational condition of the |

ATM interface, increasing the *bufferSize* attribute of the *Brag* component or checking the provisioning in the remote inter-working function.
The counter wraps when it reaches its maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Nsta Conn Brag Brac aal2ReassembledPackets (reassPkt)

Access: Read only

Description: This attribute counts the packets played out on to the TDM service interface. This count excludes received packets that were discarded for any reason (for example, packets that were declared misinserted or discarded while the reassembler was waiting to achieve synchronization).
The counter wraps when it reaches its maximum value.

Values: Decimal (0..4294967295)

Default: No default

### COMPONENT Nsta Conn Brag Brac ChannelAssocSignalingStatistics (CasStats)

Groups: "GROUP Nsta Conn Brag Brac CasStats Aal2Statistics (Aal2Stats)"

Scope: Device

Description: *Nsta/n Conn/n Brag/n Brac/n ChannelAssocSignalingStatistics*
This dynamic component provides Channel Associated Signaling (CAS) statistics for an individual channel. When a *Cast* component is provisioned beneath a *Brag*, an instance of this component will appear under each of the *Brag*'s *Brac*s.

Common Verbs:
- Help
- List
- Display
- LOCK
- Unlock

### GROUP Nsta Conn Brag Brac CasStats Aal2Statistics (Aal2Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains attributes with status information about AAL2 packets. |

### ATTRIBUTE Nsta Conn Brag Brac CasStats aal2TxPackets (txPkt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the AAL2 packets transmitted since activation.<br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Conn Brag Brac CasStats aal2RxPackets (rxPkt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the AAL2 packets received since the component was activated, including misinserted packets.<br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Conn Brag Brac CasStats aal2LostPackets (lostPkt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the packets lost in the network prior to destination AAL2 packet header sequence number processing.<br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Conn Brag Brac CasStats aal2SequenceErrors (seqErr)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the AAL2 packets received which contained an unexpected sequence number.<br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Conn Brag Brac CasStats aal2SizeErrors (sizeErr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the packets received with an unexpected AAL2 packet header length indicator.<br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT Nsta Conn Brag PassiveAccessPoint (Pap)

| | |
|---|---|
| Groups | "GROUP Nsta Conn Brag Pap Provisioned (Prov)"<br>"GROUP Nsta Conn Brag Pap Operational (Oper)" |
| Scope | Device |
| Description | *Nsta/n Conn/n Brag/n PassiveAccessPoint*<br><br>This component defines ATM SVC terminating information pertinent to an AAL1 CES connection used by a *Brag* component. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Nsta Conn Brag Pap Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains NSAP address provisioning data. |

### ATTRIBUTE Nsta Conn Brag Pap expectedRemoteAddress (expectedAddr)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the expected remote address information for an incoming connection setup request.<br><br>If the *expectedRemoteAddress* attribute is empty, the component processes connection requests from any remote address.<br><br>If the *expectedRemoteAddress* attribute is 40 characters long, the remote address must match exactly to be accepted.<br><br>If the *expectedRemoteAddress* attribute is less than 40 characters long, the remote address must match the value of the *expectedRemoteAddress* attribute to be accepted. |
| Values | String (0..40, ASCII) |
| Default | "" |

### ATTRIBUTE Nsta Conn Brag Pap localAddress (localAddr)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the access point's ATM address.<br><br>If the switch prefix (the *nodePrefix* attribute of the *ModuleData* component) has been provisioned, a default value for *localAddress* based on the *nodePrefix* is provided.<br><br>If the *nodePrefix* attribute of the *ModuleData* component has not been provisioned, the *localAddress* attribute will be empty. In that case the operator must either provision a value for the *localAddress* attribute, or provision a value for the *nodePrefix* attribute and then delete and re-add this *Pap* component. |
| Values | String (1..44, AESANsapAddress) |
| Default | No default |

## GROUP Nsta Conn Brag Pap Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group indicates the status information for the *PassiveAccessPoint* component. |

## ATTRIBUTE Nsta Conn Brag Pap svcStatus (status)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the status of the SVC connection.<br><br>When this attribute has the value ***connecting***, it indicates that a connection has not yet been established, but that incoming setup requests are processed. A connection has been requested but not yet established.<br><br>When this attribute has the value ***connected***, it indicates that a connection has been established.<br><br>When this attribute has the value ***idle***, it indicates that the connection has just been torn down and an attempt to re-establish the connection has not yet occurred. This is a transient state of the component. |
| Values | connecting<br>connected<br>idle |
| Default | No default |

## ATTRIBUTE Nsta Conn Brag Pap remoteAddress (address)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the ATM address of the remote AAL1 CES endpoint.<br><br>If a connection is not established, the attribute value is blank. |
| Values | String (0..40, ASCII) |
| Default | No default |

### ATTRIBUTE Nsta Conn Brag Pap remoteChannelDetail (channelDetail)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the configuration of the remote AAL1 CES endpoint.<br><br>If a connection is not established, the attribute value is blank. |
| Values | String (0..81, ASCII) |
| Default | No default |

### ATTRIBUTE Nsta Conn Brag Pap remoteChannelStatus (rCStatus)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the operational status of the remote AAL1 CES endpoint.<br><br>The ***up*** status indicates that there are no TDM ingress fault conditions.<br><br>The ***down*** status indicates the TDM interface has detected an ingress fault condition.<br><br>The ***rai*** status indicates an ingress RAI at the TDM interface.<br><br>The ***unknown*** status indicates the AAL1 CES connection is not present. |
| Values | up<br>down<br>rai<br>unknown |
| Default | No default |

### ATTRIBUTE Nsta Conn Brag Pap lastTearDownCause

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the cause code in the last call release message that contained the CAUSE information element. Note that the call must have been successfully established before being |

| | |
|---|---|
| | torn down. Under initial condition, a zero cause code is displayed. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE Nsta Conn Brag Pap lastTearDownDiagnostic

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the diagnostic code in the last call release message. The diagnostic code is contained in the CAUSE information element. A diagnostic code is always accompanied by the cause code. Note that the call must have been successfully established before being torn down. Under initial condition, the value is empty. |
| Values | String (0..8, ASCII) |
| Default | No default |

### COMPONENT Nsta Conn Brag AtmConnection (AtmCon)

| | |
|---|---|
| Groups | "GROUP Nsta Conn Brag AtmCon Operational (Oper)" |
| Scope | Device |
| Description | An AtmConnection component is created for each ATM connection established by an application. It shows where the data traffic for this connection is directed. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Nsta Conn Brag AtmCon Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains the operational attributes for the *NapAtmConnection* component. |

### ATTRIBUTE Nsta Conn Brag AtmCon nextHop

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute shows the component name of the *AtmIf Vcc Ep* or *AtmCon* component to which this switched connection is established. |
| Values | The name of the component |
| Default | No default |

## COMPONENT Nsta Conn NailedUpAdaptionPoint (Nap)

| | |
|---|---|
| Groups | "GROUP Nsta Conn Nap Provisioned (Prov)" |
| Scope | Device |
| Description | *Nsta/n Conn/n NailedUpAdaptionPoint*<br>*Nsta/n Conn/n Brag/n Ccst NailedUpAdaptionPoint*<br>*Nsta/n Vgs AtmTConn/n NailedUpAdaptionPoint*<br>*Nsta/n Vgs Control/n NailedUpAdaptionPoint*<br>*Nsta/n Vgs IpMConn NailedUpAdaptionPoint*<br><br>This component is used to provide access to a nailed-up ATM connection (an *Atmif Vcc Nep*).<br><br>Components in the *Nsta* component hierarchy which require access to such connections will have a *NailedUpAdaptionPoint* subcomponent. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Nsta Conn Nap Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisioning data for a *Nap* component. |

## ATTRIBUTE Nsta Conn Nap atmConnection (atmConn)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |

| | |
|---|---|
| Description | This attribute specifies the link to the *AtmIf Vcc Nep* component that defines the access to the ATM network. |
| Values | Link (Service, applicationName) |
| Default | No default |

## COMPONENT Nsta Conn ActiveAccessPoint (Aap)

| | |
|---|---|
| Groups | "GROUP Nsta Conn Aap Provisioned (Prov)"<br>"GROUP Nsta Conn Aap AapAddressessProv (AapAddrProv)"<br>"GROUP Nsta Conn Aap Operational (Oper)"<br>"GROUP Nsta Conn Aap AccessPointOper (ApOper)" |
| Scope | Device |
| Description | *Nsta/n Vgs Control/n ActiveAccessPoint*<br>*Nsta/n Vgs IpMConn ActiveAccessPoint*<br>*Nsta/n Conn/n ActiveAccessPoint*<br><br>This component defines ATM SVC originating and terminating information pertinent to those subcomponents in the *Nsta* hierarchy which require dynamic links into the ATM network but have no addressing information. An *Aap* is responsible for maintaining calls to a remote address in the ATM network. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### VERB Restart Nsta Conn Aap

| | |
|---|---|
| Impact | Service |
| Description | *Restart Nsta/n Vgs Control/n ActiveAccessPoint*<br>*Restart Nsta/n Vgs IpMConn ActiveAccessPoint*<br>*Restart Nsta/n Conn/n ActiveAccessPoint*<br><br>This command is used to restart the automatic connection procedure. The operational attributes *retryTimeRemaining* and *retryFailures* are also reset. The *Restart* verb restarts the connection procedure with the current active address as specified in the *addressToCall* attribute.<br><br>This command may be used after the connection procedure has been abandoned due to reaching the maximum number of retries allowed as specified by *retryLimit*, or before the limit has been reached.<br><br>This command may also be used when a connection has been established, in which case the connection is released first.<br><br>This command fails if the *svcStatus* attribute has the value ***initializing*** or the value ***failed***. |

### GROUP Nsta Conn Aap Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisioning data for the *Aap* component. |

### ATTRIBUTE Nsta Conn Aap atmServiceCategory (service)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specified the ATM service category for SVCs. The ***constantBitRate*** service category is intended for real time applications, that is those requiring tightly constrained delay and delay variation, as would be appropriate for voice and video applications. The consistent availability of a fixed quantity of bandwidth is considered appropriate for constant bit rate service. Cells which are delayed beyond the value specified by |

*cellTransferDelay* are assumed to have significantly reduced value for the application.

The ***rtVariableBitRate*** service category is intended for real time applications, that is those requiring tightly constrained delay and delay variation, as would be appropriate for voice and video applications. Sources are expected to transmit at a rate which varies with time. Equivalently, the source can be described as "bursty". Cells which are delayed beyond the value specified by *cellTransferDelay* are assumed to be of significantly reduced value to the application. The real-time variable bit rate service may support statistical multiplexing of real time sources.

The ***nrtVariableBitRate*** service category is intended for non-real time applications which have bursty traffic characteristics and which can be characterized in terms of a *peakCellRate*, *sustainedCellRate*, and *maximumBurstSize*. For those cells which are transferred within the traffic contract, the application expects a low cell loss ratio. For all connections, it expects a bound on the mean cell transfer delay. The non real-time variable bit rate service may support statistical multiplexing of connections.

If the parent of the *Aap* is a *Ctrl* component then the default value of *atmServiceCategory* attribute is ***nrtVariableBitRate***; it may not take the value ***rtVariableBitRate***. If the parent of the *Aap* is an *IpMConn* or *Conn* component then the default value of *atmServiceCategory* attribute is ***rtVariableBitRate***; it may not take the value ***nrtVariableBitRate***.

| | |
|---|---|
| Values | constantBitRate (cbr)<br>rtVariableBitRate (rtVbr)<br>nrtVariableBitRate (nrtVbr) |
| Default | No default |

### ATTRIBUTE Nsta Conn Aap peakCellRate (pcr)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the peak cell rate of the ATM connection. |

| | |
|---|---|
| Values | Decimal (1..2147483647) |
| Units | cell/s |
| Default | No default |

### ATTRIBUTE Nsta Conn Aap sustainedCellRate (scr)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the sustained cell rate of the ATM connection. It must be provisioned with a non-zero value when the *atmServiceCategory* attribute has the value ***rtVariableBitRate*** or ***nrtVariableBitRate***, and it must be provisioned with zero value when it has the value ***constantBitRate***. |
| Values | Decimal (0..2147483647) |
| Units | cell/s |
| Default | 0 |

### ATTRIBUTE Nsta Conn Aap maximumBurstSize (mbs)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the maximum burst size, at the peak cell rate, of the ATM connection. It must be provisioned with a non-zero value when the *atmServiceCategory* attribute has the value ***rtVariableBitRate*** or ***nrtVariableBitRate***, and it must be provisioned with zero value when it has the value ***constantBitRate***. |
| Values | Decimal (0..2147483647) |
| Units | cells |
| Default | 0 |

### ATTRIBUTE Nsta Conn Aap retryLimit (limit)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the maximum number of consecutive unsuccessful setup attempts before further attempts are abandoned. If this limit is reached, management action is required (restart the connection attempts with the *Restart* verb). A value of zero indicates no limit; attempts will continue indefinitely until a successful connection is established. |
| Values | Decimal (0..65535) |
| Default | 0 |

### GROUP Nsta Conn Aap AapAddressessProv (AapAddrProv)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains NSAP address provisioning data. |

### ATTRIBUTE Nsta Conn Aap expectedRemoteAddress (expectedAddr)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the expected remote address information for an incoming setup request.<br><br>If *expectedRemoteAddress* is not empty, only matching addresses in incoming setup are considered for acceptance.<br><br>If *expectedRemoteAddress* is less than 40 characters long, the remote address must match the value in *expectedRemoteAddress* to be accepted.<br><br>If *expectedRemoteAddress* is empty, connection requests are accepted from any remote address. |
| Values | String (0..40, ASCII) |
| Default | "" |

### ATTRIBUTE Nsta Conn Aap localAddress (localAddr)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the access point's ATM address.<br><br>If the switch prefix (the *nodePrefix* attribute of the *ModuleData* component) is provisioned, a default value for *localAddress* based on the *nodePrefix* is provided.<br><br>If a default cannot be generated the operator is forced to set a value for this attribute. Alternatively, the *ModuleData nodePrefix* attribute may be provisioned, and this access point component then deleted and re-added. |
| Values | String (1..44, AESANsapAddress) |
| Default | No default |

### ATTRIBUTE Nsta Conn Aap addressToCall (addrToCall)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the list of remote NSAP addresses which this component can call. At least one address must be provisioned.<br><br>For the *ControlConnection* component in switched VoATM and VoIP and for the *IpMediaStreamConnection* application the remote end is a router. It is required to be able to establish SVCs to different routers. Therefore, the *addressToCall* attribute is a list of remote addresses.<br><br>The first SVC call is sent to the first address listed in the *addressToCall* attribute. If the setup fails or the call is established but fails at a later time, the system attempts to set up a connection to next address listed in the *addressToCall* attribute. If a failure occurs when using the last address in the list, the system attempts |

| | |
|---|---|
| | to setup a connection to the first address in the list and then continues as before. |
| List of | String (1..44, AESANsapAddress) |
| List Size | 3 |
| Default | No default |

### GROUP Nsta Conn Aap Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational status information for the *Aap* component. |

### ATTRIBUTE Nsta Conn Aap svcStatus (status)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the status of the SVC connection. When this attribute has the value ***initializing***, it indicates that the component is initializing when first created; a connection has not been established, and no incoming setup requests will be processed.<br><br>When this attribute has the value ***connecting***, it indicates that a connection has not yet been established, but that incoming setup requests are processed. A connection has been requested but not yet established.<br><br>When this attribute has the value ***connected***, it indicates that a connection has been established.<br><br>When this attribute has the value ***idle***, it indicates that the connection has just been torn down and an attempt to re-establish the connection has not yet occurred. This is a transient state of the component.<br><br>When this attribute has the value ***retriesExhausted***, it indicates that *retryLimit* consecutive connection setup attempts have failed, and the connection procedure has been aborted.<br><br>When this attribute has the value ***failed,*** it indicates that an error |

occurred while sending a release message to the network (as a consequence of a Delete request) while the component was in ***connecting*** state.

Values

initializing
connecting
connected
idle
retriesExhausted
failed

Default

No default

### ATTRIBUTE Nsta Conn Aap lastSetupFailureCause (failCause)

Access

Read only

Description

This attribute indicates the cause code in the last call release message following an unsuccessful call setup attempt. The values are as defined in the ATM Forum ATM User-Network Interface (UNI) Specification.

If no call setup attempts have failed, this attribute has a value of 0.

Values

Decimal (0..255)

Default

No default

### ATTRIBUTE Nsta Conn Aap lastSetupFailureDiagnostic (failDiag)

Access

Read only

Description

This attribute indicates the diagnostic code in the last call release message following an unsuccessful call setup attempt. The diagnostic code is contained in the CAUSE information element and is present only if a procedural error is detected by the signaling protocol. A diagnostic code is always accompanied by the cause code.

If no call setup attempts have failed, this attribute is an empty string.

Values

String (0..8, ASCII)

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Nsta Conn Aap retryTimeRemaining (timer)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current value of the retry timer for this connection; it indicates the number of seconds before the next connection attempt is made. When the value reaches 0 an attempt will be made to establish the connection. When the timer is not running this attribute has a value of 0. |
| Values | Decimal (0..86400) |
| Units | seconds |
| Default | No default |

### ATTRIBUTE Nsta Conn Aap retryFailures (failures)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of consecutive failed connection attempts. This counter is reset to 0 whenever a connection is successfully established or the connection is restarted using the *Restart* verb. The counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..2147483647) |
| Default | No default |

### GROUP Nsta Conn Aap AccessPointOper (ApOper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational information regarding the end point of the connection. This group is common to all types of access points. |

### ATTRIBUTE Nsta Conn Aap remoteAddress (rAddr)

| | |
|---|---|
| Access | Read only |
| Criticality | Component |

| | |
|---|---|
| Description | This attribute indicates the address of the remote end point. If a connection is currently established, it will contain the NSAP address of the remote end point. If a connection is not established, the *remoteAddress* attribute has the value ***unknown***. |
| Values | String (7..40, ASCII) |
| Default | No default |

### ATTRIBUTE Nsta Conn Aap lastTearDownCause (cause)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the cause code in the last call release message that contained the CAUSE information element. Note that the call must have been successfully established before being torn down. The values are as defined in the ATM Forum ATM User-Network Interface (UNI) Specification. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE Nsta Conn Aap lastTearDownDiagnostic (diag)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the diagnostic code in the last call release message. The diagnostic code is contained in the CAUSE information element and is present only if a procedural error is detected by the signaling protocol. A diagnostic code is always accompanied by the cause code. |
| Values | String (0..8, ASCII) |
| Default | No default |

### COMPONENT Nsta Conn PassiveAccessPoint (Pap)

| | |
|---|---|
| Groups | "GROUP Nsta Conn Pap PapAddressesProv (PapAddrProv)"<br>"GROUP Nsta Conn Pap Operational (Oper)"<br>"GROUP Nsta Conn Pap AccessPointOper (ApOper)" |
| Scope | Device |

Description

*Nsta/n Vgs Control/n PassiveAccessPoint*
*Nsta/n Vgs IpMConn/n PassiveAccessPoint*
*Nsta/n Conn/n PassiveAccessPoint*

This component defines ATM SVC terminating information pertinent to those subcomponents in the *Nsta* hierarchy which require dynamic links into the ATM network but have no addressing information.

Common Verbs

Help
List
Display
Add
DELete

## GROUP Nsta Conn Pap PapAddressesProv (PapAddrProv)

Properties: Provisioned

Description: This group contains NSAP address provisioning data.

## ATTRIBUTE Nsta Conn Pap expectedRemoteAddress (expectedAddr)

Access: Read and write

Criticality: Component

Description: This attribute specifies the expected remote address information for an incoming connection setup request.

If *expectedRemoteAddress* is not empty, only matching connections are considered for acceptance.

If *expectedRemoteAddress* is less than 40 characters long, the remote address must match the value in *expectedRemoteAddress* to be accepted.

If *expectedRemoteAddress* is empty, the component processes connection requests from any remote address.

Values: String (0..40, ASCII)

Default: ""

### ATTRIBUTE Nsta Conn Pap localAddress (localAddr)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the ATM address of the access point.<br><br>If the switch prefix (the *nodePrefix* attribute of the *ModuleData* component) has been provisioned, a default value for *localAddress* based on the *nodePrefix* is provided.<br><br>If a default can not be generated the operator is forced to set a value for this attribute. Alternatively, the *ModuleData nodePrefix* attribute may be provisioned, and this access point component then deleted and re-added. |
| Values | String (1..44, AESANsapAddress) |
| Default | No default |

### GROUP Nsta Conn Pap Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains status information common to the *PassiveAccessPoint* and *AddresslessPassiveAccessPoint* components. |

### ATTRIBUTE Nsta Conn Pap svcStatus (status)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the status of the SVC connection. When this attribute has the value ***initializing***, it indicates that the component is initializing when first created; a connection has not been established, and no incoming setup requests will be processed.<br><br>When this attribute has the value ***connecting***, it indicates that a connection has not yet been established, but that incoming setup requests are processed. A connection has been requested but not yet established. |

When this attribute has the value ***connected***, it indicates that a connection has been established.

When this attribute has the value ***idle***, it indicates that the connection has just been torn down and an attempt to re-establish the connection has not yet occurred. This is a transient state of the component.

When this attribute has the value ***failed,*** it indicates that an error occurred while sending a release message to the network (as a consequence of a *Delete* request) while the component was in ***connecting*** state.

Values
initializing
connecting
connected
idle
failed

Default
No default

## GROUP Nsta Conn Pap AccessPointOper (ApOper)

Properties
Operational

Description
This group contains operational information regarding the end point of the connection. This group is common to all types of access points.

## ATTRIBUTE Nsta Conn Pap remoteAddress (rAddr)

Access
Read only

Criticality
Component

Description
This attribute indicates the address of the remote end point. If a connection is currently established, it will contain the NSAP address of the remote end point. If a connection is not established, the *remoteAddress* attribute has the value ***unknown***.

Values
String (7..40, ASCII)

Default
No default

### ATTRIBUTE Nsta Conn Pap lastTearDownCause (cause)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the cause code in the last call release message that contained the CAUSE information element. Note that the call must have been successfully established before being torn down. The values are as defined in the ATM Forum ATM User-Network Interface (UNI) Specification. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE Nsta Conn Pap lastTearDownDiagnostic (diag)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the diagnostic code in the last call release message. The diagnostic code is contained in the CAUSE information element and is present only if a procedural error is detected by the signaling protocol. A diagnostic code is always accompanied by the cause code. |
| Values | String (0..8, ASCII) |
| Default | No default |

### COMPONENT Nsta Conn SpvcAccessPoint (SpvcAp)

| | |
|---|---|
| Groups | "GROUP Nsta Conn SpvcAp Provisioned (Prov)"<br>"GROUP Nsta Conn SpvcAp SpvcApAddressessProv (SpvcApAddrProv)"<br>"GROUP Nsta Conn SpvcAp Operational (Oper)"<br>"GROUP Nsta Conn SpvcAp AccessPointOper (ApOper)" |
| Scope | Device |
| Description | *Nsta/n Vgs Control/n SpvcAccessPoint*<br>*Nsta/n Vgs IpMConn SpvcAccessPoint*<br>*Nsta/n Conn/n SpvcAccessPoint*<br><br>This component defines ATM SPVC originating information pertinent to those subcomponents in the *Nsta* hierarchy which |

require dynamic links into the ATM network but have no addressing information.

Common Verbs

Help
List
Display
Add
DELete

## VERB Restart Nsta Conn SpvcAp

Impact: Service

Description:

*Restart Nsta/n Vgs Control/n SpvcAccessPoint*
*Restart Nsta/n Vgs IpMConn SpvcAccessPoint*
*Restart Nsta/n Conn/n SpvcAccessPoint*

This command is used to restart the automatic connection procedure. The operational attributes *retryTimeRemaining* and *retryFailures* are also reset. The *Restart* verb restarts the connection procedure with the current active address as specified in the *addressToCall* attribute.

This command may be used after the connection procedure has been abandoned due to reaching the maximum number of retries allowed as specified by *retryLimit*, or before the limit has been reached.

This command may also be used when a connection has been established, in which case the connection is released first.

This command fails if the *svcStatus* attribute has the value ***initializing*** or the value ***failed***.

## GROUP Nsta Conn SpvcAp Provisioned (Prov)

Properties: Provisioned

Description: This group contains provisioning data for the *SpvcAp* component.

## ATTRIBUTE Nsta Conn SpvcAp atmServiceCategory (service)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the ATM service category for SVCs.<br><br>The ***constantBitRate*** service category is intended for real time applications, that is those requiring tightly constrained delay and delay variation, as would be appropriate for voice and video applications. The consistent availability of a fixed quantity of bandwidth is considered appropriate for constant bit rate service. Cells which are delayed beyond the value specified by *cellTransferDelay* are assumed to have significantly reduced value for the application.<br><br>The ***rtVariableBitRate*** service category is intended for real time applications, that is those requiring tightly constrained delay and delay variation, as would be appropriate for voice and video applications. Sources are expected to transmit at a rate which varies with time. Equivalently, the source can be described as "bursty". Cells which are delayed beyond the value specified by *cellTransferDelay* are assumed to be of significantly reduced value to the application. The real-time variable bit rate service may support statistical multiplexing of real time sources.<br><br>The ***nrtVariableBitRate*** service category is intended for non-real time applications which have bursty traffic characteristics and which can be characterized in terms of a *peakCellRate*, *sustainedCellRate*, and *maximumBurstSize*. For those cells which are transferred within the traffic contract, the application expects a low cell loss ratio. For all connections, it expects a bound on the mean cell transfer delay. The non real-time variable bit rate service may support statistical multiplexing of connections.<br><br>If the parent of the *SpvcAp* is a *Ctrl* component then the default value of *atmServiceCategory* attribute is ***nrtVariableBitRate***; it may not take the value ***rtVariableBitRate***. If the parent of the *SpvcAp* is an *IpMConn* component then the default value of *atmServiceCategory* attribute is ***rtVariableBitRate***; it may not take the value ***nrtVariableBitRate***. |

| | |
|---|---|
| Values | constantBitRate (cbr)<br>rtVariableBitRate (rtVbr)<br>nrtVariableBitRate (nrtVbr) |
| Default | No default |

### ATTRIBUTE Nsta Conn SpvcAp peakCellRate (pcr)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the peak cell rate of the ATM connection. |
| Values | Decimal (1..2147483647) |
| Units | cell/s |
| Default | No default |

### ATTRIBUTE Nsta Conn SpvcAp sustainedCellRate (scr)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the sustained cell rate of the ATM connection. It must be provisioned with a non-zero value when the *atmServiceCategory* attribute has the value ***rtVariableBitRate*** or ***nrtVariableBitRate***, and it must be provisioned with zero value when it has the value ***constantBitRate***. |
| Values | Decimal (0..2147483647) |
| Units | cell/s |
| Default | 0 |

### ATTRIBUTE Nsta Conn SpvcAp maximumBurstSize (mbs)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the maximum burst size, at the peak cell rate, of the ATM connection. It must be provisioned with a non-zero value when the *atmServiceCategory* attribute has the value |

***rtVariableBitRate*** or ***nrtVariableBitRate***, and it must be provisioned with zero value when it has the value ***constantBitRate***.

Values: Decimal (0..2147483647)

Units: cells

Default: 0

### ATTRIBUTE Nsta Conn SpvcAp retryLimit (limit)

Access: Read and write

Criticality: Component

Description: This attribute specifies the maximum number of consecutive unsuccessful setup attempts before further attempts are abandoned. If this limit is reached, management action is required (restart the connection attempts with the *Restart* verb). A value of zero indicates no limit; attempts will continue indefinitely until a successful connection is established.

Values: Decimal (0..65535)

Default: 0

### GROUP Nsta Conn SpvcAp SpvcApAddressessProv (SpvcApAddrProv)

Properties: Provisioned

Description: This group contains NSAP address provisioning data for the *SpvcAp* component.

### ATTRIBUTE Nsta Conn SpvcAp localAddress (localAddr)

Access: Read and write

Criticality: Process

Description: This attribute specifies the access point's ATM address.

If the switch prefix (the *nodePrefix* attribute of the *ModuleData* component) is provisioned, a default value for *localAddress* based on the *nodePrefix* is provided.

| | |
|---|---|
| | If a default cannot be generated the operator is forced to set a value for this attribute. Alternatively, the *ModuleData nodePrefix* attribute may be provisioned, and this access point component then deleted and re-added. |
| Values | String (1..44, AESANsapAddress) |
| Default | No default |

### ATTRIBUTE Nsta Conn SpvcAp remoteVpiVci (rVpiVci)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the remote VPI and VCI for an *SpvcAp* component. |
| Values | Integer Sequence (0..255; 1..65535) |
| Default | No default |

### ATTRIBUTE Nsta Conn SpvcAp addressToCall (addrToCall)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the list of remote NSAP addresses which this component can call. At least one address must be provisioned.<br><br>For the *ControlConnection* application in switched VoATM and VoIP and for the *IpMediaStreamConnection* application the remote end is a router. It is required to be able to establish SVCs to different routers. Therefore, the *addressToCall* attribute is a list of remote addresses.<br><br>The first SVC call is sent to the first address listed in the *addressToCall* attribute. If the setup fails or the call is established but fails at a later time, the system attempts to set up a connection to next address listed in the *addressToCall* attribute. If a failure occurs when using the last address in the list, the system attempts |

| | |
|---|---|
| | to set up a connection to the first address in the list and then continues as before. |
| List of | String (1..44, AESANsapAddress) |
| List Size | 3 |
| Default | No default |

### GROUP Nsta Conn SpvcAp Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational status information for the *SpvcAp* component. |

### ATTRIBUTE Nsta Conn SpvcAp svcStatus (status)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the status of the SVC connection. When this attribute has the value ***initializing***, it indicates that the component is initializing when first created; a connection has not been established, and no incoming setup requests will be processed.<br><br>When this attribute has the value ***connecting***, it indicates that a connection has not yet been established, but that incoming setup requests are processed. A connection has been requested but not yet established.<br><br>When this attribute has the value ***connected***, it indicates that a connection has been established.<br><br>When this attribute has the value ***idle***, it indicates that the connection has just been torn down and an attempt to re-establish the connection has not yet occurred. This is a transient state of the component.<br><br>When this attribute has the value ***retriesExhausted***, it indicates that *retryLimit* for consecutive connection set up attempts have failed, and the connection procedure has been aborted.<br><br>When this attribute has the value ***failed,*** it indicates that an error |

occurred while sending a release message to the network (as a consequence of a *Delete* request) while the component was in ***connecting*** state.

Values
initializing
connecting
connected
idle
retriesExhausted
failed

Default
No default

### ATTRIBUTE Nsta Conn SpvcAp lastSetupFailureCause (failCause)

Access
Read only

Description
This attribute contains the cause code in the last call release message following an unsuccessful call set up attempt. The values are as defined in the ATM Forum ATM User-Network Interface (UNI) Specification.

Values
Decimal (0..255)

Default
No default

### ATTRIBUTE Nsta Conn SpvcAp lastSetupFailureDiagnostic (failDiag)

Access
Read only

Description
This attribute contains the diagnostic code in the last call release message following an unsuccessful call set up attempt. The diagnostic code is contained in the CAUSE information element and is present only if a procedural error is detected by the signaling protocol. A diagnostic code is always accompanied by the cause code.

Values
String (0..8, ASCII)

Default
No default

### ATTRIBUTE Nsta Conn SpvcAp retryTimeRemaining (timer)

Access
Read only

| | |
|---|---|
| Description | This attribute indicates the current value of the retry timer for this connection; it indicates the number of seconds before the next connection attempt is made. When the value reaches ***0*** an attempt will be made to establish the connection. When the timer is not running a value of ***0*** is returned. |
| Values | Decimal (0..86400) |
| Units | seconds |
| Default | No default |

### ATTRIBUTE Nsta Conn SpvcAp retryFailures (failures)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of consecutive failed connection attempts. This counter is reset to ***0*** whenever a connection is successfully established or the connection is restarted using the *Restart* verb. The counter wraps to ***0*** when the maximum value is exceeded. |
| Values | Decimal (0..2147483647) |
| Default | No default |

### GROUP Nsta Conn SpvcAp AccessPointOper (ApOper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational information regarding the end point of the connection. This group is common to all types of access points. |

### ATTRIBUTE Nsta Conn SpvcAp remoteAddress (rAddr)

| | |
|---|---|
| Access | Read only |
| Criticality | Component |
| Description | This attribute indicates the address of the remote end point. If a connection is currently established, it will contain the NSAP address of the remote end point. If a connection is not established, the *remoteAddress* attribute has the value ***unknown***. |
| Values | String (7..40, ASCII) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Nsta Conn SpvcAp lastTearDownCause (cause)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the cause code in the last call release message that contained the CAUSE information element. Note that the call must have been successfully established before being torn down. The values are as defined in the ATM Forum ATM User-Network Interface (UNI) Specification. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE Nsta Conn SpvcAp lastTearDownDiagnostic (diag)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the diagnostic code in the last call release message. The diagnostic code is contained in the CAUSE information element and is present only if a procedural error is detected by the signaling protocol. A diagnostic code is always accompanied by the cause code. |
| Values | String (0..8, ASCII) |
| Default | No default |

### COMPONENT Nsta Conn AtmConnection (AtmCon)

| | |
|---|---|
| Groups | "GROUP Nsta Conn AtmCon Operational (Oper)" |
| Scope | Device |
| Description | An AtmConnection component is created for each ATM connection established by an application. It shows where the data traffic for this connection is directed. |
| Common Verbs | Help<br>List<br>Display |

## GROUP Nsta Conn AtmCon Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains the operational attributes for the *NapAtmConnection* component. |

## ATTRIBUTE Nsta Conn AtmCon nextHop

| | |
|---|---|
| Access | Read only |
| Description | This attribute shows the component name of the *AtmIf Vcc Ep* or *AtmCon* component to which this switched connection is established. |
| Values | The name of the component |
| Default | No default |

## COMPONENT Nsta VoiceGateway (Vgs)

| | |
|---|---|
| Groups | "GROUP Nsta Vgs CustomerIdentifierData (CidData)"<br>"GROUP Nsta Vgs Provisioned (Prov)"<br>"GROUP Nsta Vgs Operational (Oper)" |
| Scope | Device |
| Description | *Nsta/n VoiceGateway*<br><br>The *Vgs* component provides an operational and maintenance interface for switched voice features. |

| | |
|---|---|
| Subcomponents | "COMPONENT Nsta Vgs PacketNetworkProfile (PktProf)" |
| Opt. Subcomp. | "COMPONENT Nsta Vgs BasicRateGroup (Brag)"<br>"COMPONENT Nsta Vgs ControlConnection (Ctrl)"<br>"COMPONENT Nsta Vgs AtmTrunkConnection (AtmTConn)"<br>"COMPONENT Nsta Vgs VgcpCtrlProt (Vgcp)"<br>"COMPONENT Nsta Vgs IpMediaStreamConnection (IpMConn)"<br>"COMPONENT Nsta Vgs SimpleGatewayCtrlProt (Sgcp)"<br>"COMPONENT Nsta Vgs VoiceCallAdmissionControl (VCac)"<br>"COMPONENT Nsta Vgs IsdnUserAdaption (Iua)"<br>"COMPONENT Nsta Vgs LocalAnnouncements"<br>"COMPONENT Nsta Vgs DigitCollection"<br>"COMPONENT Nsta Vgs Aal2SvcService (Aal2Svc)"<br>"COMPONENT Nsta Vgs AmrBasicRateGroup (AmrBrag)"<br>"COMPONENT Nsta Vgs CsdBasicRateGroup (CsdBrag)"<br>"COMPONENT Nsta Vgs V5UserAdaption (V5ua)"<br>"COMPONENT Nsta Vgs BasicRateGroupServer (BragS)"<br>"COMPONENT Nsta Vgs FaxRelayOverIp (FaxR)"<br>"COMPONENT Nsta Vgs DebugIpAccess (DbgAccess)"<br>"COMPONENT Nsta Vgs IpInterface (IpIf)"<br>"COMPONENT Nsta Vgs MediaGatewayController (Mgc)"<br>"COMPONENT Nsta Vgs H248"<br>"COMPONENT Nsta Vgs TdmAccessGroup (Tag)"<br>"COMPONENT Nsta Vgs TdmNetworkProfile (TProf)"<br>"COMPONENT Nsta Vgs Q921"<br>"COMPONENT Nsta Vgs Q921Profile (Q921Prof)"<br>"COMPONENT Nsta Vgs TimeslotRelay (Tr)"<br>"COMPONENT Nsta Vgs ChannelAssocSignalingDefinition (CasDefn)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Nsta Vgs CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

### ATTRIBUTE Nsta Vgs customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.<br><br>Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.<br><br>An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to "basic CIDs" in DPN) may be assigned to specific customers. |
| Values | Decimal (0; 1..8191) |
| Default | 0 |

### GROUP Nsta Vgs Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioning data for the *Vgs* component. |

### ATTRIBUTE Nsta Vgs gatewayAtmAddress (addr)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |

| | |
|---|---|
| Description | This attribute specifies the ATM address of this gateway. This address is used for identifying this gateway to remote gateways. A change in the value of this attribute causes all current calls to be dropped.<br><br>If the *nodePrefix* attribute has been provisioned in the *ModuleData* component, a default value for *gatewayAtmAddress* will be generated by the system, otherwise the *gatewayAtmAddress* will default to an empty string.<br><br>This attribute is only relevant when one of the following features is provisioned:<br><br>***vgsAtm***<br>***vgsAtmDc***<br>***vgsAtmG729*** |
| Values | String (0..44, AESANsapAddress) |
| Default | No default |

### ATTRIBUTE Nsta Vgs hostname (name)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the hostname to identify this gateway. The value provisioned for this gateway should match the value provisioned in its associated controller.<br><br>This attribute must be unique within the group of gateways controlled by the controller. A change in the value of this attribute causes all current calls to be dropped.<br><br>This attribute must have a maximum of fifteen characters if a *Vgcp* component exists under the *Vgs*. |
| Values | String (1..255, ASCII) |
| Default | No default |

### ATTRIBUTE Nsta Vgs defaultPacketLogLaw (muALaw)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether the digitizing scheme is mu law or A law.<br><br>For Voice over IP, this attribute defines the log law to use at call setup. For Voice over ATM, this attribute defines a default which can be overridden by the *packetLogLaw* attribute of individual *AtmTConn* components at call setup. This attribute may be changed without impacting existing calls.<br><br>The value provisioned can be overridden by per call values signaled by the controller in the CRCX (create connection) and MDCX (modify connection) messages.<br><br>There is no relationship between this attribute and the *tdmLogLaw* attribute of the *Brag* component. |
| Values | muLaw<br>aLaw |
| Default | aLaw |

### ATTRIBUTE Nsta Vgs defaultIpMediaDsf (defDsf)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the default Differentiated Service Field (DSF) value for all voice packets transmitted on all *IpMConn* components.<br><br>This attribute is ignored by *CtrlConn* and *AtmTConn* components.<br>The value provisioned can be overridden by per call values signaled in the IP header by the media gateway controller. |
| Values | Decimal (0..63) |
| Default | 46 |

### ATTRIBUTE Nsta Vgs remoteMfDeviceIpAddress (remMfIp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the IP address of an associated Remote SGCP/MF IWF to which SGCP commands (against endpoints provisioned as MF) will be relayed.<br><br>This attribute is only applicable to *IpMConn* components and is ignored by *CtrlConn* and *AtmTConn* components. |
| Values | IP address |
| Default | No default |

### ATTRIBUTE Nsta Vgs remoteMfDeviceUdpPort (remMfUdp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the UDP port of an associated Remote SGCP/MF IWF to which SGCP commands (against endpoints provisioned as MF) will be relayed.<br>This attribute is only applicable to *IpMConn* components and is ignored by *CtrlConn* and *AtmTConn* components. |
| Values | Decimal (1..65535) |
| Default | 2427 |

### ATTRIBUTE Nsta Vgs defaultToneset (defTone)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the default tone set for all *Brag* and *Tag* subcomponents.<br><br>This value can be overwritten by the *toneset* attribute in the *Brag* and *Tag* components.<br><br>The possible values are:<br>***argentina*** - Use the tone set for Argentina.<br>***australia*** - Use the tone set for Australia.<br>***austria*** - Use the tone set for Austria.<br>***belgium*** - Use the tone set for Belgium.<br>***brazil*** - Use the tone set for Brazil. |

***canadaUsa*** - Use the tone set for Canada and the USA.
***chile*** - Use the tone set for Chile.
***china*** - Use the tone set for China.
***czech*** - Use the tone set for the Czech Republic.
***france*** - Use the tone set for France.
***germany*** - Use the tone set for Germany.
***greece*** - Use the tone set for Greece.
***hongKong*** - Use the tone set for Hong Kong.
***india*** - Use the tone set for India.
***ireland*** - Use the tone set for Ireland.
***israel*** - Use the tone set for Israel.
***italy*** - Use the tone set for Italy.
***japan*** - Use the tone set for Japan.
***korea*** - Use the tone set for Korea.
***malaysia*** - Use the tone set for Malaysia.
***mexico*** - Use the tone set for Mexico.
***netherlands*** - Use the tone set for The Netherlands.
***newZealand*** - Use the tone set for New Zealand.
***panama*** - Use the tone set for Panama.
***philippines*** - Use the tone set for Philippines.
***poland*** - Use the tone set for Poland.
***portugal*** - Use the tone set for Portugal.
***romania*** - Use the tone set for Romania.
***singapore*** - Use the tone set for Singapore.
***spain*** - Use the tone set for Spain.
***sweden*** - Use the tone set for Sweden.
***switzerland*** - Use the tone set for Switzerland.
***taiwan***- Use the tone set for Taiwan.
***thailand*** - Use the tone set for Thailand.
***turkey*** - Use the tone set for Turkey.
***uk*** - Use the tone set for the UK.
***venezuela*** - Use the tone set for Venezuela.

Values

canadaUsa
spain
uk
france
portugal
belgium
germany
netherlands

sweden
austria
italy
switzerland
australia
brazil
ireland
mexico
israel
romania
turkey
czech
china
taiwan
korea
japan
panama
argentina
greece
poland
newZealand
singapore
venezuela
chile
hongKong
malaysia
philippines
thailand
india

Default canadaUsa

## GROUP Nsta Vgs Operational (Oper)

Properties Operational

Description This group contains operational data for the *Nsta Vgs* component.

## ATTRIBUTE Nsta Vgs activeConnections (connActive)

Access Read only

| | |
|---|---|
| Description | This attribute indicates the current number of active media connections. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Vgs connectionsSetup (connSetup)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of media connections successfully established by this gateway *Vgs* component and acknowledged to the Controller.<br><br>The value wraps to ***0*** when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Vgs disabledAtmTrunks (disTrunks)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current number of *AtmTConn* components under the *Vgs* that are disabled.<br><br>This attribute is only applicable when the ***vgsAtm***, ***vgsAtmDc*** or ***vgsAtmG729*** feature is provisioned. If any other feature is provisioned, this attribute is filtered . |
| Values | Decimal (0..4096) |
| Default | No default |

### ATTRIBUTE Nsta Vgs remoteMfDeviceStatus (remMfStatus)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the status of the connection to the remote MF signaling device.<br><br>The value ***connected*** indicates that the connection is enabled.<br><br>The value ***notConnected*** indicates that the connection is disabled. |

| | |
|---|---|
| Values | connected<br>notConnected |
| Default | notConnected |

### ATTRIBUTE Nsta Vgs faxConnectionsSetup (faxSetup)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the connections which are identified as carrying fax modem traffic. The counter wraps to ***0*** when it reaches its maximum value. The counter will also be reset to ***0*** if the *Vsp* component is locked.<br><br>This attribute is filtered on the ***12mVspAal*** and ***Vsp2*** cards. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Vgs nonFaxVbdConnectionsSetup (vbdSetup)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the connections which are identified as carrying non fax modem traffic. The counter wraps to ***0*** when it reaches its maximum value. The counter will also be reset to ***0*** if the *Vsp* component is locked.<br><br>This attribute is filtered on the ***12mVspAal*** and ***Vsp2*** cards. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Vgs emergencyCalls (emCalls)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the emergency calls currently in progress. The controller determines whether a call is for emergency purposes, and instructs the gateway via the control protocol.<br><br>This attribute is only relevant if the H.248 protocol is in use. If any other protocol is used, this attribute is filtered. |

| | |
|---|---|
| Values | Decimal (0..65535) |
| Default | No default |

### ATTRIBUTE Nsta Vgs congestedSeconds (congSec)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of seconds that new media connection requests have been rejected because the Gateway was busy. The counter wraps to ***0*** when it exceeds the maximum value.<br><br>This attribute is filtered on the ***12mVspAal*** card. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Vgs overloadRejectedCommands (olRejCom)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the control protocol (VGCP or H.248) commands that were rejected due to input message buffer overload.<br><br>The counter wraps to ***0*** when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT Nsta Vgs BasicRateGroup (Brag)

| | |
|---|---|
| Instance | Decimal (0..127) |
| Groups | "GROUP Nsta Vgs Brag Provisioned (Prov)"<br>"GROUP Nsta Vgs Brag OsiState (State)"<br>"GROUP Nsta Vgs Brag Operational (Oper)"<br>"GROUP Nsta Vgs Brag CommonOp (ComOp)" |
| Scope | Device |
| Description | *Nsta/n Vgs BasicRateAccessGroup/n* |

This component represents a number of TDM connections from the Voice Services function processor to the TDM network. The TDM connections are all associated with the same TDM interface.

This component defines default processing for all TDM connections. For each connection, this default processing may be overridden by the controller.

The *V5Link* subcomponent is mutually exclusive of the *AnnouncementLanguage* subcomponent.

The *V5Link*, *Q921* and *Cas* subcomponents are mutually exclusive of each other.

Opt. Subcomp.

"COMPONENT Nsta Vgs Brag UdpHdlcTransport (Uht)"
"COMPONENT Nsta Vgs Brag AnnouncementLanguage"
"COMPONENT Nsta Vgs Brag Q921"
"COMPONENT Nsta Vgs Brag V5Link (V5Link)"
"COMPONENT Nsta Vgs Brag ChannelAssociatedSignaling (Cas)"

Common Verbs

Help
List
Display
Add
DELete

## GROUP Nsta Vgs Brag Provisioned (Prov)

Properties: Provisioned

Description: This group contains provisioning data for the *BasicRateGroup* component.

## ATTRIBUTE Nsta Vgs Brag interfaceName (intName)

Access: Read and write

Criticality: Process

Description: This attribute specifies a link to a *Chan* component, which in turn specifies the timeslots for the *Brag*.

| | |
|---|---|
| Values | Link (Service, applicationFramerName) |
| Default | No default |

### ATTRIBUTE Nsta Vgs Brag tdmLogLaw (muALaw)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the G711 *tdmLogLaw* to use on the TDM side of an NSTA trunk.<br><br>If set to ***aLaw***, Alaw companding is used.<br><br>If set to ***autoConfigured***, then the actual value used is derived from the facility, namely ***muLaw*** would be used for *DS1* trunks, while ***aLaw*** would be used by *E1* trunks.<br><br>For *E1* trunks, a value of ***muLaw*** is not recommended. |
| Values | muLaw<br>aLaw<br>autoConfigured |
| Default | autoConfigured |

### ATTRIBUTE Nsta Vgs Brag bufferSize (bufSize)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the capacity of the packet delay variation (PDV) buffer in milliseconds of data.<br><br>To ensure that PDV can be tolerated it is necessary to initialize the system with a reserve of information in the buffer used to reassemble data for transmission across the TDM network. The size of this reserve is defined by the *pdvt* and *bufferSize* attributes. The amount of data played out to the TDM network(in time equal to the value of the *pdvt* attribute*)* is equal to the size of the initialization reserve. There should be enough data in the reassembly buffer to allow transmission for a period of time |

defined by the *pdvt* attribute before buffer underflow due to the next delayed packet occurs.

If the ***VgsIp, VgsIpG729, VgsIpGe***, or ***VgsIpG729Ge*** feature have been provisioned the default *bufferSize* will be ***60ms*** otherwise the *bufferSize* will be ***50ms***.

The value should always be greater than two times the value of the *pdvt* attribute plus the maximum packet size, except on a ***2pGeMmSrVsp3*** card where it need only be greater than or equal to two times the *pdvt*. The maximum packet size is 20ms for ***VgsIp***, ***VgsIpG729*** and ***VgsIpG729Ge*** features and 10ms for all other features.

If ***sameAsProfile***, the equivalent value from the *PktProf* subcomponent of the parent *Vgs* component is used.

If an *H248* component is provisioned, then this attribute must be set to ***sameAsProfile***.

This attribute has no effect if the *packetDelayVariationTolerance* attribute is set to ***adaptive***.

| | |
|---|---|
| Values | Decimal (5..100)<br>sameAsProfile |
| Units | msec |
| Default | sameAsProfile |

### ATTRIBUTE Nsta Vgs Brag packetDelayVariationTolerance (pdvt)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the maximum packet arrival jitter in milliseconds that the reassembly process will tolerate in the packet stream without producing errors on the TDM interface.<br><br>This attribute together with the *bufferSize* attribute, can be configured to optimize the jitter versus absolute delay tradeoff in various network configurations. |

The value should always be less than the value of the *bufferSize* attribute minus the maximum packet size divided by two, except on a ***2pGeMmSrVsp3*** card where it need only be less than or equal to the *bufferSize* divided by two. The maximum packet size is 20ms for ***VgsIp***, ***VgsIpG729, VgsIpGe*** and ***VgsIpG729Ge*** features and 10ms for all other features.

If ***sameAsProfile***, the equivalent value from the *PktProf* subcomponent of the parent *Vgs* component is used.

If an *H248* component is provisioned, then this attribute must be set to ***sameAsProfile***.

If set to ***adaptive***, the hardware attempts to minimise the absolute delay while allowing for the maximum packet arrival jitter encountered. This value is only supported on the following cards:

***2pGeMmSrVsp3***,
***2pOC3ChSmIrVsp3***.

Values — Decimal (5..50)
sameAsProfile
adaptive

Units — msec

Default — sameAsProfile

## ATTRIBUTE Nsta Vgs Brag lossIntegrationPeriod (intPeriod)

Access — Read and write

Description — This attribute specifies the interval of time in seconds for which a loss of packet condition must persist before the corresponding call is dropped. A value of ***0*** specifies that packet loss integration is disabled and therefore call connections are not suspended after packet loss.

If ***sameAsProfile***, the equivalent value from the *PktProf* subcomponent of the parent *Vgs* component is used.

| | |
|---|---|
| | If an *H248* component is provisioned, then this attribute must be set to ***sameAsProfile***. |
| Values | Decimal (0..50)<br>sameAsProfile |
| Units | seconds |
| Default | sameAsProfile |

### ATTRIBUTE Nsta Vgs Brag ingressGain (iGain)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the gain applied on the TDM ingress side to balance the network loss plan. |
| Values | Signed (-12..12) |
| Units | dB |
| Default | 0 |

### ATTRIBUTE Nsta Vgs Brag egressGain (eGain)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the gain applied on the TDM egress side to balance the network loss plan. |
| Values | Signed (-12..12) |
| Units | dB |
| Default | 0 |

### ATTRIBUTE Nsta Vgs Brag echoCancellation (eCan)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether echo cancellation is enabled or disabled.<br><br>The value of this attribute will determine whether echo cancellation will be on or off when a 2100Hz tone is detected.<br><br>Note that the gateway controller may override this attribute on a |

call by call basis to activate or deactivate echo cancellation**.**

***g165Mode*** - Enables echo cancellation except when a 2100Hz tone with phase reversal is detected.

***alwaysOn*** - Enables echo cancellation regardless of whether a 2100Hz tone is detected.

***g164Mode*** - Disables echo cancellation only when a 2100Hz tone is detected, regardless of phase reversal.

***disabled*** - Disables echo cancellation.

The values ***alwaysOn*** and ***g164Mode*** are not permitted on a ***2pGeMmSrVsp3*** card.

| | |
|---|---|
| Values | g165Mode<br>disabled<br>alwaysOn<br>g164Mode |
| Default | g165Mode |

### ATTRIBUTE Nsta Vgs Brag minimumEchoReturnLoss (minEchoRetLoss)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the minimum echo return loss that can be expected on the line. |
| Values | Decimal (0; 3; 6) |
| Units | dB |
| Default | 6 |

### ATTRIBUTE Nsta Vgs Brag echoCancelComfortNoiseGeneration (eCanComNoiseGen)

| | |
|---|---|
| Access | Read and write |
| Description | The attribute specifies whether comfort noise generation for the echo cancellation feature is enabled or disabled. This attribute has no effect if *echoCancellation* is ***disabled*** through provisioning or through 2100 Hz tone detection. |

Values
enabled
disabled

Default
enabled

### ATTRIBUTE Nsta Vgs Brag defaultVoiceRate (defVRate)

Access
Read and write

Description
This attribute specifies the default coding algorithm to be used under normal conditions (when no 2100 Hz tone is detected).

For each connection, this default coding algorithm can be overridden by the controller.

If the provisioned feature is ***vgsAtm*** or ***vgsAtmDc*** then either ***64kG711*** or ***32kG726*** may be provisioned. For the feature ***vgsIp*** or ***vgsIpGe*** only ***64kG711*** may be provisioned. For feature ***vgsIpG729*** or ***vgsIpG729Ge*** either ***64kG711*** or ***8kG729*** may be provisioned. For feature ***vgsAtmG729*** any of ***64kG711***,***32kG726*** and ***8kG729*** may be provisioned.

If ***sameAsProfile***, the equivalent value from the *PktProf* subcomponent of the parent *Vgs* component is used.

If an *H248* component is provisioned, then this attribute must be set to ***sameAsProfile***.

Values
64kG711
32kG726
8kG729
sameAsProfile

Default
sameAsProfile

### ATTRIBUTE Nsta Vgs Brag tone2100Rate (toneRate)

Access
Read and write

Description
This attribute specifies the coding algorithm to be used for timeslots within the *Brag* component on which 2100 Hz tone is detected (phase reversal may or may not be detected). This attribute takes precedence over the *defaultVoiceRate* attribute.

This attribute must be set to ***64kG711*** when using IP transport.

If ***sameAsProfile***, the equivalent value from the *PktProf* subcomponent of the parent *Vgs* component is used.

If an *H248* component is provisioned, then this attribute must be set to ***sameAsProfile***.

Values
64kG711
32kG726
sameAsProfile

Default
sameAsProfile

### ATTRIBUTE Nsta Vgs Brag silenceDetectionHangOverTime (silDetTime)

Access
Read and write

Description
This attribute specifies the time in milliseconds for which the speech path is left on before being suppressed when a timeslot is silent. This helps to prevent clipping at the end of words.

If ***sameAsProfile***, the equivalent value from the *PktProf* subcomponent of the parent *Vgs* component is used.

If an *H248* component is provisioned, then this attribute must be set to ***sameAsProfile***.

Values
Decimal (30..500)
sameAsProfile

Units
msec

Default
sameAsProfile

### ATTRIBUTE Nsta Vgs Brag silenceSuppression (silSup)

Access
Read and write

Description
This attribute specifies whether silence suppression is performed.

A value of ***enabled*** indicates that silence suppression is performed as default. For each connection this default can be overridden by the controller.

A value of ***disabled*** indicates that silence suppression is not performed under any circumstances.

If ***sameAsProfile***, the equivalent value from the *PktProf* subcomponent of the parent *Vgs* component is used.

If an *H248* component is provisioned, then this attribute must be set to ***sameAsProfile***.

Values
enabled
disabled
sameAsProfile

Default
sameAsProfile

### ATTRIBUTE Nsta Vgs Brag silenceSuppressionThreshold (silSupThresh)

Access
Read and write

Description
This attribute specifies the level above which silence suppression is not performed. A value in the range -39 to -36 dBm0 is only permitted on a ***2pGeMmSrVsp3*** card.

If ***sameAsProfile***, the equivalent value from the *PktProf* subcomponent of the parent *Vgs* component is used.

If an *H248* component is provisioned, then this attribute must be set to ***sameAsProfile***.

Values
Signed (-60..-36)
sameAsProfile

Units
dBm0

Default
sameAsProfile

### ATTRIBUTE Nsta Vgs Brag signalingType (sigType)

Access
Read and write

Criticality
Process

Description
This attribute specifies the signaling type of the trunks within the *Brag* component.

***unsignaled*** performs no additional signaling.

***mfRemote*** performs MF signaling to a remote call server.

This attribute must be set to ***unsignaled*** when using ATM transport.

Values: unsignaled
mfRemote

Default: unsignaled

## ATTRIBUTE Nsta Vgs Brag echoCancellationTailLength (eCanTail)

Access: Read and write

Description: This attribute specifies the echo cancellation tail length applied to all timeslots in this *Brag*.

A value of 32ms should be used for networks with an echo round trip delay of up to 32 ms, and a value of 48 ms should be used for networks with an echo round trip delay of 32 to 48 ms.
The use of 48 ms for round trip delays of less than 32 ms is not advised. The use of 64 ms is reserved for the ***2pGeMmSrVsp3*** card.

If set to ***autoConfigure*** the actual value used depends on card type. If the card type is ***12mVspAal*** or ***Vsp2***, the echo cancellation tail length is set to 32 ms. If the card type is ***2pGeMmSrVsp3***, the echo cancellation tail length is set to 64 ms.

This attribute must be set to ***32*** or ***autoConfigure*** when a *Nsta/n Conn/n BasicRateGroup/n* component is provisioned and when running on a ***12mVspAal*** card.

This attribute must be set to ***32***, ***48*** or ***autoConfigure*** when using a ***Vsp2*** card.

This attribute must be set to ***128*** or ***autoConfigure*** when using a ***2pGeMmSrVsp3*** card.

| | |
|---|---|
| Values | autoConfigure<br>32<br>48<br>64<br>128 |
| Units | msec |
| Default | autoConfigure |

### ATTRIBUTE Nsta Vgs Brag toneset (toneset)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the tone set available to the controller.<br><br>The possible values are:<br><br>***sameAsVgs*** - Use the *defaultToneset* attribute from the *Vgs* component<br>***argentina*** - Use the tone set for Argentina.<br>***australia*** - Use the tone set for Australia.<br>***austria*** - Use the tone set for Austria.<br>***belgium*** - Use the tone set for Belgium.<br>***brazil*** - Use the tone set for Brazil.<br>***canadaUsa*** - Use the tone set for Canada and the USA.<br>***chile*** - Use the tone set for Chile.<br>***china*** - Use the tone set for China.<br>***czech*** - Use the tone set for the Czech Republic.<br>***france*** - Use the tone set for France.<br>***germany*** - Use the tone set for Germany.<br>***greece*** - Use the tone set for Greece.<br>***hongKong*** - Use the tone set for Hong Kong.<br>***india*** - Use the tone set for India.<br>***ireland*** - Use the tone set for Ireland.<br>***israel*** - Use the tone set for Israel.<br>***italy*** - Use the tone set for Italy.<br>***japan*** - Use the tone set for Japan.<br>***korea*** - Use the tone set for Korea.<br>***malaysia*** - Use the tone set for Malaysia.<br>***mexico*** - Use the tone set for Mexico.<br>***netherlands*** - Use the tone set for The Netherlands. |

***newZealand*** - Use the tone set for New Zealand.
***panama*** - Use the tone set for Panama.
***philippines*** - Use the tone set for Philippines.
***poland*** - Use the tone set for Poland.
***portugal*** - Use the tone set for Portugal.
***romania*** - Use the tone set for Romania.
***singapore*** - Use the tone set for Singapore.
***spain*** - Use the tone set for Spain.
***sweden*** - Use the tone set for Sweden.
***switzerland*** - Use the tone set for Switzerland.
***taiwan***- Use the tone set for Taiwan.
***thailand*** - Use the tone set for Thailand.
***turkey*** - Use the tone set for Turkey.
***uk*** - Use the tone set for the UK.
***venezuela*** - Use the tone set for Venezuela.

Values

sameAsVgs
canadaUsa
spain
uk
france
portugal
belgium
germany
netherlands
sweden
austria
italy
switzerland
australia
brazil
ireland
mexico
israel
romania
turkey
czech
china
taiwan
korea
japan

panama
argentina
greece
poland
newZealand
singapore
venezuela
chile
hongKong
malaysia
philippines
thailand
india

Default: sameAsVgs

### ATTRIBUTE Nsta Vgs Brag minimumDtmfPowerLevel

Access: Read and write

Description: This attribute specifies the value of the minimum power level at which DTMF digits must be detected. This value is used to allow for different specification for different administrations. This attribute is ignored if the *DigitCollection* component is not present under the parent *Vgs*.

This attribute must be a multiple of 3 on a ***2pGeMmSrVsp3*** card.

Values: Signed (-30..-22)

Units: dBm0

Default: -27

### ATTRIBUTE Nsta Vgs Brag digitTransport

Access: Read and write

Description: This attribute specifies the method by which digit tones are transported.

If ***64kG711***, then G.729 voice channels will upspeed to send ***64kG711*** packets when DTMF is detected.

If ***sendAsVoice***, DTMF is encoded using currently selected codec.

If ***squelch,*** during the playback of a digit, silence is sent over the voice path, encoded at the current encoding rate.

If ***relay***, this value enables negotiation of mutual support for the relay of DTMF tones as RFC2833 VoIP packets. Should this negotiation fail then behavior is the same as for ***64kG711***.

A value of ***relay*** is only valid on a ***2pGeMmSrVsp3*** card.

If the *Sw Lpt featureList* attribute contains ***vgsAtm***, ***vgsAtmDc*** or ***vgsIp*** and the card type is not ***2pGeMmSrVsp3***, this attribute is ignored and ***sendAsVoice*** will be the digit tone transport method.

If ***sameAsProfile***, the equivalent value from the *PktProf* subcomponent of the parent *Vgs* component is used.

If an *H248* component is provisioned, then this attribute must be set to ***sameAsProfile***.

Values
sendAsVoice
64kG711
squelch
relay
sameAsProfile

Default
sameAsProfile

## ATTRIBUTE Nsta Vgs Brag vbdTransport

Access
Read and write

Description
This attribute specifies the method by which voiceband data tones are transported.

If ***useTone2100Rate***, then G.729 voice channels will upspeed to send ***64kG711*** packets when VBD is detected regardless of whether or not the remote gateway has indicated support for this codec.

If ***useTone2100RateIfNegotiated***, then G.729 voice channels will upspeed to send ***64kG711*** packets when VBD is detected only when the remote gateway has indicated support for this codec.

If ***sameAsProfile***, the equivalent value from the *PktProf* subcomponent of the parent *Vgs* component is used.

If an *H248* component is provisioned, then this attribute must be set to ***sameAsProfile***.

Values
useTone2100RateIfNegotiated
useTone2100Rate
sameAsProfile

Default
sameAsProfile

## GROUP Nsta Vgs Brag OsiState (State)

Properties
Operational

Description
This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

## ATTRIBUTE Nsta Vgs Brag adminState (osiAdmin)

Access
Read only

Description
This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Nsta Vgs Brag operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Nsta Vgs Brag usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

## GROUP Nsta Vgs Brag Operational (Oper)

Properties
Operational

Description
This group contains attributes which indicate the causes of any *Brag* component failure.

## ATTRIBUTE Nsta Vgs Brag failureCause (failCause)

Access
Read only

Description
This attribute indicates the cause for the *Brag*s failure.

The failure cause messages are:

***serviceChanNotReady*** - this failure cause message occurs if the TDM *Lp* is down, or waiting for the *Chan* to establish communication.

***operatorLock*** - this failure message occurs when a dependent component is locked by the operator.

***internalError*** - an internal error, which can not be determined has occurred.

***outOfResource*** - not enough hardware resource to handle current capacity.

***vspNotReady*** - the VSP card is down, or waiting for it to establish communication.

***activating*** - component creation is currently in progress.

***casDefinitionNotReady*** - The *CasDefn* component, to which the

*Cas* subcomponent of the *Brag* component is linked to, is disabled.

***none*** - no failure.

Values
none
serviceChanNotReady
operatorLock
internalError
outOfResource
vspNotReady
activating
casDefinitionNotReady

Default none

### ATTRIBUTE Nsta Vgs Brag echoCancellationTailLengthValue (eCanTailValue)

Access Read only

Description This attribute shows the echo cancellation tail length currently in use.

Values
32
48
64
128

Units msec

Default No default

### GROUP Nsta Vgs Brag CommonOp (ComOp)

Properties Operational

Description This group contains operational attributes common to *Brag* and *DBrag*.

### ATTRIBUTE Nsta Vgs Brag outOfServiceTerminationsByMgc (oosTermsByMgc)

Access Read only

Description This attribute is a list of TDM terminations placed out of service by the controller. This does not include TDM terminations placed

out of service by the gateway.

This attribute is only relevant if the H.248 protocol is in use. If any other attribute is used, this attribute is filtered.

List of: Decimal (1..31)

Default: No default

## COMPONENT Nsta Vgs Brag UdpHdlcTransport (Uht)

Instance: Decimal (1..31)

Groups:
"GROUP Nsta Vgs Brag Uht Provisioned (Prov)"
"GROUP Nsta Vgs Brag Uht OsiState (State)"
"GROUP Nsta Vgs Brag Uht HdlcStatistics (HdlcStats)"
"GROUP Nsta Vgs Brag Uht Operational (Oper)"

Scope: Device

Description: *Nsta/n Vgs Brag/n UdpHdlcTransport/<timeslot>*

This optional component provides the transport of HDLC D Channel data over UDP to a remote signaling device.

When a *UdpHdlcTransport* component is provisioned under a *Brag*, all valid HDLC frames within the timeslot smaller than 512 octets in size are transported transparently over UDP. HDLC frames greater than 512 octets in size are discarded.

The local address for UDP datagrams is provided by the *udpPortConnection* link to a *UdpPort* component. The destination address is provided by the controller over the relevant control protocol.

All HDLC frames received are transmitted to the IP network when a destination address has been provided by the controller. Frames received before the controller has provided the destination address are discarded.

All data received within UDP datagrams from the local IP address and UDP port are transmitted as HDLC frames.

The instance number of the *UdpHdlcTransport* component specifies the TDM timeslot within the basic rate group that is carrying the HDLC frames. This timeslot must be included in the *timeslots* attribute of the *Channel* component linked to the parent *Brag* component.

There is a maximum of one *UdpHdlcTransport* component per *Brag*, and a maximum of 10 *UdpHdlcTransport* components per *Vgs* component hierarchy.

The *UdpHdlcTransport* component is mutually exclusive with *V5Link* subcomponent of *Brag*.

Common Verbs

Help
List
Display
Add
DELete

## GROUP Nsta Vgs Brag Uht Provisioned (Prov)

Properties: Provisioned

Description: This group contains the provisioning data for the *UdpHdlcTransport* component.

## ATTRIBUTE Nsta Vgs Brag Uht udpPortConnection (udpConn)

Access: Read and write

Description: This attribute specifies the link to the *Nsta/n Vgs Ctrl/n UdpPort/n* component that defines the access to the IP network.

Values: Link (Service, applicationName)

Default: No default

## GROUP Nsta Vgs Brag Uht OsiState (State)

Properties: Operational

Description: This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state

combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Nsta Vgs Brag Uht adminState (osiAdmin)

Access: Read only

Description: This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values:
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default: unlocked

### ATTRIBUTE Nsta Vgs Brag Uht operationalState (osiOper)

Access: Read only

Description: This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the

component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Nsta Vgs Brag Uht usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Nsta Vgs Brag Uht HdlcStatistics (HdlcStats)

Properties
Operational

Description
This group contains attributes with statistical information about HDLC frames.

### ATTRIBUTE Nsta Vgs Brag Uht txFrames (txFrm)

Access
Read only

Description
This attribute counts the High Level Data Link Control (HDLC) frames transmitted towards the TDM interface since the component was activated.
The counter wraps to 0 when it exceeds its maximum value.

Values
Decimal (0..4294967295)

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Nsta Vgs Brag Uht rxFrames (rxFrm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the High Level Data Link Control (HDLC) frames received from the TDM interface since the component was activated. This count includes frames with FCS errors.<br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Vgs Brag Uht erroredFrames (errorFrm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the High Level Data Link Control (HDLC) frames received from the TDM interface with errors (FCS, frame too long, non integral number of octets, or abort received) since the component was activated.<br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Nsta Vgs Brag Uht Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the status information for the *UdpHdlcTransport* component. |

### ATTRIBUTE Nsta Vgs Brag Uht remoteIpAddress (remIpAddr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the actual IP address of the remote device to which signaling packets associated with this component will be relayed. This address is provided by the controller via the control protocol.<br><br>The value is set to ***0.0.0.0*** until the controller provides an IP address for the service. |

| | |
|---|---|
| Values | IP address |
| Default | 0.0.0.0 |

### ATTRIBUTE Nsta Vgs Brag Uht remoteUdpPort (remUdpPort)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the actual UDP port of the remote device to which signaling packets associated with this component will be relayed. This address is provided by the Service Manager via the control protocol.<br><br>The value is set to ***0*** until the controller provides a UDP port for the service. |
| Values | Decimal (0..65535) |
| Default | 0 |

### COMPONENT Nsta Vgs Brag AnnouncementLanguage

| | |
|---|---|
| Groups | "GROUP Nsta Vgs Brag AnnouncementLanguage Provisioned (Prov)" |
| Scope | Device |
| Description | *Nsta/n Vgs Brag/n AnnouncementLanguage.*<br>*Nsta/n Vgs BragS/n AnnouncementLanguage*<br><br>This component is used to specify an announcement language for this *Brag* or *BragS* component which differs from the *defaultLanguage* attribute specified in the *Vgs LocalAnouncements* component.<br><br>The *AnnouncementLanguage* component is mutually exclusive of the *V5Link* subcomponent of *Brag* component. This restriction is not applicable to the *BragS* component. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Nsta Vgs Brag AnnouncementLanguage Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioning data for the Local Announcement facility. |

### ATTRIBUTE Nsta Vgs Brag AnnouncementLanguage defaultLanguage

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the language to be used on the announcement when no language is provided via the Media Gateway Controller. When a value is specified here, it overrides the value in the *AnnouncementLanguage* component.<br><br>If the value is not empty, it must be a 3 character ASCII string (lower case a-z) for example "eng". |
| Values | String (0..3, ASCII) |
| Default | "" |

### COMPONENT Nsta Vgs Brag Q921

| | |
|---|---|
| Instance | Decimal (1..31) |
| Groups | "GROUP Nsta Vgs Brag Q921 Provisioned (Prov)"<br>"GROUP Nsta Vgs Brag Q921 OsiState (State)"<br>"GROUP Nsta Vgs Brag Q921 Operational (Oper)" |
| Scope | Device |
| Description | *Nsta/n Vgs Brag/n Q921/<timeslot number>*<br>This component holds the information for TDM Q.921 transport. The timeslot, used as the component instance, must be present in the *Brag*. The total number of instances for this component and the *Nsta/n Vgs Brag/n V5Link LapV5* component under the same *Vgs* component hierarchy must not exceed 40.<br><br>The *Q921* component is mutually exclusive with the *V5Link* subcomponent of the *Brag*. |

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Nsta Vgs Brag Q921 Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioning data for the *Q921* component. |

## ATTRIBUTE Nsta Vgs Brag Q921 t200

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum time between the transmission of a layer 2 frame and the receipt of an acknowledgement from the user. This is the acknowledgement timer (T200). The value is rounded to the nearest 0.5 second. |
| Values | Decimal (0.5..5.0) |
| Units | seconds |
| Default | 1.0 |

## ATTRIBUTE Nsta Vgs Brag Q921 t203

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum time without frame exchange during multiple frame operations. |
| Values | Decimal (10..300) |
| Units | seconds |
| Default | 10 |

### ATTRIBUTE Nsta Vgs Brag Q921 n200

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum number of retransmissions of a layer 2 frame. |
| Values | Decimal (1..8) |
| Default | 3 |

### ATTRIBUTE Nsta Vgs Brag Q921 n201

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum length of an information field. |
| Values | Decimal (4..260) |
| Units | octets |
| Default | 260 |

### ATTRIBUTE Nsta Vgs Brag Q921 outstandingFrames

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum number of sequentially numbered I frames (k) that may be unacknowledged at any given time after which no new frames are transmitted unless as part of an error recovery procedure. |
| Values | Decimal (1..127) |
| Default | 7 |

### ATTRIBUTE Nsta Vgs Brag Q921 side

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies if this end of the PRI trunk is to be considered the network end or the user end.<br><br>The possible values are: ***user***, ***network***. |

| | |
|---|---|
| Values | user<br>network |
| Default | network |

### GROUP Nsta Vgs Brag Q921 OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Nsta Vgs Brag Q921 adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Nsta Vgs Brag Q921 operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Nsta Vgs Brag Q921 usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Nsta Vgs Brag Q921 Operational (Oper)

| | |
|---|---|
| Properties | Operational |

| | |
|---|---|
| Description | This group contains attributes which indicate the causes of any *Q921* component failure. |

### ATTRIBUTE Nsta Vgs Brag Q921 txFrames

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts Q.921 frames transmitted towards the TDM interface since the component was activated.<br><br>The following frames are counted: information frames, receive ready frames, receive not ready frames, reject frames, set asynchronous balanced mode frames, disconnect frames, unnumbered acknowledge frames, disconnect mode frames, frame reject frames, exchange id frames, unnumbered information frames<br><br>The counter wraps to ***0*** when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Vgs Brag Q921 rxFrames

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts Q.921 frames received from the TDM interface since the component was activated. This includes HDLC errored frames.<br><br>The following frames are counted: information frames, receive ready frames, receive not ready frames, reject frames, set asynchronous balanced mode frames, disconnect frames, unnumbered acknowledge frames, disconnect mode frames, frame reject frames, exchange id frames, unnumbered information frames.<br><br>The counter wraps to ***0*** when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Vgs Brag Q921 erroredFrames

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts Q.921 frames received from the TDM interface with errors since the component was activated.<br><br>The following errors are counted: invalid frames received (FCS, overrun, or non-integral number of octets), SABM errors, DM frames Tx in response to a Rx SABME, frames with an information field that is not permitted or a supervisory unnumbered frame with an incorrect length, frame received with an invalid receive sequence, frames received with I field larger than *n201*.<br><br>The counter wraps to ***0*** when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Vgs Brag Q921 retriesCounter

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of retransmission attempts.<br><br>The counter wraps to ***0*** when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Vgs Brag Q921 linkStatus

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the status of the link.<br><br>The possible values are: ***up***, ***down***. |
| Values | up<br>down |
| Default | No default |

## COMPONENT Nsta Vgs Brag V5Link (V5Link)

| | |
|---|---|
| Groups | "GROUP Nsta Vgs Brag V5Link Provisioned (Prov)"<br>"GROUP Nsta Vgs Brag V5Link Operational (Oper)" |
| Scope | Device |
| Description | *Nsta/n Vgs Brag/n V5Link*<br>The *V5Link* component provides the capability to send V5.2 link identification signaling to the TDM interface. It also provides attributes to store timer values and maximum values for counters required by the V5.2 protocol for any C-channel subcomponents (*LapV5* component).<br><br>The *V5Link* component can be added when the TDM interface named as the *Brag interfaceName* is to support any V5.2 signaling.<br>The *V5Link* component is mutually exclusive with the *Q921*, *AnnouncementLanguage* and *UdpHdlcTransport* subcomponents of the *Brag*. If *V5Link* is provisioned, none of the others may be provisioned on the same *Brag*. Another *Brag* on the same *Vgs* may support one of the other services.<br><br>The channel component specified as the *interfaceName* of the *Brag* which has a *V5Link* subcomponent must belong to an E1. Timeslots 1 to 31 must belong to the channel; none can be omitted.<br><br>If this component is provisioned, a *V5ua* component must also be provisioned under the same *Vgs*. |
| Opt. Subcomp. | "COMPONENT Nsta Vgs Brag V5Link LapV5 (LapV5)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Nsta Vgs Brag V5Link Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |

| | |
|---|---|
| Description | This group contains the provisioning attributes for the *Nsta/n Vgs Brag/n V5Link* component. |

### ATTRIBUTE Nsta Vgs Brag V5Link t200

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum time allowed between the transmission of a layer 2 frame and the receipt of an acknowledgement from the user. This is the acknowledgement timer (T200). The value is rounded to the nearest 0.5 second. |
| Values | Decimal (0.5..5.0) |
| Units | seconds |
| Default | 1.0 |

### ATTRIBUTE Nsta Vgs Brag V5Link t203

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum time without frame exchange during multiple frame operations.<br><br>Expiry of this timer leads to a "keep-alive" polling RR or RNR frame being transmitted to ensure that the remote layer 2 entity is still active. |
| Values | Decimal (10..300) |
| Units | seconds |
| Default | 10 |

### ATTRIBUTE Nsta Vgs Brag V5Link n200

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum number of retransmissions of a layer 2 frame. |
| Values | Decimal (1..8) |
| Default | 3 |

### ATTRIBUTE Nsta Vgs Brag V5Link n201

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum length of an information field. |
| Values | Decimal (4..260) |
| Units | octets |
| Default | 260 |

### ATTRIBUTE Nsta Vgs Brag V5Link maxOutstandingFrames

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum number of sequentially numbered I frames (k) that may be unacknowledged at any given time after which no new frames are transmitted unless as part of an error recovery procedure. |
| Values | Decimal (1..127) |
| Default | 7 |

### GROUP Nsta Vgs Brag V5Link Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational attributes of the *Nsta/n Vgs Brag/n V5Link* component. |

### ATTRIBUTE Nsta Vgs Brag V5Link interfaceId

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the V5UA protocol link identifier for this *V5Link*. The value displayed here is the expected value of the V5UA interface identifier for this particular *Brag*. Any V5UA messages received by the *V5ua* with this specific interface identifier are processed by this *V5Link*. If the interface identifier received in a V5UA message does not match the interface identifier of any *V5Link* associated with this *Vgs*, the message is discarded.<br>The value for this attribute is automatically generated. |

| | |
|---|---|
| Values | Hex (H.0..H.ffffffff) |
| Default | No default |

## COMPONENT Nsta Vgs Brag V5Link LapV5 (LapV5)

| | |
|---|---|
| Instance | Decimal (15; 16; 31) |
| Groups | "GROUP Nsta Vgs Brag V5Link LapV5 OsiState (State)"<br>"GROUP Nsta Vgs Brag V5Link LapV5 Operational (Oper)" |
| Scope | Device |
| Description | *Nsta/n Vgs Brag/n V5Link LapV5/<timeslot number>*<br>This component represents a Link Access Protocol (LAP) entity for the V5.2 C-channel.<br>The instance value is the specific timeslot used by the C-channel on the associated E1.<br>The *LapV5* is provisioned whenever the indicated timeslot is to be used either for carrying V5.2 messaging (as an active C-channel) or when it is to be in a “stand-by” mode to provide an alternate C-channel, used if the active C-channel fails.<br>A *V5Link* does not need to have any C-channels, so it is legitimate to have a *V5Link* component with no *LapV5* subcomponents. However, there can be no more that three *LapV5* subcomponents, since the standards explicitly state that only timeslots 15, 16, and 31 may be used for C-channels. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Nsta Vgs Brag V5Link LapV5 OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component |

which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Nsta Vgs Brag V5Link LapV5 adminState (osiAdmin)

Access: Read only

Description: This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values: locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default: unlocked

### ATTRIBUTE Nsta Vgs Brag V5Link LapV5 operationalState (osiOper)

Access: Read only

Description: This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the

component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Nsta Vgs Brag V5Link LapV5 usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Nsta Vgs Brag V5Link LapV5 Operational (Oper)

Properties
Operational

Description
This group contains the operational attributes for the *Nsta/n Vgs Brag/n V5Link LapV5/<timeslot>* component.

### ATTRIBUTE Nsta Vgs Brag V5Link LapV5 interfaceId

Access
Read only

Criticality
Component

Description
This attribute indicates the V5UA protocol link identifier for this *LapV5*.
The value displayed here is the expected value of the V5UA interface identifier for this particular C-channel. Any V5UA

messages received by the *V5ua* with this specific interface identifier are processed by this *LapV5*. If the interface identifier received in a V5UA message does not match the interface identifier of any *LapV5* associated with this *Vgs*, the message is discarded.

The format of the *LapV5* interface identifier and that of the *V5Link* interface identifier are closely related. The *LapV5* interface identifier is equal to the interface identifier of its parent *V5Link*, plus the timeslot number. Therefore, the lowest 5 bits of the interface identifier are either 0 (for the *V5Link*), 15, 16, or 31 (for the C-channels).

Values: Hex (H.0..H.ffffffff)

Default: No default

### ATTRIBUTE Nsta Vgs Brag V5Link LapV5 txFrames

Access: Read only

Description: This attribute counts the frames transmitted towards the TDM interface since the component was activated. This includes retransmitted frames.

The counter wraps to 0 when its maximum value is exceeded.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Nsta Vgs Brag V5Link LapV5 rxFrames

Access: Read only

Description: This attribute counts the frames received from the TDM interface since the component was activated. This includes errored frames.

The counter wraps to 0 when its maximum value is exceeded.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Nsta Vgs Brag V5Link LapV5 erroredFrames

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received from the TDM interface with errors since the component was activated.<br>Note that the errored frames counted here do not include all errors. According to V5.2 standards, short frames (under the minimum required length) and some other errors are discarded without reporting them to upper levels of the V5.2 stack.<br><br>The counter wraps to 0 when its maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Vgs Brag V5Link LapV5 retransmittedFrames

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts retransmission attempts.<br><br>The peer layer 2 must respond to an I frame within the protocol timer interval provisioned as *t200* seconds. If the peer layer 2 fails to acknowledge a frame prior to the expiry of the timer and there have not been *n200* retransmissions yet, the *LapV5* retransmits the unacknowledged frame and increments *retransmittedFrames*.<br><br>If there have been sufficient retransmission attempts to reach the provisioned *n200* limit, the C-channel attempts to re-establish, and the *n200Exhausted* increments.<br><br>The counter wraps to 0 when its maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Vgs Brag V5Link LapV5 n200Exhausted

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times that the retransmission limit specified by the *n200* attribute was exceeded on this C- |

channel (*LapV5*). Each time the limit is reached, the counter is incremented and the *LapV5* re-establishes the C-channel.

The counter wraps to 0 when its maximum value is exceeded.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Nsta Vgs Brag V5Link LapV5 activeDataLinkProtocols

Access: Read only

Description: This attribute indicates the set of V5.2 protocols currently established on C-channel.

The following protocols ate supported:
***protection*** (***prot***) - This protocol provides the capability to enable stand-by C-channels when the active C-channels fail
***link*** - This protocol provides the capability to enable and disable E1 links, as well as provide Link Identification procedure messaging.
***control*** (***ctrl***) - This protocol provides the capability to enable and disable user terminals (sets).
***bcc*** - This protocol provides the capability to allocate specific B channels on indicated E1 links t a call.
***pstn*** - This protocol provides the capability to signla user terminal events from the terminal to the network and responses back to the terminal.

Set of:
protection (prot)
link (link)
control (ctrl)
bcc (bcc)
pstn (pstn)

Default: No default

### COMPONENT Nsta Vgs Brag ChannelAssociatedSignaling (Cas)

Groups:
"GROUP Nsta Vgs Brag Cas Provisioned (Prov)"
"GROUP Nsta Vgs Brag Cas Operational (Oper)"

Scope: Device

| | |
|---|---|
| Description | *Nsta/n Vgs Brag/n ChannelAssociatedSignaling*<br>*Nsta/n Vgs Tag/n ChannelAssociatedSignaling*<br><br>This component represents the capability to terminate, process and redirect any Channel Associated Signaling information associated with the parent component. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Nsta Vgs Brag Cas Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisioning data for the *Cas* component. |

### ATTRIBUTE Nsta Vgs Brag Cas channelAssocSignalingDefinition (casDefinition)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies a link to an *Nsta/n Vgs CasDefn/n* component, which defines the CAS signaling details.<br><br>This attribute must be supplied. |
| Values | Link (Service, applicationList) |
| Default | No default |

### GROUP Nsta Vgs Brag Cas Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains attributes that indicate the status of a *Cas* component. |

### ATTRIBUTE Nsta Vgs Brag Cas txSignals

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts CAS line signals transmitted towards the TDM interface since the component was activated.<br><br>The counter wraps to ***0*** when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Vgs Brag Cas rxSignals

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts CAS line signals received from the TDM interface since the component was activated.<br><br>The counter wraps to ***0*** when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Vgs Brag Cas busyChannels

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of endpoints in answer or setup state for the *Chan* component specified in the *interfaceName* attribute of the parent component. This includes only the endpoints that are not in idle or blocked state. |
| Values | Decimal (0..30) |
| Default | No default |

### ATTRIBUTE Nsta Vgs Brag Cas blockedChannels

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of endpoints in blocked state for the *Chan* component specified in the *interfaceName* attribute of the parent component. |
| Values | Decimal (0..30) |
| Default | No default |

## ATTRIBUTE Nsta Vgs Brag Cas signalFailureIndications

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of incoming line state changes that are not recognized as valid candidates for that stage in a call, and that are reported as a Signal Failure to the call server.<br><br>The counter wraps to ***0*** when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## COMPONENT Nsta Vgs ControlConnection (Ctrl)

| | |
|---|---|
| Instance | mediaGateway (mg)<br>signalingGateway (sg) |
| Groups | "GROUP Nsta Vgs Ctrl Provisioned (Prov)"<br>"GROUP Nsta Vgs Ctrl OsiState (State)"<br>"GROUP Nsta Vgs Ctrl Statistics (Stats)"<br>"GROUP Nsta Vgs Ctrl NstaVgsConnectionStatus (ConnStat)" |
| Scope | Device |
| Description | *Nsta/n Vgs ControlConnection/mediaGateway*<br>*Nsta/n Vgs ControlConnection/signalingGateway*<br><br>The ***mediaGateway*** instance of the *ControlConnection* component defines a communication path between the voice gateway and a Controller.<br><br>The ***signalingGateway*** instance of the *ControlConnection* component defines a communication path between a PRI signaling device attached to the voice gateway and a Controller. |

| | |
|---|---|
| Opt. Subcomp. | "COMPONENT Nsta Vgs Ctrl NailedUpAdaptionPoint (Nap)"<br>"COMPONENT Nsta Vgs Ctrl ActiveAccessPoint (Aap)"<br>"COMPONENT Nsta Vgs Ctrl PassiveAccessPoint (Pap)"<br>"COMPONENT Nsta Vgs Ctrl SpvcAccessPoint (SpvcAp)"<br>"COMPONENT Nsta Vgs Ctrl UdpPort (UdpPort)"<br>"COMPONENT Nsta Vgs Ctrl SctpPort"<br>"COMPONENT Nsta Vgs Ctrl VirtualRouterAccessPoint (VrAp)" |
| Dyn. Subcomp. | "COMPONENT Nsta Vgs Ctrl AtmConnection (AtmCon)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Nsta Vgs Ctrl Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioning data for the *ControlConnection* component. |

## ATTRIBUTE Nsta Vgs Ctrl ipAddress (ipAddr)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the IP address of the media or signaling gateway. Control messages from the controller will be sent to this IP address to manage connections within this gateway.<br><br>This address is used to advertise the gateway to the local IP router, and to filter incoming IP packets (only packets destined for this *ipAddress* attribute value are accepted; all other packets are silently dropped).<br><br>This attribute may be changed without affecting existing calls.<br><br>When the *ControlConnection* component is copied using the |

| | |
|---|---|
| | *Copy* command, this attribute is set to ***0.0.0.0*** to prevent a duplication of IP addresses. |
| Values | IP address |
| Default | No default |

### ATTRIBUTE Nsta Vgs Ctrl dnsServers (dnsList)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the IP addresses of the DNS servers available to this media gateway. Each DNS server has one IP address associated with it.<br><br>If the list is empty then no DNS lookup is attempted by the media gateway.<br><br>The list has no implied ordering. If more than one entry is present then one entry is arbitrarily chosen as the first IP address to use for a DNS lookup. |
| List of | IP address |
| List Size | 2 |
| Default | No default |

### GROUP Nsta Vgs Ctrl OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Nsta Vgs Ctrl adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component. |

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Nsta Vgs Ctrl operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Nsta Vgs Ctrl usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Nsta Vgs Ctrl Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains attributes which indicate traffic load and error statistics. |

### ATTRIBUTE Nsta Vgs Ctrl txMessages (txMsgs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the messages transmitted since the component was activated. The value wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Vgs Ctrl rxMessages (rxMsgs)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts messages received without errors since the component was activated. The value wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Vgs Ctrl aal5Failures (errs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts AAL5 errors over this control connection, where AAL5 errors represents the combined total of CRC, Length Field, and max_SDU_deliver_length errors.<br><br>This attribute is filtered when the ***vgsIpGigE*** or the ***vgsIpG729GigE*** feature is provisioned, or the *VrAp* subcomponent is provisioned under this component.<br><br>The value wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Nsta Vgs Ctrl NstaVgsConnectionStatus (ConnStat)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains an attribute which provides information on the status of the VGS connections. |

### ATTRIBUTE Nsta Vgs Ctrl currentStatus (cStat)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the current status of a *Vgs AtmTConn*, *IpMConn* or *Ctrl* connection.<br><br>***enabled*** indicates that the component is enabled and available to transport traffic.<br><br>***activating*** indicates that the component is progressing through its expected sequence of activation and enabling actions, and that no |

errors having been reported.

***atmConnectionNotReady*** indicates that a problem has been reported with the ATM VCC linked to the component's *Nap*, *Aap* or *Pap* subcomponent, resulting in the component being in a disabled state.

***vspNotReady*** indicates that the *Vsp* component linked to the parent *Nsta* component is either disabled or locked.

***outOfResource*** indicates that no hardware resource is available on the VSP card to support the component. This means that the VSP card is inadequately equipped or has suffered some level of hardware failure.

***ipNetworkInaccessible*** indicates that a connection into the IP network cannot be created. This may be due to physical ports being disabled, or the inability of routing software to establish an appropriate connection.

Values
enabled
activating
atmConnectionNotReady
vspNotReady
outOfResource
ipNetworkInaccessible

Default
No default

## COMPONENT Nsta Vgs Ctrl NailedUpAdaptionPoint (Nap)

Groups
"GROUP Nsta Vgs Ctrl Nap Provisioned (Prov)"

Scope
Device

Description
*Nsta/n Conn/n NailedUpAdaptionPoint*
*Nsta/n Conn/n Brag/n Ccst NailedUpAdaptionPoint*
*Nsta/n Vgs AtmTConn/n NailedUpAdaptionPoint*
*Nsta/n Vgs Control/n NailedUpAdaptionPoint*
*Nsta/n Vgs IpMConn NailedUpAdaptionPoint*

This component is used to provide access to a nailed-up ATM connection (an *Atmif Vcc Nep*).

Components in the *Nsta* component hierarchy which require access to such connections will have a *NailedUpAdaptionPoint* subcomponent.

Common Verbs

Help
List
Display
Add
DELete

## GROUP Nsta Vgs Ctrl Nap Provisioned (Prov)

Properties: Provisioned

Description: This group contains provisioning data for a *Nap* component.

## ATTRIBUTE Nsta Vgs Ctrl Nap atmConnection (atmConn)

Access: Read and write

Criticality: Process

Description: This attribute specifies the link to the *AtmIf Vcc Nep* component that defines the access to the ATM network.

Values: Link (Service, applicationName)

Default: No default

## COMPONENT Nsta Vgs Ctrl ActiveAccessPoint (Aap)

Groups:
"GROUP Nsta Vgs Ctrl Aap Provisioned (Prov)"
"GROUP Nsta Vgs Ctrl Aap AapAddressessProv (AapAddrProv)"
"GROUP Nsta Vgs Ctrl Aap Operational (Oper)"
"GROUP Nsta Vgs Ctrl Aap AccessPointOper (ApOper)"

Scope: Device

Description:
*Nsta/n Vgs Control/n ActiveAccessPoint*
*Nsta/n Vgs IpMConn ActiveAccessPoint*
*Nsta/n Conn/n ActiveAccessPoint*

This component defines ATM SVC originating and terminating

information pertinent to those subcomponents in the *Nsta* hierarchy which require dynamic links into the ATM network but have no addressing information. An *Aap* is responsible for maintaining calls to a remote address in the ATM network.

Common Verbs

Help
List
Display
Add
DELete

## VERB Restart Nsta Vgs Ctrl Aap

Impact: Service

Description:

*Restart Nsta/n Vgs Control/n ActiveAccessPoint*
*Restart Nsta/n Vgs IpMConn ActiveAccessPoint*
*Restart Nsta/n Conn/n ActiveAccessPoint*

This command is used to restart the automatic connection procedure. The operational attributes *retryTimeRemaining* and *retryFailures* are also reset. The *Restart* verb restarts the connection procedure with the current active address as specified in the *addressToCall* attribute.

This command may be used after the connection procedure has been abandoned due to reaching the maximum number of retries allowed as specified by *retryLimit*, or before the limit has been reached.

This command may also be used when a connection has been established, in which case the connection is released first.

This command fails if the *svcStatus* attribute has the value ***initializing*** or the value ***failed***.

## GROUP Nsta Vgs Ctrl Aap Provisioned (Prov)

Properties: Provisioned

Description: This group contains provisioning data for the *Aap* component.

## ATTRIBUTE Nsta Vgs Ctrl Aap atmServiceCategory (service)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specified the ATM service category for SVCs. The ***constantBitRate*** service category is intended for real time applications, that is those requiring tightly constrained delay and delay variation, as would be appropriate for voice and video applications. The consistent availability of a fixed quantity of bandwidth is considered appropriate for constant bit rate service. Cells which are delayed beyond the value specified by *cellTransferDelay* are assumed to have significantly reduced value for the application.<br><br>The ***rtVariableBitRate*** service category is intended for real time applications, that is those requiring tightly constrained delay and delay variation, as would be appropriate for voice and video applications. Sources are expected to transmit at a rate which varies with time. Equivalently, the source can be described as "bursty". Cells which are delayed beyond the value specified by *cellTransferDelay* are assumed to be of significantly reduced value to the application. The real-time variable bit rate service may support statistical multiplexing of real time sources.<br><br>The ***nrtVariableBitRate*** service category is intended for non-real time applications which have bursty traffic characteristics and which can be characterized in terms of a *peakCellRate*, *sustainedCellRate*, and *maximumBurstSize*. For those cells which are transferred within the traffic contract, the application expects a low cell loss ratio. For all connections, it expects a bound on the mean cell transfer delay. The non real-time variable bit rate service may support statistical multiplexing of connections.<br><br>If the parent of the *Aap* is a *Ctrl* component then the default value of *atmServiceCategory* attribute is ***nrtVariableBitRate***; it may not take the value ***rtVariableBitRate***. If the parent of the *Aap* is an *IpMConn* or *Conn* component then the default value of *atmServiceCategory* attribute is ***rtVariableBitRate***; it may not take the value ***nrtVariableBitRate***. |

| | |
|---|---|
| Values | constantBitRate (cbr)<br>rtVariableBitRate (rtVbr)<br>nrtVariableBitRate (nrtVbr) |
| Default | No default |

### ATTRIBUTE Nsta Vgs Ctrl Aap peakCellRate (pcr)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the peak cell rate of the ATM connection. |
| Values | Decimal (1..2147483647) |
| Units | cell/s |
| Default | No default |

### ATTRIBUTE Nsta Vgs Ctrl Aap sustainedCellRate (scr)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the sustained cell rate of the ATM connection. It must be provisioned with a non-zero value when the *atmServiceCategory* attribute has the value ***rtVariableBitRate*** or ***nrtVariableBitRate***, and it must be provisioned with zero value when it has the value ***constantBitRate***. |
| Values | Decimal (0..2147483647) |
| Units | cell/s |
| Default | 0 |

### ATTRIBUTE Nsta Vgs Ctrl Aap maximumBurstSize (mbs)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the maximum burst size, at the peak cell rate, of the ATM connection. It must be provisioned with a non-zero value when the *atmServiceCategory* attribute has the value ***rtVariableBitRate*** or ***nrtVariableBitRate***, and it must be |

| | |
|---|---|
| | provisioned with zero value when it has the value ***constantBitRate***. |
| Values | Decimal (0..2147483647) |
| Units | cells |
| Default | 0 |

### ATTRIBUTE Nsta Vgs Ctrl Aap retryLimit (limit)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the maximum number of consecutive unsuccessful setup attempts before further attempts are abandoned. If this limit is reached, management action is required (restart the connection attempts with the *Restart* verb). A value of zero indicates no limit; attempts will continue indefinitely until a successful connection is established. |
| Values | Decimal (0..65535) |
| Default | 0 |

### GROUP Nsta Vgs Ctrl Aap AapAddressessProv (AapAddrProv)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains NSAP address provisioning data. |

### ATTRIBUTE Nsta Vgs Ctrl Aap expectedRemoteAddress (expectedAddr)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the expected remote address information for an incoming setup request.<br><br>If *expectedRemoteAddress* is not empty, only matching addresses in incoming setup are considered for acceptance.<br><br>If *expectedRemoteAddress* is less than 40 characters long, the remote address must match the value in *expectedRemoteAddress* |

to be accepted.

If *expectedRemoteAddress* is empty, connection requests are accepted from any remote address.

Values: String (0..40, ASCII)

Default: ""

### ATTRIBUTE Nsta Vgs Ctrl Aap localAddress (localAddr)

Access: Read and write

Criticality: Process

Description: This attribute specifies the access point's ATM address.

If the switch prefix (the *nodePrefix* attribute of the *ModuleData* component) is provisioned, a default value for *localAddress* based on the *nodePrefix* is provided.

If a default cannot be generated the operator is forced to set a value for this attribute. Alternatively, the *ModuleData nodePrefix* attribute may be provisioned, and this access point component then deleted and re-added.

Values: String (1..44, AESANsapAddress)

Default: No default

### ATTRIBUTE Nsta Vgs Ctrl Aap addressToCall (addrToCall)

Access: Read and write

Criticality: Component

Description: This attribute specifies the list of remote NSAP addresses which this component can call. At least one address must be provisioned.

For the *ControlConnection* component in switched VoATM and VoIP and for the *IpMediaStreamConnection* application the remote end is a router. It is required to be able to establish SVCs to different routers. Therefore, the *addressToCall* attribute is a list of remote addresses.

The first SVC call is sent to the first address listed in the *addressToCall* attribute. If the setup fails or the call is established but fails at a later time, the system attempts to set up a connection to next address listed in the *addressToCall* attribute. If a failure occurs when using the last address in the list, the system attempts to setup a connection to the first address in the list and then continues as before.

List of: String (1..44, AESANsapAddress)

List Size: 3

Default: No default

## GROUP Nsta Vgs Ctrl Aap Operational (Oper)

Properties: Operational

Description: This group contains operational status information for the *Aap* component.

## ATTRIBUTE Nsta Vgs Ctrl Aap svcStatus (status)

Access: Read only

Description: This attribute indicates the status of the SVC connection. When this attribute has the value ***initializing***, it indicates that the component is initializing when first created; a connection has not been established, and no incoming setup requests will be processed.

When this attribute has the value ***connecting***, it indicates that a connection has not yet been established, but that incoming setup requests are processed. A connection has been requested but not yet established.

When this attribute has the value ***connected***, it indicates that a connection has been established.

When this attribute has the value ***idle***, it indicates that the connection has just been torn down and an attempt to re-establish the connection has not yet occurred. This is a transient state of the component.

When this attribute has the value ***retriesExhausted***, it indicates that *retryLimit* consecutive connection setup attempts have failed, and the connection procedure has been aborted.

When this attribute has the value ***failed,*** it indicates that an error occurred while sending a release message to the network (as a consequence of a Delete request) while the component was in ***connecting*** state.

Values
initializing
connecting
connected
idle
retriesExhausted
failed

Default
No default

### ATTRIBUTE Nsta Vgs Ctrl Aap lastSetupFailureCause (failCause)

Access
Read only

Description
This attribute indicates the cause code in the last call release message following an unsuccessful call setup attempt. The values are as defined in the ATM Forum ATM User-Network Interface (UNI) Specification.

If no call setup attempts have failed, this attribute has a value of 0.

Values
Decimal (0..255)

Default
No default

### ATTRIBUTE Nsta Vgs Ctrl Aap lastSetupFailureDiagnostic (failDiag)

Access
Read only

Description
This attribute indicates the diagnostic code in the last call release message following an unsuccessful call setup attempt. The diagnostic code is contained in the CAUSE information element and is present only if a procedural error is detected by the signaling protocol. A diagnostic code is always accompanied by

| | |
|---|---|
| | the cause code.<br><br>If no call setup attempts have failed, this attribute is an empty string. |
| Values | String (0..8, ASCII) |
| Default | No default |

### ATTRIBUTE Nsta Vgs Ctrl Aap retryTimeRemaining (timer)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current value of the retry timer for this connection; it indicates the number of seconds before the next connection attempt is made. When the value reaches 0 an attempt will be made to establish the connection. When the timer is not running this attribute has a value of 0. |
| Values | Decimal (0..86400) |
| Units | seconds |
| Default | No default |

### ATTRIBUTE Nsta Vgs Ctrl Aap retryFailures (failures)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of consecutive failed connection attempts. This counter is reset to 0 whenever a connection is successfully established or the connection is restarted using the *Restart* verb. The counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..2147483647) |
| Default | No default |

### GROUP Nsta Vgs Ctrl Aap AccessPointOper (ApOper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational information regarding the end point of the connection. This group is common to all types of access points. |

### ATTRIBUTE Nsta Vgs Ctrl Aap remoteAddress (rAddr)

| | |
|---|---|
| Access | Read only |
| Criticality | Component |
| Description | This attribute indicates the address of the remote end point. If a connection is currently established, it will contain the NSAP address of the remote end point. If a connection is not established, the *remoteAddress* attribute has the value ***unknown***. |
| Values | String (7..40, ASCII) |
| Default | No default |

### ATTRIBUTE Nsta Vgs Ctrl Aap lastTearDownCause (cause)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the cause code in the last call release message that contained the CAUSE information element. Note that the call must have been successfully established before being torn down. The values are as defined in the ATM Forum ATM User-Network Interface (UNI) Specification. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE Nsta Vgs Ctrl Aap lastTearDownDiagnostic (diag)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the diagnostic code in the last call release message. The diagnostic code is contained in the CAUSE information element and is present only if a procedural error is detected by the signaling protocol. A diagnostic code is always accompanied by the cause code. |
| Values | String (0..8, ASCII) |
| Default | No default |

## COMPONENT Nsta Vgs Ctrl PassiveAccessPoint (Pap)

| | |
|---|---|
| Groups | "GROUP Nsta Vgs Ctrl Pap PapAddressesProv (PapAddrProv)"<br>"GROUP Nsta Vgs Ctrl Pap Operational (Oper)"<br>"GROUP Nsta Vgs Ctrl Pap AccessPointOper (ApOper)" |
| Scope | Device |
| Description | *Nsta/n Vgs Control/n PassiveAccessPoint*<br>*Nsta/n Vgs IpMConn/n PassiveAccessPoint*<br>*Nsta/n Conn/n PassiveAccessPoint*<br><br>This component defines ATM SVC terminating information pertinent to those subcomponents in the *Nsta* hierarchy which require dynamic links into the ATM network but have no addressing information. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Nsta Vgs Ctrl Pap PapAddressesProv (PapAddrProv)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains NSAP address provisioning data. |

## ATTRIBUTE Nsta Vgs Ctrl Pap expectedRemoteAddress (expectedAddr)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the expected remote address information for an incoming connection setup request.<br><br>If *expectedRemoteAddress* is not empty, only matching connections are considered for acceptance.<br><br>If *expectedRemoteAddress* is less than 40 characters long, the remote address must match the value in *expectedRemoteAddress* to be accepted. |

If *expectedRemoteAddress* is empty, the component processes connection requests from any remote address.

Values: String (0..40, ASCII)

Default: ""

### ATTRIBUTE Nsta Vgs Ctrl Pap localAddress (localAddr)

Access: Read and write

Criticality: Process

Description: This attribute specifies the ATM address of the access point.

If the switch prefix (the *nodePrefix* attribute of the *ModuleData* component) has been provisioned, a default value for *localAddress* based on the *nodePrefix* is provided.

If a default can not be generated the operator is forced to set a value for this attribute. Alternatively, the *ModuleData nodePrefix* attribute may be provisioned, and this access point component then deleted and re-added.

Values: String (1..44, AESANsapAddress)

Default: No default

### GROUP Nsta Vgs Ctrl Pap Operational (Oper)

Properties: Operational

Description: This group contains status information common to the *PassiveAccessPoint* and *AddresslessPassiveAccessPoint* components.

### ATTRIBUTE Nsta Vgs Ctrl Pap svcStatus (status)

Access: Read only

Description: This attribute indicates the status of the SVC connection. When this attribute has the value ***initializing***, it indicates that the component is initializing when first created; a connection has not been established, and no incoming setup requests will be processed.

When this attribute has the value ***connecting***, it indicates that a connection has not yet been established, but that incoming setup requests are processed. A connection has been requested but not yet established.

When this attribute has the value ***connected***, it indicates that a connection has been established.

When this attribute has the value ***idle***, it indicates that the connection has just been torn down and an attempt to re-establish the connection has not yet occurred. This is a transient state of the component.

When this attribute has the value ***failed,*** it indicates that an error occurred while sending a release message to the network (as a consequence of a *Delete* request) while the component was in ***connecting*** state.

Values
initializing
connecting
connected
idle
failed

Default
No default

## GROUP Nsta Vgs Ctrl Pap AccessPointOper (ApOper)

Properties
Operational

Description
This group contains operational information regarding the end point of the connection. This group is common to all types of access points.

## ATTRIBUTE Nsta Vgs Ctrl Pap remoteAddress (rAddr)

Access
Read only

Criticality
Component

Description
This attribute indicates the address of the remote end point. If a connection is currently established, it will contain the NSAP

address of the remote end point. If a connection is not established, the *remoteAddress* attribute has the value ***unknown***.

Values: String (7..40, ASCII)

Default: No default

### ATTRIBUTE Nsta Vgs Ctrl Pap lastTearDownCause (cause)

Access: Read only

Description: This attribute indicates the cause code in the last call release message that contained the CAUSE information element. Note that the call must have been successfully established before being torn down. The values are as defined in the ATM Forum ATM User-Network Interface (UNI) Specification.

Values: Decimal (0..255)

Default: No default

### ATTRIBUTE Nsta Vgs Ctrl Pap lastTearDownDiagnostic (diag)

Access: Read only

Description: This attribute indicates the diagnostic code in the last call release message. The diagnostic code is contained in the CAUSE information element and is present only if a procedural error is detected by the signaling protocol. A diagnostic code is always accompanied by the cause code.

Values: String (0..8, ASCII)

Default: No default

### COMPONENT Nsta Vgs Ctrl SpvcAccessPoint (SpvcAp)

Groups: "GROUP Nsta Vgs Ctrl SpvcAp Provisioned (Prov)"
"GROUP Nsta Vgs Ctrl SpvcAp SpvcApAddressessProv (SpvcApAddrProv)"
"GROUP Nsta Vgs Ctrl SpvcAp Operational (Oper)"
"GROUP Nsta Vgs Ctrl SpvcAp AccessPointOper (ApOper)"

Scope: Device

Description

*Nsta/n Vgs Control/n SpvcAccessPoint*
*Nsta/n Vgs IpMConn SpvcAccessPoint*
*Nsta/n Conn/n SpvcAccessPoint*

This component defines ATM SPVC originating information pertinent to those subcomponents in the *Nsta* hierarchy which require dynamic links into the ATM network but have no addressing information.

Common Verbs

Help
List
Display
Add
DELete

## VERB Restart Nsta Vgs Ctrl SpvcAp

Impact

Service

Description

*Restart Nsta/n Vgs Control/n SpvcAccessPoint*
*Restart Nsta/n Vgs IpMConn SpvcAccessPoint*
*Restart Nsta/n Conn/n SpvcAccessPoint*

This command is used to restart the automatic connection procedure. The operational attributes *retryTimeRemaining* and *retryFailures* are also reset. The *Restart* verb restarts the connection procedure with the current active address as specified in the *addressToCall* attribute.

This command may be used after the connection procedure has been abandoned due to reaching the maximum number of retries allowed as specified by *retryLimit*, or before the limit has been reached.

This command may also be used when a connection has been established, in which case the connection is released first.

This command fails if the *svcStatus* attribute has the value ***initializing*** or the value ***failed***.

## GROUP Nsta Vgs Ctrl SpvcAp Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisioning data for the *SpvcAp* component. |

## ATTRIBUTE Nsta Vgs Ctrl SpvcAp atmServiceCategory (service)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the ATM service category for SVCs. |

The ***constantBitRate*** service category is intended for real time applications, that is those requiring tightly constrained delay and delay variation, as would be appropriate for voice and video applications. The consistent availability of a fixed quantity of bandwidth is considered appropriate for constant bit rate service. Cells which are delayed beyond the value specified by *cellTransferDelay* are assumed to have significantly reduced value for the application.

The ***rtVariableBitRate*** service category is intended for real time applications, that is those requiring tightly constrained delay and delay variation, as would be appropriate for voice and video applications. Sources are expected to transmit at a rate which varies with time. Equivalently, the source can be described as "bursty". Cells which are delayed beyond the value specified by *cellTransferDelay* are assumed to be of significantly reduced value to the application. The real-time variable bit rate service may support statistical multiplexing of real time sources.

The ***nrtVariableBitRate*** service category is intended for non-real time applications which have bursty traffic characteristics and which can be characterized in terms of a *peakCellRate*, *sustainedCellRate*, and *maximumBurstSize*. For those cells which are transferred within the traffic contract, the application expects a low cell loss ratio. For all connections, it expects a bound on the mean cell transfer delay. The non real-time variable bit rate service may support statistical multiplexing of connections.

If the parent of the *SpvcAp* is a *Ctrl* component then the default

| | |
|---|---|
| | value of *atmServiceCategory* attribute is ***nrtVariableBitRate***; it may not take the value ***rtVariableBitRate***. If the parent of the *SpvcAp* is an *IpMConn* component then the default value of *atmServiceCategory* attribute is ***rtVariableBitRate***; it may not take the value ***nrtVariableBitRate***. |
| Values | constantBitRate (cbr)<br>rtVariableBitRate (rtVbr)<br>nrtVariableBitRate (nrtVbr) |
| Default | No default |

### ATTRIBUTE Nsta Vgs Ctrl SpvcAp peakCellRate (pcr)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the peak cell rate of the ATM connection. |
| Values | Decimal (1..2147483647) |
| Units | cell/s |
| Default | No default |

### ATTRIBUTE Nsta Vgs Ctrl SpvcAp sustainedCellRate (scr)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the sustained cell rate of the ATM connection. It must be provisioned with a non-zero value when the *atmServiceCategory* attribute has the value ***rtVariableBitRate*** or ***nrtVariableBitRate***, and it must be provisioned with zero value when it has the value ***constantBitRate***. |
| Values | Decimal (0..2147483647) |
| Units | cell/s |
| Default | 0 |

### ATTRIBUTE Nsta Vgs Ctrl SpvcAp maximumBurstSize (mbs)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the maximum burst size, at the peak cell rate, of the ATM connection. It must be provisioned with a non-zero value when the *atmServiceCategory* attribute has the value ***rtVariableBitRate*** or ***nrtVariableBitRate***, and it must be provisioned with zero value when it has the value ***constantBitRate***. |
| Values | Decimal (0..2147483647) |
| Units | cells |
| Default | 0 |

### ATTRIBUTE Nsta Vgs Ctrl SpvcAp retryLimit (limit)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the maximum number of consecutive unsuccessful setup attempts before further attempts are abandoned. If this limit is reached, management action is required (restart the connection attempts with the *Restart* verb). A value of zero indicates no limit; attempts will continue indefinitely until a successful connection is established. |
| Values | Decimal (0..65535) |
| Default | 0 |

### GROUP Nsta Vgs Ctrl SpvcAp SpvcApAddressessProv (SpvcApAddrProv)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains NSAP address provisioning data for the *SpvcAp* component. |

### ATTRIBUTE Nsta Vgs Ctrl SpvcAp localAddress (localAddr)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the access point's ATM address.<br><br>If the switch prefix (the *nodePrefix* attribute of the *ModuleData* component) is provisioned, a default value for *localAddress* based on the *nodePrefix* is provided.<br><br>If a default cannot be generated the operator is forced to set a value for this attribute. Alternatively, the *ModuleData nodePrefix* attribute may be provisioned, and this access point component then deleted and re-added. |
| Values | String (1..44, AESANsapAddress) |
| Default | No default |

### ATTRIBUTE Nsta Vgs Ctrl SpvcAp remoteVpiVci (rVpiVci)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the remote VPI and VCI for an *SpvcAp* component. |
| Values | Integer Sequence (0..255; 1..65535) |
| Default | No default |

### ATTRIBUTE Nsta Vgs Ctrl SpvcAp addressToCall (addrToCall)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the list of remote NSAP addresses which this component can call. At least one address must be provisioned.<br><br>For the *ControlConnection* application in switched VoATM and VoIP and for the *IpMediaStreamConnection* application the |

remote end is a router. It is required to be able to establish SVCs to different routers. Therefore, the *addressToCall* attribute is a list of remote addresses.

The first SVC call is sent to the first address listed in the *addressToCall* attribute. If the setup fails or the call is established but fails at a later time, the system attempts to set up a connection to next address listed in the *addressToCall* attribute. If a failure occurs when using the last address in the list, the system attempts to set up a connection to the first address in the list and then continues as before.

| | |
|---|---|
| List of | String (1..44, AESANsapAddress) |
| List Size | 3 |
| Default | No default |

### GROUP Nsta Vgs Ctrl SpvcAp Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational status information for the *SpvcAp* component. |

### ATTRIBUTE Nsta Vgs Ctrl SpvcAp svcStatus (status)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the status of the SVC connection. When this attribute has the value ***initializing***, it indicates that the component is initializing when first created; a connection has not been established, and no incoming setup requests will be processed.<br><br>When this attribute has the value ***connecting***, it indicates that a connection has not yet been established, but that incoming setup requests are processed. A connection has been requested but not yet established.<br><br>When this attribute has the value ***connected***, it indicates that a connection has been established.<br><br>When this attribute has the value ***idle***, it indicates that the |

connection has just been torn down and an attempt to re-establish the connection has not yet occurred. This is a transient state of the component.

When this attribute has the value ***retriesExhausted***, it indicates that *retryLimit* for consecutive connection set up attempts have failed, and the connection procedure has been aborted.

When this attribute has the value ***failed,*** it indicates that an error occurred while sending a release message to the network (as a consequence of a *Delete* request) while the component was in ***connecting*** state.

Values
initializing
connecting
connected
idle
retriesExhausted
failed

Default
No default

### ATTRIBUTE Nsta Vgs Ctrl SpvcAp lastSetupFailureCause (failCause)

Access
Read only

Description
This attribute contains the cause code in the last call release message following an unsuccessful call set up attempt. The values are as defined in the ATM Forum ATM User-Network Interface (UNI) Specification.

Values
Decimal (0..255)

Default
No default

### ATTRIBUTE Nsta Vgs Ctrl SpvcAp lastSetupFailureDiagnostic (failDiag)

Access
Read only

Description
This attribute contains the diagnostic code in the last call release message following an unsuccessful call set up attempt. The diagnostic code is contained in the CAUSE information element and is present only if a procedural error is detected by the

signaling protocol. A diagnostic code is always accompanied by the cause code.

Values: String (0..8, ASCII)

Default: No default

### ATTRIBUTE Nsta Vgs Ctrl SpvcAp retryTimeRemaining (timer)

Access: Read only

Description: This attribute indicates the current value of the retry timer for this connection; it indicates the number of seconds before the next connection attempt is made. When the value reaches ***0*** an attempt will be made to establish the connection. When the timer is not running a value of ***0*** is returned.

Values: Decimal (0..86400)

Units: seconds

Default: No default

### ATTRIBUTE Nsta Vgs Ctrl SpvcAp retryFailures (failures)

Access: Read only

Description: This attribute counts the number of consecutive failed connection attempts. This counter is reset to ***0*** whenever a connection is successfully established or the connection is restarted using the *Restart* verb. The counter wraps to ***0*** when the maximum value is exceeded.

Values: Decimal (0..2147483647)

Default: No default

### GROUP Nsta Vgs Ctrl SpvcAp AccessPointOper (ApOper)

Properties: Operational

Description: This group contains operational information regarding the end point of the connection. This group is common to all types of access points.

### ATTRIBUTE Nsta Vgs Ctrl SpvcAp remoteAddress (rAddr)

| | |
|---|---|
| Access | Read only |
| Criticality | Component |
| Description | This attribute indicates the address of the remote end point. If a connection is currently established, it will contain the NSAP address of the remote end point. If a connection is not established, the *remoteAddress* attribute has the value ***unknown***. |
| Values | String (7..40, ASCII) |
| Default | No default |

### ATTRIBUTE Nsta Vgs Ctrl SpvcAp lastTearDownCause (cause)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the cause code in the last call release message that contained the CAUSE information element. Note that the call must have been successfully established before being torn down. The values are as defined in the ATM Forum ATM User-Network Interface (UNI) Specification. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE Nsta Vgs Ctrl SpvcAp lastTearDownDiagnostic (diag)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the diagnostic code in the last call release message. The diagnostic code is contained in the CAUSE information element and is present only if a procedural error is detected by the signaling protocol. A diagnostic code is always accompanied by the cause code. |
| Values | String (0..8, ASCII) |
| Default | No default |

### COMPONENT Nsta Vgs Ctrl UdpPort (UdpPort)

| | |
|---|---|
| Instance | Decimal (0..65535) |

| | |
|---|---|
| Groups | "GROUP Nsta Vgs Ctrl UdpPort Provisioned (Prov)" |
| Scope | Device |
| Description | *Nsta/n Vgs CtrlConn/n UdpPort/<UDP port number>*<br><br>The *UdpPort* component is used to link a UDP port, within a control connection, to an application that sends and receives packets using the port. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Nsta Vgs Ctrl UdpPort Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisioning data for a *UdpPort* component. |

## ATTRIBUTE Nsta Vgs Ctrl UdpPort linkToApplication

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the application that sends and receives packets using the UDP port. The application must have a provisionable attribute called *udpPortConnection*.<br><br>This attribute is typically set automatically when an application provides a value for its own *udpPortConnection* attribute.<br><br>This attribute must be the name of a valid application within the same *Vgs* component hierarchy, otherwise a semantic check error will be generated. |
| Values | Link (Service, udpPortConnection) |
| Default | No default |

## ATTRIBUTE Nsta Vgs Ctrl UdpPort differentiatedServiceField (diffServ)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute specifies the Differentiated Service Field in IP packets transmitted using this UDP port. Refer to RFC 791 for service field types. |
| Values | Decimal (0..63) |
| Default | 46 |

### COMPONENT Nsta Vgs Ctrl AtmConnection (AtmCon)

| | |
|---|---|
| Groups | "GROUP Nsta Vgs Ctrl AtmCon Operational (Oper)" |
| Scope | Device |
| Description | An AtmConnection component is created for each ATM connection established by an application. It shows where the data traffic for this connection is directed. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Nsta Vgs Ctrl AtmCon Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains the operational attributes for the *NapAtmConnection* component. |

### ATTRIBUTE Nsta Vgs Ctrl AtmCon nextHop

| | |
|---|---|
| Access | Read only |
| Description | This attribute shows the component name of the *AtmIf Vcc Ep* or *AtmCon* component to which this switched connection is established. |
| Values | The name of the component |
| Default | No default |

### COMPONENT Nsta Vgs Ctrl SctpPort

| | |
|---|---|
| Instance | Decimal (0..65535) |
| Groups | "GROUP Nsta Vgs Ctrl SctpPort Provisioned (Prov)" |

| | |
|---|---|
| Scope | Device |
| Description | *Nsta/n Vgs Ctrl/n SctpPort/n*<br><br>The *Simple Control Transmission Protocol (SCTP)* Port provides access to the IP network. Note that the instance number indicates the SCTP port number used. This component is mutually exclusive with *UdpPort*. |
| Dyn. Subcomp. | "COMPONENT Nsta Vgs Ctrl SctpPort SctpLink" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Nsta Vgs Ctrl SctpPort Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioning data for the *SctpPort* component. |

### ATTRIBUTE Nsta Vgs Ctrl SctpPort diffServiceCodepoint (diffServ)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the Differentiated Service Codepoint field in IP datagrams from this port. Refer to RFC 2474. On changing, subsequent datagrams will use the new value. |
| Values | Decimal (0..63) |
| Default | 46 |

### ATTRIBUTE Nsta Vgs Ctrl SctpPort rtoInitial (init)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the initial time-out value for the retransmission timer (RTO). This value is used until a Round Trip Time (RTT) measurement has been made for the destination transport address. The provisioned value must be between *rtoMin* and *rtoMax*. |

| | |
|---|---|
| Values | Decimal (1..255) |
| Units | seconds |
| Default | 3 |

### ATTRIBUTE Nsta Vgs Ctrl SctpPort rtoMin (min)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the minimum permissible value for the recalculated retransmission timer (RTO). If the computed RTO value is less than *rtoMin*, the RTO value is set to the value of *rtoMin*. |
| Values | Decimal (1..255) |
| Units | seconds |
| Default | 1 |

### ATTRIBUTE Nsta Vgs Ctrl SctpPort rtoAlpha (alpha)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the smoothing factor used in the computation and management of the retransmission timer (RTO) in steps of 0.125 (the entered value is rounded to the nearest multiple of 0.125). These values have been selected in the SCTP specification as being optimal for this application where Round Trip Time (RTT) measurements are made not more than once per round-trip. |
| Values | Decimal (0.000..255.000) |
| Default | 0.125 |

### ATTRIBUTE Nsta Vgs Ctrl SctpPort rtoBeta (beta)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the delay variance factor used in the computation and management of the retransmission timer (RTO) in steps of 0.125 (the entered value is rounded to the nearest multiple of 0.125). |
| Values | Decimal (0.000..255.000) |

| | |
|---|---|
| Default | 0.250 |

### ATTRIBUTE Nsta Vgs Ctrl SctpPort validCookieLife (life)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the  message parameter indicating to the receiver how much increment the sender wishes the receiver to add to its default cookie life-span. |
| Values | Decimal (1..255) |
| Units | seconds |
| Default | 60 |

### ATTRIBUTE Nsta Vgs Ctrl SctpPort associationMaxRetries (assocRetries)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum number of retransmission attempts before the sender of data indicates the destination endpoint as unreachable. |
| Values | Decimal (0..255) |
| Default | 10 |

### ATTRIBUTE Nsta Vgs Ctrl SctpPort rtoMax (max)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum permissible value for the recalculated retransmission timer time-out (RTO). If the computed RTO value is more than *rtoMax*, the RTO value is set to the value of *rtoMax*. |
| Values | Decimal (1..255) |
| Units | seconds |
| Default | 60 |

### ATTRIBUTE Nsta Vgs Ctrl SctpPort linkToApplication (link)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute specifies a link to the *Nsta/n Vgs Iua* or *Nsta/n Vgs V5ua* component that is making use of this port. |
| Values | Link (Service, sctpPortConnection) |
| Default | No default |

### ATTRIBUTE Nsta Vgs Ctrl SctpPort heartbeatInterval (interval)

| | |
|---|---|
| Access | Read and write |
| Description | An SCTP endpoint monitors the reachability of the idle destination transport addresses of its peer by sending a heartbeat chunk every *heartbeatInterval* to the destination transport address defined for the association. |
| Values | Decimal (1..65535) |
| Units | seconds |
| Default | 30 |

### COMPONENT Nsta Vgs Ctrl SctpPort SctpLink

| | |
|---|---|
| Instance | address [IP address]<br>port [Decimal (1..65535)] |
| Groups | "GROUP Nsta Vgs Ctrl SctpPort SctpLink Operational (Oper)" |
| Scope | Device |
| Description | *Nsta/n Vgs Control/n SctpPort/n SctpLink/<ip address>,<sctp port>*<br><br>This component represents an MGC link to the SCTP port. The IP address and SCTP port number used in the instance identifier refer to the remote connection. At most three instances may be provisioned. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Nsta Vgs Ctrl SctpPort SctpLink Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains attributes which describe the *SctpLink* component status. |

### ATTRIBUTE Nsta Vgs Ctrl SctpPort SctpLink receivedChunks (rxChunks)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the chunks received on this *SctpLink*. The counter wraps to ***0*** when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Vgs Ctrl SctpPort SctpLink transmittedChunks (txChunks)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the chunks transmitted on this *SctpLink*. It includes retransmitted chunks. The counter wraps to ***0*** when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Vgs Ctrl SctpPort SctpLink retransmittedChunks (retransChunks)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the chunks retransmitted on this *SctpLink*. The counter wraps to ***0*** when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Vgs Ctrl SctpPort SctpLink outboundStreams (outbound)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current number of outbound streams for this SCTP association. |
| Values | Decimal (0..65535) |

Default — No default

### ATTRIBUTE Nsta Vgs Ctrl SctpPort SctpLink inboundStreams (inbound)

Access — Read only

Description — This attribute indicates the current number of inbound streams for this SCTP association.

Values — Decimal (0..65535)

Default — No default

### COMPONENT Nsta Vgs Ctrl VirtualRouterAccessPoint (VrAp)

Groups — "GROUP Nsta Vgs Ctrl VrAp Provisioned (Prov)"

Scope — Application

Description — *Nsta/n Vgs Ctrl/n VrAp*
*Nsta/n Vgs IpMConn VrAp*
*Nsta/n Vgs DbgAccess VrAp*

This component represents a point of access to a *VirtualRouter* component, which provides an IP forwarding functionality to this *Nsta/n Vgs* component hierarchy.

If at least one *VrAp* component is used within a *Nsta/n Vgs* component hierarchy, then all IP network access from within that hierarchy must be via *VrAp* components.

In addition, a *VCac* component cannot be provisioned within a *Nsta/n Vgs* component hierarchy which contains a *VrAp* component.

Common Verbs
- Help
- List
- Display
- Add
- DELete

### GROUP Nsta Vgs Ctrl VrAp Provisioned (Prov)

Properties — Provisioned

| | |
|---|---|
| Description | This group contains provisioning data for the *VrAp* component. |

### ATTRIBUTE Nsta Vgs Ctrl VrAp subnetAccessName (subnet)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the *Vr/n Pp/m IpPort LogicalIf/x.y.z.u* component instance to be used by this *VrAp*.<br><br>The value of the *ipAddr* attribute defined by the parent of this *VrAp* must belong to the subnet defined by the specified *Vr/n Pp/m IpPort LogicalIf/x.y.z.u* component instance. |
| Values | The name of the component |
| Default | No default |

### COMPONENT Nsta Vgs AtmTrunkConnection (AtmTConn)

| | |
|---|---|
| Instance | Decimal (0..4095) |
| Groups | "GROUP Nsta Vgs AtmTConn Provisioned (Prov)"<br>"GROUP Nsta Vgs AtmTConn OsiState (State)"<br>"GROUP Nsta Vgs AtmTConn Operational (Oper)"<br>"GROUP Nsta Vgs AtmTConn Statistics (Stats)"<br>"GROUP Nsta Vgs AtmTConn NstaVgsConnectionStatus (ConnStat)" |
| Scope | Device |
| Description | *Nsta/n Vgs AtmTrunkConnection/n*<br><br>This component represents an ATM connection from the Voice services function processor to the ATM network. The *Vgs* allocates AAL2 streams to ATM connections as required by the controller. An ATM connection can carry several AAL2 streams concurrently.<br>On Passport 7000, a maximum of 1022 *AtmTrunkConnection* components may be provisioned for ***Vsp2*** cards and a maximum of 127 *AtmTrunkConnection* components may be provisioned for ***12mVspAal*** cards. On Passport 15000 up to 2700 *AtmTrunkConnection* components may be provisioned. |

| | |
|---|---|
| Opt. Subcomp. | "COMPONENT Nsta Vgs AtmTConn NailedUpAdaptionPoint (Nap)"<br>"COMPONENT Nsta Vgs AtmTConn ActiveAccessPoint (Aap)"<br>"COMPONENT Nsta Vgs AtmTConn PassiveAccessPoint (Pap)"<br>"COMPONENT Nsta Vgs AtmTConn SpvcAccessPoint (SpvcAp)" |
| Dyn. Subcomp. | "COMPONENT Nsta Vgs AtmTConn AtmConnection (AtmCon)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Nsta Vgs AtmTConn Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisioning data for the *AtmTrunkConnection* component. |

## ATTRIBUTE Nsta Vgs AtmTConn remoteAddress (rAddr)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the ATM address of the node that may be reached via this trunk.<br><br>The *remoteAddress* attribute must be set to a valid ATM address. This address must not be the same as the value of the *gatewayAtmAddress* attribute of the *Nsta Vgs* component. |
| Values | String (1..44, AESANsapAddress) |
| Default | No default |

## ATTRIBUTE Nsta Vgs AtmTConn vcci (vcci)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the VCCI for this trunk.<br><br>The *vcci* attribute must be set to a value to uniquely identify an ATM trunk between two nodes. Consequently all ATM trunks between any two nodes must have distinct *vcci* attribute values.<br><br>The connection on the remote node must be configured with the same *vcci* attribute value.<br><br>ATM trunks terminating on different remote nodes may share the same *vcci* attribute value.<br><br>A *Check Prov* command will fail if the user tries to provision a value greater than 4095 for the *vcci* attribute of a *AtmTConn* component, when its subcomponent is an *Aap*, a *Pap* or an *SpvcAp*. |
| Values | Decimal (0..32767) |
| Default | No default |

## ATTRIBUTE Nsta Vgs AtmTConn packetLogLaw (muALaw)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether the digitizing scheme is mu-law or A-law.<br><br>This attribute defines the default that is used by individual *AtmTConn* components at call setup unless an alternative value is provided by the controller. The default value ***sameAsGateway*** specifies that the *packetLogLaw* attribute will take the same value as the *defaultLogLaw* attribute of the *Vgs*.<br><br>This attribute may be changed without impacting existing calls. |

| | |
|---|---|
| | The remote end of this connection should be provisioned with the same *packetLogLaw* attribute value. |
| Values | muLaw<br>aLaw<br>sameAsGateway |
| Default | sameAsGateway |

### ATTRIBUTE Nsta Vgs AtmTConn holdOverTime (hoTime)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the maximum period of time before a partially filled AAL2 packet is scheduled for transmission. It is also referred to as the combined use timer period (Timer_CU). |
| Values | Decimal (0.500..15.875) |
| Units | msec |
| Default | 2.000 |

### ATTRIBUTE Nsta Vgs AtmTConn maxNumberAal2Trunks (trunks)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum number of AAL2 trunks that may be allocated on this ATM trunk. The local node may allocate no more than this number of trunks. |
| Values | Decimal (0..247) |
| Default | 240 |

### GROUP Nsta Vgs AtmTConn OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component |

which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Nsta Vgs AtmTConn adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Nsta Vgs AtmTConn operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the |

component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Nsta Vgs AtmTConn usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Nsta Vgs AtmTConn Operational (Oper)

Properties
Operational

Description
This group contains status information about the *AtmTrunkonnection*.

### ATTRIBUTE Nsta Vgs AtmTConn aal2CpLossStatus (cpLossStatus)

Access
Read only

Description
This attribute indicates the status of the AAL2 common part sublayer alarm. It is set to ***loss*** when the alarm has been raised. It is set to ***noLoss*** when the alarm is cleared.

| | |
|---|---|
| Values | noLoss<br>loss |
| Default | No default |

### ATTRIBUTE Nsta Vgs AtmTConn activeAal2Trunks (activeTrunks)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current number of active AAL2 trunk connections for the *AtmTConn* component.<br><br>This attribute is not displayed if the *cardType* is ***12mVspAal***. |
| Values | Decimal (0..248) |
| Default | No default |

### GROUP Nsta Vgs AtmTConn Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistical data for an *AtmTConn*. |

### ATTRIBUTE Nsta Vgs AtmTConn aal2StartFieldErrors (sfErr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the cells received with an AAL2 Common Part Sublayer Protocol Data Unit (CPS-PDU) Start Field error.<br><br>The definition of a Start Field error includes a cell with a parity error or a cell in which the packet pointed-to by the offset field (OSF) has a packet HEC error.<br><br>The value wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Vgs AtmTConn aal2SequenceErrors (seqErr)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the cells received with an unexpected AAL2 Common Part Sublayer Protocol Data Unit (CPS-PDU) sequence number.<br><br>The value wraps to zero whenthe maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Nsta Vgs AtmTConn NstaVgsConnectionStatus (ConnStat)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains an attribute which provides information on the status of the VGS connections. |

### ATTRIBUTE Nsta Vgs AtmTConn currentStatus (cStat)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the current status of a *Vgs AtmTConn*, *IpMConn* or *Ctrl* connection.<br><br>***enabled*** indicates that the component is enabled and available to transport traffic.<br><br>***activating*** indicates that the component is progressing through its expected sequence of activation and enabling actions, and that no errors having been reported.<br><br>***atmConnectionNotReady*** indicates that a problem has been reported with the ATM VCC linked to the component's *Nap*, *Aap* or *Pap* subcomponent, resulting in the component being in a disabled state.<br><br>***vspNotReady*** indicates that the *Vsp* component linked to the parent *Nsta* component is either disabled or locked.<br><br>***outOfResource*** indicates that no hardware resource is available on the VSP card to support the component. This means that the VSP card is inadequately equipped or has suffered some level of hardware failure. |

***ipNetworkInaccessible*** indicates that a connection into the IP network cannot be created. This may be due to physical ports being disabled, or the inability of routing software to establish an appropriate connection.

Values

enabled
activating
atmConnectionNotReady
vspNotReady
outOfResource
ipNetworkInaccessible

Default

No default

## COMPONENT Nsta Vgs AtmTConn NailedUpAdaptionPoint (Nap)

Groups

"GROUP Nsta Vgs AtmTConn Nap Provisioned (Prov)"

Scope

Device

Description

*Nsta/n Conn/n NailedUpAdaptionPoint*
*Nsta/n Conn/n Brag/n Ccst NailedUpAdaptionPoint*
*Nsta/n Vgs AtmTConn/n NailedUpAdaptionPoint*
*Nsta/n Vgs Control/n NailedUpAdaptionPoint*
*Nsta/n Vgs IpMConn NailedUpAdaptionPoint*

This component is used to provide access to a nailed-up ATM connection (an *Atmif Vcc Nep*).

Components in the *Nsta* component hierarchy which require access to such connections will have a *NailedUpAdaptionPoint* subcomponent.

Common Verbs

Help
List
Display
Add
DELete

### GROUP Nsta Vgs AtmTConn Nap Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisioning data for a *Nap* component. |

### ATTRIBUTE Nsta Vgs AtmTConn Nap atmConnection (atmConn)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the link to the *AtmIf Vcc Nep* component that defines the access to the ATM network. |
| Values | Link (Service, applicationName) |
| Default | No default |

### COMPONENT Nsta Vgs AtmTConn ActiveAccessPoint (Aap)

| | |
|---|---|
| Groups | "GROUP Nsta Vgs AtmTConn Aap Provisioned (Prov)"<br>"GROUP Nsta Vgs AtmTConn Aap Operational (Oper)"<br>"GROUP Nsta Vgs AtmTConn Aap AccessPointOper (ApOper)" |
| Scope | Device |
| Description | *Nsta/n Vgs AtmTConn/n ActiveAccessPoint*<br><br>This component defines ATM SVC originating information pertinent to the *AtmTrunkConnection* component. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### VERB Restart Nsta Vgs AtmTConn Aap

| | |
|---|---|
| Impact | Service |
| Description | *Restart Nsta/n Vgs AtmTConn/n ActiveAccessPoint*<br><br>This command is used to restart the automatic connections procedure. The operational attributes *retryTimeRemaining* and *retryFailures* are also reset.<br><br>This command may be used after the connection procedure has been abandoned due to reaching the maximum number of retries allowed as specified by *retryLimit*, or before the limit has been reached.<br><br>This command may also be used when a connection has been established, in which case the connection is released first.<br><br>This command fails if the *svcStatus* attribute has the value ***initializing*** or the value ***failed***. |

### GROUP Nsta Vgs AtmTConn Aap Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisioning data for the *ActiveAccessPoint* component. |

### ATTRIBUTE Nsta Vgs AtmTConn Aap atmServiceCategory (service)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specified the ATM service category for SVCs. The ***constantBitRate*** service category is intended for real time applications, that is those requiring tightly constrained delay and delay variation, as would be appropriate for voice and video applications. The consistent availability of a fixed quantity of bandwidth is considered appropriate for constant bit rate service. Cells which are delayed beyond the value specified by *cellTransferDelay* are assumed to have significantly reduced value for the application. |

| | |
|---|---|
| | The ***rtVariableBitRate*** service category is intended for real time applications, that is those requiring tightly constrained delay and delay variation, as would be appropriate for voice and video applications. Sources are expected to transmit at a rate which varies with time. Equivalently, the source can be described as "bursty". Cells which are delayed beyond the value specified by *cellTransferDelay* are assumed to be of significantly reduced value to the application. The real-time variable bit rate service may support statistical multiplexing of real time sources. |
| Values | constantBitRate (cbr)<br>rtVariableBitRate (rtVbr) |
| Default | rtVariableBitRate |

### ATTRIBUTE Nsta Vgs AtmTConn Aap peakCellRate (pcr)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the peak cell rate of the ATM connection. |
| Values | Decimal (1..2147483647) |
| Units | cell/s |
| Default | No default |

### ATTRIBUTE Nsta Vgs AtmTConn Aap sustainedCellRate (scr)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the sustained cell rate of the ATM connection. It must be provisioned with a non-zero value when the *atmServiceCategory* attribute has the value ***rtVariableBitRate***, and it must be provisioned with zero value when it has the value ***constantBitRate***. |
| Values | Decimal (0..2147483647) |
| Units | cell/s |
| Default | 0 |

### ATTRIBUTE Nsta Vgs AtmTConn Aap maximumBurstSize (mbs)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the maximum burst size, at the peak cell rate, of the ATM connection. It must be provisioned with a non-zero value when the *atmServiceCategory* attribute has the value ***rtVariableBitRate***, and it must be provisioned with zero value when it has the value ***constantBitRate***. |
| Values | Decimal (0..2147483647) |
| Units | cell/s |
| Default | 0 |

### ATTRIBUTE Nsta Vgs AtmTConn Aap retryLimit (limit)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the maximum number of consecutive unsuccessful setup attempts before further attempts are abandoned. If this limit is reached, management action is required (restart the connection attempts with the *Restart* verb). A value of zero indicates no limit; attempts will continue indefinitely until a successful connection is established. |
| Values | Decimal (0..65535) |
| Default | 0 |

### GROUP Nsta Vgs AtmTConn Aap Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational status information for the *Aap* component. |

### ATTRIBUTE Nsta Vgs AtmTConn Aap svcStatus (status)

| | |
|---|---|
| Access | Read only |

Description

This attribute indicates the status of the SVC connection. When this attribute has the value ***initializing***, it indicates that the component is initializing when first created; a connection has not been established, and no incoming setup requests will be processed.

When this attribute has the value ***connecting***, it indicates that a connection has not yet been established, but that incoming setup requests are processed. A connection has been requested but not yet established.

When this attribute has the value ***connected***, it indicates that a connection has been established.

When this attribute has the value ***idle***, it indicates that the connection has just been torn down and an attempt to re-establish the connection has not yet occurred. This is a transient state of the component.

When this attribute has the value ***retriesExhausted***, it indicates that *retryLimit* consecutive connection setup attempts have failed, and the connection procedure has been aborted.

When this attribute has the value ***failed,*** it indicates that an error occurred while sending a release message to the network (as a consequence of a Delete request) while the component was in ***connecting*** state.

Values

initializing
connecting
connected
idle
retriesExhausted
failed

Default

No default

### ATTRIBUTE Nsta Vgs AtmTConn Aap lastSetupFailureCause (failCause)

Access

Read only

Description

This attribute indicates the cause code in the last call release message following an unsuccessful call setup attempt.The values

are as defined in the ATM Forum ATM User-Network Interface (UNI) Specification.

If no call setup attempts have failed, this attribute has a value of 0.

Values: Decimal (0..255)

Default: No default

### ATTRIBUTE Nsta Vgs AtmTConn Aap lastSetupFailureDiagnostic (failDiag)

Access: Read only

Description: This attribute contains the diagnostic code in the last call release message following an unsuccessful call setup attempt. The diagnostic code is contained in the CAUSE information element and is present only if a procedural error is detected by the signaling protocol. A diagnostic code is always accompanied by the cause code.

If no call setup attempts have failed, this attribute is an empty string.

Values: String (0..8, ASCII)

Default: No default

### ATTRIBUTE Nsta Vgs AtmTConn Aap retryTimeRemaining (timer)

Access: Read only

Description: This attribute indicates the current value of the retry timer for this connection; it indicates the number of seconds before the next connection attempt is made. When the value reaches 0 an attempt will be made to establish the connection. When the timer is not running this attribute has a value of 0.

Values: Decimal (0..86400)

Units: seconds

Default: No default

### ATTRIBUTE Nsta Vgs AtmTConn Aap retryFailures (failures)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts consecutive failed connection attempts. This counter is reset to 0 whenever a connection is successfully established or the connection is restarted using the *Restart* verb. The counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..2147483647) |
| Default | No default |

### GROUP Nsta Vgs AtmTConn Aap AccessPointOper (ApOper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational information regarding the end point of the connection. This group is common to all types of access points. |

### ATTRIBUTE Nsta Vgs AtmTConn Aap remoteAddress (rAddr)

| | |
|---|---|
| Access | Read only |
| Criticality | Component |
| Description | This attribute indicates the address of the remote end point. If a connection is currently established, it will contain the NSAP address of the remote end point. If a connection is not established, the *remoteAddress* attribute has the value ***unknown***. |
| Values | String (7..40, ASCII) |
| Default | No default |

### ATTRIBUTE Nsta Vgs AtmTConn Aap lastTearDownCause (cause)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the cause code in the last call release message that contained the CAUSE information element. Note that the call must have been successfully established before being torn down. The values are as defined in the ATM Forum ATM User-Network Interface (UNI) Specification. |
| Values | Decimal (0..255) |

Default No default

### ATTRIBUTE Nsta Vgs AtmTConn Aap lastTearDownDiagnostic (diag)

Access Read only

Description This attribute indicates the diagnostic code in the last call release message. The diagnostic code is contained in the CAUSE information element and is present only if a procedural error is detected by the signaling protocol. A diagnostic code is always accompanied by the cause code.

Values String (0..8, ASCII)

Default No default

### COMPONENT Nsta Vgs AtmTConn PassiveAccessPoint (Pap)

Groups "GROUP Nsta Vgs AtmTConn Pap Operational (Oper)"
"GROUP Nsta Vgs AtmTConn Pap AccessPointOper (ApOper)"

Scope Device

Description *Nsta/n Vgs AtmTConn/n PassiveAccessPoint*

This component defines ATM SVC terminating information pertinent to the *AtmTrunkConnection* component.

Common Verbs
Help
List
Display
Add
DELete

### GROUP Nsta Vgs AtmTConn Pap Operational (Oper)

Properties Operational

Description This group contains operational status information for the *Pap* component.

### ATTRIBUTE Nsta Vgs AtmTConn Pap svcStatus (status)

Access Read only

| | |
|---|---|
| Description | This attribute indicates the status of the SVC connection. When this attribute has the value ***initializing***, it indicates that the component is initializing when first created; a connection has not been established, and no incoming setup requests will be processed.<br><br>When this attribute has the value ***connecting***, it indicates that a connection has not yet been established, but that incoming setup requests are processed. A connection has been requested but not yet established.<br><br>When this attribute has the value ***connected***, it indicates that a connection has been established.<br><br>When this attribute has the value ***idle***, it indicates that the connection has just been torn down and an attempt to re-establish the connection has not yet occurred. This is a transient state of the component.<br><br>When this attribute has the value ***failed,*** it indicates that an error occurred while sending a release message to the network (as a consequence of a Delete request) while the component was in ***connecting*** state. |
| Values | initializing<br>connecting<br>connected<br>idle<br>failed |
| Default | No default |

## GROUP Nsta Vgs AtmTConn Pap AccessPointOper (ApOper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational information regarding the end point of the connection. This group is common to all types of access points. |

### ATTRIBUTE Nsta Vgs AtmTConn Pap remoteAddress (rAddr)

| | |
|---|---|
| Access | Read only |
| Criticality | Component |
| Description | This attribute indicates the address of the remote end point. If a connection is currently established, it will contain the NSAP address of the remote end point. If a connection is not established, the *remoteAddress* attribute has the value ***unknown***. |
| Values | String (7..40, ASCII) |
| Default | No default |

### ATTRIBUTE Nsta Vgs AtmTConn Pap lastTearDownCause (cause)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the cause code in the last call release message that contained the CAUSE information element. Note that the call must have been successfully established before being torn down. The values are as defined in the ATM Forum ATM User-Network Interface (UNI) Specification. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE Nsta Vgs AtmTConn Pap lastTearDownDiagnostic (diag)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the diagnostic code in the last call release message. The diagnostic code is contained in the CAUSE information element and is present only if a procedural error is detected by the signaling protocol. A diagnostic code is always accompanied by the cause code. |
| Values | String (0..8, ASCII) |
| Default | No default |

### COMPONENT Nsta Vgs AtmTConn SpvcAccessPoint (SpvcAp)

| | |
|---|---|
| Groups | "GROUP Nsta Vgs AtmTConn SpvcAp Provisioned (Prov)"<br>"GROUP Nsta Vgs AtmTConn SpvcAp Operational (Oper)" |

"GROUP Nsta Vgs AtmTConn SpvcAp AccessPointOper (ApOper)"

Scope: Device

Description: *Nsta/n Vgs AtmTConn/n SpvcAccessPoint*

This component defines ATM SVC originating information pertinent to the *AtmTrunkConnection* component.

Common Verbs:
- Help
- List
- Display
- Add
- DELete

### VERB Restart Nsta Vgs AtmTConn SpvcAp

Impact: Service

Description: *Restart Nsta/n Vgs AtmTConn/n SpvcAccessPoint*

This command is used to restart the automatic connection procedure. The operational attributes *retryTimeRemaining* and *retryFailures* are also reset. The *Restart* verb restarts the connection procedure with the current active address as specified in the *addressToCall* attribute.

This command may be used after the connection procedure has been abandoned due to reaching the maximum number of retries allowed as specified by *retryLimit*, or before the limit has been reached.

This command may also be used when a connection has been established, in which case the connection is released first.

This command fails if the *svcStatus* attribute has the value ***initializing*** or the value ***failed***.

### GROUP Nsta Vgs AtmTConn SpvcAp Provisioned (Prov)

Properties: Provisioned

| | |
|---|---|
| Description | This group contains provisioning data for the *SpvcAp* component. |

### ATTRIBUTE Nsta Vgs AtmTConn SpvcAp atmServiceCategory (service)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the ATM service category for SVCs.<br>The ***constantBitRate*** service category is intended for real time applications, that is those requiring tightly constrained delay and delay variation, as would be appropriate for voice and video applications. The consistent availability of a fixed quantity of bandwidth is considered appropriate for constant bit rate service. Cells which are delayed beyond the value specified by *cellTransferDelay* are assumed to have significantly reduced value for the application.<br><br>The ***rtVariableBitRate*** service category is intended for real time applications, that is those requiring tightly constrained delay and delay variation, as would be appropriate for voice and video applications. Sources are expected to transmit at a rate which varies with time. Equivalently, the source can be described as "bursty". Cells which are delayed beyond the value specified by *cellTransferDelay* are assumed to be of significantly reduced value to the application. The real-time variable bit rate service may support statistical multiplexing of real time sources. |
| Values | constantBitRate (cbr)<br>rtVariableBitRate (rtVbr) |
| Default | rtVariableBitRate |

### ATTRIBUTE Nsta Vgs AtmTConn SpvcAp peakCellRate (pcr)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the peak cell rate of the ATM connection. |
| Values | Decimal (1..2147483647) |
| Units | cell/s |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Nsta Vgs AtmTConn SpvcAp sustainedCellRate (scr)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the sustained cell rate of the ATM connection. It must be provisioned with a non-zero value when the *atmServiceCategory* attribute has the value ***rtVariableBitRate***, and it must be provisioned with zero value when it has the value ***constantBitRate***. |
| Values | Decimal (0..2147483647) |
| Units | cell/s |
| Default | 0 |

### ATTRIBUTE Nsta Vgs AtmTConn SpvcAp maximumBurstSize (mbs)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the maximum burst size, at the peak cell rate, of the ATM connection. It must be provisioned with a non-zero value when the *atmServiceCategory* attribute has the value ***rtVariableBitRate***, and it must be provisioned with zero value when it has the value ***constantBitRate***. |
| Values | Decimal (0..2147483647) |
| Units | cells |
| Default | 0 |

### ATTRIBUTE Nsta Vgs AtmTConn SpvcAp retryLimit (limit)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the maximum number of consecutive unsuccessful setup attempts before further attempts are abandoned. If this limit is reached, management action is |

| | |
|---|---|
| | required (restart the connection attempts with the *Restart* verb). A value of zero indicates no limit; attempts will continue indefinitely until a successful connection is established. |
| Values | Decimal (0..65535) |
| Default | 0 |

### ATTRIBUTE Nsta Vgs AtmTConn SpvcAp addressToCall (addrToCall)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the remote NSAP address which is called. |
| Values | String (1..44, AESANsapAddress) |
| Default | No default |

### ATTRIBUTE Nsta Vgs AtmTConn SpvcAp remoteVpiVci (rVpiVci)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the remote VPI and VCI for the component. |
| Values | Integer Sequence (0..255; 1..65535) |
| Default | No default |

### GROUP Nsta Vgs AtmTConn SpvcAp Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational status information for the *Aap* component. |

### ATTRIBUTE Nsta Vgs AtmTConn SpvcAp svcStatus (status)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the status of the SVC connection. When this attribute has the value ***initializing***, it indicates that the component is initializing when first created; a connection has not been established, and no incoming setup requests will be |

processed.

When this attribute has the value ***connecting***, it indicates that a connection has not yet been established, but that incoming setup requests are processed. A connection has been requested but not yet established.

When this attribute has the value ***connected***, it indicates that a connection has been established.

When this attribute has the value ***idle***, it indicates that the connection has just been torn down and an attempt to re-establish the connection has not yet occurred. This is a transient state of the component.

When this attribute has the value ***retriesExhausted***, it indicates that *retryLimit* consecutive connection setup attempts have failed, and the connection procedure has been aborted.

When this attribute has the value ***failed,*** it indicates that an error occurred while sending a release message to the network (as a consequence of a *Delete* request) while the component was in ***connecting*** state.

Values

initializing
connecting
connected
idle
retriesExhausted
failed

Default

No default

## ATTRIBUTE Nsta Vgs AtmTConn SpvcAp lastSetupFailureCause (failCause)

Access

Read only

Description

This attribute indicates the cause code in the last call release message following an unsuccessful call setup attempt.The values are as defined in the ATM Forum ATM User-Network Interface (UNI) Specification.

| | |
|---|---|
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE Nsta Vgs AtmTConn SpvcAp lastSetupFailureDiagnostic (failDiag)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the diagnostic code in the last call release message following an unsuccessful call setup attempt. The diagnostic code is contained in the CAUSE information element and is present only if a procedural error is detected by the signaling protocol. A diagnostic code is always accompanied by the cause code. |
| Values | String (0..8, ASCII) |
| Default | No default |

### ATTRIBUTE Nsta Vgs AtmTConn SpvcAp retryTimeRemaining (timer)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current value of the retry timer for this connection; it indicates the number of seconds before the next connection attempt is made. When the value reaches 0 an attempt will be made to establish the connection. When the timer is not running a value of 0 is returned. |
| Values | Decimal (0..86400) |
| Units | seconds |
| Default | No default |

### ATTRIBUTE Nsta Vgs AtmTConn SpvcAp retryFailures (failures)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of consecutive failed connection attempts. This counter is reset to 0 whenever a connection is successfully established or the connection is restarted using the *Restart* verb. The counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..2147483647) |

| | |
|---|---|
| Default | No default |

### GROUP Nsta Vgs AtmTConn SpvcAp AccessPointOper (ApOper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational information regarding the end point of the connection. This group is common to all types of access points. |

### ATTRIBUTE Nsta Vgs AtmTConn SpvcAp remoteAddress (rAddr)

| | |
|---|---|
| Access | Read only |
| Criticality | Component |
| Description | This attribute indicates the address of the remote end point. If a connection is currently established, it will contain the NSAP address of the remote end point. If a connection is not established, the *remoteAddress* attribute has the value ***unknown***. |
| Values | String (7..40, ASCII) |
| Default | No default |

### ATTRIBUTE Nsta Vgs AtmTConn SpvcAp lastTearDownCause (cause)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the cause code in the last call release message that contained the CAUSE information element. Note that the call must have been successfully established before being torn down. The values are as defined in the ATM Forum ATM User-Network Interface (UNI) Specification. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE Nsta Vgs AtmTConn SpvcAp lastTearDownDiagnostic (diag)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the diagnostic code in the last call release message. The diagnostic code is contained in the CAUSE information element and is present only if a procedural error is |

| | |
|---|---|
| | detected by the signaling protocol. A diagnostic code is always accompanied by the cause code. |
| Values | String (0..8, ASCII) |
| Default | No default |

### COMPONENT Nsta Vgs AtmTConn AtmConnection (AtmCon)

| | |
|---|---|
| Groups | "GROUP Nsta Vgs AtmTConn AtmCon Operational (Oper)" |
| Scope | Device |
| Description | An AtmConnection component is created for each ATM connection established by an application. It shows where the data traffic for this connection is directed. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Nsta Vgs AtmTConn AtmCon Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains the operational attributes for the *NapAtmConnection* component. |

### ATTRIBUTE Nsta Vgs AtmTConn AtmCon nextHop

| | |
|---|---|
| Access | Read only |
| Description | This attribute shows the component name of the *AtmIf Vcc Ep* or *AtmCon* component to which this switched connection is established. |
| Values | The name of the component |
| Default | No default |

### COMPONENT Nsta Vgs VgcpCtrlProt (Vgcp)

| | |
|---|---|
| Groups | "GROUP Nsta Vgs Vgcp Provisioned (Prov)"<br>"GROUP Nsta Vgs Vgcp Operational (Oper)" |
| Scope | Device |

| | |
|---|---|
| Description | *Nsta/n Vgs VgcpCtrlProt*<br><br>The *Vgcp* component provides an interface to a controller using the Voice Gateway Control Protocol. |
| Opt. Subcomp. | "COMPONENT Nsta Vgs Vgcp MgIfController (MgIfCtrl)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Nsta Vgs Vgcp Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioning data for the *Vgcp* component. |

### ATTRIBUTE Nsta Vgs Vgcp udpPortConnection (udpConn)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the link to the *Nsta/n Vgs Ctrl/n UdpPort/n* component that defines the UDP port access to the IP network for the VGCP protocol. |
| Values | Link (Service, linkToApplication) |
| Default | No default |

### GROUP Nsta Vgs Vgcp Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the *Vgcp* component. |

### ATTRIBUTE Nsta Vgs Vgcp controllerName (name)

| | |
|---|---|
| Access | Read only |
| Criticality | Component |

| | |
|---|---|
| Description | This attribute indicates the name of the last controller to send an IP message. At startup the name is null.<br><br>When either the ***wgAmr*** or ***wgAmrCsd*** feature is provisioned, this attribute is not applicable and is not displayed. |
| Values | String (0..32, ASCII) |
| Default | "" |

### ATTRIBUTE Nsta Vgs Vgcp controllerAddress (addr)

| | |
|---|---|
| Access | Read only |
| Criticality | Component |
| Description | This attribute indicates the IP address of the last controller to send an IP message. The *controllerAddress* is ***0.0.0.0*** until the first packet is received from the controller.<br><br>When either the ***wgAmr*** or ***wgAmrCsd*** feature is provisioned, this attribute is not applicable and is not displayed. |
| Values | IP address |
| Default | 0.0.0.0 |

### ATTRIBUTE Nsta Vgs Vgcp controllerType (type)

| | |
|---|---|
| Access | Read only |
| Criticality | Component |
| Description | This attribute indicates the type of the last controller to send an IP message. At startup the *controllerType* is ***none***.<br><br>When either the ***wgAmr*** or ***wgAmrCsd*** feature is provisioned, this attribute is not applicable and is not displayed. |
| Values | none<br>primary<br>secondary<br>tertiary |

| | |
|---|---|
| Default | none |

## COMPONENT Nsta Vgs Vgcp MgIfController (MgIfCtrl)

| | |
|---|---|
| Instance | Decimal (1..480) |
| Groups | "GROUP Nsta Vgs Vgcp MgIfCtrl Operational (Oper)" |
| Scope | Device |
| Description | *Nsta/n Vgs Vgcp MgIfController/n*<br><br>This component represents a Media Gateway (MG) Controller. The number of *MgIfCtrl* components that are added under a *Vgcp* component indicates how many different *MgIf* components are allowed to use the resources of this MG. Adding and deleting *MgIfCtrl* components allows the operator to control the number of *MgIf* components that will share this MG.<br><br>As *MgIf* components claim the resources they are provisioned to claim, the operational attributes of the *MgIfCtrl* components are populated with the IP address and UDP port of the controlling *MgIf* components. If a request for resources arrives after the last *MgIfCtrl* component was assigned, the request will be declined. The operator must guarantee enough *MgIfCtrl* components are added to support the number of *MgIf* components provisioned to use this MG. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Nsta Vgs Vgcp MgIfCtrl Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the *NstaVgsVgcpWgMgIfController* component. |

### ATTRIBUTE Nsta Vgs Vgcp MgIfCtrl controllerAddress (addr)

Access
Read: All
Write: Illegal

Description
This attribute indicates the IP address of an *MgIf* which has claimed control of some DS0 timeslots on a Voice Service Processor. When the component is initially activated, this attribute indicates an IP address of 0.0.0.0.

When the VSP receives its first message from a given *MgIf*, the next unclaimed *MgIfCtrl* component is assigned to it and the IP address of the *MgIf* component that originated the message is stored and indicated by this attribute. The *MgIf* indicates the DSO timeslots it desires to control. Those timeslots are reserved for the use of the given *MgIf*.

When messages are received from the *MgIf* to which this *MgIfCtrl* component is assigned indicating that it no longer controls any DS0 timeslots, the *MgIfCtrl* component is marked as unclaimed and the value indicated by this attribute is 0.0.0.0. Other *MgIf* components can claim the newly freed DS0 timeslots and be assigned to this *MgIfCtrl* component.

If no *MgIfCtrl* components are provisioned, no *MgIf* will be able to claim resources on this VSP.

The operator can display the *Ds0* components under each *AmrBrag* and *CsdBrag* to determine which timeslots are contolled by each *MgIfCtrl*.

Values
IP address

Default
No default

### ATTRIBUTE Nsta Vgs Vgcp MgIfCtrl controllerUdpPort (udp)

Access
Read: All
Write: Illegal

Description
This attribute indicates the UDP Port of an *MgIf* which has claimed control of some DS0 timeslots on a Voice Service Processor. When the component is initially activated, this

attribute indicates an UDP port number of 0.

When the VSP receives its first message from a given *MgIf*, the next unclaimed *MgIfCtrl* component is assigned to it and the UDP port number of the *MgIf* component that originated the message is stored and indicated by this attribute. The *MgIf* indicates the DSO timeslots it desires to control. Those timeslots are reserved for the use of the given *MgIf*.

When messages are received from the *MgIf* to which this *MgIfCtrl* component is assigned indicating that it no longer controls any DS0 timeslots, the *MgIfCtrl* component is marked as unclaimed and the value indicated by this attribute is 0. Other *MgIf* components can claim the newly freed DS0 timeslots and be assigned to this *MgIfCtrl* component.

If no *MgIfCtrl* components are provisioned, no *MgIf* is allowed to claim resources on this VSP.

The operator can display the *Ds0* components under each *AmrBrag* and *CsdBrag* to determine which timeslots are contolled by each *MgIfCtrl*.

Values — Decimal (0..65535)

Default — No default

## COMPONENT Nsta Vgs IpMediaStreamConnection (IpMConn)

Groups — "GROUP Nsta Vgs IpMConn Provisioned (Prov)"
"GROUP Nsta Vgs IpMConn OsiState (State)"
"GROUP Nsta Vgs IpMConn Statistics (Stats)"
"GROUP Nsta Vgs IpMConn NstaVgsConnectionStatus (ConnStat)"

Scope — Device

Description — *Nsta/n Vgs IpMediaStreamConnection*

This component represents the IP media termination of the Voice over IP function.

| | |
|---|---|
| Opt. Subcomp. | "COMPONENT Nsta Vgs IpMConn NailedUpAdaptionPoint (Nap)"<br>"COMPONENT Nsta Vgs IpMConn ActiveAccessPoint (Aap)"<br>"COMPONENT Nsta Vgs IpMConn PassiveAccessPoint (Pap)"<br>"COMPONENT Nsta Vgs IpMConn SpvcAccessPoint (SpvcAp)"<br>"COMPONENT Nsta Vgs IpMConn VirtualRouterAccessPoint (VrAp)" |
| Dyn. Subcomp. | "COMPONENT Nsta Vgs IpMConn AtmConnection (AtmCon)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Nsta Vgs IpMConn Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioning data for the *IpMConn* component. |

## ATTRIBUTE Nsta Vgs IpMConn ipAddress (ipAddr)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the IP address of this IP connection and must be unique to the IP network.<br><br>When the *IpMConn* component is copied using the *Copy* command, this attribute is set to ***0.0.0.0*** to prevent a duplication of IP addresses. |
| Values | IP address |
| Default | No default |

### ATTRIBUTE Nsta Vgs IpMConn udpPortBase (udpBase)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the low end of the range of UDP port numbers which will be assigned to media stream connections using this *IpMConn* component.The high end of the range is equal to *udpPortBase* + ((2 * 24) - 1).<br><br>The value provisioned is allocated by the network operating company according to the numbering plan.<br><br>If the *cardType* is ***2pGeMmSrVsp3*** or ***2pOC3ChSmIrVsp3***, this attribute may only take the value ***16384***, ***32768*** or ***49152***. In addition, if IP access is via a Gigabit Ethernet port on the ***2pGeMmSrVsp3*** card, the value may only be ***49152***. |
| Values | Decimal (8192; 16384; 24576; 32768; 40960; 49152; 57344) |
| Default | 49152 |

### GROUP Nsta Vgs IpMConn OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Nsta Vgs IpMConn adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. |

When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Nsta Vgs IpMConn operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Nsta Vgs IpMConn usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

## GROUP Nsta Vgs IpMConn Statistics (Stats)

Properties
Operational

Description
This group contains the statistics for the *IpMConn* component.

## ATTRIBUTE Nsta Vgs IpMConn txPackets (txPkt)

Access
Read only

Description
This attribute counts the packets transmitted since the component was activated.

The value wraps to zero when the maximum value is exceeded.

Values
Long Integer

Default
No default

## ATTRIBUTE Nsta Vgs IpMConn rxPackets (rxPkt)

Access
Read only

Description
This attribute counts all packets received (including errored packets) since the component was activated.

The value wraps to zero when the maximum value is exceeded.

Values
Long Integer

Default
No default

### ATTRIBUTE Nsta Vgs IpMConn erroredRxPackets (errRxPkt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the errored packets since the component was activated.<br><br>Errors may occur due to:<br>- packets discarded on buffer full,<br>- destination voice processing hardware is not functioning,<br>- no IP address yet available,<br><br>If the IP packets are transferred using AAL5 cells, this count will also contain any AAL5 CRC errors. The value wraps to zero when the maximum value is exceeded.<br><br>This attribute is filtered when the ***vspIpGigE*** or the ***vgpIpG729GigE*** feature is provisioned. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Nsta Vgs IpMConn pingRequestsReceived (rxPing)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the ICMP Echo request (ping) packets received since the component was activated.<br><br>The value wraps to zero when the maximum value is exceeded. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Nsta Vgs IpMConn atmarpPacketsReceived (rxAtmArp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the ATMARP (request or response) packets received since the component was activated.<br><br>The value wraps to zero when the maximum value is exceeded. |

| | |
|---|---|
| | This attribute is filtered when the ***vspIpGigE*** or the ***vgpIpG729GigE*** feature is provisioned, or the *VrAp* subcomponent is provisioned under this component. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Nsta Vgs IpMConn receivedPacketsDiscarded (rxDiscPkt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the packets received but discarded due to lack of internal buffer space.<br><br>The value wraps to zero when the maximum value is exceeded.<br><br>This attribute is filtered when the card type is ***2pGeMmSrVsp3*** or ***2pOC3ChSmIrVsp3***. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Nsta Vgs IpMConn unsupportedPacketsReceived (rxUnsupPkt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the packets received that are not IP or ICMP datagrams attributable to particular voice channels. This attribute does not include packets that are counted in *pingRequestsReceived*, *atmarpPacketsReceived* or *receivedPacketsDiscarded* attributes.<br><br>The value wraps to zero when the maximum value is exceeded. |
| Values | Long Integer |
| Default | No default |

### GROUP Nsta Vgs IpMConn NstaVgsConnectionStatus (ConnStat)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains an attribute which provides information on the status of the VGS connections. |

## ATTRIBUTE Nsta Vgs IpMConn currentStatus (cStat)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the current status of a *Vgs AtmTConn*, *IpMConn* or *Ctrl* connection.<br><br>***enabled*** indicates that the component is enabled and available to transport traffic.<br><br>***activating*** indicates that the component is progressing through its expected sequence of activation and enabling actions, and that no errors having been reported.<br><br>***atmConnectionNotReady*** indicates that a problem has been reported with the ATM VCC linked to the component's *Nap*, *Aap* or *Pap* subcomponent, resulting in the component being in a disabled state.<br><br>***vspNotReady*** indicates that the *Vsp* component linked to the parent *Nsta* component is either disabled or locked.<br><br>***outOfResource*** indicates that no hardware resource is available on the VSP card to support the component. This means that the VSP card is inadequately equipped or has suffered some level of hardware failure.<br><br>***ipNetworkInaccessible*** indicates that a connection into the IP network cannot be created. This may be due to physical ports being disabled, or the inability of routing software to establish an appropriate connection. |
| Values | enabled<br>activating<br>atmConnectionNotReady<br>vspNotReady<br>outOfResource<br>ipNetworkInaccessible |
| Default | No default |

## COMPONENT Nsta Vgs IpMConn NailedUpAdaptionPoint (Nap)

| | |
|---|---|
| Groups | "GROUP Nsta Vgs IpMConn Nap Provisioned (Prov)" |
| Scope | Device |
| Description | *Nsta/n Conn/n NailedUpAdaptionPoint*<br>*Nsta/n Conn/n Brag/n Ccst NailedUpAdaptionPoint*<br>*Nsta/n Vgs AtmTConn/n NailedUpAdaptionPoint*<br>*Nsta/n Vgs Control/n NailedUpAdaptionPoint*<br>*Nsta/n Vgs IpMConn NailedUpAdaptionPoint*<br><br>This component is used to provide access to a nailed-up ATM connection (an *Atmif Vcc Nep*).<br><br>Components in the *Nsta* component hierarchy which require access to such connections will have a *NailedUpAdaptionPoint* subcomponent. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Nsta Vgs IpMConn Nap Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisioning data for a *Nap* component. |

## ATTRIBUTE Nsta Vgs IpMConn Nap atmConnection (atmConn)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the link to the *AtmIf Vcc Nep* component that defines the access to the ATM network. |
| Values | Link (Service, applicationName) |
| Default | No default |

## COMPONENT Nsta Vgs IpMConn ActiveAccessPoint (Aap)

| | |
|---|---|
| Groups | "GROUP Nsta Vgs IpMConn Aap Provisioned (Prov)"<br>"GROUP Nsta Vgs IpMConn Aap AapAddressessProv (AapAddrProv)"<br>"GROUP Nsta Vgs IpMConn Aap Operational (Oper)"<br>"GROUP Nsta Vgs IpMConn Aap AccessPointOper (ApOper)" |
| Scope | Device |
| Description | *Nsta/n Vgs Control/n ActiveAccessPoint*<br>*Nsta/n Vgs IpMConn ActiveAccessPoint*<br>*Nsta/n Conn/n ActiveAccessPoint*<br><br>This component defines ATM SVC originating and terminating information pertinent to those subcomponents in the *Nsta* hierarchy which require dynamic links into the ATM network but have no addressing information. An *Aap* is responsible for maintaining calls to a remote address in the ATM network. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### VERB Restart Nsta Vgs IpMConn Aap

| | |
|---|---|
| Impact | Service |
| Description | *Restart Nsta/n Vgs Control/n ActiveAccessPoint*<br>*Restart Nsta/n Vgs IpMConn ActiveAccessPoint*<br>*Restart Nsta/n Conn/n ActiveAccessPoint*<br><br>This command is used to restart the automatic connection procedure. The operational attributes *retryTimeRemaining* and *retryFailures* are also reset. The *Restart* verb restarts the connection procedure with the current active address as specified in the *addressToCall* attribute.<br><br>This command may be used after the connection procedure has been abandoned due to reaching the maximum number of retries allowed as specified by *retryLimit*, or before the limit has been reached.<br><br>This command may also be used when a connection has been established, in which case the connection is released first.<br><br>This command fails if the *svcStatus* attribute has the value ***initializing*** or the value ***failed***. |

### GROUP Nsta Vgs IpMConn Aap Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisioning data for the *Aap* component. |

### ATTRIBUTE Nsta Vgs IpMConn Aap atmServiceCategory (service)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specified the ATM service category for SVCs. The ***constantBitRate*** service category is intended for real time applications, that is those requiring tightly constrained delay and delay variation, as would be appropriate for voice and video applications. The consistent availability of a fixed quantity of bandwidth is considered appropriate for constant bit rate service. Cells which are delayed beyond the value specified by |

*cellTransferDelay* are assumed to have significantly reduced value for the application.

The ***rtVariableBitRate*** service category is intended for real time applications, that is those requiring tightly constrained delay and delay variation, as would be appropriate for voice and video applications. Sources are expected to transmit at a rate which varies with time. Equivalently, the source can be described as "bursty". Cells which are delayed beyond the value specified by *cellTransferDelay* are assumed to be of significantly reduced value to the application. The real-time variable bit rate service may support statistical multiplexing of real time sources.

The ***nrtVariableBitRate*** service category is intended for non-real time applications which have bursty traffic characteristics and which can be characterized in terms of a *peakCellRate*, *sustainedCellRate*, and *maximumBurstSize*. For those cells which are transferred within the traffic contract, the application expects a low cell loss ratio. For all connections, it expects a bound on the mean cell transfer delay. The non real-time variable bit rate service may support statistical multiplexing of connections.

If the parent of the *Aap* is a *Ctrl* component then the default value of *atmServiceCategory* attribute is ***nrtVariableBitRate***; it may not take the value ***rtVariableBitRate***. If the parent of the *Aap* is an *IpMConn* or *Conn* component then the default value of *atmServiceCategory* attribute is ***rtVariableBitRate***; it may not take the value ***nrtVariableBitRate***.

| | |
|---|---|
| Values | constantBitRate (cbr)<br>rtVariableBitRate (rtVbr)<br>nrtVariableBitRate (nrtVbr) |
| Default | No default |

### ATTRIBUTE Nsta Vgs IpMConn Aap peakCellRate (pcr)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the peak cell rate of the ATM connection. |

| | |
|---|---|
| Values | Decimal (1..2147483647) |
| Units | cell/s |
| Default | No default |

### ATTRIBUTE Nsta Vgs IpMConn Aap sustainedCellRate (scr)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the sustained cell rate of the ATM connection. It must be provisioned with a non-zero value when the *atmServiceCategory* attribute has the value ***rtVariableBitRate*** or ***nrtVariableBitRate***, and it must be provisioned with zero value when it has the value ***constantBitRate***. |
| Values | Decimal (0..2147483647) |
| Units | cell/s |
| Default | 0 |

### ATTRIBUTE Nsta Vgs IpMConn Aap maximumBurstSize (mbs)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the maximum burst size, at the peak cell rate, of the ATM connection. It must be provisioned with a non-zero value when the *atmServiceCategory* attribute has the value ***rtVariableBitRate*** or ***nrtVariableBitRate***, and it must be provisioned with zero value when it has the value ***constantBitRate***. |
| Values | Decimal (0..2147483647) |
| Units | cells |
| Default | 0 |

### ATTRIBUTE Nsta Vgs IpMConn Aap retryLimit (limit)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |

| | |
|---|---|
| Description | This attribute specifies the maximum number of consecutive unsuccessful setup attempts before further attempts are abandoned. If this limit is reached, management action is required (restart the connection attempts with the *Restart* verb). A value of zero indicates no limit; attempts will continue indefinitely until a successful connection is established. |
| Values | Decimal (0..65535) |
| Default | 0 |

### GROUP Nsta Vgs IpMConn Aap AapAddressessProv (AapAddrProv)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains NSAP address provisioning data. |

### ATTRIBUTE Nsta Vgs IpMConn Aap expectedRemoteAddress (expectedAddr)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the expected remote address information for an incoming setup request.<br><br>If *expectedRemoteAddress* is not empty, only matching addresses in incoming setup are considered for acceptance.<br><br>If *expectedRemoteAddress* is less than 40 characters long, the remote address must match the value in *expectedRemoteAddress* to be accepted.<br><br>If *expectedRemoteAddress* is empty, connection requests are accepted from any remote address. |
| Values | String (0..40, ASCII) |
| Default | "" |

### ATTRIBUTE Nsta Vgs IpMConn Aap localAddress (localAddr)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |

| | |
|---|---|
| Description | This attribute specifies the access point's ATM address.<br><br>If the switch prefix (the *nodePrefix* attribute of the *ModuleData* component) is provisioned, a default value for *localAddress* based on the *nodePrefix* is provided.<br><br>If a default cannot be generated the operator is forced to set a value for this attribute. Alternatively, the *ModuleData nodePrefix* attribute may be provisioned, and this access point component then deleted and re-added. |
| Values | String (1..44, AESANsapAddress) |
| Default | No default |

### ATTRIBUTE Nsta Vgs IpMConn Aap addressToCall (addrToCall)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the list of remote NSAP addresses which this component can call. At least one address must be provisioned.<br><br>For the *ControlConnection* component in switched VoATM and VoIP and for the *IpMediaStreamConnection* application the remote end is a router. It is required to be able to establish SVCs to different routers. Therefore, the *addressToCall* attribute is a list of remote addresses.<br><br>The first SVC call is sent to the first address listed in the *addressToCall* attribute. If the setup fails or the call is established but fails at a later time, the system attempts to set up a connection to next address listed in the *addressToCall* attribute. If a failure occurs when using the last address in the list, the system attempts to setup a connection to the first address in the list and then continues as before. |
| List of | String (1..44, AESANsapAddress) |
| List Size | 3 |
| Default | No default |

## GROUP Nsta Vgs IpMConn Aap Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational status information for the *Aap* component. |

## ATTRIBUTE Nsta Vgs IpMConn Aap svcStatus (status)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the status of the SVC connection. When this attribute has the value ***initializing***, it indicates that the component is initializing when first created; a connection has not been established, and no incoming setup requests will be processed.<br><br>When this attribute has the value ***connecting***, it indicates that a connection has not yet been established, but that incoming setup requests are processed. A connection has been requested but not yet established.<br><br>When this attribute has the value ***connected***, it indicates that a connection has been established.<br><br>When this attribute has the value ***idle***, it indicates that the connection has just been torn down and an attempt to re-establish the connection has not yet occurred. This is a transient state of the component.<br><br>When this attribute has the value ***retriesExhausted***, it indicates that *retryLimit* consecutive connection setup attempts have failed, and the connection procedure has been aborted.<br><br>When this attribute has the value ***failed,*** it indicates that an error occurred while sending a release message to the network (as a consequence of a Delete request) while the component was in ***connecting*** state. |
| Values | initializing<br>connecting<br>connected<br>idle |

| | |
|---|---|
| | retriesExhausted<br>failed |
| Default | No default |

### ATTRIBUTE Nsta Vgs IpMConn Aap lastSetupFailureCause (failCause)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the cause code in the last call release message following an unsuccessful call setup attempt. The values are as defined in the ATM Forum ATM User-Network Interface (UNI) Specification.<br><br>If no call setup attempts have failed, this attribute has a value of 0. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE Nsta Vgs IpMConn Aap lastSetupFailureDiagnostic (failDiag)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the diagnostic code in the last call release message following an unsuccessful call setup attempt. The diagnostic code is contained in the CAUSE information element and is present only if a procedural error is detected by the signaling protocol. A diagnostic code is always accompanied by the cause code.<br><br>If no call setup attempts have failed, this attribute is an empty string. |
| Values | String (0..8, ASCII) |
| Default | No default |

### ATTRIBUTE Nsta Vgs IpMConn Aap retryTimeRemaining (timer)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current value of the retry timer for this connection; it indicates the number of seconds before the next connection attempt is made. When the value reaches 0 an attempt |

| | |
|---|---|
| | will be made to establish the connection. When the timer is not running this attribute has a value of 0. |
| Values | Decimal (0..86400) |
| Units | seconds |
| Default | No default |

### ATTRIBUTE Nsta Vgs IpMConn Aap retryFailures (failures)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of consecutive failed connection attempts. This counter is reset to 0 whenever a connection is successfully established or the connection is restarted using the *Restart* verb. The counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..2147483647) |
| Default | No default |

### GROUP Nsta Vgs IpMConn Aap AccessPointOper (ApOper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational information regarding the end point of the connection. This group is common to all types of access points. |

### ATTRIBUTE Nsta Vgs IpMConn Aap remoteAddress (rAddr)

| | |
|---|---|
| Access | Read only |
| Criticality | Component |
| Description | This attribute indicates the address of the remote end point. If a connection is currently established, it will contain the NSAP address of the remote end point. If a connection is not established, the *remoteAddress* attribute has the value ***unknown***. |
| Values | String (7..40, ASCII) |
| Default | No default |

### ATTRIBUTE Nsta Vgs IpMConn Aap lastTearDownCause (cause)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the cause code in the last call release message that contained the CAUSE information element. Note that the call must have been successfully established before being torn down. The values are as defined in the ATM Forum ATM User-Network Interface (UNI) Specification. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE Nsta Vgs IpMConn Aap lastTearDownDiagnostic (diag)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the diagnostic code in the last call release message. The diagnostic code is contained in the CAUSE information element and is present only if a procedural error is detected by the signaling protocol. A diagnostic code is always accompanied by the cause code. |
| Values | String (0..8, ASCII) |
| Default | No default |

### COMPONENT Nsta Vgs IpMConn PassiveAccessPoint (Pap)

| | |
|---|---|
| Groups | "GROUP Nsta Vgs IpMConn Pap PapAddressesProv (PapAddrProv)"<br>"GROUP Nsta Vgs IpMConn Pap Operational (Oper)"<br>"GROUP Nsta Vgs IpMConn Pap AccessPointOper (ApOper)" |
| Scope | Device |
| Description | *Nsta/n Vgs Control/n PassiveAccessPoint*<br>*Nsta/n Vgs IpMConn/n PassiveAccessPoint*<br>*Nsta/n Conn/n PassiveAccessPoint*<br><br>This component defines ATM SVC terminating information pertinent to those subcomponents in the *Nsta* hierarchy which |

| | |
|---|---|
| | require dynamic links into the ATM network but have no addressing information. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Nsta Vgs IpMConn Pap PapAddressesProv (PapAddrProv)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains NSAP address provisioning data. |

## ATTRIBUTE Nsta Vgs IpMConn Pap expectedRemoteAddress (expectedAddr)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the expected remote address information for an incoming connection setup request.<br><br>If *expectedRemoteAddress* is not empty, only matching connections are considered for acceptance.<br><br>If *expectedRemoteAddress* is less than 40 characters long, the remote address must match the value in *expectedRemoteAddress* to be accepted.<br><br>If *expectedRemoteAddress* is empty, the component processes connection requests from any remote address. |
| Values | String (0..40, ASCII) |
| Default | "" |

## ATTRIBUTE Nsta Vgs IpMConn Pap localAddress (localAddr)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |

| | |
|---|---|
| Description | This attribute specifies the ATM address of the access point.<br><br>If the switch prefix (the *nodePrefix* attribute of the *ModuleData* component) has been provisioned, a default value for *localAddress* based on the *nodePrefix* is provided.<br><br>If a default can not be generated the operator is forced to set a value for this attribute. Alternatively, the *ModuleData nodePrefix* attribute may be provisioned, and this access point component then deleted and re-added. |
| Values | String (1..44, AESANsapAddress) |
| Default | No default |

### GROUP Nsta Vgs IpMConn Pap Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains status information common to the *PassiveAccessPoint* and *AddresslessPassiveAccessPoint* components. |

### ATTRIBUTE Nsta Vgs IpMConn Pap svcStatus (status)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the status of the SVC connection. When this attribute has the value ***initializing***, it indicates that the component is initializing when first created; a connection has not been established, and no incoming setup requests will be processed.<br><br>When this attribute has the value ***connecting***, it indicates that a connection has not yet been established, but that incoming setup requests are processed. A connection has been requested but not yet established.<br><br>When this attribute has the value ***connected***, it indicates that a connection has been established.<br><br>When this attribute has the value ***idle***, it indicates that the connection has just been torn down and an attempt to re-establish the connection has not yet occurred. This is a transient state of |

the component.

When this attribute has the value ***failed,*** it indicates that an error occurred while sending a release message to the network (as a consequence of a *Delete* request) while the component was in ***connecting*** state.

Values
initializing
connecting
connected
idle
failed

Default
No default

### GROUP Nsta Vgs IpMConn Pap AccessPointOper (ApOper)

Properties
Operational

Description
This group contains operational information regarding the end point of the connection. This group is common to all types of access points.

### ATTRIBUTE Nsta Vgs IpMConn Pap remoteAddress (rAddr)

Access
Read only

Criticality
Component

Description
This attribute indicates the address of the remote end point. If a connection is currently established, it will contain the NSAP address of the remote end point. If a connection is not established, the *remoteAddress* attribute has the value ***unknown***.

Values
String (7..40, ASCII)

Default
No default

### ATTRIBUTE Nsta Vgs IpMConn Pap lastTearDownCause (cause)

Access
Read only

Description
This attribute indicates the cause code in the last call release message that contained the CAUSE information element. Note that the call must have been successfully established before being

| | |
|---|---|
| | torn down. The values are as defined in the ATM Forum ATM User-Network Interface (UNI) Specification. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE Nsta Vgs IpMConn Pap lastTearDownDiagnostic (diag)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the diagnostic code in the last call release message. The diagnostic code is contained in the CAUSE information element and is present only if a procedural error is detected by the signaling protocol. A diagnostic code is always accompanied by the cause code. |
| Values | String (0..8, ASCII) |
| Default | No default |

### COMPONENT Nsta Vgs IpMConn SpvcAccessPoint (SpvcAp)

| | |
|---|---|
| Groups | "GROUP Nsta Vgs IpMConn SpvcAp Provisioned (Prov)"<br>"GROUP Nsta Vgs IpMConn SpvcAp SpvcApAddressessProv (SpvcApAddrProv)"<br>"GROUP Nsta Vgs IpMConn SpvcAp Operational (Oper)"<br>"GROUP Nsta Vgs IpMConn SpvcAp AccessPointOper (ApOper)" |
| Scope | Device |
| Description | *Nsta/n Vgs Control/n SpvcAccessPoint*<br>*Nsta/n Vgs IpMConn SpvcAccessPoint*<br>*Nsta/n Conn/n SpvcAccessPoint*<br><br>This component defines ATM SPVC originating information pertinent to those subcomponents in the *Nsta* hierarchy which require dynamic links into the ATM network but have no addressing information. |

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## VERB Restart Nsta Vgs IpMConn SpvcAp

| | |
|---|---|
| Impact | Service |
| Description | *Restart Nsta/n Vgs Control/n SpvcAccessPoint*<br>*Restart Nsta/n Vgs IpMConn SpvcAccessPoint*<br>*Restart Nsta/n Conn/n SpvcAccessPoint*<br><br>This command is used to restart the automatic connection procedure. The operational attributes *retryTimeRemaining* and *retryFailures* are also reset. The *Restart* verb restarts the connection procedure with the current active address as specified in the *addressToCall* attribute.<br><br>This command may be used after the connection procedure has been abandoned due to reaching the maximum number of retries allowed as specified by *retryLimit*, or before the limit has been reached.<br><br>This command may also be used when a connection has been established, in which case the connection is released first.<br><br>This command fails if the *svcStatus* attribute has the value ***initializing*** or the value ***failed***. |

## GROUP Nsta Vgs IpMConn SpvcAp Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisioning data for the *SpvcAp* component. |

## ATTRIBUTE Nsta Vgs IpMConn SpvcAp atmServiceCategory (service)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the ATM service category for SVCs. |

The ***constantBitRate*** service category is intended for real time applications, that is those requiring tightly constrained delay and delay variation, as would be appropriate for voice and video applications. The consistent availability of a fixed quantity of bandwidth is considered appropriate for constant bit rate service. Cells which are delayed beyond the value specified by *cellTransferDelay* are assumed to have significantly reduced value for the application.

The ***rtVariableBitRate*** service category is intended for real time applications, that is those requiring tightly constrained delay and delay variation, as would be appropriate for voice and video applications. Sources are expected to transmit at a rate which varies with time. Equivalently, the source can be described as "bursty". Cells which are delayed beyond the value specified by *cellTransferDelay* are assumed to be of significantly reduced value to the application. The real-time variable bit rate service may support statistical multiplexing of real time sources.

The ***nrtVariableBitRate*** service category is intended for non-real time applications which have bursty traffic characteristics and which can be characterized in terms of a *peakCellRate*, *sustainedCellRate*, and *maximumBurstSize*. For those cells which are transferred within the traffic contract, the application expects a low cell loss ratio. For all connections, it expects a bound on the mean cell transfer delay. The non real-time variable bit rate service may support statistical multiplexing of connections.

If the parent of the *SpvcAp* is a *Ctrl* component then the default value of *atmServiceCategory* attribute is ***nrtVariableBitRate***; it may not take the value ***rtVariableBitRate***. If the parent of the *SpvcAp* is an *IpMConn* component then the default value of *atmServiceCategory* attribute is ***rtVariableBitRate***; it may not take the value ***nrtVariableBitRate***.

| | |
|---|---|
| Values | constantBitRate (cbr)<br>rtVariableBitRate (rtVbr)<br>nrtVariableBitRate (nrtVbr) |
| Default | No default |

### ATTRIBUTE Nsta Vgs IpMConn SpvcAp peakCellRate (pcr)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the peak cell rate of the ATM connection. |
| Values | Decimal (1..2147483647) |
| Units | cell/s |
| Default | No default |

### ATTRIBUTE Nsta Vgs IpMConn SpvcAp sustainedCellRate (scr)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the sustained cell rate of the ATM connection. It must be provisioned with a non-zero value when the *atmServiceCategory* attribute has the value ***rtVariableBitRate*** or ***nrtVariableBitRate***, and it must be provisioned with zero value when it has the value ***constantBitRate***. |
| Values | Decimal (0..2147483647) |
| Units | cell/s |
| Default | 0 |

### ATTRIBUTE Nsta Vgs IpMConn SpvcAp maximumBurstSize (mbs)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the maximum burst size, at the peak cell rate, of the ATM connection. It must be provisioned with a non-zero value when the *atmServiceCategory* attribute has the value ***rtVariableBitRate*** or ***nrtVariableBitRate***, and it must be |

| | |
|---|---|
| | provisioned with zero value when it has the value ***constantBitRate***. |
| Values | Decimal (0..2147483647) |
| Units | cells |
| Default | 0 |

### ATTRIBUTE Nsta Vgs IpMConn SpvcAp retryLimit (limit)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the maximum number of consecutive unsuccessful setup attempts before further attempts are abandoned. If this limit is reached, management action is required (restart the connection attempts with the *Restart* verb). A value of zero indicates no limit; attempts will continue indefinitely until a successful connection is established. |
| Values | Decimal (0..65535) |
| Default | 0 |

### GROUP Nsta Vgs IpMConn SpvcAp SpvcApAddressessProv (SpvcApAddrProv)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains NSAP address provisioning data for the *SpvcAp* component. |

### ATTRIBUTE Nsta Vgs IpMConn SpvcAp localAddress (localAddr)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the access point's ATM address.<br><br>If the switch prefix (the *nodePrefix* attribute of the *ModuleData* component) is provisioned, a default value for *localAddress* based on the *nodePrefix* is provided.<br><br>If a default cannot be generated the operator is forced to set a |

| | |
|---|---|
| | value for this attribute. Alternatively, the *ModuleData nodePrefix* attribute may be provisioned, and this access point component then deleted and re-added. |
| Values | String (1..44, AESANsapAddress) |
| Default | No default |

### ATTRIBUTE Nsta Vgs IpMConn SpvcAp remoteVpiVci (rVpiVci)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the remote VPI and VCI for an *SpvcAp* component. |
| Values | Integer Sequence (0..255; 1..65535) |
| Default | No default |

### ATTRIBUTE Nsta Vgs IpMConn SpvcAp addressToCall (addrToCall)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the list of remote NSAP addresses which this component can call. At least one address must be provisioned.<br><br>For the *ControlConnection* application in switched VoATM and VoIP and for the *IpMediaStreamConnection* application the remote end is a router. It is required to be able to establish SVCs to different routers. Therefore, the *addressToCall* attribute is a list of remote addresses.<br><br>The first SVC call is sent to the first address listed in the *addressToCall* attribute. If the setup fails or the call is established but fails at a later time, the system attempts to set up a connection to next address listed in the *addressToCall* attribute. If a failure occurs when using the last address in the list, the system attempts |

to set up a connection to the first address in the list and then continues as before.

List of: String (1..44, AESANsapAddress)

List Size: 3

Default: No default

### GROUP Nsta Vgs IpMConn SpvcAp Operational (Oper)

Properties: Operational

Description: This group contains operational status information for the *SpvcAp* component.

### ATTRIBUTE Nsta Vgs IpMConn SpvcAp svcStatus (status)

Access: Read only

Description: This attribute specifies the status of the SVC connection. When this attribute has the value ***initializing***, it indicates that the component is initializing when first created; a connection has not been established, and no incoming setup requests will be processed.

When this attribute has the value ***connecting***, it indicates that a connection has not yet been established, but that incoming setup requests are processed. A connection has been requested but not yet established.

When this attribute has the value ***connected***, it indicates that a connection has been established.

When this attribute has the value ***idle***, it indicates that the connection has just been torn down and an attempt to re-establish the connection has not yet occurred. This is a transient state of the component.

When this attribute has the value ***retriesExhausted***, it indicates that *retryLimit* for consecutive connection set up attempts have failed, and the connection procedure has been aborted.

When this attribute has the value ***failed,*** it indicates that an error

occurred while sending a release message to the network (as a consequence of a *Delete* request) while the component was in ***connecting*** state.

Values
initializing
connecting
connected
idle
retriesExhausted
failed

Default
No default

### ATTRIBUTE Nsta Vgs IpMConn SpvcAp lastSetupFailureCause (failCause)

Access
Read only

Description
This attribute contains the cause code in the last call release message following an unsuccessful call set up attempt. The values are as defined in the ATM Forum ATM User-Network Interface (UNI) Specification.

Values
Decimal (0..255)

Default
No default

### ATTRIBUTE Nsta Vgs IpMConn SpvcAp lastSetupFailureDiagnostic (failDiag)

Access
Read only

Description
This attribute contains the diagnostic code in the last call release message following an unsuccessful call set up attempt. The diagnostic code is contained in the CAUSE information element and is present only if a procedural error is detected by the signaling protocol. A diagnostic code is always accompanied by the cause code.

Values
String (0..8, ASCII)

Default
No default

### ATTRIBUTE Nsta Vgs IpMConn SpvcAp retryTimeRemaining (timer)

Access
Read only

| | |
|---|---|
| Description | This attribute indicates the current value of the retry timer for this connection; it indicates the number of seconds before the next connection attempt is made. When the value reaches ***0*** an attempt will be made to establish the connection. When the timer is not running a value of ***0*** is returned. |
| Values | Decimal (0..86400) |
| Units | seconds |
| Default | No default |

### ATTRIBUTE Nsta Vgs IpMConn SpvcAp retryFailures (failures)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of consecutive failed connection attempts. This counter is reset to ***0*** whenever a connection is successfully established or the connection is restarted using the *Restart* verb. The counter wraps to ***0*** when the maximum value is exceeded. |
| Values | Decimal (0..2147483647) |
| Default | No default |

### GROUP Nsta Vgs IpMConn SpvcAp AccessPointOper (ApOper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational information regarding the end point of the connection. This group is common to all types of access points. |

### ATTRIBUTE Nsta Vgs IpMConn SpvcAp remoteAddress (rAddr)

| | |
|---|---|
| Access | Read only |
| Criticality | Component |
| Description | This attribute indicates the address of the remote end point. If a connection is currently established, it will contain the NSAP address of the remote end point. If a connection is not established, the *remoteAddress* attribute has the value ***unknown***. |
| Values | String (7..40, ASCII) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Nsta Vgs IpMConn SpvcAp lastTearDownCause (cause)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the cause code in the last call release message that contained the CAUSE information element. Note that the call must have been successfully established before being torn down. The values are as defined in the ATM Forum ATM User-Network Interface (UNI) Specification. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE Nsta Vgs IpMConn SpvcAp lastTearDownDiagnostic (diag)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the diagnostic code in the last call release message. The diagnostic code is contained in the CAUSE information element and is present only if a procedural error is detected by the signaling protocol. A diagnostic code is always accompanied by the cause code. |
| Values | String (0..8, ASCII) |
| Default | No default |

### COMPONENT Nsta Vgs IpMConn AtmConnection (AtmCon)

| | |
|---|---|
| Groups | "GROUP Nsta Vgs IpMConn AtmCon Operational (Oper)" |
| Scope | Device |
| Description | An AtmConnection component is created for each ATM connection established by an application. It shows where the data traffic for this connection is directed. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Nsta Vgs IpMConn AtmCon Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains the operational attributes for the *NapAtmConnection* component. |

### ATTRIBUTE Nsta Vgs IpMConn AtmCon nextHop

| | |
|---|---|
| Access | Read only |
| Description | This attribute shows the component name of the *AtmIf Vcc Ep* or *AtmCon* component to which this switched connection is established. |
| Values | The name of the component |
| Default | No default |

### COMPONENT Nsta Vgs IpMConn VirtualRouterAccessPoint (VrAp)

| | |
|---|---|
| Groups | "GROUP Nsta Vgs IpMConn VrAp Provisioned (Prov)" |
| Scope | Application |
| Description | *Nsta/n Vgs Ctrl/n VrAp*<br>*Nsta/n Vgs IpMConn VrAp*<br>*Nsta/n Vgs DbgAccess VrAp*<br><br>This component represents a point of access to a *VirtualRouter* component, which provides an IP forwarding functionality to this *Nsta/n Vgs* component hierarchy.<br><br>If at least one *VrAp* component is used within a *Nsta/n Vgs* component hierarchy, then all IP network access from within that hierarchy must be via *VrAp* components.<br><br>In addition, a *VCac* component cannot be provisioned within a *Nsta/n Vgs* component hierarchy which contains a *VrAp* component. |

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Nsta Vgs IpMConn VrAp Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisioning data for the *VrAp* component. |

### ATTRIBUTE Nsta Vgs IpMConn VrAp subnetAccessName (subnet)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the *Vr/n Pp/m IpPort LogicalIf/x.y.z.u* component instance to be used by this *VrAp*.<br><br>The value of the *ipAddr* attribute defined by the parent of this *VrAp* must belong to the subnet defined by the specified *Vr/n Pp/m IpPort LogicalIf/x.y.z.u* component instance. |
| Values | The name of the component |
| Default | No default |

### COMPONENT Nsta Vgs SimpleGatewayCtrlProt (Sgcp)

| | |
|---|---|
| Groups | "GROUP Nsta Vgs Sgcp Provisioned (Prov)" |
| Scope | Device |
| Description | *Nsta/n Vgs SimpleGatewayCtrlProt*<br><br>This component provides an interface to an SGCP based media gateway controller using the SGCP protocol. |

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Nsta Vgs Sgcp Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioning data for the *Sgcp* component. |

## ATTRIBUTE Nsta Vgs Sgcp rsipMessages (rsipM)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies if RSIP message generation is enabled or disabled. When a value of ***disabled*** is provisioned then no RSIP messages are generated. When a value of ***enabled*** is provisioned then RSIP messages are generated.<br>The value to be provisioned is determined by the ability of the media gateway controller to receive RSIP messages.<br>Incorrect provisioning of this value (to ***disabled***) could cause failure conditions to be wrongly diagnosed. Incorrect provisioning of this value (to ***enabled***) causes RSIP messages to be discarded by the media gateway controller. |
| Values | disabled<br>enabled |
| Default | disabled |

## ATTRIBUTE Nsta Vgs Sgcp defaultServiceMgrName (defSmn)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the default remote name for all SGCP messages when no other remote name can be determined (from the Notified Entity or the source address of the last message received). |

| | |
|---|---|
| | (Note: The Notified Entity is a host name or IP address).<br>This attribute is also used for all RSIP messages.<br>A remote name does not need to be provisioned, but if it is, it is used to look up an IP address on a DNS server. |
| Values | String (0..255, ASCII) |
| Default | "" |

### ATTRIBUTE Nsta Vgs Sgcp defaultServiceMgrPort (defSmp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the default remote UDP port for all SGCP messages transmitted if no other remote port can be determined (from the notified entity or the source address of the last message received). This attribute is also used for all RSIP messages. |
| Values | Decimal (1..65535) |
| Default | 2427 |

### ATTRIBUTE Nsta Vgs Sgcp maxTxRetries (maxTxRetries)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum number of retransmissions of an SGCP protocol message.<br>If no reply is received following the transmission of an SGCP protocol message, it is retransmitted according to the number of times specified by this attribute, to the same IP address. If a reply is still not received, a different IP address may be attempted which is obtained from (and in the following order):<br>- the Notified Entity<br>- the source address of the last message received or<br>- the *defaultServiceMgrName* attribute.<br>A value of ***0*** indicates no retransmissions. |
| Values | Decimal (0..5) |
| Default | 2 |

### ATTRIBUTE Nsta Vgs Sgcp initialTxRetryTime (initTxRetryTime)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute specifies the initial retry time for an SGCP protocol message.<br>If no reply is received following the transmission of an SGCP protocol message, the first retransmission (subject to the number of retransmissions specified by the *maxTxRetries* attribute) occurs after the time-out specified by this attribute. Subsequent retransmission time-outs randomly increase, subject to the maximum value specified by the *maxTxRetryTime* attribute.<br>The initial retry time is rounded down to the nearest multiple of 100 milliseconds.<br>This value is ignored if the *maxTxRetries* attribute is set to ***0***. |
| Values | Decimal (100..10000) |
| Units | msec |
| Default | 300 |

### ATTRIBUTE Nsta Vgs Sgcp maxTxRetryTime (mTxRetryTime)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum retransmission time for an SGCP protocol message.<br>If no reply is received following the transmission of an SGCP protocol message, the time-outs between retransmissions randomly increase, subject to the maximum value specified by this attribute.<br>This value is ignored if the value of the *maxTxRetries* attribute is ***0*** or ***1***.<br>The maximum retransmission time is rounded down to the nearest multiple of 100 milliseconds.<br>This value must be greater than, or equal to, the value of the *initialTxRetryTime* attribute. |
| Values | Decimal (100..10000) |
| Units | msec |
| Default | 1000 |

### ATTRIBUTE Nsta Vgs Sgcp mfInitialTxRetryTime (mfInitTxRetryTime)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute specifies the initial retry time for an MF SGCP protocol message.<br>If no reply is received following the transmission of an MF SGCP protocol message, the first retransmission (subject to the number of retransmissions specified by the *maxTxRetries* attribute) occurs after the time-out specified by this attribute. Subsequent retransmission time-outs randomly increase, subject to the maximum value specified by the *mfMaxTxRetryTime* attribute.<br>This value is ignored if the *maxTxRetries* attribute is set to ***0***. |
| Values | Decimal (1..20) |
| Units | seconds |
| Default | 3 |

### ATTRIBUTE Nsta Vgs Sgcp mfMaxTxRetryTime (mfMaxTxRetryTime)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum retransmission time for an MF SGCP protocol message.<br>If no reply is received following the transmission of an MF SGCP protocol message, the time-outs between retransmissions randomly increase, subject to the maximum value specified by this attribute.<br>This value is ignored if the value of the *maxTxRetries* attribute is ***0*** or ***1***.<br>This value must be greater than, or equal to, the value of the *mfInitialTxRetryTime* attribute. |
| Values | Decimal (1..20) |
| Units | seconds |
| Default | 5 |

### ATTRIBUTE Nsta Vgs Sgcp udpPortConnection (udpConn)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the link to the *Nsta/n Vgs CtrlConn/n UdpPort/n* component that defines the UDP port access to the IP network for the SGCP protocol. |

| | |
|---|---|
| Values | Link (Service, linkToApplication) |
| Default | No default |

### ATTRIBUTE Nsta Vgs Sgcp mfMaxTxRetries (mfMaxTxRetries)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum number of retransmissions of an MF SGCP protocol message.<br>If no reply is received following the transmission of an MF SGCP protocol message, it is retransmitted the number of times specified by this attribute, to the same IP address. If a reply is still not received, a different IP address may be attempted which is obtained from (and in the following order):<br>- the Notified Entity<br>- the source address of the last message received or<br>- the *defaultServiceMgrName* attribute.<br>A value of ***0*** indicates no retransmissions. |
| Values | Decimal (0..5) |
| Default | 2 |

### COMPONENT Nsta Vgs VoiceCallAdmissionControl (VCac)

| | |
|---|---|
| Groups | "GROUP Nsta Vgs VCac Provisioned (Prov)"<br>"GROUP Nsta Vgs VCac Operational (Oper)" |
| Scope | Device |
| Description | *Nsta/n Vgs VoiceCallAdmissionControl*<br><br>This component provides the voice Call Admission Control function for the media gateway.<br><br>The voice call admission control function actively refuses and deletes calls requested by the controller based on the resources allocated to the media gateway. The resources allocated consist of the internal resources of the media gateway hardware, the quality of service provided by the ATM trunk used for the call and the backplane bandwidth within the shelf allocated to the media gateway. |

If this component is not present then the voice Call Admission Control function is not performed by the media gateway.

Common Verbs

Help
List
Display
Add
DELete

## GROUP Nsta Vgs VCac Provisioned (Prov)

Properties: Provisioned

Description: This group contains the provisioning data for the *Nsta Vgs VCac* component.

## ATTRIBUTE Nsta Vgs VCac packetLossProbabilityIndex (plpIndex)

Access: Read and write

Description: This attribute specifies the target packet loss probability for the media gateway, and is an input to the Call Admission Control algorithm.

10 to the power of the packetLossProbabilityIndex is the packet loss probability used in the algorithm, for example if the attribute is provisioned to -3, then 10 to the power of -3 is 0.001, or 1 in 1000.

Values: Signed (-6..-2)

Default: -3

## ATTRIBUTE Nsta Vgs VCac averageActiveDuration (avActive)

Access: Read and write

Description: This attribute specifies the average duration of the active voice period (also known as talk-spurt) for the media gateway, and is an input to the Call Admission Control algorithm.

Values: Decimal (100..10000)

Units: msec

| | |
|---|---|
| Default | 400 |

### ATTRIBUTE Nsta Vgs VCac sourceActiveTime (srcActive)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the percentage of time that the source is active for the media gateway, and is an input to the Call Admission Control algorithm. |
| Values | Decimal (20..100) |
| Units | % |
| Default | 40 |

### ATTRIBUTE Nsta Vgs VCac allocatedShelfBandwidth (shBw)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the percentage of shelf backplane bandwidth allocated to the media gateway, and is an input to the Call Admission Control algorithm.<br><br>The attribute is used by the Call Admission Control algorithm as a limit for the anticipated use of shelf backplane bandwidth resources.<br><br>The purpose of this attribute is to limit the amount of shelf backplane resources available to a media gateway, and is dependent on the number of VSP cards inserted into a Passport shelf.<br><br>Reducing this value will have no effect on existing calls, but it will prevent any further calls being made until existing calls clear and release their bandwidth.<br><br>The total sum of all *VCac* component *allocatedShelfBandwidth* attributes within a shelf may not exceed 100%. |
| Values | Decimal (10..100) |
| Units | % |
| Default | 25 |

### ATTRIBUTE Nsta Vgs VCac deleteCallsOnVbd (delOnVbd)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether calls that autonomously transition from voice to voice band data (VBD) are deleted if the new bandwidth requirements of the call exceed the bandwidth available to the voice CAC function.<br><br>A value of ***enabled*** will delete violating transitioning calls.<br><br>A value of ***disabled*** will not delete transitioning calls. |
| Values | disabled<br>enabled |
| Default | enabled |

### GROUP Nsta Vgs VCac Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational data for the *Nsta Vgs VCac* component. |

### ATTRIBUTE Nsta Vgs VCac refusedNetworkBw (nbRef)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the connection requests that have been refused by the voice CAC function due to network bandwidth limitations since the component was activated.<br><br>The attribute wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Vgs VCac refusedInternalResources (irRef)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the connection requests that have been refused by the voice CAC function due to internal resource limitations since the component was activated. |

| | |
|---|---|
| | Increases in this counter indicate that either the provisioned attribute *allocatedShelfBandwidth* is too low for the network engineering model applied, or that the network has been incorrectly engineered such that the maximum bandwidth required by on-net calls (that is AAL2-AAL2 switched calls) exceeds the voice gateway bandwidth available.<br><br>The attribute wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Vgs VCac deletedNetworkBw (nbDel)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of connection requests that have been deleted by the voice CAC function due to network bandwidth limitations since the component was activated.<br><br>The attribute wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Vgs VCac deletedInternalResources (irDel)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of connection requests received that have been deleted by the voice CAC function due to internal resource limitations since the component was activated.<br><br>The attribute wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Vgs VCac shelfUsage (shUsage)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the current estimated percentage of the shelf backplane capacity that is being utilized by the media gateway. The value may go down as well as up. |
| Values | Decimal (0..100) |
| Units | % |
| Default | No default |

### ATTRIBUTE Nsta Vgs VCac peakShelfUsage (pShUsage)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates the maximum percentage of the allocated shelf backplane capacity that has been reached since the component was activated. |
| Values | Decimal (0..100) |
| Units | % |
| Default | No default |

### ATTRIBUTE Nsta Vgs VCac internalUsage (intUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current percentage of the internal media gateway capacity that is being utilized by the media gateway. The value may go down as well as up. |
| Values | Decimal (0..100) |
| Units | % |
| Default | No default |

### ATTRIBUTE Nsta Vgs VCac peakinternalUsage (pIntUsage)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates the maximum percentage of the internal media gateway capacity that has been reached since the component was activated. |
| Values | Decimal (0..100) |

| | |
|---|---|
| Units | % |
| Default | No default |

## COMPONENT Nsta Vgs IsdnUserAdaption (Iua)

| | |
|---|---|
| Groups | "GROUP Nsta Vgs Iua Provisioned (Prov)"<br>"GROUP Nsta Vgs Iua OsiState (State)"<br>"GROUP Nsta Vgs Iua Operational (Oper)" |
| Scope | Device |
| Description | *Nsta/n Vgs IsdnUserAdaption*<br><br>This component provides an optional ISDN User Adaptation Layer for the transporting of PRI signaling over SCTP. |
| Dyn. Subcomp. | "COMPONENT Nsta Vgs Iua ApplicationServerProcess (Asp)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Nsta Vgs Iua Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioning data for the *Iua* component, which provides access to the IP network. |

## ATTRIBUTE Nsta Vgs Iua sctpPortConnection

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies a link to an *Nsta/n Vgs Ctrl/n SctpPort/n* component, which provides transport over the IP network.<br><br>The linked *Nsta/n Vgs Ctrl/n SctpPort/n* must be under the same *Nsta/n Vgs* as this *Iua* subcomponent. |
| Values | Link (Service, linkToApplication) |
| Default | No default |

### ATTRIBUTE Nsta Vgs Iua recoveryTimer

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies how long incoming messages are buffered while the Application Server is recovering from a failure (indicated by an *asStatus* value of ***pending***). |
| Values | Decimal (1..5) |
| Units | seconds |
| Default | 3 |

### GROUP Nsta Vgs Iua OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Nsta Vgs Iua adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is |

administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Nsta Vgs Iua operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Nsta Vgs Iua usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

| | |
|---|---|
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Nsta Vgs Iua Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains attributes which indicate the *Iua* component status. |

### ATTRIBUTE Nsta Vgs Iua asStatus

| | |
|---|---|
| Access | Read only |
| Criticality | Process |
| Description | This attribute indicates the status of the Application Server.<br><br>The possible values are:<br><br>***active*** - the ASP is available and is serving as the primary instance (handling traffic)<br>***up*** - the ASP is available and is serving as the standby instance (not handling traffic)<br>***down*** - the ASP is unavailable<br>***pending*** - the currently active ASP became inactive or the SCTP association was lost. A recovery process is in operation. |
| Values | up<br>down<br>active<br>pending |
| Default | No default |

### COMPONENT Nsta Vgs Iua ApplicationServerProcess (Asp)

| | |
|---|---|
| Instance | address [IP address]<br>port [Decimal (1..65535)] |
| Groups | "GROUP Nsta Vgs Iua Asp Operational (Oper)" |

| | |
|---|---|
| Scope | Device |
| Description | *Nsta/n Vgs Iua ApplicationServerProcess/<ip address>,<sctp port>*<br><br>This component represents an Application Server Process (Media Gateway Controller) linked to the Signaling Gateway. The IP address and SCTP port number used in the instance value refer to the remote connection. |
| Common Verbs | Help<br>List<br>Display |

## GROUP Nsta Vgs Iua Asp Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains attributes which describe the *Asp* component status. |

## ATTRIBUTE Nsta Vgs Iua Asp status

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the status of the Application Server Process.<br><br>The possible values are:<br>***active*** - the ASP is available and application traffic is flowing (serving as the primary instance)<br>***up*** - the ASP is available but application traffic is not flowing<br>***down*** - the ASP is unavailable |
| Values | up<br>down<br>active |
| Default | No default |

## COMPONENT Nsta Vgs LocalAnnouncements

| | |
|---|---|
| Groups | "GROUP Nsta Vgs LocalAnnouncements Provisioned (Prov)"<br>"GROUP Nsta Vgs LocalAnnouncements OsiState (State)"<br>"GROUP Nsta Vgs LocalAnnouncements Operational (Oper)" |
| Scope | Device |
| Description | *Nsta/n Vgs LocalAnnouncements*<br><br>This component provides the control and status of the Local Announcement facility. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## VERB Zero Nsta Vgs LocalAnnouncements

| | |
|---|---|
| Impact | Service |
| Description | *Zero Nsta/n Vgs LocalAnnouncements*<br>This verb is used to re-initialize attributes which record peak values. |

## GROUP Nsta Vgs LocalAnnouncements Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioning data for the Local Announcement facility. |

## ATTRIBUTE Nsta Vgs LocalAnnouncements fileName

| | |
|---|---|
| Access | Read and write |
| Description | The attribute specifies the filename (without extension) of the announcement fileset which is used for the *LocalAnnouncements* component. The files are located in /user/pvg/announcements/.<br><br>Changing the value will not affect announcements in progress. The specified fileset is automatically transferred from the CP to |

the FP before it is used and the file currently being used can be determined from the *currentFileName* attribute.

This attribute must be supplied.

Values: String (0..40, ASCII)

Default: ""

### ATTRIBUTE Nsta Vgs LocalAnnouncements defaultLanguage

Access: Read and write

Description: This attribute specifies the language to be used on the announcement when no language is provided via the Media Gateway Controller. This value may be overridden on a per *Brag* component basis in the *Nsta/n Vgs Brag/n AnnouncementLanguage* component.

Possible values: any 3 character ASCII string (lower case a-z) for example "eng", or an empty string.

If the value is empty, no language is specified when looking up announcements.

When the Media Gateway Controller specifies a language value, it overrides the provisioned values in the Media Gateway.

Values: String (0..3, ASCII)

Default: ""

### GROUP Nsta Vgs LocalAnnouncements OsiState (State)

Properties: Operational

Description: This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Nsta Vgs LocalAnnouncements adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Nsta Vgs LocalAnnouncements operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the |

component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Nsta Vgs LocalAnnouncements usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
idle
active (activ)
busy

Default
idle

### ATTRIBUTE Nsta Vgs LocalAnnouncements availabilityStatus (osiAvail)

Access
Read only

Description
If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.

The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.

The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.

The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.

The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The

*operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

### ATTRIBUTE Nsta Vgs LocalAnnouncements proceduralStatus (osiProc)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.

The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been

initiated. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

### ATTRIBUTE Nsta Vgs LocalAnnouncements controlStatus (osiCntrl)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is

***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

Set of

subjectToTest (subTst)
partOfServicesLocked (partLk)
reservedForTest (rsrvd)
suspended (suspnd)

Default

No default

## ATTRIBUTE Nsta Vgs LocalAnnouncements alarmStatus (osiAlarm)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

## ATTRIBUTE Nsta Vgs LocalAnnouncements standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

| | |
|---|---|
| Values | hotStandby (hot)<br>coldStandby (cold)<br>providingService (serv)<br>notSet (nSet) |
| Default | notSet |

### ATTRIBUTE Nsta Vgs LocalAnnouncements unknownStatus (osiUnknw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Unknown status of the component.<br><br>The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.<br><br>The value ***true*** indicates that the actual state of the component is not known for sure. |
| Values | false<br>true |
| Default | false |

### GROUP Nsta Vgs LocalAnnouncements Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains attributes which indicate the causes of any *LocalAnnouncements* component failure. |

### ATTRIBUTE Nsta Vgs LocalAnnouncements currentFileName

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the name (without path or extension) of the current announcement file which *LocalAnnouncements* is using for new announcements. The value may be different from that specified by the *fileName* attribute if the value of *fileTransferStatus* attribute is not ***complete***.<br>If no file has been transferred, then this attribute is an empty string. |
| Values | String (0..40, ASCII) |

Default No default

## ATTRIBUTE Nsta Vgs LocalAnnouncements fileTransferStatus

Access Read only

Description This attribute indicates the status of the transfer of the announcement file from the CP to the FP.

Possible values are:

***inProgress***: The file as specified in *fileName* is being transferred. Any announcement request are serviced using the file specified in *currentFileName*.

***complete***: The file transfer is complete. The file as specified in *fileName* is the same as the file specified in *currentFileName.*

***missing***: The system cannot find the complete fileset specified in *fileName* on the CP. The current file is left as is. An alarm is raised in this state. The FP will poll for files until transfer can commence.

***fileTooLong***: The current fileset as defined in *fileName* on the CP is too long to be loaded successfully. The current file is left as is. An alarm is raised in this state. The FP will poll to look for changes in file length or timestamp. Reduction of file length to within the acceptable limit, causes automatic download to occur once it is deemed that the file is stable.

***fileError***: The current fileset as defined in *fileName* on the CP has failed sanity checks after download, and is not to be used as an active load. The current file is left as is. An alarm is raised in this state. The FP will poll to look for changes in file length or timestamp. This causes automatic download to occur once it is deemed that the file is stable.

***cpNotResponding***: The CP is not responding. The CP may be busy or the disk may be locked. The FP will poll to check for CP availability.

| | |
|---|---|
| Values | inProgress<br>complete<br>missing<br>fileTooLong<br>fileError<br>cpNotResponding |
| Default | No default |

### ATTRIBUTE Nsta Vgs LocalAnnouncements unknownNameRequests

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the announcement requests rejected due to unknown name or unsupported name or language combination. The value is reset to zero whenever a new announcement file is transferred or the Supplementary Services Module is reset. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Vgs LocalAnnouncements blockedRequests

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the announcement requests rejected due to insufficient resource. The value is reset to zero whenever the Supplementary Services Module is reset. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Vgs LocalAnnouncements announcementResourceInUse

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the instantaneous percentage of the local announcement resource in use. |
| Values | Decimal (0..100) |
| Units | % |
| Default | No default |

## ATTRIBUTE Nsta Vgs LocalAnnouncements peakAnnouncementResourceUsed

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the peak announcement resource used since this attribute was last reset. The value of this attribute can be reset to 0 by the *Zero* command. |
| Values | Decimal (0..100) |
| Units | % |
| Default | No default |

## COMPONENT Nsta Vgs DigitCollection

| | |
|---|---|
| Groups | "GROUP Nsta Vgs DigitCollection Provisioned (Prov)"<br>"GROUP Nsta Vgs DigitCollection Operational (Oper)" |
| Scope | Device |
| Description | *Nsta/n Vgs DigitCollection*<br><br>This component represents the digit collection capabilities of the PVG switched voice application. These capabilities include detection of digits on the TDM circuit side, to collate such digits in accordance with digit maps provided by the Call Server, and to report such digit strings to the Call Server when the digit maps completion criteria are met.<br><br>If no DigitCollection component is provisioned for a given Vgs, digit collection is disabled for that Vgs. The DigitCollection component must not be provisioned for a Vgs which has an Sgcp subcomponent. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### VERB Zero Nsta Vgs DigitCollection

| | |
|---|---|
| Impact | Service |
| Description | *Zero Nsta/n Vgs DigitCollection*<br><br>This verb is used to re-initialize attributes which record peak values. |

### GROUP Nsta Vgs DigitCollection Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioning data for the *Vgs DigitCollection* component. |

### ATTRIBUTE Nsta Vgs DigitCollection initialDigitTimer

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the value of the Initial Digit Time-out to be used in digit collection. This is the time-out value between request and entering the first number. On expiring of this time a notification is sent to the Media Gateway Controller. The value of this attribute is used when no value is supplied by the controller. |
| Values | Decimal (1..99) |
| Units | seconds |
| Default | 16 |

### ATTRIBUTE Nsta Vgs DigitCollection shortInterDigitTimer

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the value of the short Inter-Digit Time-out to be used in digit collection. This timer is reset after each digit key depressed is received. On expiring of this time a notification is sent to the Media Gateway Controller. The value of this attribute is used when no value is supplied by the controller. |
| Values | Decimal (1..99) |
| Units | seconds |

| | |
|---|---|
| Default | 4 |

### ATTRIBUTE Nsta Vgs DigitCollection longInterDigitTimer

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the value of the long Inter-Digit Time-out to be used in digit collection. This timer is reset after each digit key depressed is received. On expiring of this time a notification is sent to the Media Gateway Controller. The value of this attribute is used when no value is supplied by the controller. |
| Values | Decimal (1..99) |
| Units | seconds |
| Default | 16 |

### ATTRIBUTE Nsta Vgs DigitCollection longDigitTimerDuration

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the duration after which a digit (* or #) will be recognized as ‘long’. The value used is dependent on the Media Gateway Controller. This attribute defines a default value to be used when a value is not supplied by the controller. |
| Values | Decimal (0.1..9.9) |
| Units | seconds |
| Default | 2.0 |

### GROUP Nsta Vgs DigitCollection Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational data for the *Nsta Vgs* component. |

### ATTRIBUTE Nsta Vgs DigitCollection rejectedCollectionRequests

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of digit collection requests rejected due to lack of resources. If the pmodule fails, counts are reset. A persistent increase indicates an engineered mismatch between demand for and capacity of the digit collection |

resources.

This counter wraps to zero when its maximum is reached.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Nsta Vgs DigitCollection peakCollectionsInProgress

Access: Read only

Description: This attribute indicates the peak of the proportion of digit collection resources (in percentage terms) that have been used at any point since this figure was last reset. Endpoints that have only been requested to collect mid-call triggers are excluded from this figure.

Values: Decimal (0..100)

Units: %

Default: No default

### COMPONENT Nsta Vgs Aal2SvcService (Aal2Svc)

Groups: "GROUP Nsta Vgs Aal2Svc Provisioned (Prov)"
"GROUP Nsta Vgs Aal2Svc Operational (Oper)"

Scope: Device

Description: *Nsta/n Vgs Aal2SvcService*

This component creates and enables the AAL2 SVC service.

Opt. Subcomp.: "COMPONENT Nsta Vgs Aal2Svc Profile (Prof)"

Dyn. Subcomp.: "COMPONENT Nsta Vgs Aal2Svc TrunkConnection (TConn)"

Common Verbs:
- Help
- List
- Display
- Add
- DELete

## GROUP Nsta Vgs Aal2Svc Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisioning data for the *Aal2SvcService* component. |

## ATTRIBUTE Nsta Vgs Aal2Svc svcSetupTimeout (timeout)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the length of time allowed for an SVC setup before calls waiting for that SVC are cleared.<br><br>This attribute is used when trunks are created and does not affect existing trunks. |
| Values | Decimal (50..50000) |
| Units | msec |
| Default | 1000 |

## ATTRIBUTE Nsta Vgs Aal2Svc svcPreCreation (preCreation)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether pre-creation of SVCs is enabled.<br><br>If *svcPreCreation* is ***enabled*** then an SVC setup is initiated when the bandwidth available in existing VCCs between two NSAP addresses is down to a level such that a new SVC would be required for the next call. |
| Values | enabled<br>disabled |
| Default | enabled |

## ATTRIBUTE Nsta Vgs Aal2Svc autocalcTrafficPrms (autocalc)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether the ATM traffic parameters are automatically calculated based on the value of the *maxNumberOfAal2Trunks* attribute of the *Aal2SvcProfile* |

component.

When the *autocalcTrafficPrms* is set to ***enabled*** any provisioned values of the ATM traffic parameters of the *Aal2SvcProfile* subcomponent are ignored and the values are calculated automatically based on an assumption of G.711 CODECs and no silence suppression.

When the *autocalcTrafficPrms* is set to ***disabled*** the values specified in the attributes of the *Aal2SvcProfile* component are used.

This attribute is used when trunks are created and does not affect existing trunks.

| | |
|---|---|
| Values | enabled<br>disabled |
| Default | enabled |

### GROUP Nsta Vgs Aal2Svc Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational data for the *Aal2SvcService* component. |

### ATTRIBUTE Nsta Vgs Aal2Svc activeOriginatedSvcs (activeOrig)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of currently active SVCs originated by this gateway. |
| Values | Decimal (0..500) |
| Default | No default |

### ATTRIBUTE Nsta Vgs Aal2Svc activeTerminatedSvcs (activeTerm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of currently active SVCs terminated by this gateway. |

| | |
|---|---|
| Values | Decimal (0..500) |
| Default | No default |

### ATTRIBUTE Nsta Vgs Aal2Svc originatedSvcs (origin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of SVCs originated by the gateway.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Vgs Aal2Svc terminatedSvcs (term)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of SVCs terminated by this gateway.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Vgs Aal2Svc activeSvcsDeleted (activeDel)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of SVCs deleted while in the active state carrying traffic.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Vgs Aal2Svc svcsPending (pending)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the number of SVC creation requests currently requested but not yet established. |
| Values | Decimal (0..500) |
| Default | No default |

### ATTRIBUTE Nsta Vgs Aal2Svc emptySvcCount (empty)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of SVCs that are enabled but not carrying narrowband calls. |
| Values | Decimal (0..1000) |
| Default | No default |

### ATTRIBUTE Nsta Vgs Aal2Svc networkReleaseCount (releaseCount)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of ATM network releases received by the *Aal2SvcService* component. This provides an indication of the total number of SVCs or SVC attempts that failed due to ATM network conditions.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Vgs Aal2Svc neverUsedSvcsDeleted (neverUsedDel)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of SVCs that were created by this gateway and deleted without carrying any traffic.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Vgs Aal2Svc unavailableSvcCount (unavail)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of SVCs currently unavailable to trunk selection. |
| Values | Decimal (0..1000) |
| Default | No default |

### ATTRIBUTE Nsta Vgs Aal2Svc narrowbandConnectionsRefused (connsRefused)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the narrowband connections rejected due to failure of the SVC creation process.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Vgs Aal2Svc svcSetupTimeoutCount (timeoutCount)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times the SVC setup timeout expired.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Vgs Aal2Svc overloadedSvcCount (overloaded)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times an SVC was overloaded. An SVC is overloaded when narrowband calls are simultaneously placed on the SVC at both its originating and terminating ends, causing the *activeConnections* attribute of the *TConn* component to exceed the *maxNumberAal2Trunks* |

specified in the *Profile* component.

The counter wraps to zero when it exceeds its maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Nsta Vgs Aal2Svc lastSvcSetupTimeoutNsap (lastTimeoutNsap)

Access: Read only

Description: This attribute indicates the NSAP address of the last SVC attempt for which the SVC setup timeout attribute expired. If the string is empty, then such a timeout has never occurred.

Values: String (0..40, ASCII)

Default: No default

### ATTRIBUTE Nsta Vgs Aal2Svc lastSvcSetupFailureNsap (supFailNsap)

Access: Read only

Description: This attribute indicates the remote NSAP address of the last SVC attempt for which the setup request failed. If the string is empty, SVC setup failures have occurred.

Values: String (0..40, ASCII)

Default: No default

### ATTRIBUTE Nsta Vgs Aal2Svc lastSvcSetupFailureCause (supCause)

Access: Read only

Description: This attribute indicates the cause of the the last SVC setup failure, as defined in the ATM Forum ATM User-Network Interface Specification.

This attribute is only meaningful if the *lastSvcSetupFailureNsap* attribute is not empty.

Values: Decimal (0..255)

Default: No default

### ATTRIBUTE Nsta Vgs Aal2Svc lastSvcSetupFailureDiagnostic (supDiag)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the diagnostic code associated with the last SVC setup failure, as defined in the ATM Forum ATM User-Network Interface Specification.<br><br>This attribute is only meaningful if the *lastSvcSetupFailureNsap* attribute is not empty. |
| Values | String (0..8, ASCII) |
| Default | No default |

### ATTRIBUTE Nsta Vgs Aal2Svc lastSvcAbnormalTearDownNsap (tdNsap)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the remote NSAP address of the last SVC which did not experience a normal tear down. If the string is empty, an abnormal SVC tear down has not occurred. |
| Values | String (0..40, ASCII) |
| Default | No default |

### ATTRIBUTE Nsta Vgs Aal2Svc lastSvcAbnormalTearDownCause (tdCause)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the tear down cause for the last SVC that did not experience a normal tear down, as defined in the ATM Forum ATM User-Network Interface Specification.<br><br>This attribute is only meaningful if the *lastSvcAbnormalTearDownNsap* attribute is not empty. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE Nsta Vgs Aal2Svc lastSvcAbnormalTearDownDiagnostic (tdDiag)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the tear down diagnostic code associated with the last SVC which did not experience a normal tear down, as defined in the ATM Forum ATM User-Network Interface Specification.<br><br>This attribute is only meaningful if the *lastSvcAbnormalTearDownNsap* attribute is not empty. |
| Values | String (0..8, ASCII) |
| Default | No default |

## COMPONENT Nsta Vgs Aal2Svc Profile (Prof)

| | |
|---|---|
| Instance | Decimal (1..1) |
| Groups | "GROUP Nsta Vgs Aal2Svc Prof Provisioned (Prov)" |
| Scope | Device |
| Description | *Nsta/n Vgs Aal2Svc Aal2SvcProfile/n*<br><br>This component provides the parameters for automatically created SVCs.<br><br>The attributes of this component are only used when SVCs are created and do not affect values used by an existing trunk. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Nsta Vgs Aal2Svc Prof Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisioning data for the *Aal2SvcProfile* component. |

## ATTRIBUTE Nsta Vgs Aal2Svc Prof holdOverTime (hoTime)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute specifies the maximum period of time before a partially filled AAL2 packet is scheduled for transmission. It is also referred to as "combined use timer" (Timer_CU), in the ITU-T I.363.2.<br><br>A value of ***0*** specifies that an ATM cell is transmitted as soon as an AAL2 packet is placed in the cell. Each ATM cell therefore contains one AAL2 packet.<br><br>The *holdOverTime* affects the packet delay and the bandwidth used by the connection. The longer the delay the higher the bandwidth efficiency of the ATM connection and vice versa. The *holdOverTime* is rounded to the nearest multiple of 0.125 milliseconds. |
| Values | Decimal (0.000..15.875) |
| Units | msec |
| Default | 2.000 |

### ATTRIBUTE Nsta Vgs Aal2Svc Prof maxNumberAal2Trunks (maxTrunks)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum number of AAL2 trunks that may be allocated on this ATM trunk. The local node may allocate no more than this number of trunks. The number of currently active trunks is indicated by the *activeConnections* attribute of the *Aal2SvcConnection* component. |
| Values | Decimal (1..247) |
| Default | 4 |

### ATTRIBUTE Nsta Vgs Aal2Svc Prof svcPersistence (persistence)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the length of time that an AAL2 SVC is kept up after the last narrowband call to use it has been deleted.<br><br>This attribute is used to modify the SVC caching system. Longer values result in larger caches of SVCs. |

| | |
|---|---|
| Values | Decimal (0..600) |
| Units | seconds |
| Default | 180 |

### ATTRIBUTE Nsta Vgs Aal2Svc Prof atmServiceCategory (service)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the ATM Service Category for SVCs.<br><br>The ***constantBitRate*** service category is intended for real time applications, that is those requiring tightly constrained delay and delay variation, as would be appropriate for voice and video applications. The consistent availability of a fixed quantity of bandwidth is considered appropriate for constant bit rate service.<br><br>The ***rtVariableBitRate*** service category is intended for real time applications, that is those requiring tightly constrained delay and delay variation, as would be appropriate for voice and video applications. Sources are expected to transmit at a rate which varies with time. Equivalently, the source can be described as "bursty". The real-time variable bit rate service may support statistical multiplexing of real time sources. |
| Values | constantBitRate (cbr)<br>rtVariableBitRate (rtVbr) |
| Default | rtVariableBitRate |

### ATTRIBUTE Nsta Vgs Aal2Svc Prof peakCellRate (pcr)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the peak cell rate of the ATM connection.<br><br>The value is ignored if the *autoCalcTrafficPrms* attribute has the value ***enabled***. Otherwise, the value must be non-zero. |
| Values | Decimal (0..2147483647) |
| Units | cell/s |
| Default | 800 |

### ATTRIBUTE Nsta Vgs Aal2Svc Prof sustainedCellRate (scr)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the sustained cell rate of the ATM connection.<br><br>The value is ignored if the *autoCalcTrafficPrms* attribute has the value ***enabled***. Otherwise, the value must be non-zero if the *atmServiceCategory* attribute is ***rtVariableBitRate***, and zero if the atmServiceCategory is ***constantBitRate***. |
| Values | Decimal (0..2147483647) |
| Units | cell/s |
| Default | 800 |

### ATTRIBUTE Nsta Vgs Aal2Svc Prof maximumBurstSize (mbs)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum burst size, at the peak cell rate, of the ATM connection.<br><br>The value is ignored if the *autoCalcTrafficPrms* attribute has the value ***enabled***. Otherwise, the value must be non-zero if the *atmServiceCategory* attribute is ***rtVariableBitRate***, and zero if the atmServiceCategory is ***constantBitRate***. |
| Values | Decimal (0..2147483647) |
| Units | cells |
| Default | 1 |

### COMPONENT Nsta Vgs Aal2Svc TrunkConnection (TConn)

| | |
|---|---|
| Instance | Decimal (0..4095) |
| Groups | "GROUP Nsta Vgs Aal2Svc TConn Operational (Oper)" |
| Scope | Device |
| Description | *Nsta/n Vgs Aal2Svc Aal2SvcTrunkConnectionl/n* |

This dynamic component provides visibility for all automatically created SVCs.

This component is present if and only if the corresponding ATM trunk is available for use by narrowband calls. It is thus present immediately after the SVC is established. It is also present after the SVC has been released from the network for as long as the hold-off timer is running, as indicated by the *holdOverTime* attribute. On expiry of the hold-off timer, the VCC is deleted in the SPM, and this component instance is removed.

Dyn. Subcomp. "COMPONENT Nsta Vgs Aal2Svc TConn AtmConnection (AtmCon)"

Common Verbs
Help
List
Display

## GROUP Nsta Vgs Aal2Svc TConn Operational (Oper)

Properties Operational

Description This group contains operational data for the *Aal2SvcTConn* component.

## ATTRIBUTE Nsta Vgs Aal2Svc TConn remoteAddress (rAddr)

Access Read only

Description This attribute indicates the ATM address of the node at the remote end of this trunk.

Values String (1..40, ASCII)

Default No default

## ATTRIBUTE Nsta Vgs Aal2Svc TConn vcci

Access Read only

Description This attribute indicates the VCCI for this VCC.

The *vcci* attribute value uniquely identifies a VCC between two nodes in a given direction.

| | |
|---|---|
| | ATM trunks terminating on different remote nodes may share the same *vcci* attribute value. |
| Values | Decimal (4096..8191) |
| Default | No default |

### ATTRIBUTE Nsta Vgs Aal2Svc TConn type

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether this ATM VCC was originated or terminated by this AAL2 SVC Service. |
| Values | originated<br>terminated |
| Default | No default |

### ATTRIBUTE Nsta Vgs Aal2Svc TConn activeConnections (active)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of active narrowband connections on this ATM VCC. |
| Values | Decimal (0..247) |
| Default | No default |

### ATTRIBUTE Nsta Vgs Aal2Svc TConn aal2CpLossStatus (lossStatus)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether an AAL2 common part (CP) loss condition exists. When the condition exists, this attribute is set to ***loss***, otherwise it is set to ***noLoss***.<br><br>An AAL2 CP loss condition exists if no valid media traffic is being received. |
| Values | noLoss<br>loss |
| Default | No default |

### ATTRIBUTE Nsta Vgs Aal2Svc TConn aal2StartFieldErrors (sfErr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of cells received with an AAL2 Common Part Sublayer Protocol Data Unit (CPS-PDU) Start Field error.<br><br>A Start Field error includes a cell with a parity error or a cell in which the packet pointed to by the offset field (OSF) has a packet HEC error.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Vgs Aal2Svc TConn aal2SequenceErrors (seqErr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of cells received with an unexpected AAL2 Common Part Sublayer Protocol Data Unit (CPS-PDU) sequence number.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT Nsta Vgs Aal2Svc TConn AtmConnection (AtmCon)

| | |
|---|---|
| Groups | "GROUP Nsta Vgs Aal2Svc TConn AtmCon Operational (Oper)" |
| Scope | Device |
| Description | An AtmConnection component is created for each ATM connection established by an application. It shows where the data traffic for this connection is directed. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Nsta Vgs Aal2Svc TConn AtmCon Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains the operational attributes for the *NapAtmConnection* component. |

### ATTRIBUTE Nsta Vgs Aal2Svc TConn AtmCon nextHop

| | |
|---|---|
| Access | Read only |
| Description | This attribute shows the component name of the *AtmIf Vcc Ep* or *AtmCon* component to which this switched connection is established. |
| Values | The name of the component |
| Default | No default |

### COMPONENT Nsta Vgs AmrBasicRateGroup (AmrBrag)

| | |
|---|---|
| Instance | Decimal (0..127) |
| Groups | "GROUP Nsta Vgs AmrBrag Provisioned (Prov)"<br>"GROUP Nsta Vgs AmrBrag OsiState (State)"<br>"GROUP Nsta Vgs AmrBrag Operational (Oper)" |
| Scope | Device |
| Description | *Nsta/n Vgs AmrBasicRateGroup/n*<br><br>This component represents a number of TDM connections from the Voice Services Processor (VSP) to the TDM network. The TDM connections are all associated with the same TDM interface.<br><br>A particular *AmrBrag* is associated with a single E1 channel. Connections on this channel are used to transport AMR-encoded speech. This component defines default processing for all TDM connections on this channel. For each connection, this default processing may be overridden by the controller. |

| | |
|---|---|
| Opt. Subcomp. | "COMPONENT Nsta Vgs AmrBrag Mtp2" |
| Dyn. Subcomp. | "COMPONENT Nsta Vgs AmrBrag WgBragDs0 (Ds0)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Nsta Vgs AmrBrag Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioning data for the *AmrBrag* component. |

## ATTRIBUTE Nsta Vgs AmrBrag interfaceName (intName)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies a link to a *Chan* component, which in turn specifies the timeslots for the *AmrBrag*.<br><br>The attribute must specify an *Lp/n E1/n Chan/n* component. *Lp/n DS1/n Chan/n* components are not supported. |
| Values | Link (Service, applicationFramerName) |
| Default | No default |

## ATTRIBUTE Nsta Vgs AmrBrag defaultRate (defRate)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the AMR encoding rate to be used for a voice call when no rate is defined during call setup via the call setup protocol. |

| | |
|---|---|
| Values | Decimal (12.20) |
| Units | kbit/s |
| Default | 12.20 |

### ATTRIBUTE Nsta Vgs AmrBrag tdmLogLaw (muALaw)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the G.711 *tdmLogLaw* to use on the TDM side of an NSTA trunk. If set to ***autoConfigured***, then the value used is derived from the facility, namely ***muLaw*** is used for *DS1* trunks, while ***aLawEbi*** would be used by *E1* trunks.<br><br>For *E1* trunks, ***muLaw*** is not permitted.<br><br>***muLaw*** - use muLaw companding, not supported on E1 trunks<br>***aLawEbi*** - use aLawEbi companding<br>***aLawAbi*** - use aLawAbi companding<br>***autoConfigured*** - use companding law appropriate for facility |
| Values | muLaw<br>aLawEbi<br>autoConfigured<br>aLawAbi |
| Default | autoConfigured |

### ATTRIBUTE Nsta Vgs AmrBrag lossIntegrationPeriod (intPeriod)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the interval of time for which a loss of packet condition must persist before the corresponding call is dropped.<br><br>A value of ***disabled*** specifies that packet loss integration is disabled and therefore call connections will not be dropped due to packet loss. |

| | |
|---|---|
| Values | Decimal (1..50)<br>disabled |
| Units | seconds |
| Default | 5 |

### ATTRIBUTE Nsta Vgs AmrBrag uplinkGain (uGain)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the gain or loss to be applied to the TDM uplink. Uplink refers to the connection from the RNC to the MSC. |
| Values | Signed (-15..15) |
| Units | dB |
| Default | 0 |

### ATTRIBUTE Nsta Vgs AmrBrag downlinkGain (dGain)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the gain or loss to be applied to the TDM downlink. Downlink refers to the connection from the MSC to the RNC. |
| Values | Signed (-15..15) |
| Units | dB |
| Default | 0 |

### ATTRIBUTE Nsta Vgs AmrBrag echoCancellation (eCan)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute enables or disables G.168 echo cancellation.<br><br>The operator may desire to disable this feature if external third-party echo canceller equipment is used in the network. Enabling |

two echo cancellers within the same network path is not recommended as it may adversely affect voice quality.

Values
disabled
enabled

Default
enabled

### ATTRIBUTE Nsta Vgs AmrBrag minimumEchoReturnLoss (minEchoRetLoss)

Access
Read: All
Write: All

Description
This attribute specifies the minimum echo return loss that can be expected on the line. This attribute has no effect if *echoCancellation* is ***disabled.***

Values
Decimal (3; 6)

Units
dB

Default
3

### ATTRIBUTE Nsta Vgs AmrBrag echoCancelComfortNoiseGeneration (eCanComNoiseGen)

Access
Read: All
Write: All

Description
This attribute enables or disables comfort noise generation for the echo cancellation feature. This attribute has no effect if *echoCancellation* is ***disabled***.

Values
disabled
enabled

Default
enabled

### ATTRIBUTE Nsta Vgs AmrBrag echoCancellationTailLength (eCanTail)

Access
Read: All
Write: All

Description
This attribute specifies the echo cancellation tail length applied to all timeslots. This attribute has no effect if *echoCancellation* is ***disabled***.

| | |
|---|---|
| Values | Decimal (64) |
| Units | msec |
| Default | 64 |

### ATTRIBUTE Nsta Vgs AmrBrag backgroundNoiseConditioning (bnc)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute enables or disables background noise conditioning and low-pass filtering.<br><br>***disabled*** - background noise conditioning is disabled<br>***enabled*** - background noise conditioning is enabled.<br>***enabledLowPass*** - background noise conditioning and low-pass filtering are enabled.<br><br>The background noise conditioning algorithm has an optional post-processing feature that performs low-pass filtering on the noise conditioned signal. Depending on the presence of any other third-part voice quality devices within the network, the operator may desire to disable low-pass filtering to prevent any voice quality degradation due to feature interaction. |
| Values | disabled<br>enabled<br>enabledLowPass |
| Default | disabled |

### ATTRIBUTE Nsta Vgs AmrBrag uplinkAutomaticGainControl (upAgc)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute enables or disables Automatic Gain Control (AGC) in the uplink direction.<br><br>This voice quality feature should be enabled if the operator desires to control variations in call volume in the uplink direction. |

| | |
|---|---|
| Values | disabled<br>enabled |
| Default | disabled |

### ATTRIBUTE Nsta Vgs AmrBrag uplinkAgcTargetLevel (upAgcTargLev)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the target signal power level of the automatic gain control feature in the uplink direction. Automatic Gain Control (AGC) attempts to maintain a consistent call volume at the specified target level. AGC is performed on the signal using this target value before *uplinkGain* is applied. |
| Values | Signed (-30..-9) |
| Units | dBm0 |
| Default | -19 |

### ATTRIBUTE Nsta Vgs AmrBrag uplinkAgcMaximumLoss (upAgcMaxLoss)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the maximum loss that can be applied to any uplink frame by the Automatic Gain Control (AGC) feature. By specifying the maximum loss that AGC can apply to any given frame, this value affects how quickly variations in call volume can be adjusted toward the *upAgcTargLev* when a signal power loss is required for the adjustment. |
| Values | Signed (-14..-1) |
| Units | dB |
| Default | -10 |

### ATTRIBUTE Nsta Vgs AmrBrag uplinkAgcMaximumGain (upAgcMaxGain)

| | |
|---|---|
| Access | Read: All<br>Write: All |

| | |
|---|---|
| Description | This attribute specifies the maximum gain that can be applied to any uplink frame by the Automatic Gain Control (AGC) feature. By specifying the maximum gain that AGC can apply to any given frame, this value affects how quickly variations in call volume can be adjusted toward the *upAgcTargLev* when a signal power gain is required for the adjustment. |
| Values | Decimal (1..14) |
| Units | dB |
| Default | 10 |

### ATTRIBUTE Nsta Vgs AmrBrag downlinkAutomaticGainControl (dnAgc)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute enables or disables Automatic Gain Control (AGC) in the downlink direction.<br><br>This voice quality feature should be enabled if the operator desires to control variations in call volume in the downlink direction. |
| Values | disabled<br>enabled |
| Default | disabled |

### ATTRIBUTE Nsta Vgs AmrBrag downlinkAgcTargetLevel (dnAgcTargLev)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the target signal power level of the automatic gain control feature in the downlink direction. Automatic Gain Control (AGC) attempts to maintain a consistent call volume at the specified target level. AGC is performed on the signal using this target value before *downlinkGain* is applied. |
| Values | Signed (-30..-9) |
| Units | dBm0 |

Default -19

### ATTRIBUTE Nsta Vgs AmrBrag downlinkAgcMaximumLoss (dnAgcMaxLoss)

Access Read: All
Write: All

Description This attribute specifies the maximum loss that can be applied to any downlink frame by the Automatic Gain Control (AGC) feature. By specifying the maximum loss that AGC can apply to any given frame, this value affects how quickly variations in call volume can be adjusted toward the *dnAgcTargLev* when a signal power loss is required for the adjustment.

Values Signed (-14..-1)

Units dB

Default -10

### ATTRIBUTE Nsta Vgs AmrBrag downlinkAgcMaximumGain (dnAgcMaxGain)

Access Read: All
Write: All

Description This attribute specifies the maximum gain that can be applied to any downlink frame by the Automatic Gain Control (AGC) feature. By specifying the maximum gain that AGC can apply to any given frame, this value affects how quickly variations in call volume can be adjusted toward the *dnAgcTargLev* when a signal power gain is required for the adjustment.

Values Decimal (1..14)

Units dB

Default 10

### ATTRIBUTE Nsta Vgs AmrBrag disContinuousTransmission (dtx)

Access Read: All
Write: All

Description This attribute enables or disables the DTX feature of the AMR speech encoder in the downlink direction. In the uplink direction, the AMR speech decoder is capable of handling DTX SID and

No Data frames.

DTX should be enabled only if it is supported by the RNC. When enabled, two modes are supported. These modes specify how to handle the scenario that occurs when no data is being transmitted.

***disabled*** - disable DTX

***enabledSilent*** - enable DTX and transmit nothing when no data is being transmitted.

***enabledIuNoData*** - enable DTX and transmit empty IuUP frames when no data is being transmitted.

Values
disabled
enabledSilent
enabledIuNoData

Default
disabled

### ATTRIBUTE Nsta Vgs AmrBrag backgroundNoiseReduction (bnr)

Access
Read: All
Write: All

Description
This attribute enables or disables background noise reduction.

The operator may desire to disable this feature if external third-party voice quality equipment that performs a a similar function is used in the network. Performing background noise reduction more than once may degrade voice quality.

Values
disabled
enabled

Default
disabled

### ATTRIBUTE Nsta Vgs AmrBrag mobileEchoControl (mec)

Access
Read: All
Write: All

Description
This attribute enables or disables mobile echo control.

| | |
|---|---|
| | The operator may desire to disable this feature if external third-party voice quality equipment that performs a a similar function is used in the network. Performing mobile echo control more than once may degrade voice quality. |
| Values | disabled<br>enabled |
| Default | disabled |

### ATTRIBUTE Nsta Vgs AmrBrag echoCancellationFixedDelay (eCanFixDel)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the fixed delay offset for the echo cancellation tail length applied to all timeslots. This attribute has no effect if *echoCancellation* is ***disabled***. |
| Values | Decimal (0..16) |
| Units | msec |
| Default | 0 |

### ATTRIBUTE Nsta Vgs AmrBrag mobileEchoControlFixedDelay (mecFixDel)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the fixed delay offset for the mobile echo control tail length applied to all timeslots. The value specified must be a multiple of 20 msec. This attribute has no effect if *mobileEchoControl* is ***disabled***. |
| Values | Decimal (100; 120; 140; 160; 180; 200; 220; 240; 260; 280; 300; 320) |
| Units | msec |
| Default | 220 |

### ATTRIBUTE Nsta Vgs AmrBrag tandemFreeOperation (tfo)

| | |
|---|---|
| Access | Read: All<br>Write: All |

Description

This attribute enables or disables the Tandem Free Operation (TFO) feature of the Transcoding and Rate Adaptation Unit (TRAU).

The operator may desire to enable this feature if he wants to avoid a voice quality degradation introduced by the speech encoding and decoding processes in the Core Networks and improve the end-to-end voice quality. When TFO is enabled, the TRAU operates in TFO mode when the terminating network supports it.

The operator may desire to disable this feature if the originating or terminating Core Networks does not support Tandem Free Operation.

Values

disabled
enabled

Default

disabled

### ATTRIBUTE Nsta Vgs AmrBrag downlinkAutomaticGainControlTfo (dnAgcTfo)

Access

Read: All
Write: All

Description

This attribute enables or disables Automatic Gain Control (AGC) in the downlink direction for Tandem Free Operation (TFO) mode. AGC in the downlink may be turned off for TFO mode and still on for the normal operations.

This voice quality feature should be enabled if the operator desires to control variations in call volume in the downlink direction for TFO mode. This attribute has no effect if *tandemFreeOperation* is ***disabled***.

***disabled*** - downlink AGC is disabled for TFO mode
***enabled*** - downlink AGC is enabled for TFO mode
***sameAsNormalMode*** - downlink AGC is enabled for TFO mode if it is enabled for normal mode; otherwise, it is disabled.

Values

disabled
enabled
sameAsNormalMode

Default sameAsNormalMode

### ATTRIBUTE Nsta Vgs AmrBrag uplinkAutomaticGainControlTfo (upAgcTfo)

Access Read: All
Write: All

Description This attribute enables or disables Automatic Gain Control (AGC) in the uplink direction for Tandem Free Operation (TFO) mode. AGC in the uplink may be turned off for TFO mode and still on for the normal operations.

This voice quality feature should be enabled if the operator desires to control variations in call volume in the uplink direction for TFO mode. This attribute has no effect if *tandemFreeOperation* is ***disabled***.

***disabled*** - uplink AGC is disabled for TFO mode
***enabled*** - uplink AGC is enabled for TFO mode
***sameAsNormalMode*** - uplink AGC is enabled for TFO mode if it is enabled for normal mode; otherwise, it is disabled.

Values disabled
enabled
sameAsNormalMode

Default sameAsNormalMode

### ATTRIBUTE Nsta Vgs AmrBrag mobileEchoControlTfo (mecTfo)

Access Read: All
Write: All

Description This attribute enables or disables mobile echo control in Tandem Free Operation (TFO) mode. Mobile Echo Control uplink may be turned off for TFO mode and still on for the normal operations.

The operator may desire to enable this feature if it wants to detect and suppress acoustic echoes originating from the mobile user equipment.

The operator may desire to disable this feature if external third-party voice quality equipment that performs a similar function is

used in the network. Performing mobile echo control more than once may degrade voice quality. This attribute has no effect if *tandemFreeOperation* is ***disabled***.

***disabled*** - mobile echo control is disabled for TFO mode
***enabled*** - mobile echo control is enabled for TFO mode
***sameAsNormalMode*** - mobile echo control is enabled for TFO mode if it is enabled for normal mode; otherwise, it is disabled.

Values
disabled
enabled
sameAsNormalMode

Default
sameAsNormalMode

## ATTRIBUTE Nsta Vgs AmrBrag iuTimeAlignment (iuTimeAlig)

Access
Read: All
Write: All

Description
This attribute enables or disables the time alignment algorithm for the Iu-User Plane (Iu-UP) feature of the Transcoding and Rate Adaptation Unit (TRAU).

The operator may desire to enable this feature to minimize the buffer delay in the Radio Network Controller (RNC) by controlling the downlink transmission timing in the peer Iu-UP protocol layer entity.

The proper operation of this feature may be hindered by the standards interpretation of the RNC vendor. The operator may desire to leave this feature disabled if Iu Time Alignment standards interpretation differences are discovered with the RNC vendor.

Values
disabled
enabled

Default
disabled

## ATTRIBUTE Nsta Vgs AmrBrag bufferSize (bufSize)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the capacity of the packet delay variation (PDV) buffer. The PDV buffer is sized to store the amount of data that can be transmitted to the TDM network in the specified period of time.<br><br>To ensure end-to-end voice quality, a PDV buffer is provided at the output of the uplink RNC-TRAU network to filter out ATM AAL2 packet jitter and maintain the isochronous nature of the voice traffic. To ensure that PDV can be tolerated, it is necessary to initialize this buffer with a reserve of transmitted data. The size of this reserve is defined by the *pdvt* attribute, and the size of the buffer that holds this reserve is specified by the *bufSize* attribute.<br><br>The size of the initialization reserve is set to the amount of data that can be transmitted to the TDM network in the time specified by the *pdvt* attribute. There should be enough data in the PDV buffer to allow transmission for the period of time specified by the *pdvt* attribute before buffer underflow due to packet delay occurs. When packets experience excessive delay, the buffer underflows, causing idle or comfort noise to be transmitted. When packets arrive more quickly, the buffer capacity above the initialization reserve determines the amount of data that can be stored before buffer overflow occurs.<br><br>This attribute must be at least 20 msec greater than the value specified by the *pdvt* attribute. Typically the *bufSize* is twice that of the *pdvt* value. |
| Values | Decimal (40..80) |
| Units | msec |
| Default | 80 |

### ATTRIBUTE Nsta Vgs AmrBrag packetDelayVariationTolerance (pdvt)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the packet delay variation tolerance.<br><br>Packet delay variation tolerance specifies the maximum packet arrival jitter that the reassembly process tolerates in the packet stream without producing errors on the TDM interface.<br><br>This attribute, together with the *bufSize* attribute, can be configured to optimize the jitter against absolute delay trade-off in various network configurations. Increasing the value of this attribute will increase the delay while optimizing the jitter. |
| Values | Decimal (10..60) |
| Units | msec |
| Default | 25 |

### ATTRIBUTE Nsta Vgs AmrBrag echoCancelHybridDetector (eCanHybDet)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute enables or disables the hybrid detector for the echo cancellation feature. The hybrid detector will temporarily disable the echo canceller when a digital call is detected.<br><br>This attribute normally specifies enabled and should be changed only on the advice of Nortel support personnel. |
| Values | disabled<br>enabled |
| Default | enabled |

### ATTRIBUTE Nsta Vgs AmrBrag backgroundNoiseConditioningTfo (bncTfo)

| | |
|---|---|
| Access | Read: All<br>Write: All |

Description

This attribute enables or disables background noise conditioning and low-pass filtering for Tandem Free Operation (TFO) mode.

The background noise conditioning algorithm has an optional post-processing feature that performs low-pass filtering on the noise conditioned signal. Depending on the presence of any other third-party voice quality devices within the network, the operator may desire to disable low-pass filtering to prevent any voice quality degradation due to feature interaction.

This attribute has no effect if *tandemFreeOperation* attribute is set to ***disabled***.

This attribute supports the following modes:

***disabled*** - The background noise conditioning is disabled for TFO mode.
***enabled*** - The background noise conditioning is enabled for TFO mode.
***enabledLowPass*** - The background noise conditioning and low-pass filtering are enabled for TFO mode.
***sameAsNormalMode*** - The background noise conditioning is enabled for TFO mode if it is enabled for normal mode; otherwise, it is disabled.

Values

disabled
enabled
enabledLowPass
sameAsNormalMode

Default

sameAsNormalMode

## ATTRIBUTE Nsta Vgs AmrBrag dejitterBuffAdaptWindow (djBuffAdptWndw)

Access

Read: All
Write: All

Description

This attribute specifies the window size over which the UTRAN jitter is estimated for de-jitter buffer level adaptation.

A value of 0 seconds specifies that de-jitter buffer level

| | |
|---|---|
| | adaptation is disabled. The value of this attribute is rounded to the nearest multiple of 0.25. |
| Values | Decimal (0.25..30.00)<br>disabled |
| Units | seconds |
| Default | 1.50 |

### ATTRIBUTE Nsta Vgs AmrBrag dejitterBuffAdaptMargin (djBuffAdptMarg)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the margin for the dynamic de-jitter buffer level target. The de-jitter buffer level is adjusted whenever it exceeds the target level by the specified margin. The value of this attribute is rounded to the nearest multiple of 0.5 ms.<br><br>This attribute has no effect if *dejitterBuffAdaptWindow* attribute is set to ***disabled***. |
| Values | Decimal (0.5..25.0) |
| Units | msec |
| Default | 1.0 |

### GROUP Nsta Vgs AmrBrag OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Nsta Vgs AmrBrag adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component. |

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Nsta Vgs AmrBrag operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Nsta Vgs AmrBrag usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Nsta Vgs AmrBrag Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains attributes which indicate the causes of *AmrBrag* or *CsdBrag* component failure. |

### ATTRIBUTE Nsta Vgs AmrBrag failureCause (failCause)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the cause for failure.<br><br>The failure cause values are:<br><br>***serviceChanNotReady*** - the TDM LP is down, or waiting for the CHAN to establish communication.<br>***atmConnectionNotReady*** - the ATM LP is down, or has not established communication.<br>***operatorLock*** - a component on which this *Brag* depends is locked by the operator.<br>***internalError*** - an internal error, which can not be determined |

has occurred.
***outOfResource*** - the current demand has exceeded the capacity of the hardware resources.
***vspNotReady*** - the VSP card is down, or has not established communication.
***activating*** - component creation is currently in progress.
***none*** - no failure.

Values
none
serviceChanNotReady
atmConnectionNotReady
operatorLock
internalError
outOfResource
vspNotReady
activating

Default
none

## COMPONENT Nsta Vgs AmrBrag Mtp2

Instance
Decimal (1..31)

Groups
"GROUP Nsta Vgs AmrBrag Mtp2 Provisioned (Prov)"
"GROUP Nsta Vgs AmrBrag Mtp2 OsiState (State)"
"GROUP Nsta Vgs AmrBrag Mtp2 Operational (Oper)"

## "COLLECTED STATS NarrowbandServicesTrunkOverATM VoiceGateway AmrBasicRateGroup Mtp2"

Scope
Device

Description
Nsta/n Vgs AmrBrag Mtp2/<timeslot>
Nsta/n Vgs CsdBrag Mtp2/<timeslot>

This component represents the MTP2 transport layer between the Call Server and the Signalling Gateway.

The instance of the component represents the signalling timeslot on the TDM connection.

No more than six *Mtp2* components may be provisioned under a given *Nsta Vgs* hierarchy.

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Nsta Vgs AmrBrag Mtp2 Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioning attributes for the *Mtp2* component. |

## ATTRIBUTE Nsta Vgs AmrBrag Mtp2 layer3IpAddress (l3IpAddr)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the remote IP address of the layer 3 entity that owns this link.<br><br>This address must match the IP address provisioned in the corresponding *Mtp3* component specified by its *linkToPort* attribute.<br><br>Changing this attribute will cause the link to be restarted. |
| Values | IP address |
| Default | No default |

## ATTRIBUTE Nsta Vgs AmrBrag Mtp2 layer3Port (l3Port)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the remote UDP port of the layer 3 entity that owns this link. |

This port must match the UDP port provisioned in the corresponding *Mtp3* component specified by its *linkToPort* attribute.

Changing this attribute will cause the link to be restarted.

Values: Decimal (1..65535)

Default: No default

### ATTRIBUTE Nsta Vgs AmrBrag Mtp2 udpPortConnection (udpConn)

Access: Read: All
Write: All

Criticality: Process

Description: This attribute specifies the link to the *Nsta Vgs CtrlConn UdpPort* component that defines the UDP port access to the IP network for connection to the layer 3 user. It should match the UDP port provisioned in the corresponding *Mtp3 Linkset Link* component specified by its *remoteUdpPort* attribute.

A port must be specified for *Check Prov* to succeed.

Within a single *Nsta Vgs* hierarchy, at most three *Mtp2* components can link to *UdpPort* components under the *Ctrl/mg* component, and at most three *Mtp2* components can link to *UdpPort* components under the *Ctrl/sg* component.

Changing this attribute will cause the link to be restarted.

Values: Link (Service, linkToApplication)

Default: No default

### ATTRIBUTE Nsta Vgs AmrBrag Mtp2 alignmentReadyTimer (t1)

Access: Read: All
Write: All

Description: This attribute specifies the value of the Alignment Ready timer defined in ITU-T recommendation Q.703.

This timer is started when the link reaches the “Alignment Ready” state.

This timer stops upon entering the “In Service” state. Reception of a FISU or MSU while in the “Alignment Ready” state causes the state transition to the “In Service” state.

A timer expiry causes the state to transition to the “Idle” state.

The number of expiries of this timer is counted by the attribute *alignmentReadyTimeouts.*

Values: Decimal (40..50)

Units: seconds

Default: 45

### ATTRIBUTE Nsta Vgs AmrBrag Mtp2 notAlignedTimer (t2)

Access: Read: All
Write: All

Description: This attribute specifies the value of the “Not Aligned “timer defined in ITU-T recommendation Q.703. It is used during initial alignment.

This timer is started when the link enters the “Not Aligned” state which begins sending status indication “O”.

If the timer expires before receiving a status indication “O”, “N” or “E”, alignment is stopped and the “Idle” state is entered. Otherwise the link proceeds to the “Aligned” state.

The number of expiries of this timer is counted by the attribute *notAlignedTimeouts*.

Values: Decimal (5..150)

Units: seconds

Default: 60

### ATTRIBUTE Nsta Vgs AmrBrag Mtp2 alignedTimer (t3)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the value of the Timer “aligned” defined in ITU-T recommendation Q.703. It is used during initial alignment.<br><br>This timer is started when the link enters the “Aligned” state which begins sending status indication “N” or “E”, depending on whether the link is in normal or emergency alignment mode respectively.<br><br>If the timer expires before a status indication “N” or “E” is received, alignment is stopped and the “Idle” state is entered. Otherwise the link proceeds to the “Proving” state.<br><br>The number of expiries of this timer is counted by the attribute *alignedTimeouts.* |
| Values | Decimal (1000..2000) |
| Units | msec |
| Default | 1500 |

### ATTRIBUTE Nsta Vgs AmrBrag Mtp2 normalProvingTimer (t4n)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the value of the proving period timer for normal alignment as defined in ITU-T recommendation Q.703. It is used during initial alignment.<br><br>It is started when the link enters the “Proving” state. In normal alignment mode, proving must last for a period specified by this timer before the link can enter the “Aligned Ready” state.<br><br>Expiry of this timer indicates a successful proving period unless the proving period has been previously aborted up to four times. |

A higher value for this timer ensures a more stable link, but increases the time taken to bring the link in service.

Values: Decimal (7500..9500)

Units: msec

Default: 8500

### ATTRIBUTE Nsta Vgs AmrBrag Mtp2 emergencyProvingTimer (t4e)

Access: Read: All
Write: All

Description: This attribute specifies the value of the proving period timer for emergency alignment as defined in ITU-T recommendation Q.703. It is used during initial alignment.

It is started when the link enters the “Proving” state. In emergency alignment mode, proving must last for a period specified by this timer before the link can enter the “Aligned Ready” state.

Expiry of this timer indicates a successful proving period unless the proving period has been previously aborted up to four times.

A higher value for this timer ensures a more stable link, but increases the time taken to bring the link in service.

Values: Decimal (1000..2000)

Units: msec

Default: 1500

### ATTRIBUTE Nsta Vgs AmrBrag Mtp2 sendingSibTimer (t5)

Access: Read: All
Write: All

Description: This attribute specifies the value of the “Sending SIB” timer defined in ITU-T recommendation Q.703. It is used for congestion control.

The value of this timer determines the interval at which the

receiving end of a signalling link, which detects a congestion situation returns a status indication “B” to the remote transmitting end of the link. This causes the remote end of the link to stop sending messages until the congestion condition goes away.

The number of times a status indication “B”, that is, a congestion indication is sent is counted by the attribute *congestionIndicationTx*. The number of times a congestion situation is detected is counted by the attribute *congestionDetects*.

Values: Decimal (80..120)

Units: msec

Default: 100

### ATTRIBUTE Nsta Vgs AmrBrag Mtp2 remoteCongestionTimer (t6)

Access: Read: All
Write: All

Description: This attribute specifies the value of the remote congestion timer defined in ITU-T recommendation Q.703.

This timer begins when a status indication “B” is received, indicating congestion at the remote end.

This timer is stopped when the congestion abates at the signalling point, as indicated by a message in the retransmit buffer being acknowledged.

Upon timer expiration, a link failure indication is generated.

The number of times a status indication “B” is received, indicating congestion at the remote end, is counted by the attribute *remoteCongestionIndicationsRx*.

Values: Decimal (3000..6000)

Units: msec

Default: 4500

### ATTRIBUTE Nsta Vgs AmrBrag Mtp2 ackTimer (t7)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the value of the “Excessive delay of acknowledgment” timer defined in ITU-T recommendation Q.703. It is used during normal sending and receiving of MSUs.<br><br>This timer starts when the first MSU is placed in the retransmit buffer and is pending acknowledgment.<br><br>This timer is stopped after the last MSU in the retransmit buffer is acknowledged.<br><br>This timer is restarted after each acknowledgment when the retransmit buffer is non-empty. It is also restarted each time a link status indication unit “B” is received.<br><br>If the timer expires, a link failure indication is generated.<br><br>The number of expiries of this timer is counted by the attribute *ackTimeouts.* |
| Values | Decimal (500..2000) |
| Units | msec |
| Default | 1250 |

### GROUP Nsta Vgs AmrBrag Mtp2 OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Nsta Vgs AmrBrag Mtp2 adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |

Description

This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values

locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default

unlocked

### ATTRIBUTE Nsta Vgs AmrBrag Mtp2 operationalState (osiOper)

Access

Read only

Description

This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values

enabled (ena)
disabled (dis)

Default

disabled

### ATTRIBUTE Nsta Vgs AmrBrag Mtp2 usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Nsta Vgs AmrBrag Mtp2 Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for the *Mtp2* component. |

### ATTRIBUTE Nsta Vgs AmrBrag Mtp2 alignmentReadyTimeouts (t1Tmouts)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the timeouts of the Alignment Ready timer (T1) represented by the attribute *alignmentReadyTimer*.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Vgs AmrBrag Mtp2 notAlignedTimeouts (t2Tmouts)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the timeouts of the “Not Aligned “timer (T2) represented by the attribute *notAlignedTimer*.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Vgs AmrBrag Mtp2 alignedTimeouts (t3Tmouts)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the timeouts of the Aligned Timer (T3) represented by the attribute *alignedTimer*.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Vgs AmrBrag Mtp2 congestionDetects (congDet)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of times congestion was detected at the local end of the signalling link.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Vgs AmrBrag Mtp2 congestionIndicationsTx (congIndTx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of congestion indications transmitted.<br><br>The counter wraps to 0 when it exceeds its maximum value. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Vgs AmrBrag Mtp2 remoteCongestionIndicationsRx (remCongIndRx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of congestion indications received from the remote end.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Vgs AmrBrag Mtp2 ackTimeouts (t7Tmouts)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the timeouts of the T7 Timer represented by the attribute *ackTimer*.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Vgs AmrBrag Mtp2 insvFailures (insvFail)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of in-service link outages.<br><br>It does not include failures which occur during the alignment process.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Vgs AmrBrag Mtp2 msuTx

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of message signal units transmitted. This includes the number of message signal units retransmitted, indicated by the attribute *msuRetransmits*.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Vgs AmrBrag Mtp2 msuRetransmits (msuReTx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of message signal units retransmitted because of negative acknowledgments.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Vgs AmrBrag Mtp2 msuRx

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of message signal units received. This includes the MSUs with errors, indicated by the attribute *msuErrors*.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Vgs AmrBrag Mtp2 msuErrors (msuErrs)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of ingress signal units discarded because of sequence number, length or CRC errors.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Vgs AmrBrag Mtp2 msuOctetsTx (octTx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of layer 3 payload octets transmitted.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Vgs AmrBrag Mtp2 msuOctetsRx (octRx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of layer 3 payload octets received.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## COLLECTED STATS NarrowbandServicesTrunkOverATM VoiceGateway AmrBasicRateGroup Mtp2

Description — The statistics record generated by the NarrowbandServicesTrunkOverATM VoiceGateway AmrBasicRateGroup Mtp2 component.

### ATTRIBUTE Nsta Vgs AmrBrag Mtp2 insvFailures

Description — This attribute indicates the number of in-service link outages over the collection interval. It does not include failures which occur during the alignment process.

Values — Decimal (0..4294967295)

### ATTRIBUTE Nsta Vgs AmrBrag Mtp2 msusTx

Description — This attribute indicates the number of message signal units transmitted over the collection interval. This includes the MSUs retransmitted, indicated by the attribute *msuRetransmits.*

Values — Decimal (0..4294967295)

### ATTRIBUTE Nsta Vgs AmrBrag Mtp2 msuRetransmits (msuReTx)

Description — This attribute indicates the number of message signal units retransmitted because of negative acknowledgments over the collection interval.

Values — Decimal (0..4294967295)

### ATTRIBUTE Nsta Vgs AmrBrag Mtp2 msusRx

Description — This attribute indicates the number of message signal units received over the collection interval. This includes the MSUs with errors, indicated by the attribute *msuErrors.*

Values — Decimal (0..4294967295)

### ATTRIBUTE Nsta Vgs AmrBrag Mtp2 msuErrors

Description — This attribute indicates the number of message signal units discarded because of sequence number, length or CRC errors over the collection interval.

Values — Decimal (0..4294967295)

### ATTRIBUTE Nsta Vgs AmrBrag Mtp2 msuOctetsTx

| | |
|---|---|
| Description | This attribute indicates the number of payload MSU octets transmitted over the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Nsta Vgs AmrBrag Mtp2 msuOctetsRx

| | |
|---|---|
| Description | This attribute indicates the number of payload MSU octets received over the collection interval. |
| Values | Decimal (0..4294967295) |

### COMPONENT Nsta Vgs AmrBrag WgBragDs0 (Ds0)

| | |
|---|---|
| Instance | Decimal (1..31) |
| Groups | "GROUP Nsta Vgs AmrBrag Ds0 Operational (Oper)" |
| Scope | Device |
| Description | This component represents a DS0 timeslot. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Nsta Vgs AmrBrag Ds0 Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the *NstaVgsWgBragDs0* component. |

### ATTRIBUTE Nsta Vgs AmrBrag Ds0 timeslotController (controller)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the current timeslot controller. If the DS0 is used as a bearer channel, it indicates the associated *MgIfCtrl* component. If the DS0 is used for signalling, this attribute indicates the *Mtp2* component used for signalling. If the DS0 is not in use, this attribute is empty. |

| | |
|---|---|
| Values | The name of the component |
| Default | No default |

## COMPONENT Nsta Vgs CsdBasicRateGroup (CsdBrag)

| | |
|---|---|
| Instance | Decimal (0..127) |
| Groups | "GROUP Nsta Vgs CsdBrag Provisioned (Prov)"<br>"GROUP Nsta Vgs CsdBrag OsiState (State)"<br>"GROUP Nsta Vgs CsdBrag Operational (Oper)" |
| Scope | Device |
| Description | *Nsta/n Vgs CsdBasicRateGroup/n*<br><br>This component represents a number of TDM connections from the Voice Services Processor (VSP) to the TDM network. The TDM connections are all associated with the same TDM interface.<br><br>A particular *CsdBrag* is associated with a single E1 channel. Connections on this channel are used to transport CSD. This component defines default processing for all TDM connections on this channel. For each connection, this default processing may be overridden by the controller. |
| Opt. Subcomp. | "COMPONENT Nsta Vgs CsdBrag Mtp2" |
| Dyn. Subcomp. | "COMPONENT Nsta Vgs CsdBrag WgBragDs0 (Ds0)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Nsta Vgs CsdBrag Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioning data for the *NstaVgsWgCsdBasicRateGroup* component. |

### ATTRIBUTE Nsta Vgs CsdBrag interfaceName (intName)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies a link to a *Chan* component, which in turn specifies the timeslots for the *CsdBrag*.<br><br>This attribute must specify an *Lp/n E1/n Chan/n* component. *Lp/n DS1/n Chan/n* components are not supported. |
| Values | Link (Service, applicationFramerName) |
| Default | No default |

### ATTRIBUTE Nsta Vgs CsdBrag defaultMode (defMode)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the operational mode to be used for a CSD call when no mode is defined during call setup via the call setup protocol.<br><br>***transparent*** - operate in transparent CSD mode when no mode is defined.<br>***nonTransparent*** - operate in non-transparent CSD mode when no mode is defined. |
| Values | transparent<br>nonTransparent |
| Default | transparent |

### ATTRIBUTE Nsta Vgs CsdBrag defaultRate (defRate)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the encoding rate to be used for a CSD call when no rate is defined during call setup via the call setup protocol. |

| | |
|---|---|
| | Transparent mode only supports a rate of ***64.0*** kbit/s, and nontransparent mode only supports ***14.4*** kbit/s. |
| Values | Decimal (14.40; 64.00) |
| Units | kbit/s |
| Default | 64.00 |

### ATTRIBUTE Nsta Vgs CsdBrag lossIntegrationPeriod (intPeriod)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the interval of time for which a loss of packet condition must persist before the corresponding call is dropped.<br><br>A value of ***disabled*** specifies that packet loss integration is disabled, and therefore call connections will not be dropped due to packet loss. |
| Values | Decimal (1..50)<br>disabled |
| Units | seconds |
| Default | 5 |

### ATTRIBUTE Nsta Vgs CsdBrag bufferSize (bufSize)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the capacity of the packet delay variation (PDV) buffer. The PDV buffer will be sized to store the amount of data that can be transmitted to the TDM network in the specified period of time.<br><br>To ensure end-to-end voice quality, a PDV buffer is provided at the output of the uplink RNC-TRAU network to filter out ATM AAL2 packet jitter. To ensure that PDV can be tolerated, it is necessary to initialize this buffer with a reserve of transmitted |

data. The size of this reserve is defined by the *pdvt* attribute, and the size of the buffer that holds this reserve is specified by the *bufSize* attribute.

The size of the initialization reserve is set to the amount of data that can be transmitted to the TDM network in the time specified by the *pdvt* attribute. There should be enough data in the PDV buffer to allow transmission for the period of time specified by the *pdvt* attribute before buffer underflow due to packet delay occurs. When packets experience excessive delay, the buffer underflows, causing fill sequences to be transmitted. When packets arrive more quickly, the buffer capacity above the initialization reserve determines the amount of data that can be stored before buffer overflow occurs.

This attribute must be at least 40 msec greater than the value of the *pdvt* attribute. Typically the *bufSize* is twice that of the *pdvt* value.

| | |
|---|---|
| Values | Decimal (40..160) |
| Units | msec |
| Default | 100 |

### ATTRIBUTE Nsta Vgs CsdBrag packetDelayVariationTolerance (pdvt)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the packet delay variation tolerance.<br><br>Packet delay variation tolerance specifies the maximum packet arrival jitter that the reassembly process tolerates in the packet stream without producing errors on the TDM interface. This attribute, together with the *bufSize* attribute, can be configured to optimize the jitter against absolute delay trade-off in various network configurations. |
| Values | Decimal (10..120) |
| Units | msec |

Default 50

## GROUP Nsta Vgs CsdBrag OsiState (State)

Properties Operational

Description This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

## ATTRIBUTE Nsta Vgs CsdBrag adminState (osiAdmin)

Access Read only

Description This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default unlocked

## ATTRIBUTE Nsta Vgs CsdBrag operationalState (osiOper)

Access Read only

| | |
|---|---|
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Nsta Vgs CsdBrag usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Nsta Vgs CsdBrag Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains attributes which indicate the causes of *AmrBrag* or *CsdBrag* component failure. |

## ATTRIBUTE Nsta Vgs CsdBrag failureCause (failCause)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the cause for failure.<br><br>The failure cause values are:<br><br>***serviceChanNotReady*** - the TDM LP is down, or waiting for the CHAN to establish communication.<br>***atmConnectionNotReady*** - the ATM LP is down, or has not established communication.<br>***operatorLock*** - a component on which this *Brag* depends is locked by the operator.<br>***internalError*** - an internal error, which can not be determined has occurred.<br>***outOfResource*** - the current demand has exceeded the capacity of the hardware resources.<br>***vspNotReady*** - the VSP card is down, or has not established communication.<br>***activating*** - component creation is currently in progress.<br>***none*** - no failure. |
| Values | none<br>serviceChanNotReady<br>atmConnectionNotReady<br>operatorLock<br>internalError<br>outOfResource<br>vspNotReady<br>activating |
| Default | none |

## COMPONENT Nsta Vgs CsdBrag Mtp2

| | |
|---|---|
| Instance | Decimal (1..31) |
| Groups | "GROUP Nsta Vgs CsdBrag Mtp2 Provisioned (Prov)"<br>"GROUP Nsta Vgs CsdBrag Mtp2 OsiState (State)"<br>"GROUP Nsta Vgs CsdBrag Mtp2 Operational (Oper)" |

### "COLLECTED STATS NarrowbandServicesTrunkOverATM VoiceGateway CsdBasicRateGroup Mtp2"

| | |
|---|---|
| Scope | Device |
| Description | Nsta/n Vgs AmrBrag Mtp2/<timeslot><br>Nsta/n Vgs CsdBrag Mtp2/<timeslot><br><br>This component represents the MTP2 transport layer between the Call Server and the Signalling Gateway.<br><br>The instance of the component represents the signalling timeslot on the TDM connection.<br><br>No more than six *Mtp2* components may be provisioned under a given *Nsta Vgs* hierarchy. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Nsta Vgs CsdBrag Mtp2 Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioning attributes for the *Mtp2* component. |

### ATTRIBUTE Nsta Vgs CsdBrag Mtp2 layer3IpAddress (l3IpAddr)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the remote IP address of the layer 3 entity that owns this link.<br><br>This address must match the IP address provisioned in the corresponding *Mtp3* component specified by its *linkToPort* attribute. |

Changing this attribute will cause the link to be restarted.

Values: IP address

Default: No default

### ATTRIBUTE Nsta Vgs CsdBrag Mtp2 layer3Port (l3Port)

Access: Read: All
Write: All

Criticality: Process

Description: This attribute specifies the remote UDP port of the layer 3 entity that owns this link.

This port must match the UDP port provisioned in the corresponding *Mtp3* component specified by its *linkToPort* attribute.

Changing this attribute will cause the link to be restarted.

Values: Decimal (1..65535)

Default: No default

### ATTRIBUTE Nsta Vgs CsdBrag Mtp2 udpPortConnection (udpConn)

Access: Read: All
Write: All

Criticality: Process

Description: This attribute specifies the link to the *Nsta Vgs CtrlConn UdpPort* component that defines the UDP port access to the IP network for connection to the layer 3 user. It should match the UDP port provisioned in the corresponding *Mtp3 Linkset Link* component specified by its *remoteUdpPort* attribute.

A port must be specified for *Check Prov* to succeed.

Within a single *Nsta Vgs* hierarchy, at most three *Mtp2* components can link to *UdpPort* components under the *Ctrl/mg* component, and at most three *Mtp2* components can link to

*UdpPort* components under the *Ctrl/sg* component.

Changing this attribute will cause the link to be restarted.

Values: Link (Service, linkToApplication)

Default: No default

### ATTRIBUTE Nsta Vgs CsdBrag Mtp2 alignmentReadyTimer (t1)

Access: Read: All
Write: All

Description: This attribute specifies the value of the Alignment Ready timer defined in ITU-T recommendation Q.703.

This timer is started when the link reaches the “Alignment Ready” state.

This timer stops upon entering the “In Service” state. Reception of a FISU or MSU while in the “Alignment Ready” state causes the state transition to the “In Service” state.

A timer expiry causes the state to transition to the “Idle” state.

The number of expiries of this timer is counted by the attribute *alignmentReadyTimeouts.*

Values: Decimal (40..50)

Units: seconds

Default: 45

### ATTRIBUTE Nsta Vgs CsdBrag Mtp2 notAlignedTimer (t2)

Access: Read: All
Write: All

Description: This attribute specifies the value of the “Not Aligned “timer defined in ITU-T recommendation Q.703. It is used during initial alignment.

This timer is started when the link enters the “Not Aligned” state which begins sending status indication “O”.

If the timer expires before receiving a status indication “O”, “N” or “E”, alignment is stopped and the “Idle” state is entered. Otherwise the link proceeds to the “Aligned” state.

The number of expiries of this timer is counted by the attribute *notAlignedTimeouts*.

Values: Decimal (5..150)

Units: seconds

Default: 60

### ATTRIBUTE Nsta Vgs CsdBrag Mtp2 alignedTimer (t3)

Access: Read: All
Write: All

Description: This attribute specifies the value of the Timer “aligned” defined in ITU-T recommendation Q.703. It is used during initial alignment.

This timer is started when the link enters the “Aligned” state which begins sending status indication “N” or “E”, depending on whether the link is in normal or emergency alignment mode respectively.

If the timer expires before a status indication “N” or “E” is received, alignment is stopped and the “Idle” state is entered. Otherwise the link proceeds to the “Proving” state.

The number of expiries of this timer is counted by the attribute *alignedTimeouts.*

Values: Decimal (1000..2000)

Units: msec

Default: 1500

### ATTRIBUTE Nsta Vgs CsdBrag Mtp2 normalProvingTimer (t4n)

Access: Read: All
Write: All

| | |
|---|---|
| Description | This attribute specifies the value of the proving period timer for normal alignment as defined in ITU-T recommendation Q.703. It is used during initial alignment.<br><br>It is started when the link enters the “Proving” state. In normal alignment mode, proving must last for a period specified by this timer before the link can enter the “Aligned Ready” state.<br><br>Expiry of this timer indicates a successful proving period unless the proving period has been previously aborted up to four times.<br><br>A higher value for this timer ensures a more stable link, but increases the time taken to bring the link in service. |
| Values | Decimal (7500..9500) |
| Units | msec |
| Default | 8500 |

### ATTRIBUTE Nsta Vgs CsdBrag Mtp2 emergencyProvingTimer (t4e)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the value of the proving period timer for emergency alignment as defined in ITU-T recommendation Q.703. It is used during initial alignment.<br><br>It is started when the link enters the “Proving” state. In emergency alignment mode, proving must last for a period specified by this timer before the link can enter the “Aligned Ready” state.<br><br>Expiry of this timer indicates a successful proving period unless the proving period has been previously aborted up to four times.<br><br>A higher value for this timer ensures a more stable link, but increases the time taken to bring the link in service. |
| Values | Decimal (1000..2000) |
| Units | msec |

Default 1500

### ATTRIBUTE Nsta Vgs CsdBrag Mtp2 sendingSibTimer (t5)

Access
Read: All
Write: All

Description
This attribute specifies the value of the “Sending SIB” timer defined in ITU-T recommendation Q.703. It is used for congestion control.

The value of this timer determines the interval at which the receiving end of a signalling link, which detects a congestion situation returns a status indication “B” to the remote transmitting end of the link. This causes the remote end of the link to stop sending messages until the congestion condition goes away.

The number of times a status indication “B”, that is, a congestion indication is sent is counted by the attribute *congestionIndicationTx*. The number of times a congestion situation is detected is counted by the attribute *congestionDetects*.

Values
Decimal (80..120)

Units
msec

Default
100

### ATTRIBUTE Nsta Vgs CsdBrag Mtp2 remoteCongestionTimer (t6)

Access
Read: All
Write: All

Description
This attribute specifies the value of the remote congestion timer defined in ITU-T recommendation Q.703.

This timer begins when a status indication “B” is received, indicating congestion at the remote end.

This timer is stopped when the congestion abates at the signalling point, as indicated by a message in the retransmit buffer being acknowledged.

Upon timer expiration, a link failure indication is generated.

The number of times a status indication “B” is received, indicating congestion at the remote end, is counted by the attribute *remoteCongestionIndicationsRx.*

Values: Decimal (3000..6000)

Units: msec

Default: 4500

### ATTRIBUTE Nsta Vgs CsdBrag Mtp2 ackTimer (t7)

Access: Read: All
Write: All

Description: This attribute specifies the value of the “Excessive delay of acknowledgment” timer defined in ITU-T recommendation Q.703. It is used during normal sending and receiving of MSUs.

This timer starts when the first MSU is placed in the retransmit buffer and is pending acknowledgment.

This timer is stopped after the last MSU in the retransmit buffer is acknowledged.

This timer is restarted after each acknowledgment when the retransmit buffer is non-empty. It is also restarted each time a link status indication unit “B” is received.

If the timer expires, a link failure indication is generated.

The number of expiries of this timer is counted by the attribute *ackTimeouts.*

Values: Decimal (500..2000)

Units: msec

Default: 1250

### GROUP Nsta Vgs CsdBrag Mtp2 OsiState (State)

Properties: Operational

Description

This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

## ATTRIBUTE Nsta Vgs CsdBrag Mtp2 adminState (osiAdmin)

Access

Read only

Description

This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values

locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default

unlocked

## ATTRIBUTE Nsta Vgs CsdBrag Mtp2 operationalState (osiOper)

Access

Read only

Description

This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Nsta Vgs CsdBrag Mtp2 usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Nsta Vgs CsdBrag Mtp2 Operational (Oper)

Properties
Operational

Description
This group contains the operational attributes for the *Mtp2* component.

### ATTRIBUTE Nsta Vgs CsdBrag Mtp2 alignmentReadyTimeouts (t1Tmouts)

Access
Read: All
Write: Illegal

| | |
|---|---|
| Description | This attribute counts the timeouts of the Alignment Ready timer (T1) represented by the attribute *alignmentReadyTimer*.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Vgs CsdBrag Mtp2 notAlignedTimeouts (t2Tmouts)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the timeouts of the “Not Aligned “timer (T2) represented by the attribute *notAlignedTimer*.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Vgs CsdBrag Mtp2 alignedTimeouts (t3Tmouts)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the timeouts of the Aligned Timer (T3) represented by the attribute *alignedTimer*.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Vgs CsdBrag Mtp2 congestionDetects (congDet)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of times congestion was detected at the local end of the signalling link.<br><br>The counter wraps to 0 when it exceeds its maximum value. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Vgs CsdBrag Mtp2 congestionIndicationsTx (congIndTx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of congestion indications transmitted.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Vgs CsdBrag Mtp2 remoteCongestionIndicationsRx (remCongIndRx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of congestion indications received from the remote end.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Vgs CsdBrag Mtp2 ackTimeouts (t7Tmouts)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the timeouts of the T7 Timer represented by the attribute *ackTimer*.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Vgs CsdBrag Mtp2 insvFailures (insvFail)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of in-service link outages.<br><br>It does not include failures which occur during the alignment process.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Vgs CsdBrag Mtp2 msuTx

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of message signal units transmitted. This includes the number of message signal units retransmitted, indicated by the attribute *msuRetransmits*.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Vgs CsdBrag Mtp2 msuRetransmits (msuReTx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of message signal units retransmitted because of negative acknowledgments.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Vgs CsdBrag Mtp2 msuRx

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of message signal units received. This includes the MSUs with errors, indicated by the attribute *msuErrors*.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Vgs CsdBrag Mtp2 msuErrors (msuErrs)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of ingress signal units discarded because of sequence number, length or CRC errors.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Vgs CsdBrag Mtp2 msuOctetsTx (octTx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of layer 3 payload octets transmitted.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Vgs CsdBrag Mtp2 msuOctetsRx (octRx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the number of layer 3 payload octets received.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## COLLECTED STATS NarrowbandServicesTrunkOverATM VoiceGateway CsdBasicRateGroup Mtp2

| | |
|---|---|
| Description | The statistics record generated by the NarrowbandServicesTrunkOverATM VoiceGateway CsdBasicRateGroup Mtp2 component. |

## ATTRIBUTE Nsta Vgs CsdBrag Mtp2 insvFailures

| | |
|---|---|
| Description | This attribute indicates the number of in-service link outages over the collection interval. It does not include failures which occur during the alignment process. |
| Values | Decimal (0..4294967295) |

## ATTRIBUTE Nsta Vgs CsdBrag Mtp2 msusTx

| | |
|---|---|
| Description | This attribute indicates the number of message signal units transmitted over the collection interval. This includes the MSUs retransmitted, indicated by the attribute *msuRetransmits.* |
| Values | Decimal (0..4294967295) |

## ATTRIBUTE Nsta Vgs CsdBrag Mtp2 msuRetransmits (msuReTx)

| | |
|---|---|
| Description | This attribute indicates the number of message signal units retransmitted because of negative acknowledgments over the collection interval. |
| Values | Decimal (0..4294967295) |

## ATTRIBUTE Nsta Vgs CsdBrag Mtp2 msusRx

| | |
|---|---|
| Description | This attribute indicates the number of message signal units received over the collection interval. This includes the MSUs with errors, indicated by the attribute *msuErrors.* |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Nsta Vgs CsdBrag Mtp2 msuErrors

| | |
|---|---|
| Description | This attribute indicates the number of message signal units discarded because of sequence number, length or CRC errors over the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Nsta Vgs CsdBrag Mtp2 msuOctetsTx

| | |
|---|---|
| Description | This attribute indicates the number of payload MSU octets transmitted over the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Nsta Vgs CsdBrag Mtp2 msuOctetsRx

| | |
|---|---|
| Description | This attribute indicates the number of payload MSU octets received over the collection interval. |
| Values | Decimal (0..4294967295) |

### COMPONENT Nsta Vgs CsdBrag WgBragDs0 (Ds0)

| | |
|---|---|
| Instance | Decimal (1..31) |
| Groups | "GROUP Nsta Vgs CsdBrag Ds0 Operational (Oper)" |
| Scope | Device |
| Description | This component represents a DS0 timeslot. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Nsta Vgs CsdBrag Ds0 Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for the *NstaVgsWgBragDs0* component. |

### ATTRIBUTE Nsta Vgs CsdBrag Ds0 timeslotController (controller)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute indicates the current timeslot controller. If the DS0 is used as a bearer channel, it indicates the associated *MgIfCtrl* component. If the DS0 is used for signalling, this attribute indicates the *Mtp2* component used for signalling. If the DS0 is not in use, this attribute is empty. |
| Values | The name of the component |
| Default | No default |

### COMPONENT Nsta Vgs V5UserAdaption (V5ua)

| | |
|---|---|
| Groups | "GROUP Nsta Vgs V5ua Provisioned (Prov)"<br>"GROUP Nsta Vgs V5ua OsiState (State)"<br>"GROUP Nsta Vgs V5ua Operational (Oper)" |
| Scope | Device |
| Description | *Nsta/n Vgs V5ua*<br>This component represents the V5.2 User Adaptation Layer for the transport of V5.2 signaling over Stream Control Transmission Protocol (SCTP). |
| Dyn. Subcomp. | "COMPONENT Nsta Vgs V5ua ApplicationServerProcess (Asp)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Nsta Vgs V5ua Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioning data for the *Iua* component, which provides access to the IP network. |

### ATTRIBUTE Nsta Vgs V5ua sctpPortConnection

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute specifies a link to an *Nsta/n Vgs Ctrl/n SctpPort/n* component, which provides transport over the IP network.<br><br>The linked *Nsta/n Vgs Ctrl/n SctpPort/n* must be under the same *Nsta/n Vgs* as this *Iua* subcomponent. |
| Values | Link (Service, linkToApplication) |
| Default | No default |

### ATTRIBUTE Nsta Vgs V5ua recoveryTimer

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies how long incoming messages are buffered while the Application Server is recovering from a failure (indicated by an *asStatus* value of ***pending***). |
| Values | Decimal (1..5) |
| Units | seconds |
| Default | 3 |

### GROUP Nsta Vgs V5ua OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Nsta Vgs V5ua adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. |

When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Nsta Vgs V5ua operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Nsta Vgs V5ua usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

## GROUP Nsta Vgs V5ua Operational (Oper)

Properties
Operational

Description
This group contains the operational attributes of the *Nsta/n Vgs V5ua* component.

## ATTRIBUTE Nsta Vgs V5ua applicationServerStatus

Access
Read only

Description
This attribute indicates the status of the Application Server.

The possible values are:

***active*** - The Application Server (AS) is available and application traffic is active. This state implies that at least one Application Server Process (ASP) is in active state.
***up*** - The AS is available but no application traffic is active (one or more related ASPs are in the inactive state, but none in the active state). The recovery timer is not running or has expired.
***down*** - The AS is unavailable. This state implies that all related ASPs are in the down state for this AS. The recovery timer is not running or has expired.
***pending*** - The ASP has transitioned from active to inactive or down and it was the last remaining active ASP in the AS. A recovery timer starts, and any incoming SCN messages after that will be queued by the SG. If an ASP becomes active before a

recovery timer expires, the AS will move to active state and all the queued messages will be sent to the active ASP.

Values
up
down
active
pending

Default
down

## COMPONENT Nsta Vgs V5ua ApplicationServerProcess (Asp)

Instance
address [IP address]
port [Decimal (1..65535)]

Groups
"GROUP Nsta Vgs V5ua Asp Operational (Oper)"

Scope
Device

Description
*Nsta/n Vgs Iua ApplicationServerProcess/<ip address>,<sctp port>*

This component represents an Application Server Process (Media Gateway Controller) linked to the Signaling Gateway. The IP address and SCTP port number used in the instance value refer to the remote connection.

Common Verbs
Help
List
Display

## GROUP Nsta Vgs V5ua Asp Operational (Oper)

Properties
Operational

Description
This group contains attributes which describe the *Asp* component status.

## ATTRIBUTE Nsta Vgs V5ua Asp status

Access
Read only

Description
This attribute indicates the status of the Application Server Process.

The possible values are:
***active*** - the ASP is available and application traffic is flowing (serving as the primary instance)
***up*** - the ASP is available but application traffic is not flowing
***down*** - the ASP is unavailable

Values
up
down
active

Default
No default

## COMPONENT Nsta Vgs BasicRateGroupServer (BragS)

Instance
Decimal (0..15)

Groups
"GROUP Nsta Vgs BragS Provisioned (Prov)"
"GROUP Nsta Vgs BragS Operational (Oper)"

Scope
Device

Description
*Nsta/n Vgs BasicRateGroupServer/n*

This component represents a common server for a set of dynamic basic rate groups (*DBrag*). An instance of this component should be provisioned for each group of AAL1 TDM connections with the same service parameters.

This component defines the default processing for all associated *DBrag* components. For each connection, this default processing may be overridden by the controller.

The *Cas* subcomponent is mutually exclusive of the *Q921* subcomponent.

| | |
|---|---|
| Opt. Subcomp. | "COMPONENT Nsta Vgs BragS AnnouncementLanguage"<br>"COMPONENT Nsta Vgs BragS Q921"<br>"COMPONENT Nsta Vgs BragS ChannelAssociatedSignaling (Cas)" |
| Dyn. Subcomp. | "COMPONENT Nsta Vgs BragS NstaVgsDynamicBasicRateGroup (DBrag)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Nsta Vgs BragS Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisioning data for the *BasicRateGroupServer* component. |

## ATTRIBUTE Nsta Vgs BragS localAddress

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the NSAP address of the *BragS*.<br><br>If the switch prefix (the *nodePrefix* attribute of the *ModuleData* component) has been provisioned, a default value for *localAddress* based on the *nodePrefix* is provided.<br><br>If a default value can not be generated the operator is forced to set a value for this attribute. Alternatively, the *ModuleData nodePrefix* attribute may be provisioned, and this *BragS* component then deleted and readded. |
| Values | String (1..44, AESANsapAddress) |
| Default | No default |

### ATTRIBUTE Nsta Vgs BragS tdmLogLaw (muALaw)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the G.711 companding law to use on the TDM service stream.<br><br>If set to ***aLaw***, Alaw companding is used.<br>If set to ***muLaw***, Mulaw companding is used.<br>If set to ***autoConfigured***, then the actual value used is derived from the facility, namely ***muLaw*** would be used for *DS1* stream, while ***aLaw*** would be used by *E1* stream. |
| Values | muLaw<br>aLaw<br>autoConfigured |
| Default | autoConfigured |

### ATTRIBUTE Nsta Vgs BragS bufferSize (bufSize)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the capacity of the packet delay variation (PDV) buffer in milliseconds of data.<br><br>To ensure that PDV can be tolerated it is necessary to initialize the system with a reserve of information in the buffer used to reassemble data for transmission across the TDM network. The size of this reserve is defined by the *pdvt* and *bufferSize* attributes. The amount of data played out to the TDM network (in time equal to the value of the *pdvt* attribute) is equal to the size of the initialization reserve. There should be enough data in the reassembly buffer to allow transmission for a period of time defined by the *pdvt* attribute before buffer underflow due to the next delayed packet occurs.<br><br>If the ***vgsIp, vsIpG729, vgsIpGe***, or ***vgsIpG729Ge*** feature have been provisioned the default *bufferSize* will be ***60ms*** otherwise the *bufferSize* will be ***50ms***. |

The value should always be greater than two times the value of the *pdvt* attribute plus the maximum packet size, except on a ***2pGeMmSrVsp3*** card where it need only be greater than or equal to two times the *pdvt*. The maximum packet size is 20ms for ***vgsIp***, ***vgsIpG729, vgsIpGe*** and ***vgsIpG729Ge*** features and 10ms for all other features.

If ***sameAsProfile***, the equivalent value from the *PktProf* subcomponent of the parent *Vgs* component is used.

If an *H248* component is provisioned, then this attribute must be set to ***sameAsProfile***.

This attribute has no effect if the *packetDelayVariationTolerance* attribute is set to ***adaptive***.

| | |
|---|---|
| Values | Decimal (5..100)<br>sameAsProfile |
| Units | msec |
| Default | sameAsProfile |

### ATTRIBUTE Nsta Vgs BragS packetDelayVariationTolerance (pdvt)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the maximum packet arrival jitter in milliseconds that the reassembly process will tolerate in the packet stream without producing errors on the TDM interface.<br><br>This attribute together with the *bufferSize* attribute, can be configured to optimize the jitter versus absolute delay tradeoff in various network configurations.<br><br>The value should always be less than the value of the *bufferSize* attribute minus the maximum packet size divided by two, except on a ***2pGeMmSrVsp3*** card where it need only be less than or equal to the *bufferSize* divided by two. The maximum packet size is 20ms for ***vgsIp, vgsIpG729, vgsIpGe*** and ***vgsIpG729Ge*** |

features and 10ms for all other features.

If ***sameAsProfile***, the equivalent value from the *PktProf* subcomponent of the parent *Vgs* component is used.

If an *H248* component is provisioned, then this attribute must be set to ***sameAsProfile***.

If set to ***adaptive***, the hardware attempts to minimise the absolute delay while allowing for the maximum packet arrival jitter encountered. This value is only supported on the following cards:

***2pGeMmSrVsp3***,
***2pOC3ChSmIrVsp3***.

Values: Decimal (5..50)
sameAsProfile
adaptive

Units: msec

Default: sameAsProfile

### ATTRIBUTE Nsta Vgs BragS lossIntegrationPeriod (intPeriod)

Access: Read and write

Description: This attribute specifies the interval of time in seconds for which a loss of packet condition must persist before the corresponding call is dropped. A value of ***0*** specifies that packet loss integration is disabled and therefore call connections are not suspended after packet loss.

If ***sameAsProfile***, the equivalent value from the *PktProf* subcomponent of the parent *Vgs* component is used.

If an *H248* component is provisioned, then this attribute must be set to ***sameAsProfile***.

Values: Decimal (0..50)
sameAsProfile

Units: seconds

| | |
|---|---|
| Default | sameAsProfile |

### ATTRIBUTE Nsta Vgs BragS ingressGain (iGain)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the gain applied on the TDM ingress side to balance the network loss plan. |
| Values | Signed (-12..12) |
| Units | dB |
| Default | 0 |

### ATTRIBUTE Nsta Vgs BragS egressGain (eGain)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the gain applied on the TDM egress side to balance the network loss plan. |
| Values | Signed (-12..12) |
| Units | dB |
| Default | 0 |

### ATTRIBUTE Nsta Vgs BragS echoCancellation (eCan)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether echo cancellation is enabled or disabled.<br><br>The value of this attribute will determine whether echo cancellation will be on or off when a 2100Hz tone is detected.<br><br>Note that the controller may override this attribute on a call by call basis to activate or deactivate echo cancellation.<br><br>***g165Mode*** - Enables echo cancellation except when a 2100Hz tone with phase reversal is detected.<br><br>***alwaysOn*** - Enables echo cancellation regardless of whether a 2100Hz tone is detected. |

***g164Mode*** - Disables echo cancellation only when a 2100Hz tone is detected, regardless of phase reversal.

***disabled*** - Disables echo cancellation.

The values ***alwaysOn*** and ***g164Mode*** are not permitted on a ***2pGeMmSrVsp3*** card.

Values
g165Mode
disabled
alwaysOn
g164Mode

Default
g165Mode

### ATTRIBUTE Nsta Vgs BragS minimumEchoReturnLoss (minEchoRetLoss)

Access
Read and write

Description
This attribute specifies the minimum echo return loss that can be expected on the line.

Values
Decimal (0; 3; 6)

Units
dB

Default
6

### ATTRIBUTE Nsta Vgs BragS echoCancelComfortNoiseGeneration (eCanComNoiseGen)

Access
Read and write

Description
The attribute specifies whether comfort noise generation for the echo cancellation feature is enabled or disabled. This attribute has no effect if *echoCancellation* is ***disabled*** through provisioning or through 2100 Hz tone detection.

Values
enabled
disabled

Default
enabled

### ATTRIBUTE Nsta Vgs BragS defaultVoiceRate (defVRate)

Access
Read and write

Description

This attribute specifies the default coding algorithm to be used under normal conditions (when no 2100 Hz tone is detected).

For each connection, this default coding algorithm can be overridden by the controller.

If ***sameAsProfile***, the equivalent value from the *PktProf* subcomponent of the parent *Vgs* component is used.

If an *H248* component is provisioned, then this attribute must be set to ***sameAsProfile***.

Values

64kG711
32kG726
8kG729
sameAsProfile

Default

sameAsProfile

### ATTRIBUTE Nsta Vgs BragS tone2100Rate (toneRate)

Access

Read and write

Description

This attribute specifies the coding algorithm to be used for timeslots within all the *DBrag* subcomponents of this *BragS* component on which 2100 Hz tone is detected (phase reversal may or may not be detected). This attribute takes precedence over the *defaultVoiceRate* attribute.

If ***sameAsProfile***, the equivalent value from the *PktProf* subcomponent of the parent *Vgs* component is used.

If an *H248* component is provisioned, then this attribute must be set to ***sameAsProfile***.

Values

64kG711
32kG726
sameAsProfile

Default

sameAsProfile

### ATTRIBUTE Nsta Vgs BragS silenceDetectionHangOverTime (silDetTime)

Access

Read and write

| | |
|---|---|
| Description | This attribute specifies the time in milliseconds for which the speech path is left on before being suppressed when a timeslot is silent. This helps to prevent clipping at the end of words.<br><br>This attribute specifies the silence detection hang over time for all voice packets transmitted on IP and is ignored by AAL2 transmission.<br><br>If ***sameAsProfile***, the equivalent value from the *PktProf* subcomponent of the parent *Vgs* component is used.<br><br>If an *H248* component is provisioned, then this attribute must be set to ***sameAsProfile***. |
| Values | Decimal (30..500)<br>sameAsProfile |
| Units | msec |
| Default | sameAsProfile |

### ATTRIBUTE Nsta Vgs BragS silenceSuppression (silSup)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether silence suppression is performed.<br><br>A value of ***enabled*** indicates that silence suppression is performed as default. For each connection this default can be overridden by the controller.<br><br>A value of ***disabled*** indicates that silence suppression is not performed under any circumstances.<br><br>If ***sameAsProfile***, the equivalent value from the *PktProf* subcomponent of the parent *Vgs* component is used.<br><br>If an *H248* component is provisioned, then this attribute must be set to ***sameAsProfile***. |
| Values | enabled<br>disabled<br>sameAsProfile |

| | |
|---|---|
| Default | sameAsProfile |

### ATTRIBUTE Nsta Vgs BragS silenceSuppressionThreshold (silSupThresh)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the level above which silence suppression is not performed. A value in the range -39 to -36 dBm0 is only permitted on a ***2pGeMmSrVsp3*** card.<br><br>If ***sameAsProfile***, the equivalent value from the *PktProf* component is used.<br><br>If an *H248* component is provisioned, then this attribute must be set to ***sameAsProfile***. |
| Values | Signed (-60..-36)<br>sameAsProfile |
| Units | dBm0 |
| Default | sameAsProfile |

### ATTRIBUTE Nsta Vgs BragS signalingType (sigType)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the signaling type of the trunks within all the *DBrag* components of this *BragS*.<br><br>***unsignaled*** performs no additional signaling.<br><br>***mfRemote*** performs MF signaling to a remote call server.<br><br>This attribute must be set to ***unsignaled*** when using ATM transport. |
| Values | unsignaled<br>mfRemote |
| Default | unsignaled |

## ATTRIBUTE Nsta Vgs BragS echoCancellationTailLength (eCanTail)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the Echo Cancellation tail length applied to all timeslots within all the *DBrag* components of this *BragS*.<br><br>A value of 32ms should be used for networks with a round trip delay of 0 to 28 ms, and a value of 48 ms should be used for networks with a round trip delay of 28 to 44 ms. The use of 48 ms for round trip delays of less than 32 ms is not advised. The use of 64 ms is reserved for the ***2pGeMmSrVsp3*** card.<br><br>If set to ***autoConfigure*** the actual value used depends on card type. If the card type is ***12mVspAal*** or ***Vsp2***, the echo cancellation tail length is set to 32 ms. If the card type is ***2pGeMmSrVsp3***, the echo cancellation tail length is set to 64 ms.<br><br>This attribute must be set to ***32,*** or ***autoConfigure*** for the non switched voice over ATM service and when running on a ***12mVspAal*** card.<br><br>This attribute must be set to ***32***, ***48*** or ***autoConfigure*** when using a ***Vsp2*** card.<br><br>This attribute must be set to ***128*** or ***autoConfigure*** when using a ***2pGeMmSrVsp3*** card. |
| Values | autoConfigure<br>32<br>48<br>64<br>128 |
| Units | msec |
| Default | autoConfigure |

## ATTRIBUTE Nsta Vgs BragS toneset (toneset)

| | |
|---|---|
| Access | Read and write |

Description

This attribute specifies the tone set available to the controller.

The possible values are:

***sameAsVgs*** - Use the *defaultToneset* attribute from the *Vgs* component
***argentina*** - Use the tone set for Argentina.
***australia*** - Use the tone set for Australia.
***austria*** - Use the tone set for Austria.
***belgium*** - Use the tone set for Belgium.
***brazil*** - Use the tone set for Brazil.
***canadaUsa*** - Use the tone set for Canada and the USA.
***chile*** - Use the tone set for Chile.
***china*** - Use the tone set for China.
***czech*** - Use the tone set for the Czech Republic.
***france*** - Use the tone set for France.
***germany*** - Use the tone set for Germany.
***greece*** - Use the tone set for Greece.
***hongKong*** - Use the tone set for Hong Kong.
***india*** - Use the tone set for India.
***ireland*** - Use the tone set for Ireland.
***israel*** - Use the tone set for Israel.
***italy*** - Use the tone set for Italy.
***japan*** - Use the tone set for Japan.
***korea*** - Use the tone set for Korea.
***malaysia*** - Use the tone set for Malaysia.
***mexico*** - Use the tone set for Mexico.
***netherlands*** - Use the tone set for The Netherlands.
***newZealand*** - Use the tone set for New Zealand.
***panama*** - Use the tone set for Panama.
***philippines*** - Use the tone set for Philippines.
***poland*** - Use the tone set for Poland.
***portugal*** - Use the tone set for Portugal.
***romania*** - Use the tone set for Romania.
***singapore*** - Use the tone set for Singapore.
***spain*** - Use the tone set for Spain.
***sweden*** - Use the tone set for Sweden.
***switzerland*** - Use the tone set for Switzerland.
***taiwan***- Use the tone set for Taiwan.
***thailand*** - Use the tone set for Thailand.
***turkey*** - Use the tone set for Turkey.

***uk*** - Use the tone set for the UK.
***venezuela*** - Use the tone set for Venezuela.

Values

sameAsVgs
canadaUsa
spain
uk
france
portugal
belgium
germany
netherlands
sweden
austria
italy
switzerland
australia
brazil
ireland
mexico
israel
romania
turkey
czech
china
taiwan
korea
japan
panama
argentina
greece
poland
newZealand
singapore
venezuela
chile
hongKong
malaysia
philippines
thailand
india

| | |
|---|---|
| Default | sameAsVgs |

### ATTRIBUTE Nsta Vgs BragS minimumDtmfPowerLevel (minDtmfPwr)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the value of the minimum power level at which DTMF digits must be detected. This value is used to allow for different specification for different administrations. This attribute is ignored if the *DigitCollection* component is not present under the parent *Vgs*.<br><br>This attribute must be a multiple of 3 on a ***2pGeMmSrVsp3*** card. |
| Values | Signed (-30..-22) |
| Units | dBm0 |
| Default | -27 |

### ATTRIBUTE Nsta Vgs BragS digitTransport

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the method by which digit tones are transported.<br><br>If ***64kG711***, then G.729 voice channels will upspeed to send ***64kG711*** packets when DTMF is detected.<br><br>If ***sendAsVoice***, DTMF is encoded using currently selected codec.<br><br>If ***squelch,*** during the playback of a digit, silence is sent over the voice path, encoded at the current encoding rate.<br><br>If ***relay***, this value enables negotiation of mutual support for the relay of DTMF tones as RFC2833 VoIP packets. Should this negotiation fail then behavior is the same as for ***64kG711***.<br><br>A value of ***relay*** is only valid on a ***2pGeMmSrVsp3*** card.<br><br>If ***sameAsProfile***, the equivalent value from the *PktProf* subcomponent of the parent *Vgs* component is used. |

If an *H248* component is provisioned, then this attribute must be set to ***sameAsProfile***.

Values
sendAsVoice
64kG711
squelch
relay
sameAsProfile

Default
sameAsProfile

## ATTRIBUTE Nsta Vgs BragS vbdTransport

Access
Read and write

Description
This attribute specifies the method by which voiceband data tones are transported.

If ***useTone2100Rate***, then G.729 voice channels will upspeed to send ***64kG711*** packets when VBD is detected regardless of whether or not the remote gateway has indicated support for this codec.

If ***useTone2100RateIfNegotiated***, then G.729 voice channels will upspeed to send ***64kG711*** packets when VBD is detected only when the remote gateway has indicated support for this codec.

If ***sameAsProfile***, the equivalent value from the *PktProf* subcomponent of the parent *Vgs* component is used.

If an *H248* component is provisioned, then this attribute must be set to ***sameAsProfile***.

Values
useTone2100RateIfNegotiated
useTone2100Rate
sameAsProfile

Default
sameAsProfile

## GROUP Nsta Vgs BragS Operational (Oper)

Properties
Operational

| | |
|---|---|
| Description | This group contains attributes which indicate the states of the *BragS* component. |

### ATTRIBUTE Nsta Vgs BragS activeConnections (actConn)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of *DBrag* components. |
| Values | Decimal (0..2048) |
| Default | No default |

### ATTRIBUTE Nsta Vgs BragS lastTearDownCause (cause)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the cause code in the most recent call release message received that contained the CAUSE information element. Note that the call must have been successfully established before being torn down. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE Nsta Vgs BragS lastTearDownDiagnostic (diag)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the diagnostic code in the most recent call release message received. The diagnostic code is contained in the CAUSE information element. A diagnostic code is always accompanied by the cause code. Note that the call must have been successfully established before being torn down. |
| Values | String (0..8, ASCII) |
| Default | No default |

### ATTRIBUTE Nsta Vgs BragS successfulConnections (succConn)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of successful connection setup requests. |

| | |
|---|---|
| | The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Vgs BragS rejectedConnections (rejConn)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of rejected connection setup requests.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Vgs BragS echoCancellationTailLengthValue (eCanTailValue)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the echo cancellation tail length currently in use. |
| Values | 32<br>48<br>64<br>128 |
| Units | msec |
| Default | No default |

### COMPONENT Nsta Vgs BragS AnnouncementLanguage

| | |
|---|---|
| Groups | "GROUP Nsta Vgs BragS AnnouncementLanguage Provisioned (Prov)" |
| Scope | Device |
| Description | *Nsta/n Vgs Brag/n AnnouncementLanguage.*<br>*Nsta/n Vgs BragS/n AnnouncementLanguage* |

This component is used to specify an announcement language for this *Brag* or *BragS* component which differs from the *defaultLanguage* attribute specified in the *Vgs LocalAnouncements* component.

The *AnnouncementLanguage* component is mutually exclusive of the *V5Link* subcomponent of *Brag* component. This restriction is not applicable to the *BragS* component.

Common Verbs

Help
List
Display
Add
DELete

## GROUP Nsta Vgs BragS AnnouncementLanguage Provisioned (Prov)

Properties: Provisioned

Description: This group contains the provisioning data for the Local Announcement facility.

## ATTRIBUTE Nsta Vgs BragS AnnouncementLanguage defaultLanguage

Access: Read and write

Description: This attribute specifies the language to be used on the announcement when no language is provided via the Media Gateway Controller. When a value is specified here, it overrides the value in the *AnnouncementLanguage* component.

If the value is not empty, it must be a 3 character ASCII string (lower case a-z) for example "eng".

Values: String (0..3, ASCII)

Default: ""

## COMPONENT Nsta Vgs BragS Q921

Groups: "GROUP Nsta Vgs BragS Q921 Provisioned (Prov)"

Scope: Device

| | |
|---|---|
| Description | *Nsta/n Vgs BragS/n Q921*<br><br>This component defines the Q.921 Layer service parameters for the PVG PRI Backhaul service. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Nsta Vgs BragS Q921 Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioning data for the Q.921 Layer service associated with the parent *BragS* component. |

### ATTRIBUTE Nsta Vgs BragS Q921 dChanTimeslot

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the timeslot that carries the D-channel. This must match the external TDM equipment. |
| Values | Decimal (1..31) |
| Default | 16 |

### ATTRIBUTE Nsta Vgs BragS Q921 t200

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum time allowed between the transmission of a Layer 2 frame and the receipt of an acknowledgement from the user side. This is the acknowledgement timer (T200). The value is rounded to the nearest 0.5 second.<br><br>On expiry the frame is retransmitted. Retransmissions are counted in the *retriesCounter* of *DBrag/n Q921* component). |
| Values | Decimal (0.5..5.0) |

| | |
|---|---|
| Units | seconds |
| Default | 1.0 |

### ATTRIBUTE Nsta Vgs BragS Q921 n200

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum number of retransmissions of a Layer 2 frame before link re-establishment is initiated. |
| Values | Decimal (1..8) |
| Default | 3 |

### ATTRIBUTE Nsta Vgs BragS Q921 t203

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum time without frame exchange during multiple frame operations.<br><br>On expiry a Q.921 supervisory frame is transmitted. |
| Values | Decimal (10..300) |
| Units | seconds |
| Default | 10 |

### ATTRIBUTE Nsta Vgs BragS Q921 n201

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum length of an information field in the I frame. |
| Values | Decimal (4..260) |
| Units | octets |
| Default | 260 |

### ATTRIBUTE Nsta Vgs BragS Q921 outstandingFrames (frames)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute specifies the maximum number of sequentially numbered I frames (k) that may be unacknowledged at any given time after which no new frames are transmitted unless as part of an error recovery procedure. |
| Values | Decimal (1..127) |
| Default | 7 |

### ATTRIBUTE Nsta Vgs BragS Q921 side

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies if this end of the PRI trunk is to be considered the network end or the user end.<br><br>The possible values are: ***user***, ***network***. |
| Values | user<br>network |
| Default | network |

### COMPONENT Nsta Vgs BragS NstaVgsDynamicBasicRateGroup (DBrag)

| | |
|---|---|
| Instance | Decimal (0..127) |
| Groups | "GROUP Nsta Vgs BragS DBrag Operational (Oper)"<br>"GROUP Nsta Vgs BragS DBrag CommonOp (ComOp)" |
| Scope | Device |
| Description | *Nsta/n Vgs BragS/n DynamicBasicRateGroup/n*<br><br>This component represents a dynamic basic rate group. This component appears whenever an AAL1 TDM SVC connection is successfully set up to the ATM address of the parent *BragS* component. All TDM trunks within this group have the same default narrowband service attribute values, as provisioned in the parent *BragS* component. |

A *DBrag* component is present when an AAL1 CES connection is established and it disappears when the connection is torn down.

Dyn. Subcomp. "COMPONENT Nsta Vgs BragS DBrag AtmConnection (AtmCon)"
"COMPONENT Nsta Vgs BragS DBrag Q921"
"COMPONENT Nsta Vgs BragS DBrag ChannelAssociatedSignaling (Cas)"

Common Verbs
Help
List
Display

## GROUP Nsta Vgs BragS DBrag Operational (Oper)

Properties Operational

Description This group contains the operational data for the *NstaVgsDynamicBasicRateGroup* component.

## ATTRIBUTE Nsta Vgs BragS DBrag endPointGroupName (name)

Access Read only

Description This attribute indicates the basic rate group endpoint name. This is the name used by the PVG control protocol, ASPEN. The value of this attribute is derived from the information contained within the AAL1 CES SVC setup.

Values String (1..80, ASCII)

Default No default

## ATTRIBUTE Nsta Vgs BragS DBrag remoteAddress (address)

Access Read only

Description This attribute indicates the ATM address of the remote AAL1 CES endpoint.

Values String (40, ASCII)

Default No default

### ATTRIBUTE Nsta Vgs BragS DBrag remoteChannelDetail (channelDetail)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the configuration of the remote AAL1 CES endpoint. |
| Values | String (0..81, ASCII) |
| Default | No default |

### ATTRIBUTE Nsta Vgs BragS DBrag remoteChannelStatus (status)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the operational status of the remote AAL1 CES endpoint.<br><br>The ***up*** status indicates that there are no TDM ingress fault conditions.<br><br>The ***down*** status indicates the TDM interface has detected an ingress fault condition.<br><br>The ***rai*** status indicates an ingress RAI at the remote TDM interface. |
| Values | up<br>down<br>rai |
| Default | No default |

### GROUP Nsta Vgs BragS DBrag CommonOp (ComOp)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational attributes common to *Brag* and *DBrag*. |

### ATTRIBUTE Nsta Vgs BragS DBrag outOfServiceTerminationsByMgc (oosTermsByMgc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is a list of TDM terminations placed out of service by the controller. This does not include TDM terminations placed |

out of service by the gateway.

This attribute is only relevant if the H.248 protocol is in use. If any other attribute is used, this attribute is filtered.

List of: Decimal (1..31)

Default: No default

## COMPONENT Nsta Vgs BragS DBrag AtmConnection (AtmCon)

Groups: "GROUP Nsta Vgs BragS DBrag AtmCon Operational (Oper)"

Scope: Device

Description: An AtmConnection component is created for each ATM connection established by an application. It shows where the data traffic for this connection is directed.

Common Verbs:
Help
List
Display

## GROUP Nsta Vgs BragS DBrag AtmCon Operational (Oper)

Properties: Operational

Description: This attribute group contains the operational attributes for the *NapAtmConnection* component.

## ATTRIBUTE Nsta Vgs BragS DBrag AtmCon nextHop

Access: Read only

Description: This attribute shows the component name of the *AtmIf Vcc Ep* or *AtmCon* component to which this switched connection is established.

Values: The name of the component

Default: No default

## COMPONENT Nsta Vgs BragS DBrag Q921

Groups: "GROUP Nsta Vgs BragS DBrag Q921 Operational (Oper)"

| | |
|---|---|
| Scope | Device |
| Description | *Nsta/n Vgs BragS/n DBrag/n Q921*<br><br>This component will be present when the parent *BragS* component has a *Q921* subcomponent present. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Nsta Vgs BragS DBrag Q921 Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains attributes which indicate the causes of any *Q921* component failure. |

### ATTRIBUTE Nsta Vgs BragS DBrag Q921 txFrames

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts Q.921 frames transmitted towards the TDM interface since the component was activated.<br><br>The following frames are counted: information frames, receive ready frames, receive not ready frames, reject frames, set asynchronous balanced mode frames, disconnect frames, unnumbered acknowledge frames, disconnect mode frames, frame reject frames, exchange id frames, unnumbered information frames<br><br>The counter wraps to ***0*** when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Vgs BragS DBrag Q921 rxFrames

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts Q.921 frames received from the TDM interface since the component was activated. This includes HDLC errored frames. |

The following frames are counted: information frames, receive ready frames, receive not ready frames, reject frames, set asynchronous balanced mode frames, disconnect frames, unnumbered acknowledge frames, disconnect mode frames, frame reject frames, exchange id frames, unnumbered information frames.

The counter wraps to ***0*** when it exceeds its maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Nsta Vgs BragS DBrag Q921 erroredFrames

Access: Read only

Description: This attribute counts Q.921 frames received from the TDM interface with errors since the component was activated.

The following errors are counted: invalid frames received (FCS, overrun, or non-integral number of octets), SABM errors, DM frames Tx in response to a Rx SABME, frames with an information field that is not permitted or a supervisory unnumbered frame with an incorrect length, frame received with an invalid receive sequence, frames received with I field larger than *n201*.

The counter wraps to ***0*** when it exceeds its maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Nsta Vgs BragS DBrag Q921 retriesCounter

Access: Read only

Description: This attribute counts the number of retransmission attempts.

The counter wraps to ***0*** when it exceeds its maximum value.

Values: Decimal (0..4294967295)

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Nsta Vgs BragS DBrag Q921 linkStatus

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the status of the link.<br><br>The possible values are: ***up***, ***down***. |
| Values | up<br>down |
| Default | No default |

### COMPONENT Nsta Vgs BragS DBrag ChannelAssociatedSignaling (Cas)

| | |
|---|---|
| Groups | "GROUP Nsta Vgs BragS DBrag Cas Operational (Oper)" |
| Scope | Device |
| Description | *Nsta/n Vgs BragS/n DBrag/n ChannelAssociatedSignaling*<br><br>This component is present when the parent *BragS* component has a *Cas* subcomponent. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Nsta Vgs BragS DBrag Cas Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains attributes that indicate the status of a *Cas* component. |

### ATTRIBUTE Nsta Vgs BragS DBrag Cas txSignals

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts CAS line signals transmitted towards the TDM interface since the component was activated.<br><br>The counter wraps to ***0*** when it exceeds its maximum value. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Vgs BragS DBrag Cas rxSignals

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts CAS line signals received from the TDM interface since the component was activated.<br><br>The counter wraps to ***0*** when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Vgs BragS DBrag Cas busyChannels

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of endpoints in answer or setup state for the *Chan* component specified in the *interfaceName* attribute of the parent component. This includes only the endpoints that are not in idle or blocked state. |
| Values | Decimal (0..30) |
| Default | No default |

### ATTRIBUTE Nsta Vgs BragS DBrag Cas blockedChannels

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of endpoints in blocked state for the *Chan* component specified in the *interfaceName* attribute of the parent component. |
| Values | Decimal (0..30) |
| Default | No default |

### ATTRIBUTE Nsta Vgs BragS DBrag Cas signalFailureIndications

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of incoming line state changes that are not recognized as valid candidates for that stage in a call, |

and that are reported as a Signal Failure to the call server.

The counter wraps to ***0*** when it exceeds its maximum value.

Values: Decimal (0..4294967295)

Default: No default

## COMPONENT Nsta Vgs BragS ChannelAssociatedSignaling (Cas)

Groups: "GROUP Nsta Vgs BragS Cas Provisioned (Prov)"

Scope: Device

Description: *Nsta/n Vgs BragS/n ChannelAssociatedSignaling*

This component represents the capability to terminate, process and redirect any Channel Associated Signaling information associated with *DBrag* subcomponents of the parent *BragS* component.

Common Verbs:
- Help
- List
- Display
- Add
- DELete

## GROUP Nsta Vgs BragS Cas Provisioned (Prov)

Properties: Provisioned

Description: This group contains provisioning data for the *Cas* component.

## ATTRIBUTE Nsta Vgs BragS Cas channelAssocSignalingDefinition (casDefinition)

Access: Read and write

Criticality: Process

Description: This attribute specifies a link to an *Nsta/n Vgs CasDefn/n* component, which defines the CAS signaling details.

This attribute must be supplied.

Values: Link (Service, applicationList)

| | |
|---|---|
| Default | No default |

## COMPONENT Nsta Vgs FaxRelayOverIp (FaxR)

| | |
|---|---|
| Groups | "GROUP Nsta Vgs FaxR Provisioned (Prov)"<br>"GROUP Nsta Vgs FaxR OperationalT38 (OperT38)" |
| Scope | Device |
| Description | *Nsta/n Vgs FaxRelayOverIp*<br><br>This component provides the capability to transport fax using the T.38 method of demodulating and extracting fax data and relaying it across the network. This introduces greater resilience to potentially lossy IP networks through a more robust transportation method and also through provisionable protection through redundancy.<br>This component is restricted to the ***2pGeMmSrVsp3*** card, where an *IpMConn* component is provisioned under the *Vgs*. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Nsta Vgs FaxR Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioning data for the IP Fax Relay facility. |

## ATTRIBUTE Nsta Vgs FaxR v34OverVbd (v34)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies how the system transports V.8/V.34 fax data. If ***enabled***, V.8/V.34 fax data will be transported using Voice Band Data modes through upspeed to G.711 rather than directly transitioning to T.38 mode.<br>If ***disabled***, transition to T.38 will occur on detection of V.8/V.34 fax data. |

| | |
|---|---|
| | This attribute should be set to ***enabled*** only if the underlying packet loss rate of the network is less than 0.05%. For a loss rate greater than this it is recommended that V.8/V.34 fax data be transported using T.38. |
| Values | enabled<br>disabled |
| Default | disabled |

### ATTRIBUTE Nsta Vgs FaxR t38FaxUdpRedundancyDepth (redundancy)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the depth of redundancy used in T.38 over UDP/IP.<br>Note that this attribute will increase the bandwidth of a T.38 transmission by a factor equal to the redundancy depth specified. |
| Values | Decimal (0..3) |
| Default | 1 |

### ATTRIBUTE Nsta Vgs FaxR t38PacketReorderDelay (delay)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies how long T.38 packets are held on the receive buffer for reordering before passing to playout. This in turn determines how long out of order or late packets may be. A lower value will decrease the system's ability to reorder and playout contiguous fax data. |
| Values | Decimal (0..400) |
| Units | msec |
| Default | 200 |

### GROUP Nsta Vgs FaxR OperationalT38 (OperT38)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains attributes which indicate attempted and actual fax relay connections. |

### ATTRIBUTE Nsta Vgs FaxR t38AutonomousConnections (auto)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the connections which have negotiated autonomous transition into T38 mode.<br>This attribute wraps to zero when it reaches its maximum value.<br>It will also reset to zero when the *Vsp* component is locked. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Vgs FaxR t38SuccessfulCalls (successful)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the connections that entered T.38 mode and completed successfully.<br>This attribute wraps to zero when it reaches its maximum value.<br>It will also reset to zero when the *Vsp* component is locked. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT Nsta Vgs DebugIpAccess (DbgAccess)

| | |
|---|---|
| Groups | "GROUP Nsta Vgs DbgAccess Provisioned (Prov)"<br>"GROUP Nsta Vgs DbgAccess OsiState (State)"<br>"GROUP Nsta Vgs DbgAccess NstaVgsConnectionStatus (ConnStat)"<br>"GROUP Nsta Vgs DbgAccess Statistics (Stats)" |
| Scope | Device |
| Description | *Nsta/n Vgs DbgIpAccess*<br><br>The *DebugIpAccess* component defines an access connection from an external host to the Api Conversion Module (ACM) of the ***2pGeMmSrVsp3*** card for developer debug purposes only. This component cannot activate on any card other than the |

***2pGeMmSrVsp3*** card. This component can have only one subcomponent, either a *Nap*, *SpvcAp* or *VrAp*.

Opt. Subcomp. "COMPONENT Nsta Vgs DbgAccess NailedUpAdaptionPoint (Nap)"
"COMPONENT Nsta Vgs DbgAccess SpvcAccessPoint (SpvcAp)"
"COMPONENT Nsta Vgs DbgAccess VirtualRouterAccessPoint (VrAp)"

Dyn. Subcomp. "COMPONENT Nsta Vgs DbgAccess AtmConnection (AtmCon)"

Common Verbs
Help
List
Display
DELete

## GROUP Nsta Vgs DbgAccess Provisioned (Prov)

Properties Provisioned

Description This group contains the provisioning data for the *DebugIpAccess* component.

## ATTRIBUTE Nsta Vgs DbgAccess ipAddress (ipAddr)

Access Read and write

Description This attribute specifies the IP address of the debug capability on the Api Conversion Module (ACM) of the ***2pGeMmSrVsp3*** card. Control messages from the controller will be sent to this IP address to debug connections within this device.
This address is used to advertise the gateway to the external hosts and to filter incoming IP packets (only packets destined for this *ipAddress* attribute value are accepted; all other packets are silently dropped).
This attribute may be changed without affecting existing calls.
This attribute may accept values in the range ***0.0.0.0*** to ***255.255.255.255*** though these limiting values themselves will be prevented by semantic check. A default value of ***0.0.0.0*** is set to ensure a legal address is provisioned.
When the *DbgIpAccess* component is copied using the *Copy*

command, this attribute is set to ***0.0.0.0*** to prevent a duplication of IP addresses.

Values: IP address

Default: 0.0.0.0

## GROUP Nsta Vgs DbgAccess OsiState (State)

Properties: Operational

Description: This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

## ATTRIBUTE Nsta Vgs DbgAccess adminState (osiAdmin)

Access: Read only

Description: This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values:
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default: unlocked

## ATTRIBUTE Nsta Vgs DbgAccess operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

## ATTRIBUTE Nsta Vgs DbgAccess usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

## GROUP Nsta Vgs DbgAccess NstaVgsConnectionStatus (ConnStat)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains an attribute which provides information on the status of the VGS connections. |

## ATTRIBUTE Nsta Vgs DbgAccess currentStatus (cStat)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the current status of a *Vgs AtmTConn*, *IpMConn* or *Ctrl* connection.<br><br>***enabled*** indicates that the component is enabled and available to transport traffic.<br><br>***activating*** indicates that the component is progressing through its expected sequence of activation and enabling actions, and that no errors having been reported.<br><br>***atmConnectionNotReady*** indicates that a problem has been reported with the ATM VCC linked to the component's *Nap*, *Aap* or *Pap* subcomponent, resulting in the component being in a disabled state.<br><br>***vspNotReady*** indicates that the *Vsp* component linked to the parent *Nsta* component is either disabled or locked.<br><br>***outOfResource*** indicates that no hardware resource is available on the VSP card to support the component. This means that the VSP card is inadequately equipped or has suffered some level of hardware failure.<br><br>***ipNetworkInaccessible*** indicates that a connection into the IP network cannot be created. This may be due to physical ports being disabled, or the inability of routing software to establish an appropriate connection. |
| Values | enabled<br>activating<br>atmConnectionNotReady<br>vspNotReady |

| | |
|---|---|
| | outOfResource<br>ipNetworkInaccessible |
| Default | No default |

### GROUP Nsta Vgs DbgAccess Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains attributes which indicate traffic load and error statistics. |

### ATTRIBUTE Nsta Vgs DbgAccess txMessages (txMsgs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the messages transmitted since the component was activated. The value wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Vgs DbgAccess rxMessages (rxMsgs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts messages received without errors since the component was activated. The value wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Vgs DbgAccess aal5Failures (errs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts AAL5 errors over this control connection, where AAL5 errors represents the combined total of CRC, Length Field, and max_SDU_deliver_length errors.<br><br>This attribute is filtered when the ***vgsIpGigE*** or the ***vgsIpG729GigE*** feature is provisioned, or the *VrAp* |

subcomponent is provisioned under this component.

The value wraps to zero when the maximum value is exceeded.

Values: Decimal (0..4294967295)

Default: No default

## COMPONENT Nsta Vgs DbgAccess NailedUpAdaptionPoint (Nap)

Groups: "GROUP Nsta Vgs DbgAccess Nap Provisioned (Prov)"

Scope: Device

Description:

*Nsta/n Conn/n NailedUpAdaptionPoint*
*Nsta/n Conn/n Brag/n Ccst NailedUpAdaptionPoint*
*Nsta/n Vgs AtmTConn/n NailedUpAdaptionPoint*
*Nsta/n Vgs Control/n NailedUpAdaptionPoint*
*Nsta/n Vgs IpMConn NailedUpAdaptionPoint*

This component is used to provide access to a nailed-up ATM connection (an *Atmif Vcc Nep*).

Components in the *Nsta* component hierarchy which require access to such connections will have a *NailedUpAdaptionPoint* subcomponent.

Common Verbs:

Help
List
Display
Add
DELete

## GROUP Nsta Vgs DbgAccess Nap Provisioned (Prov)

Properties: Provisioned

Description: This group contains provisioning data for a *Nap* component.

## ATTRIBUTE Nsta Vgs DbgAccess Nap atmConnection (atmConn)

Access: Read and write

Criticality: Process

| | |
|---|---|
| Description | This attribute specifies the link to the *AtmIf Vcc Nep* component that defines the access to the ATM network. |
| Values | Link (Service, applicationName) |
| Default | No default |

## COMPONENT Nsta Vgs DbgAccess SpvcAccessPoint (SpvcAp)

| | |
|---|---|
| Groups | "GROUP Nsta Vgs DbgAccess SpvcAp Provisioned (Prov)"<br>"GROUP Nsta Vgs DbgAccess SpvcAp SpvcApAddressesProv (SpvcApAddrProv)"<br>"GROUP Nsta Vgs DbgAccess SpvcAp Operational (Oper)"<br>"GROUP Nsta Vgs DbgAccess SpvcAp AccessPointOper (ApOper)" |
| Scope | Device |
| Description | *Nsta/n Vgs Control/n SpvcAccessPoint*<br>*Nsta/n Vgs IpMConn SpvcAccessPoint*<br>*Nsta/n Conn/n SpvcAccessPoint*<br><br>This component defines ATM SPVC originating information pertinent to those subcomponents in the *Nsta* hierarchy which require dynamic links into the ATM network but have no addressing information. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### VERB Restart Nsta Vgs DbgAccess SpvcAp

| | |
|---|---|
| Impact | Service |
| Description | *Restart Nsta/n Vgs Control/n SpvcAccessPoint*<br>*Restart Nsta/n Vgs IpMConn SpvcAccessPoint*<br>*Restart Nsta/n Conn/n SpvcAccessPoint*<br><br>This command is used to restart the automatic connection procedure. The operational attributes *retryTimeRemaining* and *retryFailures* are also reset. The *Restart* verb restarts the connection procedure with the current active address as specified in the *addressToCall* attribute.<br><br>This command may be used after the connection procedure has been abandoned due to reaching the maximum number of retries allowed as specified by *retryLimit*, or before the limit has been reached.<br><br>This command may also be used when a connection has been established, in which case the connection is released first.<br><br>This command fails if the *svcStatus* attribute has the value ***initializing*** or the value ***failed***. |

### GROUP Nsta Vgs DbgAccess SpvcAp Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisioning data for the *SpvcAp* component. |

### ATTRIBUTE Nsta Vgs DbgAccess SpvcAp atmServiceCategory (service)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the ATM service category for SVCs.<br><br>The ***constantBitRate*** service category is intended for real time applications, that is those requiring tightly constrained delay and delay variation, as would be appropriate for voice and video applications. The consistent availability of a fixed quantity of bandwidth is considered appropriate for constant bit rate service. |

Cells which are delayed beyond the value specified by *cellTransferDelay* are assumed to have significantly reduced value for the application.

The ***rtVariableBitRate*** service category is intended for real time applications, that is those requiring tightly constrained delay and delay variation, as would be appropriate for voice and video applications. Sources are expected to transmit at a rate which varies with time. Equivalently, the source can be described as "bursty". Cells which are delayed beyond the value specified by *cellTransferDelay* are assumed to be of significantly reduced value to the application. The real-time variable bit rate service may support statistical multiplexing of real time sources.

The ***nrtVariableBitRate*** service category is intended for non-real time applications which have bursty traffic characteristics and which can be characterized in terms of a *peakCellRate*, *sustainedCellRate*, and *maximumBurstSize*. For those cells which are transferred within the traffic contract, the application expects a low cell loss ratio. For all connections, it expects a bound on the mean cell transfer delay. The non real-time variable bit rate service may support statistical multiplexing of connections.

If the parent of the *SpvcAp* is a *Ctrl* component then the default value of *atmServiceCategory* attribute is ***nrtVariableBitRate***; it may not take the value ***rtVariableBitRate***. If the parent of the *SpvcAp* is an *IpMConn* component then the default value of *atmServiceCategory* attribute is ***rtVariableBitRate***; it may not take the value ***nrtVariableBitRate***.

| | |
|---|---|
| Values | constantBitRate (cbr)<br>rtVariableBitRate (rtVbr)<br>nrtVariableBitRate (nrtVbr) |
| Default | No default |

### ATTRIBUTE Nsta Vgs DbgAccess SpvcAp peakCellRate (pcr)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the peak cell rate of the ATM connection. |

| | |
|---|---|
| Values | Decimal (1..2147483647) |
| Units | cell/s |
| Default | No default |

### ATTRIBUTE Nsta Vgs DbgAccess SpvcAp sustainedCellRate (scr)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the sustained cell rate of the ATM connection. It must be provisioned with a non-zero value when the *atmServiceCategory* attribute has the value ***rtVariableBitRate*** or ***nrtVariableBitRate***, and it must be provisioned with zero value when it has the value ***constantBitRate***. |
| Values | Decimal (0..2147483647) |
| Units | cell/s |
| Default | 0 |

### ATTRIBUTE Nsta Vgs DbgAccess SpvcAp maximumBurstSize (mbs)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the maximum burst size, at the peak cell rate, of the ATM connection. It must be provisioned with a non-zero value when the *atmServiceCategory* attribute has the value ***rtVariableBitRate*** or ***nrtVariableBitRate***, and it must be provisioned with zero value when it has the value ***constantBitRate***. |
| Values | Decimal (0..2147483647) |
| Units | cells |
| Default | 0 |

### ATTRIBUTE Nsta Vgs DbgAccess SpvcAp retryLimit (limit)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |

| | |
|---|---|
| Description | This attribute specifies the maximum number of consecutive unsuccessful setup attempts before further attempts are abandoned. If this limit is reached, management action is required (restart the connection attempts with the *Restart* verb). A value of zero indicates no limit; attempts will continue indefinitely until a successful connection is established. |
| Values | Decimal (0..65535) |
| Default | 0 |

### GROUP Nsta Vgs DbgAccess SpvcAp SpvcApAddressessProv (SpvcApAddrProv)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains NSAP address provisioning data for the *SpvcAp* component. |

### ATTRIBUTE Nsta Vgs DbgAccess SpvcAp localAddress (localAddr)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the access point's ATM address.<br><br>If the switch prefix (the *nodePrefix* attribute of the *ModuleData* component) is provisioned, a default value for *localAddress* based on the *nodePrefix* is provided.<br><br>If a default cannot be generated the operator is forced to set a value for this attribute. Alternatively, the *ModuleData nodePrefix* attribute may be provisioned, and this access point component then deleted and re-added. |
| Values | String (1..44, AESANsapAddress) |
| Default | No default |

### ATTRIBUTE Nsta Vgs DbgAccess SpvcAp remoteVpiVci (rVpiVci)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |

| | |
|---|---|
| Description | This attribute specifies the remote VPI and VCI for an *SpvcAp* component. |
| Values | Integer Sequence (0..255; 1..65535) |
| Default | No default |

### ATTRIBUTE Nsta Vgs DbgAccess SpvcAp addressToCall (addrToCall)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the list of remote NSAP addresses which this component can call. At least one address must be provisioned.<br><br>For the *ControlConnection* application in switched VoATM and VoIP and for the *IpMediaStreamConnection* application the remote end is a router. It is required to be able to establish SVCs to different routers. Therefore, the *addressToCall* attribute is a list of remote addresses.<br><br>The first SVC call is sent to the first address listed in the *addressToCall* attribute. If the setup fails or the call is established but fails at a later time, the system attempts to set up a connection to next address listed in the *addressToCall* attribute. If a failure occurs when using the last address in the list, the system attempts to set up a connection to the first address in the list and then continues as before. |
| List of | String (1..44, AESANsapAddress) |
| List Size | 3 |
| Default | No default |

### GROUP Nsta Vgs DbgAccess SpvcAp Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational status information for the *SpvcAp* component. |

## ATTRIBUTE Nsta Vgs DbgAccess SpvcAp svcStatus (status)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the status of the SVC connection. When this attribute has the value ***initializing***, it indicates that the component is initializing when first created; a connection has not been established, and no incoming setup requests will be processed.<br><br>When this attribute has the value ***connecting***, it indicates that a connection has not yet been established, but that incoming setup requests are processed. A connection has been requested but not yet established.<br><br>When this attribute has the value ***connected***, it indicates that a connection has been established.<br><br>When this attribute has the value ***idle***, it indicates that the connection has just been torn down and an attempt to re-establish the connection has not yet occurred. This is a transient state of the component.<br><br>When this attribute has the value ***retriesExhausted***, it indicates that *retryLimit* for consecutive connection set up attempts have failed, and the connection procedure has been aborted.<br><br>When this attribute has the value ***failed,*** it indicates that an error occurred while sending a release message to the network (as a consequence of a *Delete* request) while the component was in ***connecting*** state. |
| Values | initializing<br>connecting<br>connected<br>idle<br>retriesExhausted<br>failed |
| Default | No default |

### ATTRIBUTE Nsta Vgs DbgAccess SpvcAp lastSetupFailureCause (failCause)

| | |
|---|---|
| Access | Read only |
| Description | This attribute contains the cause code in the last call release message following an unsuccessful call set up attempt. The values are as defined in the ATM Forum ATM User-Network Interface (UNI) Specification. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE Nsta Vgs DbgAccess SpvcAp lastSetupFailureDiagnostic (failDiag)

| | |
|---|---|
| Access | Read only |
| Description | This attribute contains the diagnostic code in the last call release message following an unsuccessful call set up attempt. The diagnostic code is contained in the CAUSE information element and is present only if a procedural error is detected by the signaling protocol. A diagnostic code is always accompanied by the cause code. |
| Values | String (0..8, ASCII) |
| Default | No default |

### ATTRIBUTE Nsta Vgs DbgAccess SpvcAp retryTimeRemaining (timer)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current value of the retry timer for this connection; it indicates the number of seconds before the next connection attempt is made. When the value reaches ***0*** an attempt will be made to establish the connection. When the timer is not running a value of ***0*** is returned. |
| Values | Decimal (0..86400) |
| Units | seconds |
| Default | No default |

### ATTRIBUTE Nsta Vgs DbgAccess SpvcAp retryFailures (failures)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the number of consecutive failed connection attempts. This counter is reset to ***0*** whenever a connection is successfully established or the connection is restarted using the *Restart* verb. The counter wraps to ***0*** when the maximum value is exceeded. |
| Values | Decimal (0..2147483647) |
| Default | No default |

### GROUP Nsta Vgs DbgAccess SpvcAp AccessPointOper (ApOper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational information regarding the end point of the connection. This group is common to all types of access points. |

### ATTRIBUTE Nsta Vgs DbgAccess SpvcAp remoteAddress (rAddr)

| | |
|---|---|
| Access | Read only |
| Criticality | Component |
| Description | This attribute indicates the address of the remote end point. If a connection is currently established, it will contain the NSAP address of the remote end point. If a connection is not established, the *remoteAddress* attribute has the value ***unknown***. |
| Values | String (7..40, ASCII) |
| Default | No default |

### ATTRIBUTE Nsta Vgs DbgAccess SpvcAp lastTearDownCause (cause)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the cause code in the last call release message that contained the CAUSE information element. Note that the call must have been successfully established before being torn down. The values are as defined in the ATM Forum ATM User-Network Interface (UNI) Specification. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE Nsta Vgs DbgAccess SpvcAp lastTearDownDiagnostic (diag)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the diagnostic code in the last call release message. The diagnostic code is contained in the CAUSE information element and is present only if a procedural error is detected by the signaling protocol. A diagnostic code is always accompanied by the cause code. |
| Values | String (0..8, ASCII) |
| Default | No default |

### COMPONENT Nsta Vgs DbgAccess AtmConnection (AtmCon)

| | |
|---|---|
| Groups | "GROUP Nsta Vgs DbgAccess AtmCon Operational (Oper)" |
| Scope | Device |
| Description | An AtmConnection component is created for each ATM connection established by an application. It shows where the data traffic for this connection is directed. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Nsta Vgs DbgAccess AtmCon Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains the operational attributes for the *NapAtmConnection* component. |

### ATTRIBUTE Nsta Vgs DbgAccess AtmCon nextHop

| | |
|---|---|
| Access | Read only |
| Description | This attribute shows the component name of the *AtmIf Vcc Ep* or *AtmCon* component to which this switched connection is established. |
| Values | The name of the component |
| Default | No default |

## COMPONENT Nsta Vgs DbgAccess VirtualRouterAccessPoint (VrAp)

Groups "GROUP Nsta Vgs DbgAccess VrAp Provisioned (Prov)"

Scope Application

Description *Nsta/n Vgs Ctrl/n VrAp*
*Nsta/n Vgs IpMConn VrAp*
*Nsta/n Vgs DbgAccess VrAp*

This component represents a point of access to a *VirtualRouter* component, which provides an IP forwarding functionality to this *Nsta/n Vgs* component hierarchy.

If at least one *VrAp* component is used within a *Nsta/n Vgs* component hierarchy, then all IP network access from within that hierarchy must be via *VrAp* components.

In addition, a *VCac* component cannot be provisioned within a *Nsta/n Vgs* component hierarchy which contains a *VrAp* component.

Common Verbs
- Help
- List
- Display
- Add
- DELete

## GROUP Nsta Vgs DbgAccess VrAp Provisioned (Prov)

Properties Provisioned

Description This group contains provisioning data for the *VrAp* component.

## ATTRIBUTE Nsta Vgs DbgAccess VrAp subnetAccessName (subnet)

Access Read and write

Description This attribute specifies the *Vr/n Pp/m IpPort LogicalIf/x.y.z.u* component instance to be used by this *VrAp*.

The value of the *ipAddr* attribute defined by the parent of this

*VrAp* must belong to the subnet defined by the specified *Vr/n Pp/m IpPort LogicalIf/x.y.z.u* component instance.

Values: The name of the component

Default: No default

## COMPONENT Nsta Vgs IpInterface (IpIf)

Groups: "GROUP Nsta Vgs IpIf IpIfProv (IpPr)"
"GROUP Nsta Vgs IpIf IpIfOp (IpOp)"

Scope: Application

Description: *Nsta/n Vgs IpIf*

This component controls and monitors a single default router address on a logical IP network which provides access to the local subnet for the VGS IP applications when the ***vgsIpGigE*** or the ***vgpIpG729GigE*** feature is provisioned.

Common Verbs:
Help
List
Display
Add
DELete

## GROUP Nsta Vgs IpIf IpIfProv (IpPr)

Properties: Provisioned

Description: This group contains the provisionable data for the *NstaVgsIpInterface* component.

## ATTRIBUTE Nsta Vgs IpIf defaultRouterAddress (defRtr)

Access: Read and write

Description: This attribute specifies the IP address of the default router in the local subnet for *VspEth1000BaseSX* ports. IP packets destined for a device outside the local subnet are forwarded to this router by default.

Values: IP address

| | |
|---|---|
| Default | 0.0.0.0 |

### ATTRIBUTE Nsta Vgs Iplf subnetMask (netMask)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the subnet mask of the network connected to the *VspEth1000BaseSX* ports. Any destination outside the subnet must be forwarded to a router. |
| Values | IP address |
| Default | 255.255.252.0 |

### ATTRIBUTE Nsta Vgs Iplf switchoverOnFailure (swOver)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies if a card switchover should occur if a steady state link failure is observed on all *VspEth1000BaseSX* ports on this card. A switchover to the standby card occurs only when all of the following apply:<br><br>1) The *switchoverOnFailure* attribute is enabled.<br>2) The *IpIf* component is without an active port for a continuous period specified in the *switchoverHoldoffTime* attribute<br>3) At least one of the *VspEth1000BaseSX* ports has been active since the card started up following a reboot or a switchover.<br>4) The standby card is available.<br><br>Possible values are:<br><br>***enabled*** - a switchover will occur, subject to the conditions specified above.<br><br>***disabled*** - a switchover will not take place if a link failure is detected. |
| Values | enabled<br>disabled |
| Default | disabled |

### ATTRIBUTE Nsta Vgs Iplf switchoverHoldoffTime (holdoffTime)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies how long a steady state link failure on all provisioned *VspEth1000BaseSX* ports can occur before a card switchover is triggered.<br><br>This attribute only has meaning when the *switchoverOnFailure* attribute is ***enabled***. |
| Values | Decimal (1..180) |
| Units | seconds |
| Default | 30 |

### GROUP Nsta Vgs Iplf IpIfOp (IpOp)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for *Nsta Vgs IpInterface* component. |

### ATTRIBUTE Nsta Vgs Iplf unsupportedFramesReceived (rxUnsupFrm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of frames received with a protocol type which is neither IP nor ARP. This count does not include MAC control frames. This counter wraps to zero after it reaches its maximum value. |
| Values | Long Integer |
| Default | No default |

### COMPONENT Nsta Vgs MediaGatewayController (Mgc)

| | |
|---|---|
| Instance | String (1..20, ASCII) |
| Groups | "GROUP Nsta Vgs Mgc Provisioned (Prov)" |
| Scope | Device |
| Description | *Nsta/n Vgs MediaGatewayController/n* |

This component contains the H.248 attributes that are specific to a particular controller.

Common Verbs

Help
List
Display
Add
DELete

## GROUP Nsta Vgs Mgc Provisioned (Prov)

Properties: Provisioned

Description: This group contains the provisioning data for the *Mgc* component.

## ATTRIBUTE Nsta Vgs Mgc initialMgcAddress (addr)

Access: Read and write

Description: This attribute specifies the controller IP address to which the gateway sends the initial H.248 registration message.

The controller IP address to which the gateway sends subsequent H.248 transaction requests may be different from this attribute, depending on whether H.248 registration redirection, handoff, or failover procedures have been performed. The controller IP address currently in use is given by the *H248 mgcAddress* operational attribute.

The values ***0.0.0.0*** and ***255.255.255.255*** are not permitted.

Values: IP address

Default: No default

## ATTRIBUTE Nsta Vgs Mgc initialMgcPort (port)

Access: Read and write

Description: This attribute specifies the controller UDP port to which the gateway sends the initial H.248 registration message.

The controller UDP port to which the gateway sends subsequent

H.248 transaction requests may be different from this attribute, depending on whether H.248 registration redirection, handoff, or failover procedures have been performed. The controller UDP port currently in use is given by the *H248 mgcPort* operational attribute.

Values: Decimal (1..65535)

Default: 2944

### ATTRIBUTE Nsta Vgs Mgc encodingFormat (encFmt)

Access: Read and write

Description: This attribute specifies the encoding format used by the gateway to send H.248 messages to this controller. The format may be one of the following: -

***longText*** - a readable format, but longer to transfer.

***shortText*** - a short, space efficient format, suitable for machine transfer, but less readable.

Values: shorttext
longtext

Default: shorttext

### ATTRIBUTE Nsta Vgs Mgc ds3Format

Access: Read and write

Criticality: Component

Description: This attribute specifies the DS3 physical termination identifier format used in the H.248 messages.

DS3 physical termination identifier format is described in the PVG Guide (NTP 241-5701-780).

Values: String (1..64, ASCII)

Default: DS3/#2/#1/#2/#1

### ATTRIBUTE Nsta Vgs Mgc e1Format

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute represents the E1 physical termination identifier format used by the controller.<br><br>E1 physical termination identifier format is described in the PVG Guide (NTP 241-5701-780). |
| Values | String (1..64, ASCII) |
| Default | E1/#2/#2/#1 |

### ATTRIBUTE Nsta Vgs Mgc stmnVc4Vc12Format

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the STM-n with VC4/VC12 physical termination identifier format used by the controller.<br><br>STM-n with VC4/VC12 physical termination identifier format is described in the PVG Guide (NTP 241-5701-780). |
| Values | String (1..64, ASCII) |
| Default | STM/#1/#1/#1/VC4VC12/#1/#1/#1/#1/#1 |

### ATTRIBUTE Nsta Vgs Mgc stsnOcnVt15Format

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the STS-n/OC-n with VT15 physical termination identifier format used by the controller.<br><br>STS-n/OC-n with VT15 physical termination identifier format is described in the PVG Guide (NTP 241-5701-780). |
| Values | String (1..64, ASCII) |

| | |
|---|---|
| Default | STS/#1/#1/#1/VT15/#1/#1/#1/#1 |

### ATTRIBUTE Nsta Vgs Mgc ipFormat

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the IP ephemeral termination identifier format being used by the controller.<br><br>IP ephemeral termination identifier format is described in the PVG Guide (NTP 241-5701-780). |
| Values | String (1..64, ASCII) |
| Default | rtp/#1 |

### ATTRIBUTE Nsta Vgs Mgc aal2Format

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the AAL2 ephemeral termination identifier format used by the controller.<br><br>AAL2 ephemeral termination identifier format is described in the PVG Guide (NTP 241-5701-780). |
| Values | String (1..64, ASCII) |
| Default | aal2/#1 |

### ATTRIBUTE Nsta Vgs Mgc initialNormalMgExecutionTime (time)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the value of the H.248 MG property root/normalMGExecutionTime on H.248 cold boot. This is the initial value of the interval within which the controller expects a response, exclusive of network delay.<br><br>The value is rounded to the nearest 100 milliseconds. |
| Values | Decimal (100..10000) |

| | |
|---|---|
| Units | msec |
| Default | 500 |

### ATTRIBUTE Nsta Vgs Mgc initialNormalMgcExecutionTime (cTime)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the value of the H.248 MG property root/normalMGCExecutionTime on H.248 cold boot. This is the initial value of the interval within which the gateway expects a response from the controller, exclusive of network delay.<br><br>The value is rounded to the nearest 100 milliseconds. |
| Values | Decimal (100..10000) |
| Units | msec |
| Default | 500 |

### ATTRIBUTE Nsta Vgs Mgc initMgProvnlRespTimerValue

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the value of the H.248 MG property root/MGProvisionalResponseTimerValue on H.248 cold boot. This is the initial value of the time within which the controller expects a Pending Response from the gateway if a Transaction cannot be completed.<br><br>The value is rounded to the nearest 100 milliseconds. |
| Values | Decimal (100..10000) |
| Units | msec |
| Default | 2000 |

### ATTRIBUTE Nsta Vgs Mgc initMgcProvnlRespTimerValue

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the value of the H.248 MG property root/MGCProvisionalResponseTimerValue on H.248 cold boot. This is the initial value of the time within which the gateway expects a |

| | |
|---|---|
| | Pending Response from the controller if a Transaction cannot be completed.<br><br>The value is rounded to the nearest 100 milliseconds. |
| Values | Decimal (100..10000) |
| Units | msec |
| Default | 500 |

### ATTRIBUTE Nsta Vgs Mgc maximumTxRetries (ret)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum number of retransmissions for an unacknowledged H.248 transaction request. If the gateway has not received a message from the controller after the maximum number of retries, then the gateway will perform the H.248 failover procedure. |
| Values | Decimal (0..10) |
| Default | 2 |

### ATTRIBUTE Nsta Vgs Mgc maximumTxRetryTime (tRet)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum time between retransmissions of an unacknowledged H.248 transaction request by the controller.<br><br>The value is rounded to the nearest 100 milliseconds. |
| Values | Decimal (100..10000) |
| Units | msec |
| Default | 1000 |

### ATTRIBUTE Nsta Vgs Mgc transactionQuarantineTimer (quar)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute is the H.248 long timer value (LONG-TIMER) used for quarantining H.248 responses sent to the controller. The gateway will keep H.248 response copies for at least this time. |
| Values | Decimal (1..24) |
| Units | seconds |
| Default | 24 |

### ATTRIBUTE Nsta Vgs Mgc egressCotDuration

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the default duration of the egress continuity test tone generated by the gateway.<br><br>The value is rounded to the nearest 100 milliseconds. |
| Values | Decimal (1..180000) |
| Units | msec |
| Default | 20000 |

### ATTRIBUTE Nsta Vgs Mgc highestVersion (hiVer)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the highest protocol version to be negotiated with the controller upon H.248 registration. |
| Values | Decimal (1..1) |
| Default | 1 |

### ATTRIBUTE Nsta Vgs Mgc mgList

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies a list of links to *H248* components that use this component. |
| List of | Link (Service, mgcList) |
| List Size | 1 |

| | |
|---|---|
| Default | No default |

## COMPONENT Nsta Vgs H248

| | |
|---|---|
| Instance | Decimal (0) |
| Groups | "GROUP Nsta Vgs H248 Provisioned (Prov)"<br>"GROUP Nsta Vgs H248 Operational (Oper)" |
| Scope | Device |
| Description | *Nsta/n Vgs H248/n*<br><br>This component represents an interface between a gateway and a controller using the H.248 (Megaco) Protocol. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Nsta Vgs H248 Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioning data for the *H248* component. |

## ATTRIBUTE Nsta Vgs H248 mgMid

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the Message Identifier that the gateway includes as part of every message sent to the controller.<br><br>The format of this string is described in the PVG guide (NTP 241-5701-780). |
| Values | String (1..64, ASCII) |
| Default | No default |

### ATTRIBUTE Nsta Vgs H248 udpPortConnection (port)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is a link to the *Nsta/n Vgs Ctrl/n UdpPort/n* component that defines the MG local UDP port for the H.248 protocol. The default UDP port for H.248 text format is 2944. |
| Values | Link (Service, linkToApplication) |
| Default | No default |

### ATTRIBUTE Nsta Vgs H248 sdpFormat

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the Session Description Protocol (SDP) media line compliance for SDPs sent and received by the gateway.<br><br>***strictH248*** - force strict H.248 SDP media line compliance for both receiving and transmitting SDPs.<br><br>***h248*** - flexible when receiving SDP media lines. Complies with H.248 when sending SDP media lines.<br><br>***nonH248*** - flexible when receiving SDP media lines and may send multiple SDP media lines per SDP group when appropriate. |
| Values | h248<br>strictH248<br>nonH248 |
| Default | nonH248 |

### ATTRIBUTE Nsta Vgs H248 atmSdpTransmitFormat

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates the Session Description Protocol (SDP) format that the gateway sends when establishing an AAL2 connection.<br><br>***vgcp*** - Comply with the VGCP SDP format. |

| | |
|---|---|
| | ***rfc3108*** - Comply with the RFC-3108 SDP format. |
| Values | vgcp<br>rfc3108 |
| Default | rfc3108 |

### ATTRIBUTE Nsta Vgs H248 mgcList

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies an ordered list of links to associated *Mgc* components, which specify the provisioned attributes for use with the primary and (multiple) secondary controllers. The controller preference used by the gateway when registering is determined by the order of adding links (that is, the first is preferred).<br><br>The list must contain at least one entry. |
| List of | Link (Service, mgList) |
| List Size | 3 |
| Default | No default |

### GROUP Nsta Vgs H248 Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational data for the *H248* component. |

### ATTRIBUTE Nsta Vgs H248 negotiatedVersion (vers)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the current H.248 protocol version which the gateway sends in H.248 transaction requests and is therefore the negotiated version between the controller and the gateway.<br><br>The attribute equals ***0*** when the gateway is registering. |
| Values | Decimal (0..99) |
| Default | No default |

### ATTRIBUTE Nsta Vgs H248 maximumContexts (ctxts)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the maximum number of H.248 contexts supported by the gateway. |
| Values | Decimal (0..65535) |
| Default | No default |

### ATTRIBUTE Nsta Vgs H248 normalMgExecutionTime (time)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current value of the interval within which the controller expects a response from the gateway, exclusive of network delay. |
| Values | Decimal (0..10000) |
| Units | msec |
| Default | No default |

### ATTRIBUTE Nsta Vgs H248 normalMgcExecutionTime (cTime)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current value of the interval within which the gateway expects a response from the controller, exclusive of network delay. |
| Values | Decimal (0..10000) |
| Units | msec |
| Default | No default |

### ATTRIBUTE Nsta Vgs H248 mgcProvisionalRespTimerValue

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current value of the time within which the gateway expects a Pending Response from the controller if a Transaction cannot be completed. |

| | |
|---|---|
| Values | Decimal (0..10000) |
| Units | msec |
| Default | No default |

### ATTRIBUTE Nsta Vgs H248 maximumInactivityTime (mit)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the time the gateway will wait for an H.248 message from the controller before the gateway attempts to contact the controller to determine if it is still active. The value ***off*** indicates that the maximum inactivity timer is not enabled. |
| Values | Decimal (0..655350)<br>off |
| Units | msec |
| Default | No default |

### ATTRIBUTE Nsta Vgs H248 failovers

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times the gateway has performed failover procedures and attempted contact with another controller since the *H248* component was activated. |
| Values | Decimal (0..65535) |
| Default | No default |

### ATTRIBUTE Nsta Vgs H248 mgcMid

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Message Identifier of the current controller being used. This value is obtained from the controller response to the gateway registration message.<br><br>The attribute has zero length when the gateway is registering. |
| Values | String (0..64, ASCII) |
| Default | No default |

### ATTRIBUTE Nsta Vgs H248 mgcAddress (addr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current controller IP address to which the gateway sends H.248 transaction requests. |
| Values | IP address |
| Default | No default |

### ATTRIBUTE Nsta Vgs H248 mgcPort

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current controller UDP port to which the gateway sends H.248 transaction requests. |
| Values | Decimal (0..65535) |
| Default | No default |

### ATTRIBUTE Nsta Vgs H248 mgcInUse

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the instance name of the *Mgc* component currently in use. |
| Values | The name of the component |
| Default | No default |

### ATTRIBUTE Nsta Vgs H248 mgProvisionalRespTimerValue

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current value of the time within which the controller expects a Pending Response from the gateway if a Transaction cannot be completed. |
| Values | Decimal (0..10000) |
| Units | msec |
| Default | No default |

## COMPONENT Nsta Vgs PacketNetworkProfile (PktProf)

| | |
|---|---|
| Instance | Decimal (0) |
| Groups | "GROUP Nsta Vgs PktProf Provisioned (Prov)" |
| Scope | Device |
| Description | *Nsta/n Vgs PacketNetworkProfile/n*<br><br>The *PacketNetworkProfile* component represents a profile of the PVG packet side characteristics of narrowband calls. |
| Common Verbs | Help<br>List<br>Display<br>Add |

## GROUP Nsta Vgs PktProf Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioning data for the *PacketNetworkProfile* component. |

## ATTRIBUTE Nsta Vgs PktProf bufferSize (bufSize)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute represents the capacity of the packet delay variation (PDV) buffer in milliseconds of data.<br><br>To ensure that PDV can be tolerated it is necessary to initialize the system with a reserve of information in the buffer used to reassemble data for transmission across the TDM network. The size of this reserve is defined by the *pdvt* and *bufferSize* attributes. The amount of data played out to the TDM network (a period of time defined by the *packetDelayVariationTolerance* attribute) is equal to the size of the initialization reserve. There should be enough data in the reassembly buffer to allow transmission for a period of time defined by the *pdvt* attribute before buffer underflow due to the next delayed packet occurs. |

If the ***VgsIp, VgsIpG729, VgsIpGe,*** or ***VgsIpG729Ge*** feature has been provisioned the default *bufferSize* will be ***60ms***; otherwise the *bufferSize* will be ***50ms***.

The value should always be greater than the maximum packet size plus two times the value of the *pdvt* attribute, except on ***2pGeMmSrVsp3*** and ***2pOC3ChSmIrVsp3*** cards where it need only be greater than or equal to two times the value of the *pdvt* attribute. The maximum packet size is 20ms for ***VgsIp***, ***VgsIpG729, VgsIpGe*** and ***VgsIpG729Ge*** features and 10ms for all other features.

This attribute has no effect if the *packetDelayVariationTolerance* attribute is set to ***adaptive***.

| | |
|---|---|
| Values | Decimal (5..100) |
| Units | msec |
| Default | No default |

### ATTRIBUTE Nsta Vgs PktProf packetDelayVariationTolerance (pdvt)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute represents the maximum packet arrival jitter in milliseconds that the reassembly process will tolerate in the packet stream without producing errors on the TDM interface.<br><br>This attribute together with the *bufferSize* attribute, can be configured to optimize the jitter versus absolute delay trade off in various network configurations.<br><br>The value should always be less than the value of the *bufferSize* attribute minus the maximum packet size divided by two, except on ***2pGeMmSrVsp3*** and ***2pOC3ChSmIrVsp3*** cards, where it need only be less than or equal to the value of the *bufferSize* attribute divided by two. The maximum packet size is 20ms for ***VgsIp***, ***VgsIpG729, VgsIpGe,*** and ***VgsIpG729Ge*** features and 10ms for all other features. |

If set to ***adaptive***, the hardware attempts to minimise the absolute delay while allowing for the maximum packet arrival jitter encountered. This value is only supported on the following cards:

***2pGeMmSrVsp3***,
***2pOC3ChSmIrVsp3***.

| | |
|---|---|
| Values | Decimal (5..50)<br>adaptive |
| Units | msec |
| Default | 20 |

### ATTRIBUTE Nsta Vgs PktProf lossIntegrationPeriod (intPeriod)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute represents the interval of time in seconds for which a loss of packet condition must persist before the corresponding call is dropped. A value of zero specifies that packet loss integration is disabled and therefore call connections are not suspended after packet loss. |
| Values | Decimal (0..50) |
| Units | seconds |
| Default | 5 |

### ATTRIBUTE Nsta Vgs PktProf defaultVoiceRate (defVRate)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute represents the default coding algorithm to be used under normal conditions (when no 2100 Hz tone is detected).<br><br>For each connection, this default coding algorithm can be overridden by the controller.<br><br>If the provisioned feature is ***vgsAtm*** or ***vgsAtmDc*** then either ***64kG711*** or ***32kG726*** may be provisioned. For the feature ***vgsIp*** or ***vgsIpGe*** only ***64kG711*** may be provisioned. For feature ***vgsIpG729*** or ***vgsIpG729Ge*** either ***64kG711*** or ***8kG729*** may be |

provisioned. For feature ***vgsAtmG729*** any of ***64kG711***,***32kG726*** and ***8kG729*** may be provisioned.

Values
64kG711
32kG726
8kG729

Default
64kG711

### ATTRIBUTE Nsta Vgs PktProf tone2100Rate (toneRate)

Access
Read and write

Description
This attribute represents the coding algorithm to be used when a 2100 Hz tone is detected (phase reversal may or may not be detected). This attribute takes precedence over the *defaultVoiceRate* attribute.

This attribute must be set to ***64kG711*** when using IP transport.

Values
64kG711
32kG726

Default
64kG711

### ATTRIBUTE Nsta Vgs PktProf silenceDetectionHangOverTime (silDetTime)

Access
Read and write

Description
This attribute represents the time in milliseconds for which the speech path is left on, before being suppressed when a timeslot is silent. This helps to prevent clipping at the end of words.

Values
Decimal (30..500)

Units
msec

Default
200

### ATTRIBUTE Nsta Vgs PktProf silenceSuppression (silSup)

Access
Read and write

Description
This attribute represents whether silence suppression is performed.

A value of ***enabled*** indicates that silence suppression is performed as default. For each connection this default can be overridden by the controller.

A value of ***disabled*** indicates that silence suppression is not performed under any circumstances.

Values: enabled
disabled

Default: disabled

### ATTRIBUTE Nsta Vgs PktProf silenceSuppressionThreshold (silSupThresh)

Access: Read and write

Description: This attribute represents the level above which silence suppression is not performed. A value in the range -39 to -36 dBm0 is only permitted on ***2pGeMmSrVsp3*** and ***2pOC3ChSmIrVsp3*** cards.

Values: Signed (-60..-36)

Units: dBm0

Default: -40

### ATTRIBUTE Nsta Vgs PktProf digitTransport

Access: Read and write

Description: This attribute represents the method by which digit tones are transported.

If set to ***64kG711***, then G.729 voice channels will upspeed to send ***64kG711*** packets when DTMF is detected.

If set to ***sendAsVoice***, DTMF is encoded using currently selected codec.

If set to ***squelch,*** during the playback of a digit, silence is sent over the voice path, encoded at the current encoding rate.

If set to ***relay***, this value enables negotiation of mutual support for

the relay of DTMF tones as RFC2833 VoIP packets. Should this negotiation fail then behavior is the same as for ***64kG711***.

A value of ***relay*** is only valid on ***2pGeMmSrVsp3*** and ***2pOC3ChSmIrVsp3*** cards.

If the *Sw Lpt featureList* attribute contains ***vgsAtm***, ***vgsAtmDc*** or ***vgsIp*** and the card type is ***12mVspAal*** or ***Vsp2***, this attribute is ignored and the value of ***sendAsVoice*** will be the digit tone transport method.

Values
sendAsVoice
64kG711
squelch
relay

Default
No default

## ATTRIBUTE Nsta Vgs PktProf vbdTransport

Access
Read and write

Description
This attribute represents the method by which voiceband data tones are transported.

If set to ***useTone2100Rate***, then G.729 voice channels will upspeed to send ***64kG711*** packets when VBD is detected regardless of whether or not the remote gateway has indicated support for this codec.

If set to ***useTone2100RateIfNegotiated***, then G.729 voice channels will upspeed to send ***64kG711*** packets when VBD is detected only when the remote gateway has indicated support for this codec.

Values
useTone2100RateIfNegotiated
useTone2100Rate

Default
useTone2100RateIfNegotiated

## ATTRIBUTE Nsta Vgs PktProf stateChangeSignalingMode (scsMode)

Access
Read and write

Description

This attribute specifies the mechanism that the gateway uses to signal inband changes in call state to the gateway on the far side of the packet network. This attribute only applies to the following features:

***vgsAtm***
***vgsAtmG729***

The possible values for this attribute are:

***proprietary*** - Proprietary PVG tone indication packets are sent.

***itu*** - Standard User State Control (USC) packets are sent, in compliance with ITU-T Recommendation 1.366.2 Annex O.

A value of ***proprietary*** is only permitted on the following cards:

***12mVspAal***,
***Vsp2***,
***Vsp2W,***
***2pGeMmSrVsp3***.

A value of ***itu*** is only permitted on the following cards:

***2pGeMmSrVsp3,***
***2pOC3ChSmIrVsp3***.

For the ***2pOC3ChSmIrVsp3*** card, the default for this attribute is ***itu***. For all other cards the defult for this attribute is ***proprietary***.

Values

proprietary
itu

Default

No default

## COMPONENT Nsta Vgs TdmAccessGroup (Tag)

Instance

Decimal (0..16777215)

Groups

"GROUP Nsta Vgs Tag Provisioned (Prov)"
"GROUP Nsta Vgs Tag OsiState (State)"

| | |
|---|---|
| | "GROUP Nsta Vgs Tag Operational (Oper)"<br>"GROUP Nsta Vgs Tag CommonOp (ComOp)" |
| Scope | Device |
| Description | *Nsta/n Vgs Tag/n*<br><br>This component represents a group of TDM timeslots in a TDM primary rate stream associated with this VSP, and relates them to a processing profile.<br><br>This component defines default processing for all TDM connections represented in this *TdmAccessGroup* component. For each connection, this default processing may be overridden by the controller. |
| Opt. Subcomp. | "COMPONENT Nsta Vgs Tag ChannelAssociatedSignaling (Cas)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Nsta Vgs Tag Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioning data for the *TdmAccessGroup* component. |

### ATTRIBUTE Nsta Vgs Tag interfaceName (ifName)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the link to a *Chan* component. This *Chan* component must exist on the same Functional Processor. |
| Values | Link (Service, applicationFramerName) |
| Default | No default |

### ATTRIBUTE Nsta Vgs Tag profile (prof)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the *TdmNetworkProfile* component to use on the TDM trunks of the *Tag* component when a call is setup. |
| Values | Link (Service, applicationList) |
| Default | No default |

### GROUP Nsta Vgs Tag OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Nsta Vgs Tag adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |

| | |
|---|---|
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Nsta Vgs Tag operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Nsta Vgs Tag usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |

| | |
|---|---|
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

## GROUP Nsta Vgs Tag Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains attributes that indicate the *Tag* component status. |

## ATTRIBUTE Nsta Vgs Tag status

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the status of a *Tag*.<br><br>The possible values are:<br><br>***enabled*** - no failure.<br><br>***vgsNotReady*** - the Media Gateway is unavailable. This is currently indicated by the *operationalState* of the *Vsp* component being ***disabled***.<br><br>***chanNotReady*** - the TDM *Chan* component is locked, or the *Chan proceduralStatus* is ***initializationRequired***.<br><br>***chanDegraded*** - the TDM *Chan* or associated primary rate interface has an outstanding alarm.<br><br>***resourceUnavailable*** - there is not enough hardware resource to handle all timeslots of this *Tag*.<br><br>***casNotReady*** - the *operationalState* of the *CasDefn* component linked to by the *Cas* subcomponent of this *Tag* is currently ***disabled***. |
| Values | vgsNotReady<br>chanNotReady<br>enabled |

| | |
|---|---|
| | chanDegraded<br>resourceUnavailable<br>casNotReady |
| Default | No default |

### GROUP Nsta Vgs Tag CommonOp (ComOp)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational attributes common to *Brag* and *DBrag*. |

### ATTRIBUTE Nsta Vgs Tag outOfServiceTerminationsByMgc (oosTermsByMgc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is a list of TDM terminations placed out of service by the controller. This does not include TDM terminations placed out of service by the gateway.<br><br>This attribute is only relevant if the H.248 protocol is in use. If any other attribute is used, this attribute is filtered. |
| List of | Decimal (1..31) |
| Default | No default |

### COMPONENT Nsta Vgs Tag ChannelAssociatedSignaling (Cas)

| | |
|---|---|
| Groups | "GROUP Nsta Vgs Tag Cas Provisioned (Prov)"<br>"GROUP Nsta Vgs Tag Cas Operational (Oper)" |
| Scope | Device |
| Description | *Nsta/n Vgs Brag/n ChannelAssociatedSignaling*<br>*Nsta/n Vgs Tag/n ChannelAssociatedSignaling*<br><br>This component represents the capability to terminate, process and redirect any Channel Associated Signaling information associated with the parent component. |

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Nsta Vgs Tag Cas Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisioning data for the *Cas* component. |

## ATTRIBUTE Nsta Vgs Tag Cas channelAssocSignalingDefinition (casDefinition)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies a link to an *Nsta/n Vgs CasDefn/n* component, which defines the CAS signaling details.<br><br>This attribute must be supplied. |
| Values | Link (Service, applicationList) |
| Default | No default |

## GROUP Nsta Vgs Tag Cas Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains attributes that indicate the status of a *Cas* component. |

## ATTRIBUTE Nsta Vgs Tag Cas txSignals

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts CAS line signals transmitted towards the TDM interface since the component was activated.<br><br>The counter wraps to ***0*** when it exceeds its maximum value. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Vgs Tag Cas rxSignals

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts CAS line signals received from the TDM interface since the component was activated.<br><br>The counter wraps to ***0*** when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Vgs Tag Cas busyChannels

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of endpoints in answer or setup state for the *Chan* component specified in the *interfaceName* attribute of the parent component. This includes only the endpoints that are not in idle or blocked state. |
| Values | Decimal (0..30) |
| Default | No default |

### ATTRIBUTE Nsta Vgs Tag Cas blockedChannels

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of endpoints in blocked state for the *Chan* component specified in the *interfaceName* attribute of the parent component. |
| Values | Decimal (0..30) |
| Default | No default |

### ATTRIBUTE Nsta Vgs Tag Cas signalFailureIndications

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of incoming line state changes that are not recognized as valid candidates for that stage in a call, |

and that are reported as a Signal Failure to the call server.

The counter wraps to ***0*** when it exceeds its maximum value.

Values: Decimal (0..4294967295)

Default: No default

## COMPONENT Nsta Vgs TdmNetworkProfile (TProf)

Instance: Decimal (0..15)

Groups: "GROUP Nsta Vgs TProf Provisioned (Prov)"

Scope: Device

Description: *Nsta/n Vgs TdmNetworkProfile/n*

This component represents a profile defining TDM network behaviour that can be referenced by *Tag* components.

Common Verbs:
- Help
- List
- Display
- Add
- DELete

## GROUP Nsta Vgs TProf Provisioned (Prov)

Properties: Provisioned

Description: This group contains the provisioning data for the *TdmNetworkProfile* component.

## ATTRIBUTE Nsta Vgs TProf tdmLogLaw (loglaw)

Access: Read and write

Description: This attribute specifies the G.711 companding law to use.

The possible values are:

***aLaw:*** Alaw companding is used.

***muLaw:*** Mulaw companding is used.

***autoConfigured:*** Mulaw companding is used by *DS1* trunks, while Alaw companding is used by *E1* trunks.

Values
muLaw
aLaw
autoConfigured

Default autoConfigured

### ATTRIBUTE Nsta Vgs TProf ingressGain (iGain)

Access Read and write

Description This attribute specifies the gain applied on the TDM ingress side to balance the network loss plan.

Values Signed (-15..15)

Units dB

Default 0

### ATTRIBUTE Nsta Vgs TProf egressGain (eGain)

Access Read and write

Description This attribute specifies the gain applied on the TDM egress side to balance the network loss plan.

Values Signed (-15..15)

Units dB

Default 0

### ATTRIBUTE Nsta Vgs TProf minimumEchoReturnLoss (minEchoRetLoss)

Access Read and write

Description This attribute specifies the minimum echo return loss that can be expected on the line.

For the following features, the default for this attribute is ***3***:

***gsmBicnMg***,
***umtsBicnMg***,
***cdmaCodec***.

For all other features, the default for this attribute is ***6***.

| | |
|---|---|
| Values | Decimal (0; 3; 6) |
| Units | dB |
| Default | No default |

### ATTRIBUTE Nsta Vgs TProf echoCancellation (eCan)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether echo cancellation is enabled or disabled. Note that echo cancellation is always disabled when a 2100 Hz tone is detected.<br><br>The operator may decide to disable this functionality if a third-party echo canceller is present in the network, because having more than one echo canceller will adversely affect voice quality.<br><br>Note that the gateway controller may override this attribute on a call by call basis to activate or deactivate echo cancellation. This attribute does not have any effect on Wireless digital data services.<br><br>***disabled*** - Disables echo cancellation.<br><br>***g165Mode*** - Enables echo cancellation except when a 2100Hz tone with phase reversal is detected. |
| Values | disabled<br>g165Mode |
| Default | g165Mode |

### ATTRIBUTE Nsta Vgs TProf echoCancelComfortNoiseGeneration (eCanComNoiseGen)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | The attribute specifies whether comfort noise generation for the echo cancellation feature is enabled or disabled.<br><br>The possible values are:<br><br>***disabled*** - Comfort noise generation is disabled.<br>***enabled*** - Comfort noise generation is enabled.<br><br>This attribute has no effect if the echo canceller is disabled. |
| Values | disabled<br>enabled |
| Default | enabled |

### ATTRIBUTE Nsta Vgs TProf echoCancelTailLength (eCanTailLength)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the echo cancellation tail length.<br><br>This attribute has no effect if the echo canceller is disabled.<br><br>For the following features, the default for this attribute is ***64***:<br><br>***gsmBicnMg***,<br>***umtsBicnMg***,<br>***cdmaCodec***.<br><br>For all other features, the default for this attribute is ***128***. |
| Values | 64<br>128 |
| Units | msec |
| Default | No default |

### ATTRIBUTE Nsta Vgs TProf echoCancelTailOffset (eCanTailOffset)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the fixed delay offset for the echo cancellation tail length applied to all timeslots. |

This attribute has no effect if the echo canceller is disabled.

This attribute is only applicable for the following features:

***gsmBicnMg***,
***umtsBicnMg***,
***cdmaCodec***.

Values: Decimal (0..16)

Units: msec

Default: 0

## ATTRIBUTE Nsta Vgs TProf toneset (toneset)

Access: Read and write

Description: This attribute specifies the tone set available to the controller.

The possible values are:

***sameAsVgs*** - Use the *defaultToneset* attribute from the *Vgs* component
***argentina*** - Use the tone set for Argentina.
***australia*** - Use the tone set for Australia.
***austria*** - Use the tone set for Austria.
***belgium*** - Use the tone set for Belgium.
***brazil*** - Use the tone set for Brazil.
***canadaUsa*** - Use the tone set for Canada and the USA.
***chile*** - Use the tone set for Chile.
***china*** - Use the tone set for China.
***czech*** - Use the tone set for the Czech Republic.
***france*** - Use the tone set for France.
***germany*** - Use the tone set for Germany.
***greece*** - Use the tone set for Greece.
***hongKong*** - Use the tone set for Hong Kong.
***india*** - Use the tone set for India.
***ireland*** - Use the tone set for Ireland.
***israel*** - Use the tone set for Israel.
***italy*** - Use the tone set for Italy.
***japan*** - Use the tone set for Japan.

***korea*** - Use the tone set for Korea.
***malaysia*** - Use the tone set for Malaysia.
***mexico*** - Use the tone set for Mexico.
***netherlands*** - Use the tone set for The Netherlands.
***newZealand*** - Use the tone set for New Zealand.
***panama*** - Use the tone set for Panama.
***philippines*** - Use the tone set for Philippines.
***poland*** - Use the tone set for Poland.
***portugal*** - Use the tone set for Portugal.
***romania*** - Use the tone set for Romania.
***singapore*** - Use the tone set for Singapore.
***spain*** - Use the tone set for Spain.
***sweden*** - Use the tone set for Sweden.
***switzerland*** - Use the tone set for Switzerland.
***taiwan***- Use the tone set for Taiwan.
***thailand*** - Use the tone set for Thailand.
***turkey*** - Use the tone set for Turkey.
***uk*** - Use the tone set for the UK.
***venezuela*** - Use the tone set for Venezuela.

This attribute is only applicable for the following features:

***vgsAtm***,
***vgsIp***.

Values

sameAsVgs
canadaUsa
spain
uk
france
portugal
belgium
germany
netherlands
sweden
austria
italy
switzerland
australia
brazil
ireland

mexico
israel
romania
turkey
czech
china
taiwan
korea
japan
panama
argentina
greece
poland
newZealand
singapore
venezuela
chile
hongKong
malaysia
philippines
thailand
india

Default: sameAsVgs

### ATTRIBUTE Nsta Vgs TProf minimumDtmfPowerLevel (minDtmf)

Access: Read and write

Description: This attribute specifies the value of the minimum power level at which DTMF digits must be detected. This value is used to allow for different specification for different administrations. This attribute is ignored if the *DigitCollection* component is not present under the parent *Vgs*.

Values: Signed (-30; -27; -24)

Units: dBm0

Default: -27

### ATTRIBUTE Nsta Vgs TProf voiceBitInversion (vbi)

Access: Read and write

Description

This attribute specifies the bit inversion scheme to be applied to G.711 samples on the TDM side of a Media Gateway.

The possible values are:

***noBitInversion*** - No bit inversion is applied.
***oddBitInversion*** - Bit inversion is applied to odd bits.
***evenBitInversion*** - Bit Inversion is applied to even bits.
***allBitInversion*** - Bit inversion is applied to all the bits.
***autoConfigure*** - The bit inversion scheme depends on the value of the *tdmLogLaw* attribute. When the *tdmLogLaw attribute* is set to ***muLaw***, the value of this attribute will be set to ***allBitInversion***. When the *tdmLogLaw attribute* is set to ***aLaw***, the value of this attribute will be set to ***evenBitInversion***.

This attribute is only applicable for the following features:

***gsmBicnMg***,
***umtsBicnMg***,
***cdmaCodec***.

For applicable features, the default for this attribute is ***autoConfigure***, otherwise the default for this attribute is ***noBitInversion***.

Values

noBitInversion
oddBitInversion
evenBitInversion
allBitInversion
autoConfigure

Default

No default

## ATTRIBUTE Nsta Vgs TProf dataBitInversion (dbi)

Access

Read and write

Description

This attribute specifies the bit inversion scheme to be applied to data on the TDM side of a Media Gateway for Wireless CSD applications.

The possible values are:

***noBitInversion*** - No bit inversion is applied.
***oddBitInversion*** - Bit inversion is applied to odd bits.
***evenBitInversion*** - Bit Inversion is applied to even bits.
***allBitInversion*** - Bit inversion is applied to all the bits.

This attribute is only applicable for the following features:

***gsmBicnMg***,
***umtsBicnMg***,
***cdmaCodec***.

| | |
|---|---|
| Values | noBitInversion<br>oddBitInversion<br>evenBitInversion<br>allBitInversion |
| Default | noBitInversion |

### ATTRIBUTE Nsta Vgs TProf applicationList (appList)

| | |
|---|---|
| Access | Read only |
| Description | This attribute contains a list of *Tag* components linked to this profile. |
| List of | Link (Service, profile) |
| Default | No default |

### COMPONENT Nsta Vgs Q921

| | |
|---|---|
| Instance | Decimal (0..83) |
| Groups | "GROUP Nsta Vgs Q921 Provisioned (Prov)"<br>"GROUP Nsta Vgs Q921 OsiState (State)"<br>"GROUP Nsta Vgs Q921 Operational (Oper)" |
| Scope | Device |
| Description | *Nsta/n Vgs Q921/n* |

This component represents the association between a TDM

timeslot used for Q.921 transport in a TDM primary rate stream and a processing profile.

Common Verbs

Help
List
Display
Add
DELete

## GROUP Nsta Vgs Q921 Provisioned (Prov)

Properties: Provisioned

Description: This group contains the provisioning data for the *Q921* component.

## ATTRIBUTE Nsta Vgs Q921 interfaceName (ifName)

Access: Read and write

Criticality: Process

Description: This attribute specifies a link to a *Chan* component, which in turn specifies the timeslot for the Q.921 transport.

Values: Link (Service, applicationFramerName)

Default: No default

## ATTRIBUTE Nsta Vgs Q921 profile (prof)

Access: Read and write

Description: This attribute specifies a link to the *Q921Profile* component, which in turn specifies the processing required on the Q.921 transport.

Values: Link (Service, applicationList)

Default: No default

## GROUP Nsta Vgs Q921 OsiState (State)

Properties: Operational

Description

This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

## ATTRIBUTE Nsta Vgs Q921 adminState (osiAdmin)

Access

Read only

Description

This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values

locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default

unlocked

## ATTRIBUTE Nsta Vgs Q921 operationalState (osiOper)

Access

Read only

Description

This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be

providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Nsta Vgs Q921 usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Nsta Vgs Q921 Operational (Oper)

Properties
Operational

Description
This group contains attributes that indicate the *Q921* component status.

### ATTRIBUTE Nsta Vgs Q921 txFrames

Access
Read only

| | |
|---|---|
| Description | This attribute counts Q.921 frames transmitted towards the TDM interface since the component was activated.<br><br>The following frames are counted: information frames, receive ready frames, receive not ready frames, reject frames, set asynchronous balanced mode frames, disconnect frames, unnumbered acknowledge frames, disconnect mode frames, frame reject frames, exchange id frames, and unnumbered information frames.<br><br>The counter wraps to ***0*** when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Vgs Q921 rxFrames

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts Q.921 frames received from the TDM interface since the component was activated. This includes HDLC errored frames.<br><br>The following frames are counted: information frames, receive ready frames, receive not ready frames, reject frames, set asynchronous balanced mode frames, disconnect frames, unnumbered acknowledge frames, disconnect mode frames, frame reject frames, exchange id frames, and unnumbered information frames.<br><br>The counter wraps to ***0*** when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Nsta Vgs Q921 erroredFrames

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts Q.921 frames received from the TDM interface with errors since the component was activated. |

The following errors are counted: invalid frames received (FCS, overrun, or non-integral number of octets), SABM errors, DM frames Tx in response to a Rx SABME, frames with an information field that is not permitted or a supervisory unnumbered frame with an incorrect length, frames received with an invalid receive sequence, and frames received with I-field larger than *n201*.

The counter wraps to ***0*** when it exceeds its maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Nsta Vgs Q921 retriesCounter

Access: Read only

Description: This attribute counts the number of retransmission attempts since the component was activated.

The counter wraps to ***0*** when it exceeds its maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Nsta Vgs Q921 status

Access: Read only

Description: This attribute indicates the status of the *Q921* component.

The possible values are:

***enabled*** - no failure.

***vgsNotReady*** - the Voice Gateway is unavailable. This is currently indicated by the *operationalState* of the *Vsp* component being ***disabled***.

***chanNotReady*** - the TDM *Chan* component is locked, or the *Chan proceduralStatus* is ***initializationRequired***.

***chanDegraded*** - the TDM *Chan* or parent component has an outstanding alarm.

***layer2Down*** - the Q.921 Layer 2 is down.

Values
vgsNotReady
chanNotReady
enabled
chanDegraded
layer2Down

Default
No default

## COMPONENT Nsta Vgs Q921Profile (Q921Prof)

Instance
Decimal (0..15)

Groups
"GROUP Nsta Vgs Q921Prof ProvisionedApps (ProvApp)"
"GROUP Nsta Vgs Q921Prof Provisioned (Prov)"

Scope
Device

Description
*Nsta/n Vgs Q921Profile/n*

This component represents the profile defining TDM Q.921 transport behavior that can be referenced by *Q921* components.

Common Verbs
Help
List
Display
Add
DELete

## GROUP Nsta Vgs Q921Prof ProvisionedApps (ProvApp)

Properties
Provisioned

Description
This group contains a list of client *Q921* components.

## ATTRIBUTE Nsta Vgs Q921Prof applicationList (appList)

Access
Read only

| | |
|---|---|
| Description | This attribute contains a list of *Q921* components linked to this profile. |
| List of | Link (Service, profile) |
| Default | No default |

### GROUP Nsta Vgs Q921Prof Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioning data for the *Q921* component. |

### ATTRIBUTE Nsta Vgs Q921Prof t200

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum time between the transmission of a layer 2 frame and the receipt of an acknowledgement from the user. This is the acknowledgement timer (T200). The value is rounded to the nearest 0.5 second. |
| Values | Decimal (0.5..5.0) |
| Units | seconds |
| Default | 1.0 |

### ATTRIBUTE Nsta Vgs Q921Prof t203

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum time without frame exchange during multiple frame operations. |
| Values | Decimal (10..300) |
| Units | seconds |
| Default | 10 |

### ATTRIBUTE Nsta Vgs Q921Prof n200

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute specifies the maximum number of retransmissions of a layer 2 frame. |
| Values | Decimal (1..8) |
| Default | 3 |

### ATTRIBUTE Nsta Vgs Q921Prof n201

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum length of an information field. |
| Values | Decimal (4..260) |
| Units | octets |
| Default | 260 |

### ATTRIBUTE Nsta Vgs Q921Prof outstandingFrames

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum number of sequentially numbered I frames (k) that may be unacknowledged at any given time after which no new frames are transmitted unless as part of an error recovery procedure. |
| Values | Decimal (1..127) |
| Default | 7 |

### ATTRIBUTE Nsta Vgs Q921Prof side

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies if this end of the PRI trunk is to be considered the network end or the user end.<br><br>The possible values are: ***user***, ***network***. |
| Values | user<br>network |

| | |
|---|---|
| Default | network |

## COMPONENT Nsta Vgs TimeslotRelay (Tr)

| | |
|---|---|
| Instance | Decimal (0..2015) |
| Groups | "GROUP Nsta Vgs Tr Provisioned (Prov)"<br>"GROUP Nsta Vgs Tr Operational (Oper)" |
| Scope | Device |
| Description | *Nsta/n Vgs/n TimeslotRelay/n*<br><br>This component represents an association between two *Chan* components. It provides the capability of routing the data in timeslots defined in one *Chan* component to the timeslots defined in the other.<br><br>Both *Chan* components must exist on the same Function Processor, and must define an equal number of timeslots. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Nsta Vgs Tr Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioning data for the *Tr* component. |

## ATTRIBUTE Nsta Vgs Tr interfaceName (ifName)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies a list of links to associated *Chan* components. These *Chan* components must exist on the same |

| | |
|---|---|
| | Functional Processor as the *Tr* component. Two *Chan* components must be specified. |
| List of | Link (Service, applicationFramerName) |
| List Size | 2 |
| Default | No default |

### GROUP Nsta Vgs Tr Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attribute of the *Tr* component. |

### ATTRIBUTE Nsta Vgs Tr status

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the status of a *Tr* component.<br><br>The possible values are:<br><br>***enabled*** - relaying of timeslot data is being performed, and no faults currently exist on either of the TDM component heirarchies specified in the *interfaceName* attribute.<br><br>***degraded*** - relaying of timeslot data is being performed, but at least one alarm is currently set within a TDM component heirarchy specified in the *interfaceName* attribute.<br><br>***disabled*** - relaying of timeslot data is not being performed. At least one TDM component specified in the *interfaceName* attribute is either locked or initialising. |
| Values | enabled<br>degraded<br>disabled |
| Default | No default |

### COMPONENT Nsta Vgs ChannelAssocSignalingDefinition (CasDefn)

| | |
|---|---|
| Instance | Decimal (0..3) |

| | |
|---|---|
| Groups | "GROUP Nsta Vgs CasDefn Provisioned (Prov)"<br>"GROUP Nsta Vgs CasDefn OsiState (State)"<br>"GROUP Nsta Vgs CasDefn Operational (Oper)" |
| Scope | Device |
| Description | *Nsta/n Vgs ChannelAssocSignalingDefinition/n*<br><br>This component represents a Channel Associated Signaling profile used on the Media Gateway. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Nsta Vgs CasDefn Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioning data for the *CasDefn* component. |

## ATTRIBUTE Nsta Vgs CasDefn fileName

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the name (without path or extension) of the file that contains the specific CAS variant.<br>The file is  located in the /user/PVG/CASProfiles directory.<br><br>Changing the value of this attribute triggers the transfer of the file from the CP to the VSP FP, and clears down any existing CAS trunks associated with this *CasDefn* component.<br><br>This attribute must be supplied. |
| Values | String (0..40, ASCII) |
| Default | "" |

### ATTRIBUTE Nsta Vgs CasDefn primaryRateType

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the type of standard framing used at the TDM interface. All *CasDefn* components, under the same *Vgs* hierarchy, must have the same value provisioned for this attribute.<br><br>The possible values are:<br><br>***ds1*** - TDM interfaces associated with this *CasDefn* component are compliant to the DS1 standard. CAS signaling transport using DS1 Robbed-Bit Signaling is used.<br><br>***e1*** - TDM interfaces associated with this *CasDefn* component are compliant to the E1 standard. CAS signaling transport using timeslot 16 is used. |
| Values | ds1<br>e1 |
| Default | ds1 |

### ATTRIBUTE Nsta Vgs CasDefn applicationList (appList)

| | |
|---|---|
| Access | Read only |
| Description | This attribute lists all of the *Cas* components associated with this *CasDefn* component. |
| List of | Link (Service, channelAssocSignalingDefinition) |
| Default | No default |

### GROUP Nsta Vgs CasDefn OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component |

which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Nsta Vgs CasDefn adminState (osiAdmin)

Access: Read only

Description: This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values:
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default: unlocked

### ATTRIBUTE Nsta Vgs CasDefn operationalState (osiOper)

Access: Read only

Description: This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the

component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Nsta Vgs CasDefn usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Nsta Vgs CasDefn Operational (Oper)

Properties
Operational

Description
This group contains attributes that indicate the status of the *CasDefn* component.

### ATTRIBUTE Nsta Vgs CasDefn fileTransferStatus

Access
Read only

Description
This attribute indicates the status of the transfer of the CAS profile file from the CP to the VSP FP.

The possible values are:

***inProgress***: The file as specified in *fileName* attribute is being transferred. CAS signaling requests against trunks associated to this *CasDefn* component are not accepted.

***complete***: The file transfer is complete. CAS signaling requests against trunks associated to this *CasDefn* component are accepted.

***missing***: The system can not find the file, specified in the *fileName* attribute, on the CP. An alarm is raised in this state. The VSP FP polls for the file until the transfer can commence.

***fileTooLong***: The file set in the *fileName* attribute is too long to be loaded successfully. An alarm is raised in this state. The VSP FP polls to look for changes in file length or timestamp.

***fileError***: The file set in the *fileName* attribute has failed sanity checks after the transfer, and can not be used. An alarm is raised in this state. The VSP FP polls to look for changes in file length or timestamp.

***cpNotResponding***: The CP is not responding. The CP may be busy or the disk may be locked. The VSP FP polls to check for the CP availability.

Values

inProgress
complete
missing
fileTooLong
fileError
cpNotResponding

Default

missing

Passport 7400, 15000, 20000

# Component Nsta

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component NS

241-5701-060

Passport 7400, 15000, 20000

# Component NS

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT NetworkSynchronization (NS)

| | |
|---|---|
| Groups | "GROUP NS Provisioned (Prov)"<br>"GROUP NS OsiState (State)"<br>"GROUP NS Operational (Oper)" |
| Scope | Network |
| Description | The *NetworkSynchronization* component administers the network clock synchronization. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## VERB Revert NS

| | |
|---|---|
| Impact | Service |
| Description | This command moves all clock sources in the reversion delay list to the current clock source list, if the reversion condition applies, to be available for clock synchronization. When entered with no option, this command is applicable only when reversionDelay is manual. |

## GROUP NS Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all of the provisioning data for the *NetworkSynchronization* component. |

### ATTRIBUTE NS primaryReference (priRef)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the port that is the preferred choice as the reference for the network clock. |
| Values | The name of the component |
| Default | No default |

### ATTRIBUTE NS secondaryReference (secRef)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the port that is the second choice for the reference for the network clock. |
| Values | The name of the component |
| Default | No default |

### ATTRIBUTE NS tertiaryReference (tertRef)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the port that is the third choice for the reference for the network clock. |
| Values | The name of the component |
| Default | No default |

### ATTRIBUTE NS useableReferences (useRef)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the criteria that a reference must meet for the *NetworkSynchronization* component to consider it a usable clocking source. A value of ***enabled*** indicates that all enabled clocking sources are usable. A value of ***notDegraded*** indicates that clocking sources must be enabled and not degraded to be usable. |
| Values | enabled<br>notDegraded |

| | |
|---|---|
| Default | enabled |

### ATTRIBUTE NS reversionDelay (revDel)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies how long the *NetworkSynchronization* component waits before using a port as a reference after it has been cleared of its degraded/disabled status. |
| Values | Decimal (0..120)<br>manual (man) |
| Units | minutes |
| Default | 0 |

### ATTRIBUTE NS ssmProtocol (ssm)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies if the clock reference selection based on Synchronization Status Message (SSM) is enabled on the node. If this attribute has a value of ***enabledRevertive***, then the clock reference is revertive to the primary reference provided the active reference has the same quality level. If the attribute value is ***enabledNonRevertive***, then the clock reference selection is not dependent on the provisioned priority of primary, secondary or tertiary. If the attribute value is ***enabledMigration***, then the SSM messages are stored and broadcasted as in other enabled states but no switching decisions are made based on the SSM messages (this is a useful state during network migration when not all node in the network are distributing the proper SSM values). If the attribute value is ***disabled***, then the SSM messages are only stored but no broadcasting or switching decision is made. |
| Values | disabled<br>enabledRevertive<br>enabledNonRevertive<br>enabledMigration |
| Default | disabled |

### GROUP NS OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE NS adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE NS operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component. |

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE NS usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP NS Operational (Oper)

Properties
Operational

Description
This group contains the operational attributes for the *NetworkSynchronization* component.

### ATTRIBUTE NS clockSyncState (clkSyncState)

| | |
|---|---|
| Access | Read only |
| Description | When the *clockSyncState* attribute has a value of ***freeRun***, either no reference have been provisioned or none of the provisioned references have been found to be valid. The Stratum-3 clock is allowed to run freely at its last adjusted frequency. When the *clockSyncState* attribute has a value of ***synchronizing***, the Stratum-3 is trying to synchronize in frequency to a valid provisioned reference. This state should last approximately 1-2 minutes, provided the reference is stable. Once frequency synchronization is acheived, a null phase is acquired and the value of the *clockSyncState* attribute becomes ***synchronized***. In this state, both phase and frequency are tracked and compensated for. This node is now ready to support transparent data services. |
| Values | freeRun<br>synchronizing<br>synchronized |
| Default | No default |

### ATTRIBUTE NS activeReference (actRef)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the active 8Khz clock reference source |
| Values | The name of the component |
| Default | No default |

### ATTRIBUTE NS standbyReference (standyRef)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the standby 8Khz clock reference source that will be selected if a failure is detected on the active source. |
| Values | The name of the component |
| Default | No default |

### ATTRIBUTE NS activeRefSSMValue (actSsm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Synchronization Status Messages (SSM) value received from the active reference port. This attribute is filtered out when no active reference port is available or ssmProtocol is disabled. |
| Values | Decimal (0..15) |
| Default | No default |

### ATTRIBUTE NS standbyRefSSMValue (stdSsm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Synchronization Status Message (SSM) value received from the standby reference port. This attribute is filtered out when no standby reference port is available or ssmProtocol is disabled. |
| Values | Decimal (0..15) |
| Default | No default |

Passport 7400, 15000, 20000

# Component NS

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component Overview

241-5701-060

Passport 7400, 15000, 20000

# Component Overview

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# Publication history

## November 2003

5.2S1 Standard
General availability. Contains information for Passport 7400, Passport 15000, and Passport 20000 for the PCR5.2 GA release.

# Contents

**About this document** **9**
Who should read this guide 9
How this guide is organized 9
What you need to know 9
Nortel Networks support services 9

**Chapter 1**
**Component and attribute overview** **11**
What are components? 11
Component hierarchy tree 12
Component terms and concepts 13
Component hierarchy - An everyday analogy 20
Chapter summary 28

**Chapter 2**
**Interpreting information in this document** **29**
How this document is organized 29
Abbreviated component description 29
Formal component description 30
Chapter summary 35

**Chapter 3**
**Common Verbs** **37**
VERB Add (A) Common 37
VERB DELete Common 38
VERB Display (D) Common 38
VERB Help (H) Common 41
VERB LOCK Common 43
VERB Set (S) Common 44

VERB Unlock Common 44
VERB Find (F) Common 44

**Chapter 4**
**Responses** **47**

**Chapter 5**
**Collected Statistics** **499**

**Chapter 6**
**COMPONENT HIERARCHY (EM)** **831**

**Appendix**
**Data types** **835**
Attribute value data types 835
Component instance value data types 836
Syntax conventions 837

# About this document

The guide contains detailed reference material pertaining to Passport 7400, 15000, 20000 components.

## Who should read this guide

This is a detailed reference guide intended to be used for installing, configuring, provisioning or operating a Passport node.

## How this guide is organized

The introductory chapters:

- give a detailed description of components and attributes
- help you to find your way through this document. Field descriptions and examples ensure a complete understanding of the reference chapters that follow

The remaining chapters contain all component and attribute information for all subsystems. They explain the fields and information required to provision, monitor, operate, and maintain a Passport node.

## What you need to know

You should understand Passport network architecture.

## Nortel Networks support services

To contact Nortel Networks for information on support services, courses, training and customer service requests, refer to “Nortel Networks support services” in 241-5701-030 *Passport 7400, 15000, 20000 Overview*.

# Chapter 1
# Component and attribute overview

After reading this chapter, you will have a good understanding of what components are and how they work to provide Passport 7400, 15000, 20000 functionality. You will understand that components are defined by their elements, and that a hierarchy tree dictates their functionality.

An analogy that relates components to an automobile has been included as an aid to help you appreciate relationships between components.

For Passport-specific examples of components and how they are presented in this document, see "Interpreting information in this document" on page 29.

## What are components?

A large part of Passport flexibility resides in the extensive use of components in both its design and deployment. A component represents some part of the system which could be a service, a piece of software or a physical hardware component. Virtually every Passport subsystem has components. Components are manageable entities which control Passport software, hardware capabilities and access services.

Components provide the infrastructure through which network operators and administrators interact with Passport. Standardized and organized in a highly structured environment, components provide the model for operator interaction with Passport.

All operator commands are addressed to components for:

- provisioning
- monitoring
- maintenance

### Provisioning

Provisioning defines, or re-defines, the operating parameters and performance characteristics of the Passport node. To initialize a Passport service or capability, components specific to that service or capability must be provisioned. Components can also be added automatically when a parent component is added. Frequently, when a component is added, default values are added automatically.

### Monitoring

Monitoring components means to observe the operating parameters and performance characteristics of the Passport node.

### Maintenance

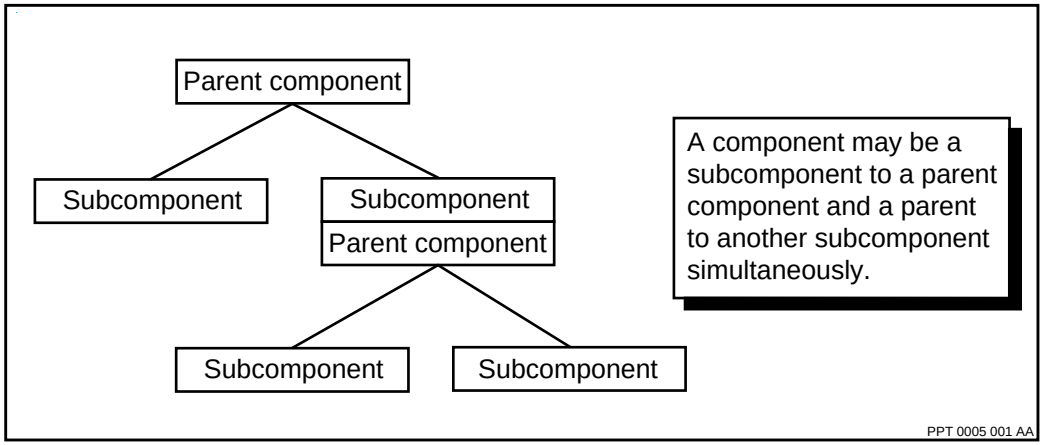
Maintenance means taking components out of service or re-defining their operating characteristics to perform troubleshooting or corrective procedures.

## Component hierarchy tree

Components are arranged into hierarchies. A hierarchy is a tree-like structure that defines relationships between the individual components. Through this structure, a functional relationship is developed between each of the components that combine to form the Passport system.

By their relative positions in the hierarchy, components have their parent components and subcomponents defined. A component can have another component below it in the hierarchy. They are called subcomponents. Subcomponents have all the normal characteristics of components and they have a parent component.

**Figure 1**
**How components form into parent and subcomponents by their relative positions**




Components form the building blocks of Passport functionality. Everything that makes up a component has a responsibility to perform a task. Components combine to form components.

# Component terms and concepts

Before continuing, you should be familiar with the following terms and concepts:

- components and subcomponents
- type
- instance
- name
- verbs
- attributes
- group

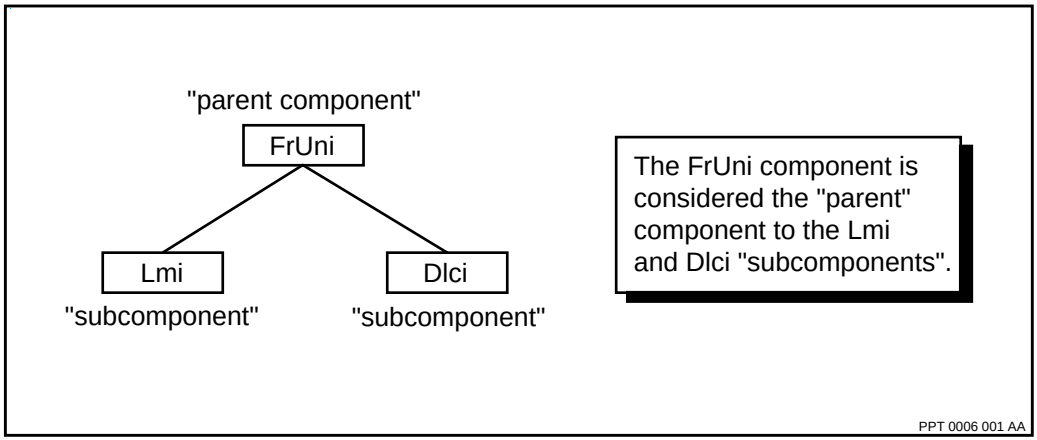
## Components and subcomponents

Throughout this documentation set, you may have noticed the terms components and subcomponents. Subcomponents and components have the same properties, “sub” indicates the component’s relative position within the

hierarchy. In some cases, components may have operational influence over their respective parent and subcomponents. They are the method for indicating the behavior of some functionality in Passport.

An example is the Frame Relay User to network interface (FrUni) component, the LocalManagementInterface (LMI) component and the DataLinkConnectionIdentifier (Dlci) component. All three are components but the LMI component and the DLCI component are considered subcomponents of the FrUni component.

**Figure 2**
**The FrUni is the “parent component” to the Lmi and Dlci “subcomponents”**




## Type

A component type refers to a specific type of component such as the Frame Relay user-to-network interface (FrUni) component.

An example of a component type is simply, FrameRelayUni. Note the component type does not specify a value or instance of a particular instance of FrameRelayUni running on the node.

## Instance

When more than one of a component type exists, they are differentiated by an instance value. The instance value is information (such as a decimal or a string) appended to the component type. The component instance is separated

from the type by a slash. When only one instance of a component exists on the node, the component is identified by its type, that is, without a slash (/) and instance value.

### Example 1

The component FrUni/4 Dlci/7 refers to Dlci instance 7 under FrUni instance 4.

### Example 2

There can be only one instance of the Lmi subcomponent for each instance of the FrUni component and as such, Lmi instance values are not required (for example FrUni/3 Lmi).

## Name

The component name combines the component type with the instance. Every component has a name. A component name is constructed by the concatenation of several component/instance pairs.

### Example 1

By adding the component instance 4 to the component type FrameRelayUni (FrUni), we get:

FrUni/4

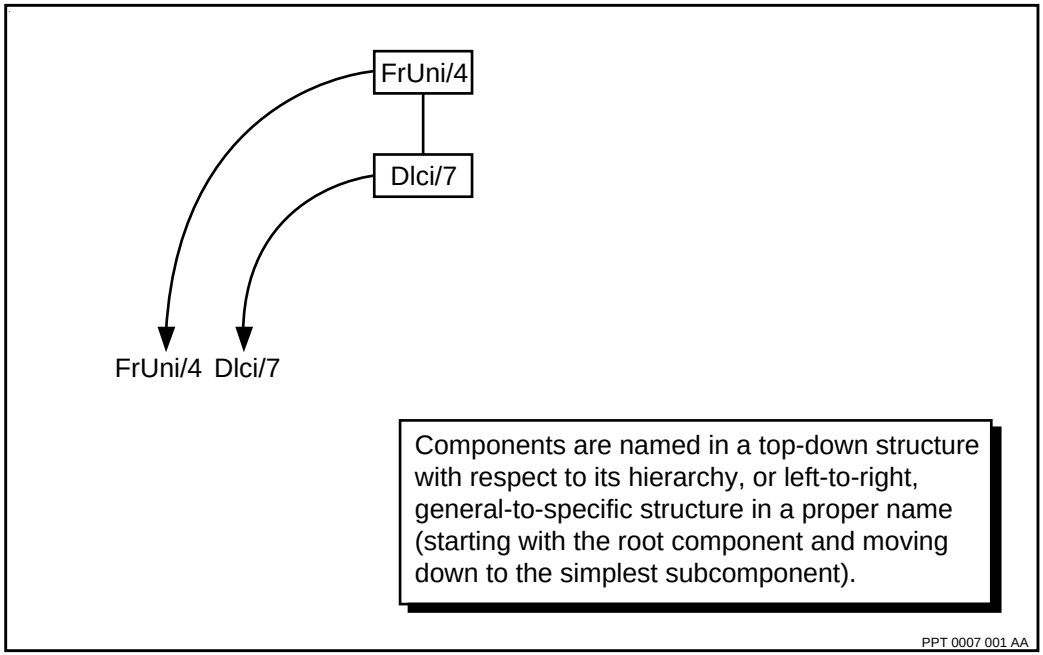
### Example 2

A sequence of more than one component type and instance pairs is also a component name, such as:

FrUni/4 Dlci/7

Each type-instance part in the sequence is a subcomponent of its predecessor. In the above example, the Dlci component is a subcomponent of FrUni parent component.

**Figure 3**
**How the naming methodology mirrors the component hierarchy tree**




Note that in some cases where there can be only one instance of a component (for example, Shelf), the component appears without an instance value.

## Verbs

Verbs are commands applied to Passport components. Commands carry out tasks necessary to provision, maintain and operate your node. Verbs are the action portion of the command.

Within Passport, there are a number of verbs which can be issued against all components. These are called common verbs and are described in 241-7001-150, *Passport Operations and Maintenance Guide*.

In addition to common commands, there exist a number of commands which are specific to particular subsystems and their components.

## Attributes

Components have attributes that define the behavior or informational aspects associated with a specific component. Attributes are either:

- operational
- provisionable

***Note:*** Components with operational attributes may also have provisionable attributes.

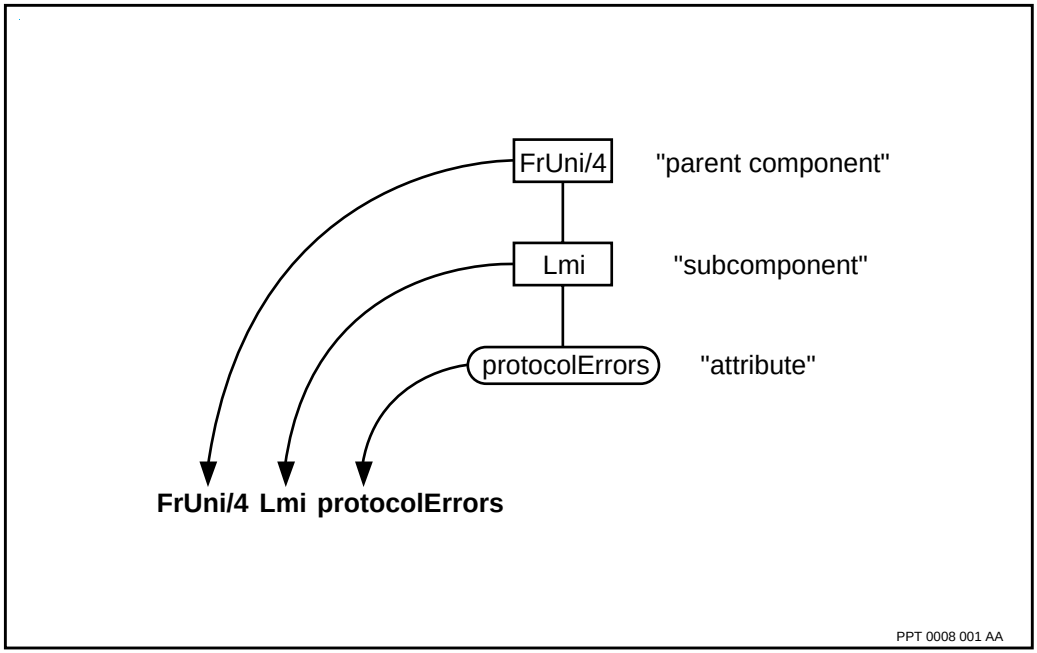
### Operational

Operational attributes provide information or data used for monitoring the operation of Passport and its services. The values of operational attributes are not retained across system restarts. These values can not be provisioned, but some of them can be set. These attributes include information such as:

- component OSI management state
- statistical data

For example, the Frame Relay LocalManagementInterface (Lmi) component with protocolErrors attribute is used to determine if, and how many, Lmi protocol errors have taken place within a given time frame. The Lmi component with this attribute is shown in our hierarchy in Figure 4.

**Figure 4**
**The Lmi component with protocolErrors attribute**

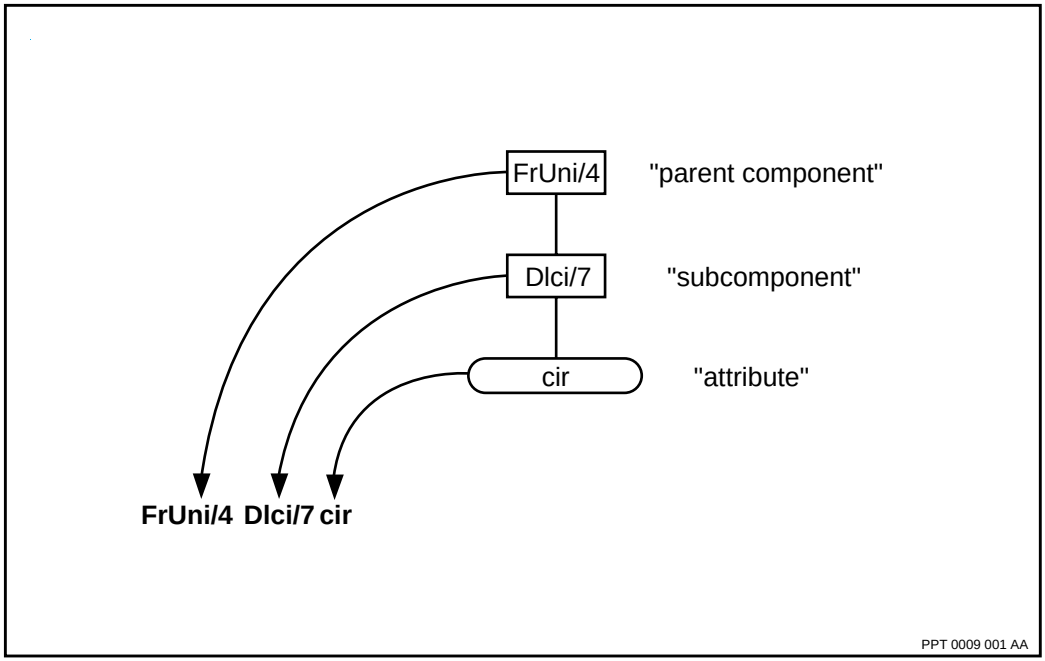



### Provisionable

Provisionable attribute values can be configured by the network operator or administrator so that Passport subsystems or services perform or behave in a certain manner. All components which are provisioned are saved across system restarts. Some components with provisionable attributes are mandatory and are created automatically by their parent. Components with provisionable attributes can also have operational attributes.

For example, the Frame Relay DataLinkConnectionIdentifier (Dlci) component with committedInformationRate (cir) attribute is used by the operator to specify the committed information rate (the rate at which the system will perform data transfer under normal conditions) in bits per second.

**Figure 5**
**The Dlci component with the cir attribute set**




## Groups

The attributes of a component are divided into one or more groups whose members share similar characteristics. The characteristics that may be shared could include operating characteristics, or will define whether the attribute was operational or provisionable.

An example of a group is all the provisionable attributes of the Frame Relay DataLinkConnectionIdentifier (Dlci) component. The name of this group is FrsDataLinkConnectionIdentifierProv.

The attributes in this group include:

- maximumFrameSize
- committedInformationRate
- committedBurstSize
- excessBurstSize
- measurementInterval
- rateEnforcementAdaptation

Each of the above attributes relates specifically to the configuring of the DataLinkConnectionIdentifier. You set these attributes when you provision the Frame Relay service.

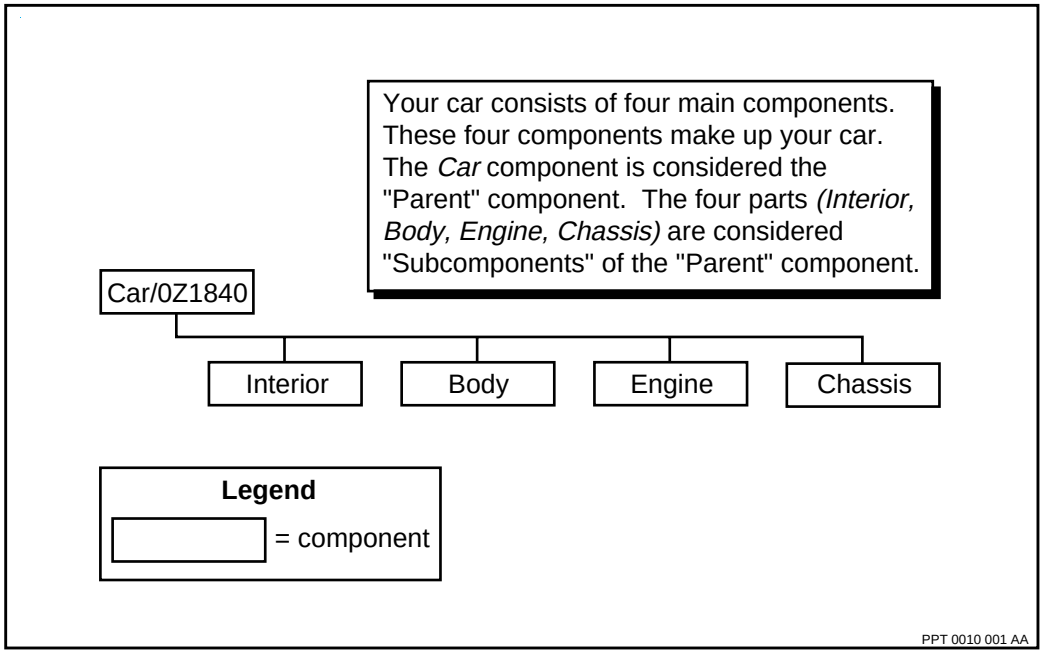
## Component hierarchy - An everyday analogy

To help define components in everyday terms, think of the parts, or components if you will, that make up your automobile. For the sake of explanation, think of your car as being made up of the following main pieces, or components:

- interior
- body
- engine
- chassis

These four components are the subcomponents that make up the parent component, that being your car as a whole. This two level hierarchy can be represented by the hierarchy diagram. The car, like every car on the road, was assigned a license plate (or in component terms, an instance value) of 0Z1840. The license plate sets your car apart from all of the other cars which are virtually identical to it.

**Figure 6**
**The first level breakdown of the component hierarchy that is your car**




Note that the use of the terms parent component and subcomponent will alternate as each level of the hierarchy is described. This is because these terms describe the relative position of the components as they relate to the hierarchy. What was considered a subcomponent at a higher level in the hierarchy would now be considered a parent component of the subcomponent.

At this point the car's components can be properly named. The names are:

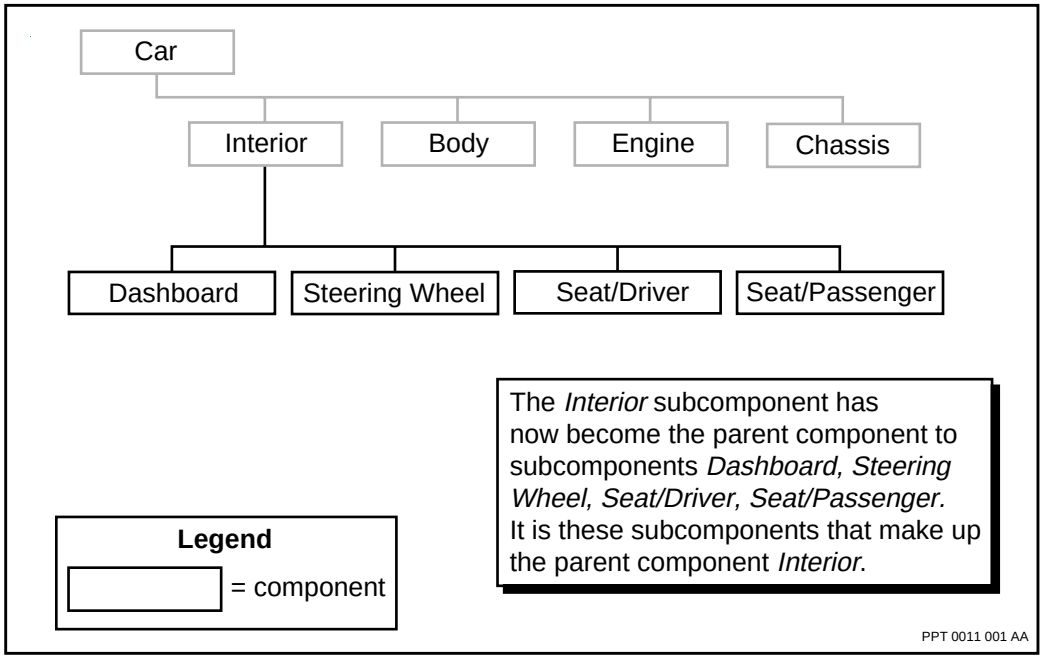
- Car/0Z1840
- Car/0Z1840 Interior
- Car/0Z1840 Body
- Car/0Z1840 Engine
- Car/0Z1840 Chassis

Now let's examine the subcomponents that make up the "Interior" parent component. What was the subcomponent "Interior" is now the parent to these subcomponents:

- dashboard
- steeringwheel
- seat/driver
- seat/passenger

Notice that the Seat components were assigned instance values. This is because both seats are identical and the instance value differentiates them.

**Figure 7**
**The second level breakdown of the Interior component**




The components that make up the car's interior (as properly named) include:

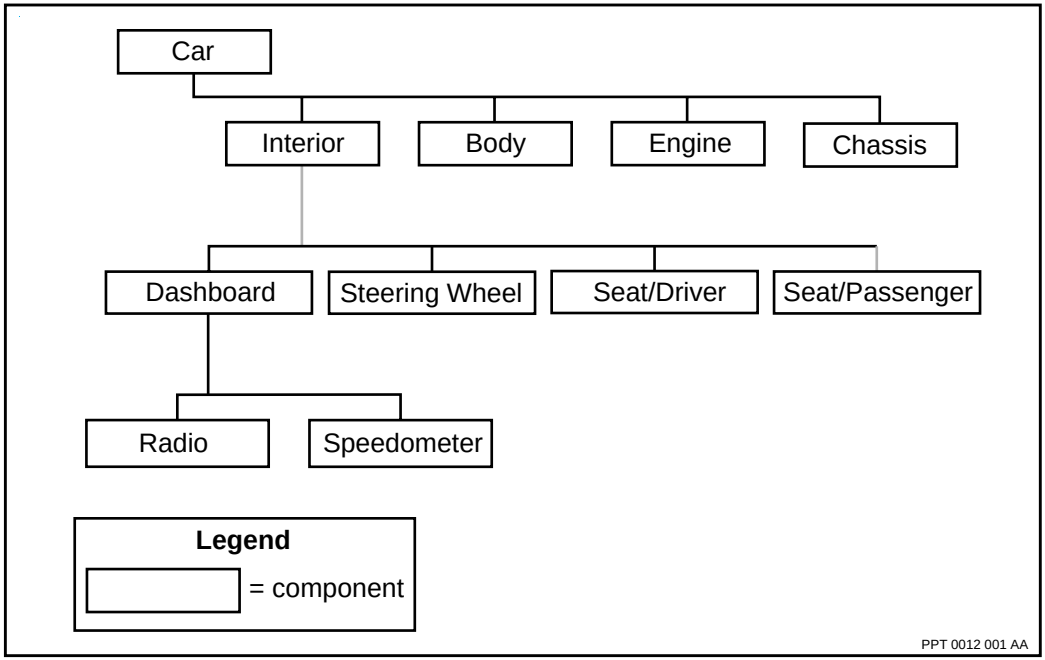
- Car/0Z1840
- Car/0Z1840 Interior

- Car/0Z1840 Interior Dashboard
- Car/0Z1840 Interior SteeringWheel
- Car/0Z1840 Interior Seat/driver
- Car/0Z1840 Interior Seat/passenger

If we examine the subcomponent dashboard, we notice that it has two subcomponents. These subcomponents include:

- radio
- speedometer

**Figure 8**
**The third level breakdown of the dashboard component**



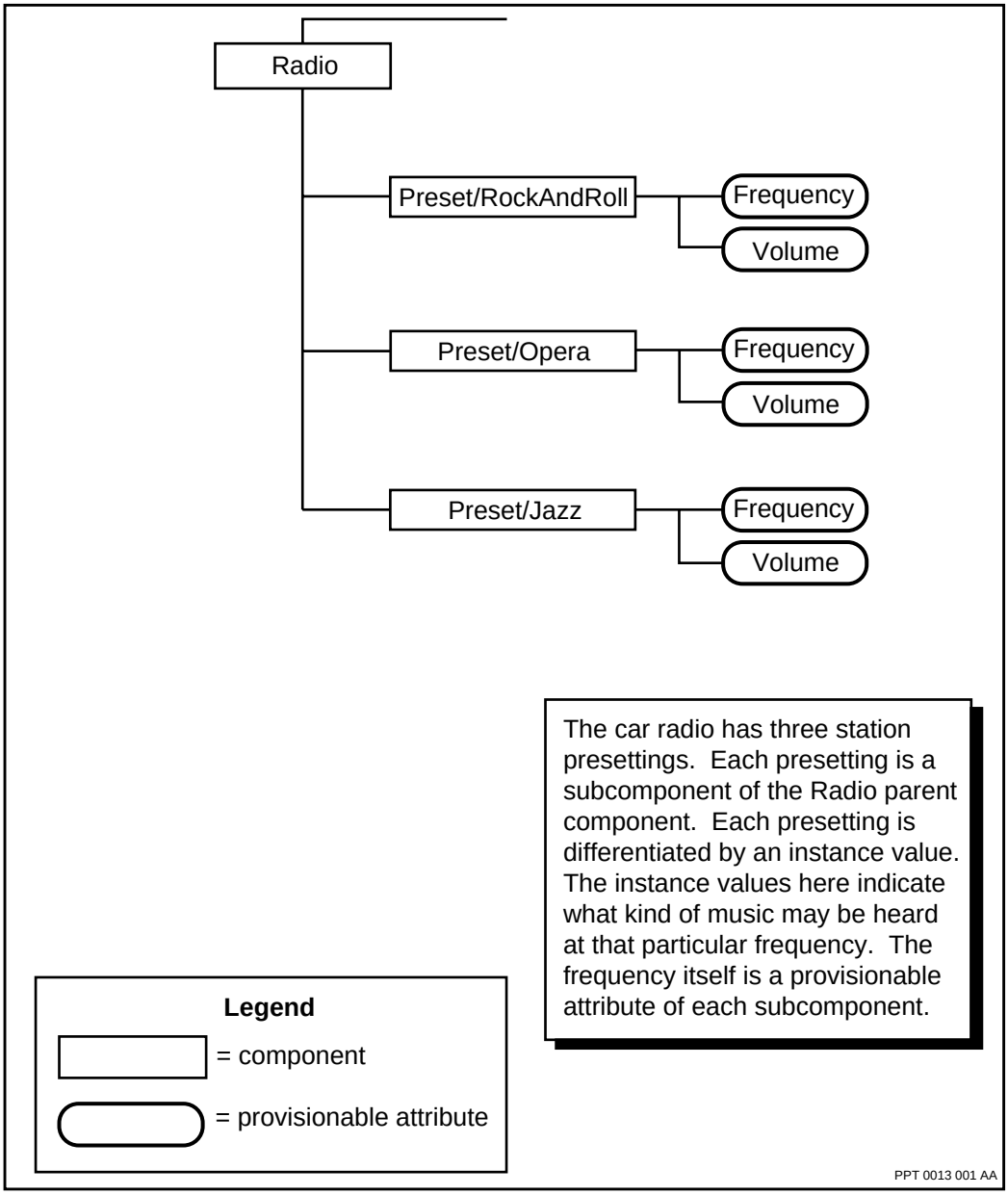

## Assigning attributes

At this stage of our analogy we will assign attributes to those subcomponents that make up the Dashboard parent component.

### Radio

To change the station on a car radio you must manually adjust it to obtain the preferred frequency. Many car radios have radio station presettings so you do not have to adjust the receiver's settings to a different frequency when you would like to listen to a different station, you just push a button. These preset stations must be previously provisioned. In our example, we have provisioned three preset receiver frequencies on our radio. These presettings are subcomponents of the Radio parent component. The frequencies are the provisionable attributes of the subcomponents. The three settings are given instance values which define what kind of music each station plays.

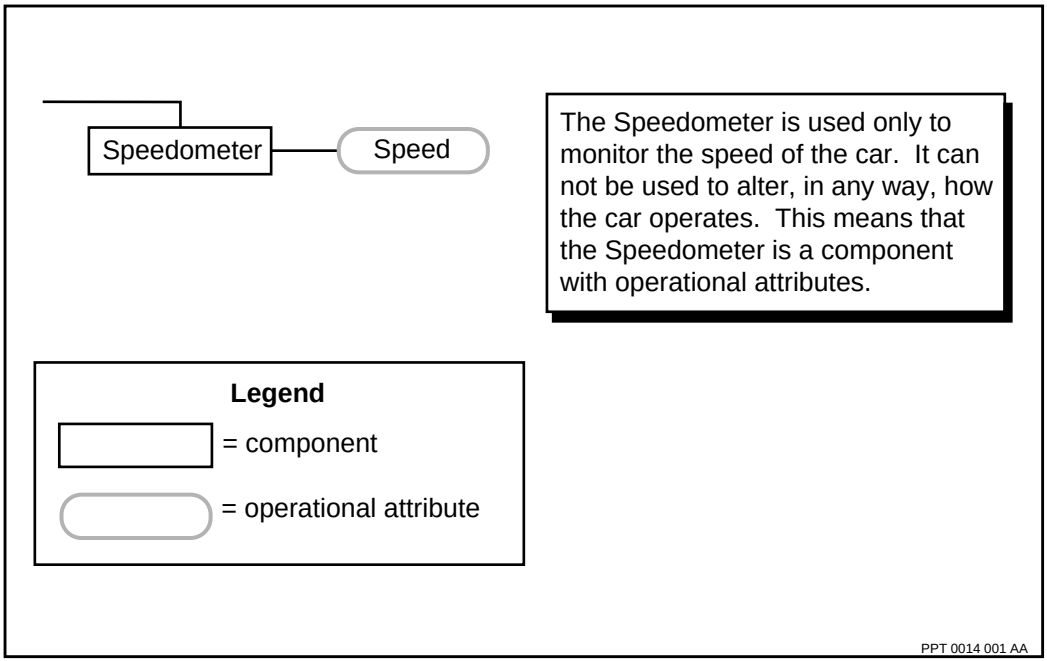
**Figure 9**
**The radio has three station presettings whose frequency must be provisioned**



### Speedometer

The speedometer tells you how fast the car is travelling. The speed can not be set using the speedometer. When the car is not operating the speed is reset to zero. You may only utilize the speedometer when the car is operating and you can not influence the car's speed through the speedometer component. It is because of these points, that makes the speedometer a component with *operational* attributes. The attribute tells you the car's speed only and nothing else.

**Figure 10**
**As you can only use the Speedometer to monitor your car's speed, it is a component with operational attributes**



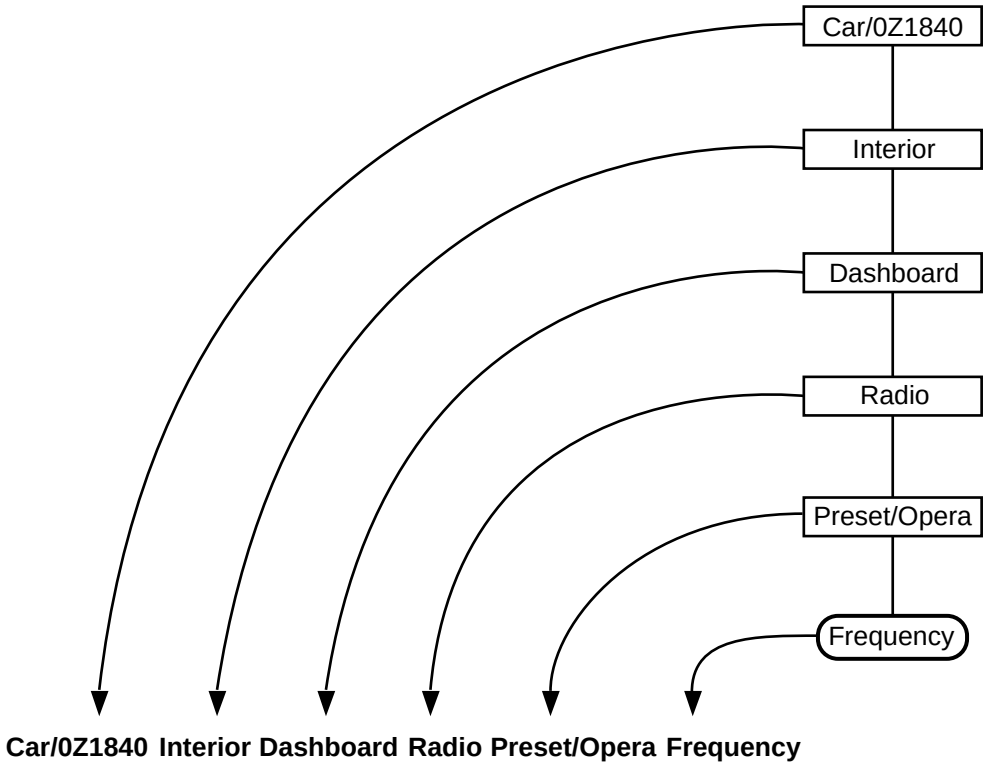

## Applying naming conventions to the analogy

Component names consist of all components and subcomponents, each with an instance value. To apply this rule see the examples.

### Example 1

The Radio parent component's station setting can be described visually.

**Figure 11**
**How the frequency attribute for the Opera radio station is named**




The hierarchy as has been described in this chapter has been simplified to only show the parent components of the Preset/Opera setting on the Radio. The Preset/Opera component can also be described using its proper name being *Car/0Z1840 Interior Radio Preset/Opera Frequency.*

### Example 2

The proper name for the Jazz radio station frequency component would be:

Car/0Z1840 Interior Dashboard Radio Preset/ jazz

The point to understand here is that there can be many variations of a similar theme. The instance values distinguish one variation from the next, even though they may appear to be virtually identical.

### Example 3

The name of the Speedometer component would be:

Car/0Z1840 Interior Dashboard Speedometer

As this component is operational, the component shows the speed our car is travelling at.

## Chapter summary

This chapter described components and the hierarchical nature that structures their existence. How Passport is made up of component building blocks and how each component block contributes to Passport functionality was also described. An analogy was included to help you relate the Passport component hierarchy to that of an automobile was included. This chapter forms the basis of component understanding so that you may use the remaining chapters of this document confidently.

# Chapter 2
# Interpreting information in this document

## How this document is organized

Each Passport 7400, 15000, 20000 subsystem has its own chapter in this document and each is described by means of:

- a hierarchical table of contents which provides an abbreviated component description
- a formal component description

This chapter contains a description of both.

## Abbreviated component description

The abbreviated component description lists components, groups, verbs (including options and responses) and attributes. These are designed to make it easy to locate the operational and provisionable parameters of the component you require.

The abbreviated component description levels which reflect the hierarchical structure of the components. This list explains each type of level and provides an example.

- root component

  This is the top level element in the component hierarchy, for example, the enterprise module (EM).

- component

A component, for example, Collector (Col), can be subcomponent of the root component or of another component. The Passport system accepted abbreviation is displayed in brackets.

- group

  This level divides the attributes into groups that share similar characteristics. An example, Provisioned (Prov) is a group containing all the provisionable attributes of the Collector component.The abbreviation for the group name is displayed in the brackets.

- attribute

  This level names the attribute, for example, agentQueueSize (agentQ). The abbreviation of the attribute's name is shown in brackets.

- verb

  In addition to the common verbs that may be applied to a component, there may component specific commands that only apply to certain components, for example, newfile. The abbreviation of the verb is found in brackets.

## Formal component description

The formal component description is similar to the abbreviated component description but contains more information. The formal component description defines components in terms of:

- a description of the specific component
- the specific component's attributes
- the specific component's verbs

This document covers all of these aspects for component as a section before describing another component. This description can be visualized using the diagram.

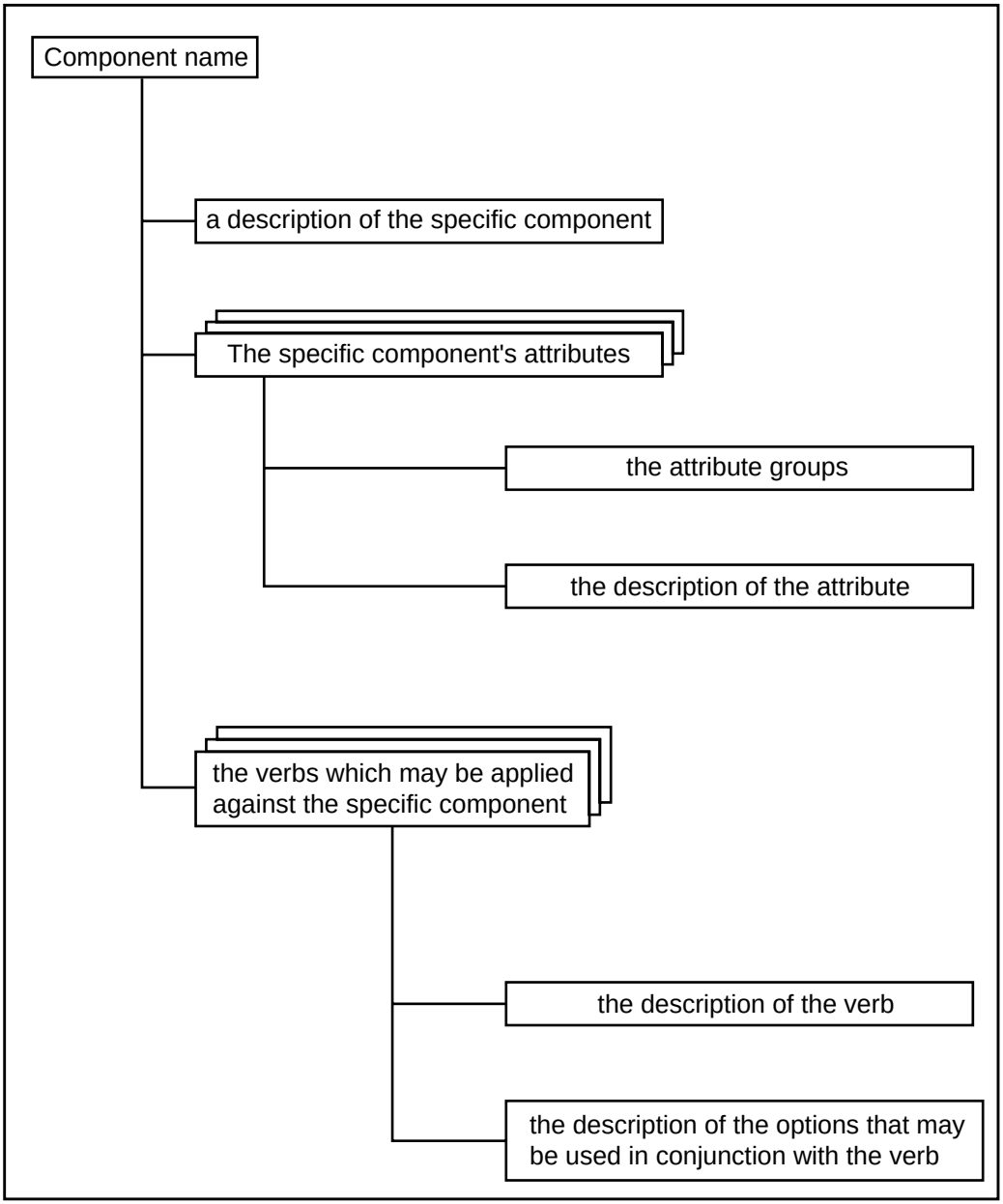
The detailed information is contained in information modules. These modules include:

- components
- attributes
- verbs

The component section presents the component from a high level similar to the abbreviated component description. The attribute section describes the attributes that apply to the component. The verb section describes each verb that may be used on the component.

It should be noted that not every component includes all the fields of information as described in this chapter. If the component you are researching is missing one or more fields, then those missing fields do not apply to that particular component.

**Figure 12**
**How this document modularizes the details of each Passport component**



## Components

The component description section provides a high-level description of the component.

| This field... | Contains... |
|---|---|
| COMPONENT | This names the component being detailed |
| Groups | This lists the attribute groups defining the data for a component type. |
| Scope | This states the level of operator capability required to access or change components of this type. |
| Opt. Subcomp. | This states the optional components which must be added or provisioned by the user. |
| Subcomponents | This states the subcomponents that are created automatically when the parent component is created. |
| Dyn. Subcomp. | These are the non-provisionable (operational) subcomponents. |
| Dyn. Opt. Subcomp. | These are the subcomponents which may have optional or dynamic instances. |

## Attributes

Attributes in this document are covered in terms of two levels:

- attribute groups
- attribute descriptions

### Attribute groups

Attributes are organized into attribute groups. Attributes in a particular attribute group share similar characteristics.

| This field... | Contains... |
|---|---|
| GROUP | Identifies the group to which the following attributes belong. |
| Properties | This specifies whether the attribute is provisionable or operational. |

### Attribute descriptions

At this level the attributes are described in detail.

| This field... | Contains... |
|---|---|
| ATTRIBUTE | This is the attribute being described. |
| Criticality | This defines the disruption to the service that will occur if the attribute's value is changed.<br>NONE - The attribute's value can be changed without causing any disruption to the service.<br>PROCESS - One of the attribute's parent components, and all of that component's subcomponents will be taken out of service. To determine the specific component you must run checkprov.<br>COMPONENT - The attribute's parent component and all of the component's subcomponents will be taken out of service.<br>MODULE - The module will reload once a change is made. |
| Access | This states whether the component is write only, read only, read and write, or none. |
| Default | This states the attributes assigned default value. |
| Values | This specifies the attribute's data type, that is, the set of values it can assume. |

## Verbs

Many of Passport's components include unique verbs which may be applied against the component. In this document, these component-specific verbs are detailed in their own series of subsections that follow the description of the component's attributes. The verbs are detailed in the following sections:

- verb description
- options
- responses

Each verb is defined. Verb options define operational parameters that may be applied to that verb. Every system response (a message from the system displayed on the network management tool) from the use of that verb follows.

### Verb description

The verb description states the verb and the impact.

| This field... | Contains... |
|---|---|
| VERB | This is the verb being described. |
| Impact | This states the level of operator capability required to use this command. |

### Options

Verb options are conditions applied to verbs to limit their scope of influence.

| This field... | Contains... |
|---|---|
| OPTION | This is the verb option being described. |

### Responses

Responses are messages from Passport indicating that there is a process under execution, or an error was made during provisioning. Responses will also warn you if you attempt something before completing any prerequisites.

| This field... | Contains... |
|---|---|
| RESPONSE | This states the system response resulting from the use of a verb. |

## Chapter summary

This chapter described how this document presents all the information about Passport components. Described is how each chapter details a specific component using a hierarchy diagram, an abbreviated component description, and a formal component description. How each of these mechanisms is used is included with appropriate examples and diagrams. This chapter instructs you how to use the remainder of this document with confidence.

# Chapter 3
# Common Verbs

## VERB Add (A) Common

IMPACT

Configuration

DESCRIPTION

*Add[-superiors] <component name>*
This verb creates a new component (with default attribute values) in the edit view.

The operator's session must be in provisioning mode to use this command. Components which are created automatically (for example, when their parent component is added) cannot be "manually" created with the *Add* command.

**Options:**
*-superiors*
If this option is specified and one or more ancestors of the component to be added do not exist, the *Add* command will automatically add the missing ancestor component(s), with default attribute values. If this option is not specified, the *Add* command fails when any of the ancestors of the component to be added do not exist.

## VERB DELete **Common**

IMPACT

Configuration

DESCRIPTION

*Delete <component name>*
This verb removes a component (and all its subcomponents) from the edit view.

The operator's session must be in provisioning mode to use this command. When asked to delete any component which is a "required" subcomponent of its parent, either *Delete* will refuse if only a single such subcomponent is possible, or semantic checks will fail if all such subcomponents have been deleted. Components which are created automatically (for example, when their parent component is added) cannot be removed with the *Delete* command.

To remove all components (including required ones) whose associated feature has already been removed, use command *Clear -rf Prov*

To undo the effect of *Delete*, the *Copy Prov* command may be used.

## VERB Display (D) **Common**

IMPACT

Passive

DESCRIPTION

*Display [-current] [-provisionedData] [-operationalData] [-noTabular] <component name> [<attribute specification>]*
This verb obtains the values of (a subset of) the attributes of one or more components.

The attribute specification is a list of one or more attribute or group names, separated by commas. If this specification is present, *Display* will show only the requested attributes and/or groups of attributes.

If there is no attribute specification, the default behavior of *Display* depends on whether the operator session is in provisioning mode or not. A session in provisioning mode

will see the values (in the edit view) of all provisionable attributes. A session not in provisioning mode will see the values (in the current view) of all operational attributes. See below for options to override this behavior.

The component name may be “wild-carded” by entering it in the form

<component name> <component type>/<pattern>

in which case the *Display* command shows attribute values for all subcomponents of the given component name that are of the specified type and that match the pattern. A pattern may contain one or more wildcard (*) characters. An example:

display prov view/*.full.*

Similarly, the form

<component name> *

may be used to display attribute values for all subcomponents of the given component name. If this form is used, no attribute specification is allowed.

The wild-carded form will produce tabular output (unless the *-noTabular* option was specified). However, if the component has too many attributes, not all will fit in the table. An indication of the attributes not shown will be made. Two possible solutions are to specify fewer attributes explicitly, or to indicate that your screen width is larger than the default of 79. This can be done as shown in this example:

```
1> me
Nmis Telnet Session/5; userid = x
Impact = service; Scope = device;
CustomerId = 0

2> set nmis tel ses/5 screenWidth 131
Nmis Telnet Session/5
ok 1995-09-11 12:40:22.35
```

**Options:**

*-current*

If this option is specified, the attribute values displayed are those for the current view, even if the operator’s session is in

provisioning mode. Without this option, the information is retrieved from the edit view if the session is in provisioning mode and the data is provisioned. If the session is in provisioning mode but the data is not provisioned, or the session is not in provisioning mode, the information is retrieved from the current view.

*-provisionedData*
This option is significant only if no specific attributes or groups have been requested in the *Display* command. If this option is present, all provisioned data of the component will be displayed. Without this option, the provisioned data will be displayed only if the operator session is in provisioning mode.

*-operationalData*
This option is significant only if no specific attributes or groups have been requested in the *Display* command. If this option is present, all operational data of the component will be displayed. Without this option, the operational data will be displayed only if the operator session is not in provisioning mode.

*-noTabular*
A wild-carded display (for example, d lp/*) will format information in a tabular style. Long rows may wrap onto several lines and some information may be truncated. In these cases, this option will format information one attribute per line, without loss of information.

# VERB Help (H) **Common**

IMPACT

Passive

DESCRIPTION

*Help [-verb(<verb>)] [-subcomponents]*
*[<component class> [<attribute specification>]]*
This verb provides information about components, attributes, and verbs.

A component class is a sequence of component type names. If no component class is entered, *Help* displays the syntax of the *Help* command, a list of top-level component types, and a list of verbs which can be entered without specifying any component name.

If a component class is entered, *Help* displays information about the class, including allowed subcomponent types and verbs.

The component class may be followed by an attribute specification, which is either an attribute name or an attribute group name. In this case *Help* displays information about the requested attribute or attribute group.

**Options:**
*-verb(<verb>)*
This option specifies the name of a verb for which the user wants to have a detailed description. This verb must be valid for the specified component class.

*-subcomponents*
This option requests a display of the hierarchy of all subcomponent types under the specified component class.

# VERB List (L) Common

IMPACT

Passive

DESCRIPTION

*List [-current] [-provisionedComponents]*
*[-operationalComponents] [<component specification>]*
This verb lists the subcomponents of a specified component instance.

The component specification can either be a component name, in which case the subcomponents of the named component are listed, or it can have the form
<component name> <component type>/<pattern>
in which case only the subcomponents of the named component that are of the specified type and whose instances match the pattern are listed. A pattern can consist of one or more wildcard (*) characters. An example:
list prov view/*.full.*

If the operator session is in provisioning mode, the component instances displayed are those in the edit view, and only provisioned subcomponents are displayed. If the operator session is not in provisioning mode, the component instances displayed are those in the current view, and both provisioned and operational subcomponents are displayed.

**Options:**
*-current*
If this option is specified, the subcomponents listed will be those in the current view. Without this option, the subcomponents listed will be those in the edit view if the operator's session is in provisioning mode and the specified component is provisioned. If the operator is in provisioning mode and the specified component is operational, or the operator is not in provisioning mode, the subcomponents listed will be those in the current view.

*-provisionedComponents*
If this option is specified, provisioned subcomponents will be listed. Otherwise, provisioned subcomponents will be listed only if the operator session is in provisioning mode and the *-operationalComponents* option has not been specified.

*-operationalComponents*
If this option is specified, operational subcomponents will be listed. Otherwise, operational subcomponents will be listed only if the operator session is not in provisioning mode and the *-provisionedComponents* option has not been specified.

## VERB LOCK Common

IMPACT

Service

DESCRIPTION

*Lock [-force] <component name>*
This verb will cause the specified component to enter the OSI ***shuttingDown*** administrative state. While shutting down, the component continues to provide service to existing clients but rejects any new requests for service. In some cases, locking a component also causes all its subcomponents to shut down.

When the component is no longer providing service, it enters the OSI ***locked*** administrative state.

**Options:**
*-force*
If this option is present, service to current clients is terminated and the ***locked*** state is entered immediately (that is, without first going through the ***shuttingDown*** state). Without this option, *Lock* behaves as described above.

## VERB Set (S) Common

IMPACT

Service

DESCRIPTION

*Set <component name> <attribute name> <value>*
*[, <attribute name> <value> ...]*
This verb changes one or more of a component's attribute values.

The syntax for the values depends on the data type of the attribute being set. For multi-valued attributes, such as lists, several values may follow the attribute name.

Provisionable attributes can be changed only in the edit view, and only by an operator whose session is in provisioning mode.

## VERB Unlock Common

IMPACT

Service

DESCRIPTION

*Unlock <component name>*
This verb causes the specified component to enter the OSI ***unlocked*** state.

## VERB Find (F) Common

IMPACT

Passive

DESCRIPTION

Find -freelinks(<component class>) [-attribute(<attribute>) [-nonrecursive] [-c] [-p] [-o] [<component name>]

This verb returns all provisioned components that are available to be linked to the specified component class. The user can specify a target component name, which will limit the components that are searched. The target component name supports any wildcarding, pattern matching, and value-based filtering that are supported by the list and display commands. Example:

Find -freelinks(atmif) lp/* ds3/*

**Options**:

*-freelinks*(<component class>)
This option is mandatory. The *Find* command will return components to which this class can be linked.

*-attribute*(<attribute>)
This option is required when the component class specified by the *-freelinks* option has more than one settable link attribute. This option designates which attribute will be used by the find command.

*-nonrecursive*
By default, the find command searches the subtree(s) routed at the target component name. This option indicates that the subcomponents should not be recursively searched.

*-current*
If this option is specified, the components returned will be those in the current view. Without this option, the components returned will be those in the edit view if the operator's session is in provisioning mode. If the operator is not in provisioning mode, the components returned will be those in the current view.

*-provisionedComponents*
If this option is specified, provisioned components will be returned. Otherwise, provisioned components will be returned only if the *-operationalComponents* option has not been specified.

*-operationalComponents*
If this option is specified, operational components will be returned. Otherwise, operational components will be returned only if the operator session is not in provisioning mode and the *-provisionedComponents* option has not been specified.

# Chapter 4
# Responses

## RESPONSE ..... and ... should not be less than 1 hour apart.

Description

This response is issued when a semantic check is done on a Collector, indicating that this pair of times are too close together. It appears once for each invalid pair of times.

## ATTRIBUTE invalidTimeFirstOfPair

Description

This is the first of a pair of times that are too close together.

Values Time (HM)

## ATTRIBUTE invalidTimeSecOfPair

Description

This is the second of a pair of times that are too close together.

Values Time (HM)

## RESPONSE Error:

Description

This response is issued to show the attribute which is in error on a DCS intra-component semantic error or warning.

## ATTRIBUTE attribute

Description This attribute identifies the attribute containing the error.

Values Decimal (0..4294967295)

## RESPONSE Attribute Problem

Description This response is generated when the Passport detects a problem with the way the NMS uses an attribute. This can occur for the get, set or help services and action. The actual problem is indicated via related alarms and responses. Some problems are ignored and so multiple such responses are possible for each attribute with a problem.

**System action**: the command is ignored for this attribute. The command may or may not be executed for other attributes.
**Operator action**: avoid using this attribute. Update the software on the NMS.

## ATTRIBUTE attribute

Description This parameter identifies, by name, the attribute for which a problem has been detected.

Values Decimal (0..65535)

## RESPONSE Component problem

Description This error response is generated when the Passport detects a problem with the way the NMS uses the component name target of a command. The actual problem is indicated via related alarms and responses.

**System action**: the command fails.
**Operator action**: avoid using this component. Update the software on the NMS.

## ATTRIBUTE component

Description

This parameter contains the valid portion of the component name.

Values

The name of the component

## RESPONSE Group problem

Description

This response is generated when the Passport detects a problem with the way the NMS uses a group. This can occur for the get or help service and action. The actual problem is indicated via related alarms and responses. Some problems are ignored and so multiple such responses are possible for each group with a problem.

**System action**: the command is ignored for this group. The command may or may not be executed for other groups.
**Operator action**: avoid using this group. Update the software on the NMS.

## ATTRIBUTE group

Description

This parameter identifies the group, by name, for which a problem has been detected.

Values

Decimal (0..65535)

## RESPONSE Option problem

Description

This response is generated when the Passport detects a problem with the way the NMS uses an option. The actual problem is indicated via related alarms and responses.

**System action**: the option may be ignored. The other options may be or may not be accessed. If not, the command fails.
**Operator action**: avoid using this option unless it is mandatory. Update the software on the NMS.

## ATTRIBUTE option

Description

This parameter identifies the option, by name, for which a problem has been detected.

Values

Decimal (0..65535)

## RESPONSE Fmip command identifier invalid

Description

This error response is generated when an invalid service or action is requested.

**System action**: the command is not executed.
**Operator action**: avoid using this command. Update the software on the NMS. The help command can be used to get a list of all verbs (services or actions).

## ATTRIBUTE action

Description

This parameter identifies the unrecognized action type. The NMS may or may not be able to convert it to an ascii name.

Values

Decimal (0..65535)

## ATTRIBUTE service

Description

This parameter identifies the unrecognized service. The NMS may or may not be able to convert it to an ascii name.

Values

Decimal (0..65535)

## RESPONSE ..... ... ... ... .....

Description

This response describes the attributes specific to an Alarm Event.

## ATTRIBUTE activeListStatus

Description

This mandatory attribute is the active alarm list status. This is equivalent to the DPN-100 Alarm Type field and is used by the NMS to add (on receiving a **set**) and delete (on receiving a **clear**) alarms from the alarm displays.

Values
message (MSG)
set (SET)
clear (CLR)

## ATTRIBUTE severity

Description

This mandatory attribute is the severity of the alarm which should indicate what priority that fixing this problem should be given. All values are OSI-defined; refer to CCITT X.733 for a more complete description.

Values
indeterminate
critical
major
minor
warning
cleared

## ATTRIBUTE alarmType

Description

This mandatory attribute is the Alarm Type field as defined by OSI which is used to indicate a broad category of what is wrong. The first six values are OSI-defined; refer to CCITT X.733 (for the first 5) and CCITT X.736 (for the last) for a more complete description.

The value ***operator*** is used when an alarm is issued due to an operator command. The values ***debug*** and ***unknown*** are for compatibility with DPN-100 and are used for debugging alarms and for those which do not fit any of the above, respectively.

Values
communications
qualityOfService
processing
equipment
environmental
security
operator
debug
unknown

# ATTRIBUTE probableCause

Description

This mandatory attribute is the probable cause for the alarm which usually qualifies the Alarm Type field. Most values are OSI-defined; refer to CCITT X.733 and X.736 for a more complete description. Some Passport-specific causes are added to be more descriptive in cases where no OSI-defined cause is appropriate.

Values

lossOfSignal
lossOfFrame
framingError
localTransmissionError
remoteTransmissionError
callEstablishmentError
degradedSignal
commSubsystemFailure
commProtocolError
lanError
dteDceInterfaceError
responseTimeExcessive
queueSizeExceeded
bandwidthReduced
retransmissionRateReduced
thresholdCrossed
performanceDegraded
congestion
atOrNearCapacity
storageCapacityProblem
versionMismatch
corruptData
cpuCyclesLimitExceeded
softwareError
softwareProgramError
softwareProgramTermination
fileError
outOfMemory
underlyingResourceUnavailable (underlyingResourceUnavail)
applicationSubsystemFailure
configurationError
powerProblem

timingProblem
processorProblem
datasetModemError
multiplexorProblem
receiverFailure
transmitterFailure
outputDeviceError
inputDeviceError
ioDeviceError
equipmentFailure
adapterError
duplicateInfo
infoMissing
infoModification
infoOutOfSequence
unexpectedInfo
denialOfService
outOfService
proceduralError
otherOperational
cableTamper
intrusionDetection
otherPhysical
authenticationFailure
breachOfConfidence
nonRepudiationFailure
unauthorizedAccess
otherSecurityService
delayedInfo
keyExpired
outOfHoursActivity
enclosureDoorOpen
excessiveVibration
fireDetected
floodDetected
heatVentCoolingProblem
humidityUnacceptable
leakDetected
materialSupplyExhausted
pressureUnacceptable
pumpFailure

temperatureUnacceptable
toxicLeakDetected
operationalCondition
debugging
unknown
inactiveVirtualCircuit
networkServerIntervention
activeVirtualCircuit

## ATTRIBUTE ntpIndex

Description: This mandatory attribute is an 8-digit code that is an index into NTP 241-7501-230 “Alarms” which provides a more detailed description of the alarm and possible actions to take. The first four digits indicate a “grouping” of alarms (a set of alarms common to a particular subsystem or component, etc.). The last four digits are a subindex arbitrarily assigned by the application which is responsible for the “group”.

Values: BCD (8)

## RESPONSE

Description: This response describes the attributes specific to a Log Event.

## ATTRIBUTE userId

Description: This mandatory attribute is the user id of the user who issued the command (see **command**).

Values: String (0..8, ASCII)

## ATTRIBUTE sessionSequenceNumber

Description: This mandatory attribute is a numeric session sequence number. A “login” Log and all commands issued during that particular session would have the same sequence number. The next time a user (the same one or a different one) logs in, a new sequence number is used.

Values: Decimal (0..4294967295)

## ATTRIBUTE command

Description: This mandatory attribute is the command which was entered by the user.

Values: String (1..255, ASCII)

## ATTRIBUTE response

Description: This mandatory attribute is the success/failure indicator of the command which was entered. Note that this is not the full textual response actually received by the user.

Values: String (1..255, ASCII)

## RESPONSE

Description: This response describes the attributes specific to a Debug Event.

## ATTRIBUTE debugData

Description: This mandatory attribute is the debugging information.

Values: String (0..1024, ASCII)

## RESPONSE Accounting Information

Description: This response describes the attributes specific to a Vintage 4 format Accounting Event.

## ATTRIBUTE vintage4Data

Description: This mandatory attribute is hexadecimal data which is in the same format as the DPN-100 Vintage 4 accounting record.

Values: String (0..255, Hex)

## RESPONSE You have insufficient impact capability to access ....

Description

This error response is generated whenever an operator is prevented from accessing a group or attribute due to insufficient impact capability.

**System action**: the command is not applied to the named group or attribute; it may have been applied to other groups or attributes specified in the command.
**Operator action**: you must log in using a userid with a higher impact capability in order to access this group or attribute.

## ATTRIBUTE attribute

Description

This attribute contains the name of an attribute which the operator is not permitted to access with this command.

Values Decimal (0..65535)

## ATTRIBUTE group

Description

This attribute contains the name of a group which the operator is not permitted to *Display.*

Values Decimal (0..65535)

## RESPONSE Invalid Software Distribution Site or file access error on the Software Distribution Site.

Description

The *Start Sw Dld* command issues this response when an Application name version, as specified by the *avListToDownload* attribute, could not be found at the site specified by the *-h* option of the command.
This could be caused by one of the following:
- The host IP address specified in the *-h* option of the command does not correspond to a site which contains software compatible with this type of Passport.
- There is a directory or file access error on the Software Distribution Site (SDS).

## ATTRIBUTE fileBeingAccessed

Description: This attribute is the name of the file or directory which is being accessed at the time of the error.

Values: String (1..128, ASCII)

## RESPONSE File access error on Filesystem.

Description: This response is issued when the download is stopped due to some directory or file access error on the file system of the module attempting the download.

## ATTRIBUTE fileBeingAccessed

Description: This attribute is the name of the file or directory which is being accessed at the time of the error.

Values: String (1..128, ASCII)

## RESPONSE Cannot ....

Description: This response may indicate a file system failure.

**System action**: If the file system error occurred during processing of an operator command, the command terminates (it may have been partly executed).
**Operator action**: Check that the file system is enabled. If the error occurred during a write or delete operation, check that the named file is not protected. Retry the operator command which produced the error (if applicable). If the problem persists, follow the fault clearing procedures for the file system.

## ATTRIBUTE failedOperation

Description: This attribute identifies the operation which failed.

Values:
open
read
write
close
delete

swap
protect
unprotect

## ATTRIBUTE fileOrDirectory

Description: This attribute indicates whether the file involved was a directory or an ordinary file.

Values: directory
file

## ATTRIBUTE fileName

Description: This attribute contains the file or directory name.

Values: String (0..128, ASCII)

## RESPONSE Unrecognized attribute identifier: component description mismatch

Description: This warning response is generated when the NMS uses an unrecognized attribute identifier. This can only occur for the get, help or set commands. This response may be repeated for every attribute with this problem. Other attributes are still processed.

**System action**: the command is ignored for this attribute. Other attributes are still processed.
**Operator action**: Update the software on the NMS. The help command can be used to list the names of the recognized attributes. Avoid using attributes not in this list.

## ATTRIBUTE attribute

Description: This parameter identifies an attribute, by numeric id, that is not recognized by the Passport. The NMS may or may not be able to convert it to an ascii name.

Values: Decimal (0..65535)

## RESPONSE Attribute value/index out of range: component description mismatch

Description

This response is generated when the NMS attempts to set an attribute to contain a value or index that is out of range.

**System action**: the command is ignored for this attribute. Other attributes are still processed.
**Operator action**: Update the software on the NMS. The help command can be used to list the appropriate value/index ranges.

## ATTRIBUTE attribute

Description

This parameter identifies, by name, the attribute for which a problem has been detected. This response may be repeated for every attribute with this problem. Other attributes are still processed

Values

Decimal (0..65535)

## RESPONSE .....

Description

This response describes the attributes specific to an Alarm Event.

## ATTRIBUTE notificationId

Description

This mandatory attribute is the notification Id of the alarm. The high-order byte is the slot number of the card from which this alarm originated. The low-order 24 bits contain a sequence number which increases each time an alarm is generated. Thus, this Id provides a simple way of uniquely identifying an alarm as well as the order in which alarms are generated on a card. For cross-card ordering, one would have to look at the time stamp (see *dateAndTime*).

Values

Hex (H.0..H.ffffff)

## ATTRIBUTE commentData

Description

This optional attribute is additional textual information for the network operator to use. Other than for software alarms, if it is not self-explanatory, it should be described in NTP 241-7501-230 “Alarms”.

Note: The total number of bytes in comment, operator, and internal data may not exceed 750 bytes.

Values

String (0..750, ASCII)

## ATTRIBUTE operatorData

Description

This optional attribute is additional hexadecimal information for the network operator to use. Other than for software alarms, it should be described in NTP 241-7501-230 “Alarms”.

Note: The total number of bytes in comment, operator, and internal data may not exceed 750 bytes.

Values

String (0..750, Hex)

## ATTRIBUTE pid

Description

This optional attribute is a string representation of the internal process id (Pid) of the process which generated the alarm (for internal use only).

Values

String (0..25, ASCII)

## ATTRIBUTE fileName

Description

This optional attribute is an internal file name (for internal use only).

Values

String (0..255, ASCII)

## ATTRIBUTE relatedComponentNames

Description: This mandatory attribute is a list of the names of any components related to the component (that is, the one in the header FIELD) against which this alarm is raised. It typically contains at least the LP and possibly the card on which the originating component resides.

List of: The name of the component

## ATTRIBUTE fileLineNumber

Description: This optional attribute is an internal line number in the file (see *fileName*) referred to above (for internal use only).

Values: Decimal (0..4294967295)

## ATTRIBUTE fileVersion

Description: This optional attribute is a version indicator of the file (*fileName*) referred to above (for internal use only).

Values: String (0..255, ASCII)

## ATTRIBUTE correlatedNotificatns

Description: This optional attribute is additional internal hexadecimal information for internal use only. It does not have to be described in NTP 241-7501-230 “Alarms”.

It is a list of *notificationId*s which would indicate other alarms which are related to this one. Note that if this is not a MSG alarm, the MDM clears any SET alarms whose *notificationId*s are listed here.

List of: Hex (H.0..H.ffffffff)

## ATTRIBUTE internalData

Description

This optional attribute is additional internal hexadecimal information for internal use only. It does not have to be described in NTP 241-7501-230 “Alarms”.

Note: The total number of bytes in comment, operator, and internal data may not exceed 750 bytes.

Values

String (0..750, Hex)

## RESPONSE The following components have been created:

Description

This is the normal response to an *Add* command. It lists all the components added, including the component specified in the *Add* command, any missing ancestors which were added, and any automatically added subcomponents.

## ATTRIBUTE component

Description

This attribute contains the name of a component which has been added. It is repeated for every added component.

Values

The name of the component

## RESPONSE Syntax Error

Description

This error response group is generated when an operator inputs a syntactically invalid command. This response is specially formatted to indicate where in the original command, the error occurred.

**System action**: the command is completely ignored.
**Operator action**: re-issue the command as appropriate.

## ATTRIBUTE term

Description

This attribute contains the symbolic name of the syntactic term in error (for example, “verb”, “option”, “component”, “attribute”, “group”).

The portion of the original input corresponding to this term is indicated via braces.

Values

String (1..255, ASCII)

## ATTRIBUTE termStart

Description

This attribute contains the character offset from the start of the command where the symbolic term starts. Given “ABCD”, then “BC” starts at offset of 1.

Values

Decimal (0..1023)

## ATTRIBUTE termEnd

Description

This attribute contains the character offset from the start of the command where the symbolic term ends. Given “ABCD”, then “BC” ends at offset 3. This is one character beyond the ending character position.

Values

Decimal (0..1023)

## ATTRIBUTE problem

Description

This attribute contains a description of the problem associated with the term (for example, “missing”, “unrecognized”).

Values

String (1..255, ASCII)

## ATTRIBUTE relatedTerm

Description

This optional attribute contains the symbolic name of another syntactic term that is related to the first one.

The portion of the original input corresponding to this term is indicated via braces.

Values String (1..255, ASCII)

## ATTRIBUTE term2Start

Description This optional attribute contains the character offset from the start of the command where the symbolic term starts. Given “ABCD”, then “BC” starts at offset of 1.

Values Decimal (0..1023)

## ATTRIBUTE term2End1

Description This optional attribute contains the character offset from the start of the command where the symbolic term ends. Given “ABCD”, then “BC” ends at offset 3. This is one character beyond the ending character position.

Values Decimal (0..1023)

## ATTRIBUTE reason

Description This optional attribute contains the reason the parsing problem occurred.

Values String (1..255, ASCII)

## RESPONSE Component ... already exists.

Description This error response is generated by an *Add* or *Copy Prov* command if execution of the command would create a component that already exists in the edit view.

**System action**: the command is not executed.
**Operator action**: in the case of an *Add* command, no action is needed, since the desired component is already in the edit view. In the case of a *Copy Prov* command, retry the command using a different *-destination* option.

## ATTRIBUTE component

Description This attribute is the name of the component that already exists. It is present only if the component name is different from the component name specified in the command.

Values The name of the component

## RESPONSE Component... does not exist....

Description This error response is generated whenever the component to which a command applies does not exist.

**System action**: the command is not executed.
**Operator action**: for commands which can be applied to either current or edit views of provisioning data, ensure first that the correct view is the view being examined, then retry the command with a valid component name.

## ATTRIBUTE component

Description This attribute contains the name of the missing component. It is present only if the component name is different from the component name specified in the command.

Values The name of the component

## ATTRIBUTE view

Description The view from which a component does not exists. This attribute is only present for commands that operate on more than one view; for example, the *Display* and *Set* command can specify both operational and provisional attributes.

Values current
edit

## RESPONSE A total of ... components have been deleted.

Description This is the normal response to a *Delete* command. It contains a count of deleted components.

## ATTRIBUTE count

Description This attribute counts the number of deleted components.

Values Decimal (0..65535)

## RESPONSE The filename specified is invalid.The correct format for activate, apply or load is:...name[.type[.number]]The correct format for a save or commit command is only:...nameThe name...may contain only alphanumeric ...

Description

An *Activate*, *Apply*, *Commit*, *Load* or *Save* command produces this response when the specified file name has an invalid form.

**System action**: the command is ignored.
**Operator action**: retry the command with a valid file name.

## ATTRIBUTE reason

Description

The text describes the format of a provisioning file.

Values

Decimal (0..0)

## RESPONSE The above response was generated during loading, when the following command failed:.....

Description

During loading, this response is issued whenever a command from the provisioning data file fails to execute successfully. This should only happen if the *-force* option was used on the *Load* command, or if loading a partial view.

**System action**: loading is terminated at the point where the error was detected, unless the *-force* option is in effect (in which case loading continues).
**Operator action**: this response includes the response to the failed command, which can be interpreted in the same way as if the command had been entered manually. If the *-force* option is in effect, the most probable cause of this error is that the file being loaded requires a different software configuration than what is currently running on the Control Processor. Previous output from the *Load* command will have indicated what changes should be made to the software configuration.

## ATTRIBUTE command

Description: This attribute contains the command that failed during loading.

Values: String (1..2048, ASCII)

## RESPONSE Too many errors loading file ....

Description: This error response is generated when the number of failed commands read from the provisioning file being loaded, exceeds a predefined limit. Note that this limit on the number of failed commands is not enforced if the *-force* option is used in the *Load* command.

**System action**: the edit view is updated to match the parts of the provisioning data file which were loaded without errors. Loading stops at the point where the error limit was reached. **Operator action**: to attempt loading of the entire file, ignoring the error limit, re-issue the *Load* command, specifying the *-force* option.

## ATTRIBUTE file

Description: This attribute identifies the provisioning file being read.

Values: String (1..40, ASCII)

## RESPONSE Session..... is in provisioning mode.

Description

This error response is generated when the operator attempts to enter a provisioning command which is allowed outside provisioning mode only when no other session is in that mode.

This includes the following commands: *Activate*, *Commit*, *Confirm*, *Restore*, *Start*, and *Stop*.

**System action**: the command is ignored.
**Operator action**: wait until the current provisioning operator is finished. To terminate the other operator's provisioning session, retry the *Start Prov* command using the *-force* option. (Note: if you terminate the other operator's session, the edit view may contain changes made by that operator which have not been saved on disk.)

## ATTRIBUTE provisioningSession

Description

This attribute identifies the session which is currently in provisioning mode.

Values

The name of the component

## ATTRIBUTE userId

Description

This attribute identifies the user whose session is in provisioning mode.

Values

String (0..8, ASCII)

## RESPONSE .....

Description

This error response is generated when a provisioning command is entered and the provisioning system is currently executing a provisioning command.

**System action**: the new command is ignored.
**Operator action**: wait for the previous command to complete.

## ATTRIBUTE reason

Description: This attribute gives the type of provisioning command that is being executed.

Values:
Initial loading is in progress
Activation is in progress
Initial activation is in progress
Roll back sequence is in progress
Save prov command is in progress
Load or Apply prov command is in progress
Check prov command is in progress
You must confirm the edit view changes first, then proceed with the provisioning command
Clear prov command is in progress
Copy prov command is in progress
Commit prov command is in progress
Delete command is in progress
Confirm prov command is in progress
Add command is in progress
Restore command is in progress

## ATTRIBUTE commandPhase

Description: This attribute gives the phase of the command that is currently being executed.

Values: Decimal (0..100)

## ATTRIBUTE additionReason

Description: This is an optional attribute which gives the percentage of work that has been finished.

Values: Decimal (0..100)

## ATTRIBUTE file

Description: This is an optional attribute. This attribute only shows up when an *apply*, *load* or *save* command is in progress, it gives the name of the file currently being accessed.

Values: String (0..40, ASCII)

## RESPONSE Component has no... subcomponents of the requested type....

Description: This message will be generated by a *List* command, or by a *Display* command using a “wild card” specification, if no subcomponents matching the component type specification were found.

## ATTRIBUTE reason

Description: This attribute contains the reason explaining why no subcomponents are displayed

Values: provisioned or operational
provisioned
operational

requested

## ATTRIBUTE filter

Description: This attribute indicates to the user that their userid does not have the correct scope or cid to list subcomponents.

Values: Decimal (0..0)

## RESPONSE Fmip PDU problem

Description: This response is generated when a severe problem has been detected with the fmip pdu.

## ATTRIBUTE notificationId

Description: This parameter contains the notification identifier of the alarm that contains related information as to why the pdu has a problem. It is optional.

Values: Hex (H.0..H.ffffff)

## RESPONSE Displaying attribute ... is not allowed.

Description

This error response is generated when the operator attempts to display an attribute for which *Display* is not permitted. Note that this message does not signify that the operator has insufficient impact capability, but rather that no operator is allowed to *Display* this attribute.

**System action**: none. Any other requested attributes which the operator is allowed to *Display* will have been displayed by the command that produced this message.
**Operator action**: none.

## ATTRIBUTE attribute

Description

This attribute identifies the attribute that cannot be displayed.

Values

Decimal (0..65535)

## RESPONSE Setting attribute ... is not allowed.

Description

This error response is generated when the user attempts to set an attribute for which *Set* is not permitted.

**System action**: the named attribute's value is unchanged. Any other attributes specified in the same command will have been set if the operator is allowed to do so. Note that this message does not signify that the operator has insufficient impact capability, but rather that no operator is allowed to *Set* this attribute.
**Operator action**: none.

## ATTRIBUTE attribute

Description

This attribute identifies the attribute that cannot be set.

Values

Decimal (0..65535)

## RESPONSE You must be in provisioning mode to set attribute ....

Description

This error response is generated when the operator attempts to set a provisioning attribute while their session is not in provisioning mode.

**System action**: the attribute value is unchanged; other attributes, if any, in the *Set* command may have been set. **Operator action**: issue a *Start Prov* command before attempting to set any provisionable attribute.

## ATTRIBUTE attribute

Description

This attribute identifies the attribute that cannot be set.

Values

Decimal (0..65535)

## RESPONSE Fed problem

Description

A Fed related problem occurred.

## ATTRIBUTE problem

Description

The problem with the given fed.

Values

unrecognized
missing
unexpected
corrupt
invalid
value

## ATTRIBUTE type

Description

The recognized Fed Type that has a problem.

Values

fedArray
fedArrayItem
fedArrayItemValue
fedAttribute
fedAttributeValue

fedBits
fedBitSet
fedCondition
fedComplexFilter
fedComponentInstance
fedComponentName
fedContinuedLogical
fedContinuedPhysical
fedField
fedFieldActionType
fedFieldAsciiBuffer
fedFieldAsciiLog
fedFieldComponentName
fedFieldEventType
fedFieldGetRequest
fedFieldGetResponse
fedFieldHeader
fedFieldOptions
fedFieldResponseError
fedFieldResponseErrorAscii
fedFieldResponseNormal
fedFieldSetRequest
fedFieldTime
fedFieldTransaction
fedFlow
fedGroup
fedHasError
fedIdentifier
fedInvalid
fedInvokeId
fedLength
fedList
fedListItem
fedListItemValue
fedModifier
fedNibbles
fedNull
fedOctetString
fedPattern
fedPdu
fedService

fedSigned
fedSimpleCondition
fedString
fedStruct
fedSubcomponent
fedTime
fedType
fedUnsigned
fedValue
fedVersion
fedVector
fedVectorItem
fedVectorItemValue
fedWild

## ATTRIBUTE typeId

Description An unrecognized Fed Type.

Values Decimal (0..65535)

## ATTRIBUTE length

Description The length of the FedTlv. This attribute is optional.

Values Decimal (0..65535)

## ATTRIBUTE valueUnsigned

Description The value of a Fed as a DECIMAL when possible.

Values Decimal (0..65535)

## ATTRIBUTE valueHex

Description The value of a Fed as a hex string.

Values String (0..255, Hex)

## ATTRIBUTE valueAscii

Description The value of a Fed as an ascii string.

Values String (0..255, ASCII)

## RESPONSE The edit view differs from the current view....

Description

This response is generated when a user successfully starts the provisioning session.

**System action**: none.
**Operator action**: none. This message is for information only.

## ATTRIBUTE provCommandInProgress

Description

The presence of this attribute indicates that a provisioning command is still in progress and the end result of this provisioning command will change the number of components added to or deleted from the edit view.

Values

An Activate Prov command is in progress.
Initial activation is in progress.
A roll back sequence is in progress.
A Save Prov command is in progress.
A Load or Apply Prov command is in progress.
A Check Prov command is in progress.
Changes in the edit view have not been confirmed.
The Clear Prov command is in progress.
The Copy Prov command is in progress.
The Commit Prov command is in progress.
The Delete command is in progress.
The Confirm Prov command is in progress.
An Add command is in progress.
The Restore Prov command is in progress.

## ATTRIBUTE componentAddedCount

Description

This attribute indicates the number of components that have been added to the edit view since the last activation.

Values

Decimal (0..2147483647)

## ATTRIBUTE componentDeletedCount

Description

This attribute indicates the number of components that have been deleted from the edit view since the last activation.

Values Decimal (0..2147483647)

## ATTRIBUTE dataChangedCount

Description This attribute indicates the number of attributes that have been changed in the edit view since the last activation.

Values Decimal (0..2147483647)

## RESPONSE Error: ...

Description This response is issued when a semantic check error occurs requiring only a string response.

## ATTRIBUTE errorString

Description This attribute is a string issued as a semantic check error.

Values String (1..255, ASCII)

## RESPONSE The software supporting this component is not loaded.

Description This response is generated when the NMS uses an unrecognized subcomponent type identifier.

**System action**: the command fails.
**Operator action**: Load the software onto the passport. Update the software on the NMS. The help command can be used to list the names of the recognized subcomponents. Avoid using components not derived from this list.

## ATTRIBUTE component

Description This parameter contains the valid portion of the component name.

Values The name of the component

## ATTRIBUTE subcomponentType

Description

This parameter identifies the unrecognized subcomponent type. The NMS may or may not be able to convert it to an ascii name.

Values

Decimal (0..65535)

## RESPONSE Component instance out of range or invalid syntax: component description mismatch

Description

This response is generated when the NMS uses a component instance value that is out of range or does not have the correct syntax.

**System action**: the command fails.
**Operator action**: Update the software on the NMS. The help command can be used to list the appropriate instance value ranges.

## ATTRIBUTE component

Description

This parameter contains the valid portion of the component name. The last subcomponent instance which is in error is not shown.

Values

The name of the component

## RESPONSE Unrecognized group identifier: component description mismatch

Description

This warning response is generated when the NMS uses an unrecognized group identifier. This can only occur for the get or help commands. This response may be repeated for every group with this problem. Other groups are still processed.

**System action**: the command is ignored for this group. Other groups are still processed.
**Operator action**: Update the software on the NMS. The help command can be used to list the names of the recognized groups. Avoid using groups not in this list.

## ATTRIBUTE group

Description

This parameter identifies a group, by numeric id, that is not recognized by the Passport. The NMS may or may not be able to convert it to an ascii name.

Values

Decimal (0..65535)

## RESPONSE Unrecognized option identifier: component description mismatch

Description

This warning response is generated when the NMS uses an unrecognized option identifier. This response may be repeated for every option with this problem. Other options are still processed.

**System action**: the option is ignored. Other options are still processed.
**Operator action**: Update the software on the NMS. The help command can be used to list the names of the recognized options. Avoid using options not in this list.

## ATTRIBUTE option

Description

This parameter identifies an option, by numeric id, that is not recognized by the Passport. The NMS may or may not be able to convert it to an ascii name.

Values

Decimal (0..65535)

## RESPONSE Option value/index out of range: component description mismatch

Description

This response is generated when the NMS attempts to pass an options value or index that is out of range.

**System action**: the command is ignored for this option. Other options are still processed.
**Operator action**: Update the software on the NMS. The help command can be used to list the appropriate value/index ranges.

## ATTRIBUTE option

Description: This parameter identifies the option, by name, for which a problem has been detected.

Values: Decimal (0..65535)

## RESPONSE Component ... is not ready. Try again later.

Description: This error response occurs when an operator command has been sent to a component, but the component has indicated that it is still initializing and is not yet ready.

**System action**: the command terminates without having done anything.
**Operator action**: retry the command later.

## ATTRIBUTE component

Description: The name of the component that is not ready. This attribute is present only if the component is different from the one specified in the command.

Values: The name of the component

## RESPONSE The semantically checked file ... has an invalid file format.

Description: This response is generated when the specified view has a bad format, for example, the application list and feature set information is missing.

**System action**: the command is ignored.
**Operator action**: re-enter the command using a properly formatted file.

## ATTRIBUTE file

Description: This attribute is the name of the file that has an invalid file format. A software alarm is also generated by the subsystem SCS.

Values String (1..40, ASCII)

## RESPONSE Help on attribute ... is not allowed.

Description This error response is generated when the operator attempts to ask for help on an attribute for which *Help* is not permitted. Note that this message does not signify that the operator has insufficient impact capability, but rather that no operator is allowed to query *Help* on this attribute.

**System action**: none.
**Operator action**: none.

## ATTRIBUTE attribute

Description This attribute identifies the attribute that cannot be queried for help.

Values Decimal (0..65535)

## RESPONSE ... ..... ..... ... .....

Description This response contains the three OSI State attributes and the six OSI Status attributes. It is used in Alarms and SCNs.

The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component that issues alarms or SCNs. For component-specific information and the valid state combinations, refer to the appropriate NTP.

# ATTRIBUTE adminState

Description

This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is in administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values

locked
unlocked
shuttingDown

## ATTRIBUTE operationalState

Description

This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values

enabled
disabled

## ATTRIBUTE usageState

Description

This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

| | |
|---|---|
| Values | idle<br>active<br>busy |

## ATTRIBUTE availabilityStatus

| | |
|---|---|
| Description | If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.<br><br>The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.<br><br>The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.<br><br>The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.<br><br>The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.<br><br>The value ***offDuty*** indicates the resource is inactive in |

accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

SET OF

inTest
failed
dependency
powerOff
offLine
offDuty
degraded
notInstalled
logFull
migrating

# ATTRIBUTE proceduralStatus

Description

If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.

The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

SET OF

initializationRequired (initRequired)
notInitialized (notInit)
initializing
reporting
terminating

# ATTRIBUTE controlStatus

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

SET OF

subjectToTest
partOfServicesLocked (partOfSrvLckd)
reservedForTest (rsrvdForTest)
suspended

# ATTRIBUTE alarmStatus

Description

If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

SET OF

underRepair
critical
major
minor
alarmOutstanding (alrmOutstdng)

# ATTRIBUTE standbyStatus

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values

hotStandby
coldStandby
providingService (providingServ)
notSet

## ATTRIBUTE unknownStatus

Description

This attribute indicates the OSI Unknown status of the component.

The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.

The value ***true*** indicates that the actual state of the component is not known for sure. This could be used, for example, when a “proxy” alarm is issued on the component’s behalf.

Values

false
true

## RESPONSE The value of ...

Description

This error response is generated by the *Copy Prov* command when a DNA attribute cannot be copied from the source component to the destination component. Usually this is because doing so would create a duplicate DNA.

**System action**: the value of the DNA attribute is set to empty (zero length).
**Operator action**: use the *Set* command to give the DNA attribute another value.

## ATTRIBUTE attribute

Description

The name of the attribute that was not copied.

Values

Decimal (0..65536)

The name of the component

## ATTRIBUTE component

Description

This attribute contains the name of the (destination) component whose DNA was set to empty.

Values

The name of the component

## RESPONSE The specified verb is ambiguous with ....

Description

The *Help* command generates this error response if the named verb is ambiguous for the given component class.

**System action**: the command is not executed.
**Operator action**: re-enter the command, supplying an appropriate verb name.

## ATTRIBUTE listOfAmbiguities

Description

This attribute contains the list of verbs which are ambiguous matches with the specified verb.

Values

String (0..255, ASCII)

## RESPONSE The ... verb is not applicable to this component.The component has no readable attributes.

Description

The *Help* command generates this error response if the named verb is the common verb display, and the component definition does not contain any readable attributes.

**System action**: the command is not executed.
**Operator action**: use help on the component to display the allowable verbs.

## ATTRIBUTE matchedVerbName

Description

This attribute contains the fullname of the verb specified in the command. This lets the user know exactly what the system's interpretation is of any abbreviation or unambiguous string that is specified in the command.

Values

String (0..255, ASCII)

## RESPONSE The ... verb is not applicable to this component.The component has no writable attributes.

Description

The *Help* command generates this error response if the named verb is the common verb set, and the component definition does not contain any writable attributes.

**System action**: the command is not executed.
**Operator action**: use help on the component to display the allowable verbs.

## ATTRIBUTE matchedVerbName

Description

This attribute contains the fullname of the verb specified in the command. This lets the user know exactly what the system's interpretation is of any abbreviation or unambiguous string that is specified in the command.

Values

String (0..255, ASCII)

## RESPONSE Loading file ... is aborted because of the following reason(s):

Description

This response is generated when loading is aborted due to failure in checking the version and feature set information.

**System action**: view is not loaded.
**Operator action**: Upgrade the switch's software and retry the command.

## ATTRIBUTE file

Description

The name of the view to be loaded.

Values

String (1..40, ASCII)

## RESPONSE No more sequence numbers available for view ... - specify a different name.

Description

This response occurs when the system attempts to generate the next view sequence number (during an *Activate*, *Commit* or *Save*), and the highest possible value (999) is already in use.

**System action**: the command is not executed.
**Operator action**: retry the command using a different file name.

## ATTRIBUTE file

Description

This attribute identifies the provisioning file which already exists.

Values

String (1..40, ASCII)

## RESPONSE Permission denied: you have insufficient scope capability....

Description

This error response is generated whenever an operator cannot access a component due to insufficient scope capability.

**System action:** the command is not executed.
**Operator action**: you must log in using a userid with a higher scope capability in order to access this component.

## ATTRIBUTE component

Description

This attribute contains the name of the component for which the operator has invalid scope access. It is present only if different from the target component.

Values

The name of the component

## RESPONSE Component ...is owned by another customer.

Description

This error response is generated when an operator attempts to access a component owned by another customer.

**System action**: the command is not executed for this component.
**Operator action**: none.

## ATTRIBUTE component

Description

This attribute contains the name of the component owned by another customer. It is present only if the component name is different from the component name specified in the command.

Values

The name of the component

## RESPONSE ... file(s) deleted.

Description

This response is generated when the *Tidy* command is done. It indicates to the user the number of files that have been removed from the provisioning directory.

**System action**: none. This is an information message only.
**Operator action**: none.

## ATTRIBUTE count

Description

This attribute is the number of files deleted from the provisioning directory.

Values

Decimal (1..65535)

## RESPONSE ... will be kept.

Description

This response is generated when the committed view, current view, last used view, a protected view, or a base view is within the list of views the *Tidy* command is attempting to remove. These views are never removed by the *Tidy* command.

**System action**: the named view is not deleted.
**Operator action**: none. This message is for information only.

## ATTRIBUTE reason

Description

Describe the type of view not removed

Values

Committed file
Last used file
Current view file
Protected file
Non-provisioning file
Open file
Base file

## ATTRIBUTE fileName

Description

The committed or the last used view name.

Values

String (1..40, ASCII)

## RESPONSE ... is not a provisionable component.

Description

The *Save* command generates this response if the operator specifies a component to be saved (via the *-component* option) which is not provisionable. Since *Save* saves only provisioned components, the command is rejected.

**System action**: the command is not executed.
**Operator action**: if desired, retry the command, specifying a provisionable component.

## ATTRIBUTE component

Description: This attribute contains the name of the component.

Values: The name of the component

## RESPONSE Operational ..... not exist in the edit view. Include the -current option.

Description: The *List* or *Display* commands generate this error response when the user is in provisioning mode and requests information about operational data in the edit view. The response attribute indicates the type of data requested by the operator. Only one type of data will be present.

**System action**: the command is not executed.
**Operator action**: issue the list command again with the -current option.

## ATTRIBUTE components

Description: The response attribute indicates that the operator attempted to show information about many operational components while in provisioning mode. The operator could have entered one of:

```
PROV 1> list -o [-p] component
PROV 2> list [-o] [-p] operComponent
PROV 3> display [-o] [-p] operComponent *
```

Values: Decimal (0..0)

## ATTRIBUTE component

Description: This response attribute indicates that the operator attempted to display information about an operational component while in provisioning mode. The operator could have entered one of:

```
PROV 1> display [-o] [-p] operComponent
```

Values: Decimal (0..0)

## ATTRIBUTE group

Description: This response attribute indicates that the operator attempted to display information about an operational group within provisioning mode. The operator could have entered one of:
`PROV> display [-o] [-p] component operGroup`

Values: Decimal (0..65535)

## ATTRIBUTE attribute

Description: This response attribute indicates that the operator attempted to display information about an operational attribute within provisioning mode. The operator could have entered one of:
PROV> display [-o] [-p] component operationalAttribute

Values: Decimal (0..65535)

## ATTRIBUTE data

Description: This response attribute indicates that the operator attempted to display information about an operational data within provisioning mode. The operator could have entered one of:
PROV> display -o [-p] component

Values: Decimal (0..0)

## RESPONSE Help on Group ... is not allowed.

Description: This error response is generated when the operator attempts to ask for help on a group for which *Help* is not permitted. Note that this message does not signify that the operator has insufficient impact capability, but rather that no operator is allowed to query *Help* on this group.

**System action**: none.
**Operator action**: none.

## ATTRIBUTE group

Description: This attribute identifies the group that cannot be queried for help.

Values Decimal (0..65535)

## RESPONSE The value of ... was not copied to ....

Description *Copy* can generate this warning when copying part of the current view to the edit view. If a link attribute of a “source” component names a component which does not exist in the edit view, or if the destination component is already linked to something else and it does not support multiple links, the attribute in the copied component is not set.

**System action**: the link attribute is set to empty.
**Operator action**: determine the appropriate component to link to. Add this component if necessary, or remove the existing link, then enter a *Set* command to set the link attribute.

## ATTRIBUTE attribute

Description This attribute names the link attribute that cannot be set.

Values Decimal (1..65535)

The name of the component

## ATTRIBUTE component

Description This attribute identifies the component containing the named attribute.

Values The name of the component

## RESPONSE Component has no ... data.

Description This warning message is issued when a *Display* command does not find any data to display for components that have no data. If data is not displayed due to insufficient impact, the invalid impact error response is generated instead.

## ATTRIBUTE reason

Description This response attribute indicates the type of the requested data that could not be found.

Values provisioned or operational
provisioned
operational

## RESPONSE Error:

Description A *Check* command produces this response when two attributes within the same component have incompatible values.

**System action**: no *Activate* command will be accepted until a subsequent *Check* completes without errors.
**Operator action**: correct the incompatibility between the values of the attributes specified by “attribute” and “conflictingAttribute”, then retry the *Check* command.

## ATTRIBUTE attribute

Description This attribute identifies one of the attributes involved in the conflict.

Values Decimal (0..65535)

## ATTRIBUTE group

Description This attribute identifies one of the groups involved in the conflict.

Values Decimal (0..65535)

## ATTRIBUTE subcomponent

Description This attribute identifies one of the subcomponent types involved in the conflict.

Values Decimal (0..65535)

## ATTRIBUTE conflictingAttribute

Description This attribute identifies the other attribute involved in the conflict.

Values Decimal (0..65535)

## ATTRIBUTE conflictingGroup

Description: This attribute identifies the other group involved in the conflict.

Values: Decimal (0..65535)

## ATTRIBUTE conflictingSubcomponent

Description: This attribute identifies the other subcomponent type involved in the conflict.

Values: Decimal (0..65535)

## ATTRIBUTE reason

Description: This attribute describes the problem.

Values: String (0..255, ASCII)

## RESPONSE Warning:

Description: A *Check* command produces this response when there is a conflict between the values of two attributes within the same component, but the conflict is not sufficiently serious to prevent activation of the edit view.

**System action**: none - the warning has no effect on subsequent commands.
**Operator action**: the conflict should be resolved, but not necessarily before activating the edit view.

## ATTRIBUTE attribute

Description: This attribute identifies one of the attributes involved in the conflict.

Values: Decimal (0..65535)

## ATTRIBUTE group

Description: This attribute identifies one of the groups involved in the conflict.

Values Decimal (0..65535)

## ATTRIBUTE subcomponent

Description This attribute identifies one of the subcomponent types involved in the conflict.

Values Decimal (0..65535)

## ATTRIBUTE conflictingAttribute

Description This attribute identifies the other attribute involved in the conflict.

Values Decimal (0..65535)

## ATTRIBUTE conflictingGroup

Description This attribute identifies the other group involved in the conflict.

Values Decimal (0..65535)

## ATTRIBUTE conflictingSubcomponent

Description This attribute identifies the other subcomponent type involved in the conflict.

Values Decimal (0..65535)

## ATTRIBUTE reason

Description This attribute describes the problem.

Values String (0..255, ASCII)

## RESPONSE Error:

Description

A *Check* command produces this response when two attributes in different components have incompatible values.

**System action**: no *Activate* command will be accepted until a subsequent *Check* completes without errors.
**Operator action**: correct the incompatibility between the values of the attributes specified by “attribute” and “conflictingAttribute”, then retry the *Check* command.

## ATTRIBUTE attribute

Description

This attribute identifies one of the attributes involved in the conflict.

Values

Decimal (0..65535)

## ATTRIBUTE group

Description

This attribute identifies one of the groups involved in the conflict.

Values

Decimal (0..65535)

## ATTRIBUTE subcomponent

Description

This attribute identifies one of the subcomponent types involved in the conflict.

Values

Decimal (0..65535)

## ATTRIBUTE conflictingComponent

Description

This attribute identifies the other component involved in the conflict.

Values

The name of the component

## ATTRIBUTE conflictingAttribute

Description

This attribute identifies the other attribute involved in the conflict.

Values Decimal (0..65535)

The name of the component

## ATTRIBUTE conflictingGroup

Description This attribute identifies the other group involved in the conflict.

Values Decimal (0..65535)

The name of the component

## ATTRIBUTE conflictingSubcomponent

Description This attribute identifies the other subcomponent type involved in the conflict.

Values Decimal (0..65535)

The name of the component

## ATTRIBUTE reason

Description This attribute describes the problem.

Values String (0..255, ASCII)

## RESPONSE Warning:

Description A *Check* command produces this response when there is a conflict between the values of two attributes within different components, but the conflict is not sufficiently serious to prevent activation of the edit view.

**System action**: none - the warning has no effect on subsequent commands.
**Operator action**: the conflict should be resolved, but not necessarily before activating the edit view.

## ATTRIBUTE attribute

Description This attribute identifies one of the attributes involved in the conflict.

Values Decimal (0..65535)

## ATTRIBUTE group

Description This attribute identifies one of the groups involved in the conflict.

Values Decimal (0..65535)

## ATTRIBUTE subcomponent

Description This attribute identifies one of the subcomponent types involved in the conflict.

Values Decimal (0..65535)

## ATTRIBUTE conflictingComponent

Description This attribute identifies the other component involved in the conflict.

Values The name of the component

## ATTRIBUTE conflictingAttribute

Description This attribute identifies the other attribute involved in the conflict.

Values Decimal (0..65535)

The name of the component

## ATTRIBUTE conflictingGroup

Description This attribute identifies the other group involved in the conflict.

Values Decimal (0..65535)

The name of the component

## ATTRIBUTE conflictingSubcomponent

Description This attribute identifies the other subcomponent type involved in the conflict.

Values Decimal (0..65535)

The name of the component

## ATTRIBUTE reason

Description This attribute describes the problem.

Values String (0..255, ASCII)

## RESPONSE Warning: Activation will disrupt service for the following component(s):

Description A *Check* command generates this response to identify the component(s) which will go out of service temporarily if this view is activated.

**System action**: None - information message only.
**Operator action**: Follow appropriate procedures before activating the view (these could include notification, *Lock*ing of components, etc.)

## ATTRIBUTE component

Description This attribute is used to identify each component which will be taken out of service by an activation (up to a maximum of 200 components).

List of The name of the component

## ATTRIBUTE additional

Description This attribute states the number of components which will be taken out of service, by an activation, but were not listed by name.

Values Decimal (0..4000000000)

## RESPONSE The committed file is ....

Description

The *Commit* command uses this response to display the name of the committed file.

**System action**: none.
**Operator action**: none. This message is for information only.

## ATTRIBUTE file

Description

This attribute is the name of the committed file.

Values

String (1..40, ASCII)

## RESPONSE The provisioning data is saved in file ....

Description

The *Save* command uses this response to display the name of the file used to save the provisioning data.

**System action**: none.
**Operator action**: none. This message is for information only.

## ATTRIBUTE file

Description

This attribute is the name of the file created by the *Save* command.

Values

String (1..40, ASCII)

## RESPONSE Loaded or applied file ....

Description

The *Apply* or *Load* command generates this message when loading is complete, to display the name of the file loaded.

**System action**: none.
**Operator action**: none. This message is for information only.

## ATTRIBUTE file

Description

This attribute is the name of the accessed file.

Values String (1..40, ASCII)

## RESPONSE usage: Help [-verb(\...)] [-subcomponents] [\.....[\...[, \...]]]...

Description This is the normal response to a *Help* command which specifies neither options nor a component class. It consists of a usage description followed by a list of top level components and a list of verbs for which a component name is not mandatory.

## ATTRIBUTE subcomponentTypes

Description This attribute contains a list of all top level component types.

List of String (0..255, ASCII)

## ATTRIBUTE verbs

Description This attribute contains the names of all verbs for which a component name is not mandatory.

List of String (0..255, ASCII)

## RESPONSE

Description This is the normal response to a *Help* command which requests information about a specific attribute group.

## ATTRIBUTE groupName

Description This attribute contains the name of the given group.

Values String (0..255, ASCII)

## ATTRIBUTE groupType

Description This attribute indicates whether the group being described by this response is provisionable or not.

Values Operational
Provisionable

## ATTRIBUTE attributeList

Description: This attribute contains the names of the attributes in the group.

List of: String (0..255, ASCII)

## RESPONSE

Description: This is the normal response to a *Help* command which requests information about a specific attribute.

## ATTRIBUTE attributePrompt

Description: This attribute contains the name (and abbreviation) of the specified attribute.

Values: String (0..255, ASCII)

## ATTRIBUTE readAccess

Description: This attribute specifies the level of operator impact capability required to *Display* the attribute. A value of “not allowed” means that no operator is allowed to *Display* it.

Values:
not allowed
debug
systemAdministration
configuration
service
passive
all

## ATTRIBUTE writeAccess

Description: This attribute indicates the level of operator impact capability required to *Set* the attribute. A value of “not allowed” indicates that the attribute is read-only, that is, no operator is allowed to *Set* it.

Values:
not allowed
debug
systemAdministration

configuration
service
passive
all

## ATTRIBUTE criticality

Description

This attribute displays the criticality of the attribute.

Changing the value of a provisionable attribute with criticality ***none*** does not cause any disruption of service when the change is made effective (by a subsequent *Activate* command).

Changing the value of an attribute with criticality ***component*** will cause the component containing the attribute to temporarily go out of service on an *Activate*.

Changing the value of an attribute with criticality ***parent*** will cause the component containing the attribute, and possibly some of its ancestor components, to temporarily go out of service on an *Activate*.

Changing the value of an attribute with criticality ***parent (set only)*** will cause the component containing the attribute, and possibly some of its ancestor components, to temporarily go out of service on an *Activate.* Adding a new instance of a component containing such an attribute does not cause any component to go out of service.

Values

none
component
parent
module
parent (set only)

## ATTRIBUTE type

Description

This attribute contains the type specification for the attribute.

Values

String (0..255, ASCII)

## ATTRIBUTE index

Description

This attribute describes the index or indices of the attribute. For a VECTOR or replicated attribute, there will be one index; for an ARRAY there will be two indices; for all other types there will be no indices and this attribute will be omitted from the response.

The description of an index identifies both its type and its permitted values. In the case of an ARRAY index, the name of the index and its abbreviation are included.

Values String (0..255, ASCII)

## ATTRIBUTE values

Description

This attribute identifies the permitted values of the attribute.

Values String (0..255, ASCII)

## ATTRIBUTE defaultValue

Description

This attribute contains the default value of the attribute.

Values String (0..255, ASCII)

## ATTRIBUTE units

Description

This attribute identifies the units for the values of the attribute.

Values String (0..255, ASCII)

## RESPONSE

Description

This is the normal response to a *Help* command when the *-subcomponents* option is specified.

## ATTRIBUTE hierarchyEntry

Description

This attribute contains the name (and abbreviation) of a subcomponent type, appropriately indented. It will be repeated if there are multiple subcomponents.

Values String (0..255, ASCII)

## RESPONSE

Description This is the normal response to a *Help* command that requests information about a specific verb.

## ATTRIBUTE verb

Description This attribute contains the name of the given verb.

Values String (0..255, ASCII)

## ATTRIBUTE impact

Description This attribute indicates the level of operator impact capability required to use the given verb.

Values debug
administration
configuration
service
passive
Refer to ReadAccess'ofattribute.'
Refer to WriteAccess'ofattribute.'

## ATTRIBUTE mandatoryOptions

Description This attribute displays the mandatory options of the verb.

List of String (0..255, ASCII)

## ATTRIBUTE options

Description This attribute displays the options of the verb.

List of String (0..255, ASCII)

## RESPONSE The ... verb is not allowed for this component.

Description

The *Help* command generates this error response if the named verb is a recognizable verb, but is illegal for the given component class.

**System action**: the command is not executed.
**Operator action**: re-enter the command, supplying an appropriate verb name.

## ATTRIBUTE matchedVerbName

Description

This attribute contains the fullname of the verb specified in the command. This lets the user know exactly what the system's interpretation is of any abbreviation or unambiguous string that is specified in the command.

Values

String (0..255, ASCII)

## RESPONSE .....

Description

This response is the List command output.

## ATTRIBUTE type

Description

This attribute describes whether the entry found in the directory was a file or a directory.

Values

dir (directory)
file

## ATTRIBUTE status

Description

The value of this attribute tells if the file or directory is write protected.

Values

yes (protected)
no (unprotected)

## ATTRIBUTE size

Description: This attribute describes the size, in bytes, of the file.

Values: Decimal (0..4294967295)

## ATTRIBUTE timeStamp

Description: This attribute describes the file's last modification time.

Values: Time (DHMS)

## ATTRIBUTE name

Description: This attribute describes the file's name.

Values: String (1..128, ASCII)

## RESPONSE ..... is not ... one.

Description: The List command generates this error response when the options used in the command conflict with the component type.

**System action**: the command is not executed.
**Operator action**: issue the list command again with the correct options.

## ATTRIBUTE component

Description: This attribute identifies the component. This would happen if the operator entered:

```
PROV 1>list -o -c provisionedComponent
2>list -o provisionedComponent
PROV 3>list -p operationalComponent
4>list -p operationalComponent
```

Values: Decimal (0..0)

## ATTRIBUTE subComponent

Description

This attribute identifies the component. This would happen if the operator entered:

```
PROV 1>list -o -c provisionedComponent/*
2>list -o provisionedComponent/*
PROV 3>list -p operationalComponent/*
4>list -p operationalComponent/*
```

Values

Decimal (0..65535)

## ATTRIBUTE group

Description

This attribute identified the group whose type conflicts with the options. It could happen if the operator entered:

```
PROV 1>display -o -c provisionedGroup
2>display -o provisionedGroup
PROV 3>display -p -c operationalGroup
4>display -p operationalGroup
```

Values

Decimal (0..65535)

## ATTRIBUTE attribute

Description

This attribute identified the attribute whose type conflicts with the options. It could happen if the operator entered:

```
PROV 1>display -o -c provisionedAttribute
2>display -o provisionedAttribute
PROV 3>display -p -c operationalAttribute
4>display -p operationalAttribute
```

Values

Decimal (0..65535)

## ATTRIBUTE dataType

Description

This attribute identifies the type of the component, whether it is provisioned or operational.

Values

an operational
a provisioned

# RESPONSE .....

Description: This is the first part of the normal response to a *Help* command which requests information about a specific component.

# ATTRIBUTE subcomponentTypes

Description: This attribute contains the types of the top level subcomponents of the chosen component.

List of: String (0..255, ASCII)

# ATTRIBUTE componentPrompt

Description: This attribute contains the name (and the abbreviation, if there is one) of the chosen component.

Values: String (0..255, ASCII)

# ATTRIBUTE instanceType

Description: This attribute identifies the permitted instance values for the component class. If only one instance of the component is permitted, this attribute is omitted from the response.

Values: String (0..255, ASCII)

# ATTRIBUTE existance

Description: This attribute specifies the rules for adding and deleting the component.

A value of ***required*** means that an instance of this component type is added at the same time as its parent is, and there must always be at least one instance of this type present thereafter. This means that where multiple instances of a component type (under the same parent) are permitted, the operator may be allowed to add and delete instances of this component type, provided at least one instance remains when provisioning is complete.

A value of ***optional*** means that instances of this component

type may be added and deleted explicitly by operator commands; there need not be any instance of this component.

A value of ***dynamic*** means that the application software associated with the parent component can add and delete instances of this component type; however the operator is not allowed to do so.

A value of ***dynamic or optional*** means that this component type may have provisioned or dynamic instances. The provisioned instances are any that the operator adds, and they replace any existing dynamic instance with the same instance value. Dynamic instances cannot be deleted by the operator.

Values

required
optional
dynamic
dynamic or optional

## ATTRIBUTE scope

Description

This attribute indicates the level of operator scope capability required to access the chosen component.

Values

network
device
application

## RESPONSE

Description

This is the second part of the normal response to a *Help* command which requests information about a specific component. It describes one attribute group of the component. If the component has multiple groups, one of these responses will appear for each group.

## ATTRIBUTE attributeList

| | |
|---|---|
| Description | This attribute contains the names of the attributes in the group. |
| List of | String (0..255, ASCII) |

## ATTRIBUTE groupType

| | |
|---|---|
| Description | This attribute indicates whether the group being described by this response is provisionable or not. |
| Values | Operational<br>Provisionable |

## ATTRIBUTE groupName

| | |
|---|---|
| Description | This attribute contains the name of an attribute group that belongs to the chosen component. |
| Values | String (0..255, ASCII) |

## RESPONSE

| | |
|---|---|
| Description | This is the third and final part of the normal response to a *Help* command which requests information about a specific component. |

## ATTRIBUTE verbs

| | |
|---|---|
| Description | This attribute contains a list of verbs that can be applied to the chosen component. |
| List of | String (0..255, ASCII) |

## RESPONSE List ... is full.

Description

This error response is generated when the operator attempts to add a value to a list attribute that already contains the maximum permitted number of elements.

**System action**: the attribute value is unchanged; other attributes, if any, in the *Set* command may have been set. **Operator action**: if desired, remove an element from the named attribute, then retry the original *Set* command.

## ATTRIBUTE attribute

Description

This attribute identifies the attribute that cannot be set.

Values

Decimal (0..65535)

## RESPONSE

Description

This response is the WorkingDir command output.

## ATTRIBUTE pathName

Description

This attribute describes the working directory pathname.

Values

String (1..128, ASCII)

## RESPONSE ... ... ...

Description

This response indicates the RID, MID and PID of an intermediate node in the network visited as the ping query packet was travelling to its destination.

## ATTRIBUTE rid

Description

This attribute indicates the RID of the intermediate node that was visited as the ping query packet was travelling to its destination.

Values

Decimal (1..127)

## ATTRIBUTE mid

Description: This attribute indicates the MID of the intermediate node that was visited as the ping query packet was travelling to its destination.

Values: Decimal (1..2046)

## ATTRIBUTE pid

Description: This attribute indicates the process identifier of the intermediate node that was visited as the ping query packet was travelling to its destination. Note that for Passport modules, this value is 0.

Values: Decimal (0..4294967295)

## RESPONSE The specified verb is not recognized....

Description: The *Help* command generates this error response if the named verb is not defined for the given component class.

**System action**: the command is not executed.
**Operator action**: re-enter the command, supplying an appropriate verb name.

## ATTRIBUTE matchedComponent

Description: This attribute indicates whether a component was specified or not.

Values: by this component

## RESPONSE The ... verb requires a component to be specified.

Description

The *Help* command generates this error response if the named verb is a recognizable verb, but this verb requires a component.

**System action**: the command is not executed.
**Operator action**: re-enter the command, supplying an appropriate verb name.

## ATTRIBUTE matchedVerbName

Description

This attribute contains the fullname of the verb specified in the command. This lets the user know exactly what the system's interpretation is of any abbreviation or unambiguous string that is specified in the command.

Values

String (0..255, ASCII)

## RESPONSE Cannot set the ... on another users Session.

Description

This error response appears if a user tries to issue a *Set* command on the *dataStreams* attribute of a session other than his own.
The user is prevented from changing someone else's attribute.

## ATTRIBUTE attribute

Description

This attribute specifies the name of the attribute that cannot be set.

Values

Decimal (0..65535)

## RESPONSE Command aborted due to internal error....

Description

This error response is returned when a command has failed due to some internal error such as a software error or engineering error (for example, out of memory). There should be an alarm generated that would indicate the remedial action to perform.

**System action**: the command is aborted. It may have been partially executed.
**Operator action**: examine the alarm output to determine the nature of the problem and the appropriate action.

## ATTRIBUTE notificationId

Description

This attribute is the unique alarm identifier associated with the error. If the alarm ID is unknown, this attribute is omitted.

Values Hex (H.0..H.ffffff)

## RESPONSE The following AV(s) have been removed:

Description

This response is issued to indicate to the user which *AVs* have been removed as a result of a *Tidy* or *Remove* command.

## ATTRIBUTE listOfRemovedAvs

Description

This attribute is a list of the names of *AVs* which have been removed.

List of String (1..30, ASCII)

## RESPONSE AV(s) already exist(s):

Description

This response is issued when the user specifies, in the *avListToDownload*, one or more *AVs* which already exist on disk. These *AVs* are not added to the *avListToDownload*.

## ATTRIBUTE existingAvList

Description: This attribute is a list of *AVs*, which the user attempted to add to the *avListToDownload*, but which exist already on disk.

List of: String (1..30, ASCII)

## RESPONSE

Description: The following describes the attributes of the Test process to be displayed for an automatic test statistics display.

## ATTRIBUTE bitsTx

Description: This attribute indicates the number of bits sent during the test period.

Values: Long Integer

## ATTRIBUTE bytesTx

Description: This attribute indicates the number of bytes sent during the test period.

Values: Long Integer

## ATTRIBUTE frmTx

Description: This attribute indicates the number of frames sent during the test period.

This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame.

Values: Long Integer

## ATTRIBUTE bitsRx

Description: This attribute indicates the number of bits received during the test period.

Values: Long Integer

## ATTRIBUTE bytesRx

Description: This attribute indicates the number of bytes received during the test period.

Values: Long Integer

## ATTRIBUTE frmRx

Description: This attribute indicates the number of frames received during the test period.

This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame.

Values: Long Integer

## ATTRIBUTE erroredFrmRx

Description: This attribute is not displayed for ATM and MSA32 cards. For ATM cards, the physical layer drops all errored frames at the controller interface. For MSA32 cards, the test does not generate any frame.

For all other card types, this attribute indicates the number of errored frames received during the test period.

Values: Long Integer

## ATTRIBUTE bitErrorRate

Description: This attribute is not displayed for ATM and MSA32 cards. For ATM cards, the physical layer drops all errored frames at the controller interface.

For all other card types, this attribute indicates the calculated bit error rate on the link derived from the received errored frames and transmitted frames ratio.

Values: String (0..5, ASCII)

## ATTRIBUTE elapsedTime

Description

This attribute indicates the time elapsed since the test started for an ***externalLoop*** test. For a data test, it indicates time since test data was first transmitted.

Values Decimal (0.00..30240.00)

Units minutes

## ATTRIBUTE timeRemaining

Description

This attribute indicates the length of time remaining before the test stops according to the *duration* attribute.

Values Decimal (0.00..30240.00)

Units minutes

## RESPONSE Other end already linked to component ....

Description

This error response is generated when the user attempts to *Set* a LINK type attribute, when the remote end is already linked to something, and does not support multiple links.

**System action**: the LINK attribute is unchanged.
**Operator action**: if desired, remove the link from the component named in the error response, then retry the original *Set* command.

## ATTRIBUTE currentRemoteValue

Description

This attribute contains the name of the component to which the remote end is currently linked.

Values The name of the component

## RESPONSE Loading provisioning data on the standby CP: ...% done.

Description

A *Switchover*, *Restart*, or *Reset (active cp or lp/0)* command generates this response if the standby CP is still in the process of preloading the provisioning data.

**System Action:** the *Switchover* or *Reset* command is ignored.

**Operator Action**: retry the command later. If an immediate switchover is necessary, you may use the *Restart -force Lp/0* or
*Reset -force Lp/0* command; however doing so may cause FPs to restart.

## ATTRIBUTE percentageDone

Description

This attribute indicates the percentage of the provisioning data loaded onto the standby CP.

Values

Decimal (0..100)

## RESPONSE The software upgrade failed due to a failure in upgrading the standby CP. Failure reason: .....

Description

The Control Processor software upgrade failed because the standby CP failed while being upgraded. Software upgrade is aborted.

## ATTRIBUTE pcsString

Description

This attribute may be used to provide further information.

Values

String (0..512, ASCII)

## ATTRIBUTE pcsAbortReason

Description

This attribute indicates why the software migration is being aborted.

Values

Abort reason undetermined
Inserted card type does not match provisioned card type
Card has been inserted into an unconfigured slot
A software error occured
Card failed self tests
Card is not responding
Card has backplane connectivity problems
Card with unsupported PEC code is inserted
Standby Cp crashed
Active Cp crashed
Software downgrade is detected but not supported
Active spared FP crashed
Disk synchronization failed
Migration stopped via stopprov'command'

## RESPONSE Feature ... must be present in the feature list of at least one Lpt component linked to an Lp in the current view before this provisioning file can be loaded.

Description

A *Load* command produces this response when one or more of the features that appear in the load file are not present in any feature list in the current view. This implies that the software necessary to load some parts of the file is not currently loaded.

**System action**: the file is not loaded. The edit view is unchanged.
**Operator action**: Correct the *featureList* attributes of one or more *LogicalProcessorType* components (found under the *Software* component) as indicated by this response. Check, activate and confirm these changes (this will involve a CP reload). Then retry the original *Load* command.
Note: if necessary, the -*force* option can be used to attempt loading of the file. However, syntax errors will likely result, and some components which are present in the file may not appear in the edit view after loading.
A reload -f(<filename>) lp/0 command is another option to load and activate this file.

## ATTRIBUTE feature

Description: This attribute gives the name of a missing feature that must be added, checked and activated before retrying the *Load* command.

Values: String (1..30, ASCII)

## RESPONSE Av ... must be present in the avList of the Sw component in the current view before this provisioning file can be loaded.

Description: A *Load* command produces this response when one or more of the Application versions that appear in the load file are not present in the AVL of the current view. This implies that the software necessary to load some parts of the file is not currently loaded.

**System action**: the file is not loaded. The edit view is unchanged.
**Operator action**: Correct the *AVL* attribute of the *Software* component by adding the *AV* component as indicated by the response. Check, activate and confirm these changes (this will involve a CP reload). Then retry the original *Load* command.
Note: if necessary, the *-force* option can be used to attempt loading of the file. However, syntax errors will likely result, and some components which are present in the file may not appear in the edit view after loading.
A reload -f(<filename>) lp/0 command is another option to load and activate this file.

## ATTRIBUTE applicationVersion

Description: This attribute gives the name of a missing Av that must be added, checked and activated before retrying the *Load* command.

Values: String (1..30, ASCII)

## RESPONSE Application ... in the current views avList should be version ... before this provisioning file can be loaded. Versions other than this one may also be acceptable.

Description

A *Load* command produces one of these responses for each application version (AV) in the load file which is incompatible with a currently selected AV.

**System action**: the file is not loaded. The edit view is unchanged.
**Operator action**: Correct the *avList* attribute of component *Software* as indicated by this response. Check, activate and confirm these changes (this will involve a CP reload). Then retry the original *Load* command.
Note: if necessary, the *-force* option can be used to attempt loading of the file. However, syntax errors will likely result, and some components which are present in the file may not appear in the edit view after loading.
A reload -f(<filename>) lp/0 command is another option to load and activate this file.

## ATTRIBUTE applicationName

Description

This attribute names an application whose *avList* entry must be changed.

Values

String (1..30, ASCII)

## ATTRIBUTE versionName

Description

This attribute indicates the required version of the named application.

Values

String (1..30, ASCII)

# RESPONSE Application ... in the current views avList must be at least version ... before this provisioning file can be loaded.

Description

A *Load* command produces one of these responses for each application version (AV) in the load file which is incompatible with a currently selected AV.

**System action**: the file is not loaded. The edit view is unchanged.
**Operator action**: Correct the *avList* attribute of component *Software* as indicated by this response. Check, activate and confirm these changes (this will involve a CP reload). Then retry the original *Load* command.
Note: if necessary, the *-force* option can be used to attempt loading of the file. However, syntax errors will likely result, and some components which are present in the file may not appear in the edit view after loading.
A reload -f(<filename>) lp/0 command is another option to load and activate this file.

# ATTRIBUTE applicationName

Description

This attribute names an application whose *avList* entry must be changed.

Values

String (1..30, ASCII)

# ATTRIBUTE versionName

Description

This attribute indicates the minimum required version of the named application.

Values

String (1..30, ASCII)

## RESPONSE The following views or files reference this Av or are corrupted and therefore the Av cannot be removed as requested:

Description

This response is issued to indicate to the user the views (current and/or edit) and/or provisioning files which reference the *A*v that the operator wanted removed. This response can also indicate provisioning files which are corrupted. The result in all cases is that the Av cannot be removed.

## ATTRIBUTE listOfFileNames

Description

This attribute is a list of view and/or file names which reference the associated Av (or possibly are corrupted).

List of String (1..40, ASCII)

## RESPONSE These AV names are invalid and cannot be downloaded:

Description

This response is issued when the user specifies, an Av name in the *avListToDownload*, that has either a missing Application name or a missing Version as part of its name. A valid Av name must consist of both an application name and a version separated by an underscore. These invalid *AVs* are not added to the *avListToDownload*.

## ATTRIBUTE invalidAvNameList

Description

This attribute is a list of *AVs*, which the user attempted to add to the *avListToDownload*, but which are invalid names.

List of String (1..30, ASCII)

## RESPONSE ..... and ... should not be more than 12 hours apart.

Description

This response is issued when a semantic check is done on a Collector, indicating that this pair of times are too far apart. It appears once for each invalid pair of times.

## ATTRIBUTE invalidTimeFirstOfPair

Description

This is the first of a pair of times that are too far apart.

Values Time (HM)

## ATTRIBUTE invalidTimeSecOfPair

Description

This is the second of a pair of times that are too far apart.

Values Time (HM)

## RESPONSE ... component(s) reported errors.

Description

Cas generates this error response when it encounters errors due to incompatible options while processing a wild-carded command.

**System action**: the command is partially executed.
**Operator action**: issue the command again on those components that failed using the correct options.

## ATTRIBUTE count

Description

This attribute identifies the number of errors encountered.

Values Decimal (0..65535)

## RESPONSE The Filesystem is full.

Description

This response is issued when the download is stopped due to the local disk of the file system becoming full.

## ATTRIBUTE fileBeingAccessed

Description: This attribute is the name of the file or directory which is being accessed at the time of the error.

Values: String (1..128, ASCII)

## RESPONSE There is insufficient disk space for download to continue.

Description: This response is issued when the download is stopped because of lack of disk space that the file system has detected.

## ATTRIBUTE fileBeingAccessed

Description: This attribute is the name of the file or directory which is being accessed at the time of the error.

Values: String (1..128, ASCII)

## RESPONSE Cannot download data from SDS; possible link failure.

Description: This response is issued when the download is stopped due to a bad read from the data socket. One possible reason for this is that the download connection path has failed.

## ATTRIBUTE fileBeingAccessed

Description: This attribute is the name of the file or directory which is being accessed at the time of the error.

Values: String (1..128, ASCII)

## RESPONSE The Copy command is not allowed for the ... component.

Description

The *Copy* command produces this response if the *Add* command cannot be applied to the component types specified in the *-source* option.

**System action**: the *Copy* command is not executed.
**Operator action**: none.

## ATTRIBUTE component

Description

This attribute contains the name of the component that cannot be copied.

Values

The name of the component

## RESPONSE The following AV(s) would be removed if the Tidy command was issued without the query option:

Description

This response is returned to the user to indicate which *AVs* would be removed if a *Tidy* command (without the *Query* option) was issued.

## ATTRIBUTE listOfRemovedAvs

Description

This attribute is a list of the names of *AVs* which would be removed if *the Tidy* command is issued without the query option

List of

String (1..30, ASCII)

## RESPONSE ....

Description

This response is generated when a provisioning command, other than the one entered by the operator, is invoked automatically by the system. For example, if *Activate Prov* is entered by the user, and the Edit View has not been semantically checked, the system will automatically invoke the semantic checker before proceeding with the activate.

**System action**: another command will be automatically executed as part of the specified one.
**Operator action**: none. This message is for information only.

## ATTRIBUTE command

Description

This attribute gives the type of provisioning command that is being invoked.

Values

Invoking Activate prov command
Invoking Save prov command
Invoking Load prov command
Invoking Check prov command
Invoking Clear prov command
Invoking Copy prov command
Invoking Commit prov command
Invoking Delete command
Invoking Confirm prov command
Invoking Add command

## RESPONSE View ... has not been saved in a delta format.

Description

This error response is generated when a user attempts to *apply* a view that has not been saved in a ***delta*** format, that is, the difference between the current and edit views at the time of the *Save Prov.*

**System action**: the command is ignored.
**Operator action**: Enter a correct view name.

## ATTRIBUTE file

Description: This attribute is the name of the view saved without the ***delta*** format.

Values: String (1..40, ASCII)

## RESPONSE The base file ... does not exist. The delta file ... cannot be loaded.

Description: A *Load* or an *Activate* command produces this response when the specified file is a delta file and the base for the delta file cannot be found. The base file for the delta file has been deleted, most likely by a manual operator command entered in error.

**System action**: the command is not executed.
**Operator action**: if possible, restore the base file and reissue the *Load* or *Activate* command. Otherwise, use the *Tidy* command to remove the delta file and retry the *Load* or *Activate* using a different view.

## ATTRIBUTE file

Description: This attribute indicates the name of the missing base file.

Values: String (1..40, ASCII)

## ATTRIBUTE fileName

Description: This attribute indicates the name of the delta file which could not be loaded.

Values: String (1..40, ASCII)

## RESPONSE Saving the ... into ... (with ... formats) ...

Description

This response is generated at the start of saving a view to disk. This can occur with *activate*, *commit* or *save*. Saving can be aborted via *stop*. In certain cases, a single *save prov* command can result in both the current and edit views to be saved.

**System action**: none.
**Operator action**: none. This message is for information only.

## ATTRIBUTE view

Description

The view from which components are saved onto disk.

Values

current
edit

## ATTRIBUTE file

Description

This attribute is the name of the view being saved.

Values

String (1..40, ASCII)

## ATTRIBUTE formats

Description

This attribute contains the formats of the provisioning data that are being saved. Refer to the *formats* attribute of the *View* subcomponent for more information.

SET OF

ascii
commit
delta
part
portable

## RESPONSE In the voiceRates attribute:...

Description

This response is used when the user attempts to set the *voiceRates* attribute to an illegal value. The only rate allowed for ***g711Only*** encoding is 64 kbit/s. The only rate allowed for ***g728Only*** encoding is 16 kbit/s. The only rate allowed for ***g729Only*** encoding is 8 kbit/s. The minimum ***g711G726*** rate must be 32, 24 or 16 kbit/s. The maximum ***g711G726*** rate must be 64, 32, 24 or 16 kbit/s. The min ***g711G726*** rate cannot be greater than the max ***g711G726*** rate.

## ATTRIBUTE errorType

Description

See the description in the response.

Values

g711Only rates must be 64.0 kbit/s
g728Only rates must be 16.0 kbit/s
g729Only rates must be 8.0 kbit/s
The minimum g711G726 rate must be 16.0, 24.0 or 32.0 kbit/s
The maximum g711G726 rate must be 16.0, 24.0, 32.0 or 64.0 kbit/s.
The minimum g711G726 rate cannot exceed the maximum g711G726 rate

## RESPONSE In the modemFaxRates attribute:...

Description

This response is used when the user attempts to set the *modemFaxRates* attribute to an illegal value. The only rate allowed for ***g711Only*** encoding is 64 kbit/s. The minimum ***g711G726*** rate must be 32, 24 or 16 kbit/s. The maximum ***g711G726*** rate must be 64, 32, 24 or 16 kbit/s.The minimum ***g711G726*** rate cannot be greater than the max ***g711G726*** rate. The minimum ***relay*** rate must be 0.0 kbit/s. The maximum ***relay*** rate must be 14.4, 12.0, 9.6, 7.2, 4.8 or 2.4 kbit/s.

## ATTRIBUTE errorType

Description

See the description in the response.

Values

g711Only rates must be 64.0 kbit/s
The minimum g711G726 rate must be 16.0, 24.0 or 32.0 kbit/s

The maximum g711G726 rate must be 16.0, 24.0, 32.0 or 64.0 kbit/s
The minimum g711G726 rate cannot exceed the maximum g711G726 rate
The minimum relay rate must be 0.0 kbit/s
The maximum relay rate must be 14.4, 12.0, 9.6, 7.2, 4.8 or 2.4 kbit/s
The minimum relay rate cannot exceed the maximum relay rate

## RESPONSE Error: Command not executed.Component ... does not exist.

Description

The *Start* command produces this response when attempted for a *ServiceTrace* component which has not been provisioned or its receiver specified by *rcvr* attribute has not been provisioned.

**System action**: The *Start* command has no effect.

**Operator action**: Check existence of the specified *ServiceTrace* component or *Rcvr* component, enter command again.

## ATTRIBUTE componentMissing

Description

This attribute is the component name which has not been provisioned.

Values

The name of the component

## RESPONSE Error: The trace call to the receiver has failed with ..., ....

Description

The *Start* command produces this response when the trace call fails to connect to the receiver.

**System action**: The service trace session stopped.

**Operator action**: Check the failure reason according to the values of *clearCause* and *diagnostic*, correct it, enter command again.

## ATTRIBUTE clearCause (cause)

Description: This attribute is the trace VC clear cause.

Values: Hex (H.0..H.ff)

## ATTRIBUTE diagnostic (diag)

Description: This attribute is the trace VC diagnostic code.

Values: String (1..8, Hex)

## RESPONSE You cannot set both operational and provisioned attributes at the same time.

Description: This error response is generated when the operator attempts to set operational and provisioned attributes at the same time, eg,

```
set component oper 5, prov 7
```

This is an error because operational attributes only exist in the current view, while provisioned attributes can only be set in the edit view. This would cause two views to be accessed simultaneously.

**System action**: the entire *Set* command is ignored.
**Operator action**: issue at least two separate *Set* commands, one for the provisioned attributes, and another for the operational ones.

## ATTRIBUTE operationalAttribute

Description: This attribute identifies the operational attribute that conflicts with the provisioned one.

Values: Decimal (0..65535)

## ATTRIBUTE provisionedAttribute

Description: This attribute identifies the provisioned attribute that conflicts with the operational one.

Values: Decimal (0..65535)

## RESPONSE Error:This application is incompatible with the value specified by attribute ... of the component ....

Description

This error message appears in response to a *Check Prov* command if the value specified in the identified attribute is incompatible with an application.

**System action**: The edit view cannot be activated.
**Operator action**: Choose a different value for the indicated attribute.

## ATTRIBUTE valueId

Description

This attribute contains the numeric ID of the attribute whose specified value is incompatible with the application.

Values

Decimal (0..65535)

The name of the component

## ATTRIBUTE valueComponentName

Description

This attribute contains the name of the component containing the attribute whose specified value is incompatible with the application.

Values

The name of the component

## RESPONSE The ... is congested.

Description

This response is returned when either the CP or the first hop of the path to reach the destination is congested.

## ATTRIBUTE congestedComponent

Description

This attribute indicates whether the CP or the path is congested.

Values

CP
path

## RESPONSE ... packets were sent, ... packets were returned.

Description: This response indicates how many query packets were sent and how many of them were returned. It is used in response to the *-all* ping option. The paths found and their usage follow the response.

## ATTRIBUTE numAllPktSent

Description: This attribute indicates how many query packets were sent.

Values: Decimal (1..16)

## ATTRIBUTE numAllPktReceived

Description: This attribute indicates how many query packets were returned.

Values: Decimal (1..16)

## RESPONSE Path ... used ... time(s):

Description: This response contains the header line for a particular path used by one or more ping query packets. It is used in response to the *-all* ping option. The path mentioned in the header line follows the response.

## ATTRIBUTE pathId

Description: This attribute indicates the identifier of the path which follows.

Values: Decimal (1..16)

## ATTRIBUTE pathCount

Description: This attribute indicates how many times the path which follows was used.

Values: Decimal (1..16)

## RESPONSE Destination ..., .... VC path taken is:

Description This response indicates the destination RID and MID of the Frame Relay DLCI connection. It is used for the *ping* command with no option. The path taken by the VC of the Frame Relay DLCI follows the response.

## ATTRIBUTE vcsDestRid

Description This attribute indicates the destination RID of Frame Relay DLCI connection.

Values Decimal (1..127)

## ATTRIBUTE vcsDestMid

Description This attribute indicates the destination MID of Frame Relay DLCI connection.

Values Decimal (1..2046)

## RESPONSE and another ... component(s).

Description This is the normal response to an *Add* command. It displays the number of extra subcomponents which have been added if there were more than 6 in total.

## ATTRIBUTE count

Description This attribute indicates the number of added components that have not been displayed.

Values Decimal (0..65535)

## RESPONSE Error: The following applications have reserved IP addresses. (At most 20 applications are shown.)

Description

A *Check Prov* command generates this response if one or more linked components have a reserved IP address. A reserved IP address is one of:
1) The interface address defined at the *ProtocolPort*.
2) The subnet address - the host portion of the address is all zeros.
3) The broadcast address - the host portion of the address is all ones.

## ATTRIBUTE illegalFriReserved

Description

This attribute contains a list of the offending Frame Relay interfaces.

List of The name of the component

List Size 20

## RESPONSE Selected reference is not capable of providing a reference.

Description

The Set command generates this response whenever an operator adds an invalid component name to the list.

## ATTRIBUTE erroredReferenceEntry

Description

This parameter contains a copy of the offending value.

Values The name of the component

## RESPONSE A ... command is already in progress.

Description

The *Tidy* command produces this response if another *Tidy Prov*, *Tidy Software*, or *Remove Software Av* command is in progress.

**System action**: the *Tidy* command is not executed.
**Operator action**: re-enter the command after the running one has finished.

## ATTRIBUTE tidyAction

Description

This attribute indicates the actual *Tidy* or *Remove* command that is in progress.

Values

tidy prov
tidy software
remove software

## RESPONSE

Description

This response is used to display collected round trip delay information. It contains the sent and returned packets data size in bytes, the emission priority order of the packet, and the average, minimum and maximum round trip delays to the destination in milliseconds. Five samples are sent to the destination. Results are calculated based on returned packets.

## ATTRIBUTE averageRtd

Description

This attribute indicates the average round trip delay to the destination.

Values

Decimal (0..20000)

Units

msec

## ATTRIBUTE minimumRtd

Description

This attribute indicates the minimum round trip delay to the destination.

Values

Decimal (0..20000)

Units msec

## ATTRIBUTE maximumRtd

Description This attribute indicates the maximum round trip delay to the destination.

Values Decimal (0..20000)

Units msec

## ATTRIBUTE sentPktDataSize

Description This attribute indicates the round trip delay query packet data size, excluding the Passport common header and the subnet header, sent to the destination.

Values Decimal (0..4095)

Units bytes

## ATTRIBUTE returnedPktDataSize

Description This attribute indicates the round trip delay acknowledge packet data size, excluding the Passport common header and the subnet header, received from the destination.

Values Decimal (0..4095)

Units bytes

## ATTRIBUTE pktEmissionPriority

Description This attribute indicates the emission priority order used for the round trip delay query.

Values normal
high
interrupting

## ATTRIBUTE numRtdPktSent

Description This attribute indicates how many round trip delay query packets were sent to the destination.

Values Decimal (0..5)

## ATTRIBUTE numRtdPktReceived

Description This attribute indicates how many round trip delay query packets were returned.

Values Decimal (0..5)

## RESPONSE Outgoing Telnet access ....

Description The *Telnet* command produces this error when the attempt to set up a Telnet client connection fails for some reason. The *reason* attribute contains more information as to why it failed.

## ATTRIBUTE reason

Description This attribute contains text which should help the user to know why the *Telnet* command failed.

Values String (0..255, ASCII)

## RESPONSE Invalid Data Length for Facility

Description Facility Classes A,B and C require one, two or three octets of Data, respectively. Facility code D has the length of data encoded in the first byte. The code is determined from the upper two bits of the Facility Code.

## ATTRIBUTE escapeFaxAttributeCode

Description This will just echo back the Facility that was input.

Values String (1..128, Hex)

Hex (H.0..H.ff)

## RESPONSE Error: Component ... does not exist.

Description A *Check Prov* command produces this response when the index of an *IpxSapApplyEntry* does not specify an existing *ProtocolPort*.

## ATTRIBUTE missingPpName

Description: This attribute contains the name of the *ProtocolPort* which does not exist.

Values: The name of the component

## RESPONSE Error: There is no IpxPort component under ....

Description: A *Check Prov* command produces this response when the index of an *IpxSapApplyEntry* specifies a *ProtocolPort* which does not have an *IpxPort* subcomponent.

## ATTRIBUTE missingPpName

Description: This attribute contains the name of the *ProtocolPort* which does not have an *IpxPort* subcomponent.

Values: The name of the component

## RESPONSE Error:The value of ripNeighbor, ..., is not a valid IP address for a RIP neighbor.

Description: A *Check Prov* command produces this response when the attribute *ripNeighbor* is set to an address that does not belong to any Class A, B or C network.

## ATTRIBUTE invalidRipNbrAddress

Description: This attribute contains value of the invalid *ripNeighbor* address.

Values: IP address

## RESPONSE Error:Duplicate sourceAddress found. The sourceAddress must be unique for all StaticEndPoint and

## MultipointStaticEndPoint components within the same sharedDomainVirtualRouter. Please verify against

Description

A *Check Prov* command produces this response when it detects that at least two *StaticEndPoint* or *MultipointStaticEndPoint* components have the identical *sourceAddress* and *sharedDomainVirtualRouter* attributes. The *sourceAddress* of *StaticEndPoint* or *MultipointStaticEndPoint* components within the same *sharedDomainVirtualRouter* must be unique.

**System action**: The *Check Prov* command fails. No *Activate* command is accepted until a subsequent *Check Prov* command completes without errors.

**Operator action**: Change the value of *sourceAddress* or *sharedDomainVirtualRouter* attributes of the related *StaticEndPoint* or *MultipointStaticEndPoint* components to ensure that, the *sourceAddress* of *StaticEndPoint* or *MultipointStaticEndPoint* components within the same *sharedDomainVirtualRouter* is unique.

## ATTRIBUTE otherDupTunnelEndpt

Description

This attribute indicates the other *StaticEndPoints* or *MultipointStaticEndPoints* component which has the identical *sourceAddress* within same *sharedDomainVirtualRouter.*

Values

The name of the component

## RESPONSE File ... compile failed:.....

Description

This returns an informational error string describing why the filter file failed to compile.

## ATTRIBUTE fileName

Description

This attribute holds the fully qualified name of the file we're trying to compile.

Values

String (1..255, ASCII)

## ATTRIBUTE compilerErrorMsg

Description

This attribute contains a single string holding the compiler error which caused the compile to fail.

Values

String (1..80, ASCII)

## RESPONSE Error: The bfrIndex value ... is already being used by other Bfr component. The suggested value is ....

Description

The *Check* command produces this response if two or more *Bfr* components on the same *Lp* have the same *bfrIndex* value.
To correct this problem, change the *bfrIndex* to the suggested value.

## ATTRIBUTE currentValue

Description

This attribute specifies the current value of the attribute *bfrIndex*.

Values

Decimal (0..511)

## ATTRIBUTE suggestedValue

Description

This attribute specifies the suggested value of the attribute *bfrIndex*.

Values

Decimal (0..511)

## RESPONSE Error: ... is an invalid value for attribute ... .

Description

This group contains responses for invalid string values entered by the user. This response will be displayed when the user tries to set to value for a network number / node number string.

## ATTRIBUTE invalidString

Description: This attribute contains the actual string value entered by the user.

Values: String (1..18, ASCII)

## ATTRIBUTE invalidAttribute

Description: This attribute contains the attribute name of the attribute containing the error.

Values: Decimal (1..65535)

## RESPONSE Error: Attribute ... cannot be ... if attribute ... is ... .

Description: This response group informs the user if the *networkNumberProv* and the *defaultType* are incorrectly provisioned. This response will be invoked on a set command.

## ATTRIBUTE netNoName

Description: This attribute contains the name of the *networkNumberProv* attribute to be displayed at response time

Values: Decimal (1..65535)

## ATTRIBUTE netNoValue

Description: This attribute contains the value of the *networkNumberProv* attribute to be displayed at response time.

Values: String (0..4, Dashed Hex)

## ATTRIBUTE defTypeName

Description: This attribute contains the name of the *defaultType* attribute to be displayed at response time.

Values: Decimal (1..65535)

## ATTRIBUTE defTypeValue

Description: This attribute contains the value of the *defaultType* attribute to be displayed at response time.

Values:
other
broadcast
ppp
wanRip
unnumberedRip

## RESPONSE Error : ... cannot be ... for the media provisioned .

Description: This response group informs the user if the if the *defaultType* is incorrectly set based on the encapsulation on the *ipxPort*. This response will be invoked while setting the defaultType value.

## ATTRIBUTE defTypeName

Description: This attribute contains the name of the *defaultType* attribute to be displayed at response time.

Values: Decimal (1..65535)

## ATTRIBUTE defTypeValue

Description: This attribute contains the value of the *defaultType* attribute to be displayed at response time.

Values:
other
broadcast
ppp
wanRip
unnumberedRip

## RESPONSE Host ... responded in ... milliSecs.

Description: This response contains the node address of the host which responded back.

## ATTRIBUTE node

Description: This attribute node address of the host which actually responded to the ping.

Values: String (1..6, Dashed Hex)

## ATTRIBUTE time

Description: This attribute describes the time in which the node responds to the ping request.

Values: Decimal (1..2000)

## RESPONSE Error : ... encapsulation is invalid for provisioned media type.

Description: This response group informs the user if the IpxPort instance Id is incorrectly set for a given media application. This response will be invoked when a Ipx Port is added under the protocol port.

## ATTRIBUTE encapVal

Description: This attribute contains the instance (encapsulation) of the *ipxPort* attribute to be displayed at response time.

Values:
link
ethernet
novell
sap
snap
vns
tunnel

## RESPONSE Error : No Net Sentry component installed under ... .

Description: This response group checks for the presence or absence of the *netSentry* component under the *vr*. This response will be invoked when the user tries to add a NetSentry component under Ipx or A NetSentry Port component under an IpxPort.

## ATTRIBUTE vrName

Description: This attribute contains the name of the *vr* component to be displayed at response time.

Values: The name of the component

## RESPONSE Error: ... cannot exist without ... .

Description: This response group informs the user that an ipx port cannot be provisioned without ipx being provisioned. This response will be invoked while adding an Ipx port under the protocol port.

## ATTRIBUTE ipxPortCompName

Description: This attribute contains the name of the *IpxPort* instance to be displayed at response time

Values: The name of the component

## ATTRIBUTE ipxCompName

Description: This attribute contains the value of the *Ipx* instance to be displayed at response time.

Values: The name of the component

## RESPONSE Error: IPX component ... does not exist.

Description: This group contains responses for invalid protocol port names or SAP Filter ids by the user. This response will be displayed when the user tries add a *IpxSapApplyEntry* filter with a protocol port name or a SAP filter id which has not been provisioned.

## ATTRIBUTE invalidPort

Description: This attribute contains the protocol port component or SAP Filter Component which must be provisioned.

Values: The name of the component

## RESPONSE Error: ... is an invalid value for attribute ... .

Description This group contains a response which will be displayed when the user tries to set a value of 0 or ff-ff-ff-ff for the internal network number.

## ATTRIBUTE invalidValue

Description This attribute contains the actual dashed hex value for the internal network number entered by the user.

Values String (1..4, Dashed Hex)

## ATTRIBUTE invalidAttribute

Description This attribute contains the internal network number attribute which is in error.

Values Decimal (1..65535)

## RESPONSE Error: ... ... is assigned to ... .

Description This response group informs the user if the *networkNumberProv* has already been assigned to an existing *ipxPort*. This check would be invoked on a add command.

## ATTRIBUTE netNoName

Description This attribute contains the name of the *networkNumberProv* attribute to be displayed at response time

Values Decimal (1..65535)

## ATTRIBUTE netNoValue

Description This attribute contains the value of the *networkNumberProv* attribute to be displayed at response time.

Values String (0..4, Dashed Hex)

## ATTRIBUTE ipxPortComp

Description: This attribute contains the *ipxPort* Component to be displayed at response time.

Values: The name of the component

## RESPONSE Error: At least one of the attributes ..., ..., ... or ... should be specified.

Description: A *Check* command will produce this response if the user does not specify the *type*, *name*, *networkNumber* or the *node* for a given SAP filter instance.

## ATTRIBUTE invalidType

Description: This attribute contains the attribute name of the attribute *type*.

Values: Decimal (1..65535)

## ATTRIBUTE invalidName

Description: This attribute contains the attribute name of the attribute *name*.

Values: Decimal (1..65535)

## ATTRIBUTE invalidNetNo

Description: This attribute contains the attribute name of the attribute *networkNumber*.

Values: Decimal (1..65535)

## ATTRIBUTE invalidNode

Description: This attribute contains the attribute name of the attribute *node*.

Values: Decimal (1..65535)

## RESPONSE Error: ... encapType must be llcEncap or ipxVcEncap.

Description

A *check prov* command produces this error message when the attribute *encapType* under the linked *AtmMpe* component is neither ***llcEncap*** nor ***ipxVcEncap***.

## ATTRIBUTE atmMpeName

Description

This attribute contains the name of the *AtmMpe* component.

Values

The name of the component

## RESPONSE ERROR: The attribute ... is not a valid Token Ring group address.

Description

The first two bytes of a valid group address, in canonical form, must be 03-00, and the least significant bit of the next byte must be 1.

## ATTRIBUTE groupMacAdrId

Description

This attribute contains the numeric ID of the MAC address attribute involved in the error.

Values

Decimal (1..65535)

## RESPONSE ERROR: The attribute ... must set its U/L bit to 1.

Description

A provisioned MAC address must have its locally administrative bit set to 1. This response is generated as a result of a semantic failure.

## ATTRIBUTE localAdminMacAdrId

Description

This attribute contains the numeric ID of the MAC address attribute involved in the error.

Values Decimal (1..65535)

## RESPONSE ERROR: The attribute ... can not be provisioned as broadcast address (FF-FF-FF-FF-FF-FF).

Description

The broadcast MAC address is not a valid value for this attribute. This response is generated as a result of a semantic failure.

## ATTRIBUTE bcastMacAdrId

Description

This attribute contains the numeric ID of the MAC address attribute involved in the error.

Values Decimal (1..65535)

## RESPONSE Error: Bridge priority provisioned for this spanning tree is out of range for the following operational protocol specification - ....

Description

This response group is used to encode an error message that will be displayed to the user when the bridge priority semantic check fails. The bridge priority semantic check verifies if the provisioned bridge priority is valid according to the provisioned protocol specification. Priorities supplied by the user must meet the following conditions:
1) 0-255 for protocol specification DEC and
2) 0-65535 for protocol specification IEEE.
**System Action:** The provisioning session will fail
**Operator Action:** Provision the correct value for the attribute *priority* as per the rules mentioned above based upon the *protocolSpec* provisioned for the indicated spanning tree instance.

## ATTRIBUTE opStp

Description: This attribute will carry the operational value of the protocol specification assigned to the spanning tree instance.

Values: both
dec
ieee8021

## RESPONSE Error: Number of ... bridge ports provisioned,... exceeds allowed maximum of ....

Description: This response group is provided to encode the response to be set back to the user in case of a semantic check failure. This semantic check checks if the number of bridge ports provisioned under the same VirtualRouter does not exceed the allowed maximum of 255.
**System Action:** The provisioning session will fail
**Operator Action:** Reduce the number of bridge ports provisioned to be under the allowed maximum of 255.

## ATTRIBUTE brPortType

Description: This attribute contains the bridge type which was exceeded.

Values: String (1..9, ASCII)

## ATTRIBUTE numBrpsProvd

Description: This attribute will actually carry the number of bridge ports provisioned.

Values: Decimal (1..65535)

## ATTRIBUTE numBrpsAllowed

Description: This attribute will actually carry the allowed maximum number of bridge ports.

Values: Decimal (1..65535)

## RESPONSE Error: The following bridge port was provisioned when no port numbers were available: ... This port must be deleted before this session can be activated.

Description

This response group is provided to encode the response to be sent back to the user in case a bridge port was provisioned after the maximum allowed bridge ports were allocated. When this occurs, a port number cannot be assigned to the bridge port and the port is considered to be invalid.
**System Action:** The provisioning session will fail
**Operator Action:** Delete the specified bridge port. If the maximum number of bridge ports is not provisioned, it can be re-added into the system.

## ATTRIBUTE invBrCompName

Description

This attribute will actually carry the component name of the invalid bridge port.

Values

The name of the component

## RESPONSE Error: ... must be the same for all source route bridge ports in the same domain.

Description

The error message is returned when the user has provisioned an invalid *internalLanId, or bridgeNum* value.
**System Action:** The provisioning session will fail
**Operator Action:** Correct the *internalLanId* or bridgeNum value, then initiate a *check prov* or an *act prov* command.

## ATTRIBUTE attributeName

Description

This attribute will carry the name of the *bridgeNum* or *internalLanId* attribute.

Values

Decimal (0..65535)

## RESPONSE Error: Invalid LanId value specfied. ... must be in range (1 - 4095).

Description

The error message is returned when the user has provisioned an invalid *lanId* or *internalLanId* value.
**System Action:** The provisioning session will fail
**Operator Action:** Correct the *lanId* or *internalLanId* value, then initiate a *check prov* or an *act prov* command.

## ATTRIBUTE attributeName

Description

This attribute will carry the name of the *lanid* or *internalLanId* attribute.

Values

Decimal (0..65535)

## RESPONSE ...

Description

Display LanTest specific information, this may be in the form of multiple responses.

## ATTRIBUTE testData

Description

This attribute contains the test information requested.

Values

String (0..255, ASCII)

## RESPONSE ERROR: The attribute ... is not a valid Token Ring functional address.

Description

The provisioned functional address must contain the bit mask of 03-00-fe-8f-84-01.

## ATTRIBUTE funcAdrId

Description

This attribute contains the numeric ID of the functional address attribute involved in the error.

Values

Decimal (1..65535)

## RESPONSE Warning: (00-00-00-00-00-00) is provisioned for attribute ....

Description

A MAC address consisting of all zeros is not a valid value for this attribute. This response is generated as a result of a semantic failure.

## ATTRIBUTE zeroMacAdrId

Description

This attribute contains the numeric ID of the MAC address attribute involved in the error.

Values Decimal (1..65535)

## RESPONSE Error: Attribute ... has an illegal value of ... for this bridge port and medium combination.

Description

A *check prov* command produces this response if the attribute *preserveDomain* cannot have the value ***on*** for the given bridge port and medium combination.
The Ethernet media cannot handle a value of ***on*** for the attribute *preserveDomain*.
**System Action:** A error message is generated and provisioning session fails.
**Operator Action:** Set the value of *preserveDomain* attribute to ***off***.

## ATTRIBUTE pd

Description

This attribute carries the name of the *preserveDomain* attribute.

Values Decimal (1..65535)

## ATTRIBUTE pdVall

Description

This attribute will carries the value of the *preserveDomain* attribute.

Values off
on

## RESPONSE Error: Attribute ... has an illegal value of ... for this bridge port and medium combination.

Description This response group is provided to encode the response to be sent back to the user in case of a semantic check failure. This semantic check checks if the attribute *serviceClass* can have the value ***ordered*** for the given bridge port and medium combination. This response is not supported as the attribute *serviceClass* was obsoleted.
**System Action**: A error message is generated and provisioning session fails.
**Operator Action**: Set the value of *serviceClass* attribute to ***notOrdered***. After this type in the *check prov* or the *act prov* command.

## ATTRIBUTE svc

Description This attribute will actually carry the name of the *serviceClass* attribute.

Values Decimal (1..65535)

## ATTRIBUTE svcVal

Description This attribute will actually carry the value of the *serviceClass* attribute.

Values ordered
notOrdered

## RESPONSE No name

Description This is an EGP Neighbor Loss Trap derived from rfcs 1450/rfc1213/1157.An egpNeighborLoss trap signifies that an *EgpNeighbor* has been marked down and the EGP peer relationship no longer obtains.

## ATTRIBUTE egpNeighAddrOid

Description: This is the object identifier of the EgpNeighAddr variable binding in the trap
The object identifier is “root.iso.org.dod.internet.mgmt.mib-2.egp.egpNeighTable.egpNeighEntry.egpNeighAddr”

Values: Integer Sequence

## ATTRIBUTE egpNeighAddrValue

Description: This is the value of the egpNeighAddr that has been lost.

Values: IP address

## RESPONSE IpPing: Rx reply of ... bytes from ...: icmpSeq=..., time=...ms

Description: This response indicates that the ping to the specified IP address was successful.

## ATTRIBUTE bytes

Description: This attribute indicates the number of bytes contained in the IP echo reply packet.

Values: Decimal (30..20000)

## ATTRIBUTE ipAddr

Description: This attribute indicates the IP address of the remote host.

Values: IP address

## ATTRIBUTE sequence

Description: This attribute indicates the sequence number contained in the echo reply.

Values: Decimal (0..4294967295)

## ATTRIBUTE time

Description This attribute indicates the time the echo request/reply takes to make a round trip.

Values Decimal (0..65535)

## RESPONSE Destination ... is not responding after ... attempt(s).

Description This response indicates that the ping to the specified IP address was unsuccessful.

## ATTRIBUTE ipAddr

Description This attribute indicates the *ipAddr* of the remote host.

Values IP address

## ATTRIBUTE attempts

Description This attribute indicates the number of attempts made before the *Ping* command declared that the destination was not responding.

Values Decimal (1..4095)

## RESPONSE IP Trace Route for ...:Path taken:

Description This response contains the header line used when the -*traceRoute* ping option was specified. It is used when the trace was successful. The path taken follows this response.

## ATTRIBUTE ipAddr

Description This attribute indicates the IP address of the remote host.

Values IP address

# RESPONSE No name

Description

This is the Dlci Status Change Trap derived from the draft Frame Relay DTE MIB (draft-ietf-iplpdn-frmib-dte-02.txt). This trap event is generated when a virtual circuit changes state. It has either been created or invalidated, or has toggled between the active and inactive states. The object identifier for this trap is “root.iso.org.dod.internet.mgmt.mib-2.transmission.frameRelay.frameRelayTraps.frDLCIStatusChange”

# ATTRIBUTE frCircuitStateObjectId

Description

This is the object identifier of the frCircuitState variable binding in the trap. The object identifier is “root.iso.org.dod.internet.mgmt.mib-2.transmission.frameRelay.frCircuitTable.frCircuitEntry.frCircuitState” plus an instance specific portion.

Values

Integer Sequence

# ATTRIBUTE frCircuitStateValue

Description

This is the value of the frCircuitState variable binding in the trap. The value of frCircuitState indicates whether the particular virtual circuit is operational. The object identifier of this variable binding is
“root.iso.org.dod.internet.mgmt.mib-2.transmission.frameRelay.frCircuitTable.frCircuitEntry.frCircuitState”
plus an instance specific portion.

Values

invalid
active
inactive

## RESPONSE Error: Number of ... stp instances exceeds allowedmaximum of 16.

Description

This response group is provided to encode the response to be sent back to the user in case of a semantic check failure. This semantic check checks if the total number of stp instances does not exceed 16.
This response will contain a message that corresponds to the finding that the number of stp instances provisioned exceeds 16.
**System Action:** The provisioning session will fail
**Operator Action:** Verify that the number of instances of the component *SpanningTreeProtocol* provisioned are less than 16. This includes the *SpanningTreeProtocol* component with the value of its attribute *stpMode* set to ***backbone***. If there are more instances of the component *SpanningTreeProtocol* provisioned than allowed then delete the unwanted instances of the same. After this type in the *check prov* or the *act prov* command.

## ATTRIBUTE mode

Description

This attribute will actually carry the mode of stp found in violation.

Values

tb
sr

## RESPONSE Error: Interdependency criterion between ..., and ... not satisfied.

Description

This response group is provided to encode the response to be sent back to the user in case of a semantic check failure. This semantic check checks if the following criteria are satisfied: *bridgeMaxAge* >= 2 * *bridgeHelloTime* + 1.0 seconds.
**System Action:** The provisioning session will fail
**Operator Action:** Check the values of the indicated attributes and ensure that the criterion mentioned below is satisfied. After this type in the *check prov* or the *act prov* command.

## ATTRIBUTE bma

Description: This attribute will actually carry the name of one of the attributes that is used to verify the criteria. The attribute's name is *bridgeMaxAge.*

Values: Decimal (1..65535)

## ATTRIBUTE bht

Description: This attribute will actually carry the name of one of the attributes that is used to verify the criteria. The attribute's name is *bridgeHelloTime*.

Values: Decimal (1..65535)

## RESPONSE Error: Interdependency criterion between ... and ... is not satisfied.

Description: This response group is provided to encode the response to be sent back to the user in case of a semantic check failure. This semantic check checks if the following criteria are satisfied: 2 *(*bridgeForwardDelay* -1.0sconds) >= *bridgeMaxAge***.**
**System Action:** The provisioning session will fail
**Operator Action:** Check the values of the indicated attributes and ensure that the criterion mentioned below is satisfied**.** After this type in the *check prov* or the *act prov* command.

## ATTRIBUTE bma

Description: This attribute will actually carry the name of one of the attributes that is used to verify the criteria. The attribute's name is *bridgeMaxAge.*

Values: Decimal (1..65535)

## ATTRIBUTE bfd

Description: This attribute will actually carry the name of one of the attributes that is used to verify the criteria.The attribute's name is *bridgeForwardDelay.*

Values Decimal (1..65535)

## RESPONSE Error: The following component ..... does not exist.

Description

This response group is provided to encode the response to be sent back to the user in case of a semantic check failure. This semantic check checks if the bridge port mentioned as the value of the *receivePort* attribute has already been provisioned.
This response contains a message that corresponds to the finding that the bridge port used as *receivePort* has not been provisioned yet. A bridge port must be provisioned in the same provisioning session as the *StaticTableEntry* component.
**System Action:** The provisioning session will fail
**Operator Action:** Provision the indicated bridge port or change the value of the attribute *receivePort* so that it does not refer to a bridge port that has not been provisioned yet. Also ensure that the provisioned bridge port name is a valid bridge port name. After this type in the *check prov* or the *act prov* command.

## ATTRIBUTE ppName

Description

This attribute will actually carry the component name of the protocol port that was used as a part of the value of the *receivePort* attribute. Protocol port(s) and bridge port(s) that are going to be used in the attribute *receivePort* must be provisioned before they are referred to.

Values The name of the component

## ATTRIBUTE brPortName

Description

This attribute will actually carry the name of the bridge port that was used as the value of the *receivePort* attribute but was not found to be provisioned yet. This could also be due to the fact that an invalid bridge port name was provisioned. Bridge port(s) that are going to be used as *receivePort* must be provisioned before they are referred to.

Values String (1..29, ASCII)

## RESPONSE Error: The following bridge port, part of attribute ..., does not exist.- ... .

Description This response group is provided to encode the response to be sent back to the user in case of a semantic check failure. This semantic check checks if all the bridge ports mentioned in the *allowedToGoTo* attribute are already provisioned.
This attribute contains a message that corresponds to the finding that some bridge port(s) specified in the attribute *allowedToGoTo* has / have not been provisioned yet. All bridge ports mentioned in this attribute are expected to be provisioned before they are referred to.
**System Action:** The provisioning session will fail
**Operator Action:** Provision the indicated bridge ports or change the value of the attribute *allowedToGoTo* so that it does not refer to bridge port(s) that has/have not been provisioned yet. After this type in the *check prov* or the *act prov* command.

## ATTRIBUTE atgt

Description This attribute will actually carry the name of the attribute *allowedToGoTo* under the component *StaticTableEntry.*

Values Decimal (1..65535)

## ATTRIBUTE brPortName

Description This attribute will actually carry the component name of the bridge ports that were mentioned in the attribute *allowedToGoTo* under the component *StaticTableEntry* and was not found to be provisioned yet.

Values The name of the component

## RESPONSE Error: No Net Sentry component installed under ....

Description

This response group is provided to encode the response to be sent back to the user in case of a semantic check failure. This semantic check, checks for the following:
1. If the global component *NetSentry* is provisioned yet.
This attribute houses a message that corresponds to the finding that the component *Vr/<string> Bridge NetSentry* was provisioned before the *Vr/<string> NetSentry* component.
**System Action:** The provisioning session will fail.
**Operator Action:** Provision the global *Vr/<string> NetSentry* component or delete the component *Vr/<string> Bridge NetSentry.* After this type in the *check prov* or the *act prov* command.

## ATTRIBUTE noGlobalNsComp

Description

This attribute will actually carry the component name of the *Vr/<string>* component to be displayed at response time.

Values

The name of the component

## RESPONSE Error: Following domain number must be provisioned before being referred to- ....

Description

This response group is provided to encode the response to be sent back to the user in case of a semantic check failure. This semantic check, checks for the following:
If the referenced domain number is actually provisioned.
This attribute houses a message that corresponds to the finding that the domain number referred to in the component *ApplyTableEntry* has not been provisioned yet.
**System Action:** The provisioning session will fail
**Operator Action:** Provision the indicated domain number, setting it as the value of the attribute *domainNum* of a bridge port or change the value of the attribute *domainNum* in the *NsAte* component so that it refers to a domain that has already been provisioned. After this type in the *check prov* or the *act prov* command.

## ATTRIBUTE domNum

Description: This attribute will actually carry the domain number which was expected to be provisioned but was not found to be so.

Values: Decimal (0..4294967293)

## RESPONSE Error: This bridge port cannot exist without the following component- ....

Description: This response group is provided to encode the response to be sent back to the user in case of a semantic check failure. This semantic check checks if the *TransparentBridge* component is provisioned when a bridge port exists.
This response contains a message that corresponds to the finding that one of the above mentioned components, required for the operation of this bridge port, has not been provisioned yet.
**System Action:** The provisioning session will fail
**Operator Action:** Provision the indicated component. After this type in the *check prov* or the *act prov* command.

## ATTRIBUTE compName

Description: This attribute will actually carry the component name that is required for the operation of the bridge port.

Values: The name of the component

## RESPONSE Error: It is illegal to provision this bridge port and the following bridge port under the same protocol port- ....

Description

This response group is provided to encode the response to be sent back to the user in case of a semantic check failure. This semantic check checks if the combination of bridge ports provisioned under the protocol port is legal, given the bridge port types and the associated medium. This response is obsoleted as only the transparent bridge port is supported.
**System Action:** The provisioning session will fail
**Operator Action:** Delete one of the bridge ports provisioned under the indicated protocol port. This bridge port can be provisioned under a different protocol port as per the rules mentioned below.

## ATTRIBUTE brpName

Description

This attribute carries the component name of the bridge port which is found to be an illegal combination when provisioned together with the bridge port being checked, under the same protocol port.

Values

The name of the component

## RESPONSE Error: Either A) the domain number assigned to this bridge port is wrong, since it is being used as an instanceidentifier of the backbone stp- ...; or B) the

## preserveDomainattribute of this bridge port is wrong and it should be set ON.

Description

A *check prov* command produces this response if the domain number provisioned for the access bridge port is the same as the instance identifier of the man *stp*.
This response contains a message which corresponds to the finding that the domain number assigned to the access bridge port is the same as the instance identifier of the backbone *stp* instance. A *stp* component's instance identifier usually represents the domain it is associated with, except when the attribute *stpMode* in the *stp* component has a value of ***backbone***. This instance cannot be used as a domain number for a access bridge port.
**System Action:** The provisioning session will fail.
**Operator Action:** Verify that the domain number assigned to any access bridge port is not equal to the instance identifier of the *SpanningTreeProtocol* component whose attribute *stpMode* is set to ***backbone***. If such a condition is found, change the domain number assigned to concerned bridge port(s).

## ATTRIBUTE domNum

Description

This attribute will carries the domain number found in violation.

Values

Decimal (0..4294967295)

## RESPONSE Error: Bridge port priority provisioned out of range for the following operational stp type- ....

Description

This response group is provided to encode the response to be sent back to the user in case of a semantic check failure. This semantic check checks if the bridge port priority range is correct as according to the operational stp type.
This response contains a message that corresponds to the finding that the bridge port priority is found to be other than the following range for the corresponding stp type:
1) 0-255 for stp type DEC and
2) 0-65535 for stp type IEEE.
**System Action:** The provisioning session will fail
**Operator Action:** Provision the correct value for the attribute *portPriority* as per the rules mentioned above. After this type in the *check prov* or the *act prov* command.

## ATTRIBUTE opStp

Description

This attribute will carry the operational value of the stp type the bridge port will participate in.

Values

dec
ieee8021

## RESPONSE Error: There should exist at least one instance of the following stp component for this bridge port to be operational- ....

Description

This response group is provided to encode the response to be sent back to the user in case of a semantic check failure. This semantic check checks if there exists at least one instance of the *SpanningTreeProtocol* component provisioned while there exist bridge ports provisioned.
This response contains a message that corresponds to the finding that there does not exist a single instance of the *SpanningTreeProtocol* component provisioned while there exist bridge ports provisioned. In other words it is not allowed to provision bridge ports that are out of stp's reach.
**System Action:** The provisioning session will fail
**Operator Action:** Provision an instance of the component *SpanningTreeProtocol*. After this type in the *check prov* or the *act prov* command.

## ATTRIBUTE stpComp

Description

This attribute will carry the name of the stp component needed for the operation of the bridge port.

Values

The name of the component

## RESPONSE Error: It is illegal for the following bridge port ... to be the value of the attribute receivePort, and part of attribute ... .

Description

This response group is provided to encode the response to be sent back to the user in case of a semantic check failure. This semantic check checks if the bridge port mentioned in the *receivePort* attribute appears in the *allowedToGoTo* attribute.
**System Action:** The provisioning session will fail
**Operator Action:** Provision the value of the attribute *allowedToGoTo* so that the bridge port provisioned as the *receivePort* does not appear in it. After this type in the *check prov* or the *act prov* command.

## ATTRIBUTE brPortName

Description

This attribute will actually carry the name of the bridge port that was used as the value of the *receivePort* attribute but was found to be a part of the attribute *allowedToGoTo*. Bridge port(s) that are going to be used as *receivePort* cannot appear in the *allowedtoGoTo* attribute.

Values

String (1..29, ASCII)

## ATTRIBUTE atgt

Description

This attribute will actually carry the name of the attribute *allowedToGoTo* under the component *StaticTableEntry.*

Values

Decimal (1..65535)

## RESPONSE ERROR: The attribute ... can not be provisioned as a multicasting address.

Description

A multicasting address is not a valid value for this attribute. This response is generated as a result of a semantic failure.

## ATTRIBUTE mcastMacAdrId

Description

This attribute contains the numeric ID of the MAC address attribute involved in the error.

Values

Decimal (1..65535)

## RESPONSE WARNING: The attribute ... is provisioned.

Description

This Warning message is generated when a MAC address is provisioned.

## ATTRIBUTE provMacAdrScId

Description

This attribute contains the numeric ID of the provisioned MAC address.

Values Decimal (1..65535)

## RESPONSE Error:The ... feature must be provisioned on ....

Description

The *Start* command produces this response when attempted against a service trace receiver without the corresponding trace receiver feature having been provisioned.

**System action:** The *Start* command has no effect.

**Operator action:** Add the required feature to the list of features specified by the *featureList* for this LP, issues *Start* command again.

## ATTRIBUTE rcvrFeature

Description

This attribute is the trace receiver feature which must be provisioned.

Values String (0..20, ASCII)

## ATTRIBUTE lp

Description

This attribute is the component name of the LP which has requested a trace.

Values The name of the component

## RESPONSE Cannot Unlock - attribute ... is not set to up.

Description

This error response is generated when an operator attempts to *Unlock* a component whose currently provisioned administrative status is ***down*** or ***testing***.

**System action**: the *Unlock* command is ignored.
**Operator action**: if desired, change the value provisioned for the indicated attribute to ***up***, then retry the original *Unlock* command. Note that doing this will cause the component to attempt to go into service whenever a CP reload occurs.

## ATTRIBUTE attribute

Description

This attribute identifies the provisioned administrative status attribute.

Values

Decimal (0..65535)

## RESPONSE Destination reachable. Measured round trip delay ....

Description

This response contains the measured round trip delay taken to reach the destination node.

## ATTRIBUTE roundTripDelay

Description

This attribute contains the round trip delay encountered to reach the destination node.

Values

Decimal (0..10000)

## RESPONSE .....

Description

This response contains the *nodeName* and *nodeId* of an intermediate node in the network that was visited as the ping query packet travelled to its destination. The order of nodes listed (through multiple occurances of this response) is the order the nodes were traversed.

## ATTRIBUTE nodeName

Description: This attribute contains the *nodeName* of each intermediate node that was visited as the ping query packet travelled to its destination.

Values: String (1..12, ASCII)

## ATTRIBUTE nodeId

Description: This attribute contains the *nodeId* of each intermediate node that was visited as the ping query packet travelled to its destination.

Values: Decimal (1..4095)

## RESPONSE Path ... used ... times:

Description: This response contains the header line for a particular path used by one or more ping query packets. It is used in response to the *-all* ping option. The path taken follows this response.

## ATTRIBUTE pathInstance

Description: This attribute contains the instance number of the path which follows.

Values: Decimal (1..16)

## ATTRIBUTE pathCount

Description: This attribute contains the count of the number of times the path which follows was used.

Values: Decimal (1..16)

## RESPONSE Measured maximum round trip delay was ....

Description: This response contains the maximum measured round trip delay taken to reach a destination node in the logical network.

## ATTRIBUTE maxRoundTripDelay

Description: This attribute contains the round trip delay encountered to reach the destination node.

Values: Decimal (0..10000)

## RESPONSE Cannot Unlock - attribute ..... is not set to active.

Description: This error response is generated when an operator attempts to *Unlock* a component corresponding to a provisioned SNMP table row whose *rowStatus* is not ***active***. Note that if the table can have dynamic as well as provisioned rows, the component containing the provisioned data is not the same as the one representing the SNMP table.

**System action**: the *Unlock* command is ignored.
**Operator action**: if desired, change the value provisioned for the indicated attribute to ***active***, then retry the original *Unlock* command.

## ATTRIBUTE provisionedComponent

Description: This attribute identifies the component which contains the provisioned *rowStatus* attribute. It is present only if the component is different from that specified in the *Unlock* command.

Values: The name of the component

## ATTRIBUTE rowStatusAttribute

Description: This attribute identifies the provisioned *rowStatus* attribute.

Values: Decimal (0..65535)

The name of the component

## RESPONSE Error:...The value specified for ... is invalid. It must be in SnmpUdpAddress Format: IPaddress-UDPport, where UDPport is 162.

Description

A *Set Vr/x Snmp Community/n Manager/n transportAddress* command produces this response when the specified *transportAddress* has an invalid format.

**System action**: the command is ignored.

**Operator action**: retry the command with a valid *transportAddress*.

## ATTRIBUTE snmpUdpAddressFormat

Description

This attribute contains the numeric ID of the attribute whose value was *Set* incorrectly.

Values

Decimal (1..65535)

## RESPONSE Error:...The ... attribute does not match any ... instance.

Description

This error message appears in response to a *Check Prov* command if the value of an *Vr/x Snmp Community/n viewIndex* attribute does not match the replication *index* for a *Vr/x Snmp View/x, n.n* component.

**System action**: The provisioning view cannot be activated.

**Operator action**: Set the *viewIndex* attribute to match the replication *index* of an existing *View* component, or add a *View* component with the replication *index* corresponding to *viewIndex*.

## ATTRIBUTE attrInError

Description

This attribute contains the numeric ID of the *viewIndex* attribute whose value was not properly set.

Values

Decimal (1..65535)

## ATTRIBUTE viewComponent

Description: This attribute indicates a pattern for a *View* component name which is meant to be referenced by the *viewIndex* attribute.

Values: The name of the component

## RESPONSE Error:...The ... attribute is set incorrectly. The set bit should be consistent with the access mode specified by ... .... The v1Trap and v2Trap may not be set simultaneously.

Description: This error message appears in response to a *Check Prov* command if the value of the *Vr/x Snmp Community/n Manager/n* component's *privileges* attribute is inconsistent with the parent *Community* component's *accessMode* attribute. Note that ***set*** operations are only allowed if the *Community accessMode* is ***readWrite***.

**System action**: The provisioning view cannot be activated.

**Operator action**: Change the *Manager privileges* to be consistent with the *Community accessMode*, or change the *Community accessMode* to allow the *Manager privileges*.

## ATTRIBUTE privilegesAttribute

Description: This attribute contains the numeric ID of the *privileges* attribute involved in the conflict.

Values: Decimal (1..65535)

## ATTRIBUTE relatedComponent

Description: This attribute contains the component name of the parent *Community* component, whose *accessMode* attribute is involved in the conflict.

Values: The name of the component

## ATTRIBUTE accessModeAttribute

Description: This attribute contains the numeric ID of the parent *Community* component's *accessMode* attribute involved in the conflict.

Values: Decimal (1..65535)

The name of the component

## RESPONSE Error:...There are ... instances of the ... component. The maximum number of allowed instances is ....

Description: This error message is generated in response to a *Check Prov* command when the maximum number of *Party, Context or Acl* components has been exceeded.

**System action**: The provisioning view cannot be activated.

**Operator action**: Delete enough *Party, Context or Acl* components so that the maximum number of components is not exceeded.

## ATTRIBUTE numberOfSubcomponents

Description: This attribute contains the number of subcomponents. This value exceeds the maximum number allowed.

Values: Decimal (0..4294967295)

## ATTRIBUTE nameOfSubcomponent

Description: This attribute contains the name of the subcomponent which has too many instances. It can be *Party, Context*, or *Acl*.

Values: The name of the component

## ATTRIBUTE maximumNumberOfSubcomponents

Description: This attribute contains a value indicating the maximum number of allowed subcomponents.

Values Decimal (0..4294967295)

## RESPONSE Error:...The ... and ... components have the same value for the ... attribute.

Description This error message is generated in response to a *Check Prov* command when duplicate *Vr/x Snmp Community/n Manager/n* components are found. The *Manager* components are the same if the value of their *transportAddress* attributes are the same.

**System action**: The provisioning view cannot be activated.

**Operator action**: Delete one of the *Manager* components or ensure that their *transportAddress* attributes are different.

## ATTRIBUTE managerComponent1

Description This attribute contains the component name of the first instance of duplicate *Manager* components.

Values The name of the component

## ATTRIBUTE managerComponent2

Description This attribute contains the component name of the second instance of duplicate *Manager* components.

Values The name of the component

## ATTRIBUTE duplicatedAttribute

Description This attribute contains the numeric ID of the *transportAddress* attribute which must be unique among *Manager* components.

Values Decimal (1..65535)

# RESPONSE Error:...The ... and ... components have the same value for the ..., and ... attributes.

Description

This error message is generated in response to a *Check Prov* command when duplicate *Vr/x Snmp Community/n* components are found. The *Community* components are the same if they have the same values for their *communityString* and *tDomain* attributes.

**System action**: The provisioning view cannot be activated.

**Operator action**: Delete one of the *Community* components or change the value of at least one of the *communityString* or *tDomain* attributes so that the *Community* components are no longer the same.

# ATTRIBUTE communityComponent1

Description

This attribute contains the component name of the first duplicate *Community* component.

Values

The name of the component

# ATTRIBUTE communityComponent2

Description

This attribute contains the component name of the second duplicate *Community* component.

Values

The name of the component

# ATTRIBUTE duplicatedAttribute1

Description

This attribute contains the numeric ID of the *communityString* attribute which is involved in the conflict.

Values

Decimal (1..65535)

# ATTRIBUTE duplicatedAttribute2

Description

This attribute contains the numeric ID of the *tDomain* attribute which is involved in the conflict.

Values

Decimal (1..65535)

## RESPONSE Warning:The value of the ... ... attribute has been changed from ... to ... on the copy.

Description

This warning message appears in response to a *Copy* command when a component containing an attribute whose value must be unique is copied. A new value for the named attribute in the destination component is automatically assigned when the *Copy* is done.

**System action**: the named attribute has been assigned a unique value.
**Operator action**: none.

## ATTRIBUTE nameOfChangedComponent

Description

This attribute contains the name of the destination component whose attribute value was changed.

Values

The name of the component

## ATTRIBUTE changedAttribute

Description

This attribute contains the numeric ID of the attribute whose value was changed.

Values

Decimal (1..65535)

The name of the component

## ATTRIBUTE oldValueOfAttribute

Description

This attribute contains the original value of the attribute in the source component of the *Copy* operation.

Values

Decimal (0..4294967295)

## ATTRIBUTE newValueOfAttribute

Description

This attribute contains the newly assigned value of the attribute in the destination component of the *Copy* operation.

Values

Decimal (0..4294967295)

# RESPONSE Error:...SNMP requires the VirtualRouter Ip component to be provisioned when the ... attribute has the value ....

Description

This error message is generated in response to a *Check Prov* command when a *Vr/x Snmp ipStack* attribute has a provisioned value of ***vrIp*** and the *Vr/x Ip* component has not been provisioned.

**System action**: The provisioning view cannot be activated.

**Operator action**: Provision the *Vr/x Ip* component or change the value of the *Vr/x Snmp ipStack* attribute, or delete the *Vr/x Snmp* component.

# ATTRIBUTE attributeInError

Description

This attribute contains the numeric ID for the *ipStack* attribute involved in the conflict.

Values

Decimal (1..65535)

# ATTRIBUTE attributeValue

Description

This attribute contains the value of the *ipStack* attribute involved in the conflict.

Values

vrIp
ipiFrIpiVc

## RESPONSE Error: ... SNMP requires the IpiFr or IpiVc component to be provisioned when the ... attribute has the value ....

Description

This error message is generated in response to a *Check Prov* command when a *Vr/x Snmp ipStack* attribute has a provisioned value of ***ipiFrIpiVc*** and neither *IpiFr* nor *IpiVc* component have been provisioned.

**System action**: The provisioning view cannot be activated.

**Operator action**: Provision the *IpiFr* or *IpiVc* component or change the value of the *Vr/x Snmp ipStack* attribute, or delete the *Vr/x Snmp* component.

## ATTRIBUTE attributeInError

Description

This attribute contains the numeric ID for the *ipStack* attribute involved in the conflict.

Values

Decimal (1..65535)

## ATTRIBUTE attributeValue

Description

This attribute contains the value of the *ipStack* attribute involved in the conflict.

Values

vrIp
ipiFrIpiVc

# RESPONSE Warning:...A unique value could not be assigned to the ..... attribute.

Description

This warning message appears in response to an *Add* or *Copy* command when it is not possible to assign a unique value to an attribute whose value must be assigned when the *Add* or *Copy* is done. All possible values are currently in use by other components of the same type.

**System action**: the attribute specified in the response could not be assigned a valid value and the component is left with invalid provisioning data.
**Operator action**: the component specified in the response should be *deleted*. If you wish to add this component again, then you should *delete* other components of the same type and *activate* the provisioning view in order to free up attribute values.

# ATTRIBUTE nameOfAffectedComponent

Description

This attribute contains the name of the component whose attribute was not assigned a valid value. This attribute will not appear if the component which generates the response contains the attribute whose value was not properly assigned.

Values

The name of the component

# ATTRIBUTE componentAttribute

Description

This attribute contains the numeric id of the attribute which was not assigned a valid value. This attribute will not appear if the component which generates the response contains the attribute whose value was not properly assigned.

Values

Decimal (1..65535)

The name of the component

## ATTRIBUTE attribute

Description: This attribute contains the numeric id of the attribute which was not assigned a valid value. This attribute will only appear if the component which generates the response contains the attribute whose value was not properly assigned.

Values: Decimal (1..65535)

## RESPONSE Error:...The Vr managementAccess attributemust be enabled when the ... attribute has the value ....

Description: This error message is generated in response to a *Check Prov* command when a *Vr/x Snmp ipStack* attribute has a provisioned value of ***ipiFrIpiVc*** and *Vr/x managementAccess* attribute is set to ***disabled***.

**System action**: The provisioning view cannot be activated.

**Operator action**: Change the value of the value of *Vr/x Snmp ipStack* attribute to ***vrIp*** or change the *Vr/x managementAccess* attribute value or remove the *Vr/x Snmp* component.

## ATTRIBUTE attributeInError

Description: This attribute contains the numeric ID for the *ipStack* attribute involved in the conflict.

Values: Decimal (1..65535)

## ATTRIBUTE attributeValue

Description: This attribute contains the value of the *ipStack* attribute involved in the conflict.

Values: vrIp
ipiFrIpiVc

## RESPONSE Error:...The Vr managementAccess attribute must be enabled when the ... attribute has the value ....

Description

This error message is generated in response to a *Check Prov* command when a *Vr/x Snmp alarmsAsTraps* attribute has a provisioned value of ***enabled*** and the *Vr/x managementAccess* attribute is set to ***disabled***.

**System action**: The provisioning view cannot be activated.

**Operator action**: Change the value of the *Vr/x Snmp alarmsAsTraps* attribute to ***disabled*** or change the *Vr/x managementAccess* attribute value or remove the *Vr/x Snmp* component.

## ATTRIBUTE attributeInError

Description

This attribute contains the numeric ID for the *alarmsAsTraps* attribute involved in the conflict.

Values

Decimal (1..65535)

## ATTRIBUTE attributeValue

Description

This attribute contains the value of the *alarmsAsTraps* attribute involved in the conflict.

Values

enabled
disabled

## RESPONSE Error: ... Snmp requires the Man component to be provisioned when the ... attribute has the value ....

Description

This error message is generated in response to a *Check Prov* command when a *Vr/x Snmp alarmsAsTraps* attribute has a provisioned value of ***enabled*** and no *Man* component has been provisioned.

**System action**: The provisioning view cannot be activated.

**Operator action**: Provision the *Man* component or change the value of the *Vr/x Snmp alarmsAsTraps* attribute, or delete the *Vr/x Snmp* component.

## ATTRIBUTE attributeInError

Description

This attribute contains the numeric ID for the alarmsAsTraps attribute involved in the conflict.

Values

Decimal (1..65535)

## ATTRIBUTE attributeValue

Description

This attribute contains the value of the alarmsAsTraps attribute involved in the conflict.

Values

enabled
disabled

## RESPONSE Error:...The mib subtree specified in the view instance... is not allowed on a non management virtual router.

Description

This error message appears in response to a *Check Prov* command if the MIB subtree value specified in the subscriber V*r/x Snmp View* is starting with 1.3.6.1.4.1.562

**System action**: The provisioning view cannot be activated.

**Operator action**: Change the MIB subtree value specified in the subscriber V*r/x Snmp View* to indicate a branch which is not associated with Nortel Enterprise MIB branches, or delete this *view.*

## ATTRIBUTE actualValProved

Description

This attribute contains the actual value of the MIB subtree specified in a subscriber *Vr/x snmp view* component, which causes the conflict.

Values

The name of the component

## RESPONSE Error: The Stp component must ...exist for ... connections.

Description

This response is generated by the *Check Prov* command when *SrcPvc* or *DstPvc* exists, but *Stp* does not exist, or *Stp* exists, but *SrcPvc* or *DstPvc* does not exist.

## ATTRIBUTE invalid

Description

Either “” or “not ”.

Values

String (0..4, ASCII)

## ATTRIBUTE connection

Description

Either “SPVC” or “PVC”.

Values

String (3..4, ASCII)

# RESPONSE Error: This is a backbone brige port ( preserveDomain = on), but its domainNum matches the STP instance of the access STP - .... Change either the preserveDomain attribute or the domainNum attribute.

Description

A *Check Prov* command produces this response when the user has provisioned the bridge port as a backbone port (*preserveDomain* = ***on***) but *domainNum* of that bridge port matches the STP instance of an access STP (*stpMode* = ***access***).

## ATTRIBUTE domNum

Description

This attribute carries the domain number found in violation.

Values

Decimal (0..4294967295)

## RESPONSE

Description

This RtStats collected event record is generated by an ATM Signalling Interface at the end of each RtStats collection interval. It contains statistics related to call setup attemps and failures. ATM User-Network Interface Specification Version 3.1.(af-sig-0010.002) is referred for Failure Cause Values.

## ATTRIBUTE txSetupPdus

Description

This attribute indicates the total number of outgoing call setup attempts in the last collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE txFailureCause3

Description

This attribute indicates the total number of outgoing call setup attempts in the last collection interval rejected with cause value 3.

Values

Decimal (0..4294967295)

## ATTRIBUTE txFailureCause17

Description: This attribute indicates the total number of outgoing call setup attempts in the last collection interval rejected with cause value 17.

Values: Decimal (0..4294967295)

## ATTRIBUTE txFailureCause18

Description: This attribute indicates the total number of outgoing call setup attempts in the last collection interval rejected with cause value 18.

Values: Decimal (0..4294967295)

## ATTRIBUTE txFailureCause21

Description: This attribute indicates the total number of outgoing call setup attempts in the last collection interval rejected with cause value 21.

Values: Decimal (0..4294967295)

## ATTRIBUTE txFailureCause27

Description: This attribute indicates the total number of outgoing call setup attempts in the last collection interval rejected with cause value 27.

Values: Decimal (0..4294967295)

## ATTRIBUTE txFailureCause28

Description: This attribute indicates the total number of outgoing call setup attempts in the last collection interval rejected with cause value 28.

Values: Decimal (0..4294967295)

## ATTRIBUTE txFailureCause35

Description: This attribute indicates the total number of outgoing call setup attempts in the last collection interval rejected with cause value 35.

Values: Decimal (0..4294967295)

## ATTRIBUTE txFailureCause36

Description: This attribute indicates the total number of outgoing call setup attempts in the last collection interval rejected with cause value 36.

Values: Decimal (0..4294967295)

## ATTRIBUTE txFailureCause37

Description: This attribute indicates the total number of outgoing call setup attempts in the last collection interval rejected with cause value 37.

Values: Decimal (0..4294967295)

## ATTRIBUTE txFailureCause41

Description: This attribute indicates the total number of outgoing call setup attempts in the last collection interval rejected with cause value 41.

Values: Decimal (0..4294967295)

## ATTRIBUTE txFailureCause45

Description: This attribute indicates the total number of outgoing call setup attempts in the last collection interval rejected with cause value 45.

Values: Decimal (0..4294967295)

## ATTRIBUTE txFailureCause47

Description: This attribute indicates the total number of outgoing call setup attempts in the last collection interval rejected with cause value 47.

Values: Decimal (0..4294967295)

## ATTRIBUTE txFailureCause49

Description: This attribute indicates the total number of outgoing call setup attempts in the last collection interval rejected with cause value 49.

Values: Decimal (0..4294967295)

## ATTRIBUTE txFailureCause57

Description: This attribute indicates the total number of outgoing call setup attempts in the last collection interval rejected with cause value 57.

Values: Decimal (0..4294967295)

## ATTRIBUTE txFailureCause58

Description: This attribute indicates the total number of outgoing call setup attempts in the last collection interval rejected with cause value 58.

Values: Decimal (0..4294967295)

## ATTRIBUTE txFailureCause63

Description: This attribute indicates the total number of outgoing call setup attempts in the last collection interval rejected with cause value 63.

Values: Decimal (0..4294967295)

## ATTRIBUTE txFailureCause65

Description: This attribute indicates the total number of outgoing call setup attempts in the last collection interval rejected with cause value 65.

Values: Decimal (0..4294967295)

## ATTRIBUTE txFailureCause73

Description: This attribute indicates the total number of outgoing call setup attempts in the last collection interval rejected with cause value 73.

Values: Decimal (0..4294967295)

## ATTRIBUTE txFailureCause78

Description: This attribute indicates the total number of outgoing call setup attempts in the last collection interval rejected with cause value 78.

Values: Decimal (0..4294967295)

## ATTRIBUTE txFailureCause88

Description: This attribute indicates the total number of outgoing call setup attempts in the last collection interval rejected with cause value 88.

Values: Decimal (0..4294967295)

## ATTRIBUTE txFailureCause96

Description: This attribute indicates the total number of outgoing call setup attempts in the last collection interval rejected with cause value 96.

Values: Decimal (0..4294967295)

## ATTRIBUTE txFailureCause99

Description: This attribute indicates the total number of outgoing call setup attempts in the last collection interval rejected with cause value 99.

Values: Decimal (0..4294967295)

## ATTRIBUTE txFailureCause100

Description: This attribute indicates the total number of outgoing call setup attempts in the last collection interval rejected with cause value 100.

Values: Decimal (0..4294967295)

## ATTRIBUTE txFailureCause104

Description: This attribute indicates the total number of outgoing call setup attempts in the last collection interval rejected with cause value 104.

Values: Decimal (0..4294967295)

## ATTRIBUTE txFailureCause111

Description: This attribute indicates the total number of outgoing call setup attempts in the last collection interval rejected with cause value 111.

Values: Decimal (0..4294967295)

## ATTRIBUTE rxSetupPdus

Description: This attribute indicates the total number of incoming call setup attempts in the last collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE rxFailureCause3

Description: This attribute indicates the total number of incoming call setup attempts in the last collection interval rejected by the switch with cause value 3.

Values Decimal (0..4294967295)

## ATTRIBUTE rxFailureCause17

Description This attribute indicates the total number of incoming call setup attempts in the last collection interval rejected by the switch with cause value 17.

Values Decimal (0..4294967295)

## ATTRIBUTE rxFailureCause18

Description This attribute indicates the total number of incoming call setup attempts in the last collection interval rejected by the switch with cause value 18.

Values Decimal (0..4294967295)

## ATTRIBUTE rxFailureCause21

Description This attribute indicates the total number of incoming call setup attempts in the last collection interval rejected by the switch with cause value 21.

Values Decimal (0..4294967295)

## ATTRIBUTE rxFailureCause27

Description This attribute indicates the total number of incoming call setup attempts in the last collection interval rejected by the switch with cause value 27.

Values Decimal (0..4294967295)

## ATTRIBUTE rxFailureCause28

Description This attribute indicates the total number of incoming call setup attempts in the last collection interval rejected by the switch with cause value 28.

Values Decimal (0..4294967295)

## ATTRIBUTE rxFailureCause35

Description: This attribute indicates the total number of incoming call setup attempts in the last collection interval rejected by the switch with cause value 35.

Values: Decimal (0..4294967295)

## ATTRIBUTE rxFailureCause36

Description: This attribute indicates the total number of incoming call setup attempts in the last collection interval rejected by the switch with cause value 36.

Values: Decimal (0..4294967295)

## ATTRIBUTE rxFailureCause37

Description: This attribute indicates the total number of incoming call setup attempts in the last collection interval rejected by the switch with cause value 37.

Values: Decimal (0..4294967295)

## ATTRIBUTE rxFailureCause41

Description: This attribute indicates the total number of incoming call setup attempts in the last collection interval rejected by the switch with cause value 41.

Values: Decimal (0..4294967295)

## ATTRIBUTE rxFailureCause45

Description: This attribute indicates the total number of incoming call setup attempts in the last collection interval rejected by the switch with cause value 45.

Values: Decimal (0..4294967295)

## ATTRIBUTE rxFailureCause47

Description: This attribute indicates the total number of incoming call setup attempts in the last collection interval rejected by the switch with cause value 47.

Values: Decimal (0..4294967295)

## ATTRIBUTE rxFailureCause49

Description: This attribute indicates the total number of incoming call setup attempts in the last collection interval rejected by the switch with cause value 49.

Values: Decimal (0..4294967295)

## ATTRIBUTE rxFailureCause57

Description: This attribute indicates the total number of incoming call setup attempts in the last collection interval rejected by the switch with cause value 57.

Values: Decimal (0..4294967295)

## ATTRIBUTE rxFailureCause58

Description: This attribute indicates the total number of incoming call setup attempts in the last collection interval rejected by the switch with cause value 58.

Values: Decimal (0..4294967295)

## ATTRIBUTE rxFailureCause63

Description: This attribute indicates the total number of incoming call setup attempts in the last collection interval rejected by the switch with cause value 63.

Values: Decimal (0..4294967295)

## ATTRIBUTE rxFailureCause65

Description: This attribute indicates the total number of incoming call setup attempts in the last collection interval rejected by the switch with cause value 65.

Values: Decimal (0..4294967295)

## ATTRIBUTE rxFailureCause73

Description: This attribute indicates the total number of incoming call setup attempts in the last collection interval rejected by the switch with cause value 73.

Values: Decimal (0..4294967295)

## ATTRIBUTE rxFailureCause78

Description: This attribute indicates the total number of incoming call setup attempts in the last collection interval rejected by the switch with cause value 78.

Values: Decimal (0..4294967295)

## ATTRIBUTE rxFailureCause88

Description: This attribute indicates the total number of incoming call setup attempts in the last collection interval rejected by the switch with cause value 88.

Values: Decimal (0..4294967295)

## ATTRIBUTE rxFailureCause96

Description: This attribute indicates the total number of incoming call setup attempts in the last collection interval rejected by the switch with cause value 96.

Values: Decimal (0..4294967295)

## ATTRIBUTE rxFailureCause99

Description: This attribute indicates the total number of incoming call setup attempts in the last collection interval rejected by the switch with cause value 99.

Values: Decimal (0..4294967295)

## ATTRIBUTE rxFailureCause100

Description: This attribute indicates the total number of incoming call setup attempts in the last collection interval rejected by the switch with cause value 100.

Values: Decimal (0..4294967295)

## ATTRIBUTE rxFailureCause104

Description: This attribute indicates the total number of incoming call setup attempts in the last collection interval rejected by the switch with cause value 104.

Values: Decimal (0..4294967295)

## ATTRIBUTE rxFailureCause111

Description: This attribute indicates the total number of incoming call setup attempts in the last collection interval rejected by the switch with cause value 111.

Values: Decimal (0..4294967295)

## ATTRIBUTE signallingChannelStatus

Description

This attribute indicates if the signalling interface is capable of processing or originating call setup requests.

If the value is ***up*** then the signalling channel was capable of processing or originating call setup requests at the end of the last collection interval.

If the value is ***down*** then the signalling channel was not capable of processing or originating call setup requests at the end of the last collection interval.

Values

down
up

## RESPONSE Error:The value of ripInterface, ..., does not match any RIP interface address provisioned on this virtual router.

Description

A *Check Prov* command produces this response when the attribute *ripInterface* is set to an address that does not match any *LogicalIf* address on this virtual router that has a *RipIf*.

## ATTRIBUTE invalidRipInterfaceAddress

Description

This attribute contains the invalid *ripInterface* address.

Values

IP address

## RESPONSE Error: The Autonomous System Identifier asId ...of this neighbor can not be equal to the asId of this Egp entity.

Description

This error message appears when the value of Autonomous System Identifier *asId* of the *EgpNeighbor* is equal to the value of Autonomous System Identifier *asId* of the *Egp* entity.

## ATTRIBUTE invalidNeighborAsId

Description This attribute contains the asId of the invalid neighbor.

Values Decimal (1..65535)

## RESPONSE Error: The effective address of NetworkList ... is not a valid IP network address.

Description This response group generates an error in case the effective address
of the *NetworkList* component is not a valid IP network address.
i.e., either all 0's (0.0.0.0) or all 1's (255.255.255.255).

## ATTRIBUTE invalidExportAddress

Description This attribute contains the value of invalid *NetworkList* address.

Values IP address

## RESPONSE Error: The neighbor address, ..., does not correspond to any networks provisioned on this virtual router.

Description A *Check Prov* command produces this response when an EGP neighbor is provisioned with an address that does not correspond to any network as defined by the *LogicalIf*s.

## ATTRIBUTE invalidNeighborAddress

Description This attribute contains value of the invalid *neighbor* address.

Values IP address

## RESPONSE Error: The specified mask ... is not a valid contiguous mask.

Description

This error message appears in response to a Check Prov command
when the value of a specified mask is provisioned with an invalid
discontiguous mask.
1. The semantic check function will check for the contiguity of the mask
by checking if there are contiguous 1's.

## ATTRIBUTE invalidMask

Description

This attribute contains the value of the invalid mask.

Values

IP address

## RESPONSE Error: The NextHop Address ... does not belong to any of the subnets provisioned under an IpPort.

Description

This error message appears when the value of a *NextHops* provisioned for a static *RouteEntry* does not belong to one of the subnets provisioned under an *IpPort*. Each provisioned *NextHop* should belong to a valid subnet. This can be accomplished either by adding a *logicalIf* entry under *IpPort* component or changing the *NextHop* address to reflect to one of the subnets provisioned by *logicalIf* entry.

## ATTRIBUTE invalidNextHopAddress

Description

This attribute contains the value of invalid *NextHop* address.

Values

IP address

## RESPONSE Error: The combination of IP Address ... and Mask ... does not provide a valid entry.

Description

This error message appears when the logical-AND of address and mask do not make a valid entry.

## ATTRIBUTE invalidDestAddress

Description This attribute contains the index value of the invalid destination address.

Values IP address

## ATTRIBUTE invalidDestMask

Description This attribute contains the index value of the invalid destination mask.

Values IP address

## RESPONSE Error: The ripinterface value can not be set to ....

Description This error message is invoked when the *ripInterface* address is set to
0xffffffff..

## ATTRIBUTE invalidRipInterfaceAddress

Description This attribute contains value of invalid rip Interface Address.

Values IP address

## RESPONSE Error: The attribute metricType for StubAreaEntry ... should be set to ospfMetric if and only if the attribute importAsExtern for the AreaEntry is set to importNoExternal.

Description This Error message appears when there is inconsistency between the attribute *importAsExtern* and the *metricType.*

## ATTRIBUTE ospfStubAreaId

Description This attribute contains the value of invalid *areaId*.

Values IP address

## RESPONSE Error: The value of routerId should not be ....

Description This error message is produced when the *routerId* is set to either 0.0.0.0 or 255.255.255.255

## ATTRIBUTE invalidAddress

Description This attribute contains value of invalid Router Id.

Values IP address

## RESPONSE Error: The value of stub area ID ... is not equal to any of the StubAreaEntries provisioned under OSPF component.

Description This Error message appears when this areaId does not match to any of the stub areas provisioned.

## ATTRIBUTE ospfStubAreaId

Description This attribute contains the value of invalid *areaId*.

Values IP address

## RESPONSE Error: The value of areaId ... is not equal to any of the AreaEntries provisioned under OSPF component.

Description This Error message will appear for different components under *Ospf* that used areaId. When this areaId does not match to any of the areas provisioned.

## ATTRIBUTE ospfAreaId

Description This attribute contains the value of invalid *areaId*.

Values IP address

## RESPONSE Error: The attribute importAsExtern for AreaEntry ... should be set either to importNoExternal or to importNssa.

Description

This Error message appears when there is a valid *AreaEntry* provisioned for *StubAreaEntry* component, but the value of *importAsExtern* attribute for that *AreaEntry* is not set either to ***importNoExternal*** or ***importNssa***.

## ATTRIBUTE ospfStubAreaId

Description

This attribute contains the value of invalid *areaId*.

Values

IP address

## RESPONSE Error: When the value of advertiseDefault is set to yes then the value of importAsExtern for this area ... should be set to importNssa.

Description

This error message is produced when the *StubArea* belongs to a valid provisioned Areas but if the value of *advertiseDafult* is set to ***yes***, then the attribute *importAsExtern*'s value for that particular *AreaEntry* should be ***importNssa***.

## ATTRIBUTE ospfStubAreaEntryAreaId

Description

This attribute will contain the value of invalid *areaId*.

Values

IP address

## RESPONSE Error: When the index lsdbType is set to nssaExternalLink then the attribute importAsExtern for this Area ... should be set to importNssa.

Description

This Error message will appear when the index *lsdbType* is set to ***nssaExternalLink*** then the attribute *importAsExtern* for that *Area* should have the value of ***importNssa***.

## ATTRIBUTE ospfAggregateEntryAreaId

Description This attribute contains the value of invalid *areaId*.

Values IP address

## RESPONSE Error: The index value nbrRouterId can not be all ....

Description This Error message is produced when the provisioned index value *nbrRouterId* is equal to 0.0.0.0 or 255.255.255.255.

## ATTRIBUTE invalidAddress

Description This attribute contains value of invalid Interface Address.

Values IP address

## RESPONSE Error:The value of outInterface, ..., does not match any RIP interface address provisioned on this routing component.

Description A *Check Prov* command produces this response when the attribute *outInterface* is set to an address that does not match any *logicalIf* or *Interface* address on this routing component (*Vr*, *Rtr* or *Vrf*) that has a *RipIf*.

## ATTRIBUTE invalidOutInterface

Description This attribute contains value of the invalid *outInterface* address.

Values IP address

## RESPONSE Error:The value of interface, ..., does not match any RIP interface address provisioned on this routing component.

Description A *Check Prov* command produces this response when the attribute *interface* is set to an address that does not match any *LogicalIf* or *Interface* address on this routing component (*Vr*, *Rtr* or *Vrf*) that has a *RipIf*.

## ATTRIBUTE invalidInterfaceAddress

Description This attribute contains value of the invalid *interface* address.

Values IP address

## RESPONSE Error:The value of ripInterface, ..., does not match any RIP interface address provisioned on this routing component.

Description A *Check Prov* command produces this response when the attribute *ripInterface* is set to an address that does not match any *LogicalIf* or *Interface* address on this routing component (*Vr*, *Rtr* or *Vrf*) that has a *RipIf*.

## ATTRIBUTE invalidRipInterface

Description This attribute contains the invalid *ripInterface* address.

Values IP address

## RESPONSE Error: The address ... and mask ... should be in classA, classB or classC.

Description This error message appears when the specified address and mask are not in classA or in classB or in classC for *ApplyEntry* component.

## ATTRIBUTE netSentryAddress

Description This attribute contains the value of invalid mask.

Values IP address

## ATTRIBUTE netSentryMask

Description This attribute contains the value of invalid mask.

Values IP address

## RESPONSE Error: The HostEntry Address ... does not belong to any of the subnets provisioned as Interface or as logicalIfEntry under IpPort.

Description This error will be generated if the hostAddress provisioned does not correlate with any of the subnets provisioned for an *interface* or *ipPort*.

## ATTRIBUTE arpHostEntry

Description This attribute will contain the address of Host Entry.

Values IP address

## RESPONSE Error: The PhysAddress can not be ....

Description This error message is displayed when attribute *PhysAddress* is
set to all zeroes or all ones.

## ATTRIBUTE invalidPhysAddress

Description This attribute contains the value of invalid physical Address.

Values String (0..6, Dashed Hex)

## RESPONSE Error: The netMask ... is not one of classA, classB, or classC.

Description This error message appears when *netMask* under *IpLogicalInterface* or *Interface* is not one of classA, classB or classC.
*netMask* must be contiguous starting from the left-most bit.

## ATTRIBUTE invalidNetMask

Description This attribute contains the value of invalid *netMask*.

Values IP address

## RESPONSE Error: The specified Address ... is not one of classA, classB or classC.

Description This error message appears when the specified IP Address is not of classA, classB or classC.

## ATTRIBUTE invalidAddress

Description This attribute contains the value of invalid IP address.

Values IP address

## RESPONSE Error: The Ip Address ... is a network address given provisioned NetMask.

Description This error message appears when IP Address under *IpLogicalInterface* or *Interface* happens to be a broadcastAddress.

## ATTRIBUTE invalidAddress

Description This attribute contains the value of invalid IP address.

Values IP address

## RESPONSE Error: There are duplicate LogicalIf ... found.

Description This error message appears when there are duplicate *IpLogicalInterface* Addresses found under two different *IpPorts*.

## ATTRIBUTE invalidAddress

Description This attribute contains the value of invalid *IP address.*

Values IP address

## RESPONSE Error:The NextHop Address can not be set to ....

Description This error message appears when the value of *NextHops* provisioned for a static *RouteEntry* is set to 0.0.0.0 or 255.255.255.255.

## ATTRIBUTE invalidAddress

Description This attribute contains the value of the invalid *NextHop* address.

Values IP address

## RESPONSE Error: There are duplicate linkDestinationAddress ... found.

Description This error message appears when there are duplicate *linkDestinationAddresses* found.

## ATTRIBUTE invalidAddress

Description This attribute contains the value of invalid IP address.

Values IP address

## RESPONSE Error: Mtu of ... exceeds the maximum defined range of the media.

Description This error message appears when *maxTxUnit* is not within the defined range of the media.
The possible media ranges are Ethernet=1500, FDDI=4470, X25=9188, PPP=18000, TokenRing=18944.

## ATTRIBUTE invalidMtuRange

Description This attribute contains the value of an out of range MTU.

Values Decimal (0..65535)

## RESPONSE Error: The linkDestinationAddress can not be set to ....

Description

This error message appears when attribute *linkModel* under *IpPort* or *Interface* component is set to ***pointToPoint*** and the attribute *linkDestinationAddress* under *IpLogicalInterface* or *Interface* component is set either to 0.0.0.0 or 255.255.255.255.

## ATTRIBUTE invalidAddress

Description

This attribute contains value of invalid linkDestination Address.

Values

IP address

## RESPONSE Error: The value of index rangeNet can not be set to ....

Description

This error message appears when index value of *rangeNet* of Ospf
AreaRange Entry is set to either 0x00000000 or 0xffffffff.

## ATTRIBUTE invalidAddress

Description

This attribute contains the value of invalid rangeNet address.

Values

IP address

## RESPONSE Error:The NextHop Address ... can not be equal to any logicalIf If it belongs to any subnets provisioned under an IpPort.

Description

This error message appears when the value of *NextHops* provisioned for a static *RouteEntry* belongs to one of the subnets provisioned under an
IpPort; however, the *NextHop* address is equal to the index value of some
*LogicalIfEntry* component.

## ATTRIBUTE invalidNextHopAddress

Description This attribute contains the value of an invalid *NextHop* address.

Values IP address

## RESPONSE Error:The combination of destAddress and destMask is ambiguous, Please add destAddress as ....

Description This error message appears when the logical-AND of destAddress
and not of destMask provides and ambiguous entry.

## ATTRIBUTE invalidDestAddress

Description This attribute contains the value of the index *destAddress*.

Values IP address

## RESPONSE Error:The feature ... is not provisioned in the feature list of ....

Description The *Check Prov* command produces this response when an IP, IPX, or bridge port is configured under *ProtocolPort* component, but the corresponding feature is not present in the *featureList* of the *Sw Lpt/<string>* component associated with the port's inbound card.

## ATTRIBUTE featName

Description This attribute indicates the feature that is required in the *featureList* of *Sw Lpt/<string>* for an IP/IPX/bridge port. The feature can be ip, ipx, or bridge depending on the protocol port.

Values String (1..30, ASCII)

## ATTRIBUTE lpt

Description: This attribute indicates the *Sw Lpt* component associated with the inbound card of a particular protocol port. This component should have an IP/IPX/bridge feature in its *featureList* if the IP/IPX/bridge port is provisioned under *ProtocolPort*.

Values: The name of the component

## RESPONSE Error: The effective address of NetworkList ... is not a valid IP network address.

Description: This response group generates an error in case the effective address
of the *NetworkList* component is not a valid IP network address, i.e., either all 0's (0.0.0.0) or all 1's (255.255.255.255).

## ATTRIBUTE invalidExportAddress

Description: This attribute contains the value of invalid *NetworkList* address.

Values: IP address

## RESPONSE Error: The value of localAddressConfigured, ..., does not match any IP interface address provisioned on this routing component.

Description: A *Check Prov* command produces this response when the attribute *localAddressConfigured* is set to an address that does not match any *logicalIf* or *Interface* address on this routing component (*Vr, Rtr* or *Vrf*).

## ATTRIBUTE invalidIPInterfaceAddress

Description: This attribute contains value of the invalid *localAddressConfigured* address.

Values: IP address

## RESPONSE Error: The attribute peerAs, ..., must be set to a BGP peerAs on this routing component.

Description: A *Check Prov* command produces this response when the value of attribute *peerAs* does not match the *peerAs* of any BGP peer on the routing component (*Vr*, *Rtr* or *Vrf*).

## ATTRIBUTE invalidPeerAs

Description: This attribute contains value of the invalid *peerAs* value.

Values: Decimal (0..65535)

## RESPONSE Error: The value of peerIpAddress, ..., does not match any peers address on this routing component.

Description: A *Check Prov* command produces this response when the value of
attribute *peerIpAddress* does not match the address of any BGP peer on the routing component (*Vr*, *Rtr* or *Vrf*).

## ATTRIBUTE invalidPeerAddress

Description: This attribute contains value of the invalid *peerIpAddress* value.

Values: IP address

## RESPONSE Error: The value of the attribute bgpIdentifier should not be ....

Description: This error message appears when the *bgpIdentifier* attribute is set to either 0.0.0.0 or 255.255.255.255.

## ATTRIBUTE invalidBgpId

Description: This attribute contains value of invalid *Bgp* Identifier.

Values: IP address

## RESPONSE Error:Exceeded maximum number of Routing Components.

Description The *Check Prov* command produces this response when the maximum number of allowable Routing Components (*Vr*, *Router* and *Vrf*) has been exceeded. Delete all Routing Components which are in excess of the maximum allowed.

## ATTRIBUTE maxAllowedVrs

Description The maximum number of provisionable Routing Components.

Values Decimal (0..65535)

## ATTRIBUTE currentProvisionedVrs

Description The current number of provisioned Routing Components.

Values Decimal (0..65535)

## RESPONSE Error:Exceeded maximum allowable Protocol Ports and Interfaces.

Description The *Check Prov* command produces this response when the maximum number of allowable Protocol Ports and Interfaces has been exceeded. Delete all Protocol Ports and Interfaces which are in excess of the maximum allowed.

## ATTRIBUTE maxAllowedProtocolPorts

Description The maximum number of provisionable Protocol Ports and Interfaces.

Values Decimal (0..65535)

## ATTRIBUTE currentProvisionedProtocolPorts

Description The current number of provisioned Protocol Ports and Interfaces.

Values Decimal (0..65535)

## RESPONSE ... dynamic ARP entries removed.

Description This response indicates the number of dynamic ARP entries removed. If no entries were removed, it may be due to specifying an incorrect IP address for the *-logicalIf* option.

## ATTRIBUTE numDeleted

Description This is the number of dynamic ARP entries removed.

Values Decimal (0..65535)

## RESPONSE Error: ... is an invalid value for attribute ... .

Description This group contains a response which will be displayed when the user tries to set a value of ff-ff-ff-ff for the port network number.

## ATTRIBUTE invalidValue

Description This attribute contains the actual dashed hex value for the port network number entered by the user.

Values String (0..4, Dashed Hex)

## ATTRIBUTE invalidAttribute

Description This attribute contains the port network number attribute which is in error.

Values Decimal (1..65535)

## RESPONSE Download stopped. The following AV does not support the processor target specified:

Description This response is issued when the user have specified an option of the *processorTargets* attribute which is not applicable to the given AV. This is the case when the requested files (for example, ***ppc*** type) are not present in the corresponding AD file.

## ATTRIBUTE scsAvName

Description: This attribute contains the name of the AV which does not support the file type specified in the hardwareType attribute.

Values: String (1..30, ASCII)

## RESPONSE Error:The following TosMap components contain conflicting tos values:

Description: A *Check Prov* command produces this response if any value in the *tos* attribute appears in two different *TosMap* components under the same *CosPolicyGroup*, and the *assignedCos* attribute of the two parent *Policy* components are not equal.

## ATTRIBUTE tosMap1

Description: This attribute specifies the first of two conflicting *TosMap* components.

Values: The name of the component

## ATTRIBUTE tosMap2

Description: This attribute specifies the second of two conflicting *TosMap* components.

Values: The name of the component

## RESPONSE Error:The following IpAddrLayer4Flow components conflict with each other because they both

## specify all addresses, some of the same port numbers, and the same protocol:

Description

A *Check Prov* command produces this response if the following conditions are all true for two *IpAddrLayer4Flow* subcomponents of the *CosPolicyGroup*:
1. The values of the *assignedCos* attribute of the parent *Policy* components are not equal.
2. The values of the *protocol* attributes are equal.
3. The values of the *prefixLength* attributes are zero.
4. The values of the *portNumberRange* attributes specify overlapping, but not equal port ranges.

**System Action:** The *Check Prov* command fails. No *Activate Prov* command is accepted until a subsequent *Check Prov* completes without errors.

**Operator Action:** Ensure that at least one of the following conditions is true for the two *IpAddrLayer4Flow* components:
1. The *protocol* attributes have different values.
2. The *prefix* and *prefixLength* attributes specify different IP address ranges.
3. The *portNumberRange* attributes specify non-overlapping port ranges.

## ATTRIBUTE flow1

Description

This attribute specifies the first of two conflicting *IpAddrLayer4Flow* components.

Values

The name of the component

## ATTRIBUTE flow2

Description

This attribute specifies the second of two conflicting *IpAddrLayer4Flow* components.

Values The name of the component

## RESPONSE Error:The following IpAddrLayer4Flow components conflict with each other because they both specify the same addresses, some of the same port numbers, and the same protocol:

Description

A *Check Prov* command produces this response if the following conditions are all true for two *IpAddrLayer4Flow* components under the *CosPolicyGroup*:
1. The values of the *assignedCos* attribute of the parent *Policy* components are not equal.
2. The values of the *protocol* attributes are equal.
3. The values of the *prefixLength* attributes are equal and not zero.
4. The values of the *prefix* attributes are equal up to the prefix length.
5. The values of the *portNumberRange* attributes specify overlapping, but not equal port ranges.

**System Action:** The *Check Prov* command fails. No *Activate Prov* command is accepted until a subsequent *Check Prov* completes without errors.

**Operator Action:** Ensure that at least one of the following conditions is true for the two *IpAddrLayer4Flow* components:
1. The *protocol* attributes have different values.
2. The *prefix* and *prefixLength* attributes specify different IP address ranges.
3. The *portNumberRange* attributes specify non-overlapping port ranges.

## ATTRIBUTE flow1

Description: This attribute specifies the first of two conflicting *IpAddrLayer4Flow* components.

Values: The name of the component

## ATTRIBUTE flow2

Description: This attribute specifies the second of two conflicting *IpAddrLayer4Flow* components.

Values: The name of the component

## RESPONSE

Description: This response displays the result of the OAM Ethernet port test.

## ATTRIBUTE testResult

Description: This attribute records the result of last port test executed on the
OAM Ethernet port. The result can be one of the following values.
***pass***: the test passed
***fail***: the test failed
***neverRun***: the test has not been run
***running***: the test is running

Values:
running
pass
fail
neverRun

## RESPONSE Frame Relay Accounting Information

Description: This response describes the attributes specific to a Frame Relay accounting record. All items which belong to a Frame Relay accounting record are defined here. This definition is translated into Service Data Description files - sdd file. The Accounting Data Server (ADS) uses the sdd file to decode accounting records.

## ATTRIBUTE recordType

Description

*recordType* attribute indicates the type of the record. For the first record in the accounting period, only *first* is set to 1. For the last record, only *last* is set to 1. For intermediate records, both *first* and *last* are set to 0. If there is only one record in the accounting period, then both *first* and *last* are set to 1.
first, ~last - first record
~first, ~last - intermediate record.
~first, last - final record.
first, last - first and last record (one only).

SET OF

first
last

## ATTRIBUTE callType

Description

This attribute defines the type of the call for which this accounting record is issued.
~gateway, ~localNetwork - non gateway call.
~gateway, localNetwork - gateway call to another network
gateway, ~localNetwork - gateway call from another network
gateway, localNetwork - gateway transit call.

SET OF

gateway
localNetwork

## ATTRIBUTE callReferenceNumber

Description

This attribute contains the value of the call reference number assigned to each new call. Accounting records are uniquely defined by a call reference number on each function processor. In double ended accounting the *callReferenceNumber* is the same for both accounting records. Call reference number is unique only on function processor

Values

Decimal (0..16777215)

## ATTRIBUTE callingNodeIdentifier

Description: This attribute identifies the calling (originating) node (Passport) by a unique number assigned to each node in the ModuleData component. (In Dpn it is named NamsId).

Values: Decimal (256..49151)

## ATTRIBUTE callingCustomerIdentifier

Description: This attribute contains the number assigned in each service to a customer and it identifies the customer at the calling end of the call in the Customer Network Management.

Values: Decimal (0; 1..8191)

## ATTRIBUTE callingPortIdentifier

Description: This attribute contains the function processor number used by the service issuing the accounting record for the calling (originating) part of the call. If the port information is from DPN, then the pe, port and pi numbers are encoded as 5, 5, 6 bits.

Values: Decimal (0..65535)

## ATTRIBUTE callingNpi

Description: This attribute contains the calling numbering plan indicator of the calling address.

Values: x121
e164

## ATTRIBUTE callingAddress

Description: This attribute contains the calling DataNetworkAddress of the interface. *callingAddress* includes DNIC (first 4 digits) for X.121, and CC (Country Code) for the E.164 address of the calling end. The maximum length is 15 digits.

Values: BCD (1..15)

## ATTRIBUTE callingDlci

Description

This attribute contains the calling dlci number of the interface. (dlci is sometimes called LCN - logical channel number). This number is assigned to the call request at the calling end.

Values Decimal (16..1007)

## ATTRIBUTE calledNodeIdentifier

Description

This attribute identifies the called (terminating) node (Passport) by a unique number assigned to each node in the ModuleData component. (In Dpn it is named NamsId).

Values Decimal (256..49151)

## ATTRIBUTE calledCustomerIdentifier

Description

This attribute contains the number assigned in each service to a customer and it identifies the customer at the called end of the call in the Customer Network Management.

Values Decimal (0; 1..8191)

## ATTRIBUTE calledPortIdentifier

Description

This attribute contains the function processor number used by the service issuing an accounting record for the called (terminating) side of the call. If the port information is from DPN, then the pe, port and pi numbers are encoded as 5, 5, 6 bits.

Values Decimal (0..65535)

## ATTRIBUTE calledNpi

Description

This attribute contains the called numbering plan indicator of the called address.

Values x121
e164

## ATTRIBUTE calledAddress

Description

This attribute contains the called DataNetworkAddress of the interface. *calledAddress* includes DNIC (first 4 digits) for X.121, and CC (Country Code) for the E.164 address of the called end. The maximum length is 15 digits.

Values BCD (1..15)

## ATTRIBUTE calledDlci

Description

This attribute contains the called dlci number of the interface. (dlci is sometimes called LCN - logical channel number). This number is assigned to the call request at the called end.

Values Decimal (16..1007)

## ATTRIBUTE segmentSizeIndex

Description This attribute is the segment size index provisioned on the module.
It is used to calculate the number of segments sent and received in the accounting record. Two to the power of *segmentSizeIndex* is equal to the segment size (in bytes) provisioned in the *VirtualCircuitSytem* component. For example, if the segment size is 128, then *segmentSizeIndex* is 7.

Values Decimal (0..16)

## ATTRIBUTE clearCause

Description This attribute is the clear cause signalled at the end of a connection. It is set to H.b0 for intermediate records.

Values Decimal (0..255)

## ATTRIBUTE diagnosticCode

Description: This attribute is the diagnostic code signalled at the end of a connection. It is set to 0 for intermediate records.

Values: Decimal (0..255)

## ATTRIBUTE callingCir

Description: This attribute contains the calling end provisioned CIR (Committed Information Rate).

Values: Decimal (0..65535)

## ATTRIBUTE callingEir

Description: This attribute contains the calling end provisioned EIR (Excess Information Rate).

Values: Decimal (0..65535)

## ATTRIBUTE callingServiceType

Description: This attribute indicates the service supported by the port used by the calling end. This number is provisioned on each interface Dna as *accountClass*.

Values: Decimal (0..50)

## ATTRIBUTE callingCollectReason

Description: This attribute indicates the reason for the accounting collection of the calling end (It can be any combination of Audit, Study, Test, Billing, Force).

SET OF:
bill
test
study
audit
force

## ATTRIBUTE callingDse

Description

This attribute defines the calling end Data Service Exchange provisioned in Dna as an arbitrary number in the *serviceExchange* attribute.

Values

Decimal (0..255)

## ATTRIBUTE callingRateAdaptation

Description

provisioned - rate adaptation provisioned on the calling end of the call.
occurred - rate adaptation occurred on the calling end of the call.
enforced - rate enforcement provisioned on the calling end of the call.

SET OF

provisioned
occured
enforced

## ATTRIBUTE callingClassOfService

Description

emissionPriority - emission priority provisioned.

SET OF

emissionPriority

## ATTRIBUTE calledCir

Description

This attribute contains the called end provisioned CIR (Committed Information Rate).

Values

Decimal (0..65535)

## ATTRIBUTE calledEir

Description

This attribute contains the called end provisioned EIR.

Values

Decimal (0..65535)

## ATTRIBUTE calledServiceType

Description

This attribute indicates the service supported by the port used by the called end-user. This number is provisioned on each interface Dna as *accountClass*.

Values

Decimal (0..255)

## ATTRIBUTE calledCollectReason

Description

This attribute indicates the reason for the accounting collection of the called end (It can be any combination of Audit, Study, Test, Billing, Force).

SET OF

bill
test
study
audit
force

## ATTRIBUTE calledDse

Description

One byte field defines the called end Data Service Exchange provisioned in Dna as an arbitrary number in the *serviceExchange* attribute.

Values

Decimal (0..255)

## ATTRIBUTE calledRateAdaptation

Description

provisioned - rate adaptation provisioned on the called end of the call
occurred - rate adaptation occurred on the called end of the call.
enforced - rate enforcement provisioned on the called end of the call.

SET OF

provisioned
occured
enforced

# ATTRIBUTE calledClassOfService

Description

emissionPriority - emission priority provisioned.

SET OF emissionPriority

# ATTRIBUTE flags

Description

This attribute contains values for the call characteristics.
calledEndCharging - called end is charging.
~calledEndCharging - calling end is charging
highPriority - call is high priority.
pvcType - call is pvc.
~pvcType - call is svc.
hunted - call was hunted.
redirected - call was redirected.
calledGenerated - called end generated accounting record.
~calledGenerated - calling end generated accounting record.
calledCleared - call was cleared by called end.
~calledCleared - call was cleared by calling end.

unique - accounting record is unique.
reachedDataTransfer - call reached data transfer.
collReasonValid - collection reasons are valid.
callingUni - interface is callingUni.
~callingUni - interface is callingNni.
calledUni - interface is calledUni.
~calledUni - interface is calledNni.
spareOne - not used
spareTwo - not used
callingAbit - called Abit set
calledAbit - calling Abit set
userDataInCallReq - user data present in call request

SET OF

calledEndCharging
highPriority
pvcType
hunted
redirected
calledGenerated
calledCleared
unique
reachedDataTransfer
collReasonValid
userDataInCallReq
callingUni
calledUni
spareOne
spareTwo
callingAbit
calledAbit

## ATTRIBUTE startTime

| | |
|---|---|
| Description | This attribute represents the start time in the accounting record.<br>For SVC it is the time when the call request packet was created. For PVC it is set by the Master VC when the master call is formatted. On the subsequent accounting record, the start time corresponds to the end time of the previous record. If Time of Day Accounting (TODA) is used, start time (and end time) correspond to times set in the schedule (set in *Col/ accounting collectionTimes* attribute). |
| Values | Time (DHMS) |

## ATTRIBUTE endTime

| | |
|---|---|
| Description | This attribute represents the end time in the accounting record.<br>If TODA is used, the end time in non-final records is the time of the TODA period. For 12-hour accounting, the time on non-final records is the time when the 12-hour timer expires at the charged end. On final accounting records, the end time is the time when the disconnect packet is first received. If Time of Day Accounting (TODA) is used, end time (and start time) correspond to times set in the schedule (set in *Col/ accounting collectionTimes* attribute). |
| Values | Time (DHMS) |

## ATTRIBUTE elapsedTime

Description

This attribute represents the duration of the call in 0.1 second increments. This time interval is started when call request is processed. If call does not reach data transfer, then elapsed time is set to 0. Elapsed time represents the true measure of the accounting period. It is measured independently of start time and end time. Since start time and end time can be changed externally by adjusting the clock, elapsed time can be shorter or longer than the difference between start time and end time. This difference can show as much as 60 seconds on accounting records for the virtual circuits which are idle (carry no traffic) and when TODA is used (in which case it is caused by the internal TODA detection mechanism). When a 12 hour accounting period is used, elapsed time is exact or differs by a few seconds from a 12 hour duration.

Values Decimal (0..16777215)

## ATTRIBUTE callingEgressBytes

Description This attribute contains the total number of bytes received at the calling end.

Values Long Integer

## ATTRIBUTE callingIngressBytes

Description This attribute contains the total number of bytes sent at the calling end.

Values Long Integer

## ATTRIBUTE callingEgressFrames

Description This attribute contains the total number of frames received at the calling end.

Values Decimal (0..4294967295)

## ATTRIBUTE callingIngressFrames

Description This attribute contains the total number of frames sent at the calling end.

Values Decimal (0..4294967295)

## ATTRIBUTE callingEgressSegments

Description This attribute contains the total number of segments received at the calling end.

Values Decimal (0..4294967295)

## ATTRIBUTE callingIngressSegments

Description This attribute contains the total number of segments sent at the calling end.

Values Decimal (0..4294967295)

## ATTRIBUTE callingEirEgressBytes

Description This attribute contains the number of EIR bytes received from the subnet at the calling end.

Values Long Integer

## ATTRIBUTE callingEirIngressBytes

Description This attribute contains the number of EIR bytes sent to the subnet at the calling end.

Values Long Integer

## ATTRIBUTE callingEirEgressFrames

Description This attribute contains the number of EIR Frames received from the subnet at the calling end.

Values Decimal (0..4294967295)

## ATTRIBUTE callingEirIngressFrames

Description: This attribute contains the number of EIR Frames sent to the subnet at the calling end.

Values: Decimal (0..4294967295)

## ATTRIBUTE callingEirEgressSegments

Description: This attribute contains the number of EIR segments received from the subnet at the calling end.

Values: Decimal (0..4294967295)

## ATTRIBUTE callingEirIngressSegments

Description: This attribute contains the number of EIR segments sent to the subnet at the calling end

Values: Decimal (0..4294967295)

## ATTRIBUTE callingDiscardedBytes

Description: This attribute contains the number of bytes discarded at the calling end due to rate enforcement when no rate adaptation occurred.

Values: Long Integer

## ATTRIBUTE callingDiscardedFrames

Description: This attribute contains the number of frames discarded at the calling end due to rate enforcement when no rate adaptation occurred.

Values: Decimal (0..4294967295)

## ATTRIBUTE callingDiscardedSegments

Description: This attribute contains the number of segments discarded at the calling end due to rate enforcement when no rate adaptation occurred.

Values: Decimal (0..4294967295)

## ATTRIBUTE calledEgressBytes

Description This attribute contains the total number of bytes received at the called end.

Values Long Integer

## ATTRIBUTE calledIngressBytes

Description This attribute contains the total number of bytes sent at the called end.

Values Long Integer

## ATTRIBUTE calledEgressFrames

Description This attribute contains the total number of frames received at the called end.

Values Decimal (0..4294967295)

## ATTRIBUTE calledIngressFrames

Description This attribute contains the total number of frames sent at the called end.

Values Decimal (0..4294967295)

## ATTRIBUTE calledEgressSegments

Description This attribute contains the total number of segments received at the called end.

Values Decimal (0..4294967295)

## ATTRIBUTE calledIngressSegments

Description This attribute contains the total number of segments sent at the called end.

Values Decimal (0..4294967295)

## ATTRIBUTE calledEirEgressBytes

Description This attribute contains the number of EIR bytes received from the subnet at the called end

Values Long Integer

## ATTRIBUTE calledEirIngressBytes

Description This attribute contains the number of EIR bytes sent to the subnet at the called end

Values Long Integer

## ATTRIBUTE calledEirEgressFrames

Description This attribute contains the number of EIR Frames received from the subnet at the called end

Values Decimal (0..4294967295)

## ATTRIBUTE calledEirIngressFrames

Description This attribute contains the number of EIR Frames sent to the subnet at the called end

Values Decimal (0..4294967295)

## ATTRIBUTE calledEirEgressSegments

Description This attribute contains the number of EIR segments received from the subnet at the called end

Values Decimal (0..4294967295)

## ATTRIBUTE calledEirIngressSegments

Description This attribute contains the number of EIR segments sent to the subnet at the called end

Values Decimal (0..4294967295)

## ATTRIBUTE calledDiscardedBytes

Description: This attribute contains the number of bytes discarded at the called end due to rate enforcement when no rate adaptation occurred.

Values: Long Integer

## ATTRIBUTE calledDiscardedFrames

Description: This attribute contains the number of frames discarded at the called end due to rate enforcement when no rate adaptation occurred.

Values: Decimal (0..4294967295)

## ATTRIBUTE calledDiscardedSegments

Description: This attribute contains the number of segments discarded at the called end due to rate enforcement when no rate adaptation occurred.

Values: Decimal (0..4294967295)

## ATTRIBUTE callingTotalPwmBytes

Description: This attribute contains the calling end peak water mark for the total number of ingress bytes.

Values: Decimal (0..4294967295)

## ATTRIBUTE callingEirPwmBytes

Description: This attribute contains the calling end peak water mark for the number of ingress bytes carried on frames with DE-bit = 1.

Values: Decimal (0..4294967295)

## ATTRIBUTE callingCirPwmBytes

Description: This attribute contains the calling end peak water mark for the number of ingress bytes carried on frames with DE-bit = 0.

Values Decimal (0..4294967295)

## ATTRIBUTE calledTotalPwmBytes

Description This attribute contains the called end peak water mark for the total number of ingress bytes.

Values Decimal (0..4294967295)

## ATTRIBUTE calledEirPwmBytes

Description This attribute contains the called end peak water mark for the number of ingress bytes carried on frames with DE-bit = 1.

Values Decimal (0..4294967295)

## ATTRIBUTE calledCirPwmBytes

Description This attribute contains the called end peak water mark for the number of ingress bytes carried on frames with DE-bit = 0.

Values Decimal (0..4294967295)

## ATTRIBUTE recordIdentifier

Description

*recordIdentifier* attribute indicates the contents of the accounting record.

Values
gvcVintage4
frsVintage4
frsLocalCounts
frsLocalAndRemoteCounts
frsShortLocalCounts
frsShortLocalAndRemoteCounts
frsInterworkingPvcRecord
frsInterworkingSvcRecord
frsIpOptPvcRecord

## ATTRIBUTE callingTotalPwmIntervalNumber

Description

This attribute contains the number of the pwm (peak water mark) interval in which the pwm occurred and is not part of accounting record if Time of Day is not running. (Attribute *collectionTimes* in *Collector* component for accounting is not set.)
The value is relative to *collectionTimes* attribute together with *peakWaterMarkInterval* attribute in *Collector* component. For example if *collectionTimes* is set to 16:00 and value of *callingTotalPwmIntervalNumber* is reported 3 and attribute *peakWaterMarkInterval* in *Collector* component is set to 5 minutes, then peak traffic happened between 16:15 and 16:20.

Values Decimal (0..1000)

## ATTRIBUTE callingEirPwmIntervalNumber

Description

This attribute contains the number of the pwm (peak water mark) interval in which the pwm occurred and is not part of accounting record if Time of Day is not running. (Attribute *collectionTimes* in *Collector* component for accounting is not set.)

Values Decimal (0..1000)

## ATTRIBUTE callingCirPwmIntervalNumber

Description

This attribute contains the number of the pwm (peak water mark) interval in which the pwm occurred and is not part of accounting record if Time of Day is not running. (Attribute *collectionTimes* in *Collector* component for accounting is not set.)

Values Decimal (0..1000)

## ATTRIBUTE calledTotalPwmIntervalNumber

Description

This attribute contains the number of the pwm (peak water mark) interval in which the pwm occurred and is not part of accounting record if Time of Day is not running. (Attribute *collectionTimes* in *Collector* component for accounting is not set.)

Values Decimal (0..1000)

## ATTRIBUTE calledEirPwmIntervalNumber

Description

This attribute contains the number of the pwm (peak water mark) interval in which the pwm occurred and is not part of accounting record if Time of Day is not running. (Attribute *collectionTimes* in *Collector* component for accounting is not set.)

Values Decimal (0..1000)

## ATTRIBUTE calledCirPwmIntervalNumber

Description

This attribute contains the number of the pwm (peak water mark) interval in which the pwm occurred and is not part of accounting record if Time of Day is not running. (Attribute *collectionTimes* in *Collector* component for accounting is not set.)

Values Decimal (0..1000)

## ATTRIBUTE originalNpi

Description

This attribute contains numbering plan indicator for originally called address.

Values x121
e164

## ATTRIBUTE originalAddress

Description: This attribute contains originally called DataNetworkAddress of the interface if call was redirected.

Values: BCD (1..15)

## ATTRIBUTE originalServiceType

Description: This attribute indicates the service supported by the port used by the calling end. This number is provisioned on each interface Dna as accountClass.

Values: Decimal (0..255)

## ATTRIBUTE callingTransferPriority

Description: This attribute indicates the transfer priority used in the direction towards the network.

The transfer priority is a preference configured for an application
according to its time-sensitivity requirement. Frames with high
transfer priority are served by the network before the frames with
normal priority. The transfer priority standard is defined to have 16
levels from 0 to 15.

Each transfer priority n, where n is the transfer priority index, contains a default setting for routing class of service (***multimedia, delay or throughput***) and frame relay egress queue (depending on the number of supported egress queues on the remote end interface) specified by the *routingClassOfServic*e and *emissionPriority* attributes provisioned under the *Mod Frs DprsNet Tpm/n* component. The default mapping can be altered by a network operator if required.

Values: Decimal (0..255)

# ATTRIBUTE calledTransferPriority

| | |
|---|---|
| Description | This attribute indicates the transfer priority used in the direction from the network.<br><br>The transfer priority is a preference configured for an application<br>according to its time-sensitivity requirement. Frames with high<br>transfer priority are served by the network before the frames with<br>normal priority. The transfer priority standard is defined to have 16<br>levels from 0 to 15.<br><br>Each transfer priority n, where n is the transfer priority index, contains a default setting for routing class of service (***multimedia, delay or throughput***) and frame relay egress queue (depending on the number of supported egress queues on the remote end interface) specified by the *routingClassOfServic*e and *emissionPriority* attributes provisioned under the *Mod Frs DprsNet Tpm/n* component. The default mapping can be altered by a network operator if required. |
| Values | Decimal (0..255) |

## ATTRIBUTE circuitId

Description

This attribute indicates a unique string, set by the operator as the "*correlationTag*" provisioned attribute, which identifies the call for accounting purposes. Downstream processing uses this attribute to correlate accounting records issued at different nodes in the network.

Typically, the attribute is provisioned, as the *correlationTag*, with the same value at both ends of the connection, but this is not mandatory. As a default, there is no *correlationTag* provisioned against the DLCI.

For single-sided accounting with the Egress Protocol on, the circuit identifier specifies the *correlationTag* value provisioned at the local interface only. There is no circuit identifier for the remote DLCI in the record. For double-sided accounting, the accounting records generated at each end contains the local *correlationTag* value.

Values

String (32, ASCII)

## ATTRIBUTE callingIpAddress

Description

This attribute contains the calling IP address of the Frame Relay interface for the connection. It is only applicable when using BNX. Its value is taken from the *ipAddress* attribute in the *BnxProtocol* subcomponent of the FrUni. The *ipAddress* attribute must have been set to an IP address which is associated with the Frame Relay port. This address must be in the same subnet as the associated protocol port.

Values

IP address

## ATTRIBUTE calledIpAddress

Description

This attribute contains the called IP address for the connection. It is only applicable when using BNX. Its value is taken from the *calledIpAddress* attribute in the *BnxIwf* subcomponent of the DLCI for the connection. The *calledIpAddress* attribute must have been set to the destination IP address which receives the datagrams.

Values IP address

## RESPONSE

Description This response displays the port test statistics.

## ATTRIBUTE elapsedTime

Description This attribute is the number of minutes elaspsed since the test started.

Values Decimal (0..4294967295)

## ATTRIBUTE timeRemaining

Description This attribute is the number of minutes remaining before the test terminates itself.

Values Decimal (0..4294967295)

## ATTRIBUTE frmTx

Description This attribute is the number of frames sent during the test period.

Values Long Integer

## ATTRIBUTE bitsTx

Description This attribute is the number of bits sent during the test period.

Values Long Integer

## ATTRIBUTE frmRx

Description This attribute is the total number of frames received during the test period.

Values Long Integer

## ATTRIBUTE bitsRx

Description: This attribute is the total number of bits received during the test period.

Values: Long Integer

## ATTRIBUTE erroredFrmRx

Description: This attribute is the total number of errored frame received during the test period.

Values: Long Integer

## RESPONSE IP Account Record Information

Description: This record describes the attributes specific to the IP accounting. All items which belong to an IP accounting record are defined here.Ip Accounting records are generated for individual *ProtocolPorts*.

## ATTRIBUTE recordIdentifier

Description: This attribute distinguishes the IP accounting record from other types of accounting records.

Values: ipAcctRecord

## ATTRIBUTE vpiId

Description: This attribute indicates the virtual Private Intranet Identifier to which the *ProtocolPort* component instance belongs. Note that this attribute will be obsoleted in the near future. It's functionality is replaced by the *virtualPrivateNetworkIdentifier* attribute. Any affected tools that use this attribute should be converted to use the *vpnId* attribute instead.

Values: Decimal (1..255)

## ATTRIBUTE collectReason

Description

This attribute indicates the reason(s) for accounting collection which are the same as the ***accountCollection*** attribute in *Vr Ip*. It can be any combination of the following reasons: ***bill, test, study, audit,*** or ***force***.

SET OF

bill
test
study
audit
force

## ATTRIBUTE protocolPortIfIndex

Description

This attribute indicates the interface index of the Protocol Port that generated this accounting record

Values

Decimal (1..1024)

## ATTRIBUTE protocolPortInstance

Description

This attribute indicates the instance name of the protocol port that generated this accounting record.

Values

String (1..20, ASCII)

## ATTRIBUTE mediaType

Description

This attribute indicates the type of media over which IP traffic is being carried. It is one of the following values:
***pointToPointTunnel***
***pointToMultipointTunnel***
***frameRelay***
***atmMpe***
***ppp***
A value of ***frameRelay*** is used by the *ProtocolPort* components that are linked to either the *IpDlciGroup* or *FrDte* component.

Values

pointToPointTunnel
pointToMultipointTunnel
frameRelay

atmMpe
ppp

## ATTRIBUTE localNodeIdentifier

Description: This attribute identifies the node by a unique number assigned to each node. This value is provisioned in the attribute *namsId* of the component *ModuleData*.

Values: Decimal (256..49151)

## ATTRIBUTE vrInstance

Description: This attribute indicates which VR generated the accounting record.

Values: String (1..16, ASCII)

## ATTRIBUTE startTime

Description: This attribute represents the starting time of the accounting interval for the *ProtocolPort*. In subsequent records, this attribute represents the starting time of the current accounting collection interval.

When TODA (time of day accounting) is enabled, the collection intervals are delimited by the entries in the TODA schedule (the *Col/accounting collectionTimes* attribute). When TODA is disabled, they are delimited by a timer that expires every 12-hours.

Values: Time (DHMS)

## ATTRIBUTE endTime

Description: This attribute indicates the time when the current accounting collection interval ended. In the last accounting record this attribute represents the time when accounting was disabled. When TODA (time of day accounting) is enabled, the collection intervals are delimited by the entries in the TODA schedule (the *Col/accounting collectionTimes* attribute). When TODA is disabled, they are delimited by a timer that expires every 12-hours.

Values Time (DHMS)

## ATTRIBUTE elapsedTime

Description This attribute indicates the length of time, in 0.1 second increments, the protocol port was enabled during the reported accounting interval. It is the true duration of the accounting interval, measured independently of the start and end time (since start time and end time can be affected by the adjustment of the clock, elapsed time can be shorter or longer than the difference between them).

Values Decimal (0..16777215)

## ATTRIBUTE ipTunnelSrcAddr

Description This attribute indicates the source IP Tunnel address in the shared domain.This attribute appears in the accounting record only if the *mediaType* is:
***pointToPointTunnel***
***pointToMultipointTunnel***

Values IP address

## ATTRIBUTE ipTunnelDestAddr

Description This attribute indicates the destination IP Tunnel address in the shared doamin.This attribute appears in the accounting record only if the *mediaType* is:
***pointToPointTunnel***
***pointToMultipointTunnel***

Values IP address

## ATTRIBUTE InOctets

Description This attribute contains the aggregate number of octets received by the *ProtocolPort* during the accounting interval.

Values Long Integer

## ATTRIBUTE OutOctets

Description: This attribute contains the aggregate number of octets transmitted by the *ProtocolPort* during the accounting interval.

Values: Long Integer

## ATTRIBUTE InPkts

Description: This attribute contains the aggregate number of packets received by the *ProtocolPort* during the accounting interval.

Values: Long Integer

## ATTRIBUTE OutPkts

Description: This attribute contains the aggregate number of packets transmitted by a *ProtocolPort* during the accounting interval.

Values: Long Integer

## ATTRIBUTE InDiscards

Description: This attribute indicates the aggregate number of packets received by the *ProtocolPort* that were discarded, during the accounting interval.

Values: Long Integer

## ATTRIBUTE OutDiscards

Description: This attribute indicates the aggregate number of packets transmitted by the *ProtocolPort* that were discarded, during the accounting interval.

Values: Long Integer

## ATTRIBUTE Cos0InOctets

Description: This attribute contains the total number of Cos0 octets received by the *ProtocolPort* during the accounting interval.

Values: Long Integer

## ATTRIBUTE Cos0OutOctet

Description This attribute contains the total number of Cos0 octets transmitted by the *ProtocolPort* during the accounting interval.

Values Long Integer

## ATTRIBUTE Cos0InPkts

Description This attribute contains the number of Cos0 packets received by the *ProtocolPort* during the accounting interval.

Values Long Integer

## ATTRIBUTE Cos0OutPkts

Description This attribute contains the total number of Cos0 packets transmitted by the *ProtocolPort* during the accounting interval.

Values Long Integer

## ATTRIBUTE Cos0InDiscards

Description This attribute indicates the number of Cos0 packets received by the *ProtocolPort* that were discarded, during the accounting interval.

Values Long Integer

## ATTRIBUTE Cos0OutDiscards

Description This attribute indicates the number of Cos0 packets transmitted by the *ProtocolPort* that were discarded, during the accounting interval.

Values Long Integer

## ATTRIBUTE Cos1InOctets

Description This attribute contains the total number of Cos1 octets received by the *ProtocolPort* during the accounting interval.

Values Long Integer

## ATTRIBUTE Cos1OutOctet

Description This attribute contains the total number of Cos1 octets transmitted by the *ProtocolPort* during the accounting interval.

Values Long Integer

## ATTRIBUTE Cos1InPkts

Description This attribute contains the number of Cos1 packets received by the *ProtocolPort* during the accounting interval.

Values Long Integer

## ATTRIBUTE Cos1OutPkts

Description This attribute contains the total number of Cos1 packets transmitted by the *ProtocolPort* during the accounting interval.

Values Long Integer

## ATTRIBUTE Cos1InDiscards

Description This attribute indicates the number of Cos1 packets received by the *ProtocolPort* that were discarded, during the accounting interval.

Values Long Integer

## ATTRIBUTE Cos1OutDiscards

Description This attribute indicates the number of Cos1 packets transmitted by the *ProtocolPort* that were discarded, during the accounting interval.

Values Long Integer

## ATTRIBUTE Cos2InOctets

Description: This attribute contains the total number of Cos2 octets received by the *ProtocolPort* during the accounting interval.

Values: Long Integer

## ATTRIBUTE Cos2OutOctet

Description: This attribute contains the total number of Cos2 octets transmitted by the *ProtocolPort* during the accounting interval.

Values: Long Integer

## ATTRIBUTE Cos2InPkts

Description: This attribute contains the number of Cos2 packets received by the *ProtocolPort* during the accounting interval.

Values: Long Integer

## ATTRIBUTE Cos2OutPkts

Description: This attribute contains the total number of Cos2 packets transmitted by the *ProtocolPort* during the accounting interval.

Values: Long Integer

## ATTRIBUTE Cos2InDiscards

Description: This attribute indicates the number of Cos2 packets received by the *ProtocolPort* that were discarded, during the accounting interval.

Values: Long Integer

## ATTRIBUTE Cos2OutDiscards

Description: This attribute indicates the number of Cos2 packets transmitted by the *ProtocolPort* that were discarded, during the accounting interval.

Values Long Integer

## ATTRIBUTE Cos3InOctets

Description This attribute contains the total number of Cos3 octets received by the *ProtocolPort* during the accounting interval.

Values Long Integer

## ATTRIBUTE Cos3OutOctet

Description This attribute contains the total number of Cos3 octets transmitted by the *ProtocolPort* during the accounting interval.

Values Long Integer

## ATTRIBUTE Cos3InPkts

Description This attribute contains the number of Cos3 packets received by the *ProtocolPort* during the accounting interval.

Values Long Integer

## ATTRIBUTE Cos3OutPkts

Description This attribute contains the total number of Cos3 packets transmitted by the *ProtocolPort* during the accounting interval.

Values Long Integer

## ATTRIBUTE Cos3InDiscards

Description This attribute indicates the number of Cos3 packets received by the *ProtocolPort* that were discarded, during the accounting interval.

Values Long Integer

## ATTRIBUTE Cos3OutDiscards

Description

This attribute indicates the number of Cos3 packets transmitted by the *ProtocolPort* that were discarded, during the accounting interval.

Values

Long Integer

## ATTRIBUTE virtualPrivateNetworkIdentifier

Description

This attribute indicates the Virtual Private Network (VPN) associated with the Virtual Router that relates to this accounting
record. This is a globally unique identifier composed of a three-octet long Organizationally Unique Identifier (OUI) followed by a
four-octet long VPN index as described in RFC 2685.The value
"***000000:00000000***" identifies an unspecified VPN.

Values

String (7, Hex)

## ATTRIBUTE ipTunnelVcgVr

Description

This attribute indicates the IP tunnel Carrier VR (VCG) and it is used by the RTD feature only. This attribute appears in the accounting record only if the *mediaType* is:
***pointToPointTunnel***
***pointToMultipointTunnel***

Values

String (1..16, ASCII)

## ATTRIBUTE ipTunnelVcgIpAddr

Description

This attribute indicates the BGP loopback IP address of the VCG VR used by RTD feature. This attribute appears in the accounting record only if the *mediaType* is:
***pointToPointTunnel***
***pointToMultipointTunnel***

Values

IP address

# RESPONSE Full Vc Accounting Information

Description

This response describes the attributes specific to a full Vc accounting record. All items which belong to a full Vc accounting record are defined here. This definition is translated into Service Data Description files - sdd file. Accounting Data Server (ADS) uses the sdd file to decode accounting records.

# ATTRIBUTE recordType

Description

*recordType* attribute indicates the type of the record. For the first record in the accounting period, only *first* is set to 1. For the last record, only *last* is set to 1. For intermediate records, both *first* and *last* are set to 0. If there is only one record in the accounting period, then both *first* and *last* are set to 1.
first, ~last - first record
~first, ~last - intermediate record.
~first, last - final record.
first, last - first and last record (one only).

SET OF

first
last

# ATTRIBUTE callType

Description

This attribute defines the type of call for which this accounting record is issued.
~gateway, ~localNetwork - non gateway call.
~gateway, localNetwork - gateway call to another network
gateway, ~localNetwork - gateway call from another network
gateway, localNetwork - gateway transit call.

SET OF

gateway
localNetwork

## ATTRIBUTE callReferenceNumber

Description

This attribute contains the value of the call reference number assigned to each new call. Accounting records are uniquely defined by a call reference number on each function processor. In double ended accounting the *callReferenceNumber* is the same for both accounting records. Call reference number is unique only on function processor.

Values Decimal (0..16777215)

## ATTRIBUTE callingNodeIdentifier

Description

This attribute identifies the calling (originating) node (Passport) by a unique number assigned to each node in the ModuleData component. (In Dpn it is named NamsId).

Values Decimal (256..49151)

## ATTRIBUTE callingCustomerIdentifier

Description

This attribute contains the number assigned in each service to a customer and it identifies the customer at the calling end of the call in the Customer Network Management.

Values Decimal (0; 1..8191)

## ATTRIBUTE callingPortIdentifier

Description

This attribute contains the function processor number used by the service issuing the accounting record for the calling (originating) part of the call. If the port information is from DPN, then the pe, port and pi numbers are encoded as 5, 5, 6 bits.

Values Decimal (0..65535)

## ATTRIBUTE callingNpi

Description

This attribute contains calling numbering plan indicator of the calling address.

Values

x121
e164

## ATTRIBUTE callingAddress

Description

This attribute contains the calling DataNetworkAddress of the interface. *callingAddress* includes DNIC (first 4 digits) for X.121, and CC (Country Code) for the E.164 address of the calling end. The maximum length is 15 digits.

Values

BCD (1..15)

## ATTRIBUTE callingDlci

Description

This attribute contains the calling dlci number of the interface. (dlci is sometimes called LCN - logical channel number). This number is assigned to the call request at the calling end.

Values

Decimal (16..1007)

## ATTRIBUTE calledNodeIdentifier

Description

This attribute identifies the called (terminating) node (Passport) by unique number assigned to each node in the ModuleData component. (In Dpn it is named NamsId).

Values

Decimal (256..49151)

## ATTRIBUTE calledCustomerIdentifier

Description

This attribute contains the number assigned in each service to a customer and it identifies the customer at the called end of the call in the Customer Network Management.

Values Decimal (0; 1..8191)

## ATTRIBUTE calledPortIdentifier

Description

This attribute contains the function processor number used by the service issuing accounting record for the called (terminating) side of the call. If the port information is from DPN, then the pe, port and pi numbers are encoded as 5, 5, 6 bits.

Values Decimal (0..65535)

## ATTRIBUTE calledNpi

Description This attribute contains the called numbering plan indicator of the called address.

Values x121
e164

## ATTRIBUTE calledAddress

Description

This attribute contains the called DataNetworkAddress of the interface. *calledAddress* includes DNIC (first 4 digits) for X.121, and CC (Country Code) for the E.164 address of the called end. The maximum length is 15 digits.

Values BCD (1..15)

## ATTRIBUTE calledDlci

Description

This attribute contains the called dlci number of the interface. (dlci is sometimes called LCN - logical channel number). This number is assigned to the call request at the called end.

Values Decimal (16..1007)

## ATTRIBUTE segmentSizeIndex

Description

This attribute is the segment size index provisioned on the module.
It is used to calculate the number of segments sent and received in the accounting record. Two to the power of *segmentSizeIndex* is equal to the segment size (in bytes) provisioned in the *VirtualCircuitSytem* component. For example, if the segment size is 128, then *segmentSizeIndex* is 7.

Values Decimal (0..16)

## ATTRIBUTE clearCause

Description This attribute is the clear cause signalled at the end of connection. It is set to H.b0 for intermediate records.

Values Decimal (0..255)

## ATTRIBUTE diagnosticCode

Description This attribute is the diagnostic code signalled at the end of connection. It is set to 0 for intermediate records

Values Decimal (0..255)

## ATTRIBUTE callingServiceType

Description

This attribute indicates the service supported by the port used by the calling end. This number is provisioned on each interface Dna as *accountClass*.

Values Decimal (0..255)

## ATTRIBUTE callingCollectReason

Description

This attribute indicates the reason for accounting collection of the calling end (can be any combination of Audit, Study, Test, Billing, Force).

SET OF

bill
test
study
audit
force

## ATTRIBUTE callingDse

Description

This attribute defines the calling end Data Service Exchange provisioned in Dna as arbitrary number in *serviceExchange* attribute.

Values Decimal (0..255)

## ATTRIBUTE calledServiceType

Description

This attribute indicates the service supported by the port used by the called end-user. This number is provisioned on each interface Dna as *accountClass*.

Values Decimal (0..255)

## ATTRIBUTE calledCollectReason

Description

This attribute indicates the reason for accounting collection of the called end (can be any combination of Audit, Study, Test, Billing, Force).

SET OF

bill
test
study
audit
force

# ATTRIBUTE calledDse

| | |
|---|---|
| Description | One byte field defines the called end Data Service Exchange provisioned in Dna as arbitrary number in *serviceExchange* attribute. |
| Values | Decimal (0..255) |

# ATTRIBUTE flags

Description

This attribute contains values for call characteristics.
calledEndCharging - called end is charging.
~calledEndCharging - calling end is charging
highPriority - call is high priority.
pvcType - call is Pvc.
~pvcType - call is svc.
hunted - call was hunted.
redirected - call was redirected.
calledGenerated - called end generated accounting record.
~calledGenerated - calling end generated accounting record.
calledCleared - call was cleared by called end.
~calledCleared - call was cleared by calling end.
unique - accounting record is unique.
reachedDataTransfer - call reached data transfer.
collReasonValid - collection reasons are valid.
userDataInCallReq - user data present in call request.
fastSelect - fast select call
restrictedResponse - fast select call with restricted response

SET OF

calledEndCharging
highPriority
pvcType
hunted
redirected
calledGenerated
calledCleared
unique
reachedDataTransfer
collReasonValid
userDataInCallReq
fastSelect
restrictedResponse

## ATTRIBUTE startTime

Description

This attribute represents start time in the accounting record. For SVC it is the time when the call request packet was created. For PVC it is set by the Master VC when the master call is formatted. On subsequent accounting record, the start time corresponds to the end time of the previous record. If Time of Day Accounting (TODA) is used, start time (and end time) correspond to times set in the schedule (set in *Col/ accounting collectionTimes* attribute).

Values

Time (DHMS)

## ATTRIBUTE endTime

Description

This attribute represents end time in the accounting record. If TODA is used, the end time in non-final records is the time of the TODA period. For 12-hour accounting, the time on non-final records is the time when the 12-hour timer expires at the charged end. On final accounting records, the end time is the time when the disconnect packet is first received. If Time of Day Accounting (TODA) is used, end time (and start time) correspond to times set in the schedule (set in *Col/ accounting collectionTimes* attribute).

Values

Time (DHMS)

## ATTRIBUTE elapsedTime

Description

Duration of the call in 0.1 second increments. This time interval is started when call request is processed. If call does not reach data transfer elapsed time is set to 0. Elapsed time represents true measure of the accounting period. It is measured independent of start time and end time. Since start time and end time can be changed externally by adjusting the clock, elapsed time can be shorter or longer than difference between start time and end time. This difference can show as much as 60 seconds on accounting records for the virtual circuits which are idle (carry no traffic) and when TODA is used and is caused in this case by internal TODA detection mechanism. When 12 hour accounting period is used elapsed time is exact or differs by a few seconds from 12 hour duration.

Values Decimal (0..16777215)

## ATTRIBUTE localEgressSegments

Description This attribute contains the total number of segments received at the local end.

Values Decimal (0..4294967295)

## ATTRIBUTE localIngressSegments

Description This attribute contains the total number of segments sent at the local end.

Values Decimal (0..4294967295)

## ATTRIBUTE originalNpi

Description This attribute contains numbering plan indicator for originally called address.

Values x121
e164

## ATTRIBUTE originalAddress

Description

This attribute contains originally called DataNetworkAddress of the interface if call was redirected.

Values

BCD (1..15)

## ATTRIBUTE originalServiceType

Description

This attribute indicates the service supported by the port used by the calling end. This number is provisioned on each interface Dna as accountClass.

Values

Decimal (0..255)

## ATTRIBUTE callingReceiveWindow

Description

This attribute contains the value for the local calling end receive window size. For SVC/PVC this field is populated by X.25 and X.75 services, all other services set it to 0.

Values

Decimal (0..16)

## ATTRIBUTE calledReceiveWindow

Description

This attribute contains the value for the local called end receive window size. For SVC/PVC this field is populated by X.25 and X.75 services, all other services set it to 0.

Values

Decimal (0..16)

## ATTRIBUTE callingSendWindow

Description

This attribute contains the value for the local calling end send window size. For SVC/PVC this field is populated by X.25 and X.75 services, all other services set it to 0.

Values

Decimal (0..16)

## ATTRIBUTE calledSendWindow

Description

This attribute contains the value for the local called end send window size. For SVC/PVC this field is populated by X.25 and X.75 services, all other services set it to 0.

Values Decimal (0..16)

## ATTRIBUTE callingCalledThruput

Description

This attribute contains thruput class of packets sent from the calling DTE to the called end.

Values Decimal (0..16)

## ATTRIBUTE calledCallingThruput

Description

This attribute contains thruput class of packets sent from the called DTE to the calling end.

Values Decimal (0..16)

## ATTRIBUTE callingCalledPktSize

Description

This attribute contains the value of the packet size sent from the calling DTE to the called end. The value is base 2 of actual packet size.

Values Decimal (0..16)

## ATTRIBUTE calledCallingPktSize

Description

This attribute contains the value of the packet size sent from the called DTE to the calling end. The value is base 2 of actual packet size.

Values Decimal (0..16)

## ATTRIBUTE recordIdentifier

Description

*recordIdentifier* attribute indicates the contents of the accounting record.

Values

gvcVintage4
frsVintage4
frsLocalCounts
frsLocalAndRemoteCounts
frsShortLocalCounts
frsShortLocalAndRemoteCounts

## ATTRIBUTE localUserResets

Description

This attribute contains the total number of user resets at the local end.

Values

Decimal (0..4294967295)

# ATTRIBUTE callingTransferPriority

| | |
|---|---|
| Description | This attribute indicates the transfer priority used in the direction towards the network.<br><br>The transfer priority is a preference configured for an application<br>according to its time-sensitivity requirement. Frames with high<br>transfer priority are served by the network before the frames with<br>normal priority. The transfer priority standard is defined to have 16<br>levels from 0 to 15.<br><br>Each transfer priority n, where n is the transfer priority index, contains a default setting for routing class of service (***multimedia, delay or throughput***) and frame relay egress queue (depending on the number of supported egress queues on the remote end interface) specified by the *routingClassOfServic*e and *emissionPriority* attributes provisioned under the *Mod Frs DprsNet Tpm/n* component. The default mapping can be altered by a network operator if required. |
| Values | Decimal (0..255) |

# ATTRIBUTE calledTransferPriority

Description

This attribute indicates the transfer priority used in the direction from the network.

The transfer priority is a preference configured for an application
according to its time-sensitivity requirement. Frames with high
transfer priority are served by the network before the frames with
normal priority. The transfer priority standard is defined to have 16
levels from 0 to 15.

Each transfer priority n, where n is the transfer priority index, contains a default setting for routing class of service (***multimedia, delay or throughput***) and frame relay egress queue (depending on the number of supported egress queues on the remote end interface) specified by the *routingClassOfServic*e and *emissionPriority* attributes provisioned under the *Mod Frs DprsNet Tpm/n* component. The default mapping can be altered by a network operator if required.

Values

Decimal (0..255)

# RESPONSE Time Change Information

Description

This response describes the attributes specific to an event caused by change of time on the Passport. When time is adjusted by more than 20 seconds, time change record is issued and sent to be part of accounting stream. It is then used to keep track of changed of clock for each Passport and to explain potential inconsistencies in the accounting records related to start time and end time.

## ATTRIBUTE recordType

Description

Always set to first and last.

SET OF

first
last

## ATTRIBUTE oldDate

Description

This attribute represents old time on the Passport before time was adjusted.

Values Time (DHMS)

## ATTRIBUTE newDate

Description

This attribute represents new time on the Passport after time was adjusted. Change of time may cause TODA trigger to generate accounting records if time which was adjusted spans TODA expiry. TODA expiry is defined in *Collector/ Accounting* component *collectionTimes* attribute.

Values Time (DHMS)

## ATTRIBUTE namsId

Description

This attribute contains *namsId* of the switch which issued time change accounting record. Value of *namsId* is provisioned in *ModuleData* component.

Values Decimal (256..49151)

## ATTRIBUTE recordIdentifier

Description

recordIdentifier attribute indicates the contents of the accounting
record.

Values
gvcVintage4
frsVintage4
frsLocalCounts
frsLocalAndRemoteCounts
frsShortLocalCounts
frsShortLocalAndRemoteCounts
timeChangeRecord

# RESPONSE Mpa Voice Accounting Information

Description
This response describes the attributes specific to an Mpa Voice accounting record. All items which belong to an Mpa voice accounting record are defined here. This definition is translated into Service Data Description files - sdd file. Magellan Data Provider (MDP) uses the sdd file to decode accounting records.

# ATTRIBUTE recordIdentifier

Description
This attribute distinguishes the Voice accounting record from other types of accounting records.

Values
mpaVoAccRecord

# ATTRIBUTE recordType

Description
This attribute indicates the type of the record. For the first record in the accounting period, only ***first*** is set. For the last record, only ***last*** is set. For intermediate records, neither ***first*** nor ***last*** is set. If there is only one record in the accounting period, then both ***first*** and ***last*** are set.
***first***, ***~last*** (recordType_first 1, recordType_last 0) - first record
***~first***, ***~last*** (recordType_first 0, recordType_last 0) - intermediate record.
***~first***, ***last*** (recordType_first 0, recordType_last 1) - final record.
***first***, ***last*** (recordType_first 1, recordType_last 1) - first and last record (one only).

SET OF
first
last

## ATTRIBUTE callCorrelationIdentifier

Description

This attribute indicates a unique value assigned to all accounting records generated by calling- and called-Passport nodes for this call. The *callCorrelationId* is used during post processing of accounting records to correlate records generated by different Passports. The *callCorrelationId* is always unique in the network with respect to *callCorrelationIds* generated by other function processors. The value of *callCorrelationId* repeats after $2^{24}$ calls on the same, continually active function processor.

Values

String (13, Hex)

## ATTRIBUTE startTime

Description

This attribute indicates the start time of the accounting record.
For the first record, this is the time when the setup message was received. On subsequent accounting records, the *startTime* will be equal to the *endTime* of the previous record. If Time of Day Accounting (TODA) is used, *startTime* is the time of the TODA (set in *Col/accounting collectionTimes* attribute).

Values

Time (DHMS)

## ATTRIBUTE endTime

Description

This attribute indicates end time of the accounting record. In the final accounting record for a call, *endTime* is the time when the disconnect packet was received. If TODA is used, *endTime* in non-final records is the time of the TODA. For 12-hour accounting, *endTime* in non-final records is the time when the 12-hour timer expires.

Values

Time (DHMS)

## ATTRIBUTE elapsedTime

Description: This attribute indicates the duration of the call in 0.1 second increments. This time interval is started when the call request is processed. *elapsedTime* indicates the true measure of the accounting period. It is measured independent of *startTime* and *endTime*. Since *startTime* and *endTime* can be changed externally by adjusting the clock, *elapsedTime* can be shorter or longer than the difference between *startTime* and *endTime*. When 12 hour accounting is used, *elapsedTime* is exact or differs by a few seconds from a 12 hour duration.

Values: Decimal (0..16777215)

## ATTRIBUTE localNodeIdentifier

Description: This attribute identifies the *nodeId* of the Passport which generated the accounting record. *nodeId* is assigned to each node in the ModuleData component.

Values: Decimal (1..4095)

## ATTRIBUTE localLogicalProcessor

Description: This attribute indicates the logical processor used by the service issuing the accounting record.

Values: Decimal (0..15)

## ATTRIBUTE localPort

Description: This attribute indicates the port used by the service issuing the accounting record.

Values: Decimal (0..1024)

## ATTRIBUTE localMpanlInstanceNo

Description: This attribute indicates the Mpanl Instance number issuing the accounting record.

Values: Decimal (1..65535)

## ATTRIBUTE callingNumber

Description: This attribute indicates the calling number signalled to the Passport. This may have a length of 0 if the calling number was not provided. The maximum length is 16 digits.

Values: String (0..16, ASCII)

## ATTRIBUTE localDlci

Description: This attribute indicates the local dlci number of the interface. This number is assigned to the call request by the node generating this accounting record.

Values: Decimal (0; 16..1007)

## ATTRIBUTE calledNumber

Description: This attribute indicates the called number signalled to the Passport. If *Mpanl/n Voice Acct digitsSuppressed* was provisioned with a non-zero value, that number of trailing digits in *calledNumber* are replaced with “X”s. The maximum length is 32 digits.

Values: String (1..32, ASCII)

## ATTRIBUTE connectedNumber

Description: This attribute indicates the connected number signalled to the
Passport. This may have a length of zero if the connected number was not provided. The maximum length is 16 digits.

Values: String (0..16, ASCII)

## ATTRIBUTE sourceNpi

Description: This attribute indicates the Numbering Plan Indicator (NPI) of the *sourceDna*. This is the value sent by the source accounting node to the destination accounting node during call setup. The *sourceDna* may belong to X.121 or E.164 plans. X.121 is used in packet switched data networks.

Values x121
e164

## ATTRIBUTE sourceDna

Description This attribute indicates the data network address (the unique identifier) of the calling addressable switched voice application. This is the value sent by the source accounting node to the destination accounting node during call setup. It is valid in accounting records generated by both ends of the call.

Values BCD (0..15)

## ATTRIBUTE destinationNpi

Description This attribute indicates the Numbering Plan Indicator (NPI) of the
*destinationDna*. This is the value sent by the destination accounting node to the source accounting node during call setup. The *destinationDna* may belong to X.121 or E.164 plans. X.121 is used in packet switched data networks.

Values x121
e164

## ATTRIBUTE destinationDna

Description This attribute indicates the data network address (the unique identifier) of the called addressable switched voice application. This is the value sent by the destination accounting node to the source accounting node during call setup. It is valid in accounting records generated by both ends of the call.

Values BCD (0..15)

## ATTRIBUTE clearCause

Description: This attribute indicates the reason the call was cleared. If the call was cleared in the subnet, this attribute contains a Q931 value regardless of the source protocol. If the call was cleared by the MPA, this attribute may contain other information conforming to the specifications of the used protocol. It is set to 0 for intermediate records.

Values: Decimal (0..127)

## ATTRIBUTE diagnosticCode

Description: This attribute indicates the diagnostic code signalled at the end of connection. It is set to 0 for intermediate records.

Values: Hex (H.0..H.ffffff)

## ATTRIBUTE localServiceType

Description: This attribute indicates the service supported by the port used by the local interface. This number is provisioned on each interface as *accountClass*.

Values: Decimal (0..255)

## ATTRIBUTE localCollectReason

Description: This attribute indicates the reason the accounting record was generated (The reason can be any combination of ***audit***, ***study***, ***test***, ***bill***).

SET OF:
bill
test
study
audit

## ATTRIBUTE localDse

Description: This attribute defines the local end Data Service Exchange provisioned as an arbitrary number in *serviceExchange* attribute.

Values Decimal (0..255)

## ATTRIBUTE localCustomerIdentifier

Description This attribute indicates the number assigned in each service to a customer. It identifies the customer in the Customer Network Management on the end which generated the accounting record..

Values Decimal (0; 1..8191)

## ATTRIBUTE mpaVoiceFlags

Description This attribute indicates values for call characteristics.
***answered*** (mpaVoFlags_answered 1) - The call was answered
***originating*** (mpaVoFlags_originating 1) - The local end originated the call.
***~originating*** (mpaVoFlags_originating 0) - The far end originated the call.
***unique*** (mpaVoFlags_unique 1) - If this is set to 1, it guarantees that only the local end generated one or more accounting records for this call.
***clearedInSubnet*** (mpaVoFlags_clearedInSubnet 1) - This flag is only valid in the final accounting record. The value 1 indicates the call was cleared from within the Passport subnet side of this Mpanl Instance.
***~clearedInSubnet*** (mpaVoFlags_clearedInSubnet 0) - This flag is only valid in the final accounting record. The value 0 indicates the call was cleared from outside the Passport subnet side of this Mpanl Instance.

SET OF answered
originating
unique
clearedInSubnet

## ATTRIBUTE callAnswerTime

Description

This attribute indicates the time in seconds between the setup indication and the call answered indication for answered calls. For unanswered calls, this attribute indicates the time between the setup indication and the call release indication. For values greater than 255 seconds it reports 255 seconds.

Values

Decimal (0..255)

## RESPONSE ATM Accounting Record Information

Description

This response describes the attributes specific to the ATM accounting record. All items which belong to an ATM accounting record are defined here. The Magellan Data Provider (MDP) system on NMS makes this data available for downstream processing systems.

## ATTRIBUTE recordIdentifier

Description

This attribute distinguishes the ATM accounting record from other types of accounting records.

Values

atmAccRecord

## ATTRIBUTE recordType

Description

The *recordType* attribute indicates the position of the accounting record in a sequence of records generated by a given interface for a given call.
The attribute is a set which contains the value ***first*** for the first record of the call and the value ***last*** for the last record of a call; for calls that generate only one accounting record, both ***first*** and ***last*** are present.; for intermediate records, neither ***first*** nor ***last*** are present;

SET OF

first
last

## ATTRIBUTE callConnId

Description

This attribute may be used by downstream processing systems to correlate the accounting records issued for the same call at different interfaces (nodes) in the network. For SVCs (switched virtual connections) and S-PVCs (soft permanent virtual connections), the *callConnId* is generated by the switch and is unique for every call in the network. For PVCs (permanent virtual connections), the *callConnId* is provisioned in the *correlationTag* attribute of the *AtmIf Vcc Vcd* or *AtmIf Vpc Vpd* component.

Values

String (64, Hex)

## ATTRIBUTE callingCollectReason

Description

This attribute indicates the reason(s) for accounting collection at the ATM interface. It can be any combination of the following reasons: ***Billing, Test, Study, Audit,*** or ***Force***. For SVCs and SPVCs, it indicates the value provisioned in attribute *accountCollection* of component *AtmIf Uni* or *Atmif Iisp*. For PVCs, it indicates the value provisioned in attribute *accountCollection* of *NAcct*.

For SVCs and SPVCs, this attribute is present only for incoming calls.

For PVCs, only *calledCollectReason* is present for both incoming and outgoing calls.

SET OF

bill
test
study
audit
force

## ATTRIBUTE calledCollectReason

Description

This attribute indicates the reason(s) for accounting collection at the ATM interface. It can be any combination of the following reasons: ***Billing, Test, Study, Audit,*** or ***Force***. For SVCs and SPVCs, it indicates the value provisioned in attribute *accountCollection* of component *AtmIf Uni* or *AtmIf Iisp*. For PVCs, it indicates the value provisioned in attribute *accountCollection* of component *AtmIf NAcct*.

For SVCs and SPVCs, this attribute is present only for outgoing calls.

For PVCs, only *calledCollectReason* is present for both incoming and outgoing calls.

SET OF

bill
test
study
audit
force

## ATTRIBUTE callingServiceType

Description

This attribute indicates the service type of the interface that generated the accounting record. For SVCs and SPVCs, the value is provisioned in attribute *accountClass* for each ATM interface (under the *AtmIf Uni* or *AtmIf Iisp* component). For PVCs, it indicates the value provisioned in attribute *accountClass* of component *AtmIf NAcct*.

For SVCs and SPVCs, this attribute is present only for incoming calls.

For PVCs, only *calledServiceType* is present for both incoming and outgoing calls.

Values

Decimal (0..255)

## ATTRIBUTE calledServiceType

Description

This attribute indicates the service type of the interface that generated the accounting record. For SVCs and SPVCs, the value is provisioned in attribute *accountClass* for each ATM interface (under the *AtmIf Uni* or *AtmIf Iisp* component). For PVCs, the value is provisioned in attribute *accountClass* for each ATM interface (under the *AtmIf NAcct* component).

For SVCs and SPVCs, this attribute is present only for outgoing calls.

For PVCs, only *calledServiceType* is present for both incoming and outgoing calls.

Values

Decimal (0..255)

## ATTRIBUTE callingDse

Description

This attribute indicates the Data Service Exchange associated with the ATM interface. For SVCs and SPVCs, it indicates the value provisioned in attribute *serviceExchange* of component *AtmIf Uni* or *AtmIf Iisp*. For PVCs, it indicates the value provisioned in attribute *serviceExchange* of component *AtmIf NAcct*.

For SVCs and SPVCs, this attribute is present only for incoming calls.

For PVCs, only *calledDse* is present for both incoming and outgoing calls.

Values

Decimal (0..255)

## ATTRIBUTE calledDse

Description

This attribute indicates the Data Service Exchange associated with the ATM interface. For SVCs and SPVCs, it indicates the value provisioned in attribute *serviceExchange* of component *AtmIf Uni* or *AtmIf Iisp*. For PVCs, it indicates the value provisioned in attribute *serviceExchange* of component *AtmIf NAcct*.

For SVCs and SPVCs, this attribute is present only for outgoing calls.

For PVCs, only *calledDse* is present for both incoming and outgoing calls.

Values

Decimal (0..255)

## ATTRIBUTE callOrigMethod

Description

This attribute indicates whether the call is point-to-point, point-to-multipoint, multipoint-to-multipoint or multipoint-to-point.

Values

pointToPoint
pointToMultipt
multiptToPoint
multiptToMultipt

## ATTRIBUTE callType

Description

This attribute indicates the type of call. It is one of the following values:
***pvcChannel*** (switched virtual connection)
***spvcChannel*** (soft permanent virtual connection)
***pvcChannel*** (permanent virtual channel transporting a nailed up connection)
***pvcPath*** (permanent virtual path transporting a nailed up connection)

Values

pvcChannel
pvcPath

svcChannel
spvcChannel

## ATTRIBUTE connPointType

Description: This attribute indicates what type of connection point generated the call record: ***originating***, ***intermediate***, or ***terminating***. It can be used by downstream processing systems when correlating two or more records for the same call.

Values: originating
intermediate
terminating

## ATTRIBUTE atmInterfaceNumber

Description: This attribute indicates the number of the ATM interface that generates the accounting record.

Values: Decimal (1..4095)

## ATTRIBUTE callVpi

Description: This attribute indicates the VPI of the connection point at the interface where the accounting record is generated.

Values: Decimal (0..4095)

## ATTRIBUTE callVci

Description: This attribute indicates the VCI of the connection point at the interface where the accounting record is generated.

Values: Decimal (0..65535)

## ATTRIBUTE atmCallTermCauseValue

Description: This attribute indicates the call termination cause value as defined by the ATM Forum AtmIf UNI 3.1 specification. It is set to 0 for non-final records.

Values: Decimal (0..255)

## ATTRIBUTE callTermInSetup

Description: This attribute indicates whether or not the call was terminated in setup (unsuccessful call attempt).

Values: false
true

## ATTRIBUTE cellCountValidityFlag

Description: This attribute indicates whether or not the cell counts in this accounting record are valid.

Values: invalid
valid

## ATTRIBUTE startTime

Description: In the first accounting record for a call, this attribute indicates the time the call was set up. In subsequent records, this attribute represents the time the current accounting collection interval started.

When TODA (time of day accounting) is enabled, the collection intervals are delimited by the entries in the TODA schedule (the *Col/accounting collectionTimes* attribute). When TODA is disabled, they are delimited by a timer that expires every 12-hours (per call).

Values: Time (DHMS)

## ATTRIBUTE endTime

Description

In non-final accounting records, this attribute indicates the time the current accounting collection interval ended. In the final record for a call, this attribute represents the time the call was cleared.

When TODA is enabled, the collection intervals are delimited by the entries in the TODA schedule (the *Col/accounting collectionTimes* attribute). When TODA is disabled, they are delimited by a timer that expires every 12-hours (per call).

Values

Time (DHMS)

## ATTRIBUTE elapsedTime

Description

This attribute indicates the length of time, in 0.1 second increments, the connection was enabled during the reported accounting interval. It is the true duration of the accounting interval, measured independently of the start and end time (since start time and end time can be affected by the adjustment of the clock, elapsed time can be shorter or longer than the difference between them).

Values

Decimal (0..16777215)

## ATTRIBUTE callingNsapAddr

Description

This attribute indicates the NSAP address of the calling party.

This attribute is not present in accounting records for PVCs.

Values

String (20, Hex)

## ATTRIBUTE calledNsapAddr

Description

This attribute indicates the NSAP address of the called party.

This attribute is not present in accounting records for PVCs.

Values

String (20, Hex)

## ATTRIBUTE callingNsapSubAddr

Description: This attribute indicates the saved NSAP address of the calling party (which is restored when leaving the public network).

This attribute is not present in accounting records for PVCs.

Values: String (20, Hex)

## ATTRIBUTE calledNsapSubAddr

Description: This attribute indicates the saved NSAP address of the called party (which is restored when leaving the public network).

This attribute is not present in accounting records for PVCs.

Values: String (20, Hex)

## ATTRIBUTE callForwPcrClp0

Description: This attribute indicates the Peak Cell Rate (PCR) for the connection in the forward direction, for high-priority cells (with CLP=0). The value is in cells per second.

Values: Decimal (0..4294967295)

## ATTRIBUTE callForwPcrClp01

Description: This attribute indicates the Peak Cell Rate (PCR) for the connection in the forward direction, for all cells (with CLP=0 or CLP=1). The value is in cells per second.

Values: Decimal (0..4294967295)

## ATTRIBUTE callForwScrClp0

Description: This attribute indicates the Sustained Cell Rate (SCR) for the connection in the forward direction, for high-priority cells (with CLP=0). The value is in cells per second.

Values: Decimal (0..4294967295)

## ATTRIBUTE callForwScrClp01

Description: This attribute indicates the Sustained Cell Rate (SCR) for the connection in the forward direction, for all cells (with CLP=0 or CLP=1). The value is in cells per second.

Values: Decimal (0..4294967295)

## ATTRIBUTE callForwMbsClp0

Description: This attribute indicates the Maximum Burst Size (MBS) for the connection in the forward direction, for high-priority cells (with CLP=0). The value is in cells.

Values: Decimal (0..4294967295)

## ATTRIBUTE callForwMbsClp01

Description: This attribute indicates the Maximum Burst Size (MBS) for the connection in the forward direction, for all cells (with CLP=0 or CLP=1). The value is in cells.

Values: Decimal (0..4294967295)

## ATTRIBUTE callForwQos

Description: This attribute indicates the quality of service (QoS) for the connection in the forward direction. The values of the QoS are conforming to the ATM Forum Atmif UNI 3.1 specification.

Values: Decimal (0..4)

## ATTRIBUTE callBackPcrClp0

Description: This attribute indicates the Peak Cell Rate (PCR) for the connection in the backward direction, for high-priority cells (with CLP=0). The value is in cells per second.

Values: Decimal (0..4294967295)

## ATTRIBUTE callBackPcrClp01

Description: This attribute indicates the Peak Cell Rate (PCR) for the connection in the backward direction, for all cells (with CLP=0 or CLP=1). The value is in cells per second.

Values: Decimal (0..4294967295)

## ATTRIBUTE callBackScrClp0

Description: This attribute indicates the Sustained Cell Rate (SCR) for the connection in the backward direction, for high-priority cells (with CLP=0). The value is in cells per second.

Values: Decimal (0..4294967295)

## ATTRIBUTE callBackScrClp01

Description: This attribute indicates the Sustained Cell Rate (SCR) for the connection in the backward direction, for all cells (with CLP=0 or CLP=1). The value is in cells per second.

Values: Decimal (0..4294967295)

## ATTRIBUTE callBackMbsClp0

Description: This attribute indicates the Maximum Burst Size (MBS) for the connection in the backward direction, for high-priority cells (with CLP=0). The value is in cells.

Values: Decimal (0..4294967295)

## ATTRIBUTE callBackMbsClp01

Description: This attribute indicates the Maximum Burst Size (MBS) for the connection in the backward direction, for all cells (with CLP=0 or CLP=1). The value is in cells.

Values: Decimal (0..4294967295)

## ATTRIBUTE callBackQos

Description: This attribute indicates the quality of service (QoS) for the connection in the backward direction. The values of the QoS are conforming to the ATM Forum Uni 3.1 specification.

Values: Decimal (0..4)

## ATTRIBUTE ingressCellCountClp0

Description: This attribute contains the number of high priority cells (with CLP=0) received from the link during the accounting interval.

Values: Long Integer

## ATTRIBUTE ingressCellCountClp01

Description: This attribute indicates the total number of cells (with CLP=0 or CLP=1) received from the link during the accounting interval.

Values: Long Integer

## ATTRIBUTE egressCellCountClp0

Description: This attribute contains the number of high priority cells (with CLP=0) transmitted on the link during the accounting interval.

Values: Long Integer

## ATTRIBUTE egressCellCountClp01

Description: This attribute indicates the total number of cells (with CLP=0 or CLP=1) transmitted on the link during the accounting interval.

Values: Long Integer

## ATTRIBUTE ingressDiscardedClp0

Description

This attribute indicates the number of high priority cells (with CLP=0) received from the link and discarded (not transmitted to the switch) during the accounting interval.

The count is expressed in packets when AAL5 is being used. This is for consistency with existing operational measurements.

Values

Long Integer

## ATTRIBUTE ingressDiscardedClp01

Description

This attribute indicates the total number of cells (with CLP=0 or CLP=1) received from the link and discarded (not transmitted to the switch) during the accounting interval.

The count is expressed in packets when AAL5 is being used. This is for consistency with existing operational measurements.

Values

Long Integer

## ATTRIBUTE egressDiscardedClp0

Description

This attribute indicates the number of high priority cells (with CLP=0) received from the switch and discarded (not transmitted on the link) during the accounting interval.

The count is expressed in packets when AAL5 is being used. This is for consistency with existing operational measurements.

Values

Long Integer

## ATTRIBUTE egressDiscardedClp01

Description

This attribute indicates the total number of cells (with CLP=0 or CLP=1) received from the switch and discarded (not transmitted on the link) during the accounting interval.

The count is expressed in packets when AAL5 is being used. This is for consistency with existing operational measurements.

Values

Long Integer

## ATTRIBUTE callTrafficMgmt

Description

This attribute indicates the traffic management policy in effect for the call: tagging (setting CLP=1) or dropping cells. If ***tagFwd*** is present, then tagging is enabled in the forward direction, otherwise cells are dropped; if ***tagBkwd*** is present, then tagging is enabled in the backward direction, otherwise cells are dropped.

SET OF

tagFwd
tagBwd

## ATTRIBUTE callBestEffort

Description

This attribute indicates whether the “best effort” request was specified in the call setup message.

Values

false
true

## ATTRIBUTE callingCustomerIdentifier

Description

This attribute contains the number assigned in each service to a customer and it identifies the customer at the calling end of the call in the Customer Network Management.

For SVCs and SPVCs, this attribute is present only for incoming calls.

For PVCs, only *calledCustomerIdentifier* is present for both incoming and outgoing calls.

Values

Decimal (0..8191)

## ATTRIBUTE calledCustomerIdentifier

Description

This attribute contains the number assigned in each service to a customer and it identifies the customer at the called end of the call in the Customer Network Management.

For SVCs and SPVCs, this attribute is present only for outgoing calls.

For PVCs, only *calledCustomerIdentifier* is present for both incoming and outgoing calls.

Values

Decimal (0..8191)

## ATTRIBUTE callingNodeIdentifier

Description

This attribute identifies the calling node by a unique number assigned to each node. This value is provisioned in the attribute *namsId* of the component *ModuleData*.

For SVCs and SPVCs, this attribute is present only for incoming calls.

For PVCs, only *calledNodeIdentifier* is present for both incoming and outgoing calls.

Values

Decimal (256..49151)

## ATTRIBUTE calledNodeIdentifier

Description

This attribute identifies the called node by a unique number assigned to each node. This value is provisioned in the attribute *namsId* of the component *ModuleData*

For SVCs and SPVCs, this attribute is present only for outgoing calls.

For PVCs, only *calledNodeIdentifier* is present for both incoming and outgoing calls.

Values

Decimal (256..49151)

## ATTRIBUTE minimumCtd

Description

This attribute indicates the minimum calculated cell transfer delay value in microseconds for this connection. Cell transfer delay is calculated as half of the measured segment round trip delay of a loopback cell.

This value is visible only for SPVC and SPVP connections when the *ctdCalculation* attribute of the *AtmIf* component is ***on*** and the *segSwitchSideLoopback* attribute value is ***on*** for the connection.

The value is 0 when the switch-side loopback is not working.

Values

Decimal (0..2147483647)

## ATTRIBUTE maximumCtd

Description

This attribute indicates the maximum calculated cell transfer delay value in microseconds for this connection. Cell transfer delay is calculated as half of the measured segment round trip delay of a loopback cell.

This value is visible only for SPVC and SPVP connections when the *ctdCalculation* attribute of the *AtmIf* component is ***on*** and the *segSwitchSideLoopback* attribute value is ***on*** for the connection.

The value is 0 when the switch-side loopback is not working.

Values

Decimal (0..2147483647)

## ATTRIBUTE averageCtd

Description

This attribute indicates the average of all calculated cell transfer delay in microseconds for this connection. Cell transfer delay is calculated as half of the measured segment round trip delay of a loopback cell.

This value is visible only for SPVC and SPVP connections when the *ctdCalculation* attribute of the *AtmIf* component is ***on*** and the *segSwitchSideLoopback* attribute value is ***on*** for the connection.

The value is 0 when the switch-side loopback is not working.

Values

Decimal (0..2147483647)

## ATTRIBUTE sampleSizeCtd

Description

This attribute indicates the number of loopback cells sampled for cell transfer delay calculations.

This value is included only for SPVC and SPVP connections when the *ctdCalculation* attribute of the *AtmIf* component is ***on*** and the *segSwitchSideLoopback* attribute value is ***on*** for the connection.

Values Decimal (0..16384)

## ATTRIBUTE lFwdTotalUserCellTxClp0

Description This attribute indicates the total number of user cells with CLP=0 transmitted from the local side in the forward direction. This value is included only when Performance Monitoring is provisioned on the link side.

Values Long Integer

## ATTRIBUTE lFwdTotalUserCellTxClp01

Description This attribute indicates the total number of user cells with CLP=0+1 transmitted from the local side in the forward direction. This value is included only when Performance Monitoring is provisioned on the link side.

Values Long Integer

## ATTRIBUTE lFwdTotalUserCellRxClp0

Description This attribute indicates the total number of user cells with CLP=0 received on the Remote Side in the forward direction. This value is included only when Performance Monitoring is provisioned on the link side.

Values Long Integer

## ATTRIBUTE lFwdTotalUserCellRxClp01

Description This attribute indicates the total number of user cells with CLP=0+1 received on the Remote Side in the forward direction. This value is included only when Performance Monitoring is provisioned on the link side.

Values Long Integer

## ATTRIBUTE lFwdTotalPmCellDiscardCount

Description This attribute indicates the total number of Performance Monitoring cells discarded in the forward direction. This value is included only when Performance Monitoring is provisioned on the link side.

Values Decimal (0..4294967295)

## ATTRIBUTE lBwdTotalUserCellTxClp0

Description This attribute indicates the total number of user cells with CLP=0 transmitted from the Remote Side in the backward direction. This value is included only when Performance Monitoring is provisioned on the link side.

Values Long Integer

## ATTRIBUTE lBwdTotalUserCellTxClp01

Description This attribute indicates the total number of user cells with CLP=0+1 transmitted from the Remote Side in the backward direction. This value is included only when Performance Monitoring is provisioned on the link side.

Values Long Integer

## ATTRIBUTE lBwdTotalUserCellRxClp0

Description This attribute indicates the total number of user cells with CLP=0 received on the local side in the backward direction. This value is included only when Performance Monitoring is provisioned on the link side.

Values Long Integer

## ATTRIBUTE lBwdTotalUserCellRxClp01

Description This attribute indicates the total number of user cells with CLP=0+1 received on the local side in the backward direction. This value is included only when Performance Monitoring is provisioned on the link side.

Values Long Integer

## ATTRIBUTE lBwdTotalPmCellDiscardCount

Description This attribute indicates the total number of Performance Monitoring cells discarded in the backward direction. This value is included only when Performance Monitoring is provisioned on the link side.

Values Decimal (0..4294967295)

## ATTRIBUTE lArTotalTime

Description This attribute indicates the total time in seconds that is used to calculate the Availability Ratio. This value is included only when Performance Monitoring is provisioned on the link side.

Values Decimal (0..4294967295)

## ATTRIBUTE lArAvailableTime

Description This attribute indicates the total time in seconds that a connection was available. This value is included only when Performance Monitoring is provisioned on the link side.

Values Decimal (0..4294967295)

## ATTRIBUTE sFwdTotalUserCellTxClp0

Description This attribute indicates the total number of user cells with CLP=0 transmitted from the local side in the forward direction. This value is included only when performance Monitoring is provisioned on the switch side.

Values Long Integer

## ATTRIBUTE sFwdTotalUserCellTxClp01

Description This attribute indicates the total number of user cells with CLP=0+1 transmitted from the local side in the forward direction. This value is included only when Performance Monitoring is provisioned on the switch side.

Values Long Integer

## ATTRIBUTE sFwdTotalUserCellRxClp0

Description This attribute indicates the total number of user cells with CLP=0 received on the Remote Side in the forward direction. This value is included only when Performance Monitoring is provisioned on the switch side.

Values Long Integer

## ATTRIBUTE sFwdTotalUserCellRxClp01

Description This attribute indicates the total number of user cells with CLP=0+1 received on the Remote Side in the forward direction. This value is included only when Performance Monitoring is provisioned on the switch side.

Values Long Integer

## ATTRIBUTE sFwdTotalPmCellDiscardCount

Description This attribute indicates the total number of Performance Monitoring cells discarded in the forward direction. This value is included only when Performance Monitoring is provisioned on the switch side.

Values Decimal (0..4294967295)

## ATTRIBUTE sBwdTotalUserCellTxClp0

Description This attribute indicates the total number of user cells with CLP=0 transmitted from the Remote Side in the backward direction. This value is included only when Performance Monitoring is provisioned on the switch side.

Values Long Integer

## ATTRIBUTE sBwdTotalUserCellTxClp01

Description: This attribute indicates the total number of user cells with CLP=0+1 transmitted from the Remote Side in the backward direction. This value is included only when Performance Monitoring is provisioned on the switch side.

Values: Long Integer

## ATTRIBUTE sBwdTotalUserCellRxClp0

Description: This attribute indicates the total number of user cells with CLP=0 received on the local side in the backward direction. This value is included only when Performance Monitoring is provisioned on the switch side.

Values: Long Integer

## ATTRIBUTE sBwdTotalUserCellRxClp01

Description: This attribute indicates the total number of user cells with CLP=0+1 received on the local side in the backward direction. This value is included only when Performance Monitoring is provisioned on the switch side.

Values: Long Integer

## ATTRIBUTE sBwdTotalPmCellDiscardCount

Description: This attribute indicates the total number of Performance Monitoring cells discarded in the backward direction. This value is included only when Performance Monitoring is provisioned on the switch side.

Values: Decimal (0..4294967295)

## ATTRIBUTE sArTotalTime

Description: This attribute indicates the total time in seconds that is used to calculate the Availability Ratio. This value is included only when Performance Monitoring is provisioned on the switch side.

Values Decimal (0..4294967295)

## ATTRIBUTE sArAvailableTime

Description This attribute indicates the total time in seconds that a connection was available. This value is included only when Performance Monitoring is provisioned on the switch side.

Values Decimal (0..4294967295)

## ATTRIBUTE atmServiceCategory

Description This attribute indicates the ATM service category for both directions of the connection.

Values
UBR
CBR
rt-VBR
nrt-VBR
ABR

## ATTRIBUTE circuitId

Description This attribute indicates a unique string, set by the operator allowing the customer to assign a meaningful name to identify and manage the VCC/VPC level components that make up a circuit. It is provisioned in the *correlationTag* attribute of the *AtmIf Vcc Vcd* or *AtmIf Vpc Vpd* component. Downstream processing may use this attribute to correlate accounting records issued at different nodes in the network.

Values String (64, ASCII)

# ATTRIBUTE rxUpcViolationOnEnforcer1

Description

This attribute indicates the number of UPC violations observed by the Generic Cell Rate Algorithm (GCRA) Enforcer 1. This attribute is only applicable if UPC is enforced or monitored. This attribute is not applicable for standard *VPT VCC* components.

This attribute is not applicable on CQC-based, APC-based, and QRD-based ATM cards.

When the value of the *rxTrafficDescType* attribute for this connection. is 3, 4, 5, 6, 7 or 8, Enforcer 1 enforces conformance of traffic received from the interface to PCR CLP0+1.

If UPC is enforced, all non-conforming cells are discarded by this enforcer. These discarded cells are included in *rxCellDiscard* attribute value.

For basic *Vpt* components, this attribute indicates the aggregated total of all *rxUpcViolationOnEnforcer1* attribute values for the *Vcc* components associated with the *Vpt* component.

The counter wraps to zero if it exceeds its maximum value of (2**64)-1.

Values

Long Integer

# ATTRIBUTE rxUpcViolationOnEnforcer2

Description

This attribute indicates the number of UPC violations observed by the Generic Cell Rate Algorithm (GCRA) Enforcer 2. This attribute is only applicable if UPC is enforced or monitored. This attribute is not applicable for standard *VPT VCC* components.

This attribute is not applicable on CQC-based, APC-based, and QRD-based ATM cards.

Enforcer 2 is applicable only if the *rxTrafficDescType* attribute value for this connection is 4, 5, 6, 7 or 8.

When the value of *rxTrafficDescType* attribute is 4 or 5**,** Enforcer 2 enforces conformance of traffic received from the interface to PCR CLP0.

When the value of *rxTrafficDescType* attribute is 6**,** Enforcer 2 enforces conformance of traffic received from the interface to SCR CLP0+1.

When the value of *rxTrafficDescType* attribute is 7 or 8, Enforcer 2 enforces conformance of traffic received from the interface to SCR CLP0.

If UPC is enforced, Enforcer 2 discards non-conforming cells for *rxTrafficDescType* attribute values of 4, 6 and 7. It tags non-conforming cells for *rxTrafficDescType* attribute values of 5 and 8. Discarded cells are counted in the *rxCellDiscard* attribute value.

For basic *Vpts* component, this attribute indicates the aggregated total of all *rxUpcViolationOnEnforcer2* attribute values for the *Vcc* components associated with the *Vpt* component.

The counter wraps to zero if it exceeds its maximum value of (2**64)-1.

Values

Long Integer

# RESPONSE Voice Networking Accounting Information

Description

This response describes the attributes specific to a voice networking accounting record. All items which belong to a voice networking accounting record are defined here. This definition is translated into Service Data Description files - sdd file. Magellan Data Provider (MDP) uses the sdd file to decode accounting records.

# ATTRIBUTE recordIdentifier

Description

This attribute distinguishes the Voice Networking accounting record from other types of accounting records.

Values

vnetAccRecord

# ATTRIBUTE recordType

Description

This attribute indicates the type of the record. For the first record in the accounting period, only ***first*** is set. For the last record, only ***last*** is set. For intermediate records, neither ***first*** nor ***last*** is set. If there is only one record in the accounting period, then both ***first*** and ***last*** are set.
***first***, ***~last*** (recordType_first 1, recordType_last 0) - first record
***~first***, ***~last*** (recordType_first 0, recordType_last 0) - intermediate record.
***~first***, ***last*** (recordType_first 0, recordType_last 1) - final record.
***first***, ***last*** (recordType_first 1, recordType_last 1) - first and last record (one only).

SET OF

first
last

## ATTRIBUTE callCorrelationIdentifier

Description

This attribute indicates a unique value assigned to all accounting records generated by calling- and called-Passport nodes for this call. The *callCorrelationId* is used during post processing of accounting records to correlate records generated by different Passports. The *callCorrelationId* is always unique in the network with respect to *callCorrelationIds* generated by other function processors. The value of *callCorrelationId* repeats after $2^{24}$ calls on the same, continually active function processor.

Values

String (13, Hex)

## ATTRIBUTE startTime

Description

This attribute indicates the start time of the accounting record.
For the first record, this is the time when the setup message was received. On subsequent accounting records, the *startTime* will be equal to the *endTime* of the previous record. If Time of Day Accounting (TODA) is used, *startTime* is the time of the TODA (set in *Col/accounting collectionTimes* attribute).

Values

Time (DHMS)

## ATTRIBUTE endTime

Description

This attribute indicates end time of the accounting record. In the final accounting record for a call, *endTime* is the time when the disconnect packet was received. If TODA is used, *endTime* in non-final records is the time of the TODA. For 12-hour accounting, *endTime* in non-final records is the time when the 12-hour timer expires.

Values

Time (DHMS)

## ATTRIBUTE elapsedTime

Description

This attribute indicates the duration of the call in 0.1 second increments. This time interval is started when the call request is processed. *elapsedTime* indicates the true measure of the accounting period. It is measured independent of *startTime* and *endTime*. Since *startTime* and *endTime* can be changed externally by adjusting the clock, *elapsedTime* can be shorter or longer than the difference between *startTime* and *endTime*. When 12 hour accounting is used, *elapsedTime* is exact or differs by a few seconds from a 12 hour duration.

Values

Decimal (0..16777215)

## ATTRIBUTE localNodeIdentifier

Description

This attribute identifies the *nodeId* of the Passport which generated the accounting record. *nodeId* is assigned to each node in the ModuleData component.

Values

Decimal (1..4095)

## ATTRIBUTE localLogicalProcessor

Description

This attribute indicates the logical processor used by the service issuing the accounting record.

Values

Decimal (0..15)

## ATTRIBUTE localPort

Description

This attribute indicates the port used by the service issuing the accounting record.

Values

Decimal (0..7)

## ATTRIBUTE localTimeslots

Description: This attribute indicates the timeslots used by the Passport issuing the accounting record. Note that in ISDN multiple timeslots may be assigned to a single call. Accounting records are not generated for call attempts that fail to get a timeslot.

SET OF: Decimal (1..31)

## ATTRIBUTE callingNumber

Description: This attribute indicates the calling number signalled to the Passport. This may have a length of 0 if the calling number was not provided. The maximum length is 16 digits.

Values: String (0..16, ASCII)

## ATTRIBUTE localDlci

Description: This attribute indicates the local dlci number of the interface. (dlci is sometimes called LCN - logical channel number). This number is assigned to the call request by the node generating this accounting record.

Values: Decimal (0; 16..1007)

## ATTRIBUTE calledNumber

Description: This attribute indicates the called number signalled to the Passport. If *Vroute/n Acct digitsSuppressed* was provisioned with a non-zero value, that number of trailing digits in *calledNumber* are replaced with “X”s. The maximum length is 32 digits.

Values: String (1..32, ASCII)

## ATTRIBUTE connectedNumber

Description: This attribute indicates the connected number signalled to the
Passport. This may have a length of zero if the connected number was not provided. The maximum length is 16 digits.

Values String (0..16, ASCII)

## ATTRIBUTE sourceNpi

Description This attribute indicates the Numbering Plan Indicator (NPI) of the *sourceDna*. This is the value sent by the source accounting node to the destination accounting node during call setup. The *sourceDna* may belong to X.121 or E.164 plans. X.121 is used in packet switched data networks.

Values x121
e164

## ATTRIBUTE sourceDna

Description This attribute indicates the data network address (the unique identifier) of the calling addressable switched voice application. This is the value sent by the source accounting node to the destination accounting node during call setup. It is valid in accounting records generated by both ends of the call.

Values BCD (0..15)

## ATTRIBUTE destinationNpi

Description This attribute indicates the Numbering Plan Indicator (NPI) of the
*destinationDna*. This is the value sent by the destination accounting node to the source accounting node during call setup. The *destinationDna* may belong to X.121 or E.164 plans. X.121 is used in packet switched data networks.

Values x121
e164

## ATTRIBUTE destinationDna

Description

This attribute indicates the data network address (the unique identifier) of the called addressable switched voice application. This is the value sent by the destination accounting node to the source accounting node during call setup. It is valid in accounting records generated by both ends of the call.

Values

BCD (0..15)

## ATTRIBUTE callVncs

Description

This attribute identifies the *VoiceNetworkingCallServer* used locally for this call by its instance value. This will have a value of 0 in an accounting record generated by a terminating end Passport.

Values

Decimal (0; 1..16)

## ATTRIBUTE callProfile

Description

This attribute identifies the *VoiceProfile* instance used locally for this call. *VoiceProfile* instance values are only unique with respect to a particular *Vncs* instance. This will have a value of 0 in an accounting record generated by a terminating end Passport.

Values

Decimal (0; 1..16)

## ATTRIBUTE vnetCallType

Description

This attribute defines the type of call for which this accounting record is issued.
***data*** - ISDN data call
***modem*** - a 2100 Hz tone was detected during the call
***faxRelay*** - fax relay was applied to this call
***modemRelay*** - modem relay was applied to this call
***voice*** - all other calls

Values

voice
data
modem

faxRelay
modemRelay

## ATTRIBUTE clearCause

Description: This attribute indicates the reason the call was cleared. If the call was cleared in the subnet, this attribute contains a Q931 value regardless of the source protocol. If the call was cleared by the PBX, this attribute may contain other information conforming to the specifications of the used protocol. It is set to 0 for intermediate records.

Values: Decimal (0..127)

## ATTRIBUTE diagnosticCode

Description: This attribute indicates the diagnostic code signalled at the end of connection. It is set to 0 for intermediate records.

Values: Hex (H.0..H.ffffff)

## ATTRIBUTE localServiceType

Description: This attribute indicates the service supported by the port used by the local interface. This number is provisioned on each interface as *accountClass*.

Values: Decimal (0..255)

## ATTRIBUTE localCollectReason

Description: This attribute indicates the reason the accounting record was generated (The reason can be any combination of ***audit***, ***study***, ***test***, ***bill***, ***force***).

SET OF:
bill
test
study
audit
force

## ATTRIBUTE localDse

Description

This attribute defines the local end Data Service Exchange provisioned as an arbitrary number in *serviceExchange* attribute.

Values

Decimal (0..255)

## ATTRIBUTE localCustomerIdentifier

Description

This attribute indicates the number assigned in each service to a customer. It identifies the customer in the Customer Network Management on the end which generated the accounting record..

Values

Decimal (0; 1..8191)

## ATTRIBUTE vnetFlags

Description

This attribute indicates values for call characteristics.
***bumped*** (vnetFlags_bumped 1) - The call was bumped to another path by a higher priority call in the accounting interval reported by this record.
***optimized*** (vnetFlags_optimized 1) - The path of the call was altered in the accounting interval reported by this record.
***answered*** (vnetFlags_answered 1) - The call was answered
***frameCountsValid*** (vnetFlags_frameCountsValid 1) - The frame counts in this accounting record are valid.
***originating*** (vnetFlags_originating 1) - The local end originated the call.
***~originating*** (vnetFlags_originating 0) - The far end originated the call.
***tandemPassThrough*** (vnetFlags_tandemPassThrough 1) - The Passport which generated this record used tandem pass through for this call.
***faxRelayDownspeed*** (vnetFlags_faxRelayDownspeed 1) - The fax relay call accounted by this record lowered the relay

rate in the accounting interval reported by this record.
***unique*** (vnetFlags_unique 1) - If this is set to 1, it guarantees that only the local end generated one or more accounting records for this call.
***clearedInSubnet*** (vnetFlags_clearedInSubnet 1) - This flag is only valid in the final accounting record. The value 1 indicates the call was cleared from within the Passport subnet.
***~clearedInSubnet*** (vnetFlags_clearedInSubnet 0) - This flag is only valid in the final accounting record. The value 0 indicates the call was cleared from outside the Passport subnet.

SET OF

bumped
optimized
answered
frameCountsValid
originating
tandemPassThrough
faxRelayDownspeed
unique
clearedInSubnet

## ATTRIBUTE callRingTime

Description

This attribute indicates the time in seconds between the setup indication and the call answered indication for answered calls. For unanswered calls, this attribute indicates the time between the setup indication and the call release indication. For values greater than 255 seconds it reports 255 seconds.

Values

Decimal (0..255)

## ATTRIBUTE framesAtRate1ToNetwork

Description

This attribute indicates the total number of rate 1 frames sent to the network.

Values

Decimal (0..4294967295)

## ATTRIBUTE framesAtRate2ToNetwork

Description This attribute indicates the total number of rate 2 frames sent to the network.

Values Decimal (0..4294967295)

## ATTRIBUTE framesAtRate3ToNetwork

Description This attribute indicates the total number of rate 3 frames sent to the network.

Values Decimal (0..4294967295)

## ATTRIBUTE framesAtRate1FromNetwork

Description This attribute indicates the total number of rate 1 frames received from the network.

Values Decimal (0..4294967295)

## ATTRIBUTE framesAtRate2FromNetwork

Description This attribute indicates the total number of rate 2 frames received from the network.

Values Decimal (0..4294967295)

## ATTRIBUTE framesAtRate3FromNetwork

Description This attribute indicates the total number of rate 3 frames received from the network.

Values Decimal (0..4294967295)

## ATTRIBUTE rate1

Description This attribute indicates the bit rate of the rate 1 statistics in bits per second.

Values Decimal (0..1920000)

## ATTRIBUTE rate2

Description: This attribute indicates the bit rate of the rate 2 statistics in bits per second.

Values: Decimal (0..1920000)

## ATTRIBUTE rate3

Description: This attribute indicates the bit rate of the rate 3 statistics in bits per second.

Values: Decimal (0..1920000)

## ATTRIBUTE rate1CompressionAlgorithm

Description: This attribute indicates the compression algorithm used for the rate 1 statistics. If no compression algorithm was used, the value is ***none***.

Values:
none
g711
g726
g728
g729
faxRelay
modemRelay

## ATTRIBUTE rate2CompressionAlgorithm

Description: This attribute indicates the compression algorithm used for the rate 2 statistics. If no compression algorithm was used, the value is ***none***.

Values:
none
g711
g726
g728
g729
faxRelay
modemRelay

## ATTRIBUTE rate3CompressionAlgorithm

Description: This attribute indicates the compression algorithm used for the rate 3 statistics. If no compression algorithm was used, the value is ***none***.

Values:
none
g711
g726
g728
g729
faxRelay
modemRelay

## ATTRIBUTE rate1FrameSize

Description: This attribute indicates the size of the rate 1 frames in bytes.

Values: Decimal (0..999)

## ATTRIBUTE rate2FrameSize

Description: This attribute indicates the size of the rate 2 frames in bytes.

Values: Decimal (0..999)

## ATTRIBUTE rate3FrameSize

Description: This attribute indicates the size of the rate 3 frames in bytes.

Values: Decimal (0..999)

## ATTRIBUTE frmLostInNetwork

Description: This attribute indicates the number of frames lost in the network. If it is greater than 65535 then the value reported will be 65535.

Values: Decimal (0..65535)

## ATTRIBUTE frmDumped

Description

This attribute indicates the number of frames which were dumped to limit the size of the egress queue. *frmDumped* may be an indication of persistent network clock synchronization problems between the interfaces involved in the calls. If it is greater than 255 then the value reported will be 255.

Values

Decimal (0..255)

## ATTRIBUTE frmUnderRuns

Description

This attribute indicates the number of frames which arrived late to prevent the egress queue from becoming empty. *frmUnderRuns* are an indication of network clock synchronization problems between the interfaces involved in the calls. If it is greater than 255 then the value reported will be 255.

Values

Decimal (0..255)

## RESPONSE FR-ATM Accounting Information

Description

This response describes the attributes specific to a FR-ATM accounting record. All items which belong to a FR-ATM accounting record are defined here.

## ATTRIBUTE recordType

Description

The *recordType* attribute indicates the type of the record. For the first record in the accounting period, only ***first*** is set to 1. For the last record, only ***last*** is set to 1. For intermediate records, both ***first*** and ***last*** are set to 0. If there is only one record in the accounting period, then both ***first*** and ***last*** are set to 1.
first, ~last - first record.
~first, ~last - intermediate record.
~first, last - final record.
first, last - first and last record (one only).

SET OF

first
last

## ATTRIBUTE recordIdentifier

Description

The *recordIdentifier* attribute indicates the contents of the accounting record. A value ***frAtmAccRecord*** indicates that it is a FR-ATM accounting record.

Values

frAtmAccRecord

## ATTRIBUTE callConnId

Description

This attribute may be used by downstream processing systems to correlate the accounting records issued for the same call at different interfaces (nodes) in the network. For SPVCs (soft permanent virtual connections), the *callConnId* is generated by the switch and is unique for every call in the network. For NPVCs (nailed-up permanent virtual connections), the *callConnId* is provisioned in the *correlationTag* attribute of the *FrAtm Dlci Siwf Npvc* component.

Values

String (32, Hex)

## ATTRIBUTE callType

Description: This attribute indicates the type of call. It is one of the following values:
***spvcChannel*** (soft permanent virtual connection),
***pvcChannel*** (permanent virtual channel transporting a nailed-up connection).

Values: pvcChannel
spvcChannel

## ATTRIBUTE interworkingType

Description: This attribute indicates the type of FR-ATM interworking being accounted for.

Values: frf8
frf5

## ATTRIBUTE callingNodeIdentifier

Description: This attribute identifies the calling (originating) node by a unique number assigned to each node in the *ModuleData* component.

Values: Decimal (256..49151)

## ATTRIBUTE callingCustomerIdentifier

Description: This attribute contains the number assigned in each service to a customer and it identifies the customer of the FR-ATM at the calling end of the call.

Values: Decimal (0; 1..8191)

## ATTRIBUTE callingNsapAddr

Description

This attribute indicates the NSAP address of the calling party.

This attribute may not be present in accounting records for FRF.8 NPVCs and FRF.5 DLCI configurations, because the provisioning of the FR-ATM address is optional. Furthermore, at the called end, if the calling address is present in the setup request, then it will be present in the accounting record.

Values

String (20, Hex)

## ATTRIBUTE callingEndPointNsapAddr

Description

This attribute indicates the NSAP address of the calling End Point for FRF.5 configuration.

This attribute is only present for FRF.5. Furthermore, at the called end, if the calling address is present in the setup request, then it will be present in the accounting record.

Values

String (20, Hex)

## ATTRIBUTE callingDlci

Description

This attribute contains the calling DLCI number of the interface.

This attribute does not appear in accounting records for the called end of a FRF.8 SPVC.

Values

Decimal (16..1007)

## ATTRIBUTE callingVpi

Description

This attribute indicates the VPI of the calling end.

For a FRF.5 configuration, this attribute is the calling VPI of the End Point, that the *FrAtm* is associated with. At the called end, if the calling address is present in the setup request, then it will be present in the accounting record.

Values

Decimal (0..4095)

## ATTRIBUTE callingVci

Description

This attribute indicates the VCI of the calling end.

If the calling address is present in the setup request, then it will be present at the called end. Also, for a FRF.5 configuration, this attribute is the calling VCI of the End Point that the *FrAtm* is associated with.

Values

Decimal (0..65535)

## ATTRIBUTE calledNodeIdentifier

Description

This attribute identifies the called (terminating) node by a unique number assigned to each node in the *ModuleData* component.

Values

Decimal (256..49151)

## ATTRIBUTE calledCustomerIdentifier

Description

This attribute contains the number assigned in each service to a customer, and it identifies the customer at the called end of the call.

Values

Decimal (0; 1..8191)

## ATTRIBUTE calledNsapAddr

Description

This attribute indicates the NSAP address of the called party.

For FRF.8 NPVC, this attribute will not appear in the accounting record.

Values

String (20, Hex)

## ATTRIBUTE calledEndPointNsapAddr

Description

This attribute indicates the NSAP address of the called End Point for FRF.5 configuration.

This is only applicable for FRF.5.

Values

String (20, Hex)

## ATTRIBUTE calledDlci

Description

This attribute contains the called DLCI of the interface.

This attribute will not occur in records for FRF.8 NPVC configuration and the calling end of a FRF.8 SPVC configuration.

In the case of FRF.5, this called DLCI is the DLCI in the FRF.5 End Point.

Values

Decimal (16..1007)

## ATTRIBUTE calledVpi

Description

This attribute indicates the VPI of the called end.

For FRF.8 NPVC, this attribute does not appear in the accounting record.

Values

Decimal (0..4095)

## ATTRIBUTE calledVci

Description: This attribute indicates the VCI of the called end.

This attribute will not occur in records only for FRF.8 NPVC configuration.

Values: Decimal (0..65535)

## ATTRIBUTE atmCallTermCauseValue

Description: This attribute indicates the call termination cause value as defined by the ATM Forum AtmIf UNI 3.1 specification. It is set to 0 for non-final records.

Values: Decimal (0..255)

## ATTRIBUTE callingCir

Description: This attribute indicates the calling end CIR (Committed Information Rate).

Values: Decimal (0..65535)

## ATTRIBUTE callingEir

Description: This attribute indicates the calling end EIR (Excess Information Rate).

Values: Decimal (0..65535)

## ATTRIBUTE callingServiceType

Description: This attribute indicates the service supported by the port used by the calling end. This number is provisioned on each interface *FrAtm Ca* as *accountClass*.

Values: Decimal (0..50)

## ATTRIBUTE callingCollectReason

Description

This attribute indicates the reason for the accounting collection of the calling end (It can be any combination of ***audit, study, test, billing, force***).

SET OF

bill
test
study
audit
force

## ATTRIBUTE callingDse

Description

This attribute indicates the calling end Data Service Exchange provisioned in *FrAtm Ca* as an arbitrary number in the *serviceExchange* attribute.

Values Decimal (0..255)

## ATTRIBUTE calledCir

Description

This attribute indicates the called end CIR (Committed Information Rate).

Values Decimal (0..65535)

## ATTRIBUTE calledEir

Description

This attribute contains the called end EIR (Excess Information Rate).

Values Decimal (0..65535)

## ATTRIBUTE calledServiceType

Description

This attribute indicates the service supported by the port used by the called end-user. This number is provisioned on each interface *FrAtm Ca* as *accountClass*.

Values Decimal (0..255)

## ATTRIBUTE calledCollectReason

Description: This attribute indicates the reason for the accounting collection of the called end (It can be any combination of ***audit, study, test, billing, force***).

SET OF:
bill
test
study
audit
force

## ATTRIBUTE calledDse

Description: This attribute indicates the called end Data Service Exchange provisioned in *FrAtm Ca* as an arbitrary number in the *serviceExchange* attribute.

Values: Decimal (0..255)

## ATTRIBUTE flags

Description: This attribute indicates values for the call characteristics.
***calledGenerated*** - called end generated accounting record.
***~calledGenerated*** - calling end generated accounting record.
***calledCleared*** - call was cleared by called end.
***~calledCleared*** - call was cleared by calling end.

SET OF:
calledGenerated
calledCleared

## ATTRIBUTE startTime

Description: This attribute indicates the start time in the accounting interval.
On the subsequent accounting interval, the start time corresponds to the end time of the previous interval.

Values: Time (DHMS)

## ATTRIBUTE endTime

Description

This attribute indicates the end time in the accounting interval.

On final accounting records, the end time is the time when the connection is disconnected.

Values

Time (DHMS)

## ATTRIBUTE elapsedTime

Description

This attribute indicates the duration of the call in 0.1 second increments. This time interval is started when the call request is processed. If call does not reach data transfer, then elapsed time is set to 0. Elapsed time represents the true measure of the accounting period. It is measured independently of start time and end time. Since start time and end time can be changed externally by adjusting the clock, elapsed time can be shorter or longer than the difference between start time and end time.

Values

Decimal (0..16777215)

## ATTRIBUTE callingEgressBytes

Description

This attribute indicates the total number of bytes sent to the link at the calling end.

Values

Long Integer

## ATTRIBUTE callingIngressBytes

Description

This attribute indicates the total number of bytes received from the link at the calling end.

Values

Long Integer

## ATTRIBUTE callingEgressFrames

Description

This attribute indicates the total number of frames sent to the link at the calling end.

Values Decimal (0..4294967295)

## ATTRIBUTE callingIngressFrames

Description This attribute indicates the total number of frames received from the link at the calling end.

Values Decimal (0..4294967295)

## ATTRIBUTE callingEirEgressBytes

Description This attribute indicates the number of EIR bytes sent to the link at the calling end.

Values Long Integer

## ATTRIBUTE callingEirIngressBytes

Description This attribute indicates the number of EIR bytes received from the link at the calling end.

Values Long Integer

## ATTRIBUTE callingEirEgressFrames

Description This attribute indicates the number of EIR Frames sent to the link at the calling end.

Values Decimal (0..4294967295)

## ATTRIBUTE callingEirIngressFrames

Description This attribute indicates the number of EIR Frames received from the link at the calling end.

Values Decimal (0..4294967295)

## ATTRIBUTE callingDiscardedBytes

Description This attribute indicates the number of bytes discarded at the calling end.

Values Long Integer

## ATTRIBUTE callingDiscardedFrames

Description This attribute indicates the number of frames discarded at the calling end.

Values Decimal (0..4294967295)

## ATTRIBUTE calledEgressBytes

Description This attribute indicates the total number of bytes sent to the link at the called end.

Values Long Integer

## ATTRIBUTE calledIngressBytes

Description This attribute indicates the total number of bytes received from the link at the called end.

Values Long Integer

## ATTRIBUTE calledEgressFrames

Description This attribute indicates the total number of frames sent to the link at the called end.

Values Decimal (0..4294967295)

## ATTRIBUTE calledIngressFrames

Description This attribute indicates the total number of frames received from the link at the called end.

Values Decimal (0..4294967295)

## ATTRIBUTE calledEirEgressBytes

Description This attribute contains the number of EIR bytes sent to the link at the called end.

Values Long Integer

## ATTRIBUTE calledEirIngressBytes

Description This attribute indicates the number of EIR bytes received from the link at the called end.

Values Long Integer

## ATTRIBUTE calledEirEgressFrames

Description This attribute indicates the number of EIR Frames send to the link at the called end.

Values Decimal (0..4294967295)

## ATTRIBUTE calledEirIngressFrames

Description This attribute indicates the number of EIR Frames received from the link at the called end.

Values Decimal (0..4294967295)

## ATTRIBUTE calledDiscardedBytes

Description This attribute indicates the number of bytes discarded at the called end.

Values Long Integer

## ATTRIBUTE calledDiscardedFrames

Description This attribute indicates the number of frames discarded at the called end.

Values Decimal (0..4294967295)

## ATTRIBUTE callingTransferPriority

Description This attribute indicates the transfer priority at the calling end.

Values Decimal (0..255)

## ATTRIBUTE calledTransferPriority

Description This attribute indicates the transfer priority at the called end.

Values Decimal (0..255)

## ATTRIBUTE circuitId

Description This attribute indicates a unique string, set by the operator as the “correlationTag” provisioned attribute, which identifies the call for accounting purposes. Downstream processing uses this attribute to correlate accounting records issued at different nodes in the network. Typically, the attribute is provisioned, as the correlationTag, with the same value at both ends of the connection, but this is not mandatory. As a default, there is no correlationTag provisioned against the DLCI

Values String (0..32, ASCII)

## RESPONSE The following AVs will be removed if the Tidy command is issued without the query option. Some of these AVs are partial AVs.

Description This response is issued only when the query option is used for the *Tidy* command. It lists the AVs which would be tidied if the *Tidy* command was issued without the query option. This list also includes some partial AVs.

## ATTRIBUTE listOfRemovedAvs

Description This attribute is a list of the names of AVs which would be removed if the *Tidy* command was issued without the query option.

List of String (1..30, ASCII)

## RESPONSE Only partial AVs exist on the disk. They will be removed if the Tidy command was issued without the query option.

Description This response is returned when partial AVs exist on the disk which would be removed if the *Tidy* command was issued without the query option.

## ATTRIBUTE listOfRemovedAvs

Description: This attribute is a list of the names of AVs which would be removed if the *Tidy* command was issued without the query option.

List of: String (1..30, ASCII)

## RESPONSE APS request of equal or higher priority already in effect.

Description: This response is issued when the APS request invoked by this command entered is of lower priority than the APS requests already present on the *Aps*.

## ATTRIBUTE apsResponseText

Description: This response text gives the specific reason why the command was ignored. For example, “Far end is transmitting signalFail on protection”, and a suggested alternative, such as “Use ‘switch -force’ to override the signalFail”.

Values: String (0..256, ASCII)

## RESPONSE Error:The component name specified by attribute... does not exist or was not specified.

Description: This error message appears in response to a *Check Prov* command if the specified component name cannot be found in the edit view.

## ATTRIBUTE atmAccMissingComponent

Description: This attribute contains the numeric ID of the attribute used to specify the component name of the *atmConnection* to be used.

Values: Decimal (0..65535)

## RESPONSE Error:The ATM connection specified by attribute ... is not supported.

Description

This error message appears in response to a *Check Prov* command if the *atmConnection* specified is not supported by this component.

## ATTRIBUTE atmAccVCUnsupported

Description

This attribute contains the numeric ID of the attribute used to specify the component name of the ATM connection which is unsupported.

Values

Decimal (0..65535)

## RESPONSE Error:The component name specified by attribute ... does not exist or was not specified.

Description

This error message appears in response to a *Check Prov* command if the specified component name cannot be found in the edit view.

## ATTRIBUTE paAtmAccMissingComponent

Description

This attribute contains the numeric ID of the attribute used to specify the component name of the ATM connection to be used.

Values

Decimal (0..65535)

## RESPONSE Error:The ATM connection specified by attribute ... is not supported.

Description

This error message appears in response to a *Check Prov* command if the ATM connection specified is not supported by this component.

## ATTRIBUTE paAtmAccVCUnsupported

Description: This attribute contains the numeric ID of the attribute used to specify the component name of the ATM connection which is unsupported.

Values: Decimal (0..65535)

## RESPONSE Error: The ATM connection specified by attribute ... must have the same VPI value as its parent Trunk ATM connection.

Description: This error message appears in response to a *Check Prov* command if the ATM connection specified has a different VPI value from its parent Trunk ATM connection.

## ATTRIBUTE paAtmAccVpMismatch

Description: This attribute contains the numeric ID of the attribute used to specify the component name of the ATM connection which has a different VPI value from its parent Trunk ATM connection.

Values: Decimal (0..65535)

## RESPONSE Error: The ATM connection specified by attribute ... must have the same AtmIf value as its parent Trunk ATM connection.

Description: This error message appears in response to a *Check Prov* command if the ATM connection specified has a different AtmIf value from its parent Trunk ATM connection.

## ATTRIBUTE paAtmAccAtmifMismatch

Description: This attribute contains the numeric ID of the attribute used to specify the component name of the ATM connection which has a different AtmIf instance value from its parent Trunk ATM connection.

Values: Decimal (0..65535)

## RESPONSE Error: The parent Trunk ATM connection specified by its attribute ... is elastic. Pa Atm must be configured for mapped mode on inverse multiplexing Atm trunks.

Description

This error message appears in response to a *Check Prov* command if Pa Atm Mode is set to multiplexing and its parent Trunk Atm connection is elastic. Pa Atm does not support elastic Vcc. Mapped mode is recommended on inverse multiplexing Atm trunks.

## ATTRIBUTE paAtmAccMuxNotAllowed

Description

This attribute contains the numeric ID of the attribute used to specify the component name of the ATM connection which is elastic.

Values

Decimal (0..65535)

## RESPONSE Warning: The ATM connection specified by attribute ... is not relevant in mapped mode and will be ignored.

Description

This warning message appears in response to a *Check Prov* command if a provisioned VCC component is associated with a Pa Atm which is in map mode.

## ATTRIBUTE paAtmAccMapModeWarning

Description

This attribute contains the numeric ID of the attribute used to specify the component name of the ATM connection which is associated with a map-moded Pa ATM.

Values

Decimal (0..65535)

## RESPONSE

Description

The following describes the attributes of loopback to be displayed when a stop loopback command is issued.

## ATTRIBUTE localTotalFrm (ltf)

Description: This attribute records the number of frames looped back to the link since the loopback mode was started.

Values: Decimal (0..4294967295)

## ATTRIBUTE localTotalBytes (ltb)

Description: This attribute records the number of bytes looped back to the link since the loopback mode was started.

Values: Decimal (0..4294967295)

## ATTRIBUTE localFecnFrm (lff)

Description: This attribute records the number of frames with the Forward Explicit Congestion Notification (FECN) bit set, looped back to the link since the loopback mode was started.

Values: Decimal (0..4294967295)

## ATTRIBUTE localBecnFrm (lbf)

Description: This attribute records the number of frames with the Backward Explicit Congestion Notification (BECN) bit set, looped back to the link since the loopback mode was started.

Values: Decimal (0..4294967295)

## ATTRIBUTE localDeFrm (ldf)

Description: This attribute records the number of frames with the Discard Eligibility (DE) bit set, loopback to the link since the looped back mode was started.

Values: Decimal (0..4294967295)

## ATTRIBUTE localDeBytes (ldb)

Description: This attribute records the number of bytes in frames with the Discard Eligibility (DE) bit set, looped back to the link since the loopback mode was started.

Values Decimal (0..4294967295)

## ATTRIBUTE remoteTotalFrm (rtf)

Description This attribute records the number of frames looped back to the subnet since the loopback mode was started.

Values Decimal (0..4294967295)

## ATTRIBUTE remoteTotalBytes (rtb)

Description This attribute records the number of bytes looped back to the subnet since the loopback mode was last started.

Values Decimal (0..4294967295)

## ATTRIBUTE remoteFecnFrm (rff)

Description This attribute records the number of frames with the Forward Explicit Congestion Notification (FECN) bit set, looped back to the subnet since the loopback mode was started.

Values Decimal (0..4294967295)

## ATTRIBUTE remoteBecnFrm (rbf)

Description This attribute records the number of frames with the Backward Explicit Congestion Notification (BECN) bit set, looped back to the subnet since the loopback mode was started.

Values Decimal (0..4294967295)

## ATTRIBUTE remoteDeFrm (rdf)

Description This attribute records the number of frames with the Discard Eligibility (DE) bit set, looped back to the subnet since the loopback mode was started.

Values Decimal (0..4294967295)

## ATTRIBUTE remoteDeBytes (rdb)

Description: This attribute records the number of bytes in frames with the Discard Eligibility (DE) bit set, looped back to the subnet since the loopback mode was started.

Values: Decimal (0..4294967295)

## RESPONSE Error:The vcci attribute for the AtmTrunkConnection component must take values in the range 0-4095 when an Aal2Svc component is provisioned.

Description: A *Check Prov* command produces this response if the user tries to provision a value in the range 0-4095 for the *vcci* attribute of a *AtmTConn* component, when an *Aal2SvcService* component is provisioned.

System action: no *Activate* command will be accepted until a subsequent *Check Prov* command completes without errors.

Operator action: provision a value between 0 and 4095 for the *vcci* attribute of the *VgsConn* component.

## ATTRIBUTE relatedComponent

Description: This attribute identifies the component in which the error was detected.

Values: The name of the component

# RESPONSE

Description

This is the normal response for a *Trace* command issued against a connection. It lists the ATM components at each hop along the connection path up to the next segment OAM boundary.

An example of the complete response is:
Switch side trace result:
EM/NewYork AtmIf/10 Vcc/0.43
EM/Raleigh AtmIf/30 Vcc/0.43
EM/Raleigh AtmIf/51 Vcc/1.66
EM/Denver AtmIf/40 Vpt/1 Vcc/66
EM/Denver AtmIf/12 Vpt/4 Vcc/25
EM/Atlanta AtmIf/71 Vcc/4.25
EM/Atlanta AtmIf/70 Vcc/0.37

Note that the lines of response in the Trace command output are not necessarily in order. This is due to the fact that the Trace command requires a response from each node along the connection. The time taken to respond to the trace cell depends on the load on that processor. So in any node that has other activity, there are minor differences in the time to respond to the Trace command.

The Trace response for a *Vcc* does not show any hops of a VCC which are conveyed on a path connection (VPC). In this case the Trace command only shows the *Vcc* hop points, along with any *Virtual Path Terminators (VPTs)* that may be present.

# ATTRIBUTE switchSideResponseList

Description

This attribute is used to create a response containing the switch-side trace results.

List of

The name of the component

## ATTRIBUTE linkSideResponseList

Description This attribute is used to create a response containing the link-side trace results.

List of The name of the component

## RESPONSE Warning:Traffic will not be forwarded to any ATM FP LPs with the following LPTs, since the pppIwf feature is not provisioned in the featureList of those LPTs:

Description This response is produced by the *Check Prov* command if the user has not provisioned the ***pppIwf*** feature on any card which can be used to route an SPVC configured through a *PppIwf AtmAdaptionPoint*.

## ATTRIBUTE component

Description This attribute specifies the identity of each *Lpt* which does not have the feature ***pppIwf*** provisioned on it.

List of The name of the component

## RESPONSE Error: The ... attribute must ...

Description This error response is generated by the *Check Prov* command when the operator attempts to provision a PVC connection and the *atmConnection* attribute is not provisioned, or the operator attempts to provision an SPVC connection and the *atmConnection* attribute is provisioned.

## ATTRIBUTE invalidType

Description This attribute contains the numeric ID of the attribute which was left unprovisioned.

Values Decimal (1..65535)

## ATTRIBUTE invalidValue

Description Either “be set.“ or “not be set.“.

Values String (7..11, ASCII)

## RESPONSE Error: The ... attribute must be set.

Description This response is produced by the *Check* command if the user has not provisioned the *linkToProtocolPort* attribute.

## ATTRIBUTE invalidType

Description This attribute contains the numeric ID of the attribute which was left unprovisioned.

Values Decimal (1..65535)

## RESPONSE Error: The ... attribute must be set.

Description This response is produced by the *Check* command if the user has not provisioned the *ilsForwarder* attribute.

## ATTRIBUTE invalidType

Description This attribute contains the numeric ID of the attribute which was left unprovisioned.

Values Decimal (1..65535)

## RESPONSE Error: ... encapType must be llcEncap or ipVcEncap.

Description This error message appears when the attribute *encapType* under the linked *AtmMpe* component is neither ***llcEncap*** nor ***ipVcEncap***.

## ATTRIBUTE atmMpeName

Description This attribute contains the name of the *AtmMpe* component.

Values The name of the component

## RESPONSE Failed to reach destination within the maximum of ... hops.

Description This response indicates the *Ping -traceRoute* command cannot reach the given destination IP address within the maximum number of hops supported by IP Trace Route.

## ATTRIBUTE hopCount

Description This attribute indicates the maximum number of hops the *Ping -traceRoute* command will try to reach its destination.

Values Decimal (1..255)

## RESPONSE IP Trace Route for ...:Path taken:

Description This response contains the header line used when the *-traceRoute* ping option was specified. It is used when the trace was unsuccessful due to a timeout. The path taken before the 10 second timer expired follows this response.

## ATTRIBUTE ipAddr

Description This attribute indicates the IP address of the remote host.

Values IP address

## RESPONSE ...Hop ...:...(failed)

Description This response is printed as the last line of the ping *-traceRoute* command when the command fails or times out. It indicates the number hops the command had traversed before it failed.

## ATTRIBUTE hopCount

Description This attribute indicates the number of hops the command had traversed when the command failed.

Values Decimal (1..255)

# RESPONSE .....

Description

This response contains the *hopCount*, *hopAddress* and *roundTripTime* of an intermediate node in the network to reach the IP address being traced.

# ATTRIBUTE hopCount

Description

This attribute indicates the hop count of a node that was visited by the *Ping -traceRoute* command.

Values

Decimal (1..255)

# ATTRIBUTE ipAddress

Description

This attribute indicates the IP address of a node that was visited by the *Ping -traceRoute* command.

The value 0.0.0.0 is displayed if a transit router along the path did not respond. This might be the result of a node filtering incoming and/or outgoing ICMP messages, for example, a firewall router. In this case, the *roundTripTime* is displayed as 0 as well and should be ignored.

Values

IP address

# ATTRIBUTE roundTripTime

Description

This attribute indicates the round trip time taken to reach this node.

The value 0 is displayed if a transit router along the path did not respond. This might be the result of a node filtering incoming and/or outgoing ICMP messages, for example, a firewall router. In this case, the *ipAddress* is displayed as 0.0.0.0 as well and should be ignored.

Values

Decimal (0..65535)

## RESPONSE Transport Connection to ... is up.

Description: This response indicates that the *Ping* issued against the enabled *Ep* has verified that the transport connection to the remote end is up. If the *Ping* issued against the Ep is disabled due to transport priority overlap, then this response indicates that the transport connection from this Ep's associated Ep to the remote end is up.

## ATTRIBUTE remoteComponentName

Description: This attribute indicates the component name of the remote *Ep*.

Values: String (0..46, ASCII)

## RESPONSE Error: ... encapType must be llcEncap.

Description: This error message appears when the attribute *encapType* under the linked *AtmMpe* component is not ***llcEncap***.

## ATTRIBUTE atmMpeName

Description: This attribute contains the name of the *AtmMpe* component.

Values: The name of the component

## RESPONSE Warning:Traffic will not be forwarded to any AtmMpe protocol port on Lp(s) with the following Lpt(s), since the feature atmMpe is not provisioned in the featureList of those Lpt(s):

Description: This response is produced by the *Check Prov* command if the user has not provisioned the ***atmMpe*** feature on any card which has the ***ip*** feature provisioned.

## ATTRIBUTE component

Description: This attribute specifies the identity of each *Lpt* which does not have the feature ***atmMpe*** provisioned on it.

List of: The name of the component

## RESPONSE Error:The feature atmMpe must be provisioned in the featureList of ...

Description This error response is generated when the feature ***atmMpe*** is not
provisioned on the corresponding logical processor.

## ATTRIBUTE lpt

Description This attribute indicates the *Lpt* which should have the ***atmMpe***
feature on it.

Values The name of the component

## RESPONSE ...

Description This response is generated as an error response to the start verb. The reasons for this response include: The FRUNI is incapable of generation traffic in its current state.

## ATTRIBUTE ErrorMsg

Description This attribute contains the error message to be displayed.

Values String (1..81, ASCII)

## RESPONSE Error:The AtmSap component requires a ConnectionIdentifier subcomponent with an instance value that corresponds to the ... component.

Description

A *Check Prov* command produces this response when an *AtmServiceAccessPoint* component is linked to an *AtmInterface* and the *AtmServiceAccessPoint* does not have a *ConnectionIdentifier* component with a matching instance value for a *VirtualChannelConnection* or *VirtualPathConnection* under the *AtmInterface* component.

**System Action**: No *Activate* command is allowed for this provisioning file until the *Check Prov* succeeds.

**Operator Action**: Add a *ConnectionIdentifier* component instance with a matching instance value for each *VirtualChannelConnection* and *VirtualPathConnection* component.

## ATTRIBUTE componentName

Description

This attribute indicates the component name of the *VirtualChannelConnection* or *VirtualPathConnection* component.

Values

The name of the component

## RESPONSE Error:An Lsp must have one of either a ...,or ... or ... subcomponent provisioned when a FEC MscMap is provisioned under the LspG.

Description

The *Check Prov* command produces this response when the specified component name cannot be found in the edit view.

**System Action**: The *Check Prov* fails.

**Operator Action**: Provision either an *LdpQos* or *CrLdpQos* or *RsvpQos* component under this *Lsp* component.

## ATTRIBUTE mplsLspGLspMissingCrLdpQosError

Description This attribute indicates the name of the *CrLdpQos* component to be used in the response.

Values Decimal (0..65535)

## ATTRIBUTE mplsLspGLspMissingLdpQosError

Description This attribute indicates the name of the *LdpQos* component to be used in the response.

Values Decimal (0..65535)

## ATTRIBUTE mplsLspGLspMissingRsvpQosError

Description This attribute indicates the name of the *RsvpQos* component to be used in the response.

Values Decimal (0..65535)

## RESPONSE Error:The total number of LSP components has exceeded the allowable limit of ... per Mpls component.

Description The *Check Prov* command produces this response when the number of *Lsp* components provisioned has exceeded a defined constant

**System Action**: The *Check Prov* fails.

**Operator Action**: Reduce the number of *Lsp* components provisioned

## ATTRIBUTE mplsLspGLspTooManyLspsError

Description This attribute indicates the maximum number of *Lsp* components that can be provisioned on a switch under an *Mpls* component . This value is a constant set within the software.

Values Decimal (0..65535)

## RESPONSE Error:A Te component must have the ... attribute set when the Lsp component has a CrLdpQos subcomponent.

Description

The *Check Prov* command produces this response when the *TrafficEngineering* component does not have its *pathname* attribute set.

**System Action**: The *Check Prov* fails.

**Operator Action**: Provision the *pathname* attribute under the *TrafficEngineering* component to point to a valid MPLS *Path* component.

## ATTRIBUTE mplsTePathnameSetError

Description

This attribute indicates the name of the *Pathname* attribute to be used in the response.

Values

Decimal (0..65535)

## RESPONSE Warning:The ... attribute will be ignored when the Lsp component has an LdpQos subcomponent.

Description

The *Check Prov* command produces this response when the *Lsp* component has an *LdpQos sub*component provisioned and the *PathOnDemand* attribute is set to ***enabled*** or when an *LdpQos* component is provisioned and the *PathName* attribute is set.

**System Action**: The *Check Prov* command passes.

**Operator Action**: No operator action required.

## ATTRIBUTE mplsTeLdpQosWarning

Description

This attribute indicates the name of the attribute to be used in the response.

Values

Decimal (0..65535)

## RESPONSE Error:A Te ... attribute has to be set to an existing Path component.

Description

The *Check Prov* command produces this response when the *pathname* attribute of the *TrafficEngineering* component of an *Lsp* component has been set to a non-existent *Path.*

**System Action**: The *Check Prov* fails.

**Operator Action**: Provision the *pathname* attribute to point to a valid MPLS *Path* component.

## ATTRIBUTE mplsTePathnameExistError

Description

This attribute indicates the name of the *Pathname* attribute to be used in the response.

Values

Decimal (0..65535)

## RESPONSE Error: ... in the standby LSP attribute does not have Service Category as standby value.

Description

The *Check Prov* command produces this response when an *Lsp* has been added to a *standbyLsp* but has a non-standby value.

**System Action**: The *Check Prov* fails.

**Operator Action**: Either remove the *Lsp* component with a non-standby *serviceCategory* value from the *standbyLsp* attribute or change it's *serviceCategory* value to ***standby***.

## ATTRIBUTE nonStandbyLsp

Description

This attribute specifies the component name of the *Lsp Msc* to be used in the response.

Values

The name of the component

## RESPONSE Error:Each non-standby Lsp must have a unique serviceCategory. ... has duplicate serviceCategory.

Description

The *Check Prov* command produces this response when multiple *Lsp* components have been provisioned under the same *LspGroup* components using the same non-standby *serviceCategory*.

**System Action**: The *Check Prov* fails.

**Operator Action**: Ensure that each of the *Lsp* components provisioned under an *LspGroup* component has a unique non-standby *serviceCategory*.

## ATTRIBUTE mplsMscUniqScError

Description

This attribute indicates the component name of the *Lsp Msc* to be used in the response.

Values

The name of the component

## RESPONSE Error:... standby list cannot include a primary Lsp.

Description

The *Check Prov* command produces this response when a *standbyLsp* has been provisioned to include a non-standby LSP.

**System Action**: The *Check Prov* fails.

**Operator Action**: Either remove the *Lsp* instance with a non-standby *serviceCategory* value from the *standbyLsp* or change the *serviceCategory* value to ***standby***.

## ATTRIBUTE mplsMscNonStandbyInListError

Description

This attribute indicates the component name of the standby list to be used in the response.

Values

The name of the component

## RESPONSE Error:A standby Lsp cannot appear in more than one standby list. ... and ... include the same Lsp.

Description

The *Check Prov* command produces this response when a standby LSP has been included in more than one *standbyLsp*.

**System Action**: The *Check Prov* fails.

**Operator Action**: Remove the *Lsp* component instance value from one of the *standbyLsp*.

## ATTRIBUTE firstStandbyInOnePlusListError

Description

This attribute indicates the component name of the *standbyLsp* to be used in the response.

Values

The name of the component

## ATTRIBUTE secondStandbyInOnePlusListError

Description

This attribute indicates the component name of the *standbyLsp* to be used in the response.

Values

The name of the component

## RESPONSE Error:Standby Lsp ... does not appear in any standby list.

Description

The *Check Prov* command produces this response when a standby LSP has not been added to any *standbyLsp*.

**System Action**: The *Check Prov* fails.

**Operator Action**: Either change the *Msc* component *serviceCategory* attribute value to a non-standby value or add it to a *standbyLsp*.

## ATTRIBUTE mplsMscHangingStandbyError

Description

This attribute indicates the component name of the Lsp to be used in the response.

Values The name of the component

## RESPONSE Error:A Path component must have at least one ... subcomponent.

Description The *Check Prov* command produces this response when no *Hop* components have been provisioned under the *Path* component.

**System Action**: The *Check Prov* fails.

**Operator Action**: Provision at least one *Hop* component under each *Path* component.

## ATTRIBUTE pathNoHopsError

Description This attribute indicates the name of the *Hop* subcomponent used in the response.

Values Decimal (0..65535)

## RESPONSE Error:The total number of Path components has exceeded the allowable limit of ... per Mpls component.

Description The *Check Prov* command produces this response when the number of *Path* components provisioned exceeds a preset value.

**System Action**: The *Check Prov* fails.

**Operator Action**: Reduce the number of *Path* components provisioned.

## ATTRIBUTE mplsPathTooManyPathsError

Description This attribute indicates the maximum number of *Path* components that can be provisioned on a switch under a *Mpls* component. This value is a constant set within the software.

Values Decimal (0..65535)

## RESPONSE Error:Hop ... attribute is inadmissible. Choose a valid Class A, B or C non-reserved address.

Description

The *Check Prov* command produces this response when the IpV4 address for this *Hop* component is not a valid Class A,B or C non-reserved address.

**System Action**: The *Check Prov* fails.

**Operator Action**: Provision the *IpV4address* attribute of this *Hop* component using a valid Class A,B or C non-reserved address.

## ATTRIBUTE pathHopInvalidAddrError

Description

This attribute indicates the name of the *IpV4Address* attribute to be used in the response.

Values

Decimal (0..65535)

## RESPONSE Error:The total number of Hop components has exceeded the allowable limit of ... per Mpls component.

Description

The *Check Prov* command produces this response when the number of *Hop* components provisioned exceeds a preset number.

**System Action**: The *Check Prov* fails.

**Operator Action**: Reduce the number of *Hop* components provisioned.

## ATTRIBUTE mplsPathHopTooManyHopsError

Description

This attribute indicates the maximum number of *Hop* components that can be provisioned on a switch under a *Virtual Router*. This value is a constant set within the software.

Values

Decimal (0..65535)

## RESPONSE Error:An LspGroup component must have one ... subcomponent.

Description

The *Check Prov* command produces this response when a *ForwardingEquivalenceClass* component has not been provisioned under the *LspGroup* component.

**System Action**: The *Check Prov* fails. No *Activate Prov* command is accepted until a subsequent *Check Prov* completes without errors.

**Operator Action**: Provision a *ForwardingEquivalenceClass* component under the *LspGroup* component.

## ATTRIBUTE lspGroupMissingIpFwdError

Description

This attribute indicates the name of the *ForwardingEquivalenceClass* component to be used in the response.

Values

Decimal (0..65535)

## RESPONSE Error:The total number of LspGroup components has exceeded the allowable limit of ... per VirtualRouter.

Description

The *Check Prov* command produces this response when the number of *LspGroup* components provisioned exceeds a preset number.

**System Action**: The *Check Prov* fails. No *Activate Prov* command is accepted until a subsequent *Check Prov* completes without errors.

**Operator Action**: Reduce the number of *LspGroup* components provisioned.

## ATTRIBUTE mplsLspGTooManyLspGsError

Description

This attribute indicates the maximum number of *LspGroup* components that can be provisioned on a switch under a *VirtualRouter* component. This value is a constant set within the software.

Values

Decimal (0..65535)

## RESPONSE Error:Duplicate ipv4Elem value or masked Ipv4 address with another LspGroup component. The duplicate address and length is ...,....

Description

The *Check Prov* command produces this response when the provisioned *ipv4Element* instance value of the *Ipv4Epa* subcomponent or the IP address defined by the combination of *ipv4Element* and *ipv4Pref* values (masked IP address) is duplicated under another *LspGroup* component.

**System Action**: The *Check Prov* command fails.

**Operator Action**: Ensure that the IP address represented by each *Ipv4Epa* component is unique under the *Mpls* component. This includes both uniqueness of the *ipv4Element* instance value along and the IP address defined by combining *ipv4Element* and *ipv4Pref* instance values.

## ATTRIBUTE ipV4DuplicateAddrError

Description

This attribute indicates the *ipv4Element* to be used in the response.

Values

IP address

## ATTRIBUTE ipV4DuplicateAddrLengthError

Description

This attribute indicates the *ipv4Pref* to be used in the response.

Values

Decimal (1..32)

## RESPONSE Error:The timeslot provisioned for Ccst has not been provisioned in the Channel timeslot list.

Description

A *Check Prov* command produces this error response if the *Channel timeslot* attribute does not contain the timeslot provisioned for the *Ccst* component. Note that if the *Ccst timeslot* attribute is set to ***autoConfigure***, then the *Channel timeslot* attribute must contain ***16*** for E1 or ***24*** for DS1.

**System action:** No *Activate Prov* command will be accepted until a subsequent *Check Prov* completes without errors.
**Operator action:** Provision the *Channel timeslot* attribute to include the timeslot used by *Ccst*.

## ATTRIBUTE conflictingComponent

Description

This attribute identifies the *Channel* component for which the incorrect *timeslot* provisioning has been detected.

Values

The name of the component

## RESPONSE Error: The value specified for the ... attribute is invalid for this card type.

Description

A *Check Prov* command produces this response when a semantic check fails concerning an MSA card.

## ATTRIBUTE attribute

Description

This is the attribute involved in the response.

Values

Decimal (1..65535)

## RESPONSE Error:.....Reason: on MSA cards, ....

Description

A Check Prov command produces this response when a semantic check escape fails on an MSA card

## ATTRIBUTE attribute

Description

This is the main attribute involved in the response.

Values Decimal (1..65535)

## ATTRIBUTE attributeHexValueMustBe

Description This is the hex value that must be applied to the attribute

Values Hex (H.0..H.ffffffff)

## RESPONSE Warning:Traffic using LANE service will not be forwarded to any Lp with the following Lpt(s), since the laneClient feature is not provisioned in the feature list of those Lpt(s):

Description A *CHECK* command produces this response if the ‘laneClient’ feature is not provisioned on an ATM *Lpt* that has any of the features: atmUni, atmIisp, atmPnni; or an *Lpt* that has any of the features: ip, ipx, bridge.

## ATTRIBUTE component

Description This attribute specifies the identity of each *Lpt* that does not have the feature ‘laneClient’ provisioned on it.

List of The name of the component

## RESPONSE IpPing: Rx ... from ... for ...: icmpSeq=... ...

Description This response indicates that the ping to the specified IP address was unsuccessful due to an ICMP error.

## ATTRIBUTE type

Description This attribute indicates the type of ICMP error received that correlates to an outstanding echo request. ICMP errors that are reported include all variations of unreachable errors, and the time exceeded error. Refer to RFC 792 for details on ICMP.

Values String (0..20, ASCII)

## ATTRIBUTE sourceIpAddr

Description: This attribute indicates the IP address of which the unreachable ICMP packet was originated.

Values: IP address

## ATTRIBUTE destIpAddr

Description: This attribute indicates the IP address of the intended destination of the echo request.

Values: IP address

## ATTRIBUTE sequence

Description: This attribute indicates the sequence number of the failed echo request.

Values: Decimal (0..4294967295)

## ATTRIBUTE data

Description: This attribute indicates any other relevant data in the ICMP error, such as the MTU in an ‘unreachable - need fragment’ ICMP error.

Values: String (0..20, ASCII)

## RESPONSE Reconnect command successful, connection ....

Description: The *Reconnect* command produces this response to indicate that the connection was successfully established using the requested path.

## ATTRIBUTE currentPath

Description: This attribute specifies the path in use after the *Reconnect* command.

Values
with primary path
with alternate path
using PNNI routing

## RESPONSE Reconnect not successful, connection ....

Description
The *Reconnect* command produces this response to indicate that the connection could not be established using the requested path.

## ATTRIBUTE currentPath

Description
This attribute specifies the path in use after the *Reconnect* command.

Values
with primary path
with alternate path
using PNNI routing
not established

## RESPONSE .....

Description
This indicates the number of components which generated warnings and the number of components which generated errors that could not be displayed due to volume limitations.

## ATTRIBUTE warningCount

Description
This attribute indicates the number of components that have generated warnings that have not been displayed.

Values
Decimal (0..4294967295)

## ATTRIBUTE errorCount

Description
This attribute indicates the number of components that have generated errors that have not been displayed.

Values
Decimal (0..4294967295)

## RESPONSE Error:An Lsp component must have a ... subcomponent provisioned.

Description

The *Check Prov* command produces this response when the specified component name cannot be found in the edit view.

**System Action**: The *Check Prov* command fails.

**Operator Action**: Provision the component indicated as missing component under this *Lsp* component.

## ATTRIBUTE mplsLspGLspMissingSubCompError

Description

This attribute indicates the name of the missing subcomponent to be used in the response.

Values

Decimal (0..65535)

## RESPONSE Error:A ... subcomponent must be provisioned under the Fec component.

Description

The *Check Prov* command produces this response when the specified component name cannot be found in the edit view.

**System Action**: The *Check Prov* fails.

**Operator Action**: Provision an *IpV4Epa* subcomponent under this *Fec* component.

## ATTRIBUTE ipFwdPolMissingSubCompError

Description

This attribute contains the name of the *IpV4Epa* subcomponent to be used in the response.

Values

Decimal (0..65535)

## RESPONSE Error:When the frequency attribute is set to veryFrequent, ... must equal ....

Description

The *Check Prov* command produces this response when the *frequency* attribute has been set to ***veryFrequent*** and either the *peakDataRate* does not equal the *committedDataRate* or the *peakBurstSize* does not equal the *committedBurstSize*.

**System Action**: The *Check Prov* fails.

**Operator Action**: Alter the attributes to meet the required conditions.

## ATTRIBUTE mplsCrLdpQosDataPeakError

Description

This attribute indicates the name of one of the *CrLdpQos* attributes to be used in the response.

Values

Decimal (0..65535)

## ATTRIBUTE mplsCrLdpQosDataCommittedError

Description

This attribute indicates the name of one of the *CrLdpQos* attributes to be used in the response.

Values

Decimal (0..65535)

## RESPONSE Error: The following have duplicate IP addresses. (At most 20 components are shown.)

Description

A *Check Prov* command generates this response if two or more linked components have the same IP address. The first component has this Ip address will be recognized. But the second and more with same Ip address will be listed under this response.

## ATTRIBUTE illegalFriDuplicated

Description: This attribute contains a list of the offending Frame Relay interfaces.

List of: The name of the component

List Size: 20

## RESPONSE Warning:This will disrupt all the BNX Dlcis under ....

Description: The *Check Prov* command generates this response when the attribute *linkToIpServer* and/or *ipAddress* have been changed.

## ATTRIBUTE frUniName

Description: This attribute indicates the component name of its parent: *FrUni* or *FrNni*.

Values: The name of the component

## RESPONSE Cannot Unlock - attribute ... is not set to unlocked.

Description: This error response is generated when an operator attempts to *Unlock* a component whose currently provisioned administrative status is ***permLocked***.

**System action**: the *Unlock* command is ignored.
**Operator action**: if desired, change the value provisioned for the indicated attribute to ***unlocked***, then retry the original *Unlock* command. Note that doing this will cause the component to attempt to go into service whenever a FP reload occurs.

## ATTRIBUTE attribute

Description: This attribute identifies the provisioned administrative status attribute.

Values Decimal (0..65535)

## RESPONSE node id = ... port id = ...

Description This response contains the information for one hop in a computed route returned as the result of issuing the *Run* command on the *RouteFinder* component.

## ATTRIBUTE nodeId

Description This attribute specifies the node ID of a logical node at the near end of the hop.

Values String (22, Hex)

## ATTRIBUTE portId

Description This attribute indicates the port ID of the PNNI interface leaving the node identified by the *nodeId* attribute.

Values Decimal (0..4294967295)

## RESPONSE node id = ...

Description This response contains the information for one hop with an unknown port ID in a computed route returned as the result of issuing the Run verb on the RouteFinder component.

## ATTRIBUTE nodeId

Description This attribute specifies the node ID of a logical node at the near end of the hop.

Values String (22, Hex)

## RESPONSE Route ...: Optimal Path Metric Value : ...

Description This response contains the header line for one computed route returned as the result of issuing the *Run* command on the *RouteFinder* component.

## ATTRIBUTE route

Description: This attribute specifies the route number of one of the routes returned as the result of issuing the *Run* command on the *RouteFinder* component.

Values: Decimal (1..15)

## ATTRIBUTE optMetricValue

Description: This attribute indicates the results of the optimization metric for the best routing path found.

Values: Decimal (0..4294967295)

## RESPONSE Error:Duplicated remote end is found in ....

Description: The *Check Prov* command generates this response when there are duplicated *calledIpAddress* and *calledDlci* pairs or *backupCalledIpAddress* and *backupCalledDlci* pairs in *BnxIwf* components under the same *FrUni* or *FrNni*.

**System action**: No *Activate* command is accepted until the provisioning information is corrected.

**Operator action**: Change one or more of the attributes of the duplicated *BnxIwf* components (*calledIpAddress*, *calledDlci*, *backupCalledIpAddress*, or *backupCalledIpAddress*) to make the remote ends unique.

## ATTRIBUTE illegalFriDuplicated

Description: This attribute contains an offending *BnxIwf* component.

Values: The name of the component

## RESPONSE Error:The atmServiceCategoryToMsc attribute must have an associated Lsp Msc PcElspSc with instance ... under its parent LspGroup.

Description

The *Check Prov* command produces this response when an *AtmSap atmServiceCategoryToMsc* attribute specifies an MPLS Service Category for which there is no matching *Lsp Msc Elsp* under its parent *LspGroup*.

**System Action**: No *Activate* command is allowed for this provisioning file until the *Check Prov* succeeds.

**Operator Action**: Either set the *AtmSap atmServiceCategoryToMsc* attribute to specify the instance number of an existing *Lsp Msc PcElspSc* component or provision an *Lsp Msc PcElspSc* component with an instance matching the *atmServiceCategoryToMsc* attribute value.

## ATTRIBUTE ascToMscValue

Description

This attribute indicates the value of the erroneous entry in the *AtmSap atmServiceCategoryToMsc* attribute.

Values

Decimal (0..7)

## RESPONSE Error: The aggregateNet ... is a host address. Use network address for the corresponding aggregateMask

Description

This response is generated when host address is used to aggregate routes

## ATTRIBUTE ospfAggregateNetAddress

Description

This attribute contains the net address

Values

IP address

# RESPONSE DPRS MCS switched path associated with McsMgr ... ...

Description

This response is returned when the operator issued a *ping* command without the -rtd option and the data path currently being used for this FR VC is a pre-determined DPRS MCS switched path.

When data traffic of this FR VC is carried over a DPRS MCS switched path, the *ping* command should be issued with the -rtd option and meant to get the round-trip-delay information of this switched path.

However, if information about this switched path is needed, please refer to the component “McsMgr DprsMcsEpG/<x> Ep/<y> EpD” associated with this switched path. The steps are as follow (please note that <x> and <y> should be replaced using the actual values displayed in this response):
1) Display the attribute “transportConnectionPreference” under this component to see how this path is setup (using PORS or ATM).
2) If the value is “porsOnly”, the path information can be obtained using “display McsMgr DprsMcsEpG/<x> Ep/<y> LCo” and looking at the value of attribute “path”. Otherwise, the value for attribute “transportConnectionPreference” is “atmOnly”. In this case, you have to check the attribute “nextHop” under component: “McsMgr DprsMcsEpG/<x> Ep/<y> AtmCon” and trace the same attribute manually hop-by-hop to get the path information.

# ATTRIBUTE vcsEpG

Description

This attribute indicates the group number of the DPRS MCS endpoint associated with the switched path.

Values Decimal (1..8191)

# ATTRIBUTE vcsEp

Description

This attribute indicates the Ep number of the DPRS MCS endpoint associated with the switched path.

Values Decimal (1..256)

# RESPONSE

Description

The *Trace* command produces this response when the command completes normally. This is only the initial part of the complete response. The complete response includes multiple instances of *AtmTracePartialResponse* as well.

The following is an example of the complete response:

*Trace status = Trace Completed Normally*
*Src port Id=001e0001*
*Src port name =EM/PARIS Atmif/30*

*Node Id =60A0391111111111111111111111110090CF55E80060*
*Node name = PARIS*
*Port Id =0700001*
*Port name= EM/PARIS Atmif/112*

...

*Node Id =60A0391111111111111111111111110090CF55E81163*
*Node name = ENGLAND*
*Port Id =0700001*
*Port name= EM/ENGLANG Atmif/112*

...

*Node Id = 60A0391111111111111111111111110090CF55E81163*
*Node name = MOSCOW*
*Port Id =0700001*
*Port name= EM/MOSCOW Atmif/112*

## ATTRIBUTE status

Description

This attribute indicates the status of the trace. The string should be one of the following:

***Completed normally****:* The trace completed normally.

***Incomplete****:* Partial trace returned.

***Exceeded information element length limitations****:* The number of traced nodes exceeded the maximum number of hops.

***Exceeded message length limitations****:* The message length exceeded the maximum allowed size.

Values

Completed normally
Incomplete
Exceeded information element length limitations
Exceeded message length limitations

## ATTRIBUTE srcPortId

Description

This attribute indicates the trace source port identifier used for this connection.

Values

Decimal (0..4294967295)

## ATTRIBUTE srcPortName

Description

This attribute indicates the node name and the name of the source port used for this connection. This attribute only appears in the trace result for the trace source hop.

Values

String (40, ASCII)

## RESPONSE Error: The policy described by this component duplicates or conflicts with the policy described by ....

Description: A *Check Prov* command produces this response if the addition, deletion, or change of an *EgressPolicy* or *NetworkAddress* component results in an inconsistent set of egress policies.

## ATTRIBUTE netAddrDupName

Description: This attribute contains the name of the conflicting *NetworkAddress* component.

Values: The name of the component

## RESPONSE Error: ... encapType must be llcEncap.

Description: A *Check Prov* command produces this response when the *encapType* attribute of the linked *AtmMpe* is not ***llcEncap***.

## ATTRIBUTE atmMpeName

Description: This attribute contains the name of the *AtmMpe* component.

Values: The name of the component

## RESPONSE Error: The combination of attributes ... and ... is invalid because there are non-zero bits in the address which lie outside the mask.

Description: A *Check Prov* command produces this response when there are non-zero bits in the *sourceAddress* or *destinationAddress* which lie outside the corresponding mask.

## ATTRIBUTE invalidAddress

Description: This attribute contains the numeric ID of the attribute with the invalid address.

Values: Decimal (1..65535)

## ATTRIBUTE invalidMask

Description: This attribute contains the numeric ID of the attribute with the invalid mask.

Values: Decimal (1..65535)

## RESPONSE Error: More than one Virtual Media Interface component linked to Vr/....

Description: The *Check* command produces this response if more than one *Interface* of the given *VirtualMedia* is linked to a given *VirtualRouter*. Delete any additional *VirtualMedia Interfaces*, or link them to another *VirtualRouter*

## ATTRIBUTE vrId

Description: This attribute indicates the name of the *VirtualRouter*.

Values: String (1..8, ASCII)

## RESPONSE The install version ... does not exist.

Description: The *Install* command generates this response when the install file version specified for the fabric application does not exist.
**System action:** The command was not accepted.
**Operator action:** Specify another fabric application version to install, or download the version first from the SDS site.

## ATTRIBUTE file

Description: This attribute is the name of the install file to be loaded.

Values: String (1..50, ASCII)

# RESPONSE Switch side trace result:

Description

The *Trace* command produces this response when the command completes normally. This is only the initial part of the complete response. The complete response includes multiple instances of *AtmTracePartialResponse* as well.

An example of the complete response is:
*Switch side trace result:*

*Trace status = Trace Completed Normally.*
*Src port Id=001e0001*
*Src port name = EM/PARIS Atmif/30*

*Node Id=60A0391111111111111111111111110090CF55E80060*
*Node name = PARIS*
*Port Id =0700001*
*Port name = EM/PARIS Atmif/112*

...

*Node Id=60A0391111111111111111111111110090CF55E81163*
*Node name = ENGLAND*
*Port Id =0700001*
*Port name= EM/ENGLANG Atmif/112*

...

*Node Id=60A0391111111111111111111111110090CF55E81163*
*Node name = MOSCOW*
*Port Id =0700001*
*Port name= EM/MOSCOW Atmif/112*

## ATTRIBUTE status

Description

This attribute indicates the status of the trace. The string is one of the following:

***Completed normally****:* The trace completed normally.

***Incomplete****:* Partial trace returned.

***Exceeded information element length limitations****:* The number of traced nodes exceeded the maximum number of hops.

***Exceeded message length limitations****:* The message length exceeded the maximum allowed size.

Values

Completed normally
Incomplete
Exceeded information element length limitations
Exceeded message length limitations

## ATTRIBUTE srcPortId

Description

This attribute indicates the port identifier value used for this connection.

Values

Decimal (0..4294967295)

## ATTRIBUTE srcPortName

Description

This attribute indicates the node name and the name of the source port used for this connection on the ingress side. This attribute only appears in the trace results for the trace source hop.

Values

String (40, ASCII)

# RESPONSE Linkside trace result:

Description

The *Trace* command produces this response when the command completes normally. This is only the initial part of the complete response. The complete response includes multiple instances of *AtmTracePartialResponse* as well.

The following is an example of the complete response:
*Linkside trace result:*

*Trace status = Trace Completed Normally.*
*Src port Id=001e0001*
*Src port name =EM/PARIS Atmif/30*

*Node Id*
*=60A0391111111111111111111111110090CF55E80060*
*Node name = PARIS*
*Port Id =0700001*
*Port name = EM/PARIS Atmif/112*

...

*Node Id*
*=60A0391111111111111111111111110090CF55E81163*
*Node name = ENGLAND*
*Port Id =0700001*
*Port name= EM/ENGLANG Atmif/112*

...

*Node Id*
*=60A0391111111111111111111111110090CF55E81163*
*Node name = MOSCOW*
*Port Id =0700001*
*Port name = EM/MOSCOW Atmif/112*

## ATTRIBUTE status

Description

This attribute indicates the status of the trace. The string is one of the following:

***Completed normally****:* The trace completed normally.

***Incomplete****:* Partial trace returned.

***Exceeded information element length limitations****:* The number of traced nodes exceeded the maximum number of hops.

***Exceeded message length limitations****:* The message length exceeded the maximum allowed size.

Values

Completed normally
Incomplete
Exceeded information element length limitations
Exceeded message length limitations

## ATTRIBUTE srcPortId

Description

This attribute indicates the port identifier value used for this connection.

Values

Decimal (0..4294967295)

## ATTRIBUTE srcPortName

Description

This attribute indicates the node name and the name of the source port used for this connection on the ingress side. This attribute only appears in the trace result for the trace source hop.

Values

String (40, ASCII)

# RESPONSE

Description

The *Trace* command produces this response, or multiple instances of this response, when the path trace test connection completes normally. This partial response is also used by the connection trace to produce the complete response.

Multiple instances of this response are part of the complete response as show below:

*Node Id=60A0391111111111111111111111110090CF55E80060*
*Node name = PARIS*
*Port Id =0700001*
*Port name= EM/PARIS Atmif/112*
*...*

*Node Id=60A0391111111111111111111111110090CF55E81163*
*Node name = ENGLAND*
*Port Id =0700001*
*Port name= EM/ENGLANG Atmif/112*
*...*

*Node Id=60A0391111111111111111111111110090CF55E81163*
*Node name = MOSCOW*
*Port Id =0700001*
*Port name= EM/MOSCOW Atmif/112*

## ATTRIBUTE vpiVci

Description

This attribute indicates the VPI.VCI values are used for this hop on the ingress side. This is the ingress side with respect to the trace or setup messages. This attribute is displayed for ATM interfaces only.

For the connection trace, the VPI.VCI values are included in the trace when the *-s* option is specified.

For the test connection, as defined by the specification, the VPI.VCI values are never included when the connection is released at the destination.

Values

Integer Sequence (0..4095; 0..65535)

## ATTRIBUTE dlci

Description

This attribute indicates the DLCI value used for this hop on the ingress side. This is the ingress side with respect to the trace or setup messages. This attribute is displayed for FrAtm interfaces only.

For the connection trace, the VPI.VCI values are included in the trace when the *-s* option is specified.

For the test connection, as defined by the specification, the VPI.VCI values are never included when the connection is released at the destination.

Values

Decimal (0..1023)

## ATTRIBUTE callReference (callref)

Description

This attribute indicates the call reference value used for this hop on the ingress side. This is the ingress side with respect to the trace or setup messages.

For the connection trace, the call reference value is included in the trace when the *-a* option is specified.

For the test connection, as defined by the specification, the call reference value is never included when the connection is released at the destination.

Values

Hex (H.0..H.ffffff)

## ATTRIBUTE endPointReference

Description

This attribute indicates the end point reference value used for this hop on the ingress side. This is the ingress side with respect to the trace or setup messages.

For the connection trace, the end point reference value is included in the trace when the *-a* option is specified.

For the test connection, as defined by the specification, the end point reference value is never included when the connection is released at the destination.

Values

Hex (H.0..H.ffff)

## ATTRIBUTE nodeId

Description

This attribute indicates the lowest level node Id traversed for this hop.

Values

String (22, Hex)

## ATTRIBUTE nodeName

Description

This attribute indicates the *nodeName* under the *ModuleData* component for this hop. Only Passport nodes provide this information by including it in the Vendor Specific group.

Values String (15, ASCII)

## ATTRIBUTE portId

Description This attribute indicates the port identifier value for this hop on the egress side. This is the egress side with respect to the trace or setup messages.

Values Decimal (0..4294967295)

## ATTRIBUTE portName

Description This attribute indicates the port name for this hop on the egress side. This is the egress side with respect to the trace or setup messages. Only Passport nodes provide this information by including it in the Vendor Specific group.

Values String (55, ASCII)

## ATTRIBUTE pnniTraceContRefusalIndPresent (refusal)

Description This attribute indicates whether the “PNNI Trace Continuation Refusal” indicator is present. “PNNI Trace Continuation Refusal” indicator indicates that this hop has refused to participate in the trace.

This is not applicable for a connection trace because this connection has already been established.

Values absent
present

## ATTRIBUTE crankbackDestNodeIndPresent (dest)

Description This attribute indicates whether the “PNNI Crankback Received at Trace Destination Node” indicator is present. The “PNNI Crankback Received at Trace Destination Node” indicator indicates that this hop is acting as a trace destination node and has received a crankback for this call from a non-PNNI interface.

This is not applicable for a connection trace because this connection has already been established.

Values absent
present

## ATTRIBUTE pnniCrankbackGapIndPresent (gap)

Description This attribute indicates whether the “PNNI Crankback Gap” indicator is present. The “PNNI Crankback Gap” indicator indicates that the call has been subjected to a crankback, however, no Trace Transit List IE was returned by the node initiating the crankback.

This is not applicable for a connection trace because this connection has already been established.

Values absent
present

## ATTRIBUTE crankBackCause (cause)

Description This attribute indicates the crankback cause. Please refer to the Private-Network-to-Network-Interface Specification Version 1.0 for more information.

This is not applicable for a connection trace because this connection has already been established.

For the test connection, this attribute is present when the *traceCrankback* is set to ***Yes.***

Values Decimal (0..1000)

## ATTRIBUTE blockedTransitType (type)

Description This attribute indicates the blocked transit type.

This is not applicable for a connection trace because this connection has already been established.

For the test connection, this attribute is present when the *traceCrankback* is set to ***Yes***.

Values
Succeeding end block
Blocked node
Blocked link

## ATTRIBUTE blockedNodeId (bNodeId)

Description

This attribute indicates the blocked node Id during the call setup request. The blocked node Id identifies the logical node where the connection or party has been blocked.

This attribute is present when the *blockedTransitType* attribute is the ***Blocked node.***

Values
String (22, Hex)

## ATTRIBUTE blockedLinkPrecedingNodeId (pNodeId)

Description

This attribute indicates the blocked link's preceding node Id during the call setup request. The blocked link's preceding node Id identifies the logical node preceding a link where the connection or party has been blocked.

This attribute is present when the *blockedTransitType* attribute is ***Blocked link***.

Values
String (22, Hex)

## ATTRIBUTE blockedLinkPortId (bPortId)

Description

This attribute indicates the blocked link's port identifier value used for this connection during the call setup request. The blocked link's port identifier identifies a logical port of the blocked link's preceding node identifier.

This attribute is present when the *blockedTransitType* attribute is ***Blocked link.***

Values
Decimal (0..4294967295)

## ATTRIBUTE blockedLinkSucceedingNodeId (sNodeId)

Description

This attribute indicates the blocked link's succeeding node Id during the call setup request. The blocked link's succeeding node Id identifies the logical node succeeding a link where the connection or party has been blocked.

This attribute is present when the *blockedTransitType* attribute is ***Blocked link.***

Values

String (22, Hex)

## ATTRIBUTE dstVpiVci

Description

This attribute indicates the VPI.VCI values on the destination side. This attribute only appears in the trace result for the trace destination node. This attribute is displayed for ATM interfaces only.

For the connection trace, the VPI.VCI values are included in the trace when the *-s* option is specified.

For the test connection, as defined by the specification, the VPI.VCI values are never included when the connection is released at the destination.

Values

Integer Sequence (0..4095; 0..65535)

## ATTRIBUTE dstDlci

Description

This attribute indicates the DLCI value on the destination side. This attribute only appears in the trace result for the trace destination node. This attribute is only displayed for FrAtm interfaces.

For the connection trace, the VPI.VCI values are included in the trace when the *-s* option is specified.

For the test connection, as defined by the specification, the VPI.VCI values are never included when the connection is released at the destination.

Values Decimal (0..1023)

## ATTRIBUTE dstCallReference

Description This attribute indicates the call reference value on the destination side. This attribute only appears in the trace result for the trace destination node.

For the connection trace, the call reference value is included in the trace when the *-a* option is specified.

For the test connection, as defined by the specification, the call reference value is never included when the connection is released at the destination.

Values Hex (H.0..H.ffffff)

## ATTRIBUTE dstEndPointReference

Description This attribute indicates the end point call reference value on the destination side. This attribute only appears in the trace result for the trace destination node.

For the connection trace, the end point reference value is included in the trace when the *-a* option is specified.

For the test connection, as defined by the specification, the end point reference value is never included when the connection is released at the destination.

Values Hex (H.0..H.ffff)

## ATTRIBUTE specifiedPath

Description This attribute indicates whether this hop is the originator of this manually configured path. Only Passport nodes provide this information by including it in the Vendor Specific group.

Values no
yes

## RESPONSE Syntax Error(s):

Description

A *Set* command produces this response when a syntax error is detected in an attribute whose value is a regular expression.

## ATTRIBUTE errorString3

Description

This attribute contains the syntax error when an invalid character is detected in the expression.

Values

String (1..255, ASCII)

## ATTRIBUTE errorString30

Description

This attribute contains the syntax error when duplicate special characters are found.

Values

String (1..255, ASCII)

## RESPONSE Connection failed or not enough resources.

Description

The *Trace* command produces this response to indicate that there are not enough resources and displays the cause identifier for the operator to look at.

**System action**: None.

**Operator action**: Look at the cause identifier, change the proper parameters, and try this command again.

## ATTRIBUTE causeId

Description

This attribute indicates the cause code value to identify the failure.

Values

Decimal (0..1000)

# RESPONSE

Description The *Trace* command produces this response when the vendor specific information exists for one hop in the trace record. This is part of the complete response. The complete response may include multiple instances of this response.

## ATTRIBUTE length

Description This attribute indicates the length of a vendor specific information group.

Values Decimal (0..11)

## ATTRIBUTE organizationUniqueId (oui)

Description This attribute indicates the Organization Unique Identifier (OUI) of a non-Passport node.

Values String (3, Dashed Hex)

## ATTRIBUTE data

Description This attribute indicates the contents of a vendor specific information group.

Values String (1..8, Hex)

# RESPONSE Error: The value of ripInterface, ..., does not match any RIP interface address provisioned on this routing component.

Description A *Check Prov* command produces this response when the attribute *ripInterface* is set to an address that does not match any *logicalIf* address on this routing component (*Vr*, *Rtr* or *Vrf*) that has a *RipIf*.

## ATTRIBUTE invalidRipInterfaceAddress

Description This attribute contains value of the invalid *ripInterface* address.

Values IP address

## RESPONSE Error: The value of ripNeighbor, ..., is not a valid IP address for a RIP neighbor.

Description A *Check Prov* command produces this response when the attribute *ripNeighbor* is set to an address that does not belong to any Class A, B or C network.

## ATTRIBUTE invalidRipNbrAddress

Description This attribute contains value of the invalid *ripNeighbor* address.

Values IP address

## RESPONSE Error: The value of routeReflectorCluster should not be ....

Description The *Check Prov* command produces this response when attribute *routeReflector* of *Bgp* component is ***true*** and the *routeReflectorCluster* attribute is ***0.0.0.0*** or ***255.255.255.255***.

## ATTRIBUTE invalidBgpRouteReflectorClusterId

Description This attribute contains the invalid route reflector cluster identifier.

Values IP address

## RESPONSE Error: Peer ... cannot be a client if the routeReflector attribute of BGP is false.

Description A *Check Prov* command produces this response when the peer is specified as a client but the attribute *routeReflector* of *Bgp* component is not ***true***

## ATTRIBUTE inwIpBgpRouteReflectorClient

Description This attribute contains the IP address of the peer that is provisioned as a client

Values IP address

## RESPONSE Error: Extenal peer ... cannot be a client of a routeReflector.

Description A *Check Prov* command produces this response when an external peer is provisioned as a client of a Route Reflector.

## ATTRIBUTE inwIpBgpRrExternalClientAddress

Description This attribute contains the IP address of the external peer that is provisioned as a client

Values IP address

## RESPONSE There are ... records available for storage.

Description The *Start* command produces this response indicating the number of records available to be stored.

**System action**: None.

**Operator action**: If the number of records available is zero, the operator should stop and clear some of the existing filters on this *Lp* or increase the value of *Lp/n Eng PTrace Ov maxTraceRecords*.

## ATTRIBUTE recordsAvailable

Description This attribute indicates the number of available records stored on this *Lp*.

Values Decimal (0..200)

## RESPONSE Error:The encryption key length must be ... hex digits.

Description

A *Check Prov* command produces this response when *encAlgorithm* attribute is set to ***des*** or ***3des***, but the length of *encKey* attribute is not correct.

**System action**: The *Check Prov* command fails. No *Activate Prov* command is accepted until a subsequent *Check Prov* completes without errors.

**Operator action**: Ensure the length of *encKey* attribute is correct for the *encAlg* attribute.

## ATTRIBUTE encKeySize

Description

The attribute indicates the correct length for the encryption key.

Values

Decimal (0; 16; 48)

## RESPONSE Error:The authentication key length must be ... hex digits.

Description

A *Check Prov* command produces this response when *authAlgorithm* attribute is set to ***md5*** or ***sha1***, but the length of *authKey* attribute is not correct (32 or 40).

**System action**: The *Check Prov* command fails. No *Activate Prov* command is accepted until a subsequent *Check Prov* completes without errors.

**Operator action**: Ensure the length of *authKey* attribute is valid for the *authAlg* attribute.

## ATTRIBUTE authKeySize

Description

The attribute indicates the correct length for the authentication key.

Values

Decimal (0; 32; 40)

## RESPONSE Warning:You must now set the key(s) for the new component:...

Description

A *Copy Prov* command produces this warning when a new *Vr/<string> Ip Spd/<string> Policy/<string> Sa/ <secDestination, secProtocol, spi> ManualEspSa* component is created from an existing one. All attribute values are copied to the new component, except for the *authKey* and/or *encKey* attributes. For security reasons, those attribute values are not copied from one component to another.

**System action**: The *authKey* and/or *encKey* attributes for the new *ManEspSa* component are set to empty strings. Any subsequent *Check Prov* command involving the new component will fail unless the keys have been set to new values by the operator.

**Operator action**: *Set* the *authKey* and/or *encKey* attributes for the new *ManEspSa* component.

## ATTRIBUTE componentName

Description

The attribute indicates the component whose keys must be set.

Values

The name of the component

## RESPONSE Error:The Ip Address ... must be a subnet address given provisioned netMask.

Description

A *Check Prov* command produces this response when it detects that the IP address of this *IpLogicalInterface* or *Interface* is not a subnet address given the provisioned *netMask*, and this *ProtocolPort* or *Interface* is linked to a *VirtualMedia Interface* or *Loopback Interface* component whose *mode* is set to ***alwaysUpSummaryInterface***.

**System action**: The *Check Prov* command fails. No *Activate* command is accepted until a subsequent *Check Prov* command completes without errors.

**Operator action**: Change the value of IP address to a subnet address given the provisioned *netMask*.

## ATTRIBUTE invalidAddress

Description

This attribute contains the value of invalid IP address.

Values

IP address

## RESPONSE Released with :

Description

The Trace command produces this response to indicate the cause and diagnostic code for why the connection was relaesed.

System action: None.

Operator action: To debug why the connection failed.

## ATTRIBUTE causeCode

Description

This attribute contains the cause code in the transmitted signaling message that contains the CAUSE information element. The cause code is used to describe the reason for generating certain signaling messages.

Values

Decimal (0..255)

## ATTRIBUTE diagCode

Description

This attribute contains the diagnostic code in the last transmitted signaling message. The diagnostic code is contained in the CAUSE information element and identifies an information element type or timer type. The diagnostic code is present only if a procedural error is detected by the signaling protocol. A diagnostic code is always accompanied by the cause code. If there is no failure, this attribute is set to NULL.

Values

String (0..8, ASCII)

## RESPONSE Error:echoCancellationTailLength on a ... card must be set to one of the following values:...

Description

A *Check Prov* command produces this response if the user sets the *echoCancellationTailLength* attribute to an inappropriate value for the card in use.

A value of ***32*** or ***autoConfigure*** is allowed on a ***12mVspAal*** card.

A value of ***32***, ***48*** or ***autoConfigure*** is allowed on a ***Vsp2*** card.

A value of ***64***, ***128*** or ***autoConfigure*** is allowed on a ***2pGeMmSrVsp3*** card.

**System action**: No *Activate* command will be accepted until a subsequent *Check Prov* command completes without errors.

**Operator action**: Ensure that the *echoCancellationTailLength* attribute is set to the appropriate value for the card being used

## ATTRIBUTE vgsCardType

Description

This attribute indicates the card type being used.

Values
12mVspAal
Vsp2
2pGeMmSrVsp3

## ATTRIBUTE vgsBragEcanTailLength

Description
This attribute indicates the allowed values for the *echoCancellationTailLength* attribute.

List of
autoConfigure
32
48
64
128

List Size
4

## RESPONSE

Description
This collected event represents the security logs for an SNMP set request. Several such logs may be required for a single set PDU.

## ATTRIBUTE managerIpAddress

Description
This attribute is the IP address and port of the SNMP Management station (Manager) that issued the set request. It is in the format of IPaddress-162.

Values
String (1..255, ASCII)

## ATTRIBUTE snmpCommand

Description
This attribute is the command that was received by the SNMP Agent (for example, Set mscLpDS1ChanTimeslotDataRate.8.0.0 1).

Values
String (1..255, ASCII)

# ATTRIBUTE cliCommand

Description

This attribute is the command line interface (CLI) equivalent of the command that was received by the SNMP Agent (for example, set lp/8 ds1/0 chan/0 timeslotDataRate doNotOverride). There is no equivalent CLI command for a Standard MIB variable set request.

Values

String (1..255, ASCII)

# ATTRIBUTE response

Description

This attribute is the success/failure indicator of the command that was entered. In the case of a failure, a meaningful response message will be provided when possible. In most cases, this is the same message received if the command is entered via the CLI interface. Otherwise the message may be one of these responses defined under the *SNMP* component:
SnmpAgentResourceUnavailable,
SnmpAgentForcedOutProvMode,
SnmpAgentReqFullSemantic,
SnmpAgentUnknownCommunity,
SnmpAgentReadonlyCommunity,
SnmpAgentReadonlyManager,
SnmpAgentUnknownManager,
SnmpAgentRespPDUTooBig,
SnmpAgentViewInvalidOid,
SnmpAgentViewExcluded,
SnmpAgentViewNotLeafNode,
SnmpAgentViewNotWritable,
SnmpAgentViewWrongType,
SnmpAgentAddCompError,
SnmpAgentSetAttrError,
SnmpAgentGeneralErrors,
SnmpAgentCpResetErr

Values

String (1..275, ASCII)

## RESPONSE Error:...An invalid object identifier found in VarBind ....

Description

An SNMP set request produces this response when the SNMP set request has an invalid object identifier.

**System action**: the command terminates without having done anything.

**Operator action**: Validate the object identifier.

## ATTRIBUTE attributeInError

Description

This attribute contains the index of the SNMP VarBind that caused this error.

Values

Decimal (1..1000)

## RESPONSE Error:...The object identifier specified in VarBind ... is excluded by the view.

Description

An SNMP set request produces this response when the SNMP set request has an object identifier that is excluded by the SNMP view.

This can represent a security breach.

**System action**: the command terminates without having done anything.

**Operator action**: Use an appropriate view or reconfigure the current one.

## ATTRIBUTE attributeInError

Description

This attribute contains the index of the SNMP VarBind that caused this error.

Values

Decimal (1..1000)

## RESPONSE Error:...The object identifier specified in VarBind ... is not a leaf node.

Description

An SNMP set request produces this response when the SNMP set request has an object identifier that is not a leaf node.

**System action**: the command terminates without having done anything.

**Operator action**: none.

## ATTRIBUTE attributeInError

Description

This attribute contains the index of the SNMP VarBind that caused this error.

Values

Decimal (1..1000)

## RESPONSE Error:...The object identifier spcified in VarBind ... is not writable.

Description

An SNMP set request produces this response when the SNMP set request has an object identifier that is not writable.

**System action**: the command terminates without having done anything.

**Operator action**: Validate the object identifier.

## ATTRIBUTE attributeInError

Description

This attribute contains the index of the SNMP VarBind that caused this error.

Values

Decimal (1..1000)

## RESPONSE Error:...The value specified in VarBind ... has the wrong type.

Description

An SNMP set request produces this response when the SNMP set request has an object identifier with a wrong type.

**System action**: the command terminates without having done anything.

**Operator action**: Validate the type of the object identifier.

## ATTRIBUTE attributeInError

Description

This attribute contains the index of the SNMP VarBind that caused this error.

Values

Decimal (1..1000)

## RESPONSE Error:...Set failed on VarBind ... with the error status: ....

Description

An SNMP set request produces this response when the SNMP set request failed on a Standard MIB variable.

**System action**: the command terminates without having done anything.

**Operator action**: Check the logs for the SNMP error status.

## ATTRIBUTE snmpVarBindIndex

Description

This attribute contains the index of the SNMP VarBind that caused this error.

Values

Decimal (1..1000)

## ATTRIBUTE snmpErrorCode

Description

This attribute contains the SNMP error status (RFC1905).

Values

tooBig
noSuchName

badValue
readOnly
genErr
noAccess
wrongType
wrongLength
wrongEncoding
wrongValue
noCreation
inconsistenValue
resourceUnavailable
commitFailed
undoFailed
authorizationError
notWritable
inconsistenName
lastError

## RESPONSE Error:...Set failed on Component ... with the error status: ....

Description

An SNMP set request produces this response when the SNMP set request failed on adding a component.

**System action**: the command terminates without having done anything.

**Operator action**: Check the logs for the SNMP error status.

## ATTRIBUTE snmpFailedCompName

Description

This attribute contains the component name the set request failed on.

Values

The name of the component

## ATTRIBUTE snmpAddErrorCode

Description

This attribute contains the SNMP error status (RFC1905).

Values genErr
wrongValue
inconsistenName

## RESPONSE Error:...Set failed on Attribute ..... with the error status: ....

Description An SNMP set request produces this response when the SNMP set request failed on setting an attribute.

**System action**: the command terminates without having done anything.

**Operator action**: Check the logs for the SNMP error status.

## ATTRIBUTE snmpFailedSetCompName

Description This attribute contains the component name the set request failed on.

Values The name of the component

## ATTRIBUTE snmpFailedAttrName

Description This attribute contains the attribute name the set request failed on.

Values Decimal (1..65535)

The name of the component

## ATTRIBUTE snmpSetErrorCode

Description This attribute contains the SNMP error status (RFC1905).

Values genErr
wrongLength
wrongValue
inconsistenName

## RESPONSE Error:The ipDscp attribute of ... must equal the instance value of a Vr Dsd PerHopBehavior component

## when the IpPort is assigned a DifferentiatedServices component, and the baMode of the IngressServices subcomponent is set to link.

Description

A *Check Prov* command produces this response if the *diffServAssignment* attribute of the *Ip* or *IpPort* is set, the *baMode* attribute of the *ingressServices* subcomponent is set to ***link***, and the *ipDscp* attribute of the *AtmConnection* does not match the instance value of a *PerHopBehavior* subcomponent of the *DifferentiatedServicesDomain.*

System Action: The *Check Prov* command fails. No *Activate* command is accepted until a subsequent *Check Prov* completes without errors.

Operator Action: Ensure that the *ipDscp* attribute of the *AtmConnection* is equal to the instance value of a *PerHopBehavior* subcomponent of the *DifferentiatedServicesDomain*, or the *diffServAssignment* attribute of the *Ip* and *IpPort* are not set, or the *baMode* attribute in the *ingressServices* subcomponent is set to a value other than ***link***.

## ATTRIBUTE atmMpeName

Description

This attribute contains the name of the link layer connection used by the *IpPort*. The link layer media is associated with the *IpPort* by the *linkToMedia* attribute of the *ProtocolPort*.

Values

The name of the component

## RESPONSE Error:If the VirtualRouter does not have a DifferentiatedServicesDomain subcomponent, then the ipDscp attribute of ... must be set to na.

Description

The *Check Prov* command produces this response if the *VirtualRouter* does not have a *DifferentiatedServicesDomain* subcomponent and the *ipDscp* attribute of the *AtmConnection* is not set to ***na***.

**System Action**: The *Check Prov* command fails. No *Activate* command is accepted until a subsequent *Check Prov* completes without errors.

**Operator Action**: Add a *DifferentiatedServicesDomain* subcomponent to the *VirtualRouter*, or ensure that the *ipDscp* attribute of the *AtmConnection* is set to ***na***.

## ATTRIBUTE atmMpeName

Description

This attribute contains the name of the link layer connection used by the *IpPort*. The link layer media is associated with the *IpPort* by the *linkToMedia* attribute of the *ProtocolPort*.

Values

The name of the component

## RESPONSE Error:The ipDscp attribute of ... must equal the instance value of a Vr Dsd PerHopBehavior component when the IpPort is assigned a DifferentiatedServices

## component, and the baMode of the IngressServices subcomponent is set to link.

Description

A *Check Prov* command produces this response if the *diffServAssignment* attribute of the *Ip* or *IpPort* is set, the *baMode* attribute of the *ingressServices* subcomponent is set to ***link***, and the *ipDscp* attribute of the Frame Relay connection does not match the instance value of a *PerHopBehavior* subcomponent of the *DifferentiatedServicesDomain.* The *ipDscp* attribute for Frame Relay connections is located on the *StaticDlci* and *DynamicDlciDef* subcomponents of the *FrDte* component.

System Action: The *Check Prov* command fails. No *Activate* command is accepted until a subsequent *Check Prov* completes without errors.

Operator Action: Ensure that the *ipDscp* attribute of the Frame Relay connection is equal to the instance value of a *PerHopBehavior* subcomponent of the *DifferentiatedServicesDomain*, or the *diffServAssignment* attribute of the *Ip* and *IpPort* are not set, or the *baMode* attribute in the *ingressServices* subcomponent is set to a value other than ***link***.

## ATTRIBUTE frDteName

Description

This attribute contains the name of the link layer connection used by the *IpPort*. The link layer media is associated with the *IpPort* by the *linkToMedia* attribute of the *ProtocolPort*.

Values

The name of the component

## RESPONSE Error:If the VirtualRouter does not have a DifferentiatedServicesDomain subcomponent, then the ipDscp attribute of ... must be set to na.

Description

The *Check Prov* command produces this response if the *VirtualRouter* does not have a *DifferentiatedServicesDomain* subcomponent and the *ipDscp* attribute of the Frame Relay connection is not set to ***na***. The *ipDscp* attribute for Frame Relay connections is located on the *StaticDlci* and *DynamicDlciDef* subcomponents of *the FrDte* component.

**System Action**: The *Check Prov* command fails. No *Activate* command is accepted until a subsequent *Check Prov* completes without errors.

**Operator Action**: Add a *DifferentiatedServicesDomain* subcomponent to the *VirtualRouter*, or ensure that the *ipDscp* attribute of the Frame Relay connection is set to ***na***.

## ATTRIBUTE frDteName

Description

This attribute contains the name of the link layer connection used by the *IpPort*. The link layer media is associated with the *IpPort* by the *linkToMedia* attribute of the *ProtocolPort*.

Values

The name of the component

## RESPONSE Error:The dscpToMatch attribute must contain at least one value.

Description

A *Check Prov* command produces this response if the *dscpToMatch* attribute of the *BehaviorAggregate* component does not contain at least one value.

**System Action**: The *Check Prov* command fails. No *Activate* command is accepted until a subsequent *Check Prov* completes without errors.

**Operator Action**: Ensure that the *dscpToMatch* attribute contains at least one value.

## ATTRIBUTE ba1

Description

This attribute specifies the *BehaviorAggregate* component where the *dscpToMatch* attribute is empty.

Values

The name of the component

## RESPONSE Error:The following BehaviorAggregate components contain conflicting dscpToMark values:

Description

A *Check Prov* command produces this response if the *dscpToMark* attribute of any two *BehaviorAggregate* subcomponents of the same *IngressServices* or the same *EgressServices* specify the same DSCP value.

**System Action**: The *Check Prov* command fails. No *Activate* command is accepted until a subsequent *Check Prov* completes without errors.

**Operator Action**: Remove one of the two conflicting *BehaviorAggregate* components, or ensure that the two *dscpToMark* attributes specify different DSCP values.

## ATTRIBUTE ba1

Description

This attribute specifies the first of two conflicting *BehaviorAggregate* components.

Values The name of the component

## ATTRIBUTE ba2

Description This attribute specifies the second of two conflicting *BehaviorAggregate* components.

Values The name of the component

## RESPONSE Error:The following BehaviorAggregate components contain conflicting dscpToMatch values:

Description A *Check Prov* command produces this response if any value specified by the *dscpToMatch* attribute appears in two different *BehaviorAggregate* subcomponents of the same *IngressServices* or of the same *EgressServices*.

**System Action**: The *Check Prov* command fails. No *Activate* command is accepted until a subsequent *Check Prov* completes without errors.

**Operator Action**: Remove one of the two conflicting *BehaviorAggregate* components, or ensure that the two *dscpToMatch* attributes specify disjoint sets of DSCP values.

## ATTRIBUTE ba1

Description This attribute specifies the first of two conflicting *BehaviorAggregate* components.

Values The name of the component

## ATTRIBUTE ba2

Description This attribute specifies the second of two conflicting *BehaviorAggregate* components.

Values The name of the component

# RESPONSE Error:One of the following two PerHopBehavior subcomponent instances must be removed:

Description

A *Check Prov* command produces this response if two *PerHopBehavior* subcomponents instance values are equal.

**System Action**: The *Check Prov* command fails. No *Activate Prov* command is accepted until a subsequent *Check Prov* completes without errors.

**Operator Action**: Remove one of the two conflicting *PerHopBehavior* components.

# ATTRIBUTE phb1

Description

This attribute specifies the first of two conflicting *PerHopBehavior* components.

Values

The name of the component

# ATTRIBUTE phb2

Description

This attribute specifies the second of two conflicting *PerHopBehavior* components.

Values

The name of the component

## RESPONSE Error:The media ... is not supported for a Virtual Router that is linked to a VpnXc card.

Description

The *Check Prov* command produces this response when a *VirtualRouter* is linked to a ***VpnXc*** card, and it has a *ProtocolPort* that is linked to a media which is not supported for a ***VpnXc*** based Virtual Router.

**System action**: The *Check Prov* command fails. No *Activate Prov* command is accepted until a subsequent *Check Prov* completes without errors.

**Operator action**: One of the following actions should be taken:
- delete the *ProtocolPort* that is linked to the unsupported media, or
- set the value of the *virtualRouterProcessor* attribute for the *VirtualRouter* to ***Lp/0***, or
- move the *ProtocolPort* to a *VirtualRouter* whose *virtualRouterProcessor* attribute value is ***Lp/0***.

## ATTRIBUTE media

Description

This attribute indicates the component name of the unsupported media.

Values

The name of the component

## RESPONSE Error:The ... feature does not support ... trace receiver.

Description

The *Start* command produces this response when attempted against a service trace receiver that is not supported by the targeted trace service.

**System action**: The *Start* command has no effect.

**Operator action**: Check the specified receiver type against the type of service trace as following, correct the receiver name in service *SrvTrace rcvr* attribute, then enter *Start* command again.

Currently, Frame Relay Trace features support ***X25***, ***FrameRelay*** and ***ATM*** receivers, and ATM Trace features support ***FrAtm*** and ***ATM*** receivers.

## ATTRIBUTE serviceTraceFeature

Description

This attribute indicates the name of service trace feature.

Values

String (0..20, ASCII)

## ATTRIBUTE rcvrFeature

Description

This attribute indicates the name of trace receiver feature.

Values

String (0..20, ASCII)

# RESPONSE Error:The dscpToMark attribute is not equal to the instance value of a PerHopBehavior subcomponent of the Vr DifferentiatedServicesDomain

Description

A *Check Prov* command produces this response if the *dscpToMark* attribute value of the *BehaviorAggregate* subcomponent of the *IngressServices* is not equal to the instance value of a *PerHopBehavior* subcomponent under the *VirtualRouter DifferentiatedServicesDomain.*

**System Action**: The *Check Prov* command fails. No *Activate* command is accepted until a subsequent *Check Prov* completes without errors.

**Operator Action**: Ensure that the *dscpToMark* attribute of the *BehaviorAggregate* subcomponent of the *IngressServices* is equal to the instance value of a *PerHopBehavior* subcomponent under the *VirtualRouter DifferentiatedServicesDomain*.

# ATTRIBUTE ba1

Description

This attribute specifies the *BehaviorAggregate* component where the *dscpToMark* attribute is out of range.

Values

The name of the component

## RESPONSE Error:The following component,..., is incompatible with the use of a VrAp component in this Nsta/n Vgs hierarchy.

Description

A *Check Prov* command produces this response if a user tries to provision one of the following components under the same *Nsta/n Vgs* component tree where the *VrAp* component is provisioned: *Nap, Aap, Pap, SpvcAp, IpIf* and *VCac*.

**System action**: The *Check Prov* command fails. No *Activate* command will be accepted until a subsequent *Check Prov* command completes without errors.

**Operator action**: Ensure that no such component is provisioned within a *Nsta/n Vgs* component hierarchy which contains a *VrAp* component.

## ATTRIBUTE disallowedCompName

Description

This attribute contains the name of the disallowed component.

Values

The name of the component

## RESPONSE Error:Duplicate IP addresses are assigned to the following components:...

Description

A *Check Prov* command generates this response if the same IP address is assigned to two or more components which have *VrAp* subcomponents associated with the same *Vr/n* component instance.

**System action:** The *Check Prov* command fails. No *Activate* command will be accepted until a subsequent *Check Prov* command completes without errors.

**Operator action:** Ensure that the IP addresses are unique for all components with *VrAp* subcomponents associated with the same *Vr/n* component instance.

## ATTRIBUTE vgsCheckDuplicateErrCmpnt

Description This attribute contains the names of the components for which this check fails.

List of The name of the component

## RESPONSE Error:The ... component must have its mode attribute set to alwaysUpInterface.

Description A *Check Prov* command generates this response if the *Vm/n If/m* instance has a *Mode* attribute value other than ***alwaysUpInterface***.

**System action**: No *Activate* command will be accepted until a subsequent *Check Prov* command completes without errors.

**Operator action**: Ensure that the *Vm/n If/m* instance associated with this *VrAp* component has the *mode* attribute set to ***alwaysUpInterface***.

## ATTRIBUTE vrapCheckVmIfMode

Description This attribute contains the name of the *Vm/n If/m* component for which this check fails.

Values The name of the component

## RESPONSE Error:The udpPortBase attribute must equal 16384, 32768 or 49152 when provisioned on a ... card.

Description

A *Check Prov* command produces this response if the user tries to provision a *udpPortBase* value other than ***16384***, ***32768*** or ***49152*** when the *Shelf Card cardType* attribute is of the specified type.

System action: no *Activate* command is accepted until a subsequent *Check Prov* command completes without errors.

Operator action: Provision the *udpPortBase* attribute with a value of ***16384***, ***32768*** or ***49152***.

## ATTRIBUTE vgsCardType

Description This attribute indicates the card type being used.

Values 2pGeMmSrVsp3
2pOC3ChSmIrVsp3

## RESPONSE Error:The tosMask attribute of the following components are not equal:

Description

A *Check Prov* command produces this response if the *tosMask* attribute of all *EgressCosTreatment* subcomponents of the *CosPolicyGroup* are not equal.

**System Action:** The *Check Prov* command fails. No *Activate Prov* command is accepted until a subsequent *Check Prov* completes without errors.

**Operator Action:** Ensure that the *tosMask* attribute of all *EgressCosTreatment* subcomponents of the *CosPolicyGroup* are equal.

## ATTRIBUTE inwIpPolEgressCosTmtTosMask1

Description This attribute specifies the first of two *EgressCosTreatment* components where the *tosMask* attributes are not equal.

Values The name of the component

## ATTRIBUTE inwIpPolEgressCosTmtTosMask2

Description This attribute specifies the second of two *EgressCosTreatment* components where the *tosMask* attributes are not equal.

Values The name of the component

## RESPONSE Error:The provisioned IP address must not be a broadcast address within the provisioned subnetMask.

Description A *Check Prov* command produces this response if the IP Address is a broadcast address with in the *subnetMask*.

***System Action***: no *Activate Prov* command will be accepted until a subsequent *Check Prov* command completes without errors.

***Operator Action***: Provision a non-broadcast IP address.

## ATTRIBUTE broadcastIpAddress

Description This attribute contains the value of the broadcast IP address.

Values IP address

# RESPONSE The following patched AVs reference the AV that you are attempting to remove. To remove the AV in question,first remove the patched AVs.

Description

The Remove command produces this response when the *AV* cannot be removed because there is a dependant patched *AV* present on the disc. Because of the relationship between a patched *AV* and its parent *AV*, the parent *AV* cannot be removed while it has patched *AV*s present on the disk, regardless of whether the patched *AV*s are currently in use.

**System action:** The *AV* is not removed.

**Operator action:** If the patched *AV*s are no longer in use, remove these *AV*s, and then remove the original *AV*. If the patched *AV*s are still in use, this *AV* cannot be removed.

# ATTRIBUTE listOfFileNames

Description

This attribute is a list of patched *AV*s that are based on the AV that the user is attempting to remove.

List of String (1..30, ASCII)

## RESPONSE Warning:The discardPriority attribute of the following components specify different drop precedence selection methods:

Description

A *Check Prov* command produces this response if the *discardPriority* attribute of one or more, but not all, of the *IngressCosTreatment* subcomponents of the *CosPolicyGroup* is set to ***unchanged***.

**System Action**: The *Check Prov* will complete if there are no errors, however if the *CosPolicyGroup* component is used and the view is activated, then the Class of Service (CoS) to drop precedence mapping will not always apply.

**Operator Action**: Ensure that the *discardPriority* attribute of all *IngressCosTreatment* subcomponents of the *CosPolicyGroup* are either all set to ***unchanged*** or each set individually to ***high***, ***medium***, or ***low***.

## ATTRIBUTE inwIpIngressCosTmtPortDp1

Description

This attribute specifies the first of two *IngressCosTreatment* components where the *discardPriority* attributes conflict.

Values

The name of the component

## ATTRIBUTE inwIpIngressCosTmtPortDp2

Description

This attribute specifies the second of two *IngressCosTreatment* components where the *discardPriority* attributes conflict.

Values

The name of the component

## RESPONSE Error:...Reason: When tariffTimeChangeTrigger is enabled, times specified in the collectionTimes attribute of the Collector/Accounting

## component must be no less than 4 hours apart. Times ... and ... are less than 4 hours apart.

Description

A *Check Prov* command generates this response when any two values of the *collectionTimes* attribute (defined in *Collector/Accounting* component) are less than 4 hours apart.

**System action**: The *Check Prov* command fails. No *Activate* command is accepted until a subsequent *Check Prov* command completes without errors.

**Operator action**: Ensure that the values of the *collectionTimes* attribute are at least 4 hours apart.

## ATTRIBUTE invalidTimeFirstOfPairTtct

Description

This is the first of a pair of times which are too close together.

Values

Time (HM)

## ATTRIBUTE invalidTimeSecOfPairTtct

Description

This is the second of a pair of times which are too close together.

Values

Time (HM)

## RESPONSE Error:...Reason: When tariffTimeChangeTrigger is enabled, times specified in the collectionTimes attribute of the Collector/Accounting

## component must be no less than 4 hours apart. Times ... and ... are less than 4 hours apart.

Description

A *Check Prov* command generates this response when any two values of the *collectionTimes* attribute (defined in *Collector/Accounting* component) are less than 4 hours apart.

**System action**: The *Check Prov* command fails. No *Activate* command is accepted until a subsequent *Check Prov* command completes without errors.

**Operator action**: Ensure that the values of the *collectionTimes* attribute are at least 4 hours apart.

## ATTRIBUTE invalidTimeFirstOfPairTtct

Description

This is the first of a pair of times which are too close together.

Values

Time (HM)

## ATTRIBUTE invalidTimeSecOfPairTtct

Description

This is the second of a pair of times which are too close together.

Values

Time (HM)

## RESPONSE Warning:The ... attribute will be ignored when the ClsDef component is provisioned.

Description

The *Check Prov* command produces this response when the *ClsDef* component is provisioned.

**System Action**: The *Check Prov* passes.

**Operator Action**: No operator action required.

## ATTRIBUTE mplsRsvpQosClsBwWarning

Description This attribute indicates the name of the *Bandwidth* attribute to be used in the response.

Values Decimal (0..65535)

## RESPONSE The following patches are mutually exclusive and cannot beprovisioned together:

Description The check Prov command produces this response when two or more Reset patches provisioned in the *Sw patchList* are found to be patching the same object file. Such patches cannot be activated together and are mutually exclusive.

**System action:** Semantic check is failed. No patches are loaded. The current view is unchanged.

**Operator action:** If a patch is required that reflects all the solutions found in the patches in question, contact your customer support representative in order to obtain a composite patch. If only one of the patches is required, remove all of the other flagged patches from the *Sw Patchlist*.

## ATTRIBUTE duplicatePatchObjList

Description This attribute indicates a list of Reset patches that cannot be provisioned together because they patch the same object file.

List of String (1..30, ASCII)

## RESPONSE The following Reset patches in the Sw patchList are incompatible with the patched AVs in the Sw Avl:

Description

The check prov command produces this response when a conflict is detected between a patched *AV* (new application version based on an existing, released *AV*) and a Reset patch provisioned in the *Sw patchList*. Such conflicts arise when both patches are patching the same object file.

**System action:** Semantic check is failed. No patches are loaded. The current view is unchanged.

**Operator action:** If a patch is required that reflects all the solutions found in the patches in question, contact your customer support representative in order to obtain a composite patch. If only the patched *AV* is required, remove all of the flagged patches from the Sw *Patchlist*.

## ATTRIBUTE patchPdAvConflictList

Description

This attribute indicates a list of patches (patched *AV*s and Reset patches from the *Sw patchList*) that cannot be provisioned together because they patch the same object file.

List of String (1..30, ASCII)

## RESPONSE Warning:The cpEquipmentProtection attribute has been changed.Standby CP (card ...) will restart when this view is activated.

Description

This response is issued when the standby CP will be restarted due to a change in the *cpEquipmentProtection* attribute.

## ATTRIBUTE cpepCardNumberReset

Description

The card number of the standby CP card which will be reset when the provisioning view is activated.

Values Decimal (0..15)

## RESPONSE Error:An Lsp component must have a ... or a ... subcomponent provisioned when an AtmSap component is provisioned under the LspG component.

Description The *Check Prov* command produces this response when one of the specified components cannot be found in the edit view.

**System Action**: The *Check Prov* fails.

**Operator Action**: Provision the component indicated as missing component under this *Lsp* component.

## ATTRIBUTE mplsLspGLspOneOfTwoSubCompError

Description This attribute indicates the name of the missing subcomponent to be used in the response.

Values Decimal (0..65535)

## ATTRIBUTE mplsLspGLspOneOfTwoRsvpQosError

Description This attribute indicates the name of the other component to be used in the response.

Values Decimal (0..65535)

## RESPONSE Error: The value of peerIpAddress, ..., does not match the address of any peer of the associated VCG virtual router.

Description

A *Check Prov* command produces this response when the value of
attribute *peerIpAddress* does not match the address of any BGP peer of the associated VCG virtual router.

**System action**: The *Check Prov* command fails. No *Activate Prov* command is accepted until a subsequent *Check Prov* completes without errors.

**Operator Action**: Ensure that the value of the *peerIpAddress* attribute of the *MBgp ImportPolicy/n* subcomponent under this *VirtualRouter* matches the instance value of one of the *Bgp Peer/<peerIpAddress>* subcomponents under the associated VCG *VirtualRouter.*

## ATTRIBUTE invalidPeerAddress

Description

This attribute contains the invalid *peerIpAddress* value.

Values

IP address

## RESPONSE Error: The address ... is not a valid IP network address prefix.

Description

A *Check Prov* command produces this response when the address prefix defined by the *Network* component is not a valid IP network address prefix. Examples include all 0's (***0.0.0.0***) or all 1's (***255.255.255.255***).

**System action**: The *Check Prov* command fails. No *Activate Prov* command is accepted until a subsequent *Check Prov* completes without errors.

**Operator Action**: Provision the *prefix* and *length* attributes of the specified *Network* component to be a valid non-reserved address prefix.

## ATTRIBUTE invalidAddress

Description This attribute contains the value of the invalid address prefix.

Values IP address

## RESPONSE Warning:The ... attribute will be ignored when the Lsp component has an RsvpQos subcomponent.

Description The *Check Prov* command produces this response when the *Lsp* component has an *RsvpQos* component provisioned and the *PathOnDemand* attribute has been set to ***enabled***.

**System Action**: The *Check Prov* command passes.

**Operator Action**: No operator action required.

## ATTRIBUTE mplsTeRsvpQosWarning

Description This attribute indicates the name of the attribute to be used in the response.

Values Decimal (0..65535)

## RESPONSE Error:An Lsp component must not have a ... subcomponent provisioned when a StaticRoute subcomponent is provisioned.

Description The *Check Prov* command produces this response when the specified component name is found in the edit view.

**System Action**: The *Check Prov* fails.

**Operator Action**: Remove the component indicated under this *Lsp* component.

## ATTRIBUTE mplsLspGLspNotAllowedCompError

Description This attribute indicates the name of the component to be used in the response.

Values Decimal (0..65535)

## RESPONSE Warning:Duplicate IP addresses are assigned to the following components:...

Description

A *Check Prov* command generates this response if the same IP address is assigned to two or more components within any *Nsta/n Vgs* components hierarchy.

**System action:** None.

**Operator action:** Ensure that the duplication of IP addresses do not cause a problem.

## ATTRIBUTE vgsCheckDuplicateWngCmpnt

Description

This attribute contains the names of the components for which duplicate IP addresses are identified by this check.

List of The name of the component

## RESPONSE Warning:tdmLogLaw is recommended to take one of the following values:...

Description

A *Check Prov* command produces this response if the user sets the *tdmLogLaw* attribute to an inappropriate value for the card in use.

A value of ***aLaw*** or ***autoConfigure*** is recommended for an ***E1*** port.

A value of ***muLaw*** or ***autoConfigure*** is recommended for an ***DS1*** port.

**System action**: An *Activate Prov* command will be accepted with a warning being generated.

**Operator action**: Ensure that the *tdmLogLaw* attribute is set to the appropriate value for the TDM interface being used.

## ATTRIBUTE vgsBragTdmLogLaw

Description: This attribute indicates the allowed values for the *tdmLogLaw* attribute.

List of: muLaw
aLaw
autoConfigure

List Size: 2

## RESPONSE Warning:The provisioned ATM Sustained Cell Rate may be too small if all timeslots are active.

Description: A *Check Prov* command produces this response if the user tries to provision a sustained cell rate which is less than the minimum value that would be required for a given connection. This value is altered when fax idle suppression or silence suppression is enabled.

**System action:** None.
**Operator action:** Ensure that the Sustained Cell Rate is acceptable.

## ATTRIBUTE subComponent

Description: The name of the related component which contains the Sustained Cell Rate. It may be one of the following:

*AtmIf/n Vcc/m Vcd Tm*.
*Nsta/n Conn/m Aap*
*Nsta/n Conn/m SpvcAp*"

Values: The name of the component

## ATTRIBUTE nstaSustainedCellRate

Description: The calculated value of the sustained cell rate.

Values: Decimal (0..2147483647)

## RESPONSE Error: FrUni DirectConnection and Dlci ... are mutually exclusive.

Description

The *Check Prov* command generates this response when a *DirectConnection* component is provisioned under the *FrUni* component, and a *BnxIwf* or *IpConnection* subcomponent is provisioned under a *Dlci* subcomponent of the same *FrUni*.

**System Action**: The *Check Prov* command fails. An *Activate Prov* command will not be accepted until a subsequent *Check Prov* completes without errors.

**Operator Action**: Delete the *DirectConnection* component under the *FrUni*.
or
Delete the *Dlci* with the *BnxIwf* or *IpConnection* subcomponent provisioned under it.
or
Replace the *BnxIwf* or *IpConnection* component under the indicated *Dlci* with a *DirectCall* component.

## ATTRIBUTE frUniDlciMutualExclusiveNetCmpnt

Description

This attribute indicates the *Dlci* subcomponent that is mutually exclusive to the *DirectConnection* subcomponent.

Values

Decimal (1..65535)

## RESPONSE Error:The following IpAddrLayer4Flow components conflict with each other because they both

## specify all addresses, the same port numbers, and the same protocol:

Description

A *Check Prov* command produces this response if the following conditions are all true for two *IpAddrLayer4Flow* subcomponents of the *CosPolicyGroup*:
1. The values of the *assignedCos* attribute of the parent *Policy* components are not equal.
2. The values of the *protocol* attributes are equal.
3. The values of the *prefixLength* attributes are zero.
4. The values of the *portNumberRange* attributes are equal.

**System Action:** The *Check Prov* command fails. No *Activate Prov* command is accepted until a subsequent *Check Prov* completes without errors.

**Operator Action:** Ensure that at least one of the following conditions is true for the two *IpAddrLayer4Flow* components:
1. The *protocol* attributes have different values.
2. The *prefix* and *prefixLength* attributes specify different IP address ranges.
3. The *portNumberRange* attributes specify non-overlapping port ranges.

## ATTRIBUTE flow1

Description

This attribute specifies the first of two conflicting *IpAddrLayer4Flow* components.

Values

The name of the component

## ATTRIBUTE flow2

Description

This attribute specifies the second of two conflicting *IpAddrLayer4Flow* components.

Values

The name of the component

# RESPONSE Error:The following IpAddrLayer4Flow components conflict with each other because they both specify the same addresses, the same port numbers, and the same protocol:

Description

A *Check Prov* command produces this response if the following conditions are all true for two *IpAddrLayer4Flow* components under the *CosPolicyGroup*:
1. The values of the *assignedCos* attribute of the parent *Policy* components are not equal.
2. The values of the *protocol* attributes are equal.
3. The values of the *prefixLength* attributes are equal and not zero.
4. The values of the *prefix* attributes are equal up to the prefix length.
5. The values of the *portNumberRange* attributes are equal.

**System Action:** The *Check Prov* command fails. No *Activate Prov* command is accepted until a subsequent *Check Prov* completes without errors.

**Operator Action:** Ensure that at least one of the following conditions is true for the two *IpAddrLayer4Flow* components:
1. The *protocol* attributes have different values.
2. The *prefix* and *prefixLength* attributes specify different IP address ranges.
3. The *portNumberRange* attributes specify non-overlapping port ranges.

# ATTRIBUTE flow1

Description

This attribute specifies the first of two conflicting *IpAddrLayer4Flow* components.

Values

The name of the component

## ATTRIBUTE flow2

Description: This attribute specifies the second of two conflicting *IpAddrLayer4Flow* components.

Values: The name of the component

## RESPONSE Error:The following IpAddrLayer4Flow components conflict with each other because they both specify all addresses, all port numbers, and the same protocol:

Description: A *Check Prov* command produces this response if the following conditions are all true for two *IpAddrLayer4Flow* subcomponents of the *CosPolicyGroup*:
1. The values of the *assignedCos* attribute of the parent *Policy* components are not equal.
2. The values of the *protocol* attributes are equal.
3. The values of the *prefixLength* attributes are zero.
4. The values of the *portNumberRange* attributes are not specified.

**System Action:** The *Check Prov* command fails. No *Activate Prov* command is accepted until a subsequent *Check Prov* completes without errors.

**Operator Action:** Ensure that at least one of the following conditions is true for the two *IpAddrLayer4Flow* components:
1. The *protocol* attributes have different values.
2. The *prefix* and *prefixLength* attributes specify different IP address ranges.
3. The *portNumberRange* attributes specify non-overlapping port ranges.

## ATTRIBUTE flow1

Description This attribute specifies the first of two conflicting *IpAddrLayer4Flow* components.

Values The name of the component

## ATTRIBUTE flow2

Description This attribute specifies the second of two conflicting *IpAddrLayer4Flow* components.

Values The name of the component

## RESPONSE Error:The following IpAddrLayer4Flow components conflict with each other because they both specify the same addresses, all port numbers, and the same protocol:

Description A *Check Prov* command produces this response if the following conditions are all true for two *IpAddrLayer4Flow* components under the *CosPolicyGroup*:
1. The values of the *assignedCos* attribute of the parent *Policy* components are not equal.
2. The values of the *protocol* attributes are equal.
3. The values of the *prefixLength* attributes are equal.
4. The values of the *prefix* attributes are equal up to the prefix length.
5. The values of *portNumberRange* attributes are not specified.

**System Action:** The *Check Prov* command fails. No *Activate Prov* command is accepted until a subsequent *Check*

*Prov* completes without errors.

**Operator Action:** Ensure that at least one of the following conditions is true for the two *IpAddrLayer4Flow* components:
1. The *protocol* attributes have different values.
2. The *prefix* and *prefixLength* attributes specify different IP address
   ranges.
3. The *portNumberRange* attributes specify non-overlapping port
   ranges.

## ATTRIBUTE flow1

Description: This attribute specifies the first of two conflicting *IpAddrLayer4Flow* components.

Values: The name of the component

## ATTRIBUTE flow2

Description: This attribute specifies the second of two conflicting *IpAddrLayer4Flow* components.

Values: The name of the component

## RESPONSE Error:The ... attribute does not conform to required syntax.

Description

A *Check Prov* command produces this response if the value of one of the termination identifier format attributes does not comply with the relevant termination identifier syntax.

The termination identifier syntax is described in the PVG Guide (NTP 241-5701-780).

**System action**: The *Check Prov* command fails. No *Activate* command is accepted until a subsequent *Check Prov* command completes without errors.

**Operator action**: Provision the attribute to comply with the termination identifier syntax.

## ATTRIBUTE formatAttribute

Description

The name of the *Mgc* termination ID format attribute which is at fault.

Values

ds3Format
e1Format
stmnVc4Vc12Format
stsnOcnVt15Format
ipFormat
aal2Format

## RESPONSE Error:stateChangeSignalingMode on a ... card must be set to ....

Description

A *Check Prov* command produces this response if the user tries to provision the *stateChangeSignalingMode* attribute with a value incompatible with the current VSP card type.

**System action:** The *Check Prov* command fails. No *Activate Prov* command will be accepted until a subsequent *Check Prov* command completes without errors.

**Operator action:** Ensure that the *stateChangeSignalingMode* attribute is set to the appropriate value for the current VSP card being used.

## ATTRIBUTE vgsCardType

Description

This attribute indicates the VSP card type currently being used by PVG.

Values

12mVspAal
Vsp2
2pOC3ChSmIrVsp3
Vsp2W

## ATTRIBUTE vgsStateChangeSignalingMode

Description

This attribute indicates the current setting of *Mgc stateChangeSignalingMode* attribute.

Values

proprietary
itu

## RESPONSE Error:The expanded form of ... may exceed 64 characters in length.

Description

A Check Prov command produces this response if the maximum possible length of a termination ID is greater than 64 characters.

Expansion of the termination ID formats is described in the PVG Guide (NTP 241-5701-780).

**System action**: The *Check Prov* command fails. No *Activate* command is accepted until a subsequent *Check Prov* command completes without errors.

**Operator action**: Provision the format attribute to produce termination IDs whose maximum length is no greater than 64 characters.

## ATTRIBUTE formatAttribute

Description

The name of the *Mgc* termination ID format attribute, which is at fault.

Values

ds3Format
e1Format
stmnVc4Vc12Format
stsnOcnVt15Format
ipFormat
aal2Format

# RESPONSE Error:The following format attributes will result in identical termination IDs:...

Description

A *Check Prov* command produces this response if any of the following attributes result in identical termination IDs when expanded:

*ds3Format*
*e1Format*
*stmnVc4Vc12Format*
*stsnOcnVt15Format*
*ipFormat*
*aal2Format*

Expansion of the termination ID formats is described in the PVG Guide (NTP 241-5701-780).

**System action**: The *Check Prov* command fails. No *Activate* command is accepted until a subsequent *Check Prov* command completes without errors.

**Operator action**: Provision the relevant termination ID format attributes to produce unique termination IDs.

# ATTRIBUTE equalAttributes

Description

A list of *Mgc* termination ID format attribute names.

List of

ds3Format
e1Format
stmnVc4Vc12Format
stsnOcnVt15Format
ipFormat
aal2Format

## RESPONSE Error:The Rd or Rt instance value ... specified is not valid.

Description

A *Check Prov* command produces this response when the *Rd* or *Rt* value specified for this VRF is not valid. Valid syntax values can be one of two types, type 0 or type 1.

Type 0 syntax is represented as AS:index, where AS is a valid 2 byte autonomous system number and index is a valid 4 byte integer.

Type 1 syntax is represented as IPAddr:index, where IPADDR is a valid non-zero IP Address and index is a valid 2 byte integer.

**System action:** The *Check Prov* command fails. No *Activate Prov* command is accepted until a subsequent *Check Prov* completes without errors.

**Operator Action:** Delete the *RouteDistinguisher* or *RouteTarget* component which is causing the semantic check to fail. Add the *RouteDistinguisher* or *RouteTarget* value to be a valid value as specified above.

## ATTRIBUTE invalidRdRtValue

Description

This attribute contains the instance value of the invalid *RouteDistinguisher* or *RouteTarget*.

Values

String (3..21, ASCII)

## RESPONSE Error:The Rd instance value ... specified must be unique across all VRFs.

Description

A *Check Prov* command produces this response when the *Rd* instance value specified for this *VRF* already exists for another *VRF.*

**System action**: The *Check Prov* command fails. No *Activate Prov* command is accepted until a subsequent *Check Prov* completes without errors.

**Operator Action**: Ensure that the *RouteDistinguisher* instance value specified is unique across all *VRFs*.

## ATTRIBUTE nonUniqueRdValue

Description

This attribute contains the instance value of the duplicate *RouteDistinguisher.*

Values

String (3..21, ASCII)

## RESPONSE Provisioned file is saved under a new version .... Use -force to attempt loading.

Description

A *Load* command generates this response when the application version in the provisioning file is newer than the current running software version on the shelf. The saved data of some components may be lost while loading this file.

**System action**: The *Load* command is not executed.
**Operator action**: Use *-force* to attempt loading.

## ATTRIBUTE versionName

Description

This attribute indicates the application version in the provisioning file being loaded.

Values

String (1..30, ASCII)

## RESPONSE Warning:The type of component ... has changed.The provisioned data for this component will be lost.

Description

The *Load* command generates this response when the component type in the current running software is different from the component type in the software being loaded. The saved provisioned data for the component will be lost upon activation.

**System action**: Display partial warning message and continue loading.
**Operator action**: Note that the component has changed its type; therefore, its attributes will have default values.

## ATTRIBUTE component

Description

This attribute contains the name of the component which has changed its type.

Values

The name of the component

## RESPONSE Error:...

Description

This error response is generated during the *CheckProv* command. It is generated if the framingType of the framer for the *TdmaIwfBearerChannel* does not match the card type to which the *TdmaIwfBearerChannel* is being provisioned or the *TdmaIwfBearerChannel* is being placed on an unknown card type.

## ATTRIBUTE tdmaIwfBcUnknownCardType

Description

This attribute indicates the *TdmaIwfBearerChannel* has an unknown card type.

Values

Decimal (0)

## ATTRIBUTE tdmaIwfMvpFramingTypeError

Description: This attribute indicates that the *TdmaIwfBearerChannel*'s framing type does not match its DS1Mvp or E1Mvp card type.

Values: Decimal (0)

## ATTRIBUTE tdmaIwfMtxFramingTypeError

Description: This attribute indicates that the *TdmaIwfBearerChannel*'s framing type does not match its DS1C or E1C card type.

Values: Decimal (0)

## RESPONSE Error:...

Description: This error response is generated when an IP address is not set for this *TdmaIwfCallServer* or the IP address is already being used by another *TdmaIwfCallServer.*

## ATTRIBUTE tdmaIwfCsIpAddressUnset

Description: This attribute indicates the *TdmaIwfCallServer* added a *TdmaIwfLogicalProcessor* that is being used by another *TdmaIwfCallServer.*

Values: Decimal (0)

## ATTRIBUTE tdmaIwfCsIpAddressInUse

Description: This attribute indicates the *TdmaIwfCallServer* added a *TdmaIwfLogicalProcessor* that is being used by another *TdmaIwfCallServer.*

Values: Decimal (0)

## RESPONSE Error:...

Description: This error response is generated when a *virtualRouterName* set for this *TdmaIwfCallServer* is not set or is set to a non-provisioned *virtualRouterName*.

## ATTRIBUTE tdmaIwfVrAttrUnset

Description: A *CheckProv* command produces this response if the *virtualRouterName* attribute of this *TdmaIwfCallServer* is not set or references a nonexistent *virtualRouterName*.

Values: Decimal (0)

## ATTRIBUTE tdmaIwfInvalidVrSet

Description: This attribute indicates the *virtualRouterName* set for this *TdmaIwfCallServer* has not been provisioned.

Values: Decimal (0)

## RESPONSE Error:...

Description: This error response is generated when the *TdmaIwfCallServer TdmaIwfLogicalProcessor* instance is not added , another *TdmaIwfCallServer* already has that *TdmaIwfLogicalProcessor*, or the user is attempting to provision a service other than TDMA asynchronous data call.

## ATTRIBUTE tdmaIwfLpInUse

Description: This attribute indicates the *TdmaIwfCallServer* added a *TdmaIwfLogicalProcessor* that is being used by another *TdmaIwfCallServer.*

Values: Decimal (0)

## ATTRIBUTE tdmaIwfAsyncDataOnlySupported

Description: This attribute indicates the supported service provisioned for the *TdmaIwfCallServer* includes another service or services other than
asynchronous data only.

Values: Decimal (0)

## ATTRIBUTE tdmaIwfTdmaOnlySupported

Description: This attribute indicates the supported technology provisioned for the *TdmaIwfCallServer* includes something other than TDMA only.

Values: Decimal (0)

## RESPONSE Error:...

Description: This error response is generated during the *CheckProv* command. It is generated if the following occurs:
1) the *TdmaIwfBearerChannel* has no corresponding *TdmaIwfCallServer.*
2) the *TdmaIwfLogicalProcessor* between corresponding *TdmaIwfBearerChannel* and *TdmaIwfCallServer* does not match.
3) the *LogicalProcessor* and its main card do not match.
The correspondence between the two components is established by way of the first index of the *TdmaIwfBearerChannel* and the index of the *TdmaIwfCallServer.*

## ATTRIBUTE tdmaIwfCallServerNotProvisioned

Description: This attribute indicates the corresponding *TdmaIwfCallServer* is not provisioned.

Values: Decimal (0)

## ATTRIBUTE tdmaIwfLpConflict

Description: This attribute indicates the *TdmaIwfLogicalProcessor* linked by the corresponding *TdmaIwfCallServer* and *TdmaIwfBearerChannel* is not the same.

Values: Decimal (0)

## ATTRIBUTE tdmaIwfLpError

Description

This attribute indicates that the *LogicalProcessor*'s instance number does not match the card number to which it is provisioned. The user must reprovision the LogicalProcessor so that it matches the card number.

Values

Decimal (0)

## RESPONSE Error: ...

Description

The *CheckProv* command produces this response if the *timeslots* attribute of the *Channel* component associated with this bearer channel contains more than one timeslot." This error message is used to specify an *applicationFramerName* for the *TdmaIwfFramer* subcomponent of the *TdmaIwfBearerChannel* that specifies a *Channel,* which has its timeslots set to more than one timeslot. An error is also generated when the *TdmaIwfFramer* subcomponent of the *TdmaIwfBearerChannel* that specifies a *Channel* which has its timeslot set to 16 on an E1 MVP card. Since *timeslot* 16 is reserved for signalling on an E1 MVP card, the *TdmaIwfBearerChannel* cannot be provisioned against this channel.

## ATTRIBUTE tdmaIwfMoreThanOneChannel

Description

This attribute indicates the more than one timeslot is attempting to be provisioned against a channel.

Values

Decimal (0)

## ATTRIBUTE tdmaIwfChan16

Description

This attribute indicates timeslot 16 is attempting to be provisioned on the E1 MVP or the E1C card.

Values

Decimal (0)

## ATTRIBUTE tdmaIwfTimeslotNotOneGreater

Description This attribute indicates the timeslot selected is not one greater than the channel provisioned in the Framer interfaceName.

Values Decimal (0)

## RESPONSE Error:...

Description This error response is generated when a *Virtual Router* set for *this GsmIwfCallServer* is not set or is set to a non-provisioned *Virtual Router.*

## ATTRIBUTE gsmIwfVrAttrUnset

Description This attribute indicates the Virtual Router attribute for GsmIwfCallServer is not set.

Values Decimal (0)

## ATTRIBUTE gsmIwfInvalidVrSet

Description This attribute indicates the *Virtual Router* set for this *GsmIwfCallServer* has not been provisoned or is inconsistent across other *GsmIwfCallServers*. *GsmIwfCallServers* on a centralized IWF (Interworking Function) must all share the same *Virtual Router.*

Values Decimal (0)

## RESPONSE Error:...

Description This error response is generated when the *GsmIwfCallServer* Logical Processor subcomponent is not added or another *GsmIwfCallServer* already has that Logical Processor.

## ATTRIBUTE gsmIwfNoCallServerLp

Description This attribute indicates the *GsmIwfCallServer* has no Logical Processor subcomponent.

Values Decimal (0)

## ATTRIBUTE gsmIwfLpInUse

Description: This attribute indicates the *GsmIwfCallServer* added a Logical Processor that is being used by another *GsmIwfCallServer.*

Values: Decimal (0)

## RESPONSE Error:...

Description: This error response is generated when
1) the *GsmIwfBearerChannel* has no corresponding *GsmIwfCallServer*.
2) the logical processor between corresponding *GsmIwfBearerChannel* and *GsmIwfCallServer* does not match.
The correspondence between the two components is established by way of the first index of the *GsmIwfBearerChannel* and the index of the *GsmIwfCallServer.*

## ATTRIBUTE gsmIwfCallServerNotProvisioned

Description: This attribute indicates the corresponding *GsmIwfCallServer* is not provisioned. The corresponding *GsmIwfCallServer* must have the same trunk group number as *GsmIwfBearerChannel*.

Values: Decimal (0)

## ATTRIBUTE gsmIwfLpConflict

Description: This attribute indicates the logical processor linked by the corresponding *GsmIwfCallServer* and *GsmIwfBearerChannel* is not the same.

Values: Decimal (0)

## RESPONSE ERROR:...

Description: The IP address cannot be 0.0.0.0 because devices that wants to communicate with IPI system requires the IP address.

## ATTRIBUTE ipiInvalidIpAddrAttr

Description The Ip Address must have a valid IP value.

Values Decimal (0..2147483647)

## ATTRIBUTE ipiInvalidSubnetMaskAttr

Description There cannot be 1's after 0's in IPIFR subnet mask value because
this is what distinguish a subnet mask from a host address. For
example, 255.255.0.0 is a valid subnet mask, while 255.255.0.1 is a
host address and therefore invalid as a subnet mask.

Values Decimal (0..2147483647)

## RESPONSE LAPS request of equal or higher priority already in effect.

Description This response is issued when the APS request invoked by this command entered is of lower priority than the APS requests already present on the *Laps*.
System Action: None
Operation Action: The *clear Laps/n* command clears the current outstanding value of the *nearEndRequest* attribute. The command can be re-issued with a higher *nearEndRequest* attribute value.

## ATTRIBUTE lapsResponseText

Description This response text gives the specific reason why the command was ignored. For example, "Far end is transmitting ***signalFail*** on protection", and a suggested alternative, such as "Use '*switch -force*' to override the ***signalFail***".

Values String (0..256, ASCII)

# RESPONSE Error: All AtmTConn subcomponents must have a unique combination of remoteAddress and vcci attributes.

Description

A *Check Prov* command produces this response if the user has added at least two *AtmTConn* subcomponents under a *Vgs* component which have the same value for their *remoteAddress* attribute and also have the same value for their *vcci* attribute.

System action: no *Activate* command will be accepted until a subsequent *Check Prov* command completes without errors.

Operator action: Use unique *remoteAddress* and *vcci* attribute pairing under this *Vgs* component.

# ATTRIBUTE relatedComponent

Description

This attribute identifies the component in which the error was detected.

Values

The name of the component

# RESPONSE .....

Description

This response describes the attributes specific to an Alarm Event.

# ATTRIBUTE activeListStatus

Description

This mandatory attribute is the active alarm list status. This is equivalent to the DPN-100 Alarm Type field and is used by the NMS to add (on receiving a **set**) and delete (on receiving a **clear**) alarms from the alarm displays.

Values

message (MSG)
set (SET)
clear (CLR)

## ATTRIBUTE severity

Description

This mandatory attribute is the severity of the alarm which should indicate what priority that fixing this problem should be given. All values are OSI-defined; refer to CCITT X.733 for a more complete description.

Values

indeterminate
critical
major
minor
warning
cleared

## ATTRIBUTE alarmType

Description

This mandatory attribute is the alarm type field as defined by OSI which is used to indicate a broad category of what is wrong. The first 6 values are OSI-defined; refer to CCITT X.733 (for the first 5) and CCITT X.736 (for the last) for a more complete description.

The value *operator* is used when an alarm is issued due to an operator command. The values *debug* and *unknown* are for compatibility with DPN-100 and are used for debugging alarms and for those which do not fit any of the above, respectively.

Values

communications
qualityOfService
processing
equipment
environmental
security
operator
debug
unknown

# ATTRIBUTE probableCause

Description

This mandatory attribute is the probable cause for the alarm which usually qualifies the Alarm Type field. Most values are OSI-defined; refer to CCITT X.733 and X.736 for a more complete description. Some Passport-specific causes are added to be more descriptive in cases where no OSI-defined cause is appropriate.

Values

lossOfSignal
lossOfFrame
framingError
localTransmissionError
remoteTransmissionError
callEstablishmentError
degradedSignal
commSubsystemFailure
commProtocolError
lanError
dteDceInterfaceError
responseTimeExcessive
queueSizeExceeded
bandwidthReduced
retransmissionRateReduced
thresholdCrossed
performanceDegraded
congestion
atOrNearCapacity
storageCapacityProblem
versionMismatch
corruptData
cpuCyclesLimitExceeded
softwareError
softwareProgramError
softwareProgramTermination
fileError
outOfMemory
underlyingResourceUnavailable (underlyingResourceUnavail)
applicationSubsystemFailure
configurationError
powerProblem

timingProblem
processorProblem
datasetModemError
multiplexorProblem
receiverFailure
transmitterFailure
outputDeviceError
inputDeviceError
ioDeviceError
equipmentFailure
adapterError
duplicateInfo
infoMissing
infoModification
infoOutOfSequence
unexpectedInfo
denialOfService
outOfService
proceduralError
otherOperational
cableTamper
intrusionDetection
otherPhysical
authenticationFailure
breachOfConfidence
nonRepudiationFailure
unauthorizedAccess
otherSecurityService
delayedInfo
keyExpired
outOfHoursActivity
enclosureDoorOpen
excessiveVibration
fireDetected
floodDetected
heatVentCoolingProblem
humidityUnacceptable
leakDetected
materialSupplyExhausted
pressureUnacceptable
pumpFailure

temperatureUnacceptable
toxicLeakDetected
operationalCondition
debugging
unknown
inactiveVirtualCircuit
networkServerIntervention
activeVirtualCircuit

## ATTRIBUTE ntpIndex

Description

This mandatory attribute is an 8-digit code that is an index into NTP 241-7501-230 “Alarms” which provides a more detailed description of the alarm and possible actions to take. The first 4 digits indicate a “grouping” of alarms (a set of alarms common to a particular subsystem or component, etc.). The last 4 digits are a subindex arbitrarily assigned by the application which is responsible for the “group”.

Values

BCD (8)

## ATTRIBUTE notificationId

Description

This mandatory attribute is the notification Id of the alarm. The high-order byte is the slot number of the *Card* from which this alarm originated. The low-order 24 bits contain a sequence number which increases each time an alarm is generated. Thus, this id provides a simple way of uniquely identifying an alarm as well as the order in which alarms are generated on a card. For cross-card ordering, one would have to look at the time stamp (see *dateAndTime*).

Values

Hex (H.0..H.ffffff)

## ATTRIBUTE relatedComponentNames

Description: This mandatory attribute is a list of the names of any components related to the component (that is, the one in the header FIELD) against which this alarm is raised. It typically contains at least the *LP* and possibly the *Card* on which the originating component resides.

List of: The name of the component

## ATTRIBUTE operatorData

Description: This optional attribute is additional hexadecimal information for the network operator to use. Other than for software alarms, it should be described in NTP 241-7501-230 “Alarms”.Note: The total number of bytes in comment, operator, and internal data may not exceed 750 bytes.

Values: String (0..750, Hex)

## ATTRIBUTE pid

Description: This optional attribute is a string representation of the internal process id (Pid) of the process which generated the alarm (for internal use only).

Values: String (0..25, ASCII)

## ATTRIBUTE fileName

Description: This optional attribute is an internal file name (for internal use only).

Values: String (0..255, ASCII)

## ATTRIBUTE fileLineNumber

Description: This optional attribute is an internal line number in the file (see **fileName**) referred to above (for internal use only).

Values: Decimal (0..4294967295)

## ATTRIBUTE fileVersion

Description: This optional attribute is a version indicator of the file (**filename**) referred to above (for internal use only).

Values: String (0..255, ASCII)

## ATTRIBUTE internalData

Description: This optional attribute is additional internal hexadecimal information for internal use only. It does not have to be described in NTP 241-7501-230 “Alarms”.
Note: The total number of bytes in comment, operator, and internal data may not exceed 750 bytes.

Values: String (0..750, Hex)

## ATTRIBUTE commentData

Description: This optional attribute is additional textual information for the network operator to use. Other than for software alarms, if it is not self-explanatory, it should be described in NTP 241-7501-230 “Alarms”.
Note: The total number of bytes in comment, operator, and internal data may not exceed 750 bytes.

Values: String (0..750, ASCII)

# RESPONSE The software migration is paused, pause reason:...To resume, type Continue Prov. To stop, type Stop Prov.

Description

The *Activate Prov* command generates this message during a Hitless Software Migration when issued without the -noPause option and when certain software errors are generated or when the list of LPs participating in the Hitless Software Migration is changed before the migration shelf is ready.
*Activate Prov* command always generates this message during a Hitless Software Migration when issued with *-pause* option.
This response indicates that the software migration is paused. The operator can decide to resume by typing *Continue Prov* or to roll back to the existent software version by typing *Stop Prov.* The migration will pause as long as no action is taken by the operator.

# ATTRIBUTE pcsString

Description

This attribute indicates the different reasons for a pause in Hitless Software Migration. Listed are different pause reasons for the corresponding LPs listed in the *PcsProvisioningActivateSwMigWillPause* response.
If *Activate Prov* command is issued with *-pause* option, a pause reason is displayed indicating that the migration is paused due to operator request.

Values

String (0..968, ASCII)

## RESPONSE Error: ... Snmp requires the V3 component to be provisioned when the ... attribute has the v3 bit set.

Description

This error message is generated in response to a *Check Prov* command when a *Vr/x Snmp supportedVersions* attribute has a provisioned value with the ***v3*** bit set and the *V3* component has not been provisioned.

**System action**: The provisioning view cannot be activated.

**Operator action**: Provision the *V3* component or change the value of the *Vr/x Snmp supportedVersions* attribute.

## ATTRIBUTE attributeInError

Description

This attribute indicates the numeric ID for the *supportedVersions* attribute that has not been properly set.

Values

Decimal (1..65535)

## RESPONSE Error: The specified mask ... is not a valid contiguous mask.

Description

This error message appears in response to a Check Prov command
when the value of a specified mask is provisioned with an invalid
discontiguous mask.
1. The semantic check function will check for the contiguity of the mask
by checking if there are contiguous 1's.

## ATTRIBUTE invalidMask

Description

This attribute contains the value of the invalid mask.

Values

IP address

## RESPONSE RpHash: RP address of group ... is ..., where the first attribute is the group address, and the second one is the RP address.

Description This response indicates the Rp for the given multicast group.

## ATTRIBUTE gAddr

Description This attribute represents the multicast group address for which RP is sought.

Values IP address

## ATTRIBUTE rpAddr

Description This attribute indicates the IP address of the RP.

Values IP address

## RESPONSE RpHash: no RP address was found for group ...

Description This response indicates that *RpHash* to the given multicast group (IP) address was unsuccessful.

## ATTRIBUTE gAddr

Description This attribute specifies the group IP address for which no RP was found.

Values IP address

## RESPONSE Error: There is no Domain component of instance ... provisioned under Mcast.

Description A *Check* Prov command produces this response when an attempt is made to add a Domain under PimSm component without provisioning a Domain component of the same instance under *Mcast*.

## ATTRIBUTE domainInstance

Description This attribute indicates the domain instance.

Values Decimal (0..3)

## RESPONSE Error:The ... attribute must be set.

Description A *Check* Prov command produces this response if the user has not provisioned the *candidateBsrAddrAssignment* attribute.

## ATTRIBUTE invalidType

Description This attribute contains the numeric ID of the attribute which was left unprovisioned.

Values Decimal (1..65535)

## RESPONSE Error:The ... attribute must be set.

Description A *Check* Prov command produces this response if the user has not provisioned the *candidateRpAddrAssignment* attribute.

## ATTRIBUTE invalidType

Description This attribute contains the numeric ID of the attribute which was left unprovisioned.

Values Decimal (1..65535)

## RESPONSE Error: The address attribute must be linked to a LogicalIf under Vr instance ... .

Description A *Check* Prov command produces this response when an attempt is made to link the *address* attribute to a LogicalIf under different Vr instance.

## ATTRIBUTE vrInstance

Description This attribute indicates the Vr instance.

Values String (1..8, ASCII)

## RESPONSE Error: The address attribute must be linked to the LogicalIf under Vr instance ... .

Description: A *Check* Prov command produces this response when an attempt is made to link the *address* attribute to a LogicalIf under different Vr instance.

## ATTRIBUTE vrInstance

Description: This attribute indicates the Vr instance.

Values: String (1..8, ASCII)

## RESPONSE Error: There is no Domain component of instance ... provisioned under PimSm.

Description: A *Check* Prov command produces this response when an attempt is made to change the mcastDomain attribute under IpPort without provisioning a Domain component of the same instance under *PimSm*.

## ATTRIBUTE domainInstance

Description: This attribute indicates the domain instance.

Values: Decimal (0..3)

## RESPONSE Error: The specified mask ... is not a valid contiguous mask.

Description: A *Check* Prov command produces this response when an attempt is made to provision a Group component with an invalid (discontiguous) mask.

## ATTRIBUTE invalidMask

Description: This attribute contains the index value of the invalid mask.

Values: IP address

## RESPONSE Error: The combination of address ... and mask ... is invalid because there are non-zero bits in the address which lie outside the mask.

Description: A *Check* Prov command produces this response when an attempt is made to provision a Group component with non-zero bits in the IP Address which lie outside the corresponding mask.

## ATTRIBUTE invalidAddress

Description: This attribute contains the index value of the invalid IP address.

Values: IP address

## ATTRIBUTE invalidMask

Description: This attribute contains the index value of the invalid mask

Values: IP address

## RESPONSE Error: The combination of Group Address ... and Mask... for this component is not valid. The trailing zerosin the GroupAddress should match those for the Mask.

Description: A *Check* Prov command produces this response when a Group component is added with an invalid GroupAddress and Mask pair. The “anded’ value of the Group Address and Mask pair should be the same as the Group Address.

## ATTRIBUTE invalidAddrInPair

Description: This attribute contains the value of the invalid group addr.

Values: IP address

## ATTRIBUTE invalidMaskInPair

Description: This attribute contains the value of the invalid mask.

| | |
|---|---|
| Values | IP address |

## RESPONSE The following LPs will be reset when the shelf switches over to the new software, because mate cards are unavailable: ....The software migration will be paused. The migration can be stopped by issuing the Stop Prov command.

| | |
|---|---|
| Description | The *Activate Prov* command generates this message during a Hitless Software Migration when issued without the *-noPause* option and when the list of LPs participating in the Hitless Software Migration is changed before the migration shelf is ready. Such a change occurs when the configured mate card of an LP becomes unavailable during migration. The response indicates that the software migration will be paused. The operator can stop the migration at this point by issuing the *Stop Prov* command. |

## ATTRIBUTE pcsLp

| | |
|---|---|
| Description | This attribute lists the LPs that were participating in the Hitless Software Migration in the beginning, but they are no longer participating, because their configured mate cards are unavailable. |
| List of | The name of the component |
| List Size | 8 |

## RESPONSE Error: ... in the linkToMulStaticGp list of the LogicalIf under the IpPort must belong to the same domain as provisioned under the mcastDomain attribute of the IpPort component.

| | |
|---|---|
| Description | his error message appears when a static route linked to the Logical If belongs to a domain other than that provisioned under the mcastDomain attribute of the IpPort. |

## ATTRIBUTE mulStaticRouteEntry

Description: This attribute contains the name of the *Mcast Static RouteEntry* component.

Values: The name of the component

## RESPONSE Warning:IP multicast traffic will not be forwarded to any protocol port on Lp(s) with the following Lpt(s), since the feature ipMcast is not provisioned in the featureList of those Lpt(s):

Description: This response is produced by the *Check Prov* command if the user has not provisioned the ***ipMcast*** feature on any FP when the multicast component is provisioned.

## ATTRIBUTE component

Description: The list of *Lpt* which does not have the feature ***ipMcast*** provisioned on it.

List of: The name of the component

## RESPONSE This Ep is disabled due to transport priority overlap, pinging its associated Ep ... instead.

Description: This response indicates that a ping query packet could not be sent to the remote *Ep* because the *Ep* has been disabled due to Transport Priority overlap.
**System action**: The associated Ep is pinged instead.
**Operation action**: Non - wait for reply from ping.

## ATTRIBUTE ComponentName

Description: This attribute indicates the component name of the associated *Ep*.

Values: String (0..46, ASCII)

## RESPONSE When the shelf switches over to the new software load, ... will experience a service outage due to provisioning reasons.

Description

The *Activate Prov* command generates this message on the service active shelf at the beginning of a hitless software migration to provide a list of Logical Processors that will be reset for provisioning reasons. The response to indicate that the software migration can be stopped at this point would follow later.

## ATTRIBUTE pcsLpProv

Description

This attribute lists the LPs that are not participating in the Hitless Software Migration for configuration reasons. This includes LPs that are provisioned without a spare card and LPs in 1forN configuration.

| | |
|---|---|
| List of | The name of the component |
| List Size | 16 |

## RESPONSE When the shelf switches over to the new software load, ... will experience a service outage due to operational reasons.

Description

The *Activate Prov* command generates this message on the service active shelf at the beginning of a hitless software migration to provide a list of Logical Processors that will be reset for operational reasons. This message is generated only if the list of LPs is not empty. At this point the operator can stop the migration.

## ATTRIBUTE pcsLpOper

Description: This attribute lists the LPs that are not participating in the Hitless Software Migration for operational reasons. This includes LPs that have cards with standby services unavailable.

List of: The name of the component

List Size: 16

## RESPONSE Error:The number of instances of the AtmTConn component must not exceed ... on a ... card.

Description: A *Check Prov* command produces this response if the user tries to provision more than the maximum number of *AtmTrunkConnection* components under a *Vgs*.

The limit is ***1022***.

**System action:** No *Activate Prov* command will be accepted until a subsequent *Check Prov* command completes without errors.

**Operator action:** Ensure that the number of instances of the *AtmTConn* component under a specific *Vgs* does not exceed the maximum.

## ATTRIBUTE vgsMaxNumberOfAtmTConns

Description: This attribute indicates the maximum allowed number of *AtmTConns* components

Values: 1022

## ATTRIBUTE vgsCardType

Description: This attribute indicates the card type being used.

Values: Vsp2
2pGeMmSrVsp3

2pOC3ChSmIrVsp3
Vsp2W

## RESPONSE Error: The IpPort subcomponent of ... must have only a single logical interface.

Description: A *Check Prov* command generates this response if more than one *LogicalInterface*, and therefore more than one subnet, is provisioned under the *IpPort*.

## ATTRIBUTE protocolPortName

Description: This attribute indicates the component name of the linked *ProtocolPort*.

Values: The name of the component

## RESPONSE Error: The following are not on the same subnet as the linked ProtocolPort. (At most 20 components are shown.)

Description: A *Check Prov* command generates this response if one or more linked components are on a different subnet than the *ProtocolPort* to which the *FrIpServer* is linked. Each *FrIpServer* supports only a single subnet. This error could be caused by an incorrect *ipAddress* attribute under the linked *BnxProtocol* or by an incorrect subnet specification (*LogicalInterface* subcomponent) for the *IpPort* subcomponet of the linked *ProtocolPort*.

## ATTRIBUTE illegalFri

Description: This attribute contains a list of the offending Frame Relay interfaces.

List of: The name of the component

List Size: 20

# RESPONSE Error: The following are not located on the same LogicalProcessor as the FrIpServer. (At most 20 applications are shown)

Description: A *Check Prov* command generates this response if one or more of the linked Frame Relay interfaces are on a different *LogicalProcessor* than the *FrIpServer.*

## ATTRIBUTE illegalFriWrongLP

Description: This attribute contains a list of the offending Frame Relay interfaces.

List of: The name of the component

# RESPONSE

Description: This real-time statistics event contains the attributes for the PCS performance measurement (real-time statistics) record.

## ATTRIBUTE cardNumber (ca)

Description: This attribute indicates the slot number of the card for which this performance measurement (real-time statistics) event is generated.

Values: Decimal (0..15)

## ATTRIBUTE cpuUtilAvg

Description: This attribute indicates an average processor utilization level over the specified collection interval. The CPU utilization is averaged over a set of one-minute integration intervals.

Values: Decimal (0..100)

Units: %

# RESPONSE

Description: This collected performance measuring component describes the attributes contained in an ATM RtStats record. These measurements are generated by the ATM interface.

## ATTRIBUTE linkCapacity

Description: This attribute indicates the physical capacity of this ATM interface.

Values: Decimal (0..4294967295)

Units: cell/s

## ATTRIBUTE rxTotalCell

Description: This attribute indicates the number of cells with CLP=0+1 received during the collection interval.

Values: Long Integer

## ATTRIBUTE txTotalCell

Description: This attribute indicates the number of cells with CLP=0+1 transmitted during the collection interval.

Values: Long Integer

## ATTRIBUTE txCellDiscards

Description: This attribute indicates the number of cells with CLP=0+1 which are discarded before being transmitted during the collection interval.

Values: Long Integer

## ATTRIBUTE rxCellDiscards

Description: This attribute indicates the number of cells CLP=0+1 which are discarded after being received during the collection interval.

Values: Long Integer

## ATTRIBUTE txCbrDiscards

Description: This attribute indicates the number of cells with CLP=0+1 which are discarded before being transmitted during the collection interval by ATM CBR service category.

Values: Long Integer

## ATTRIBUTE txRtVbrDiscards

Description: This attribute indicates the number of cells with CLP=0+1 which are discarded before being transmitted during the collection interval by ATM RtVBR service category.

Values: Long Integer

## ATTRIBUTE txNrtVbrDiscards

Description: This attribute indicates the number of cells with CLP=0+1 which are discarded before being transmitted during the collection interval by ATM NrtVBR service category.

Values: Long Integer

## ATTRIBUTE txUbrDiscards

Description: This attribute indicates the number of cells with CLP=0+1 which are discarded before being transmitted during the collection interval by ATM UBR service category.

Values: Long Integer

## ATTRIBUTE remoteAtmIfLabel

Description: This attribute indicates the remote ATM interface, as provisioned in the *remoteAtmInterfaceLabel* attribute.

Values: String (0..60, ASCII)

# RESPONSE Continue Prov failed due to a pausable event, pause reason: ...Use -force option to continue the migration. To abort migration type Stop Prov.

Description

The *Continue Prov* command generates this error message when the Hitless Software Migration is paused and there are pausable events.
The *Continue Prov* command will succeed only if the pausable events are all cleared.
The operator can decide to force the migration switchover to resume by typing *Continue -force Prov* or to abort the software migration by typing *Stop Prov.*
The migration will pause as long as no action is taken by the operator.

# ATTRIBUTE pcsString

Description

This attribute indicates the reason why the *Continue Prov* command failed. The failure is caused by some pausable events that have occurred. These events include pausable alarms, software alarms generated on the migration shelf, applications nacking the provisioning data, and applications not ready for switchover.

Values

String (0..968, ASCII)

# RESPONSE Error:The interfaceName attribute must be provisioned to link to an instance of ... component local to this card.

Description

A *Check Prov* command produces this response if the *interfaceName* attribute on components existing under this *Vgs* component has not been set to link to a *Chan, DS1 or E1* component on this card.
The following Components support this response:

*Tag*: *interfaceName* must link to a local *Chan* Component.
*Q921*: *interfaceName* must link to a local *Chan* Component.
*LapV5*: *interfaceName* must link to a local *Chan* Component.
*V5Link*: *interfaceName* must link to a local *DS1* or *E1* Component.

**System action:** No *Activate* command will be accepted until a subsequent *Check Prov* command completes without errors.

**Operator action:** Set the *interfaceName* attribute to link to an instance of the suggested component on this card.

# ATTRIBUTE interfaceNameLinkedComponent

Description

The name of the component to link to.

Values

String (0..15, ASCII)

# RESPONSE Error:The ... attribute must be provisioned to link to an instance of the ... component under this Vgs.

Description

A *Check Prov* command produces this response if the specified attribute has not been set to an instance of the specified component type existing under this *Vgs* component.

**System action**: No *Activate* command will be accepted until a subsequent *Check Prov* command completes without errors.

**Operator action**: Set the specified attribute to link to an instance of the specified component type existing under this *Vgs* component.

# ATTRIBUTE profileLinkAttribute

Description

The name of the attribute to link.

Values

profile
casDefinition

# ATTRIBUTE profileLinkComponent

Description

The name of the component to link to.

Values

TdmNetworkProfile
Q921Profile
CasDefn

## RESPONSE Error:Each DS1 or E1 component cannot have more than one Chan subcomponent associated with an instance of the ... component.

Description

A *Check Prov* command produces this response if a *DS1* or *E1* componenent has more that one *Chan* subcomponents linked to the specified component type.

**System action**: No *Activate* command will be accepted until a subsequent *Check Prov* command completes without errors.

**Operator action**: Ensure that each *DS1* or *E1* componenent has no more than one *Chan* subcomponents linked to the specified component type.

## ATTRIBUTE maxCompLinkedComponent

Description

The name of the linked component.

Values

Tag
Q921

## RESPONSE Error:The lineType attribute of the ... component provisioned in the interfaceName attribute must take one of the following values:...

Description

A *Check Prov* command produces this response if the *linetype* attribute of the indicated component is of the incorrect type.

**System action**: No *Activate* command will be accepted until a subsequent *Check Prov* command completes without errors.

**Operator action**: Change the *lineType* attribute of the indicated component to one of the recommended values.

## ATTRIBUTE priComponentName

Description: This attribute indicates the component for which this check fails.

Values: The name of the component

## ATTRIBUTE priLineType

Description: This attribute indicates the allowed values for the *lineType* attribute.

List of:
d4
esf
ccs
cas
d4Cas
esfCas

List Size: 6

## RESPONSE Error:The ... component may only have one of the following signaling type subcomponents provisioned:....

Description: A *Check Prov* command produces this response if the user tries to provision multiple signaling type subcomponents under the same parent component.

**System action**: The *Check Prov* command fails. No *Activate Prov* command is accepted until a subsequent *Check Prov* command completes without errors.

**Operator action**: Ensure that the parent component has only one signaling type subcomponent provisioned.

## ATTRIBUTE parentComponent

Description: This attribute indicates the name of the parent component.

Values:
Brag
BragS

## ATTRIBUTE vgsSignalingSubcomponent

| | |
|---|---|
| Description | This attribute lists all the signaling type subcomponents currently provisioned under the parent component. |
| List of | Q921<br>V5Link<br>Cas |
| List Size | 3 |

## RESPONSE Error:The ... component specified in the interfaceName attribute must have a Tc subcomponent.

Description

A *Check Prov* command produces this response if the indicated component specified in the *interfaceName* attribute does not have a *Tc* subcomponent.

**System action**: No *Activate* command will be accepted until a subsequent *Check Prov* command completes without errors.

**Operator action**: Ensure the indicated component has a *Tc* subcomponent.

## ATTRIBUTE chanComponentName

| | |
|---|---|
| Description | This attribute indicates the component for which this check fails. |
| Values | The name of the component |

# RESPONSE Error: The address ... is not a valid IP network address prefix.

Description

A *Check Prov* command produces this response when the address prefix defined by the *Network* component is not a valid IP network address prefix. Examples include all 0's (***0.0.0.0***) or all 1's (***255.255.255.255***).

**System action**: The *Check Prov* command fails. No *Activate Prov* command is accepted until a subsequent *Check Prov* completes without errors.

**Operator Action**: Provision the *prefix* and *length* attributes of the specified *Network* component to be a valid non-reserved address prefix.

## ATTRIBUTE invalidAddress

Description

This attribute contains the value of the invalid address prefix.

Values

IP address

# RESPONSE node id = ...node name@level = ...port id = ...interface name = ...

Description

This response contains the information for one hop in a computed
route returned as the result of issuing the *Run* command on the
*RouteFinder* component.

## ATTRIBUTE nodeId

Description

This attribute specifies the node ID of a logical node at the near end
of the hop.

Values

String (22, Hex)

## ATTRIBUTE nodeName

Description: This attribute specifies the node name of a logical node at the near end of the hop. This attribute is NULL, if the node name is not provisioned under the *ModuleData* component.

Values: String (0..19, ASCII)

## ATTRIBUTE portId

Description: This attribute indicates the port ID of the PNNI interface leaving the node identified by the *nodeId* attribute.

Values: Decimal (0..4294967295)

## ATTRIBUTE interfaceName

Description: This attribute indicates the name of the PNNI interface attached to the node identified by the *nodeId* attribute.

For a Passport node, this attribute's value can take one of the following forms:
(a) ***AtmIf/<1-4095>*** - If the interface is an Atm Interface.
(b) ***AtmIf/<1-4095> Vpt/<1-4095>*** - If the interface is a VPT interface.
(c) Values ***<0-4294967295>*** - If the link is a logical link.

This attribute is left blank for a non-Passport node.

Values: String (0..19, ASCII)

## RESPONSE node id = ...node name@level = ...

Description: This response contains the information for one hop with an unknown port ID in a computed route returned as the result of issuing the *Run* command on the *RouteFinder* component.

## ATTRIBUTE nodeId

Description: This attribute specifies the node ID of a logical node at the near end of the hop.

Values: String (22, Hex)

## ATTRIBUTE nodeName

Description

This attribute specifies the node name of a logical node at the near end of the hop. This attribute is NULL, if the node name is not provisioned under the *ModuleData* component.

Values

String (0..19, ASCII)

## RESPONSE Error:The total number of ... components must not exceed ... on a ... card.

Description

A *Check Prov* command produces this response if the user tries to provision more than the maximum allowed number of *Q921*, *LapV5* or *Cas* components in the same *Vgs* hierarchy.

A maximum of 40 *Q921* or *LapV5* component instances is allowed on a ***Vsp2*** or ***12mVspAal*** card.

A maximum of 84 *Q921* or *Cas* component instances is allowed on a ***2pGeMmSrVsp3*** card.

A maximum of 64 *LapV5* component instances is allowed on a ***2pGeMmSrVsp3*** card.

A maximum of 84 *Q921* component instances is allowed on a ***2pOC3ChSmIrVsp3*** card.

**System action:** The *Check Prov* command fails. No *Activate Prov* command is accepted until a subsequent *Check Prov* command completes without errors.

**Operator action:** Ensure that the number of *Q921*, *LapV5* and *Cas* component instances under a given *Vgs* component is appropriate for the card being used.

## ATTRIBUTE vgsNumberOfSignalingComponents

Description

This attribute indicates the maximum allowed number of signaling components.

Values
40
64
84

## ATTRIBUTE vgsCardType

Description
This attribute indicates the card type being used.

Values
12mVspAal
Vsp2
2pGeMmSrVsp3
2pOC3ChSmIrVsp3
Vsp2W

## ATTRIBUTE vgsSignalingComponent

Description
This attribute lists the names of the inappropriately provisioned signaling components.

List of
Q921
LapV5
Cas

List Size
3

## RESPONSE Invalid Instance

Description
The *add* command generates this response when the component instance has invalid characters. All printable ascii characters are valid except ‘<‘ ‘>’ ‘/’ ‘:’ ‘*’ ‘“‘ and whitespaces.
**System action:** The *add* command fails.
**Operator action:** Update the software on the NMS. The *help* command can be used to list the appropriate instance values.

## ATTRIBUTE value

Description
The attribute indicates the value of a Fed as an ascii string for error details.

Values
String (0..255, ASCII)

## RESPONSE Error:The noServiceResponse attribute must be set to noResponse when the lineType of the primary rate port is ....

Description

A *Check Prov* command produces this response if the *noServiceResponse* attribute is set to anything other than ***noResponse***, and the *lineType* of the primary rate port is set to ***cas***, ***d4Cas***, or ***esfCas***. This applies to the following card types: ***2pDS3cAal***, ***32pE1Aal*** and ***2pOC3ChSmIrVsp3***.

System action: The *Check Prov* command fails. No *Activate Prov* command is accepted until a subsequent *Check Prov* completes without errors.

Operator action: Set the value of the *noServiceResponse* attribute (under the *Tc* component) to ***noResponse***.

## ATTRIBUTE priLineType

Description

This attribute indicates the current value of the primary rate port's *lineType* attribute.

Values

cas
d4Cas
esfCas

## RESPONSE Error:The total number of Isis components provisioned (...) exceeds the allowable maximum of ... instance(s).

Description

The *Check Prov* command produces this response when the maximum supported number of *Isis* components is exceeded.

**System Action**: The *Check Prov* command fails. No *Activate Prov* command is accepted until a subsequent *Check Prov* command completes without errors.

**Operator Action**: Delete sufficient *Isis* subcomponents until the provisioned number is within the specified allowable limits.

## ATTRIBUTE inwIpIsisIsisCount

Description: This attribute indicates the number of provisioned *Isis* components.

Values: Decimal (0..65535)

## ATTRIBUTE inwIpIsisCountLimit

Description: This attribute indicates the maximum number of *Isis* components.

Values: Decimal (1..65535)

## RESPONSE Error:The total number of Net components provisioned (...) exceeds the allowable maximum of ... instances per Isis component.

Description: The *Check Prov* command produces this response when the maximum supported number of *Net* components per *Isis* instance is exceeded.

**System Action**: The *Check Prov* command fails. No *Activate Prov* command is accepted until a subsequent *Check Prov* command completes without errors.

**Operator Action**: Delete sufficient *Net* subcomponents until the provisioned number is within the specified allowable limits.

## ATTRIBUTE inwIpIsisNetCount

Description: This attribute indicates the number of provisioned *Net* components found for this *Isis* instance.

Values: Decimal (0..65535)

## ATTRIBUTE inwIpIsisNetCountLimit

Description: This attribute indicates the maximum number of *Net* subcomponents per *Isis* instance.

Values Decimal (1..65535)

## RESPONSE Error:The total number of IsisIf components provisioned (...) exceeds the allowable maximum of ... instances per ProtocolPort component.

Description The *Check Prov* command produces this response when too many *IsisIf* components are provisioned under the same *ProtocolPort* component.

**System Action**: The *Check Prov* command fails. No *Activate Prov* command is accepted until a subsequent *Check Prov* command completes without errors.

**Operator Action**: Delete *IsisIf* component instances until the number provisioned, under the same *ProtocolPort* component, equals or is less than the specified limit.

## ATTRIBUTE inwIpIsisIfInstanceCount

Description This attribute indicates the number of provisioned *IsisIf* components found under the associated *ProtocolPort*.

Values Decimal (0..65535)

## ATTRIBUTE inwIpIsisIfInstanceCountLimit

Description This attribute indicates the maximum number of *IsisIf* subcomponents per *ProtocolPort* instance.

Values Decimal (1..65535)

## RESPONSE The ... component has more than one settable link attribute. The -attribute option is required.

Description

The *find* command generates this response when the component specified by the *-freelinks* option has more than one link attribute. The user must specify one of the attributes via the *-attribute* option.

**System action**: The *Find* command is not executed
**Operator action**: Reissue the command with the *-attribute* option

## ATTRIBUTE component

Description

This attribute contains the name of the component that was specified in the command.

Values

The name of the component

## RESPONSE The attribute ... is not a settable link.

Description

This error response is generated when the operator specifies a non-settable link attribute for the -attribute option of the *Find* command.

**System action**: The *Find* command is not executed
**Operator action**: None

## ATTRIBUTE attribute

Description

This attribute identifies the invalid attribute.

Values

String (0..255, ASCII)

## RESPONSE The specified attribute is ambiguous with ....

Description

The *Find* command generates this error response if the attribute specified in the *-attribute* option is ambiguous for the given component class.

**System action**: The *Find* command is not executed
**Operator action**:Reenter the command, supplying an appropriate attribute name

## ATTRIBUTE listOfAmbiguities

Description

This attribute contains the list of attributes that are ambiguous matches with the specified attribute.

Values

String (0..255, ASCII)

## RESPONSE The ... component has no settable link attributes.

Description

The *Find* command generates this response when the component specified in the -freelinks option has no link attributes which can be set.

**System action**: The *Find* command is not executed
**Operator action**: None

## ATTRIBUTE component

Description

This attribute contains the name of the component which was specified in the command.

Values

The name of the component

## RESPONSE Warning:When calls are in progress, changing the ... attribute may result in some loss of traffic.

Description

A *Check Prov* command produces this response if the user changes the value of the *lossIntegrationPeriod* or *egressGain* attribute.

The following components support this response:
*Brag*
*BragS*
*PktProf*

**System action**: None.

**Operator action**: If calls are present, ensure that traffic disruption is acceptable before activating the provisioning.

## ATTRIBUTE vgsPossibleTrafficLossAttribute

Description

The name of the attribute.

Values

lossIntegrationPeriod
egressGain

## RESPONSE Error:The ... attribute must not be provisioned with an empty value.

Description

A *Check Prov* command produces this response if the user tries to provision the specified attribute with an empty value.

The following components support this response:
*CasDefn* and *LocalAnnouncements*. *fileName* attribute may not have an empty value.

**System action**: The *Check Prov* command fails. No *Activate Prov* command is accepted until a subsequent *Check Prov* command completes without errors.

**Operation action**: Provision the specified attribute with a non-empty value.

## ATTRIBUTE vgsEmptyAttributeName

Description The name of the attribute.

Values Decimal (0..65535)

## RESPONSE Error:The value provisioned for the ... attribute must only consist of the following characters:....

Description A *Set* command produces this response if the user tries to provision a specified attribute with a value that does not consist entirely of the allowed characters.

The following components support this response: *CasDefn* and *LocalAnnouncements*: *fileName* attribute may only contain the following characters: [a..z, A..Z, 0..9, ., _]. *LocalAnnouncements* and *AnnouncementLanguage*: *defaultLanguage* attribute may only contain the following characters: [a..z].

**System action**: The *Set* command is rejected.

**Operation action**: Set the specified attribute to a value that only consists of the allowed characters.

## ATTRIBUTE vgsAttributeContainingChars

Description The name of the attribute which has failed the check.

Values Decimal (0..65535)

## ATTRIBUTE vgsCharsAllowed

Description The list of the allowed characters.

List of
a..z
A..Z
0..9
.
_

List Size 4

## RESPONSE Error:Standby Lsp ... must be provisioned with RsvpQ subcomponent when its primary Lsp sets serviceCategory attribute value to be diffServDomainElsp.

Description

The *Check Prov* command produces this response when a standby LSP having no *RsvpQos* subcomponent is added to the list of LSPs specified in the *StandbyLsp* attribute of a primary LSP whose value of *sc* attribute in *Msc* set to *diffServDomainElsp*.

**System Action**: The *Check Prov* fails.

**Operator Action**: Provision a *RsvpQos* subcomponent under the standby *Lsp* component.

## ATTRIBUTE mplsMscDiffServStandbyLspError

Description

This attribute indicates the component name of the Lsp to be used in the response.

Values

The name of the component

## RESPONSE Error:The netMask provisioned in ... forces the ipAddress value to be a broadcast address.

Description

A *Check Prov* command generates this response if the IP address provisioned in the parent component is a broadcast address.

**System action**: No *Activate* command will be accepted until a subsequent *Check Prov* command completes without errors.

**Operator action**: Ensure that the IP address of the parent component is not set to a broadcast address within the subnet.

## ATTRIBUTE vrapBcIpAddrLogIf

Description: This attribute contains the name of the *Vr/n Pp/n Ip LogicalIf/n.n.n.n* component in which the *netMask* is provisioned.

Values: The name of the component

## RESPONSE Error:..., as specified by the subnetAccessName attribute, must have a CustSpec subcomponent.

Description: A *Check Prov* command generates this response if the *Vr/n* component specified by the *subnetAccessName* attribute does not have a *CustSpec* subcomponent provisioned.

**System action**: No *Activate* command will be accepted until a subsequent *Check Prov* command completes without errors.

**Operator action**: Provision a *CustSpec* component under the specified *Vr/n* component instance.

## ATTRIBUTE vrapCustSpecVr

Description: This attribute contains the name of the *Vr/n* component for which this check fails.

Values: The name of the component

## RESPONSE Error:The featureList attribute of ... must contain ip when a VrAp component is used within this Vgs hierarchy.

Description

A *Check Prov* command generates this response if a user provisions a *VrAp* component on an *Lp* which has not been provisioned to support the ***ip*** feature.

**System action**: The *Check Prov* command fails. No *Activate* command will be accepted until a subsequent *Check Prov* command completes without errors.

**Operator action**: Ensure that ***ip*** is provisioned in the *featureList* of the *Sw Lpt* referenced from this *Vgs* hierarchy, or replace the *VrAp* with another access point type.

## ATTRIBUTE vrapSwLpt

Description

This attribute contains the name of the *Sw Lpt* component.

Values

The name of the component

## RESPONSE Warning:The Bgp component provisioned under ... is not supported because at least one other instance of a Vr with a CustSpec component exists. There is also an instance of a Vr with a Vr Pp linked to a 4pGe card.

Description

A *Check Prov* command generates this response if the *Vr Ip Bgp* component is provisioned on a node that has one other instance of *Vr* with *CustSpec* component. In addition, there is an instance of a *Vr Pp* linked to a **4pGe** card.

***System action***: No action is required from the system.

***Operator action***: No action is expected from the operator.

## ATTRIBUTE invalidCustSpecVrWithBgp

Description This attribute indicates the name of the *VirtualRouter* component instance to which the *Bgp* component is added.

Values The name of the component

## RESPONSE Error: The ... attribute must be set.

Description This response is produced by the *Check Prov* command if the user has not provisioned the *linkToEnetIf* attribute.

System action: The *Check Prov* command is failed.

Operator action: The remedial action is to *set* the *linkToEnetIf* attribute to a *La* component

## ATTRIBUTE unprovisionedAttribute

Description This attribute contains the numeric ID of the attribute which was left unprovisioned.

Values Decimal (1..65535)

## RESPONSE Error:One of the following two PerHopBehaviorMap subcomponent instances must be removed:

Description A *Check Prov* command produces this response if produces this response if two *PerHopBehaviorMap* subcomponents instance values are equal.

**System Action**: The *Check Prov* command fails. No *Activate Prov* command is accepted until a subsequent *Check Prov* completes without errors.

**Operator Action**: Remove one of the two conflicting *PerHopBehaviorMap* components.

## ATTRIBUTE phb1

Description: This attribute specifies the first of two conflicting *PerHopBehaviorMap* components.

Values: The name of the component

## ATTRIBUTE phb2

Description: This attribute specifies the second of two conflicting *PerHopBehaviorMap* components.

Values: The name of the component

## RESPONSE Error:The following two attributes must reference DifferentiatedServicesDomain PerHopBehavior component instances that are assigned equal TrafficClass values.

Description: A *Check Prov* command produces this response if for any of the following pairs of attributes:
*ubrClp0ToPhb*, *ubrClp1ToPhb*
*nrtVbrClp0ToPhb*, *nrtVbrClp1ToPhb*
*rtVbrClp0ToPhb*, *rtVbrClp1ToPhb*
*cbrClp0ToPhb*, *cbrClp1ToPhb*
if the *TrafficClass* component assigned to the *PerHopBehavior* component instance that matches the first attribute value is not equal to the *TrafficClass* component assigned to the *PerHopBehavior* component instance that matches the second attribute value.

**System Action**: The *Check Prov* command fails. No *Activate* command is accepted until a subsequent *Check Prov* completes without errors.

**Operator Action**: Set the conflicting attributes to *PerHopBehavior* component instance values that satisfy the *TrafficClass* constraint.

## ATTRIBUTE clp0

Description This specifies the first of the two conflicting attributes.

Values String (0..16, ASCII)

## ATTRIBUTE clp1

Description This specifies the second of the two conflicting attributes.

Values String (0..16, ASCII)

## RESPONSE Error:The following two attributes must reference DifferentiatedServicesDomain PerHopBehavior component instances that are assigned drop precedence values such that the drop precedence for Clp0 is not greater than that for Clp1.

Description A *Check Prov* command produces this response if for any of the following pairs of attributes:
*ubrClp0ToPhb*, *ubrClp1ToPhb*
*nrtVbrClp0ToPhb*, *nrtVbrClp1ToPhb*
*rtVbrClp0ToPhb*, *rtVbrClp1ToPhb*
*cbrClp0ToPhb*, *cbrClp1ToPhb*
if the *dropPrecedence* assigned to the *PerHopBehavior* component instance that matches the first attribute value is greater than *dropPrecedence* assigned to the *PerHopBehavior* component instance that matches the second attribute value.

**System Action**: The *Check Prov* command fails. No *Activate* command is accepted until a subsequent *Check Prov* completes without errors.

**Operator Action**: Set the conflicting attributes to *PerHopBehavior* component instance values that satisfy the *dropPrecedence* constraint.

## ATTRIBUTE clp0

Description This specifies the first of the two conflicting attributes.

Values String (0..16, ASCII)

## ATTRIBUTE clp1

Description This specifies the second of the two conflicting attributes.

Values String (0..16, ASCII)

## RESPONSE Error:The ipDscp attribute of ... must equal the instance value of a Vr Dsd PerHopBehavior component when the IpPort is assigned a DifferentiatedServices component, and the baMode of the IngressServices subcomponent is set to link.

Description A *Check Prov* command produces this response if the *diffServAssignment* attribute of the *Ip* or *IpPort* is set, the *baMode* attribute of the *ingressServices* subcomponent is set to ***link***, and the *ipDscp* attribute of the *FrConnection* does not match the instance value of a *PerHopBehavior* subcomponent of the *DifferentiatedServicesDomain.*

**System Action**: The *Check Prov* command fails. No *Activate* command is accepted until a subsequent *Check Prov* completes without errors.

**Operator Action**: Ensure that the *ipDscp* attribute of the *FrConnection* is equal to the instance value of a *PerHopBehavior* subcomponent of the *DifferentiatedServicesDomain*, or the *diffServAssignment* attribute of the *Ip* and *IpPort* are not set, or the *baMode* attribute in the *ingressServices* subcomponent is set to a value other than ***link***.

## ATTRIBUTE ipDlciName

Description

This attribute contains the name of the link layer connection used by the *IpPort*. The link layer media is associated with the *IpPort* by the *linkToMedia* attribute of the *ProtocolPort*.

Values

The name of the component

## RESPONSE Error:If the VirtualRouter does not have a DifferentiatedServicesDomain subcomponent, then the ipDscp attribute of ... must be set to na.

Description

The *Check Prov* command produces this response if the *VirtualRouter* does not have a *DifferentiatedServicesDomain* subcomponent and the *ipDscp* attribute of the *FrConnection* is not set to ***na***.

**System Action**: The *Check Prov* command fails. No *Activate* command is accepted until a subsequent *Check Prov* completes without errors.

**Operator Action**: Add a *DifferentiatedServicesDomain* subcomponent to the *VirtualRouter*, or ensure that the *ipDscp* attribute of the *FrConnection* is set to ***na***.

## ATTRIBUTE ipDlciName

Description

This attribute contains the name of the link layer connection used by the *IpPort*. The link layer media is associated with the *IpPort* by the *linkToMedia* attribute of the *ProtocolPort*.

Values

The name of the component

## RESPONSE Error:The media ... is not supported for Interface under Vrf.

Description

A *Check Prov* command produces this response if the *Interface* is a subcomponent of a *Vrf* and an invalid media type is added as a subcomponent of the *Interface.*

**System Action**: The *Check Prov* command fails. No *Activate* command is accepted until a subsequent *Check Prov* completes without errors.

**Operator Action**: Remove the invalid media provisioned under the *Interface* subcomponent.

## ATTRIBUTE invalidMedia

Description

Indicates the invalid media.

Values

String (1..20, ASCII)

## RESPONSE Error:The media ... is not supported for Interface under Rtr.

Description

A *Check Prov* command produces this response if the *Interface* is a subcomponent of a *Router* and an invalid media type is added as a subcomponent of the *Interface.*

**System Action**: The *Check Prov* command fails. No *Activate* command is accepted until a subsequent *Check Prov* completes without errors.

**Operator Action**: Remove the invalid media provisioned under the *Interface* subcomponent.

## ATTRIBUTE invalidMedia

Description

Indicates the invalid media.

Values

String (1..20, ASCII)

## RESPONSE Error:The total number of MplsCon components has exceeded the allowable limit of ... per shelf.

Description

The *Check Prov* command generates this response when the number of *MplsCon* components provisioned exceeds a preset number.

**System Action:** The *Check Prov* command fails.

**Operator Action:** Reduce the number of *MplsCon* components provisioned.

## ATTRIBUTE atmMplsConTooManyMplsConsErr

Description

This attribute indicates the maximum number of *MplsCon* components that can be provisioned on a switch. This value is a constant, set within the software.

Values

Decimal (0..2048)

## RESPONSE Error:The ... attribute must take a value within the range -12 to 12 dB.

Description

A *Check Prov* command produces this response if the specified attribute has been provisioned to take a value outside the range -12 to 12 dB and the *featureList* attribute (under the *Lpt* component) is set to ***vgsAtm*** or ***vgsIp***.

**System action**: The *Check Prov* command fails. No *Activate Prov* command is accepted until a subsequent *Check Prov* command completes without errors.

**Operator action**: Ensure that the value provisioned for the specified attribute lies within the range -12 to 12 dB.

## ATTRIBUTE vgsTdmNetworkProfileRange

Description

The name of the attribute requiring modification.

Values ingressGain
egressGain

## RESPONSE Error:The echoCancelTailLength attribute must be set to ....

Description

A *Check Prov* command produces this response if the *echoCancellationTailLength* attribute has been set to a value other than that specified in the response.

**System action:** No *Activate* command will be accepted until a subsequent *Check Prov* command completes without errors.

**Operator action:** Ensure that the *echoCancellationTailLength* attribute is set to the recommended value.

## ATTRIBUTE vgsTdmNetworkProfileEcanTail

Description

The value to set the *echoCancellationTailLength* attribute to.

Values 64
128

# RESPONSE Error:PModule subcomponent instance numbers must range contiguously from 1 to ... if the Shelf Card cardType attribute is ....

Description

A *Check Prov* command produces this error response when a *Vsp* component has an incorrect number of *PModule* subcomponent instances for the provisioned card type.

12 *PModule* instances are required on a ***12mVspAal*** or ***Vsp2*** card.

24 *PModule* instances are required on a ***2pGeMmSrVsp3*** card.

23 *PModule* instances are required on a ***2pOc3ChSmIrVsp3*** card.

System action: The *Check Prov* command fails. No *Activate* command is accepted until a subsequent *Check Prov* completes without errors.

Operator action: Provision the number of *PModule* components appropriately for the card type.

## ATTRIBUTE vspPModuleCount

Description

This attribute indicates the required number of *PModule* subcomponents.

Values

12
24
23

## ATTRIBUTE vspCardType

Description

This attribute indicates the card type for the *Vsp* component.

Values

12mVspAal
Vsp2
2pGeMmSrVsp3
2pOC3ChSmIrVsp3

## RESPONSE Error:The moduleType attribute must take one of the following values:...

Description

A *Check Prov* command produces this response if the *moduleType* attribute is not assigned a recommended value.

**System action**: No *Activate* command will be accepted until a subsequent *Check Prov* command completes without errors.

**Operator action**: Change the *moduleType* attribute to one of the recommended values.

## ATTRIBUTE vspPModModuleType

Description

This attribute indicates the allowed values for the *moduleType* attribute.

List of

none
vpm
spm

List Size

2

## RESPONSE Error:The NextHop Address ... can not be equal to any Interface address if it belongs to any subnets provisioned under a Vrf.

Description

This error message appears when the value of *NextHop* provisioned for a static *RouteEntry* belongs to one of the subnets provisioned under a
Vrf; however, the *NextHop* address is equal to the index value of some
*Interface* component.

**System Action**: The *Check Prov* command fails. No *Activate* command is accepted until a subsequent *Check Prov* completes without errors.

**Operator Action**: Change the *NextHop* address not equal to the index value of any *Interface* componet.

## ATTRIBUTE invalidNextHopAddress

Description: This attribute contains the value of an invalid *NextHop* address.

Values: IP address

## RESPONSE Error: The NextHop Address ... does not belong to any of the subnets provisioned under the Rtr.

Description: This error message appears when the value of a *NextHop* provisioned for a static *RouteEntry* does not belong to one of the subnets provisioned under the *Rtr*. Each provisioned *NextHop* should belong to a valid subnet.

**System Action**: The *Check Prov* command fails. No *Activate* command is accepted until a subsequent *Check Prov* completes without errors.

**Operator Action**: Add an *Interface* entry under *Rtr* component or change the *NextHop* address to reflect to one of the subnets provisioned by *Interface* entry.

## ATTRIBUTE invalidNextHopAddress

Description: This attribute contains the value of invalid *NextHop* address.

Values: IP address

## RESPONSE Error:The NextHop Address ... can not be equal to any Interface address if it belongs to any subnets provisioned under a Rtr.

Description

This error message appears when the value of *NextHop* provisioned for a static *RouteEntry* belongs to one of the subnets provisioned under a
*Rtr*; however, the *NextHop* address is equal to the index value of some
*Interface* component.

**System Action**: The *Check Prov* command fails. No *Activate* command is accepted until a subsequent *Check Prov* completes without errors.

**Operator Action**: Change the *Nexthop* address not equal to the index value of any *Interface* component.

## ATTRIBUTE invalidNextHopAddress

Description

This attribute contains the value of an invalid *NextHop* address.

Values IP address

## RESPONSE Error: The NextHop Address ... does not belong to any of the subnets provisioned under a Vrf.

Description

This error message appears when the value of a *NextHop* provisioned for a static *RouteEntry* does not belong to one of the subnets provisioned under a *Vrf*. Each provisioned *NextHop* should belong to a valid subnet.

**System Action**: The *Check Prov* command fails. No *Activate* command is accepted until a subsequent *Check Prov* completes without errors.

**Operator Action**: Add an *Interface* entry under *Vrf* component or change the *NextHop* address to reflect to one of the subnets provisioned by *Interface* entry.

## ATTRIBUTE invalidNextHopAddress

Description This attribute contains the value of invalid *NextHop* address.

Values IP address

## RESPONSE Error:The total number of IsisIf components provisioned (...) exceeds the allowable maximum of ... instances.

Description The *Check Prov* command produces this response when the maximum supported number of *IsisIf* components is exceeded.

**System Action**: The *Check Prov* command fails. No *Activate Prov* command is accepted until a subsequent *Check Prov* command completes without errors.

**Operator Action**: Delete sufficient *IsisIf* components until the provisioned number is within the specified allowable limits.

## ATTRIBUTE inwIpIsisIsisIfCount

Description This attribute indicates the number of *IsisIf* components.

Values Decimal (0..65535)

## ATTRIBUTE inwIpIsisIsisIfCountLimit

Description This attribute indicates the maximum number of *IsisIf* components.

Values Decimal (1..65535)

## RESPONSE Error:The packetDelayVariationTolerance attribute can not be set to adaptive on a ... card.

Description

A *Check Prov* command produces this response if the user sets the *packetDelayVariationTolerance* attribute to ***adaptive*** on one of the following cards:

***12mVspAal,***
***Vsp2***,
***Vsp2W***.

System action: No *Activate* command will be accepted until a subsequent *Check Prov* command completes without errors.

Operator action: Ensure that the *packetDelayVariationTolerance* attribute is set to a value other than ***adaptive***.

## ATTRIBUTE vgsCardType

Description

This attribute indicates the card type being used.

Values

12mVspAal
Vsp2
Vsp2W

## RESPONSE Error: The specified Address ... is not a valid IP interface address.

Description

This error message appears when the specified IP interface address is an address of class A, B or C. but it is not valid for the interface.

## ATTRIBUTE invalidAddress

Description

This attribute contains the value of invalid IP address.

Values

IP address

## RESPONSE Error:... is not allowed on this Virtual Router

Description

The *Check Prov* command produces this response when a protocol which is permitted only on the Management Virtual Router has been added to a Virtual Router whose *managementAccess* attribute is ***disabled***.

## ATTRIBUTE invalidProtocol

Description

Indicates the invalid protocol.

Values

String (1..20, ASCII)

# Chapter 5
# Collected Statistics

## COLLECTED STATS LogicalProcessor

Description The statistics record generated by the LogicalProcessor component.

### ATTRIBUTE Lp cardNumber (ca)

Description This attribute is the card number associated to this statistical information.

Values Decimal (0..15)

### ATTRIBUTE Lp cardStatus

Description This attribute indicates whether the card is running as ***active*** or ***standby***.

Values standby
active

### ATTRIBUTE Lp cpuUtilAvg

Description

This attribute indicates an average processor utilization level over a the specified collection interval. This average is calculated based on one minute CPU utilization averages.

| | |
|---|---|
| Values | Decimal (0..100) |
| Units | % |

## ATTRIBUTE Lp cpuUtilAvgMin

| | |
|---|---|
| Description | This attribute indicates the minimum processor utilization level over a specified collection interval. This is calculated based on one minute CPU utilization averages. |
| Values | Decimal (0..100) |
| Units | % |

## ATTRIBUTE Lp cpuUtilAvgMax

| | |
|---|---|
| Description | This attribute indicates the maximum processor utilization level over a specified collection interval. This is based on one minute CPU utilization averages. |
| Values | Decimal (0..100) |
| Units | % |

## ATTRIBUTE Lp memoryCapacity

| | |
|---|---|
| Description | This attribute indicates the processor's memory capacity for each type of memory. |
| Vector of | Decimal (0..2147483647) |
| Units | kbyte |
| Index | fastRam<br>normalRam<br>sharedRam |

## ATTRIBUTE Lp memoryUsageAvg

| | |
|---|---|
| Description | This attribute indicates the processor's average memory utilization for each type of memory in the specified collection interval. This is calculated using 15 second samples. |
| Vector of | Decimal (0..2147483647) |
| Units | kbyte |
| Index | fastRam<br>normalRam<br>sharedRam |

## ATTRIBUTE Lp memoryUsageAvgMin

| | |
|---|---|
| Description | This attribute indicates the processor's minimum memory utilization for each type of memory in the specified collection interval. This is calculated using 15 second samples. |
| Vector of | Decimal (0..2147483647) |
| Units | kbyte |
| Index | fastRam<br>normalRam<br>sharedRam |

## ATTRIBUTE Lp memoryUsageAvgMax

| | |
|---|---|
| Description | This attribute indicates the processor's maximum memory utilization for each type of memory in the specified collection interval. This is calculated using 15 second samples. |
| Vector of | Decimal (0..2147483647) |
| Units | kbyte |
| Index | fastRam<br>normalRam<br>sharedRam |

## ATTRIBUTE Lp sharedMsgBlockCapacity

| | |
|---|---|
| Description | This attribute indicates the processor's shared message block memory capacity. |
| Values | Decimal (0..2147483647) |
| Units | kbyte |

## ATTRIBUTE Lp sharedMsgBlockUsageAvg

| | |
|---|---|
| Description | This attribute indicates the processor's average shared message block memory utilization over a specified collection interval. This is calculated using 15 second samples. |
| Values | Decimal (0..2147483647) |
| Units | kbyte |

## ATTRIBUTE Lp sharedMsgBlockUsageAvgMin

| | |
|---|---|
| Description | This attribute indicates the processor's minimum shared message block memory utilization over a specified collection interval. This is calculated using 15 second samples. |
| Values | Decimal (0..2147483647) |
| Units | kbyte |

## ATTRIBUTE Lp sharedMsgBlockUsageAvgMax

| | |
|---|---|
| Description | This attribute indicates the processor's maximum shared message block memory utilization over a specified collection interval. This is calculated using 15 second samples. |
| Values | Decimal (0..2147483647) |
| Units | kbyte |

## ATTRIBUTE Lp localMsgBlockCapacity

| | |
|---|---|
| Description | This attribute indicates the processor's local message block memory capacity. These message blocks are used for local messaging on the card. |

| | |
|---|---|
| Values | Decimal (0..2147483647) |
| Units | kbyte |

## ATTRIBUTE Lp localMsgBlockUsageAvg

| | |
|---|---|
| Description | This attribute indicates the processor's average memory utilization of message blocks used for local messaging on the card, calculated over a specified collection interval. This is calculated using 15 second samples. |
| Values | Decimal (0..2147483647) |
| Units | kbyte |

## ATTRIBUTE Lp localMsgBlockUsageMin

| | |
|---|---|
| Description | This attribute indicates the processor's minimum memory utilization of message blocks used for local messaging on the card, calculated over a specified collection interval. |
| Values | Decimal (0..2147483647) |
| Units | kbyte |

## ATTRIBUTE Lp localMsgBlockUsageMax

| | |
|---|---|
| Description | This attribute indicates the processor's maximum memory utilization of message blocks used for local messaging on the card, calculated over a specified collection interval. |
| Values | Decimal (0..2147483647) |
| Units | kbyte |

# COLLECTED STATS LogicalProcessor PCUServicesProcessor ProcessingModule ProcessingBlock

| | |
|---|---|
| Description | The statistics record generated by the LogicalProcessor PCUServicesProcessor ProcessingModule ProcessingBlock component. |

## ATTRIBUTE Lp Pcusp PModule PBlock cpuPBlockUtilAvg (avg)

Description: This attribute indicates the average PBlock CPU load during the statistics collection interval.

Values: Decimal (0..100)

Units: %

## ATTRIBUTE Lp Pcusp PModule PBlock cpuPBlockUtilMin (min)

Description: This attribute indicates the minimum PBlock CPU load during the statistics collection interval.

Values: Decimal (0..100)

Units: %

## ATTRIBUTE Lp Pcusp PModule PBlock cpuPBlockUtilMax (max)

Description: This attribute indicates the maximum PBlock CPU load during the statistics collection interval.

Values: Decimal (0..100)

Units: %

# COLLECTED STATS Collector

Description: The statistics record generated by the Collector component.

## ATTRIBUTE Col oldDateTime

Description: This attribute shows the old date/time immediately prior to the time change.

Values: Time (DHMS)

## ATTRIBUTE Col newDateTime

Description: This attribute shows the new date/time immediately after the time change.

Values: Time (DHMS)

# COLLECTED STATS VoiceNetworkingCallServer

Description: The statistics record generated by the VoiceNetworkingCallServer component.

## ATTRIBUTE Vncs totalTranslations

Description: This spooled statistic counts the number of translation requests received by *Vncs* in the last statistics collection interval.

Values: Decimal (0..65535)

## ATTRIBUTE Vncs completeTranslations

Description: This spooled statistic counts the number of completed translations handled under each *DiallingPlan* component in the last statistics collection interval. The complete translations are the one that resulted in the return by VNCS server of the reply message with the routing information and *VoiceProfile* parameters associated with the directory number prefix supplied in the translation request message.

Vector of: Decimal (0..65535)

Index: Decimal (0..2)

## ATTRIBUTE Vncs incompleteTranslations

Description: This spooled statistic counts the number of incomplete translations handled under each *DiallingPlan* component in the last statistics collection interval. The incomplete translations are the one that require more digits in the directory number prefix to uniquely identify routing attributes.

Vector of: Decimal (0..65535)

Index: Decimal (0..2)

## ATTRIBUTE Vncs failedTranslations

| | |
|---|---|
| Description | This spooled statistic counts the number of failed translations handled under this *DiallingPlan* component in the last statistics collection interval. The failed translations are the one for which the directory number prefix could not be found in the database. |
| Vector of | Decimal (0..65535) |
| Index | Decimal (0..2) |

## ATTRIBUTE Vncs usageCount

| | |
|---|---|
| Description | This spooled statistic counts the number of times each *VoiceProfile* useage count is accessed to set up a connection in the last statistics collection interval. |
| Vector of | Decimal (0..65535) |
| Index | Decimal (1..16) |

# COLLECTED STATS Trunk

| | |
|---|---|
| Description | The statistics record generated by the Trunk component. |

## ATTRIBUTE Trk remoteComponentName (remote)

| | |
|---|---|
| Description | This attribute is the component name of the remote end which it has supplied through the *Trunk* staging protocol. |
| Values | String (1..26, ASCII) |

## ATTRIBUTE Trk measuredSpeedToIfMax

| | |
|---|---|
| Description | This is the maximum measured transmit speed (bit/s) of the link. A value of zero is provided when the link is disabled for the whole interval or the measured speed is unknown. |
| Values | Decimal (0..4294967295) |

## ATTRIBUTE Trk measuredSpeedToIfMin

Description: This is the minimum measured transmit speed (bit/s) of the link. A value of zero is provided when the link is disabled for any part of the interval or the measured speed is unknown.

Values: Decimal (0..4294967295)

## ATTRIBUTE Trk measuredSpeedToIfCurrent

Description: This is the current measured transmit speed (bit/s) of the link. A value of zero is provided when the link is disabled or the measured speed is unknown.

Values: Decimal (0..4294967295)

## ATTRIBUTE Trk measuredRoundTripDelayMax

Description: This is the maximum measured Round Trip Delay (ms) discovered with the remote through the *Trunk* staging protocols. A value of zero is provided when the link is disabled for the whole interval or the delay is unknown.

Values: Decimal (0..1500)

## ATTRIBUTE Trk measuredRoundTripDelayMin

Description: This is the minimum measured Round Trip Delay (ms) discovered with the remote through the *Trunk* staging protocols. A value of zero is provided when the link is disabled for any part of the interval or the delay is unknown.

Values: Decimal (0..1500)

## ATTRIBUTE Trk measuredRoundTripDelayCurrent

Description: This is the measured Round Trip Delay (ms) discovered with the remote through the *Trunk* staging protocols. A value of zero is provided when the link is disabled or the delay is unknown.

Values: Decimal (0..1500)

## ATTRIBUTE Trk porsNormPktFromIf (normPkt)

Description: This attribute counts the number of normal priority packets received on the PORS *Trunk* normal priority queue in the last statistics collection interval.

Values: Long Integer

## ATTRIBUTE Trk porsNormDiscUnforwardFromIf (normDisc)

Description: This attribute counts the number of normal priority packets discarded from the PORS *Trunk* normal priority queue in the last statistics collection interval.

Values: Long Integer

## ATTRIBUTE Trk porsNormOctetFromIf (normOctet)

Description: This attribute counts the number of normal priority bytes received on the PORS *Trunk* normal priority queue in the last statistics collection interval.

Values: Long Integer

## ATTRIBUTE Trk porsIntPktFromIf (intPkt)

Description: This attribute counts the number of interrupting priority packets received on the PORS *Trunk* interrupting priority queue in the last statistics collection interval.

Values: Long Integer

## ATTRIBUTE Trk porsIntDiscUnforwardFromIf (intDisc)

Description: This attribute counts the number of interrupting priority packets discarded from the PORS *Trunk* interrupting priority queue in the last statistics collection interval.

Values: Long Integer

## ATTRIBUTE Trk porsIntOctetFromIf (intOctets)

Description: This attribute counts the number of interrupting priority bytes received on the PORS *Trunk* interrupting priority queue in the last statistics collection interval.

Values: Long Integer

## ATTRIBUTE Trk remoteComponentName (remote)

Description: This attribute is the component name of the remote end which it has supplied through the *Trunk* or *DpnGateway* staging protocol.

Values: String (1..26, ASCII)

## ATTRIBUTE Trk measuredSpeedToIfMax

Description: This is the maximum measured transmit speed (bit/s) of the link. A value of zero is provided when the link is disabled for the whole interval or the measured speed is unknown.

Values: Decimal (0..4294967295)

## ATTRIBUTE Trk measuredSpeedToIfMin

Description: This is the minimum measured transmit speed (bit/s) of the link. A value of zero is provided when the link is disabled for any part of the interval or the measured speed is unknown.

Values: Decimal (0..4294967295)

## ATTRIBUTE Trk measuredSpeedToIfCurrent

Description: This is the current measured transmit speed (bit/s) of the link. A value of zero is provided when the link is disabled or the measured speed is unknown.

Values: Decimal (0..4294967295)

## ATTRIBUTE Trk measuredRoundTripDelayMax

Description: This is the maximum measured Round Trip Delay (ms) discovered with the remote through the *Trunk* and *DpnGateway* staging protocols. A value of zero is provided when the link is disabled for the whole interval or the delay is unknown.

Values: Decimal (0..1500)

## ATTRIBUTE Trk measuredRoundTripDelayMin

Description: This is the minimum measured Round Trip Delay (ms) discovered with the remote through the *Trunk* and *DpnGateway* staging protocols. A value of zero is provided when the link is disabled for any part of the interval or the delay is unknown.

Values: Decimal (0..1500)

## ATTRIBUTE Trk measuredRoundTripDelayCurrent

Description: This is the measured Round Trip Delay (ms) discovered with the remote through the *Trunk* and *DpnGateway* staging protocols. A value of zero is provided when the link is disabled or the delay is unknown.

Values: Decimal (0..1500)

## ATTRIBUTE Trk fwdPktFromIf (fwdPkt)

Description: This attribute counts the number of forwarding packets received on the *Trunk* or *DpnGateway* in the last statistics collection interval.

Values: Long Integer

## ATTRIBUTE Trk fwdDiscUnforwardFromIf (fwdDisc)

Description: This attribute counts the number of forwarding packets discarded by the *Trunk* or *DpnGateway* in the last statistics collection interval.

Values Long Integer

## ATTRIBUTE Trk fwdOctetFromIf (fwdOctet)

Description This attribute counts the number of forwarding bytes received on the *Trunk* or *DpnGateway* in the last statistics collection interval.

Values Long Integer

## ATTRIBUTE Trk dprsPktFromIfByPrio (dprsPktBp)

Description This attribute counts the number of DPRS packets received by the Trunk in the last statistics collection interval. It is an array indexed by the emission priorities (*ep0*, *ep1* and *ep2*) and discard priorities (*dp0*, *dp1*, *dp2* and *dp3*) of the packets. The highest emission priority is *ep0* and the least discardable priority is *dp0*.

ARRAY OF Long Integer

Row ep [ep0
ep1
ep2]

Column dp [dp0
dp1
dp2
dp3]

## ATTRIBUTE Trk dprsDiscPktFromIfByPrio (dprsDiscBp)

Description

This attribute counts the number of DPRS packets received and discarded by the Trunk in the last statistics collection interval. It is an array indexed by the emission priorities (*ep0*, *ep1* and *ep2*) and discard priorities (*dp0*, *dp1*, *dp2* and *dp3*) of the packets. The highest emission priority is *ep0* and the least discardable priority is *dp0*.

ARRAY OF Long Integer

| | | |
|---|---|---|
| Row | ep<br>ep1<br>ep2] | [ep0 |
| Column | dp<br>dp1<br>dp2<br>dp3] | [dp0 |

## ATTRIBUTE Trk dprsOctetFromIfByPrio (dprsOctBp)

Description

This attribute counts the number of DPRS octets received by the Trunk in the last statistics collection interval. It is an array indexed by the emission priorities (*ep0*, *ep1* and *ep2*) and discard priorities (*dp0*, *dp1*, *dp2* and *dp3*) of the packets. The highest emission priority is *ep0* and the least discardable priority is *dp0*.

ARRAY OF Long Integer

| | | |
|---|---|---|
| Row | ep<br>ep1<br>ep2] | [ep0 |
| Column | dp<br>dp1<br>dp2<br>dp3] | [dp0 |

## ATTRIBUTE Trk porsPktFromIfByPrio (porsPktBp)

Description

This attribute counts the number of PORS packets received by the Trunk in the last statistics collection interval. It is an array indexed by the emission priorities (*ep0*, *ep1* and *ep2*) and discard priorities (*dp0*, *dp1*, *dp2* and *dp3*) of the packets. The highest emission priority is *ep0* and the least discardable priority is *dp0*.

ARRAY OF Long Integer

| | | |
|---|---|---|
| Row | ep<br>ep1<br>ep2] | [ep0 |
| Column | dp<br>dp1<br>dp2<br>dp3] | [dp0 |

## ATTRIBUTE Trk porsDiscPktFromIfByPrio (porsDiscBp)

Description

This attribute counts the number of PORS packets received and discarded by the Trunk in the last statistics collection interval. It is an array indexed by the emission priorities (*ep0*, *ep1* and *ep2*) and discard priorities (*dp0*, *dp1*, *dp2* and *dp3*) of the packets. The highest emission priority is *ep0* and the least discardable priority is *dp0*.

ARRAY OF Long Integer

| | | |
|---|---|---|
| Row | ep<br>ep1<br>ep2] | [ep0 |
| Column | dp<br>dp1<br>dp2<br>dp3] | [dp0 |

## ATTRIBUTE Trk porsOctetFromIfByPrio (porsOctBp)

Description: This attribute counts the number of PORS octets received by the Trunk in the last statistics collection interval. It is an array indexed by the emission priorities (*ep0*, *ep1* and *ep2*) and discard priorities (*dp0*, *dp1*, *dp2* and *dp3*) of the packets. The highest emission priority is *ep0* and the least discardable priority is *dp0*.

ARRAY OF: Long Integer

| | | |
|---|---|---|
| Row | ep<br>ep1<br>ep2] | [ep0 |
| Column | dp<br>dp1<br>dp2<br>dp3] | [dp0 |

# COLLECTED STATS Trunk UnAcked Framer

Description: The statistics record generated by the Trunk UnAcked Framer component.

## ATTRIBUTE Trk UnAcked Framer rxBytes

Description: This attribute provides the number of bytes received on the link by the Framer in the last collection interval.

Values: Long Integer

## ATTRIBUTE Trk UnAcked Framer rxFrames

Description: This attribute provides the number of frames received on the link interface by the Framer in the last collection interval.

Values: Long Integer

## ATTRIBUTE Trk UnAcked Framer txBytes

Description: This attribute provides the number of bytes transmitted to the link by the Framer in the last collection interval. This value could be zero if the application sends the frames directly to the link.

Values: Long Integer

## ATTRIBUTE Trk UnAcked Framer txFrames

Description: This attribute provides the number of frames transmitted to the link interface by the Framer in the last collection interval. This value could be zero if the application sends the frames directly to the link.

Values: Long Integer

## ATTRIBUTE Trk UnAcked Framer rxTotalLinkUtil

Description: This attribute provides the average total link utilization computed based on the total number of bytes received on the link in the last collection interval.

Values: Decimal (0..100)

# COLLECTED STATS Trunk AtmAccess

Description: The statistics record generated by the Trunk AtmAccess component.

## ATTRIBUTE Trk Atm interfaceName (interface)

Description: This attribute indicates the component name of the local ATM Layer 2 AAL5 interface that the *AtmAccess* component uses.

Values: String (1..45, ASCII)

## ATTRIBUTE Trk Atm txCell

Description: This attribute counts the number of cells that have been transmitted to the interface on the *Vcc* in the last collection interval.

Values: Long Integer

Units: cells

## ATTRIBUTE Trk Atm txCellClp

Description: This attribute counts the number of cells that have been transmitted to the interface on the *Vcc* with the CLP=1 in the last collection interval.

Values: Long Integer

Units: cells

## ATTRIBUTE Trk Atm txDiscard

Description: This attribute counts the number of cells or frames received from the bus on the *Vcc* that have been discarded (due to congestion or when the *Vcc* interface is disabled) in the last collection interval.

Values: Long Integer

## ATTRIBUTE Trk Atm txDiscardClp

Description: This attribute counts the number of cells or frames received from the bus on the *Vcc* with the CLP=1 that have been discarded (due to congestion or when the *Vcc* interface is disabled) in the last collection interval.

Values: Long Integer

## ATTRIBUTE Trk Atm rxCell

Description: This attribute counts the number of cells that have been received from the interface on the *Vcc* in the last collection interval.

| | |
|---|---|
| Values | Long Integer |
| Units | cells |

## ATTRIBUTE Trk Atm rxCellClp

| | |
|---|---|
| Description | This attribute counts the number of cells that have been received from the interface on the *Vcc* with the CLP=1 in the last collection interval. |
| Values | Long Integer |
| Units | cells |

## ATTRIBUTE Trk Atm rxDiscard

| | |
|---|---|
| Description | This attribute counts the number of cells or frames received from the interface on the *Vcc* that have been discarded (due to congestion, non-conformance with UPC or AAL reassembly problems) in the last collection interval. |
| Values | Long Integer |

## ATTRIBUTE Trk Atm rxDiscardClp

| | |
|---|---|
| Description | This attribute counts the number of cells or frames received from the interface on the *Vcc* with the CLP=1 that have been discarded (due to congestion, non-conformance with UPC or AAL reassembly problems) in the last collection interval. |
| Values | Long Integer |

## ATTRIBUTE Trk Atm txCellRateMax

| | |
|---|---|
| Description | This attribute indicates the maximum transmit cell throughput rate of the *Vcc* in the last collection interval. |
| Values | Decimal (0..4294967295) |
| Units | cell/s |

## ATTRIBUTE Trk Atm txCellRateMin

| | |
|---|---|
| Description | This attribute indicates the minimum transmit cell throughput rate of the *Vcc* in the last collection interval. |
| Values | Decimal (0..4294967295) |
| Units | cell/s |

## ATTRIBUTE Trk Atm txCellRateAvg

| | |
|---|---|
| Description | This attribute indicates the average transmit cell throughput rate of the *Vcc* in the last collection interval. |
| Values | Decimal (0..4294967295) |
| Units | cell/s |

## ATTRIBUTE Trk Atm txClpCellRateMax

| | |
|---|---|
| Description | This attribute indicates the maximum transmit cell throughput rate with the CLP=1 of the *Vcc* in the last collection interval. |
| Values | Decimal (0..4294967295) |
| Units | cell/s |

## ATTRIBUTE Trk Atm txClpCellRateMin

| | |
|---|---|
| Description | This attribute indicates the minimum transmit cell throughput rate with the CLP=1 of the *Vcc* in the last collection interval. |
| Values | Decimal (0..4294967295) |
| Units | cell/s |

## ATTRIBUTE Trk Atm txClpCellRateAvg

| | |
|---|---|
| Description | This attribute indicates the average transmit cell throughput rate with the CLP=1 of the *Vcc* in the last collection interval. |
| Values | Decimal (0..4294967295) |

Units cell/s

## ATTRIBUTE Trk Atm rxCellRateMax

Description This attribute indicates the maximum receive cell throughput rate of the *Vcc* in the last collection interval.

Values Decimal (0..4294967295)

Units cell/s

## ATTRIBUTE Trk Atm rxCellRateMin

Description This attribute indicates the minimum receive cell throughput rate of the *Vcc* in the last collection interval.

Values Decimal (0..4294967295)

Units cell/s

## ATTRIBUTE Trk Atm rxCellRateAvg

Description This attribute indicates the average receive cell throughput rate of the *Vcc* in the last collection interval.

Values Decimal (0..4294967295)

Units cell/s

## ATTRIBUTE Trk Atm rxClpCellRateMax

Description This attribute indicates the maximum receive cell throughput rate with the CLP=1 of the *Vcc* in the last collection interval.

Values Decimal (0..4294967295)

Units cell/s

## ATTRIBUTE Trk Atm rxClpCellRateMin

Description This attribute indicates the minimum receive cell throughput rate with the CLP=1 of the *Vcc* in the last collection interval.

Values Decimal (0..4294967295)

Units cell/s

## ATTRIBUTE Trk Atm rxClpCellRateAvg

Description This attribute indicates the average receive cell throughput rate with the CLP=1 of the *Vcc* in the last collection interval.

Values Decimal (0..4294967295)

Units cell/s

## ATTRIBUTE Trk Atm rxTotalVccUtil

Description This attribute indicates the average total receive *Vcc* utilization computed based on comparing the total number of cells received on the *Vcc* with the estimated available bandwidth in the last collection interval.

Values Decimal (0..200)

Units %

## ATTRIBUTE Trk Atm txTotalVccUtil

Description This attribute indicates the average total transmitted *Vcc* utilization computed based on comparing the total number of cells transmitted on the *Vcc* with the estimated available bandwidth in the last collection interval.

Values Decimal (0..200)

Units %

# COLLECTED STATS DpnGateway

Description The statistics record generated by the DpnGateway component.

## ATTRIBUTE DpnGate remoteComponentName (remote)

Description This attribute is the component name of the remote end which it has supplied through the *Trunk* or *DpnGateway* staging protocol.

Values String (1..26, ASCII)

## ATTRIBUTE DpnGate measuredSpeedToIfMax

Description This is the maximum measured transmit speed (bit/s) of the link. A value of zero is provided when the link is disabled for the whole interval or the measured speed is unknown.

Values Decimal (0..4294967295)

## ATTRIBUTE DpnGate measuredSpeedToIfMin

Description This is the minimum measured transmit speed (bit/s) of the link. A value of zero is provided when the link is disabled for any part of the interval or the measured speed is unknown.

Values Decimal (0..4294967295)

## ATTRIBUTE DpnGate measuredSpeedToIfCurrent

Description This is the current measured transmit speed (bit/s) of the link. A value of zero is provided when the link is disabled or the measured speed is unknown.

Values Decimal (0..4294967295)

## ATTRIBUTE DpnGate measuredRoundTripDelayMax

Description This is the maximum measured Round Trip Delay (ms) discovered with the remote through the *Trunk* and *DpnGateway* staging protocols. A value of zero is provided when the link is disabled for the whole interval or the delay is unknown.

Values Decimal (0..1500)

## ATTRIBUTE DpnGate measuredRoundTripDelayMin

Description This is the minimum measured Round Trip Delay (ms) discovered with the remote through the *Trunk* and *DpnGateway* staging protocols. A value of zero is provided when the link is disabled for any part of the interval or the delay is unknown.

Values Decimal (0..1500)

## ATTRIBUTE DpnGate measuredRoundTripDelayCurrent

Description This is the measured Round Trip Delay (ms) discovered with the remote through the *Trunk* and *DpnGateway* staging protocols. A value of zero is provided when the link is disabled or the delay is unknown.

Values Decimal (0..1500)

## ATTRIBUTE DpnGate fwdPktFromIf (fwdPkt)

Description This attribute counts the number of forwarding packets received on the *Trunk* or *DpnGateway* in the last statistics collection interval.

Values Long Integer

## ATTRIBUTE DpnGate fwdDiscUnforwardFromIf (fwdDisc)

Description This attribute counts the number of forwarding packets discarded by the *Trunk* or *DpnGateway* in the last statistics collection interval.

Values Long Integer

## ATTRIBUTE DpnGate fwdOctetFromIf (fwdOctet)

Description This attribute counts the number of forwarding bytes received on the *Trunk* or *DpnGateway* in the last statistics collection interval.

Values Long Integer

# COLLECTED STATS DpnGateway Utp Framer

Description The statistics record generated by the DpnGateway Utp Framer component.

## ATTRIBUTE DpnGate Utp Framer rxBytes

Description: This attribute provides the number of bytes received on the link by the Framer in the last collection interval.

Values: Long Integer

## ATTRIBUTE DpnGate Utp Framer rxFrames

Description: This attribute provides the number of frames received on the link interface by the Framer in the last collection interval.

Values: Long Integer

## ATTRIBUTE DpnGate Utp Framer txBytes

Description: This attribute provides the number of bytes transmitted to the link by the Framer in the last collection interval. This value could be zero if the application sends the frames directly to the link.

Values: Long Integer

## ATTRIBUTE DpnGate Utp Framer txFrames

Description: This attribute provides the number of frames transmitted to the link interface by the Framer in the last collection interval. This value could be zero if the application sends the frames directly to the link.

Values: Long Integer

## ATTRIBUTE DpnGate Utp Framer rxTotalLinkUtil

Description: This attribute provides the average total link utilization computed based on the total number of bytes received on the link in the last collection interval.

Values: Decimal (0..100)

# COLLECTED STATS FrameRelayNni Framer

Description The statistics record generated by the FrameRelayNni Framer component.

## ATTRIBUTE FrNni Framer rxBytes

Description This attribute provides the number of bytes received on the link by the Framer in the last collection interval.

Values Long Integer

## ATTRIBUTE FrNni Framer rxFrames

Description This attribute provides the number of frames received on the link interface by the Framer in the last collection interval.

Values Long Integer

## ATTRIBUTE FrNni Framer txBytes

Description This attribute provides the number of bytes transmitted to the link by the Framer in the last collection interval. This value could be zero if the application sends the frames directly to the link.

Values Long Integer

## ATTRIBUTE FrNni Framer txFrames

Description This attribute provides the number of frames transmitted to the link interface by the Framer in the last collection interval. This value could be zero if the application sends the frames directly to the link.

Values Long Integer

## ATTRIBUTE FrNni Framer rxTotalLinkUtil

Description This attribute provides the average total link utilization computed based on the total number of bytes received on the link in the last collection interval.

Values Decimal (0..100)

# COLLECTED STATS FrameRelayUni Framer

Description The statistics record generated by the FrameRelayUni Framer component.

## ATTRIBUTE FrUni Framer rxBytes

Description This attribute provides the number of bytes received on the link by the Framer in the last collection interval.

Values Long Integer

## ATTRIBUTE FrUni Framer rxFrames

Description This attribute provides the number of frames received on the link interface by the Framer in the last collection interval.

Values Long Integer

## ATTRIBUTE FrUni Framer txBytes

Description This attribute provides the number of bytes transmitted to the link by the Framer in the last collection interval. This value could be zero if the application sends the frames directly to the link.

Values Long Integer

## ATTRIBUTE FrUni Framer txFrames

Description This attribute provides the number of frames transmitted to the link interface by the Framer in the last collection interval. This value could be zero if the application sends the frames directly to the link.

Values Long Integer

## ATTRIBUTE FrUni Framer rxTotalLinkUtil

Description: This attribute provides the average total link utilization computed based on the total number of bytes received on the link in the last collection interval.

Values: Decimal (0..100)

# COLLECTED STATS FrameRelayAtmInterface Framer

Description: The statistics record generated by the FrameRelayAtmInterface Framer component.

## ATTRIBUTE FrAtm Framer rxBytes

Description: This attribute provides the number of bytes received on the link by the Framer in the last collection interval.

Values: Long Integer

## ATTRIBUTE FrAtm Framer rxFrames

Description: This attribute provides the number of frames received on the link interface by the Framer in the last collection interval.

Values: Long Integer

## ATTRIBUTE FrAtm Framer txBytes

Description: This attribute provides the number of bytes transmitted to the link by the Framer in the last collection interval. This value could be zero if the application sends the frames directly to the link.

Values: Long Integer

## ATTRIBUTE FrAtm Framer txFrames

Description: This attribute provides the number of frames transmitted to the link interface by the Framer in the last collection interval. This value could be zero if the application sends the frames directly to the link.

Values: Long Integer

## ATTRIBUTE FrAtm Framer rxTotalLinkUtil

Description: This attribute provides the average total link utilization computed based on the total number of bytes received on the link in the last collection interval.

Values: Decimal (0..100)

# COLLECTED STATS VoiceService Framer

Description: The statistics record generated by the VoiceService Framer component.

## ATTRIBUTE Vs Framer rxBytes

Description: This attribute provides the number of bytes received on the link by the Framer in the last collection interval.

Values: Long Integer

## ATTRIBUTE Vs Framer rxFrames

Description: This attribute provides the number of frames received on the link interface by the Framer in the last collection interval.

Values: Long Integer

## ATTRIBUTE Vs Framer txBytes

Description: This attribute provides the number of bytes transmitted to the link by the Framer in the last collection interval. This value could be zero if the application sends the frames directly to the link.

Values Long Integer

## ATTRIBUTE Vs Framer txFrames

Description This attribute provides the number of frames transmitted to the link interface by the Framer in the last collection interval. This value could be zero if the application sends the frames directly to the link.

Values Long Integer

## ATTRIBUTE Vs Framer rxTotalLinkUtil

Description This attribute provides the average total link utilization computed based on the total number of bytes received on the link in the last collection interval.

Values Decimal (0..100)

# COLLECTED STATS BitTransparentDataService Framer

Description The statistics record generated by the BitTransparentDataService Framer component.

## ATTRIBUTE Btds Framer rxBytes

Description This attribute provides the number of bytes received on the link by the Framer in the last collection interval.

Values Long Integer

## ATTRIBUTE Btds Framer rxFrames

Description This attribute provides the number of frames received on the link interface by the Framer in the last collection interval.

Values Long Integer

## ATTRIBUTE Btds Framer txBytes

Description: This attribute provides the number of bytes transmitted to the link by the Framer in the last collection interval. This value could be zero if the application sends the frames directly to the link.

Values: Long Integer

## ATTRIBUTE Btds Framer txFrames

Description: This attribute provides the number of frames transmitted to the link interface by the Framer in the last collection interval. This value could be zero if the application sends the frames directly to the link.

Values: Long Integer

## ATTRIBUTE Btds Framer rxTotalLinkUtil

Description: This attribute provides the average total link utilization computed based on the total number of bytes received on the link in the last collection interval.

Values: Decimal (0..100)

# COLLECTED STATS HdlcTransparentDataService Framer

Description: The statistics record generated by the HdlcTransparentDataService Framer component.

## ATTRIBUTE Htds Framer rxBytes

Description: This attribute provides the number of bytes received on the link by the Framer in the last collection interval.

Values: Long Integer

## ATTRIBUTE Htds Framer rxFrames

Description: This attribute provides the number of frames received on the link interface by the Framer in the last collection interval.

Values: Long Integer

## ATTRIBUTE Htds Framer txBytes

Description: This attribute provides the number of bytes transmitted to the link by the Framer in the last collection interval. This value could be zero if the application sends the frames directly to the link.

Values: Long Integer

## ATTRIBUTE Htds Framer txFrames

Description: This attribute provides the number of frames transmitted to the link interface by the Framer in the last collection interval. This value could be zero if the application sends the frames directly to the link.

Values: Long Integer

## ATTRIBUTE Htds Framer rxTotalLinkUtil

Description: This attribute provides the average total link utilization computed based on the total number of bytes received on the link in the last collection interval.

Values: Decimal (0..100)

# COLLECTED STATS X25Dte Lapb Framer

Description: The statistics record generated by the X25Dte Lapb Framer component.

## ATTRIBUTE X25Dte Lapb Framer rxBytes

Description: This attribute provides the number of bytes received on the link by the Framer in the last collection interval.

Values Long Integer

## ATTRIBUTE X25Dte Lapb Framer rxFrames

Description This attribute provides the number of frames received on the link interface by the Framer in the last collection interval.

Values Long Integer

## ATTRIBUTE X25Dte Lapb Framer txBytes

Description This attribute provides the number of bytes transmitted to the link by the Framer in the last collection interval. This value could be zero if the application sends the frames directly to the link.

Values Long Integer

## ATTRIBUTE X25Dte Lapb Framer txFrames

Description This attribute provides the number of frames transmitted to the link interface by the Framer in the last collection interval. This value could be zero if the application sends the frames directly to the link.

Values Long Integer

## ATTRIBUTE X25Dte Lapb Framer rxTotalLinkUtil

Description This attribute provides the average total link utilization computed based on the total number of bytes received on the link in the last collection interval.

Values Decimal (0..100)

# COLLECTED STATS VirtualRouter Ip Rtd

Description The statistics record generated by the VirtualRouter Ip Rtd component.

## ATTRIBUTE Vr Ip Rtd localNodeIdentifier

| | |
|---|---|
| Description | This attribute identifies the node by a unique number assigned to each node. This value is provisioned in the attribute *namsId* of the component *ModuleData*. |
| Values | Decimal (256..49151) |

## ATTRIBUTE Vr Ip Rtd ipVcgInstance

| | |
|---|---|
| Description | This attribute indicates which VCG VR generated the statistics record |
| Values | String (1..16, ASCII) |

## ATTRIBUTE Vr Ip Rtd localVcgIpAddress

| | |
|---|---|
| Description | This attribute indicates the VCG loopback IP address of the VCG VR that generated the statistics record. |
| Values | IP address |

## ATTRIBUTE Vr Ip Rtd remoteVcgIpAddress

| | |
|---|---|
| Description | This attribute indicates the remote VCG destination address that will have the delays measured. |
| Values | IP address |

## ATTRIBUTE Vr Ip Rtd framesSent

| | |
|---|---|
| Description | This attribute contains the number of frames transmitted by the *Virtual Carrier Gateway* during the latest interval. |
| Vector of | Decimal (1..5) |
| Index | Decimal (0..3) |

## ATTRIBUTE Vr Ip Rtd framesReceived

| | |
|---|---|
| Description | This attribute contains the number of frames received by the *Virtual Carrier Gateway during* the collection interval. |
| Vector of | Decimal (1..5) |
| Index | Decimal (0..3) |

## ATTRIBUTE Vr Ip Rtd sample1StartTime

| | |
|---|---|
| Description | This attribute represents the timestamp when the first sample was sent to this remote *Virtual Carrier Gateway.* |
| Values | Time (DHMS) |

## ATTRIBUTE Vr Ip Rtd RoundTripDelays1

| | |
|---|---|
| Description | This attribute indicates an array of round trip delays for the first sample of packets received by the *Virtual Carrier Gateway* during the last monitoring session, for each class of service (0 to 3). |
| Vector of | Decimal (0..65535) |
| Index | Decimal (0..3) |

## ATTRIBUTE Vr Ip Rtd sample2StartTime

| | |
|---|---|
| Description | This attribute represents the timestamp when the second sample of packets was sent to this remote *Virtual Carrier Gateway.* |
| Values | Time (DHMS) |

## ATTRIBUTE Vr Ip Rtd RoundTripDelay2

| | |
|---|---|
| Description | This attribute indicates an array of round trip delays for the second sample of packets received by the *Virtual Carrier Gateway* during the last monitoring session, for each class of service (0 to 3) |
| Vector of | Decimal (0..65535) |
| Index | Decimal (0..3) |

## ATTRIBUTE Vr Ip Rtd sample3StartTime

| | |
|---|---|
| Description | This attribute represents the timestamp when the third sample of packets was sent to this remote *Virtual Carrier Gateway.* |
| Values | Time (DHMS) |

## ATTRIBUTE Vr Ip Rtd RoundTripDelay3

| | |
|---|---|
| Description | This attribute indicates an array of round trip delays for the third sample of packets received by the *Virtual Carrier Gateway* during the last monitoring session, for each class of service (0 to 3) |
| Vector of | Decimal (0..65535) |
| Index | Decimal (0..3) |

## ATTRIBUTE Vr Ip Rtd sample4StartTime

| | |
|---|---|
| Description | This attribute represents the timestamp when the fourth sample of packets was sent to this remote *Virtual Carrier Gateway.* |
| Values | Time (DHMS) |

## ATTRIBUTE Vr Ip Rtd RoundTripDelay4

Description: This attribute indicates an array of round trip delays for the fourth sample of packets received by the *Virtual Carrier Gateway* during the last monitoring session, for each class of service (0 to 3).

Vector of: Decimal (0..65535)

Index: Decimal (0..3)

## ATTRIBUTE Vr Ip Rtd sample5StartTime

Description: This attribute represents the timestamp when the fifth sample of packets was sent to this remote *Virtual Carrier Gateway*.

Values: Time (DHMS)

## ATTRIBUTE Vr Ip Rtd RoundTripDelay5

Description: This attribute indicates an array of round trip delays for the fifth sample of packets received by the *Virtual Carrier Gateway* during the last monitoring session, for each class of service (0 to 3).

Vector of: Decimal (0..65535)

Index: Decimal (0..3)

# COLLECTED STATS PointToPointProtocol Framer

Description: The statistics record generated by the PointToPointProtocol Framer component.

## ATTRIBUTE Ppp Framer rxBytes

Description: This attribute provides the number of bytes received on the link by the Framer in the last collection interval.

Values: Long Integer

## ATTRIBUTE Ppp Framer rxFrames

Description: This attribute provides the number of frames received on the link interface by the Framer in the last collection interval.

Values: Long Integer

## ATTRIBUTE Ppp Framer txBytes

Description: This attribute provides the number of bytes transmitted to the link by the Framer in the last collection interval. This value could be zero if the application sends the frames directly to the link.

Values: Long Integer

## ATTRIBUTE Ppp Framer txFrames

Description: This attribute provides the number of frames transmitted to the link interface by the Framer in the last collection interval. This value could be zero if the application sends the frames directly to the link.

Values: Long Integer

## ATTRIBUTE Ppp Framer rxTotalLinkUtil

Description: This attribute provides the average total link utilization computed based on the total number of bytes received on the link in the last collection interval.

Values: Decimal (0..100)

# COLLECTED STATS FrMux Framer

Description: The statistics record generated by the FrMux Framer component.

## ATTRIBUTE FrMux Framer rxBytes

Description: This attribute provides the number of bytes received on the link by the Framer in the last collection interval.

Values Long Integer

## ATTRIBUTE FrMux Framer rxFrames

Description This attribute provides the number of frames received on the link interface by the Framer in the last collection interval.

Values Long Integer

## ATTRIBUTE FrMux Framer txBytes

Description This attribute provides the number of bytes transmitted to the link by the Framer in the last collection interval. This value could be zero if the application sends the frames directly to the link.

Values Long Integer

## ATTRIBUTE FrMux Framer txFrames

Description This attribute provides the number of frames transmitted to the link interface by the Framer in the last collection interval. This value could be zero if the application sends the frames directly to the link.

Values Long Integer

## ATTRIBUTE FrMux Framer rxTotalLinkUtil

Description This attribute provides the average total link utilization computed based on the total number of bytes received on the link in the last collection interval.

Values Decimal (0..100)

# COLLECTED STATS AtmInterface

Description The statistics record generated by the AtmInterface component.

## ATTRIBUTE AtmIf remoteInstance

| | |
|---|---|
| Description | This attribute indicates the remote ATM interface, as provisioned in the *remoteAtmInterfaceLabel*. |
| Values | String (0..60, ASCII) |

## ATTRIBUTE AtmIf provRate

| | |
|---|---|
| Description | This attribute indicates the provisioned bandwidth for this ATM interface. |
| Values | Decimal (0..4294967295) |
| Units | cell/s |

## ATTRIBUTE AtmIf actualRate

| | |
|---|---|
| Description | This attribute indicates the actual bandwidth for this ATM interface. When no errors occur it has a value equal to *provRate*. When the link (or IMA group) is down for the entire collection interval it has a value of zero. When the link goes down during the collection interval it has a value representing the average bandwidth during the collection interval. |
| Values | Decimal (0..4294967295) |
| Units | cell/s |

# ATTRIBUTE AtmIf txUtilization

| | |
|---|---|
| Description | This attribute indicates the average transmit traffic rate over the most recent collection interval expressed as a percentage of the ATM link bandwidth.<br><br>On *AtmIf*s linked to MPLS POS interfaces, the ATM link is the *LSP*. Many *LSP*s could share the same POS link. If the POS link is underutilized it is possible for an *LSP* to carry more traffic than it has been assigned. This occurs as bandwidth on an *LSP* is allocated based on determining whether the requested bandwidth exceeds the available bandwidth on an *LSP*, not on whether the actual bandwidth exceeds the available bandwidth. When the actual bandwidth is higher than the requested bandwith it is possible that this extra traffic will be carried over the *LSP*. Since this is possible, the value of this attribute may exceed 100%.<br><br>If the utilization exceeds 65535% then 65535 is displayed. If the *Lsp* has a bandwidth of 0, then 0 is displayed for the utilization. |
| Values | Decimal (0..65535) |
| Units | % |

## ATTRIBUTE AtmIf rxUtilization

Description

This attribute indicates the average receive traffic rate over the most recent collection interval expressed as a percentage of the ATM link bandwidth.

On *AtmIf*s linked to MPLS POS interfaces, the ATM link is the *LSP*. Many *LSP*s could share the same POS link. If the POS link is underutilized it is possible for an *LSP* to carry more traffic than it has been assigned. This occurs as bandwidth on an *LSP* is allocated based on determining whether the requested bandwidth exceeds the available bandwidth on an *LSP*, not on whether the actual bandwidth exceeds the available bandwidth. When the actual bandwidth is higher than the requested bandwith it is possible that this extra traffic will be carried over the *LSP*. Since this is possible, the value of this attribute may exceed 100%.

If the utilization exceeds 65535% then 65535 is displayed. If the *Lsp* has a bandwidth of 0, then 0 is displayed for the utilization.

Values Decimal (0..65535)

Units %

## ATTRIBUTE AtmIf txMaxCellRate

Description

This attribute indicates the transmitted cell rate (CLP=0+1) during the busiest minute of the collection interval.

Values Decimal (0..4294967295)

Units cell/s

## ATTRIBUTE AtmIf txMaxCellRateByServiceCat

| | |
|---|---|
| Description | This attribute indicates the transmitted cell rate (CLP=0+1) during the busiest minute of the collection interval by ATM service category. |
| Vector of | Decimal (0..4294967295) |
| Index | cbr<br>rtvbr<br>nrtvbr<br>abr<br>ubr |

## ATTRIBUTE AtmIf txMinCellRate

| | |
|---|---|
| Description | This attribute indicates the transmitted cell rate (CLP=0+1) during the least busy minute of the collection interval. |
| Values | Decimal (0..4294967295) |
| Units | cell/s |

## ATTRIBUTE AtmIf txMinCellRateByServiceCat

| | |
|---|---|
| Description | This attribute indicates the transmitted cell rate (CLP=0+1) during the least busy minute of the collection interval by ATM service category. |
| Vector of | Decimal (0..4294967295) |
| Index | cbr<br>rtvbr<br>nrtvbr<br>abr<br>ubr |

## ATTRIBUTE AtmIf txAvgCellRate

| | |
|---|---|
| Description | This attribute indicates the average transmitted cell rate (CLP=0+1) during the collection interval. |
| Values | Decimal (0..4294967295) |

Units cell/s

## ATTRIBUTE AtmIf txAvgCellRateByServiceCat

Description This attribute indicates the average transmitted cell rate (CLP=0+1) during the collection interval by ATM service category.

Vector of Decimal (0..4294967295)

Index
cbr
rtvbr
nrtvbr
abr
ubr

## ATTRIBUTE AtmIf rxMaxCellRate

Description This attribute indicates the received cell rate (CLP=0+1) during the busiest minute of the collection interval.

Values Decimal (0..4294967295)

Units cell/s

## ATTRIBUTE AtmIf rxMaxCellRateByServiceCat

Description This attribute indicates the received cell rate (CLP=0+1) during the busiest minute of the collection interval by ATM service category.

Vector of Decimal (0..4294967295)

Index
cbr
rtvbr
nrtvbr
abr
ubr

## ATTRIBUTE AtmIf rxMinCellRate

Description This attribute indicates the received cell rate (CLP=0+1) during the least busy minute of the collection interval.

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Units | cell/s |

## ATTRIBUTE AtmIf rxMinCellRateByServiceCat

| | |
|---|---|
| Description | This attribute indicates the received cell rate (CLP=0+1) during the least busy minute of the collection interval by ATM service category. |
| Vector of | Decimal (0..4294967295) |
| Index | cbr<br>rtvbr<br>nrtvbr<br>abr<br>ubr |

## ATTRIBUTE AtmIf rxAvgCellRate

| | |
|---|---|
| Description | This attribute indicates the average received cell rate (CLP=0+1) during the collection interval. |
| Values | Decimal (0..4294967295) |
| Units | cell/s |

## ATTRIBUTE AtmIf rxAvgCellRateByServiceCat

| | |
|---|---|
| Description | This attribute indicates the average received cell rate (CLP=0+1) during the collection interval by ATM service category. |
| Vector of | Decimal (0..4294967295) |
| Index | cbr<br>rtvbr<br>nrtvbr<br>abr<br>ubr |

## ATTRIBUTE AtmIf txMaxCellRateClp

| | |
|---|---|
| Description | This attribute indicates the transmitted cell rate (CLP=1) during the busiest minute of the collection interval. |
| Values | Decimal (0..4294967295) |
| Units | cell/s |

## ATTRIBUTE AtmIf txMaxCellRateClpByServiceCat

| | |
|---|---|
| Description | This attribute indicates the transmitted cell rate (CLP=1) during the busiest minute of the collection interval by ATM service category. |
| Vector of | Decimal (0..4294967295) |
| Index | cbr<br>rtvbr<br>nrtvbr<br>abr<br>ubr |

## ATTRIBUTE AtmIf txMinCellRateClp

| | |
|---|---|
| Description | This attribute indicates the transmitted cell rate (CLP=1) during the least busy minute of the collection interval. |
| Values | Decimal (0..4294967295) |
| Units | cell/s |

## ATTRIBUTE AtmIf txMinCellRateClpByServiceCat

| | |
|---|---|
| Description | This attribute indicates the transmitted cell rate (CLP=1) during the least busy minute of the collection interval by ATM service category. |
| Vector of | Decimal (0..4294967295) |
| Index | cbr<br>rtvbr<br>nrtvbr<br>abr<br>ubr |

## ATTRIBUTE AtmIf txAvgCellRateClp

| | |
|---|---|
| Description | This attribute indicates the average transmitted cell rate (CLP=1) during the collection interval. |
| Values | Decimal (0..4294967295) |
| Units | cell/s |

## ATTRIBUTE AtmIf txAvgCellRateClpByServiceCat

| | |
|---|---|
| Description | This attribute indicates the average transmitted cell rate (CLP=1) during the collection interval by ATM service category. |
| Vector of | Decimal (0..4294967295) |
| Index | cbr<br>rtvbr<br>nrtvbr<br>abr<br>ubr |

## ATTRIBUTE AtmIf rxMaxCellRateClp

| | |
|---|---|
| Description | This attribute indicates the received cell rate (CLP=1) during the busiest minute of the collection interval. |
| Values | Decimal (0..4294967295) |

Units cell/s

## ATTRIBUTE AtmIf rxMaxCellRateClpByServiceCat

Description This attribute indicates the received cell rate (CLP=1) during the busiest minute of the collection interval by ATM service category.

Vector of Decimal (0..4294967295)

Index
cbr
rtvbr
nrtvbr
abr
ubr

## ATTRIBUTE AtmIf rxMinCellRateClp

Description This attribute indicates the received cell rate (CLP=1) during the least busy minute of the collection interval.

Values Decimal (0..4294967295)

Units cell/s

## ATTRIBUTE AtmIf rxMinCellRateClpByServiceCat

Description This attribute indicates the received cell rate (CLP=1) during the least busy minute of the collection interval by ATM service category.

Vector of Decimal (0..4294967295)

Index
cbr
rtvbr
nrtvbr
abr
ubr

## ATTRIBUTE AtmIf rxAvgCellRateClp

Description This attribute indicates the average received cell rate (CLP=1) during the collection interval.

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Units | cell/s |

## ATTRIBUTE AtmIf rxAvgCellRateClpByServiceCat

| | |
|---|---|
| Description | This attribute indicates the average received cell rate (CLP=1) during the collection interval by ATM service category. |
| Vector of | Decimal (0..4294967295) |
| Index | cbr<br>rtvbr<br>nrtvbr<br>abr<br>ubr |

## ATTRIBUTE AtmIf txCellDiscards

| | |
|---|---|
| Description | This attribute counts the cells (CLP=0+1) which are discarded before being transmitted during the collection interval. |
| Values | Long Integer |

## ATTRIBUTE AtmIf txCellDiscardsByServiceCat

| | |
|---|---|
| Description | This attribute counts the cells (CLP=0+1) which are discarded before being transmitted during the collection interval by ATM service category. |
| Vector of | Long Integer |
| Index | cbr<br>rtvbr<br>nrtvbr<br>abr<br>ubr |

## ATTRIBUTE AtmIf rxCellDiscards

| | |
|---|---|
| Description | This attribute counts the cells (CLP=0+1) which are discarded after being received during the collection interval. |

Values Long Integer

## ATTRIBUTE Atmlf rxCellDiscardsByServiceCat

Description This attribute counts the cells (CLP=0+1) which are discarded after being received during the collection interval by ATM service category.

Vector of Long Integer

Index
cbr
rtvbr
nrtvbr
abr
ubr

## ATTRIBUTE Atmlf txFrameDiscards

Description This attribute counts the frames (CLP=0+1) which are discarded before being transmitted during the collection interval.

Values Long Integer

## ATTRIBUTE Atmlf txFrameDiscardsByServiceCat

Description This attribute counts the frames (CLP=0+1) which are discarded before being transmitted during the collection interval by ATM service category.

Vector of Long Integer

Index
cbr
rtvbr
nrtvbr
abr
ubr

## ATTRIBUTE Atmlf rxFrameDiscards

Description This attribute counts the frames (CLP=0+1) which are discarded after being received during the collection interval.

Values Long Integer

## ATTRIBUTE Atmlf rxFrameDiscardsByServiceCat

| | |
|---|---|
| Description | This attribute counts the frames (CLP=0+1) which are discarded after being received during the collection interval by ATM service category. |
| Vector of | Long Integer |
| Index | cbr<br>rtvbr<br>nrtvbr<br>abr<br>ubr |

## ATTRIBUTE Atmlf txCellDiscardsClp

| | |
|---|---|
| Description | This attribute counts the cells (CLP=1) which are discarded before being transmitted during the collection interval. |
| Values | Long Integer |

## ATTRIBUTE Atmlf txCellDiscardsClpByServiceCat

| | |
|---|---|
| Description | This attribute counts the cells (CLP=1) which are discarded before being transmitted during the collection interval by ATM service category. |
| Vector of | Long Integer |
| Index | cbr<br>rtvbr<br>nrtvbr<br>abr<br>ubr |

## ATTRIBUTE Atmlf rxCellDiscardsClp

| | |
|---|---|
| Description | This attribute counts the cells (CLP=1) which are discarded after being received during the collection interval. |
| Values | Long Integer |

## ATTRIBUTE AtmIf rxCellDiscardsClpByServiceCat

| | |
|---|---|
| Description | This attribute counts the cells (CLP=1) which are discarded after being received during the collection interval by ATM service category. |
| Vector of | Long Integer |
| Index | cbr<br>rtvbr<br>nrtvbr<br>abr<br>ubr |

## ATTRIBUTE AtmIf txFrameDiscardsClp

| | |
|---|---|
| Description | This attribute counts the frames (CLP=1) which are discarded before being transmitted during the collection interval. |
| Values | Long Integer |

## ATTRIBUTE AtmIf txFrameDiscardsClpByServiceCat

| | |
|---|---|
| Description | This attribute counts the frames (CLP=1) which are discarded before being transmitted during the collection interval by ATM service category. |
| Vector of | Long Integer |
| Index | cbr<br>rtvbr<br>nrtvbr<br>abr<br>ubr |

## ATTRIBUTE AtmIf rxFrameDiscardsClp

| | |
|---|---|
| Description | This attribute counts the frames (CLP=1) which are discarded after being received during the collection interval. |
| Values | Long Integer |

## ATTRIBUTE AtmIf rxFrameDiscardsClpByServiceCat

| | |
|---|---|
| Description | This attribute counts the frames (CLP=1) which are discarded after being received during the collection interval by ATM service category. |
| Vector of | Long Integer |
| Index | cbr<br>rtvbr<br>nrtvbr<br>abr<br>ubr |

# COLLECTED STATS AtmInterface VirtualPathTerminator

| | |
|---|---|
| Description | The statistics record generated by the AtmInterface VirtualPathTerminator component. |

## ATTRIBUTE AtmIf Vpt remoteInstance

| | |
|---|---|
| Description | This attribute indicates the remote ATM interface, as provisioned in the *remoteAtmInterfaceLabel*. |
| Values | String (0..60, ASCII) |

## ATTRIBUTE AtmIf Vpt provRate

| | |
|---|---|
| Description | This attribute indicates the provisioned bandwidth for this ATM interface. |
| Values | Decimal (0..4294967295) |
| Units | cell/s |

## ATTRIBUTE AtmIf Vpt actualRate

Description

This attribute indicates the actual bandwidth for this ATM interface. When no errors occur it has a value equal to *provRate*. When the link (or IMA group) is down for the entire collection interval it has a value of zero. When the link goes down during the collection interval it has a value representing the average bandwidth during the collection interval.

Values

Decimal (0..4294967295)

Units

cell/s

## ATTRIBUTE AtmIf Vpt txUtilization

Description

This attribute indicates the average transmit traffic rate over the most recent collection interval expressed as a percentage of the ATM link bandwidth.

On *AtmIf*s linked to MPLS POS interfaces, the ATM link is the *LSP*. Many *LSP*s could share the same POS link. If the POS link is underutilized it is possible for an *LSP* to carry more traffic than it has been assigned. This occurs as bandwidth on an *LSP* is allocated based on determining whether the requested bandwidth exceeds the available bandwidth on an *LSP*, not on whether the actual bandwidth exceeds the available bandwidth. When the actual bandwidth is higher than the requested bandwith it is possible that this extra traffic will be carried over the *LSP*. Since this is possible, the value of this attribute may exceed 100%.

If the utilization exceeds 65535% then 65535 is displayed. If the *Lsp* has a bandwidth of 0, then 0 is displayed for the utilization.

Values

Decimal (0..65535)

Units

%

## ATTRIBUTE AtmIf Vpt rxUtilization

Description

This attribute indicates the average receive traffic rate over the most recent collection interval expressed as a percentage of the ATM link bandwidth.

On *AtmIf*s linked to MPLS POS interfaces, the ATM link is the *LSP*. Many *LSP*s could share the same POS link. If the POS link is underutilized it is possible for an *LSP* to carry more traffic than it has been assigned. This occurs as bandwidth on an *LSP* is allocated based on determining whether the requested bandwidth exceeds the available bandwidth on an *LSP*, not on whether the actual bandwidth exceeds the available bandwidth. When the actual bandwidth is higher than the requested bandwith it is possible that this extra traffic will be carried over the *LSP*. Since this is possible, the value of this attribute may exceed 100%.

If the utilization exceeds 65535% then 65535 is displayed. If the *Lsp* has a bandwidth of 0, then 0 is displayed for the utilization.

Values Decimal (0..65535)

Units %

## ATTRIBUTE AtmIf Vpt txMaxCellRate

Description

This attribute indicates the transmitted cell rate (CLP=0+1) during the busiest minute of the collection interval.

Values Decimal (0..4294967295)

Units cell/s

## ATTRIBUTE AtmIf Vpt txMaxCellRateByServiceCat

| | |
|---|---|
| Description | This attribute indicates the transmitted cell rate (CLP=0+1) during the busiest minute of the collection interval by ATM service category. |
| Vector of | Decimal (0..4294967295) |
| Index | cbr<br>rtvbr<br>nrtvbr<br>abr<br>ubr |

## ATTRIBUTE AtmIf Vpt txMinCellRate

| | |
|---|---|
| Description | This attribute indicates the transmitted cell rate (CLP=0+1) during the least busy minute of the collection interval. |
| Values | Decimal (0..4294967295) |
| Units | cell/s |

## ATTRIBUTE AtmIf Vpt txMinCellRateByServiceCat

| | |
|---|---|
| Description | This attribute indicates the transmitted cell rate (CLP=0+1) during the least busy minute of the collection interval by ATM service category. |
| Vector of | Decimal (0..4294967295) |
| Index | cbr<br>rtvbr<br>nrtvbr<br>abr<br>ubr |

## ATTRIBUTE AtmIf Vpt txAvgCellRate

| | |
|---|---|
| Description | This attribute indicates the average transmitted cell rate (CLP=0+1) during the collection interval. |
| Values | Decimal (0..4294967295) |

Units cell/s

## ATTRIBUTE AtmIf Vpt txAvgCellRateByServiceCat

Description This attribute indicates the average transmitted cell rate (CLP=0+1) during the collection interval by ATM service category.

Vector of Decimal (0..4294967295)

Index
cbr
rtvbr
nrtvbr
abr
ubr

## ATTRIBUTE AtmIf Vpt rxMaxCellRate

Description This attribute indicates the received cell rate (CLP=0+1) during the busiest minute of the collection interval.

Values Decimal (0..4294967295)

Units cell/s

## ATTRIBUTE AtmIf Vpt rxMaxCellRateByServiceCat

Description This attribute indicates the received cell rate (CLP=0+1) during the busiest minute of the collection interval by ATM service category.

Vector of Decimal (0..4294967295)

Index
cbr
rtvbr
nrtvbr
abr
ubr

## ATTRIBUTE AtmIf Vpt rxMinCellRate

Description This attribute indicates the received cell rate (CLP=0+1) during the least busy minute of the collection interval.

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Units | cell/s |

## ATTRIBUTE AtmIf Vpt rxMinCellRateByServiceCat

| | |
|---|---|
| Description | This attribute indicates the received cell rate (CLP=0+1) during the least busy minute of the collection interval by ATM service category. |
| Vector of | Decimal (0..4294967295) |
| Index | cbr<br>rtvbr<br>nrtvbr<br>abr<br>ubr |

## ATTRIBUTE AtmIf Vpt rxAvgCellRate

| | |
|---|---|
| Description | This attribute indicates the average received cell rate (CLP=0+1) during the collection interval. |
| Values | Decimal (0..4294967295) |
| Units | cell/s |

## ATTRIBUTE AtmIf Vpt rxAvgCellRateByServiceCat

| | |
|---|---|
| Description | This attribute indicates the average received cell rate (CLP=0+1) during the collection interval by ATM service category. |
| Vector of | Decimal (0..4294967295) |
| Index | cbr<br>rtvbr<br>nrtvbr<br>abr<br>ubr |

## ATTRIBUTE AtmIf Vpt txMaxCellRateClp

| | |
|---|---|
| Description | This attribute indicates the transmitted cell rate (CLP=1) during the busiest minute of the collection interval. |
| Values | Decimal (0..4294967295) |
| Units | cell/s |

## ATTRIBUTE AtmIf Vpt txMaxCellRateClpByServiceCat

| | |
|---|---|
| Description | This attribute indicates the transmitted cell rate (CLP=1) during the busiest minute of the collection interval by ATM service category. |
| Vector of | Decimal (0..4294967295) |
| Index | cbr<br>rtvbr<br>nrtvbr<br>abr<br>ubr |

## ATTRIBUTE AtmIf Vpt txMinCellRateClp

| | |
|---|---|
| Description | This attribute indicates the transmitted cell rate (CLP=1) during the least busy minute of the collection interval. |
| Values | Decimal (0..4294967295) |
| Units | cell/s |

## ATTRIBUTE AtmIf Vpt txMinCellRateClpByServiceCat

| | |
|---|---|
| Description | This attribute indicates the transmitted cell rate (CLP=1) during the least busy minute of the collection interval by ATM service category. |
| Vector of | Decimal (0..4294967295) |
| Index | cbr<br>rtvbr<br>nrtvbr<br>abr<br>ubr |

## ATTRIBUTE AtmIf Vpt txAvgCellRateClp

| | |
|---|---|
| Description | This attribute indicates the average transmitted cell rate (CLP=1) during the collection interval. |
| Values | Decimal (0..4294967295) |
| Units | cell/s |

## ATTRIBUTE AtmIf Vpt txAvgCellRateClpByServiceCat

| | |
|---|---|
| Description | This attribute indicates the average transmitted cell rate (CLP=1) during the collection interval by ATM service category. |
| Vector of | Decimal (0..4294967295) |
| Index | cbr<br>rtvbr<br>nrtvbr<br>abr<br>ubr |

## ATTRIBUTE AtmIf Vpt rxMaxCellRateClp

| | |
|---|---|
| Description | This attribute indicates the received cell rate (CLP=1) during the busiest minute of the collection interval. |
| Values | Decimal (0..4294967295) |

Units cell/s

## ATTRIBUTE AtmIf Vpt rxMaxCellRateClpByServiceCat

Description This attribute indicates the received cell rate (CLP=1) during the busiest minute of the collection interval by ATM service category.

Vector of Decimal (0..4294967295)

Index
cbr
rtvbr
nrtvbr
abr
ubr

## ATTRIBUTE AtmIf Vpt rxMinCellRateClp

Description This attribute indicates the received cell rate (CLP=1) during the least busy minute of the collection interval.

Values Decimal (0..4294967295)

Units cell/s

## ATTRIBUTE AtmIf Vpt rxMinCellRateClpByServiceCat

Description This attribute indicates the received cell rate (CLP=1) during the least busy minute of the collection interval by ATM service category.

Vector of Decimal (0..4294967295)

Index
cbr
rtvbr
nrtvbr
abr
ubr

## ATTRIBUTE AtmIf Vpt rxAvgCellRateClp

Description This attribute indicates the average received cell rate (CLP=1) during the collection interval.

Values Decimal (0..4294967295)

Units cell/s

## ATTRIBUTE Atmlf Vpt rxAvgCellRateClpByServiceCat

Description This attribute indicates the average received cell rate (CLP=1) during the collection interval by ATM service category.

Vector of Decimal (0..4294967295)

Index
cbr
rtvbr
nrtvbr
abr
ubr

## ATTRIBUTE Atmlf Vpt txCellDiscards

Description This attribute counts the cells (CLP=0+1) which are discarded before being transmitted during the collection interval.

Values Long Integer

## ATTRIBUTE Atmlf Vpt txCellDiscardsByServiceCat

Description This attribute counts the cells (CLP=0+1) which are discarded before being transmitted during the collection interval by ATM service category.

Vector of Long Integer

Index
cbr
rtvbr
nrtvbr
abr
ubr

## ATTRIBUTE Atmlf Vpt rxCellDiscards

Description This attribute counts the cells (CLP=0+1) which are discarded after being received during the collection interval.

Values Long Integer

## ATTRIBUTE AtmIf Vpt rxCellDiscardsByServiceCat

Description This attribute counts the cells (CLP=0+1) which are discarded after being received during the collection interval by ATM service category.

Vector of Long Integer

Index
cbr
rtvbr
nrtvbr
abr
ubr

## ATTRIBUTE AtmIf Vpt txFrameDiscards

Description This attribute counts the frames (CLP=0+1) which are discarded before being transmitted during the collection interval.

Values Long Integer

## ATTRIBUTE AtmIf Vpt txFrameDiscardsByServiceCat

Description This attribute counts the frames (CLP=0+1) which are discarded before being transmitted during the collection interval by ATM service category.

Vector of Long Integer

Index
cbr
rtvbr
nrtvbr
abr
ubr

## ATTRIBUTE AtmIf Vpt rxFrameDiscards

Description This attribute counts the frames (CLP=0+1) which are discarded after being received during the collection interval.

Values Long Integer

## ATTRIBUTE AtmIf Vpt rxFrameDiscardsByServiceCat

| | |
|---|---|
| Description | This attribute counts the frames (CLP=0+1) which are discarded after being received during the collection interval by ATM service category. |
| Vector of | Long Integer |
| Index | cbr<br>rtvbr<br>nrtvbr<br>abr<br>ubr |

## ATTRIBUTE AtmIf Vpt txCellDiscardsClp

| | |
|---|---|
| Description | This attribute counts the cells (CLP=1) which are discarded before being transmitted during the collection interval. |
| Values | Long Integer |

## ATTRIBUTE AtmIf Vpt txCellDiscardsClpByServiceCat

| | |
|---|---|
| Description | This attribute counts the cells (CLP=1) which are discarded before being transmitted during the collection interval by ATM service category. |
| Vector of | Long Integer |
| Index | cbr<br>rtvbr<br>nrtvbr<br>abr<br>ubr |

## ATTRIBUTE AtmIf Vpt rxCellDiscardsClp

| | |
|---|---|
| Description | This attribute counts the cells (CLP=1) which are discarded after being received during the collection interval. |
| Values | Long Integer |

## ATTRIBUTE AtmIf Vpt rxCellDiscardsClpByServiceCat

| | |
|---|---|
| Description | This attribute counts the cells (CLP=1) which are discarded after being received during the collection interval by ATM service category. |
| Vector of | Long Integer |
| Index | cbr<br>rtvbr<br>nrtvbr<br>abr<br>ubr |

## ATTRIBUTE AtmIf Vpt txFrameDiscardsClp

| | |
|---|---|
| Description | This attribute counts the frames (CLP=1) which are discarded before being transmitted during the collection interval. |
| Values | Long Integer |

## ATTRIBUTE AtmIf Vpt txFrameDiscardsClpByServiceCat

| | |
|---|---|
| Description | This attribute counts the frames (CLP=1) which are discarded before being transmitted during the collection interval by ATM service category. |
| Vector of | Long Integer |
| Index | cbr<br>rtvbr<br>nrtvbr<br>abr<br>ubr |

## ATTRIBUTE AtmIf Vpt rxFrameDiscardsClp

| | |
|---|---|
| Description | This attribute counts the frames (CLP=1) which are discarded after being received during the collection interval. |
| Values | Long Integer |

## ATTRIBUTE AtmIf Vpt rxFrameDiscardsClpByServiceCat

Description: This attribute counts the frames (CLP=1) which are discarded after being received during the collection interval by ATM service category.

Vector of: Long Integer

Index:
cbr
rtvbr
nrtvbr
abr
ubr

# COLLECTED STATS SignallingChannel E1Cas

Description: The statistics record generated by the SignallingChannel E1Cas component.

## ATTRIBUTE SigChan E1Cas totalCallsOutgoing

Description: This spooled statistic counts the number of outgoing node call attempts made to this link in the last statistics collection interval.

Values: Decimal (0..65535)

## ATTRIBUTE SigChan E1Cas totalCallsIncoming

Description: This attribute counts the number of incoming link call attempts made to this node in the last statistics collection interval.

Values: Decimal (0..65535)

## ATTRIBUTE SigChan E1Cas seizeFailures

Description: This spooled statistic counts the number of outgoing node call attempts to this link for which the link failed to respond correctly upon receiving a seize signal in the last statistics collection interval. That is no seizure acknowledgment or wink was returned from link.

Values Decimal (0..65535)

## ATTRIBUTE SigChan E1Cas releaseFailures

Description This spooled statistic counts the number of times that the link failed to respond correctly during the disconnect sequence of a call in the last statistics collection interval.

Values Decimal (0..65535)

## ATTRIBUTE SigChan E1Cas outgoingAnsweredCalls

Description This spooled statistic counts the number of outgoing node calls to this link that were answered by the link in the last statistics collection interval.

Values Decimal (0..65535)

## ATTRIBUTE SigChan E1Cas incomingAnsweredCalls

Description This spooled statistic counts the number of incoming link calls that were answered by this node, connect signals transmitted by this node out to the link in the last statistics collection interval.

Values Decimal (0..65535)

## ATTRIBUTE SigChan E1Cas peakActiveChannels

Description This spooled statistic counts the maximum number of channels that have been simultaneously active on this signalling channel during the last statistics collection interval.

Values Decimal (0..30)

# COLLECTED STATS SignallingChannel Ds1Cas

Description The statistics record generated by the SignallingChannel Ds1Cas component.

## ATTRIBUTE SigChan Ds1Cas totalCallsOutgoing

Description: This spooled statistic counts the number of outgoing node call attempts made to this link in the last statistics collection interval.

Values: Decimal (0..65535)

## ATTRIBUTE SigChan Ds1Cas totalCallsIncoming

Description: This attribute counts the number of incoming link call attempts made to this node in the last statistics collection interval.

Values: Decimal (0..65535)

## ATTRIBUTE SigChan Ds1Cas seizeFailures

Description: This spooled statistic counts the number of outgoing node call attempts to this link for which the link failed to respond correctly upon receiving a seize signal in the last statistics collection interval. That is no seizure acknowledgment or wink was returned from link.

Values: Decimal (0..65535)

## ATTRIBUTE SigChan Ds1Cas releaseFailures

Description: This spooled statistic counts the number of times that the link failed to respond correctly during the disconnect sequence of a call in the last statistics collection interval.

Values: Decimal (0..65535)

## ATTRIBUTE SigChan Ds1Cas outgoingAnsweredCalls

Description: This spooled statistic counts the number of outgoing node calls to this link that were answered by the link in the last statistics collection interval.

Values: Decimal (0..65535)

## ATTRIBUTE SigChan Ds1Cas incomingAnsweredCalls

Description: This spooled statistic counts the number of incoming link calls that were answered by this node, connect signals transmitted by this node out to the link in the last statistics collection interval.

Values: Decimal (0..65535)

## ATTRIBUTE SigChan Ds1Cas peakActiveChannels

Description: This spooled statistic counts the maximum number of channels that have been simultaneously active on this signalling channel during the last statistics collection interval.

Values: Decimal (0..30)

# COLLECTED STATS SignallingChannel J2Cas

Description: The statistics record generated by the SignallingChannel J2Cas component.

## ATTRIBUTE SigChan J2 totalCallsOutgoing

Description: This spooled statistic counts the number of outgoing node call attempts made to this link in the last statistics collection interval.

Values: Decimal (0..65535)

## ATTRIBUTE SigChan J2 totalCallsIncoming

Description: This attribute counts the number of incoming link call attempts made to this node in the last statistics collection interval.

Values: Decimal (0..65535)

## ATTRIBUTE SigChan J2 seizeFailures

Description: This spooled statistic counts the number of outgoing node call attempts to this link for which the link failed to respond correctly upon receiving a seize signal in the last statistics collection interval. That is no seizure acknowledgment or wink was returned from link.

Values: Decimal (0..65535)

## ATTRIBUTE SigChan J2 releaseFailures

Description: This spooled statistic counts the number of times that the link failed to respond correctly during the disconnect sequence of a call in the last statistics collection interval.

Values: Decimal (0..65535)

## ATTRIBUTE SigChan J2 outgoingAnsweredCalls

Description: This spooled statistic counts the number of outgoing node calls to this link that were answered by the link in the last statistics collection interval.

Values: Decimal (0..65535)

## ATTRIBUTE SigChan J2 incomingAnsweredCalls

Description: This spooled statistic counts the number of incoming link calls that were answered by this node, connect signals transmitted by this node out to the link in the last statistics collection interval.

Values: Decimal (0..65535)

## ATTRIBUTE SigChan J2 peakActiveChannels

Description: This spooled statistic counts the maximum number of channels that have been simultaneously active on this signalling channel during the last statistics collection interval.

Values: Decimal (0..30)

# COLLECTED STATS SignallingChannel EtsiQsig

Description The statistics record generated by the SignallingChannel EtsiQsig component.

## ATTRIBUTE SigChan EQsig peakActiveChannels

Description This collected statistic counts the maximum number of channels that have been active on this signalling channel in the last statistics collection interval.

Values Decimal (0..30)

## ATTRIBUTE SigChan EQsig peakActiveVoiceChannels

Description This collected statistic counts the maximum number of voice channels that have been active on this signalling channel in the last statistics collection interval.

Values Decimal (0..30)

## ATTRIBUTE SigChan EQsig peakActiveDataChannels

Description This collected statistic counts the maximum number of data channels that have been active on this signalling channel in the last statistics collection interval.

Values Decimal (0..30)

## ATTRIBUTE SigChan EQsig totalCallsToIf

Description This collected statistic counts the total number of calls that have been made to the interface in the last statistics collection interval.

Values Decimal (0..65535)

## ATTRIBUTE SigChan EQsig totalCallsFromIf

Description This collected statistic counts the number of calls from the interface in the last statistics collection interval.

Values Decimal (0..65535)

## ATTRIBUTE SigChan EQsig nonCallAssocSessionsToIf

Description This collected statistic counts the number of non-call associated sessions to the interface in the last statistics collection interval.

Values Decimal (0..65535)

## ATTRIBUTE SigChan EQsig nonCallAssocSessionsFromIf

Description This collected statistic counts the number of non-call associated sessions from the interface in the last statistics collection interval.

Values Decimal (0..65535)

## ATTRIBUTE SigChan EQsig frmToIf

Description This collected statistic counts the number of frames transmitted to the link interface by *Framer* in the last statistics collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE SigChan EQsig frmFromIf

Description

This collected statistic counts the number of frames received from the link interface by *Framer* in the last statistics collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE SigChan EQsig octetFromIf

Description The number of bytes received from the link interface by *Framer* in the last statistics collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE SigChan EQsig octetToIf

Description The number of bytes sent to the link interface by *Framer* in the last statistics collection interval.

Values Decimal (0..4294967295)

# COLLECTED STATS SignallingChannel NisSig

Description The statistics record generated by the SignallingChannel NisSig component.

## ATTRIBUTE SigChan Nis peakActiveChannels

Description This collected statistic counts the maximum number of channels that have been active on this signalling channel in the last statistics collection interval.

Values Decimal (0..30)

## ATTRIBUTE SigChan Nis peakActiveVoiceChannels

Description This collected statistic counts the maximum number of voice channels that have been active on this signalling channel in the last statistics collection interval.

Values Decimal (0..30)

## ATTRIBUTE SigChan Nis peakActiveDataChannels

Description This collected statistic counts the maximum number of data channels that have been active on this signalling channel in the last statistics collection interval.

Values Decimal (0..30)

## ATTRIBUTE SigChan Nis totalCallsToIf

Description This collected statistic counts the total number of calls that have been made to the interface in the last statistics collection interval.

Values Decimal (0..65535)

## ATTRIBUTE SigChan Nis totalCallsFromIf

Description This collected statistic counts the number of calls from the interface in the last statistics collection interval.

Values Decimal (0..65535)

## ATTRIBUTE SigChan Nis nonCallAssocSessionsToIf

Description This collected statistic counts the number of non-call associated sessions to the interface in the last statistics collection interval.

Values Decimal (0..65535)

## ATTRIBUTE SigChan Nis nonCallAssocSessionsFromIf

Description This collected statistic counts the number of non-call associated sessions from the interface in the last statistics collection interval.

Values Decimal (0..65535)

## ATTRIBUTE SigChan Nis frmToIf

Description This collected statistic counts the number of frames transmitted to the link interface by *Framer* in the last statistics collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE SigChan Nis frmFromIf

Description

This collected statistic counts the number of frames received from the link interface by *Framer* in the last statistics collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE SigChan Nis octetFromIf

Description The number of bytes received from the link interface by *Framer* in the last statistics collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE SigChan Nis octetToIf

Description The number of bytes sent to the link interface by *Framer* in the last statistics collection interval.

Values Decimal (0..4294967295)

# COLLECTED STATS SignallingChannel EuroIsdn

Description The statistics record generated by the SignallingChannel EuroIsdn component.

## ATTRIBUTE SigChan EIsdn peakActiveChannels

Description This collected statistic counts the maximum number of channels that have been active on this signalling channel in the last statistics collection interval.

Values Decimal (0..30)

## ATTRIBUTE SigChan EIsdn peakActiveVoiceChannels

Description This collected statistic counts the maximum number of voice channels that have been active on this signalling channel in the last statistics collection interval.

Values Decimal (0..30)

## ATTRIBUTE SigChan EIsdn peakActiveDataChannels

Description This collected statistic counts the maximum number of data channels that have been active on this signalling channel in the last statistics collection interval.

Values Decimal (0..30)

## ATTRIBUTE SigChan Elsdn totalCallsToIf

Description This collected statistic counts the total number of calls that have been made to the interface in the last statistics collection interval.

Values Decimal (0..65535)

## ATTRIBUTE SigChan Elsdn totalCallsFromIf

Description This collected statistic counts the number of calls from the interface in the last statistics collection interval.

Values Decimal (0..65535)

## ATTRIBUTE SigChan Elsdn nonCallAssocSessionsToIf

Description This collected statistic counts the number of non-call associated sessions to the interface in the last statistics collection interval.

Values Decimal (0..65535)

## ATTRIBUTE SigChan Elsdn nonCallAssocSessionsFromIf

Description This collected statistic counts the number of non-call associated sessions from the interface in the last statistics collection interval.

Values Decimal (0..65535)

## ATTRIBUTE SigChan Elsdn frmToIf

Description This collected statistic counts the number of frames transmitted to the link interface by *Framer* in the last statistics collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE SigChan Elsdn frmFromIf

Description

This collected statistic counts the number of frames received from the link interface by *Framer* in the last statistics collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE SigChan Elsdn octetFromIf

Description The number of bytes received from the link interface by *Framer* in the last statistics collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE SigChan Elsdn octetToIf

Description The number of bytes sent to the link interface by *Framer* in the last statistics collection interval.

Values Decimal (0..4294967295)

# COLLECTED STATS SignallingChannel McdnSig

Description The statistics record generated by the SignallingChannel McdnSig component.

## ATTRIBUTE SigChan Mcdn peakActiveChannels

Description This collected statistic counts the maximum number of channels that have been active on this signalling channel in the last statistics collection interval.

Values Decimal (0..30)

## ATTRIBUTE SigChan Mcdn peakActiveVoiceChannels

Description This collected statistic counts the maximum number of voice channels that have been active on this signalling channel in the last statistics collection interval.

Values Decimal (0..30)

## ATTRIBUTE SigChan Mcdn peakActiveDataChannels

Description This collected statistic counts the maximum number of data channels that have been active on this signalling channel in the last statistics collection interval.

Values Decimal (0..30)

## ATTRIBUTE SigChan Mcdn totalCallsToIf

Description This collected statistic counts the total number of calls that have been made to the interface in the last statistics collection interval.

Values Decimal (0..65535)

## ATTRIBUTE SigChan Mcdn totalCallsFromIf

Description This collected statistic counts the number of calls from the interface in the last statistics collection interval.

Values Decimal (0..65535)

## ATTRIBUTE SigChan Mcdn nonCallAssocSessionsToIf

Description This collected statistic counts the number of non-call associated sessions to the interface in the last statistics collection interval.

Values Decimal (0..65535)

## ATTRIBUTE SigChan Mcdn nonCallAssocSessionsFromIf

Description This collected statistic counts the number of non-call associated sessions from the interface in the last statistics collection interval.

Values Decimal (0..65535)

## ATTRIBUTE SigChan Mcdn frmToIf

Description This collected statistic counts the number of frames transmitted to the link interface by *Framer* in the last statistics collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE SigChan Mcdn frmFromIf

Description This collected statistic counts the number of frames received from the link interface by *Framer* in the last statistics collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE SigChan Mcdn octetFromIf

Description The number of bytes received from the link interface by *Framer* in the last statistics collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE SigChan Mcdn octetToIf

Description The number of bytes sent to the link interface by *Framer* in the last statistics collection interval.

Values Decimal (0..4294967295)

# COLLECTED STATS VoiceRoute

Description The statistics record generated by the VoiceRoute component.

## ATTRIBUTE VRoute totalCallsFromSubnet

Description This spooled statistic counts the number of calls that have been received from the Passport subnet in the last statistics collection interval, including calls that fail.

Values Decimal (0..65535)

## ATTRIBUTE VRoute callsClearedNoChannel

Description: This spooled statistic counts the number of calls from the subnet that were rejected when all of the in-service channels were busy in the last statistics collection interval. When a call is rejected for this reason, the cause code sent to the originator is 34, no circuit/channel available.

Values: Decimal (0..65535)

## ATTRIBUTE VRoute callsClearedOutOfService

Description: This spooled statistic counts the number of calls from the subnet that were rejected because all of the channels were out-of-service in
the last statistics collection interval. A channel is considered out-of-service if it is unavailable for any reason other than it is being engaged in handling a call. That is, an operator lock of any of the components required for the channel's operation, or problems which interfere with the connection to the PBX, will cause the channel to be considered out-of-service. When a call is rejected for this reason, the cause code sent back to the originator is 27, destination out-of-service.

Values: Decimal (0..65535)

## ATTRIBUTE VRoute callsRejected

Description: This spooled statistic counts the number of calls from the subnet that were rejected in the last statistics collection interval because they were:
1) voice calls to a *typeOfRoute* which is set *to* ***data***,
2) data calls to a *typeOfRoute* which is set to ***voice***,
3) using a signalling protocol which is incompatible with this end.

Values: Decimal (0..65535)

# COLLECTED STATS VoiceSubroute

Description The statistics record generated by the VoiceSubroute component.

## ATTRIBUTE Vsr totalCallsFromIf

Description This spooled statistic counts the number of calls that have been received by this *VoiceSubroute* from the PBX in the last statistics collection interval.

Values Decimal (0..65535)

## ATTRIBUTE Vsr totalFailedCallsFromIf

Description This spooled statistic counts the number of calls that have been received by this *VoiceSubroute* from the PBX which failed to be successfully routed through the subnet in the last statistics collection interval.

Values Decimal (0..65535)

## ATTRIBUTE Vsr invalidNumberingPlanCalls

Description This spooled statistic counts the calls from the interface for which the type of number and the numbering plan identification was not associated with a diallingPlan in the last statistics collection interval. The numbering plan types *diallingPlan0, diallingPlan1, diallingPlan2* are provisioned in the *VoiceRoute*. Refer to *NTP-241-7001-410* for more information.

Values Decimal (0..65535)

## ATTRIBUTE Vsr addressResolutionFailedCalls

Description This spooled statistic counts the calls from the interface which had dialled numbers that had no entry in the *VoiceNetworkingCallServer* data base in the last statistics collection interval.

Values Decimal (0..65535)

## ATTRIBUTE Vsr addressIncompleteCalls

Description: This spooled statistic counts the calls from the interface which had dialled numbers with insufficient digits to resolve to a unique entry in the *VoiceNetworkingCallServer* data base in the last statistics collection interval.

Values: Decimal (0..65535)

## ATTRIBUTE Vsr pathAttributesNotMetCalls

Description: This spooled statistic counts the calls from the interface for which a path to the end point could not be established based on the attribute specified in the *VoiceProfile* in the last statistics collection interval.

Values: Decimal (0..65535)

## ATTRIBUTE Vsr pathSetupTimeOutCalls

Description: This spooled statistic counts the calls from the interface for which a path to the end point could not be established due to a subnet path setup time-out in the last statistics collection interval.

Values: Decimal (0..65535)

## ATTRIBUTE Vsr callsRejectedLocally

Description: This spooled statistic counts the calls from the interface which were rejected by the originating end in the last statistics collection interval because it was:
1) a data call on a voice only *VoiceRoute*, or
2) a voice call on a data only *VoiceRoute*, or
3) a data call to an end-point whose *VoiceProfile* prevents data calls from being made.

Values: Decimal (0..65535)

## ATTRIBUTE Vsr callsRejectedByFarEnd

Description: This spooled statistic counts the calls from the interface which were rejected by the far-end in the last statistics collection interval.This rejection could be due to:
1) no free channels at the end-point, or
2) a voice call going to a data only *VoiceRoute*, or
3) a data call going to a voice only *VoiceRoute*, or
4) a signalling protocol incompatibility between end-points.

Values: Decimal (0..65535)

## ATTRIBUTE Vsr peakActiveChannels

Description: This spooled statistic counts the peak number of B-channels that were active in the last statistics collection interval.

Values: Decimal (0..30)

## ATTRIBUTE Vsr peakActiveVoiceChannels

Description: This spooled statistic counts the peak number of B-channels that were active carrying voice in the last statistics collection interval.

Values: Decimal (0..30)

## ATTRIBUTE Vsr peakActiveModemChannels

Description: This spooled statistic counts the peak number of active B-channels that a 2100Hz tone was detected in the last statistics collection interval.

Values: Decimal (0..30)

## ATTRIBUTE Vsr peakActiveDataChannels

Description: This spooled statistic counts the maximum number of B-channels that were active carrying data in the last statistics collection interval.

Values: Decimal (0..30)

## ATTRIBUTE Vsr peakActiveFaxRelayChannels

| | |
|---|---|
| Description | This spooled statistic counts the maximum number of B-channels that were active carrying fax relay calls in the last statistics collection interval. |
| Values | Decimal (0..30) |

## ATTRIBUTE Vsr totalCalls

| | |
|---|---|
| Description | This spooled statistic counts the call attempts processed on this channel (in both directions) in the last statistics collection interval. This counter includes the number of unsuccessful as well as successful call attempts. |
| Vector of | Decimal (0..65535) |
| Index | Decimal (1..32) |

## ATTRIBUTE Vsr totalCallSeconds

| | |
|---|---|
| Description | This spooled statistic counts the number of seconds that each channel is handling a call in the last statistics collection interval. This is regardless of whether the call is successful or not. In other words, this is the amount of time that the channel is not in the idle state. |
| Vector of | Decimal (0..65535) |
| Units | seconds |
| Index | Decimal (1..32) |

## ATTRIBUTE Vsr voiceRouteInstance

| | |
|---|---|
| Description | This spooled statistic is the value of the *VoiceRoute* linked to this *VoiceSubRoute*. |
| Values | Decimal (1..16) |

# COLLECTED STATS DataSignallingChannel

# TS014 Framer

Description The statistics record generated by the DataSignallingChannel TS014 Framer component.

## ATTRIBUTE DataSigChan TS014 Framer rxBytes

Description This attribute provides the number of bytes received on the link by the Framer in the last collection interval.

Values Long Integer

## ATTRIBUTE DataSigChan TS014 Framer rxFrames

Description This attribute provides the number of frames received on the link interface by the Framer in the last collection interval.

Values Long Integer

## ATTRIBUTE DataSigChan TS014 Framer txBytes

Description This attribute provides the number of bytes transmitted to the link by the Framer in the last collection interval. This value could be zero if the application sends the frames directly to the link.

Values Long Integer

## ATTRIBUTE DataSigChan TS014 Framer txFrames

Description This attribute provides the number of frames transmitted to the link interface by the Framer in the last collection interval. This value could be zero if the application sends the frames directly to the link.

Values Long Integer

## ATTRIBUTE DataSigChan TS014 Framer rxTotalLinkUtil

Description This attribute provides the average total link utilization computed based on the total number of bytes received on the link in the last collection interval.

Values Decimal (0..100)

# COLLECTED STATS DataSignallingChannel Etsi Framer

Description The statistics record generated by the DataSignallingChannel Etsi Framer component.

## ATTRIBUTE DataSigChan Etsi Framer rxBytes

Description This attribute provides the number of bytes received on the link by the Framer in the last collection interval.

Values Long Integer

## ATTRIBUTE DataSigChan Etsi Framer rxFrames

Description This attribute provides the number of frames received on the link interface by the Framer in the last collection interval.

Values Long Integer

## ATTRIBUTE DataSigChan Etsi Framer txBytes

Description This attribute provides the number of bytes transmitted to the link by the Framer in the last collection interval. This value could be zero if the application sends the frames directly to the link.

Values Long Integer

## ATTRIBUTE DataSigChan Etsi Framer txFrames

Description This attribute provides the number of frames transmitted to the link interface by the Framer in the last collection interval. This value could be zero if the application sends the frames directly to the link.

Values Long Integer

## ATTRIBUTE DataSigChan Etsi Framer rxTotalLinkUtil

Description: This attribute provides the average total link utilization computed based on the total number of bytes received on the link in the last collection interval.

Values: Decimal (0..100)

# COLLECTED STATS DataSignallingChannel JapanIns Framer

Description: The statistics record generated by the DataSignallingChannel JapanIns Framer component.

## ATTRIBUTE DataSigChan Ins Framer rxBytes

Description: This attribute provides the number of bytes received on the link by the Framer in the last collection interval.

Values: Long Integer

## ATTRIBUTE DataSigChan Ins Framer rxFrames

Description: This attribute provides the number of frames received on the link interface by the Framer in the last collection interval.

Values: Long Integer

## ATTRIBUTE DataSigChan Ins Framer txBytes

Description: This attribute provides the number of bytes transmitted to the link by the Framer in the last collection interval. This value could be zero if the application sends the frames directly to the link.

Values: Long Integer

## ATTRIBUTE DataSigChan Ins Framer txFrames

Description: This attribute provides the number of frames transmitted to the link interface by the Framer in the last collection interval. This value could be zero if the application sends the frames directly to the link.

Values: Long Integer

## ATTRIBUTE DataSigChan Ins Framer rxTotalLinkUtil

Description: This attribute provides the average total link utilization computed based on the total number of bytes received on the link in the last collection interval.

Values: Decimal (0..100)

# COLLECTED STATS DataSignallingChannel NationalIsdn2 Framer

Description: The statistics record generated by the DataSignallingChannel NationalIsdn2 Framer component.

## ATTRIBUTE DataSigChan Ni2 Framer rxBytes

Description: This attribute provides the number of bytes received on the link by the Framer in the last collection interval.

Values: Long Integer

## ATTRIBUTE DataSigChan Ni2 Framer rxFrames

Description: This attribute provides the number of frames received on the link interface by the Framer in the last collection interval.

Values: Long Integer

## ATTRIBUTE DataSigChan Ni2 Framer txBytes

Description: This attribute provides the number of bytes transmitted to the link by the Framer in the last collection interval. This value could be zero if the application sends the frames directly to the link.

Values: Long Integer

## ATTRIBUTE DataSigChan Ni2 Framer txFrames

Description: This attribute provides the number of frames transmitted to the link interface by the Framer in the last collection interval. This value could be zero if the application sends the frames directly to the link.

Values: Long Integer

## ATTRIBUTE DataSigChan Ni2 Framer rxTotalLinkUtil

Description: This attribute provides the average total link utilization computed based on the total number of bytes received on the link in the last collection interval.

Values: Decimal (0..100)

# COLLECTED STATS DataSignallingChannel Nis Framer

Description: The statistics record generated by the DataSignallingChannel Nis Framer component.

## ATTRIBUTE DataSigChan Nis Framer rxBytes

Description: This attribute provides the number of bytes received on the link by the Framer in the last collection interval.

Values: Long Integer

## ATTRIBUTE DataSigChan Nis Framer rxFrames

Description: This attribute provides the number of frames received on the link interface by the Framer in the last collection interval.

Values: Long Integer

## ATTRIBUTE DataSigChan Nis Framer txBytes

Description: This attribute provides the number of bytes transmitted to the link by the Framer in the last collection interval. This value could be zero if the application sends the frames directly to the link.

Values: Long Integer

## ATTRIBUTE DataSigChan Nis Framer txFrames

Description: This attribute provides the number of frames transmitted to the link interface by the Framer in the last collection interval. This value could be zero if the application sends the frames directly to the link.

Values: Long Integer

## ATTRIBUTE DataSigChan Nis Framer rxTotalLinkUtil

Description: This attribute provides the average total link utilization computed based on the total number of bytes received on the link in the last collection interval.

Values: Decimal (0..100)

# COLLECTED STATS McsManager DprsMcsEndPointGroup EndPoint

Description: The statistics record generated by the McsManager DprsMcsEndPointGroup EndPoint component.

## ATTRIBUTE McsMgr DprsMcsEpG Ep remoteComponentName (remoteName)

Description

This attribute indicates the component name of the remote *Ep*, learned from the remote end.
For example: *"EM/NODEY2D0 McsMgr DprsMcsEpG/1 Ep/1"*.
The value will be a null string if the transport connection is down at the end of the statistics collection interval.

Values

String (0..46, ASCII)

## ATTRIBUTE McsMgr DprsMcsEpG Ep bandwidthHWM

Description

This attribute indicates the high-water mark of the bandwidth at which the transport connection agrees to transfer data during the last statistics collection interval. The value for this attribute is equal to the provisioned bandwidth when the connection is up, and is 0 when the transport connection is down.
This attribute, when combined with *bandwidthLWM* can also be used to indicate a transport connection outage occurrence.

Values

Decimal (0..155000000)

Units

bit/s

## ATTRIBUTE McsMgr DprsMcsEpG Ep bandwidthLWM

Description

This attribute indicates the low-water mark of the bandwidth at which the transport connection agrees to transfer data during the last statistics collection interval. The value for this attribute is equal to the provisioned bandwidth when the connection is up, and is 0 when the transport connection is down.
This attribute, when combined with *bandwidthHWM* can also be used to indicate a transport connection outage occurrence.

Values

Decimal (0..155000000)

Units

bit/s

## ATTRIBUTE McsMgr DprsMcsEpG Ep serviceCategory (sc)

| | |
|---|---|
| Description | This attribute indicates the ATM service category of the transport connection. |
| Values | ubr<br>cbr<br>rtVbr<br>nrtVbr |

## ATTRIBUTE McsMgr DprsMcsEpG Ep pktFromMcs

| | |
|---|---|
| Description | This attribute indicates the number of packets received on the DPRS MCS Switched Path End Point for each discard priority in the last statistics collection interval.<br>This attribute is a vector with four entries. Each vector entry is a<br>counter indexed by one of four discard priorities, namely, discard<br>priority 0(***dp0***), discard priority 1 (***dp1***), discard priority 2 (***dp2***),<br>or discard priority 3 (***dp3***). |
| Vector of | Long Integer |
| Index | discardPriority0 (dp0)<br>discardPriority1 (dp1)<br>discardPriority2 (dp2)<br>discardPriority3 (dp3) |

## ATTRIBUTE McsMgr DprsMcsEpG Ep octetsFromMcs

| | |
|---|---|
| Description | This attribute indicates the octets received on the DPRS MCS Switched Path End Point for each discard priority in the last statistics collection interval.<br>This attribute is a vector with four entries. Each vector entry is a counter indexed by one of four discard priorities, namely, discard priority 0 (***dp0***), discard priority 1 (***dp1***), discard priority 2 (***dp2***), or discard priority 3 (***dp3***). |
| Vector of | Long Integer |
| Index | discardPriority0 (dp0)<br>discardPriority1 (dp1)<br>discardPriority2 (dp2)<br>discardPriority3 (dp3) |

## ATTRIBUTE McsMgr DprsMcsEpG Ep pktDiscCongestedFromMcs

| | |
|---|---|
| Description | This attribute indicates the number of packets received on the DPRS MCS Switched Path End Point for each discard priority that have been discarded at the transport card in the last statistics collection interval due to congestion at the access card.<br>This attribute is a vector with four entries. Each vector entry is a counter indexed by one of four discard priorities, namely, discard priority 0 (***dp0***), discard priority 1 (***dp1***), discard priority 2 (***dp2***), or discard priority 3 (***dp3***). |
| Vector of | Decimal (0..4294967295) |
| Index | discardPriority0 (dp0)<br>discardPriority1 (dp1)<br>discardPriority2 (dp2)<br>discardPriority3 (dp3) |

## ATTRIBUTE McsMgr DprsMcsEpG Ep pktDiscErroredFromMcs

| | |
|---|---|
| Description | This attribute the number of errored packets received on the DPRS MCS Switched Path End Point that have been discarded in the last statistics collection interval. |
| Values | Decimal (0..4294967295) |

# COLLECTED STATS McsManager DprsMcsEndPointGroup EndPoint CallAdmissionControl

Description: The statistics record generated by the McsManager DprsMcsEndPointGroup EndPoint CallAdmissionControl component.

## ATTRIBUTE McsMgr DprsMcsEpG Ep Cac effectiveBandwidth

Description: This value indicates the level of effective bandwidth available during the last statistics collection interval, as indicated by the *effectiveBandwidth* attribute of the *McsMgr DprsMcsEpG/m EndPoint/n Cac* component in thousands of bits per second.

Values: Decimal (0..4294967295)

Units: kbit/s

## ATTRIBUTE McsMgr DprsMcsEpG Ep Cac effectiveBandwidthAvailableLWM

Description: This value indicates the lowest level of effective bandwidth available as indicated by the *effectiveBandwidthAvailable* attribute of the *McsMgr DprsMcsEp/m EndPoint/n Cac* component, in thousands of bits per second during the last statistics collection interval.

Values: Decimal (0..4294967295)

Units: kbit/s

## ATTRIBUTE McsMgr DprsMcsEpG Ep Cac numberOfCallsActiveHWM

Description: This value indicates the highest level of the *numberOfCallsActive* attribute of the *McsMgr DprsMcsEp/m EndPoint/n Cac* component, during the last statistics collection interval.

Values: Decimal (0..512)

## ATTRIBUTE McsMgr DprsMcsEpG Ep Cac numberOfCacFailures

Description: This value indicates the number of call admission failures in the last statistics collection interval. This value equals the increase in the *numberOfCacFailures* attribute of the *McsMgr DprsMcsEp/m EndPoint/n Cac* component during the last statistics collection interval.

Values: Decimal (0..4294967295)

# COLLECTED STATS MpaNetworkLink Framer

Description: The statistics record generated by the MpaNetworkLink Framer component.

## ATTRIBUTE MpanI Framer rxBytes

Description: This attribute provides the number of bytes received on the link by the Framer in the last collection interval.

Values: Long Integer

## ATTRIBUTE MpanI Framer rxFrames

Description: This attribute provides the number of frames received on the link interface by the Framer in the last collection interval.

Values: Long Integer

## ATTRIBUTE MpanI Framer txBytes

Description: This attribute provides the number of bytes transmitted to the link by the Framer in the last collection interval. This value could be zero if the application sends the frames directly to the link.

Values: Long Integer

## ATTRIBUTE Mpanl Framer txFrames

Description: This attribute provides the number of frames transmitted to the link interface by the Framer in the last collection interval. This value could be zero if the application sends the frames directly to the link.

Values: Long Integer

## ATTRIBUTE Mpanl Framer rxTotalLinkUtil

Description: This attribute provides the average total link utilization computed based on the total number of bytes received on the link in the last collection interval.

Values: Decimal (0..100)

# COLLECTED STATS NarrowbandServicesTrunkOverATM VoiceGateway AmrBasicRateGroup Mtp2

Description: The statistics record generated by the NarrowbandServicesTrunkOverATM VoiceGateway AmrBasicRateGroup Mtp2 component.

## ATTRIBUTE Nsta Vgs AmrBrag Mtp2 insvFailures

Description: This attribute indicates the number of in-service link outages over the collection interval. It does not include failures which occur during the alignment process.

Values: Decimal (0..4294967295)

## ATTRIBUTE Nsta Vgs AmrBrag Mtp2 msusTx

Description: This attribute indicates the number of message signal units transmitted over the collection interval. This includes the MSUs retransmitted, indicated by the attribute *msuRetransmits.*

Values: Decimal (0..4294967295)

## ATTRIBUTE Nsta Vgs AmrBrag Mtp2 msuRetransmits (msuReTx)

Description This attribute indicates the number of message signal units retransmitted because of negative acknowledgments over the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Nsta Vgs AmrBrag Mtp2 msusRx

Description This attribute indicates the number of message signal units received over the collection interval. This includes the MSUs with errors, indicated by the attribute *msuErrors.*

Values Decimal (0..4294967295)

## ATTRIBUTE Nsta Vgs AmrBrag Mtp2 msuErrors

Description This attribute indicates the number of message signal units discarded because of sequence number, length or CRC errors over the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Nsta Vgs AmrBrag Mtp2 msuOctetsTx

Description This attribute indicates the number of payload MSU octets transmitted over the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Nsta Vgs AmrBrag Mtp2 msuOctetsRx

Description This attribute indicates the number of payload MSU octets received over the collection interval.

Values Decimal (0..4294967295)

# COLLECTED STATS NarrowbandServicesTrunkOverATM

# VoiceGateway CsdBasicRateGroup Mtp2

Description The statistics record generated by the NarrowbandServicesTrunkOverATM VoiceGateway CsdBasicRateGroup Mtp2 component.

## ATTRIBUTE Nsta Vgs CsdBrag Mtp2 insvFailures

Description This attribute indicates the number of in-service link outages over the collection interval. It does not include failures which occur during the alignment process.

Values Decimal (0..4294967295)

## ATTRIBUTE Nsta Vgs CsdBrag Mtp2 msusTx

Description This attribute indicates the number of message signal units transmitted over the collection interval. This includes the MSUs retransmitted, indicated by the attribute *msuRetransmits.*

Values Decimal (0..4294967295)

## ATTRIBUTE Nsta Vgs CsdBrag Mtp2 msuRetransmits (msuReTx)

Description This attribute indicates the number of message signal units retransmitted because of negative acknowledgments over the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Nsta Vgs CsdBrag Mtp2 msusRx

Description This attribute indicates the number of message signal units received over the collection interval. This includes the MSUs with errors, indicated by the attribute *msuErrors.*

Values Decimal (0..4294967295)

## ATTRIBUTE Nsta Vgs CsdBrag Mtp2 msuErrors

Description This attribute indicates the number of message signal units discarded because of sequence number, length or CRC errors over the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Nsta Vgs CsdBrag Mtp2 msuOctetsTx

Description This attribute indicates the number of payload MSU octets transmitted over the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Nsta Vgs CsdBrag Mtp2 msuOctetsRx

Description This attribute indicates the number of payload MSU octets received over the collection interval.

Values Decimal (0..4294967295)

# COLLECTED STATS PCUSupportApplication Connection PcmLink

Description The statistics record generated by the PCUSupportApplication Connection PcmLink component.

## ATTRIBUTE Pcusa Conn PcmLk pduDn (pduDn)

Description This attribute counts the BSSGP PDUs received from the SGSN by all the BVCs associated to this PCM link during the statistics collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk pduUp (pduUp)

Description This attribute counts the BSSGP PDUs transmitted to the SGSN by all the BVCs associated to this PCM link during the statistics collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk octetsDn (octDn)

Description This attribute counts the octets received by all the BVCs associated to this PCM link during the statistics collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk octetsUp (octUp)

Description This attribute counts the octets sent by all the BVCs associated to this PCM link during the statistics collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk psPaging (psPag)

Description This attribute counts the BSSGP PAGING PS PDUs received from the SGSN by this PCM link during the statistics collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk csPaging (csPag)

Description This attribute counts the BSSGP PAGING CS PDUs received from the SGSN by this PCM link during the statistics collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk dyAgprsLackOfTimeslots (dyAgprsLTs)

Description This attribute counts the number of time that the PCU has not been able to satisfy the request sent by the most loaded cell on which appears a lack of resource during the statistics collection interval.

Values Decimal (0..4294967295)

# COLLECTED STATS PCUSupportApplication Connection PcmLink LapdSignaling

Description — The statistics record generated by the PCUSupportApplication Connection PcmLink LapdSignaling component.

## ATTRIBUTE Pcusa Conn PcmLk LapdSig framesLostOverflowUp (fLovfUp)

Description — This attribute counts the uplink frames lost due to data overrun or receive buffer overflow during the statistics collection interval.

Values — Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk LapdSig framesLostOverflowDn (fLovfDn)

Description — This attribute counts the downlink frames which were not sent because of buffer overflow during the statistics collection interval.

Values — Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk LapdSig errorsCRC (errCRC)

Description — This attribute counts the frames with CRC errors which were received during the statistics collection interval.

Values — Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk LapdSig framesLostAlignment (fLAlign)

Description — This attribute counts the frames lost due to abort or lack of alignment during the statistics collection interval.

Values — Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk LapdSig iFramesUp (iFrmUp)

Description: This attribute counts the I frames received during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk LapdSig uiFramesUp (uiFrmUp)

Description: This attribute counts the unnumbered I frames received during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk LapdSig iFramesDn (iFrmDn)

Description: This attribute counts the I frames transmitted during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk LapdSig uiFramesDn (uiFrmDn)

Description: This attribute counts the unnumbered I frames transmitted during the statistics collection interval.

Values: Decimal (0..4294967295)

# COLLECTED STATS PCUSupportApplication Connection PcmLink Cell

Description: The statistics record generated by the PCUSupportApplication Connection PcmLink Cell component.

## ATTRIBUTE Pcusa Conn PcmLk Cell cellBVCI

Description: This attribute indicates the corresponding BSSGP Virtual Channel Identifier during the statistics collection interval.

Values: Decimal (0..65535)

## ATTRIBUTE Pcusa Conn PcmLk Cell upMultiSlotRequests (upMSlotReq)

| | |
|---|---|
| Description | This attribute counts the multislot allocation requests received by the PCU from the mobile station during the statistics collection interval.<br><br>Index 1 counts the number of 1- timeslot allocation requests.<br>Index 2 counts the number of 2- timeslot allocation requests.<br>Index 3 counts the number of 3- timeslot allocation requests.<br>Index 4 counts the number of 4- or more timeslot allocation requests. |
| Vector of | Decimal (0..4294967295) |
| Index | Decimal (1..4) |

## ATTRIBUTE Pcusa Conn PcmLk Cell upMultiSlotAllocations (upMSlotAll)

| | |
|---|---|
| Description | This attribute counts the multislot granted allocations received by the PCU from the mobile station during the statistics collection interval.<br><br>Index 1 counts the number of 1- timeslot granted allocations.<br>Index 2 counts the number of 2- timeslot granted allocations.<br>Index 3 counts the number of 3- timeslot granted allocations.<br>Index 4 counts the number of 4- or more timeslot granted allocations. |
| Vector of | Decimal (0..4294967295) |
| Index | Decimal (1..4) |

## ATTRIBUTE Pcusa Conn PcmLk Cell dnMultiSlotRequests (dnMSlotReq)

| | |
|---|---|
| Description | This attribute counts the multislot allocation requests received by the mobile station from the PCU during the statistics collection interval.<br><br>Index 1 counts the number of 1- timeslot allocation requests.<br>Index 2 counts the number of 2- timeslot allocation requests.<br>Index 3 counts the number of 3- timeslot allocation requests.<br>Index 4 counts the number of 4- or more timeslot allocation requests. |
| Vector of | Decimal (0..4294967295) |
| Index | Decimal (1..4) |

## ATTRIBUTE Pcusa Conn PcmLk Cell dnMultiSlotAllocations (dnMSlotAll)

| | |
|---|---|
| Description | This attribute counts the multislot granted allocations received by the mobile station from the PCU during the statistics collection interval.<br><br>Index 1 counts the number of 1- timeslot granted allocations.<br>Index 2 counts the number of 2- timeslot granted allocations.<br>Index 3 counts the number of 3- timeslot granted allocations.<br>Index 4 counts the number of 4- or more timeslot granted allocations. |
| Vector of | Decimal (0..4294967295) |
| Index | Decimal (1..4) |

## ATTRIBUTE Pcusa Conn PcmLk Cell fullDuplexTbfEstablishment (fdTbfEst)

| | |
|---|---|
| Description | This attribute counts how many full duplex TBFs were established during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

## ATTRIBUTE Pcusa Conn PcmLk Cell upTbfReleases (upTbfRel)

| | |
|---|---|
| Description | This attribute counts how many uplink TBFs were released during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

## ATTRIBUTE Pcusa Conn PcmLk Cell cumulativeTimeUpTbf (cumTimeUpTbf)

| | |
|---|---|
| Description | This attribute indicates the cumulative duration of all uplink TBFs released during the statistics collection interval. |
| Values | Decimal (0..4294967295) |
| Units | seconds |

## ATTRIBUTE Pcusa Conn PcmLk Cell allocatedBlocksUpTbf (allBUpTbf)

| | |
|---|---|
| Description | This attribute counts the blocks allocated for the uplink TBFs during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

## ATTRIBUTE Pcusa Conn PcmLk Cell nonAckUpTbfEstablishment (nAckUpTbfEst)

| | |
|---|---|
| Description | This attribute counts the non-acknowledged uplink TBFs established during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

## ATTRIBUTE Pcusa Conn PcmLk Cell ackUpTbfEstablishment (ackUpTbfEst)

| | |
|---|---|
| Description | This attribute counts the acknowledged uplink TBFs established during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

## ATTRIBUTE Pcusa Conn PcmLk Cell closeEndedUpTbfEstablishment (closeEndUpTbfEst)

| | |
|---|---|
| Description | This attribute counts the close-ended uplink TBFs established during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

## ATTRIBUTE Pcusa Conn PcmLk Cell dnTbfReleases (dnTbfRel)

| | |
|---|---|
| Description | This attribute counts how many downlink TBFs were released during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

## ATTRIBUTE Pcusa Conn PcmLk Cell cumulativeTimeDnTbf (cumTimeDnTbf)

| | |
|---|---|
| Description | This attribute indicates the cumulative duration of all downlink TBFs released during the statistics collection interval. |
| Values | Decimal (0..4294967295) |
| Units | seconds |

## ATTRIBUTE Pcusa Conn PcmLk Cell nonAckDnTbfEstablishment (nAckDnTbfEst)

| | |
|---|---|
| Description | This attribute counts the non-acknowledged downlink TBFs established during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

## ATTRIBUTE Pcusa Conn PcmLk Cell ackDnTbfEstablishment (ackDnTbfEst)

| | |
|---|---|
| Description | This attribute counts the acknowledged downlink TBFs established during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

## ATTRIBUTE Pcusa Conn PcmLk Cell dyAgprsNbModif (dyAgprsNbMod)

Description: This attribute counts the modifications of Agprs timeslots allocated in the cell during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Cell dyAgprsAvgNbTimeslots (dyAgprsAvgNbTs)

Description: This attribute indicates the average number of Agprs timeslots allocated in the cell during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Cell dyAgprsMinNbTimeslots (dyAgprsMinNbTs)

Description: This attribute indicates the minimum number of Agprs timeslots allocated in the cell during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Cell dyAgprsMaxNbTimeslots (dyAgprsMaxNbTs)

Description: This attribute indicates the maximum number of Agprs timeslots allocated in the cell during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Cell dyAgprsAvgLoadCriterion (dyAgprsAvgLdCrit)

Description: This attribute indicates the average Agprs load criterion value during the statistics collection interval.

| | |
|---|---|
| Values | Decimal (0..100) |
| Units | % |

## ATTRIBUTE Pcusa Conn PcmLk Cell dyAgprsMaxLoadCriterion (dyAgprsMaxLdCrit)

| | |
|---|---|
| Description | This attribute indicates the maximum Agprs load criterion value during the statistics collection interval. |
| Values | Decimal (0..100) |
| Units | % |

## ATTRIBUTE Pcusa Conn PcmLk Cell dnTbfGoldSatisfactMore90pCent (dnTbfGSatM90)

| | |
|---|---|
| Description | This attribute counts the downlink TBFs with gold QOS that have a satisfaction rate greater or equal to 90 per cent during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

## ATTRIBUTE Pcusa Conn PcmLk Cell dnTbfGoldSatisfactBet5090pCent (dnTbfGSatB5090)

| | |
|---|---|
| Description | This attribute counts the downlink TBFs with gold QOS that have a satisfaction rate between 50 to 90 per cent during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

## ATTRIBUTE Pcusa Conn PcmLk Cell dnTbfGoldSatisfactLess50pCent (dnTbfGSatL50)

| | |
|---|---|
| Description | This attribute counts the downlink TBFs with gold QOS that have a satisfaction rate lower than 50 per cent during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

## ATTRIBUTE Pcusa Conn PcmLk Cell dnTbfGoldRejectedForMinTput (dnTbfGRejMinTput)

Description: This attribute counts the downlink TBFs with gold QOS rejected at the establishment due to non allocation of corresponding minimum throughput during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Cell dnTbfSilverSatisfactMore90pCent (dnTbfSSatM90)

Description: This attribute counts the downlink TBFs with silver QOS that have a satisfaction rate greater or equal to 90 per cent during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Cell dnTbfSilverSatisfactBet5090pCent (dnTbfSSatB5090)

Description: This attribute counts the downlink TBFs with silver QOS that have a satisfaction rate between 50 to 90 per cent during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Cell dnTbfSilverSatisfactLess50pCent (dnTbfSSatL50)

Description: This attribute counts the downlink TBFs with silver QOS that have a satisfaction rate lower than 50 per cent during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Cell dnTbfSilverRejectedForMinTput (dnTbfSRejMinTput)

Description: This attribute counts the downlink TBFs with silver QOS rejected at the establishment due to non allocation of corresponding minimum throughput during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Cell dnTbfBronzeSatisfactMore90pCent (dnTbfBSatM90)

Description: This attribute counts the downlink TBFs with bronze QOS that have a satisfaction rate greater or equal to 90 per cent during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Cell dnTbfBronzeSatisfactBet5090pCent (dnTbfBSatB5090)

Description: This attribute counts the downlink TBFs with bronze QOS that have a satisfaction rate between 50 to 90 per cent during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Cell dnTbfBronzeSatisfactLess50pCent (dnTbfBSatL50)

Description: This attribute counts the downlink TBFs with bronze QOS that have a satisfaction rate lower than 50 per cent during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Cell dnTbfBronzeRejectedForMinTput (dnTbfBRejMinTput)

Description: This attribute counts the downlink TBFs with bronze QOS rejected at the establishment due to non allocation of corresponding minimum throughput during the statistics collection interval.

Values: Decimal (0..4294967295)

# COLLECTED STATS PCUSupportApplication Connection PcmLink Cell Tdma

Description: The statistics record generated by the PCUSupportApplication Connection PcmLink Cell Tdma component.

## ATTRIBUTE Pcusa Conn PcmLk Cell Tdma localBusy (locBus)

Description: This attribute counts the blocks sent with the window stalled indicator set during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Cell Tdma remoteBusy (remBus)

Description: This attribute counts the blocks received with the window stalled indicator set during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Cell Tdma configuredTimeslots (cfgTs)

Description: This attribute indicates the number of configured timeslots at the end of the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Cell Tdma cumulativeUnavailableTimeslots (cumUnavailTs)

Description

This attribute indicates the cumulative number of unavailable timeslots at the sample time during the statistics collection interval.

The average can be calculated by dividing this attribute value by the *nbSamples* value.

Values

Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Cell Tdma cumulativeUpActiveTimeslots (cumUpActTs)

Description

This attribute indicates the cumulative number of active uplink timeslots bearing at least one TBF at the sample time during the statistics collection interval.

The average can be calculated by dividing this attribute value by the *nbSamples* value.

Values

Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Cell Tdma cumulativeUpTbfPerTimeslots (cumUpTbfPerTs)

Description

This attribute indicates the cumulative number of uplink TBFs per timeslots for all the timeslots in the TDMA at the sample time during the statistics collection interval.

The average can be calculated by dividing this attribute value by the *nbSamples* value.

Values

Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Cell Tdma cumulativeDnActiveTimeslots (cumDnActTs)

Description

This attribute indicates the cumulative number of active downlink timeslots bearing at least one TBF at the sample time during the statistics collection interval.

The average can be calculated by dividing this attribute value by the *nbSamples* value.

Values

Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Cell Tdma cumulativeDnTbfPerTimeslots (cumDnTbfPerTs)

Description

This attribute indicates the cumulative number of downlink TBFs per timeslots for all the timeslots in the TDMA at the sample time during the statistics collection interval.

The average can be calculated by dividing this attribute value by the *nbSamples* value.

Values

Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Cell Tdma nbSamples (nbS)

Description

This attribute indicates how many samples were taken during the statistics collection interval.

This value can be used with the cumulative attribute for average calculs.

Values

Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Cell Tdma llcPacketsUp (llcPktUp)

Description

This attribute counts the LLC packets reassembled and transmitted to the LLC relay during the statistics collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Cell Tdma dataBlocksUp (dataBUp)

Description: This attribute counts the uplink RLC data blocks received during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Cell Tdma controlBlocksUp (ctrlBUp)

Description: This attribute counts the uplink RLC control blocks received during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Cell Tdma invalidBlocksUp (invalidBUp)

Description: This attribute counts the uplink invalid radio blocks received during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Cell Tdma invalidProtocolErrorBlocksUp (invalidProtErrBUp)

Description: This attribute counts the uplink invalid radio blocks received with invalid RLC protocol during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Cell Tdma outOfSequenceBlocksUp (outOfSeqBUp)

Description: This attribute counts the data blocks received uplink with Block Sequence Number outside the received window during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Cell Tdma packetAckNackUp (pktANUp)

Description: This attribute counts the PACKET-UPLINK-ACK-NACK messages received during the statistics collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Cell Tdma totalRetransmissionRequested (totRtxReq)

Description This attribute counts the RLC/MAC block retransmission requests during the statistics collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Cell Tdma cumulativeUpRxQual (cumUpRxQual)

Description This attribute indicates the cumulative uplink RxQual value during the statistics collection interval.

The average can be calculated by dividing this attribute value by the *nbSamples* value.

Values Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Cell Tdma cumulativeUpRxLev (cumUpRxLev)

Description This attribute indicates the cumulative uplink RxLev value during the statistics collection interval.

The average can be calculated by dividing this attribute value by the *nbSamples* value.

Values Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Cell Tdma nbSamplesUpQuality (nbSamplesUpQuality)

Description This attribute counts the samples for RxQual and RxLev cumulative values during the statistics collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Cell Tdma llcPacketsDn (llcPktDn)

Description: This attribute counts the LLC packets segmented into RLC data blocks received during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Cell Tdma dataBlocksDn (dataBDn)

Description: This attribute counts the downlink RLC data blocks transmitted during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Cell Tdma controlBlocksDn (ctrlBDn)

Description: This attribute counts the downlink RLC control blocks transmitted during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Cell Tdma retransmittedDataBlocksDn (rtxDataBDn)

Description: This attribute counts the data blocks retransmitted downlink during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Cell Tdma packetAckNackDn (pktANDn)

Description: This attribute counts the PACKET-DOWNLINK-ACK-NACK messages transmitted during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Cell Tdma cumulativeDnRxQual (cumDnRxQual)

Description: This attribute indicates the cumulative downlink RxQual value during the statistics collection interval.

The average can be calculated by dividing this attribute value by the *nbSamples* value.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Cell Tdma nbSamplesDnQuality (nbSamplesDnQuality)

Description: This attribute counts the samples for RxQual cumulative values during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Cell Tdma tbfNormalReleaseUp (tbfNormRelUp)

Description: This attribute counts the uplink TBFs which terminated normally during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Cell Tdma tbfNormalReleaseDn (tbfNormRelDn)

Description: This attribute counts the downlink TBFs which terminated normally during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Cell Tdma noPacketResourceReq (noPktResReq)

Description: This attribute counts the TBFs abnormally released due to non receipt of Packet Resource Request during the statistics collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Cell Tdma lossOfComNN002Max (lOCNN002Max)

Description This attribute counts the TBFs abnormally released due to V(Q) non progression during the statistics collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Cell Tdma lossOfComT3169 (lOCT3169)

Description This attribute counts the TBFs abnormally released due to timer T3169 expiry during the statistics collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Cell Tdma lossOfComNT0001 (lOCNT0001)

Description This attribute counts the TBFs abnormally released due to NT0001 timer expiry during the statistics collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Cell Tdma lossOfComT3195 (lOCT3195)

Description This attribute counts the TBFs abnormally released due to T3195 timer expiry during the statistics collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Cell Tdma lossOfComT3191 (lOCT3191)

Description This attribute counts the TBFs abnormally released due to T3191 timer expiry during the statistics collection interval.

Values Decimal (0..4294967295)

# COLLECTED STATS PCUSupportApplication

# Connection PcmLink Cell Ccch

Description: The statistics record generated by the PCUSupportApplication Connection PcmLink Cell Ccch component.

## ATTRIBUTE Pcusa Conn PcmLk Cell Ccch upTbfImmediateAssignment (immAssUp)

Description: This attribute counts IMMEDIATE-ASSIGNMENT messages generated by the PCU to the mobile station in the first phase of the two-phase access uplink TBF establishment during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Cell Ccch upTbfImmAssigRejectNoPdch (noPdch)

Description: This attribute counts IMMEDIATE-ASSIGNMENT-REJECT messages generated by the PCU to the mobile station with a cause of “No PDCH available for GPRS” in the first phase of the two-phase access uplink TBF establishment during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Cell Ccch upTbfImmAssigRejectNoTs (noTs)

Description: This attribute counts IMMEDIATE-ASSIGNMENT-REJECT messages generated by the PCU to the mobile station with a cause of “Maximum MS per TS is reached” in the first phase of the two-phase access uplink TBF establishment during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Cell Ccch upTbfImmAssigRejectNoTbf (noTbf)

Description: This attribute counts IMMEDIATE-ASSIGNMENT-REJECT messages generated by the PCU to the mobile station with a cause of “Maximum TBF per TDMA is reached” in the first phase of the two-phase access uplink TBF establishment during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Cell Ccch channelRequest (chanReq)

Description: This attribute counts CHANNEL-REQUEST messages received by the PCU from the mobile station in the first phase of the two-phase access uplink TBF establishment during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Cell Ccch packetResourceRequest (pktResReq)

Description: This attribute counts PACKET-RESOURCE-REQUEST messages received by the PCU from the mobile station in the second phase of the two-phase access uplink TBF establishment during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Cell Ccch deleteIndicationUp (delIndUp)

Description: This attribute counts DELETE-INDICATION messages sent by the BTSs when an IMMEDIATE-ASSIGNMENT message for uplink transfer is dropped during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Cell Ccch packetUpAssignment (pktUpAss)

Description: This attribute counts PACKET-UPLINK-ASSIGNMENT messages generated by the PCU after a PACKET-RESOURCE-REQUEST in the second phase of the two_phase access uplink TBF establishment during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Cell Ccch upTbfPacketAccessRejectNoPdch (pktNoPdch)

Description: This attribute counts PACKET-ACCESS-REJECT messages generated by the PCU to the mobile station with a cause of “No PDCH available for GPRS” in the second phase of the two-phase access uplink TBF establishment during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Cell Ccch upTbfPacketAccessRejectNoTs (pktNoTs)

Description: This attribute counts PACKET-ACCESS-REJECT messages generated by the PCU to the mobile station with a cause of “Maximum MS per TS is reached” in the second phase of the two-phase access uplink TBF establishment during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Cell Ccch upTbfPacketAccessRejectNoTbf (pktUpNoTbf)

Description: This attribute counts PACKET-ACCESS-REJECT messages generated by the PCU to the mobile station with a cause of “Maximum TBF per TDMA is reached” in the second phase of the two-phase access uplink TBF establishment during the statistics collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Cell Ccch dnTbfImmediateAssignment (immAssDn)

Description This attribute counts IMMEDIATE-ASSIGNMENT messages sent for a downlink TBF establishment from the PCU to the mobile station during the statistics collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Cell Ccch pagingRequest (pagReq)

Description This attribute counts PAGING-REQUEST messages generated by the PCU to the mobile station during the statistics collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Cell Ccch deleteIndicationDn (delIndDn)

Description This attribute counts DELETE-INDICATION messages sent by the BTSs when an IMMEDIATE-ASSIGNMENT message for downlink transfer is dropped during the statistics collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Cell Ccch packetDnAssignment (pktDnAss)

Description This attribute counts PACKET-DOWNLINK-ASSIGNMENT messages generated by the PCU to the mobile station in the downlink TBF establishment phase during the statistics collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Cell Ccch dnTbfPacketAccessRejectNoPdch (pktDnNoPdch)

Description: This attribute counts PACKET-ACCESS-REJECT messages generated by the PCU to the mobile station with a cause of “No PDCH available for GPRS” in the second phase of the two-phase access downlink TBF establishment during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Cell Ccch dnTbfPacketAccessRejectNoTs (pktDnNoTs)

Description: This attribute counts PACKET-ACCESS-REJECT messages generated by the PCU to the mobile station with a cause of “Maximum MS per TS is reached” in the second phase of the two-phase access downlink TBF establishment during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Cell Ccch dnTbfPacketAccessRejectNoTbf (pktDnNoTbf)

Description: This attribute counts PACKET-ACCESS-REJECT messages generated by the PCU to the mobile station with a cause of “Maximum TBF per TDMA is reached” in the second phase of the two-phase access downlink TBF establishment during the statistics collection interval.

Values: Decimal (0..4294967295)

# COLLECTED STATS PCUSupportApplication Connection PcmLink

# BssgpVirtualConnection

Description The statistics record generated by the PCUSupportApplication Connection PcmLink BssgpVirtualConnection component.

## ATTRIBUTE Pcusa Conn PcmLk Bvc cell

Description This attribute indicates the cell identity number associated to this BVC.

Values Decimal (0..65535)

## ATTRIBUTE Pcusa Conn PcmLk Bvc pduDn

Description This attribute counts the PDUs received by this BVC from the Gb interface during the statistics collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Bvc pduUp

Description This attribute counts the PDUs sent by this BVC to the Gb interface during the statistics collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Bvc octetsDn (octDn)

Description This attribute counts the octets received by the BVC from the Gb interface during the statistics collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Bvc octetsUp (octUp)

Description This attribute counts the octets sent by the BVC to the Gb interface during the statistics collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Bvc pduDataDn

Description This attribute counts the UNIT-DATA PDUs received by the BVC from the Gb interface during the statistics collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Bvc pduDataUp

Description This attribute counts the UNIT-DATA PDUs sent by the BVC to the Gb interface during the statistics collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Bvc octetsDataDn

Description This attribute counts the octets received by the BVC from the Gb interface in DL-UNIT-DATA PDUs during the statistics collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Bvc octetsDataUp

Description This attribute counts the octets sent by the BVC to the Gb interface in UL-UNIT-DATA PDUs during the statistics collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Bvc maxSizeDataDn

Description This attribute indicates the largest size of LLC frame received during the statistics collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Bvc maxSizeDataUp

Description This attribute indicates the biggest size of LLC frames sent during the statistics collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Bvc bvcBlockRequests (bvcBReq)

Description This attribute counts BVC-BLOCK PDU messages sent by the BVC during the statistics collection interval.

Values Decimal (0..65535)

## ATTRIBUTE Pcusa Conn PcmLk Bvc bvcUnBlockRequests (bvcUBReq)

Description This attribute counts BVC-UNBLOCK PDU messages sent by the BVC during the statistics collection interval.

Values Decimal (0..65535)

## ATTRIBUTE Pcusa Conn PcmLk Bvc bvct1TimeOuts (t1TO)

Description This attribute counts BVC-BLOCK-ACK and BVC-UNBLOCK-ACK timer expiries during the statistics collection interval.

Values Decimal (0..65535)

## ATTRIBUTE Pcusa Conn PcmLk Bvc bvcResetRequestsUp (bvcResReqUp)

Description This attribute counts BVC-RESET PDU messages sent by a BVC during the statistics collection interval.

Values Decimal (0..65535)

## ATTRIBUTE Pcusa Conn PcmLk Bvc bvcResetRequestsDn (bvcResReqDn)

Description This attribute counts BVC-RESET PDU messages received by the BVC during the statistics collection interval.

Values Decimal (0..65535)

## ATTRIBUTE Pcusa Conn PcmLk Bvc bvct2TimeOuts (t2TO)

Description: This attribute counts BVC-RESET-ACK timer expiries during the statistics collection interval.

Values: Decimal (0..65535)

## ATTRIBUTE Pcusa Conn PcmLk Bvc bvcFlowControlRequests (bvcFCtrlReq)

Description: This attribute counts FLOW-CONTROL-BVC PDUs sent by the BVC during the statistics collection interval.

Values: Decimal (0..65535)

## ATTRIBUTE Pcusa Conn PcmLk Bvc msFlowControlRequests (msFCtrlReq)

Description: This attribute counts FLOW-CONTROL-MS PDUs sent by the BVC during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Bvc llcDiscardedPdu (llcDiscPdu)

Description: This attribute counts LLC-DISCARDED PDUs sent by the BVC during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Bvc llcDiscardedOctets (llcDiscOct)

Description: This attribute counts the octets discarded with a LLC-DISCARDED-INDICATION message sent by the BVC during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Bvc nmStatusUp (nmStusUp)

Description: This attribute counts NM-STATUS PDUs sent by a BVC during the statistics collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Bvc nmStatusDn (nmStusDn)

Description This attribute counts NM-STATUS PDUs received by a BVC during the statistics collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Bvc msFlushLLRequest (msFlushLLReq)

Description This attribute counts FLUSH-LL PDUs sent from the SGSN to the PCU during the statistics collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Bvc msRadioStatusInd (msRadStusInd)

Description This attribute counts INDICATION messages reporting that a radio exception condition occurred on the radio interface in the BVC during the statistics collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Bvc msSuspendReq (msSusReq)

Description This attribute counts SUSPEND PDUs sent by the BVC during the statistics collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Bvc msRaCapabilityInd (msRaCapInd)

Description This attribute counts RA-CAPABILITY-INDICATION PDUs received by the BVC during the statistics collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Bvc msRaCapabilityUpdateReq (msRaCapUpdateReq)

Description: This attribute counts RA-CAPABILITY-UPDATE PDUs sent by the BVC during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Bvc bvct3TimeOuts (t3TO)

Description: This attribute counts SUSPEND-ACK timer expiries during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Bvc bvct5TimeOuts (t5TO)

Description: This attribute counts RA-CAPABILITY-UPDATE-ACK timer expiries during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk Bvc msCellTransitionDn (msCellTransDn)

Description: This attribute counts FLUSH-LL PDUs sent by the SGSN to the PCU when the mobile station located on a cell indicated by the BVCI has moved to another cell indicated to the new BVCI.

Values: Decimal (0..4294967295)

# COLLECTED STATS PCUSupportApplication Connection PcmLink CgiCell

Description: The statistics record generated by the PCUSupportApplication Connection PcmLink CgiCell component.

## ATTRIBUTE Pcusa Conn PcmLk CgiCell cellBVCI

| | |
|---|---|
| Description | This attribute indicates the corresponding BSSGP Virtual Channel Identifier during the statistics collection interval. |
| Values | Decimal (0..65535) |

## ATTRIBUTE Pcusa Conn PcmLk CgiCell upMultiSlotRequests (upMSlotReq)

| | |
|---|---|
| Description | This attribute counts the multislot allocation requests received by the PCU from the mobile station during the statistics collection interval.<br><br>Index 1 counts the number of 1- timeslot allocation requests.<br>Index 2 counts the number of 2- timeslot allocation requests.<br>Index 3 counts the number of 3- timeslot allocation requests.<br>Index 4 counts the number of 4- or more timeslot allocation requests. |
| Vector of | Decimal (0..4294967295) |
| Index | Decimal (1..4) |

## ATTRIBUTE Pcusa Conn PcmLk CgiCell upMultiSlotAllocations (upMSlotAll)

| | |
|---|---|
| Description | This attribute counts the multislot granted allocations received by the PCU from the mobile station during the statistics collection interval.<br><br>Index 1 counts the number of 1- timeslot granted allocations.<br>Index 2 counts the number of 2- timeslot granted allocations.<br>Index 3 counts the number of 3- timeslot granted allocations.<br>Index 4 counts the number of 4- or more timeslot granted allocations. |
| Vector of | Decimal (0..4294967295) |
| Index | Decimal (1..4) |

## ATTRIBUTE Pcusa Conn PcmLk CgiCell dnMultiSlotRequests (dnMSlotReq)

| | |
|---|---|
| Description | This attribute counts the multislot allocation requests received by the mobile station from the PCU during the statistics collection interval.<br><br>Index 1 counts the number of 1- timeslot allocation requests.<br>Index 2 counts the number of 2- timeslot allocation requests.<br>Index 3 counts the number of 3- timeslot allocation requests.<br>Index 4 counts the number of 4- or more timeslot allocation requests. |
| Vector of | Decimal (0..4294967295) |
| Index | Decimal (1..4) |

## ATTRIBUTE Pcusa Conn PcmLk CgiCell dnMultiSlotAllocations (dnMSlotAll)

| | |
|---|---|
| Description | This attribute counts the multislot granted allocations received by the mobile station from the PCU during the statistics collection interval.<br><br>Index 1 counts the number of 1- timeslot granted allocations.<br>Index 2 counts the number of 2- timeslot granted allocations.<br>Index 3 counts the number of 3- timeslot granted allocations.<br>Index 4 counts the number of 4- or more timeslot granted allocations. |
| Vector of | Decimal (0..4294967295) |
| Index | Decimal (1..4) |

## ATTRIBUTE Pcusa Conn PcmLk CgiCell fullDuplexTbfEstablishment (fdTbfEst)

| | |
|---|---|
| Description | This attribute counts how many full duplex TBFs were established during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

## ATTRIBUTE Pcusa Conn PcmLk CgiCell upTbfReleases (upTbfRel)

Description: This attribute counts how many uplink TBFs were released during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk CgiCell cumulativeTimeUpTbf (cumTimeUpTbf)

Description: This attribute indicates the cumulative duration of all uplink TBFs released during the statistics collection interval.

Values: Decimal (0..4294967295)

Units: seconds

## ATTRIBUTE Pcusa Conn PcmLk CgiCell allocatedBlocksUpTbf (allBUpTbf)

Description: This attribute counts the blocks allocated for the uplink TBFs during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk CgiCell nonAckUpTbfEstablishment (nAckUpTbfEst)

Description: This attribute counts the non-acknowledged uplink TBFs established during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk CgiCell ackUpTbfEstablishment (ackUpTbfEst)

Description: This attribute counts the acknowledged uplink TBFs established during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk CgiCell closeEndedUpTbfEstablishment (closeEndUpTbfEst)

| | |
|---|---|
| Description | This attribute counts the close-ended uplink TBFs established during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

## ATTRIBUTE Pcusa Conn PcmLk CgiCell dnTbfReleases (dnTbfRel)

| | |
|---|---|
| Description | This attribute counts how many downlink TBFs were released during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

## ATTRIBUTE Pcusa Conn PcmLk CgiCell cumulativeTimeDnTbf (cumTimeDnTbf)

| | |
|---|---|
| Description | This attribute indicates the cumulative duration of all downlink TBFs released during the statistics collection interval. |
| Values | Decimal (0..4294967295) |
| Units | seconds |

## ATTRIBUTE Pcusa Conn PcmLk CgiCell nonAckDnTbfEstablishment (nAckDnTbfEst)

| | |
|---|---|
| Description | This attribute counts the non-acknowledged downlink TBFs established during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

## ATTRIBUTE Pcusa Conn PcmLk CgiCell ackDnTbfEstablishment (ackDnTbfEst)

| | |
|---|---|
| Description | This attribute counts the acknowledged downlink TBFs established during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

## ATTRIBUTE Pcusa Conn PcmLk CgiCell dyAgprsNbModif (dyAgprsNbMod)

Description: This attribute counts the modifications of Agprs timeslots allocated in the cell during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk CgiCell dyAgprsAvgNbTimeslots (dyAgprsAvgNbTs)

Description: This attribute indicates the average number of Agprs timeslots allocated in the cell during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk CgiCell dyAgprsMinNbTimeslots (dyAgprsMinNbTs)

Description: This attribute indicates the minimum number of Agprs timeslots allocated in the cell during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk CgiCell dyAgprsMaxNbTimeslots (dyAgprsMaxNbTs)

Description: This attribute indicates the maximum number of Agprs timeslots allocated in the cell during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk CgiCell dyAgprsAvgLoadCriterion (dyAgprsAvgLdCrit)

Description: This attribute indicates the average Agprs load criterion value during the statistics collection interval.

| | |
|---|---|
| Values | Decimal (0..100) |
| Units | % |

## ATTRIBUTE Pcusa Conn PcmLk CgiCell dyAgprsMaxLoadCriterion (dyAgprsMaxLdCrit)

| | |
|---|---|
| Description | This attribute indicates the maximum Agprs load criterion value during the statistics collection interval. |
| Values | Decimal (0..100) |
| Units | % |

## ATTRIBUTE Pcusa Conn PcmLk CgiCell dnTbfGoldSatisfactMore90pCent (dnTbfGSatM90)

| | |
|---|---|
| Description | This attribute counts the downlink TBFs with gold QOS that have a satisfaction rate greater or equal to 90 per cent during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

## ATTRIBUTE Pcusa Conn PcmLk CgiCell dnTbfGoldSatisfactBet5090pCent (dnTbfGSatB5090)

| | |
|---|---|
| Description | This attribute counts the downlink TBFs with gold QOS that have a satisfaction rate between 50 to 90 per cent during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

## ATTRIBUTE Pcusa Conn PcmLk CgiCell dnTbfGoldSatisfactLess50pCent (dnTbfGSatL50)

| | |
|---|---|
| Description | This attribute counts the downlink TBFs with gold QOS that have a satisfaction rate lower than 50 per cent during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

## ATTRIBUTE Pcusa Conn PcmLk CgiCell dnTbfGoldRejectedForMinTput (dnTbfGRejMinTput)

Description: This attribute counts the downlink TBFs with gold QOS rejected at the establishment due to non allocation of corresponding minimum throughput during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk CgiCell dnTbfSilverSatisfactMore90pCent (dnTbfSSatM90)

Description: This attribute counts the downlink TBFs with silver QOS that have a satisfaction rate greater or equal to 90 per cent during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk CgiCell dnTbfSilverSatisfactBet5090pCent (dnTbfSSatB5090)

Description: This attribute counts the downlink TBFs with silver QOS that have a satisfaction rate between 50 to 90 per cent during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk CgiCell dnTbfSilverSatisfactLess50pCent (dnTbfSSatL50)

Description: This attribute counts the downlink TBFs with silver QOS that have a satisfaction rate lower than 50 per cent during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk CgiCell dnTbfSilverRejectedForMinTput (dnTbfSRejMinTput)

Description: This attribute counts the downlink TBFs with silver QOS rejected at the establishment due to non allocation of corresponding minimum throughput during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk CgiCell dnTbfBronzeSatisfactMore90pCent (dnTbfBSatM90)

Description: This attribute counts the downlink TBFs with bronze QOS that have a satisfaction rate greater or equal to 90 per cent during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk CgiCell dnTbfBronzeSatisfactBet5090pCent (dnTbfBSatB5090)

Description: This attribute counts the downlink TBFs with bronze QOS that have a satisfaction rate between 50 to 90 per cent during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk CgiCell dnTbfBronzeSatisfactLess50pCent (dnTbfBSatL50)

Description: This attribute counts the downlink TBFs with bronze QOS that have a satisfaction rate lower than 50 per cent during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk CgiCell dnTbfBronzeRejectedForMinTput (dnTbfBRejMinTput)

Description: This attribute counts the downlink TBFs with bronze QOS rejected at the establishment due to non allocation of corresponding minimum throughput during the statistics collection interval.

Values: Decimal (0..4294967295)

# COLLECTED STATS PCUSupportApplication Connection PcmLink CgiCell Tdma

Description: The statistics record generated by the PCUSupportApplication Connection PcmLink CgiCell Tdma component.

## ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma localBusy (locBus)

Description: This attribute counts the blocks sent with the window stalled indicator set during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma remoteBusy (remBus)

Description: This attribute counts the blocks received with the window stalled indicator set during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma configuredTimeslots (cfgTs)

Description: This attribute indicates the number of configured timeslots at the end of the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma cumulativeUnavailableTimeslots (cumUnavailTs)

Description

This attribute indicates the cumulative number of unavailable timeslots at the sample time during the statistics collection interval.

The average can be calculated by dividing this attribute value by the *nbSamples* value.

Values

Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma cumulativeUpActiveTimeslots (cumUpActTs)

Description

This attribute indicates the cumulative number of active uplink timeslots bearing at least one TBF at the sample time during the statistics collection interval.

The average can be calculated by dividing this attribute value by the *nbSamples* value.

Values

Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma cumulativeUpTbfPerTimeslots (cumUpTbfPerTs)

Description

This attribute indicates the cumulative number of uplink TBFs per timeslots for all the timeslots in the TDMA at the sample time during the statistics collection interval.

The average can be calculated by dividing this attribute value by the *nbSamples* value.

Values

Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma cumulativeDnActiveTimeslots (cumDnActTs)

Description: This attribute indicates the cumulative number of active downlink timeslots bearing at least one TBF at the sample time during the statistics collection interval.

The average can be calculated by dividing this attribute value by the *nbSamples* value.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma cumulativeDnTbfPerTimeslots (cumDnTbfPerTs)

Description: This attribute indicates the cumulative number of downlink TBFs per timeslots for all the timeslots in the TDMA at the sample time during the statistics collection interval.

The average can be calculated by dividing this attribute value by the *nbSamples* value.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma nbSamples (nbS)

Description: This attribute indicates how many samples were taken during the statistics collection interval.

This value can be used with the cumulative attribute for average calculs.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma llcPacketsUp (llcPktUp)

Description: This attribute counts the LLC packets reassembled and transmitted to the LLC relay during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma dataBlocksUp (dataBUp)

Description This attribute counts the uplink RLC data blocks received during the statistics collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma controlBlocksUp (ctrlBUp)

Description This attribute counts the uplink RLC control blocks received during the statistics collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma invalidBlocksUp (invalidBUp)

Description This attribute counts the uplink invalid radio blocks received during the statistics collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma invalidProtocolErrorBlocksUp (invalidProtErrBUp)

Description This attribute counts the uplink invalid radio blocks received with invalid RLC protocol during the statistics collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma outOfSequenceBlocksUp (outOfSeqBUp)

Description This attribute counts the data blocks received uplink with Block Sequence Number outside the received window during the statistics collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma packetAckNackUp (pktANUp)

Description This attribute counts the PACKET-UPLINK-ACK-NACK messages received during the statistics collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma totalRetransmissionRequested (totRtxReq)

Description This attribute counts the RLC/MAC block retransmission requests during the statistics collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma cumulativeUpRxQual (cumUpRxQual)

Description This attribute indicates the cumulative uplink RxQual value during the statistics collection interval.

The average can be calculated by dividing this attribute value by the *nbSamples* value.

Values Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma cumulativeUpRxLev (cumUpRxLev)

Description This attribute indicates the cumulative uplink RxLev value during the statistics collection interval.

The average can be calculated by dividing this attribute value by the *nbSamples* value.

Values Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma nbSamplesUpQuality (nbSamplesUpQuality)

Description This attribute counts the samples for RxQual and RxLev cumulative values during the statistics collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma llcPacketsDn (llcPktDn)

Description: This attribute counts the LLC packets segmented into RLC data blocks received during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma dataBlocksDn (dataBDn)

Description: This attribute counts the downlink RLC data blocks transmitted during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma controlBlocksDn (ctrlBDn)

Description: This attribute counts the downlink RLC control blocks transmitted during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma retransmittedDataBlocksDn (rtxDataBDn)

Description: This attribute counts the data blocks retransmitted downlink during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma packetAckNackDn (pktANDn)

Description: This attribute counts the PACKET-DOWNLINK-ACK-NACK messages transmitted during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma cumulativeDnRxQual (cumDnRxQual)

Description: This attribute indicates the cumulative downlink RxQual value during the statistics collection interval.

The average can be calculated by dividing this attribute value by the *nbSamples* value.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma nbSamplesDnQuality (nbSamplesDnQuality)

Description: This attribute counts the samples for RxQual cumulative values during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma tbfNormalReleaseUp (tbfNormRelUp)

Description: This attribute counts the uplink TBFs which terminated normally during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma tbfNormalReleaseDn (tbfNormRelDn)

Description: This attribute counts the downlink TBFs which terminated normally during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma noPacketResourceReq (noPktResReq)

Description: This attribute counts the TBFs abnormally released due to non receipt of Packet Resource Request during the statistics collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma lossOfComNN002Max (lOCNN002Max)

Description This attribute counts the TBFs abnormally released due to V(Q) non progression during the statistics collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma lossOfComT3169 (lOCT3169)

Description This attribute counts the TBFs abnormally released due to timer T3169 expiry during the statistics collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma lossOfComNT0001 (lOCNT0001)

Description This attribute counts the TBFs abnormally released due to NT0001 timer expiry during the statistics collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma lossOfComT3195 (lOCT3195)

Description This attribute counts the TBFs abnormally released due to T3195 timer expiry during the statistics collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma lossOfComT3191 (lOCT3191)

Description This attribute counts the TBFs abnormally released due to T3191 timer expiry during the statistics collection interval.

Values Decimal (0..4294967295)

# COLLECTED STATS PCUSupportApplication

# Connection PcmLink CgiCell Ccch

Description: The statistics record generated by the PCUSupportApplication Connection PcmLink CgiCell Ccch component.

## ATTRIBUTE Pcusa Conn PcmLk CgiCell Ccch upTbfImmediateAssignment (immAssUp)

Description: This attribute counts IMMEDIATE-ASSIGNMENT messages generated by the PCU to the mobile station in the first phase of the two-phase access uplink TBF establishment during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk CgiCell Ccch upTbfImmAssigRejectNoPdch (noPdch)

Description: This attribute counts IMMEDIATE-ASSIGNMENT-REJECT messages generated by the PCU to the mobile station with a cause of “No PDCH available for GPRS” in the first phase of the two-phase access uplink TBF establishment during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk CgiCell Ccch upTbfImmAssigRejectNoTs (noTs)

Description: This attribute counts IMMEDIATE-ASSIGNMENT-REJECT messages generated by the PCU to the mobile station with a cause of “Maximum MS per TS is reached” in the first phase of the two-phase access uplink TBF establishment during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk CgiCell Ccch upTbfImmAssigRejectNoTbf (noTbf)

Description: This attribute counts IMMEDIATE-ASSIGNMENT-REJECT messages generated by the PCU to the mobile station with a cause of “Maximum TBF per TDMA is reached” in the first phase of the two-phase access uplink TBF establishment during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk CgiCell Ccch channelRequest (chanReq)

Description: This attribute counts CHANNEL-REQUEST messages received by the PCU from the mobile station in the first phase of the two-phase access uplink TBF establishment during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk CgiCell Ccch packetResourceRequest (pktResReq)

Description: This attribute counts PACKET-RESOURCE-REQUEST messages received by the PCU from the mobile station in the second phase of the two-phase access uplink TBF establishment during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk CgiCell Ccch deleteIndicationUp (delIndUp)

Description: This attribute counts DELETE-INDICATION messages sent by the BTSs when an IMMEDIATE-ASSIGNMENT message for uplink transfer is dropped during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk CgiCell Ccch packetUpAssignment (pktUpAss)

Description: This attribute counts PACKET-UPLINK-ASSIGNMENT messages generated by the PCU after a PACKET-RESOURCE-REQUEST in the second phase of the two_phase access uplink TBF establishment during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk CgiCell Ccch upTbfPacketAccessRejectNoPdch (pktNoPdch)

Description: This attribute counts PACKET-ACCESS-REJECT messages generated by the PCU to the mobile station with a cause of “No PDCH available for GPRS” in the second phase of the two-phase access uplink TBF establishment during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk CgiCell Ccch upTbfPacketAccessRejectNoTs (pktNoTs)

Description: This attribute counts PACKET-ACCESS-REJECT messages generated by the PCU to the mobile station with a cause of “Maximum MS per TS is reached” in the second phase of the two-phase access uplink TBF establishment during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk CgiCell Ccch upTbfPacketAccessRejectNoTbf (pktUpNoTbf)

Description: This attribute counts PACKET-ACCESS-REJECT messages generated by the PCU to the mobile station with a cause of “Maximum TBF per TDMA is reached” in the second phase of the two-phase access uplink TBF establishment during the statistics collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk CgiCell Ccch dnTbfImmediateAssignment (immAssDn)

Description This attribute counts IMMEDIATE-ASSIGNMENT messages sent for a downlink TBF establishment from the PCU to the mobile station during the statistics collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk CgiCell Ccch pagingRequest (pagReq)

Description This attribute counts PAGING-REQUEST messages generated by the PCU to the mobile station during the statistics collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk CgiCell Ccch deleteIndicationDn (delIndDn)

Description This attribute counts DELETE-INDICATION messages sent by the BTSs when an IMMEDIATE-ASSIGNMENT message for downlink transfer is dropped during the statistics collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk CgiCell Ccch packetDnAssignment (pktDnAss)

Description This attribute counts PACKET-DOWNLINK-ASSIGNMENT messages generated by the PCU to the mobile station in the downlink TBF establishment phase during the statistics collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk CgiCell Ccch dnTbfPacketAccessRejectNoPdch (pktDnNoPdch)

Description: This attribute counts PACKET-ACCESS-REJECT messages generated by the PCU to the mobile station with a cause of “No PDCH available for GPRS” in the second phase of the two-phase access downlink TBF establishment during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk CgiCell Ccch dnTbfPacketAccessRejectNoTs (pktDnNoTs)

Description: This attribute counts PACKET-ACCESS-REJECT messages generated by the PCU to the mobile station with a cause of “Maximum MS per TS is reached” in the second phase of the two-phase access downlink TBF establishment during the statistics collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Pcusa Conn PcmLk CgiCell Ccch dnTbfPacketAccessRejectNoTbf (pktDnNoTbf)

Description: This attribute counts PACKET-ACCESS-REJECT messages generated by the PCU to the mobile station with a cause of “Maximum TBF per TDMA is reached” in the second phase of the two-phase access downlink TBF establishment during the statistics collection interval.

Values: Decimal (0..4294967295)

# COLLECTED STATS GprsSubscriberControl

Description: The statistics record generated by the GprsSubscriberControl component.

## ATTRIBUTE Gsc cpuOvldAttachesDiscarded (cpuOvldAttDisc)

Description

This attribute counts the number of GPRS Mobility Management (GMM) attach request messages that are discarded due to a CPU overload condition on the GSC and USC applications.

The counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc cpuOvldActivationsDiscarded (cpuOvldActDisc)

Description

This attribute counts the number of Session Management (SM) session activate request messages that are discarded due to CPU overload on the GSC and USC applications.

The counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc subCountOvldAttachesDiscarded (subOvldAttDisc)

Description

This attribute counts the number of GPRS Mobility Management (GMM) attach request messages that are discarded due to subscriber count overload, which occurs when the value of the *currentlyAttached* attribute is equal to the value of the *maxAttachedSubscribers* attribute.

The counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc cpuOvldMovingAvg (cpuOvldAvg)

Description

This attribute indicates the CPU moving average calculated from within the defined moving window, the size of which is determined by the value of *cpuOvldWindowSize* attribute.

The value of the attribute is set at the end of the collection interval.

Values Decimal (0..100)

Units %

## ATTRIBUTE Gsc explicitDetachPurge

Description

This attribute counts the Mobile Subscriber (MS) Purge requests initiated due to an explicit mobile detach. Mobile Subscriber Purge request are initiated upon explicit detach when the *purgeOnExplicitDetach* attribute in (U) SGSN MobileSubscriberPurge is enabled.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Gsc operatorInitiatedPurge

Description

This attribute counts the number of Mobile Subscriber (MS) Purge requests initiated by the operator.

An operator initiates the Mobile Subscriber Purge request by issuing the *clear* command on an (U) SGSN *Imsi* component.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Gsc contextReusePurge

Description

This attribute counts the number of Mobile Subscriber (MS) Purge requests initiated due to memory reuse.

The counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc periodicAuditPurge

Description

This attribute counts the number of Mobile Subscriber (MS) Purge requests initiated due to periodic. During a periodic audit, detached Mobile Subscribers whose age is greater than the value specified by the auditPurgeMinimumInactiveAge attribute in (U) SGSN MobileSubscriberPurge are considered candidates for purge.

The counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc msPurgeAckFailures

Description

This attribute counts the Mobile Subscriber (MS) Purge Acknowledgement Failures received by the (UMTS) Serving GPRS Support Node (USGSN or SGSN) from the Home Location Register (HLR).

The counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc msPurgeSendFailures

Description

This attribute counts the Mobile Subscriber (MS) Purge requests that were not sent from the (UMTS) Serving GPRS Support Node (USGSN or SGSN) due to network related faults such as SIG failure and so on.

The counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

# COLLECTED STATS GprsSubscriberControl MapClient

Description: The statistics record generated by the GprsSubscriberControl MapClient component.

## ATTRIBUTE Gsc Mc uglMsgs

Description: This attribute indicates the MAP-UPDATE GPRS LOCATION messages sent to the Home Location Register (HLR) in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Mc uglResponseMsgs (uglResp)

Description: This attribute indicates the successful MAP-UPDATE GPRS LOCATION RESPONSE messages received from the Home Location Register (HLR) in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Mc isdMsgs

Description: This attribute indicates the MAP-INSERT SUBSCRIBER DATA messages received from the Home Location Register (HLR) in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Mc isdResponseMsgs (isdResp)

Description: This attribute indicates the MAP-INSERT SUBSCRIBER DATA RESPONSE messages sent to the Home Location Register (HLR) in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Mc dsdMsgs

Description: This attribute indicates the MAP-DELETE SUBSCRIBER DATA messages received from the Home Location Register (HLR) in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Mc dsdResponseMsgs (dsdResp)

Description: This attribute indicates the MAP-DELETE SUBSCRIBER DATA RESPONSE messages sent to the Home Location Register (HLR) in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Mc clMsgs

Description: This attribute indicates the MAP-CANCEL LOCATION messages received from the Home Location Register (HLR) in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Mc clResponseMsgs (clResp)

Description: This attribute indicates the MAP-CANCEL LOCATION RESPONSE messages sent to the Home Location Register (HLR) in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Mc rstMsgs

Description: This attribute indicates the MAP-RESET messages received from the Home Location Register (HLR) in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Mc saiMsgs

Description: This attribute indicates the MAP-SEND AUTHENTICATION INFO messages sent to the Home Location Register (HLR) in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Mc saiResponseMsgs (saiResp)

Description: This attribute indicates the MAP-SEND AUTHENTICATION INFO RESPONSE messages received from the Home Location Register (HLR) in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Mc transLimitDiscards (trDisc)

Description: This attribute indicates the number of transactions rejected by the MAP Client when the maximum number of concurrent MAP transactions supported by the MAP Client has been exceeded. The maximum number of MAP transactions is constrained by the MAP Client internal memory available to store the transactions. This counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Mc tmrExpiries (tmrEx)

Description: This attribute indicates the times the *mcTimer* (defined in component *Sgsn GprsSubscriberControl* and *Usgsn UmtsSubscriberControl*) expires before receiving a response from the Home Location Register (HLR). This can be used to determine if the provisionable attribute *mcTimer* must be changed, or a problem exists between the Serving GPRS Support Node (SGSN) or the UMTS Serving General Support Node (USGSN) and the Home Location Register (HLR). This counter counts the value in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Mc ofsmMsgs

Description: This attribute indicates the MAP-MO-FORWARD-SHORT-MESSAGE messages received by the Inter-working Mobile Switching Center (IWMSC) from the MAP Client in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Mc ofsmResMsgs

Description: This attribute indicates the MAP-MO-FORWARD-SHORT-MESSAGE response messages received by the MAP Client from the Inter-working Mobile Switching Center (IWMSC) in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Mc tfsmMsgs

Description: This attribute indicates the MAP-MT-FORWARD-SHORT-MESSAGE messages received by the MAP Client from the Inter-working Mobile Switching Center (IWMSC) in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Mc tfsmResMsgs

Description: This attribute indicates the MAP-MT-FORWARD-SHORT-MESSAGE response messages received by the Inter-working Mobile Switching Center (IWMSC) from the MAP Client in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Mc rsmMsgs

Description: This attribute indicates the MAP-READY-FOR-SM messages received by the Home Location Register (HLR) from the MAP Client in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Mc rsmResMsgs

Description

This attribute indicates the MAP-READY-FOR-SM response messages received by the MAP Client from the Home Location Register (HLR) in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc Mc currentTransactions (curTr)

Description

This attribute indicates how many MAP transactions are currently being handled by the MAP Client. *currentTransactions* is expressed as a percentage utilization of the number of MAP transactions the MAP Client is capable of handling concurrently.

A SET alarm is generated by the MAP Client when the percentage utilization reaches a high threshold. A CLEAR alarm is generated by the MAP Client when the percentage utilization reaches a low threshold and an outstanding SET alarm exists.

The value reported is the value at the end of the collection interval.

Values

Decimal (0..100)

## ATTRIBUTE Gsc Mc sccpServiceRequestTimeouts

Description

This attribute indicates the MAP Stack Service request timeouts in the collection interval. This could occur if the MAP Stack was not responding to Service requests from the MAP Clients, or if there was an SS7-IP Gateway (SIG) or IP network problem.

Retries of the Service request are infinite since the MAP Client can not send or receive MAP messages until it is successfully registered with the MAP Stack.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc Mc decodeErrors

Description: This attribute indicates, over the collection interval, the number of MAP messages received from the peer nodes that are not decodable. The inability to decode the MAP message is caused by the MAP Client receiving a message with invalid data.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Mc dataMissingRespSent

Description: This attribute indicates, over the collection interval, the number of “data missing” error responses sent to the peer nodes. This error may occur when optional data is missing from a MAP message received, when required data is missing from a MAP message received, or when an internal data structure is missing data.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Mc unexpectedDataValuesRespSent (unexpDataRespSent)

Description: This attribute indicates, over the collection interval, the number of “unexpected data value” error responses sent to the peer nodes. This error may occur when the parameter type is correct in a MAP message received but contains data which is not relevant for the type of MAP service being invoked.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Mc systemFailuresRespSent (sysFailRespSent)

Description: This attribute indicates, over the collection interval, the number of “system failure” error responses sent to the peer nodes. This error may occur when a task specified by a MAP message received cannot be performed because of a problem with another entity.

Values Decimal (0..4294967295)

## ATTRIBUTE Gsc Mc unidentifiedSubscribersRespSent (unidentSubRespSent)

Description This attribute indicates, over the collection interval, the number of “unidentified subscriber” error responses sent to the peer nodes. This error may occur when the subscriber is not contained in the subscriber database resulting in the failure to establish a call.

Values Decimal (0..4294967295)

## ATTRIBUTE Gsc Mc facilityNotSupportedRespSent (facNotSuppRespSent)

Description This attribute indicates, over the collection interval, the number of “facility not supported” error responses sent to the peer nodes. This error may occur when the requested facility, such as SMS, is not supported.

Values Decimal (0..4294967295)

## ATTRIBUTE Gsc Mc smDeliveryFailuresRespSent (smDelFailRespSent)

Description This attribute indicates, over the collection interval, the number of “short message delivery failure” error responses sent to the SMSC. This error may occur when the mobile runs out of memory to store short messages.

Values Decimal (0..4294967295)

## ATTRIBUTE Gsc Mc illegalSubscribersRespSent (illegalSubRespSent)

Description This attribute indicates, over the collection interval, the number of “illegal subscriber” error responses sent to the peer nodes. This error may occur when an illegal access attempt is determined during the authentication process.

Values Decimal (0..4294967295)

## ATTRIBUTE Gsc Mc illegalEquipmentRespSent

Description This attribute indicates, over the collection interval, the number of “illegal equipment” error responses sent to the peer nodes. This error may occur when the International Mobile station Equipment Identity (IMEI) is either blacklisted or not whitelisted.

Values Decimal (0..4294967295)

## ATTRIBUTE Gsc Mc subscriberBusyForMtSmsRespSent (SubBusyMtSmsRespSent)

Description This attribute indicates, over the collection interval, the number of “subscriber busy for mobile-terminated short message service” error responses sent to the SMSC. This error may occur when mobile terminated short messages cannot be completed.

Values Decimal (0..4294967295)

## ATTRIBUTE Gsc Mc absentSubscriberSmRespSent (absentSubSmRespSent)

Description This attribute indicates, over the collection interval, the number of “absent subscriber short message service” error responses sent to the SMSC. This error may occur when the mobile terminated short message transfer cannot be completed because the network cannot contact the subscriber. This may be caused by the mobile being turned off.

Values Decimal (0..4294967295)

## ATTRIBUTE Gsc Mc dataMissingRespRecv

Description: This attribute indicates, over the collection interval, the number of “data missing” error responses received from the peer nodes. This error may occur when optional data is missing from a MAP message sent, when required data is missing from a MAP message sent, or when an internal data structure is missing data.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Mc unexpectedDataValuesRespRecv (unexpDataRespRecv)

Description: This attribute indicates, over the collection interval, the number of “unexpected data value” error responses received from the peer nodes. This error may occur when the parameter type is correct in a MAP message sent but contains data which is not relevant for the type of MAP service being invoked.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Mc systemFailuresRespRecv (sysFailRespRecv)

Description: This attribute indicates, over the collection interval, the number of “system failure” error responses received from the peer nodes. This error may occur when a task specified by a MAP message sent cannot be performed because of a problem with another entity.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Mc unknownSubscribersRespRecv (unkSubRespRecv)

Description: This attribute indicates, over the collection interval, the number of “unknown subscriber” error responses received from the peer nodes. This error may occur when a message sent is processed for a subscription that does not exist.

Values Decimal (0..4294967295)

## ATTRIBUTE Gsc Mc roamingNotAllowedRespRecv (noRoamRespRecv)

Description This attribute indicates, over the collection interval, the number of “roaming not allowed” error responses received from the HLR or SMSC. This error may occur when a location update attempt is made in an area not covered by the subscription.

Values Decimal (0..4294967295)

## ATTRIBUTE Gsc Mc facilityNotSupportedRespRecv (facNotSuppRespRecv)

Description This attribute indicates, over the collection interval, the number of “facility not supported” error responses received from the HLR or SMSC. This error may occur when the requested facility, such as SMS, is not supported.

Values Decimal (0..4294967295)

## ATTRIBUTE Gsc Mc smDeliveryFailuresRespRecv (smDelFailRespRecv)

Description This attribute indicates, over the collection interval, the number of “short message delivery failure” error responses received from the SMSC. This error may occur when the Short Message Service Center returns a delivery error indication in response to a message sent by the MAP Client.

Values Decimal (0..4294967295)

## ATTRIBUTE Gsc Mc invalidMessages

Description This attribute indicates, over the collection interval, the number of invalid messages received by the MAP Client. This may occur if the MAP Client receives an unsolicited message, a message with an invalid header, or an invalid dialogue ID.

Values Decimal (0..4294967295)

## ATTRIBUTE Gsc Mc isdMsgsUpdateLocation (isdMsgsUpdLoc)

Description This attribute indicates, over the collection interval, the number of MAP-INSERT SUBSCRIBER DATA messages received from the Home Location Register (HLR) during a GPRS Update Location procedure.

Values Decimal (0..4294967295)

## ATTRIBUTE Gsc Mc isdMsgsHlrSubUpdate (isdMsgsHlrSubUp)

Description This attribute indicates, over the collection interval, the number of MAP-INSERT SUBSCRIBER DATA messages received from the Home Location Register (HLR) due to an updated mobile subscription.

Values Decimal (0..4294967295)

## ATTRIBUTE Gsc Mc isdFailures (isdFail)

Description This attribute indicates the number of MAP-INSERT SUBSCRIBER DATA messages sent to the Home Location Register (HLR) that could not be processed due to one of the following errors:

Data Missing
Unexpected Data Value
Unidentified Subscriber
Decode errors

This counter counts the events in the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Gsc Mc clMsgsHlrDetach (clMsgsHlrDetach)

Description: This attribute indicates, over the collection interval, the number of MAP-CANCEL LOCATION messages received from the Home Location Register (HLR) due to an HLR initiated Detach.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Mc clMsgsSgsnChange (clMsgsSgsnChg)

Description: This attribute indicates, over the collection interval, the number of MAP-CANCEL LOCATION messages received from the Home Location Register (HLR) due to a Service GPRS Support Node (SGSN) change.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Mc clMsgsHlrOther (clMsgsHlrOther)

Description: This attribute indicates, over the collection interval, the number of MAP-CANCEL LOCATION messages received from the Home Location Register (HLR) with a cancellation type other than a Service GPRS Support Node (SGSN) change or an HLR initiated Detach.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Mc clFailures (clFail)

Description: This attribute indicates the number of MAP-CANCEL LOCATION messages received from the Home Location Register (HLR) that could not be processed due to one of the following errors:

Data Missing
Unexpected Data Value
Decode errors

This counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Mc dsdFailures (dsdFail)

Description

This attribute indicates the number of MAP-DELETE SUBSCRIBER DATA messages sent to the Home Location Register (HLR) that could not be processed due to one of the following errors:

Data Missing
Unexpected Data Value
Unidentified Subscriber
Decode errors

This counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc Mc uAbortMsgSent

Description

This attribute indicates, over the collection interval, the number of MAP USER ABORT messages sent by the MAP Client to the peer nodes. This message may be sent as a result of a resource limitation caused by congestion or as a result of the unavailability of resources.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc Mc pAbortMsgRecv

Description

This attribute indicates, over the collection interval, the number of MAP PROVIDER ABORT messages received by the MAP Client from the peer nodes. This message indicates to the MAP service-user to abort a MAP dialogue. This message may be received due to a MAP service-provider malfunction, supporting dialogue/transaction release, resource limitation, maintenance activity, version incompatibility, or an abnormal MAP dialogue.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc Mc uAbortMsgRecv

Description

This attribute indicates, over the collection interval, the number of MAP USER ABORT messages received by the MAP Client from the peer nodes. This message indicates to the MAP service-provider to abort a MAP dialogue. This message may be received due to a resource limitation caused by congestion or by unavailability of resources.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc Mc pmsMsgs

Description

This attribute indicates the number of Mobile Subscriber Purge messages sent to the Home Location Register (HLR).

This counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc Mc pmsResponseMsgs (pmsRes)

Description

This attribute indicated the number of Mobile Subscriber Purge Response messages received from the Home Location Register (HLR).

This counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc Mc pslMsgs

Description

This attribute counts the MAP-PROVIDE SUBSCRIBER LOCATION messages received by the MAP Client from the Gateway Mobile Location Center (GMLC).

The counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc Mc pslRespMsgs

Description

This attribute counts the MAP-PROVIDE SUBSCRIBER LOCATION response messages sent by the MAP Client to the Gateway Mobile Location Center (GMLC).

The counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc Mc unauthorizedReqNetworkRespSent (unauthReqNetRespSent)

Description

This attribute counts the number of “Unauthorized Requested Network” error responses sent to the Gateway Mobile Location Center (GMLC). This error may occur when a Location Request is denied due to the GMLC not being in the home country.

The counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc Mc unauthorizedLcsClientRespSent (unauthLcsCliRespSent)

Description

This attribute counts the number of “Unauthorized LCS Client” error responses sent to the Gateway Mobile Location Center (GMLC). This error may occur when a Location Request is denied due to privacy restrictions.

The counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc Mc positionMethodFailureRespSent (posMethFailRespSent)

Description

This attribute counts the number of “Positioning Method Failure” error responses sent to the Gateway Mobile Location Center (GMLC). This error may occur when the position of the mobile cannot be retrieved.

The counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc Mc absentSubscriberRespSent (absentSubRespSent)

Description

This attribute counts the number of “Absent Subscriber” error responses sent to the Gateway Mobile Location Center (GMLC). This error may occur when the subscriber is International Mobile Subscriber Identity (IMSI) detached, in a restricted area, or does not respond to paging.

The counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

# COLLECTED STATS GprsSubscriberControl GtpMgmt

Description

The statistics record generated by the GprsSubscriberControl GtpMgmt component.

## ATTRIBUTE Gsc GtpM echoRequestsTransmitted (echoReqTx)

Description

This attribute counts the number of Echo Request Messages sent over the collection interval.

The count is taken at the end of the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc GtpM echoResponsesTransmitted (echoRspTx)

Description

This attribute counts the number of Echo Response Messages sent on the Gn Interface over the collection interval.

The count is taken at the end of the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc GtpM pathFailures

Description

This attribute counts the number of path failures detected by the GPRS Tunnelling Protocol (GTP), based on the attribute *strictPathSupervision*, provisioned in the *Sgsn Gsc* component, over the collection interval.

If the attribute *strictPathSupervision* has a value ***enabled***, failure of the remote end to respond to any GTP request will result in path failure being declared.

If the attribute *strictPathSupervision* has a value ***disabled***, then failure of the remote end to respond to an echo request will be marked as a path failure, but all other failures will not be detected.

The count is taken at the end of the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc GtpM incomingRequestsRejected (inReqReject)

Description

This attribute counts the number of the incoming GPRS Tunnelling Protocol (GTP) requests that were rejected during the collection interval because the maximum number of outstanding incoming requests was exceeded. This maximum is based on the attribute *maxIncomingRequests*.

The count is taken at the end of the collection interval.

Values Decimal (0..4294967295)

# COLLECTED STATS GprsSubscriberControl GprsMobilityManagement

Description The statistics record generated by the GprsSubscriberControl GprsMobilityManagement component.

## ATTRIBUTE Gsc Gmm authenticationRequests (authReqs)

Description This attribute counts the AUTHENTICATION AND CIPHERING REQUEST messages sent to the MS requiring only authentication and messages requiring both authentication and ciphering. The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Gsc Gmm cipheringRequests (ciphReqs)

Description This attribute counts the AUTHENTICATION AND CIPHERING REQUEST messages sent to the Mobile Stations (MS) requiring only ciphering in the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Gsc Gmm identityRequests (idReqs)

Description This attribute counts the IDENTITY REQUEST messages sent to the Mobile Stations (MS) in the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Gsc Gmm ptmsiReallocationRequests (relReqs)

Description This attribute counts the implicit and explicit P-TMSI REALLOCATION messages sent to the Mobile Stations (MS) in the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Gsc Gmm bssgpSuspendMsgs (bssgpSus)

Description: This attribute counts the SUSPEND messages received by the
Serving GPRS Support Node (SGSN) from the Base Station System (BSS). The BSS sends this message when a mobile subscriber switches from packet-switched mode to circuit-switched mode. This counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Gmm bssgpResumeMsgs (bssgpRes)

Description: This attribute counts the RESUME messages received by the Serving GPRS Support Node (SGSN) from the Base Station System (BSS). The BSS sends this message when a mobile subscriber switches from circuit-switched mode to packet-switched mode. This counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Gmm readyStateSubscribers (readySub)

Description: This attribute indicates the mobile subscribers that are GPRS-attached and in Ready state. This value reported is the value at the end of the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Gmm currentlyAttached (curAtt)

Description: This attribute indicates the Mobile Stations (MS) that are currently GPRS-attached and in Ready or Standby state. This value reported is the value at the end of the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Gmm attachesSuccessful (attSuc)

Description: This attribute counts the GPRS-attaches to this Serving GPRS
Support Node (SGSN) that were successful in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Gmm attachesWithKnownTlli (knownTlliAtt)

Description: This attribute counts the ATTACH REQUEST messages received with a Temporary Logical Link Identifier (TLLI) previously assigned by this Serving GPRS Support Node (SGSN). This includes all successful and unsuccessful attempts. This counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Gmm attachesWithUnknownTlli (unkTlliAtt)

Description: This attribute counts the ATTACH REQUEST messages received with a Temporary Logical Link Identifier (TLLI) not assigned by this Serving GPRS Support Node (SGSN). This includes all successful and unsuccessful attempts. This counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Gmm attachesWithImsi (attWithImsi)

Description: This attribute counts the ATTACH REQUEST messages received with an International Mobile Subscriber Identity (IMSI) as an identifier. This includes all successful and unsuccessful attempts. This counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Gmm attachesWithInfoAttempts (attWithInfo)

Description: This attribute counts the ATTACH attempts by mobile subscribers with the GPRS Mobility Management (GMM) context held in the Serving GPRS Support Node (SGSN). This includes all successful and unsuccessful attempts. This counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Gmm detachesSuccessful (detSuc)

Description: This attribute counts the successful mobile or network initiated DETACHes in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Gmm msDetachRequests (msDetReqs)

Description: This attribute counts the Mobile Station (MS) initiated DETACH REQUEST messages received by this Serving GPRS Support Node (SGSN) in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Gmm msDetachRejected (msDetRej)

Description: This attribute counts the Mobile Station (MS) initiated GPRS-DETACH REQUEST messages which have been rejected by this Serving GPRS Support Node (SGSN) in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Gmm nwkDetachRequests (nwkDetReqs)

Description: This attribute counts the network initiated DETACH REQUEST messages sent to a mobile subscriber in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Gmm authenticationsRejected (authRej)

Description: This attribute counts the AUTHENTICATION AND CIPHERING REJECT messages sent to the Mobile Station (MS) due to authentication failures in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Gmm normalIntraSgsnRaUpdate (norIntraSgsnRau)

Description: This attribute counts the normal intra-Serving GPRS Support Node (SGSN) ROUTING AREA UPDATE REQUEST messages received from the Mobile Station (MS) in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Gmm periodicIntraSgsnRaUpdate (perIntraSgsnRau)

Description: This attribute counts the periodic intra-Serving GPRS Support Node (SGSN) ROUTING AREA UPDATE REQUEST messages from the Mobile Station (MS) in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Gmm normalInterSgsnRaUpdate (interSgsnRau)

Description: This attribute counts the inter-Serving GPRS Support Node (SGSN) ROUTING AREA UPDATE REQUEST messages from the Mobile Station (MS) in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Gmm intraRaCellChange (intraRaCellCh)

Description: This attribute counts the intra-Serving GPRS Support Node (SGSN) intra-Routing Area cell changes performed by the Mobile Station (MS) in the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Gsc Gmm initialPsPageRequests (initPgReq)

Description This attribute counts the initial PS (Packet-Switched) PAGE REQUEST messages sent to the Mobile Station (MS) in the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Gsc Gmm reattemptPsPageRequests (rePgReq)

Description This attribute counts the re-attempt PS (Packet-Switched) PAGE REQUEST messages sent to the Mobile Station (MS) after the initial page request in the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Gsc Gmm interSgsnRaUpdateAccepts (irauAccepts)

Description This attribute counts the ROUTING AREA UPDATE ACCEPT messages sent from this SGSN, while acting as the new SGSN, to the Mobile Station (MS) in the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Gsc Gmm t3Timeouts (t3To)

Description This attribute counts the number of times the *t3TunnelTimer* (defined in *Sgsn GprsSubscriberControl*) expires in this SGSN, while acting as the old SGSN, and the CANCEL LOCATION message has been received. The counter wraps to zero when it exceeds the maximum value.

Values Decimal (0..4294967295)

## ATTRIBUTE Gsc Gmm msPresentAttempts (msPresentAtt)

Description

This attribute indicates, for the collection interval, the number of times the SGSN detects that the Mobile Station (MS) has recovered operation such as responded to a paging request via the SGSN. If the MS has alerted the SGSN and the HLR that its memory has exceeded, then the HLR will not notify the Service Center that the MS is ready for Short Message Services (SMS).

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc Gmm nwkDetachReachableTimer (nwkDetReach)

Description

This attribute counts the number of network initiated detaches due to the expiration of reachable timer. The *mobileReachableTimer* attribute is provisioned in the *Sgsn Gsc* component.

The counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc Gmm nwkDetachCancelLocation (nwkDetCancelLoc)

Description

This attribute counts the number of network initiated detaches due to the receipt of CANCEL LOCATION Messages from the Home Location Register (HLR).

The counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc Gmm nwkDetachDuplicateAttach (nwkDetDupAtt)

Description: This attribute counts the number of network initiated detaches due to mobile reattaches with a new random Packet Temporary Mobile Subscriber Identity (PTMSI) without first performing a detach.

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Gmm nwkDetachTempNetworkFailure (nwkDetNetFail)

Description: This attribute counts the number of network initiated detaches due to temporary network problems.

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Gmm nwkDetachForReattach (nwkDetReatt)

Description: This attribute counts the number of network initiated detaches with a detach type of "reattach required".

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Gmm attachRejIllegalMs (attRejIllMs)

Description: This attribute counts the GPRS-attaches to this Serving GPRS
Support Node (SGSN) that were rejected during the collection interval because of the reject cause “Illegal Ms”.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Gmm attachRejGprsServNotAllowed (attRejGprsServ)

| | |
|---|---|
| Description | This attribute counts the GPRS-attaches to this Serving GPRS<br>Support Node (SGSN) that were rejected during the collection interval because of the reject cause “Gprs Service not allowed”. |
| Values | Decimal (0..4294967295) |

## ATTRIBUTE Gsc Gmm attachRejGprsServNotAllowedInPlmn (attRejGprsServPlmn)

| | |
|---|---|
| Description | This attribute counts the GPRS-attaches to this Serving GPRS<br>Support Node (SGSN) that were rejected because of the reject cause "Gprs Service not allowed in this PLMN".<br><br>This counter counts the events in the collection interval. |
| Values | Decimal (0..4294967295) |

## ATTRIBUTE Gsc Gmm attachRejPlmnNotAllowed (attRejPlmn)

| | |
|---|---|
| Description | This attribute counts the GPRS-attaches to this Serving GPRS<br>Support Node (SGSN) that were rejected during the collection interval because of the reject cause “PLMN not allowed”. |
| Values | Decimal (0..4294967295) |

## ATTRIBUTE Gsc Gmm attachRejPacketNetworkFailure (attRejNetFail)

| | |
|---|---|
| Description | This attribute counts the GPRS-attaches to this Serving GPRS<br>Support Node (SGSN) that were rejected during the collection interval because of the reject cause “Network Failure”. |

Values Decimal (0..4294967295)

## ATTRIBUTE Gsc Gmm attachRejSgsnCongestion (attRejCongest)

Description This attribute counts the GPRS-attaches to this Serving GPRS
Support Node (SGSN) that were rejected during the collection interval because of the reject cause “Congestion”.

Values Decimal (0..4294967295)

## ATTRIBUTE Gsc Gmm attachRejMsgError (attRejMsgErr)

Description This attribute counts the GPRS-attaches to this Serving GPRS
Support Node (SGSN) that were rejected during the collection interval because of one of the following reject causes:
Semantically incorrect message,
Invalid mandatory information,
Message type non-existence or not implemented,
Message type not compatible with the protocol state,
Information element non-existent or not implemented,
Conditional IE error,
Message not compatible with the protocol state,
Protocol error, unspecified.

Values Decimal (0..4294967295)

## ATTRIBUTE Gsc Gmm attachRejRoamNotAllowedInLocArea (attRejRoam)

Description

This attribute counts the GPRS-attaches to this Serving GPRS
Support Node (SGSN) that were rejected because of the reject cause "roaming not allowed in location area".

This counter is incremented when a Unit Data Transfer Service message (UDTS) is received from the SS7/IP Gateway (SIG) for a Update GPRS Location (UGL) or a Send Authentication Info (SAI), or when the global title translation failure occurs in the MapClient component.

This counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

# COLLECTED STATS GprsSubscriberControl SessionManagement

Description

The statistics record generated by the GprsSubscriberControl SessionManagement component.

## ATTRIBUTE Gsc Sm currentPdpContexts (curPdpc)

Description

This attribute indicates the number of currently active Packet Data Protocol (PDP) contexts in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc Sm mobileInitActivations (mia)

Description

This attribute counts the successful Mobile-initiated Packet Data Protocol (PDP) context activations for this *SessionManagement (Sm)* component in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc Sm mobileInitDeacts (mid)

Description: This attribute counts the Packet Data Protocol (PDP) context deactivations initiated by the Mobile Station (MS) in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Sm ggsnInitDeacts (nwkD)

Description: This attribute counts the Packet Data Protocol (PDP) context deactivations initiated by the Gateway GPRS Support Node (GGSN) in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Sm sgsnInitDeacts (sgsnD)

Description: This attribute counts the Packet Data Protocol (PDP) context deactivations initiated locally from the Serving GPRS Support Node (SGSN) (for example, an implicit session deactivation as a result of a Gateway GPRS Support Node (GGSN) restart or path failure).

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Sm hlrInitDeacts (hlrD)

Description: This attribute counts the Packet Data Protocol (PDP) context deactivations initiated by the Home location Register (HLR), for example, Delete Subscriber Data (DSD) withdrawing subscription for an active session. This counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

# ATTRIBUTE Gsc Sm currentQosReliability (curQosRel)

Description

This attribute indicates the currently active Packet Data Protocol
(PDP) contexts for each Quality of Service (QoS) Reliability Class. This value reported is the value at the end of the collection interval.
The Reliability values have the following meaning:

| RelClass | GTP | LLC | RLC | Data |
|---|---|---|---|---|
| 1 | Acked | Acked | Acked | Protected |
| 2 | UnAcked | Acked | Acked | Protected |
| 3 | UnAcked | UnAcked | Acked | Protected |
| 4 | UnAcked | UnAcked | UnAcked | Protected |
| 5 | UnAcked | UnAcked | UnAcked | UnProtected |

where GTP is GPRS Tunnelling Protocol, LLC is Logical Link Control, and RLC is Radio Link Control.

Vector of Decimal (0..4294967295)

Index Decimal (0..5)

## ATTRIBUTE Gsc Sm totalQosReliability (totQosRel)

Description

This attribute counts the Packet Data Protocol (PDP) contexts
that were activated for each Quality of Service (QoS) Reliability Class. This counter counts the events in the collection interval.

The Reliability values have the following meaning:

| RelClass | GTP | LLC | RLC | Data |
|---|---|---|---|---|
| 1 | Acked | Acked | Acked | Protected |
| 2 | UnAcked | Acked | Acked | Protected |
| 3 | UnAcked | UnAcked | Acked | Protected |
| 4 | UnAcked | UnAcked | UnAcked | Protected |
| 5 | UnAcked | UnAcked | UnAcked | UnProtected |

where GTP is GPRS Tunnelling Protocol, LLC is Logical Link Control, and RLC is Radio Link Control.

Vector of Decimal (0..4294967295)

Index Decimal (0..5)

## ATTRIBUTE Gsc Sm currentRoamers (curR)

Description

This attribute indicates the current number of roamer sessions that are currently being serviced by the SGSN. A roamer is a mobile that is not in its H-PLMN. This attribute is incremented whenever a PDP context is activated and is decremented whenever a PDP context is de-activated. This counter counts the events at the end of the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Gsc Sm nwkPdpModifyInitiated (nwkPdpMi)

Description: This attribute counts the NWK PDP MODIFY CONTEXT REQUEST messages sent to the Mobile Station (MS). This counter is incremented in the SGSN acting as the new SGSN. The counter wraps to zero when it exceeds the maximum value.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Sm nwkPdpModifyRetriesExhausted (nwkPdpMRetE)

Description: This attribute counts the number of times the *nwkPdpModifyRetires* attribute is exhausted. This counter is incremented in the SGSN acting as the new SGSN. The counter wraps to zero when it exceeds the maximum value.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Sm insufficientResources (insufRes)

Description: This attribute counts the Mobile Station (MS) initiated activations rejected by the Serving GPRS Support Node (SGSN) due to insufficient resources. This counter is incremented either due to the SGSN having insufficient resources for the session, or the Gateway GPRS Support Node (GGSN) returning a cause code of “No resources available” in the CREATE PDP CONTEXT RESPONSE message. The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Sm missingOrUnknownApn (mOrUn)

Description: This attribute counts the number of times the Serving GPRS Support Node (SGSN) rejected a Mobile Station (MS) initiated activation due to the requested service being rejected by the external packet data network because the Access Point Name (APN) was not included although required or if the APN was not resolved. The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Sm unknownPdpAddrOrPdpType (unPdpAorT)

Description: This attribute counts the number of times a CREATE PDP CONTEXT RESPONSE message was received from the Gateway GPRS Support Node (GGSN) with the cause “Service not supported”. This can be due to the requested service being rejected by the external packet data network because the Packet Data Protocol (PDP) address or the PDP type was not recognized. The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Sm userAuthenticationsFailed (userAuthFail)

Description: This attribute counts the number of times the Serving GPRS Support Node (SGSN) rejected a Mobile Station (MS) initiated activation due to the requested service being rejected by the external packet data network due to a failed user authentication. The SGSN increments this counter when a cause code of “User Authentication Failed” is received from the Gateway GPRS Support Node (GGSN) in the CREATE PDP CONTEXT REQUEST message. The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Sm activationRejectedByGgsn (actRej)

Description

This attribute counts the number of times the Serving GPRS Support Node (SGSN) rejected a Mobile Station (MS) initiated activation due to the requested service being rejected by the Gateway GPRS Support Node (GGSN) with a cause code that is not mappable to a cause code in the ACTIVATE PDP CONTEXT REJECT message. The counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc Sm activationRejectedUnspecified (actRejUn)

Description

This attribute counts the number of times the Serving GPRS Support Node (SGSN) rejected a Mobile Station (MS) initiated activation due to unspecified reasons. The counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc Sm reqServiceOptionNotSubscribed (reqOp)

Description

This attribute counts the number of times the Serving GPRS Support Node (SGSN) rejected a Mobile Station (MS) initiated activation due to the MS requesting a service for which it has no subscription. The counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc Sm serviceOptionTempOutOfOrder (serOp)

Description

This attribute counts the number of times the Serving GPRS Support Node (SGSN) rejected a Mobile Station (MS) initiated activation due to temporary outage of one or more functions required for supporting the service. The counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc Sm nsapiAlreadyUsed (nsapiUsed)

Description: This attribute counts the number of times the Serving GPRS Support Node (SGSN) rejected a Mobile Station (MS) initiated activation due to the MS requesting a Network-Service
Access Point Identifier (N-SAPI) in the Packet Data Protocol (PDP) context activation, which is already used by another active PDP context of this MS. The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Sm semanticallyIncorrectMesage (inMsg)

Description: This attribute counts the number of times the Serving GPRS Support Node (SGSN) rejected a Mobile Station (MS) initiated activation due to the receipt of a message with semantically incorrect contents. The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Sm invalidMandatoryInfoElement (invInfo)

Description: This attribute counts the number of times the Serving GPRS Support Node (SGSN) rejected a Mobile Station (MS) initiated activation due to the receipt of a of a message with errors in a mandatory Information Element (IE). The counter counts the
events in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Sm msgTypeNotCompWithProtState (notComp)

Description: This attribute counts the number of times the Serving GPRS Support Node (SGSN) rejected a Mobile Station (MS) initiated activation due to the receipt of a message type not compatible with the current protocol state. The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Gsc Sm protocolErrorUnspecified (proErr)

Description This attribute counts the number of times the Serving GPRS Support Node (SGSN) rejected a Mobile Station (MS) initiated activation due to a protocol error event which does not fit into any specific protocol error class values. The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Gsc Sm networkFailure (nwFail)

Description This attribute counts the number of times the Serving GPRS Support Node (SGSN) sent a Packet Data Protocol (PDP) CONTEXT DEACTIVATION REQUEST message to the Mobile Station (MS) with a cause code of NETWORK FAILURE. This cause code is sent due to an error situation in the network. The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Gsc Sm reactivationRequested (reactReq)

Description This attribute counts the number of times the Serving GPRS Support Node (SGSN) sent a Packet Data Protocol (PDP) CONTEXT DEACTIVATION REQUEST message to the Mobile Station (MS) with a cause code of REACTIVATE REQUEST. This
cause code is sent to MS to request session reactivation. The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Gsc Sm sgsnInitModifyAttempts

Description: This attribute counts the number of Packet Data Protocol (PDP) context modifications initiated by the Serving GPRS Support Node (SGSN), for example, as a result of QoS renegotiations with the Mobile Station (MS). This counter is pegged only during SGSN Initiated PDP Context Modification.

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Sm sgsnInitFailAtMs

Description: This attribute counts the unsuccessful Packet Data Protocol (PDP) context modifications initiated by the Serving GPRS Support Node (SGSN) that failed at the Mobile Station (MS).

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Sm sgsnInitFailAtGgsn

Description: This attribute counts the unsuccessful Packet Data Protocol (PDP) context modifications initiated by the Serving GPRS Support Node (SGSN) that failed at the Gateway GPRS Support Node (GGSN).

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Sm sgsnInitFailAtSgsn

Description: This attribute counts the unsuccessful Packet Data Protocol (PDP) context modifications initiated by the Serving GPRS Support Node (SGSN) that failed at the SGSN.

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Sm msInitModifyAttempts

Description

This attribute counts the number of Packet Data Protocol (PDP) context modifications initiated by the Mobile Station (MS).

The counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc Sm msInitFailAtGgsn

Description

This attribute counts the unsuccessful Packet Data Protocol (PDP) context modifications initiated by the Mobile Station (MS) that failed at the Gateway GPRS Support Node (GGSN).

The counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc Sm msInitFailAtSgsn

Description

This attribute counts the unsuccessful Packet Data Protocol (PDP) context modifications initiated by the Mobile Station (MS) that failed at the SGSN.

The counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

# COLLECTED STATS GprsSubscriberControl HlrCache

Description

The statistics record generated by the GprsSubscriberControl HlrCache component.

## ATTRIBUTE Gsc HlrC cacheHits

Description: This attribute counts the number of times the *HlrCache* had the subscriber information locally and did not need to retrieve information from the Home Location Register (HLR). This counter counts the value in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc HlrC cacheMisses (cacheMiss)

Description: This attribute counts the number of times the *HlrCache* does not have the subscriber information locally and must retrieve information from the HLR. This counter counts the value in the collection interval.

Values: Decimal (0..4294967295)

# COLLECTED STATS GprsSubscriberControl BaseStationSystemApplPart

Description: The statistics record generated by the GprsSubscriberControl BaseStationSystemApplPart component.

## ATTRIBUTE Gsc Bssap registerAttempts (regAttempts)

Description: This attribute indicates the number of SCIP registrations attempted with the SIG during the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Bssap registerSuccessAcks (regAcks)

Description: This attribute indicates the number of successful registration responses received from the SIG during the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Bssap registerFailures (regFail)

Description: This attribute indicates the number of unsuccessful registration responses received from the SIG during the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Bssap deregisterAttempts (deregAttempts)

Description: This attribute indicates the number of SCIP deregistrations attempted with the SIG during the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Bssap deregisterSuccessAcks (deregAcks)

Description: This attribute indicates the number of successful deregistration responses received from the SIG during the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Bssap deregisterFailures (deregFail)

Description: This attribute indicates the number of unsuccessful deregistration responses received from the SIG during the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Bssap sigSccpNoticeIndications (sccpNotice)

Description: This attribute indicates the number of SCCP Notice Indications that have been received from the SIG during the collection interval. SCCP Notice Indications are received from the SIG when there are errors in the messages being sent to it.

Values: Decimal (0..4294967295)

# COLLECTED STATS GprsSubscriberControl

# ShortMessageService

Description: The statistics record generated by the GprsSubscriberControl ShortMessageService component.

## ATTRIBUTE Gsc Sms cpResponseExhaust (cpRespExh)

Description: This attribute indicates the number of times the *cpResponseTimer* expires and the *cpResponseRetries* has been reached before receiving a CP-ACK or CP-ERROR message from the Mobile Station (MS) in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Sms rpResponseTimeouts (rpRespTouts)

Description: This attribute indicates the number of times the *rpResponseTimer* expires before receiving a RP-ACK or RP-ERROR message from the Mobile Station (MS) in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Sms iwmscResponseTimeouts (iwmscRespTouts)

Description: This attribute indicates the number of times the *iwmscResponseTimer* expires before receiving a MOBILE ORIGINATED FORWARD SHORT MESSAGE message from the Service Center in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Sms moAttempts (moAtt)

Description: This attribute indicates the MOBILE ORIGINATED FORWARD SHORT MESSAGE messages received by the *ShortMessageService (Sms)* component from the Mobile Station (MS) in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Sms mtAttempts (mtAtt)

Description

This attribute indicates the MOBILE TERMINATED FORWARD SHORT MESSAGE messages sent to the *ShortMessageService (Sms) component* from the Service Center in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc Sms mmaAttempts (mmaAtt)

Description

This attribute indicates the MORE MEMORY AVAILABLE messages sent to the *ShortMessageService (Sms)* from the Mobile Station (MS) in the collection interval. The value includes the failures counted by *mmaFailures*.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc Sms mmaFailures (mmaFail)

Description

This attribute indicates the MORE MEMORY AVAILABLE messages sent to the *ShortMessageService (Sms)* from the Mobile Station (MS) that failed due to one of the following conditions:

Network Out of Order
Protocol Error
Congestion
Unidentified Subscriber
Unknown Subscriber
Invalid Transaction Identifier Value
Message Type non-existence
Invalid mandatory information
Invalid short message transfer reference value
Message not compatible with short message protocol state
Requested Facility not implemented

This counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc Sms moFailUnidentifiedSubscriber (moFailUnidSub)

Description

This attribute indicates, for the collection interval, the number of MOBILE ORIGINATED FORWARD SHORT MESSAGE messages received by the *ShortMessageService (Sms)* from the Mobile Station (MS) that failed because the MS is not registered in the Public Land Mobile Network (PLMN), the MS is not subscribed in a Service Center (SC) or the MS Prepaid Mobile Originated SMS account is depleted. The value of this attribute is included in the count of *moFailures*.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc Sms moFailNetworkFailures (moFailNetFailures)

Description

This attribute indicates, for the collection interval, the number of MOBILE ORIGINATED FORWARD SHORT MESSAGE messages received by the *ShortMessageService (Sms)* from the Mobile Station (MS) that failed because the network is not functioning correctly, a task cannot be performed because of a problem with the network, Prepaid Service Control Point (SCP) does not respond to the *Sms*, *iwmscResponseTimer* expires or an equipment protocol error occurs. The value of this attribute is included in the count of *moFailures.*

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc Sms moFailFacilityNotSupp (moFailFaciNoSupp)

Description

This attribute indicates, for the collection interval, the number of MOBILE ORIGINATED FORWARD SHORT MESSAGE messages received by the *ShortMessageService (Sms)* from the Service Center (SC) that failed because the network is unable to provide the requested short message services. The value of this attribute is included in the count of *moFailures*.

Values Decimal (0..4294967295)

## ATTRIBUTE Gsc Sms moFailCongestion (moFailCong)

Description This attribute indicates, for the collection interval, the number of MOBILE ORIGINATED FORWARD SHORT MESSAGE messages received by the *ShortMessageService (Sms)* from the Mobile Station (MS) that failed because the short message service cannot be serviced because of high traffic. The value of this attribute is included in the count of *moFailures*.

Values Decimal (0..4294967295)

## ATTRIBUTE Gsc Sms moFailUnknownServiceCenter (moFailUnkServC)

Description This attribute indicates, for the collection interval, the number of MOBILE ORIGINATED FORWARD SHORT MESSAGE messages sent from the *ShortMessageService (Sms)* to the Mobile Station (MS) that failed because the destination requested by the MS is not currently assigned or allocated. The value of this attribute is included in the count of *moFailures*.

Values Decimal (0..4294967295)

## ATTRIBUTE Gsc Sms moFailInvalidSmeAddress (moFailInvSmeAdd)

Description This attribute indicates, for the collection interval, the number of MOBILE ORIGINATED FORWARD SHORT MESSAGE messages received by the *ShortMessageService (Sms)* from the Mobile Station (MS) that failed because the Service Center (SC) received an invalid Short Message Entity address. The value of this attribute is included in the count of *moFailures*.

Values Decimal (0..4294967295)

## ATTRIBUTE Gsc Sms moFailMissingSmsSubscription (moFailMissSmsSub)

Description: This attribute indicates, for the collection interval, the number of MOBILE ORIGINATED FORWARD SHORT MESSAGE messages sent from the *ShortMessageService (Sms)* to the Mobile Station (MS) that failed because the Mobile Subscriber subscription information did not include Mobile Originated Short Message Services. The value of this attribute is included in the count of *moFailures*.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Sms moFailOdbSubscriber (moFailOdbSub)

Description: This attribute indicates, for the collection interval, the number of MOBILE ORIGINATED FORWARD SHORT MESSAGE messages sent from the ShortMessageService (Sms) to the Mobile Station (MS) that failed because the MS is forbidden from originating short message services (SMS) messages. The value of this attribute is included in the count of *moFailures*.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Sms mtFailUnidentifiedSubscriber (mtFailUnidSub)

Description: This attribute indicates, for the collection interval, the number of MOBILE TERMINATED FORWARD SHORT MESSAGE messages sent from the *ShortMessageService (Sms)* to the Service Center that failed because the Mobile Station (MS) is not known within the SGSN or the MS location is not confirmed in the HLR. The value of this attribute is included in the count of *mtFailures*.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Sms mtFailSubscriberAbsent (mtFailSubAbs)

Description

This attribute indicates, for the collection interval, the number of MOBILE TERMINATED FORWARD SHORT MESSAGE messages sent from the *ShortMessageService (Sms)* to the Service Center that failed because a Mobile Station (MS) did not respond to a Packet Paging Request or a MS is detached from the network. The value of this attribute is included in the count of *mtFailures*.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc Sms mtFailSubscriberBusy (mtFailSubBusy)

Description

This attribute indicates, for the collection interval, the number of MOBILE TERMINATED FORWARD SHORT MESSAGE messages sent from the *ShortMessageService (Sms)* to the Service Center that failed because another mobile terminated short message transfer is going on and the Mobile Terminated SMS Message Buffer Queue has reached its capacity limit, the message was buffered but it is not possible to deliver the message before the expiry of the buffering time or the Mobile Station (MS) is performing an inter SGSN routing area update. The value of this attribute is included in the count of *mtFailures*.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc Sms mtFailSubscriberNotSmEquipped (mtFailSubNotSmEquip)

Description

This attribute indicates, for the collection interval, the number of MOBILE TERMINATED FORWARD SHORT MESSAGE messages sent from the *ShortMessageService (Sms)* to the Service Center that failed because the Mobile Station does not support Short Message Service messages. The value of this attribute is included in the count of *mtFailures.*

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc Sms mtFailNetworkFailures (mtFailNetFailures)

| | |
|---|---|
| Description | This attribute indicates, for the collection interval, the number of MOBILE TERMINATED FORWARD SHORT MESSAGE messages sent from the *ShortMessageService (Sms)* to the Service Center that failed because the network is not functioning correctly, a task cannot be performed because of a problem with the network or an equipment protocol error occurs. The value of this attribute is included in the count of *mtFailures.* |
| Values | Decimal (0..4294967295) |

## ATTRIBUTE Gsc Sms mtFailMemCapExceed (mtFailMemCapExc)

| | |
|---|---|
| Description | This attribute indicates, for the collection interval, the number of MOBILE TERMINATED FORWARD SHORT MESSAGE messages sent from the *ShortMessageService (Sms)* to the Mobile Subscriber (MS) that failed because the MA cannot store the incoming short message due to lack of storage capacity. The value of this attribute is not included in the count of *mtFailures.* |
| Values | Decimal (0..4294967295) |

## ATTRIBUTE Gsc Sms moFailOthers

Description

This attribute indicates the MOBILE ORIGINATED FORWARD SHORT MESSAGE messages received by the *ShortMessageService (Sms)* component from the Mobile Station (MS) that failed due to one of the following conditions:

Unknown Subscriber
Invalid Transaction Identifier Value
Message Type non-existence
Invalid mandatory information
Invalid short message transfer reference value
Message not compatible with short message protocol state
Unassigned number
Short Message transfer reject

This counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc Sms mtFailOthers

Description

This attribute indicates the MOBILE TERMINATED FORWARD SHORT MESSAGE messages sent from the *ShortMessageService (Sms)* component to the Service Center that failed due to one of the following conditions:

Unexpected Data Value
Data Missing
Message Type non-existence
Invalid mandatory information
Invalid short message transfer reference value
Message not compatible with short message protocol state
Semantically incorrect message
System Failures

This counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

# COLLECTED STATS GprsSubscriberControl PrepaidShortMessageService

Description: The statistics record generated by the GprsSubscriberControl PrepaidShortMessageService component.

## ATTRIBUTE Gsc PSms peakConcurrentTransactions (peakCTran)

Description: This attributes indicates the peak number of concurrent Prepaid Short Message Service (PSMS) transactions that have occurred on this *GprsSubscriberControl (Gsc)*.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc PSms activeConnections (actCon)

Description: This attribute indicates the connections that are currently active between the *GprsSubscriberControl (Gsc)* and the external Service Control Points (SCPs). This reflects only those connections that are currently in the Network Connection Control Protocol (NCCP) data exchange state.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc PSms totalSuccessfulConnections (totCon)

Description: This attribute counts the total connections between the *GprsSubscriberControl (Gsc)* and the external Service Control Points (SCPs) that have successfully reached the Network Connection Control Protocol (NCCP) data exchange state. This counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc PSms totalFailedConnections (failCon)

Description

This attribute counts the total connection attempts between the *GprsSubscriberControl (Gsc)* and the external Service Control Points (SCPs) that have failed to reach the Network Connection Control Protocol (NCCP) data exchange state. This counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc PSms totalTransactionSuccesses (succTran)

Description

This attribute counts the total Prepaid Short Message Service (PSMS) transactions that have successfully completed between the *GprsSubscriberControl (Gsc)* and the external Service Control Points (SCPs). Specifically, this indicates the Prepaid-CTP INCREMENT DECREMENT RESPONSE messages that have been successfully received before *transactionTimer* has expired.

This counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc PSms totalTransactionFailures (failTran)

Description

This attribute counts the total Prepaid Short Message Service (PSMS) transactions that have failed between the *GprsSubscriberControl (Gsc)* and the external Service Control Points (SCPs). This includes failures due to failed connections, late responses, resource limitations and protocol errors.

This counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc PSms totNwkRelatedTransactionFailures (netTranFail)

Description

This attribute counts the total Prepaid Short Message Service (PSMS) transactions that have failed between the GprsSubscriberControl (Gsc) and this external Service Control Point (SCP) due to network related events. This includes transactions rejected due to connection failures, network congestion, and local network resource limitations. This counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

# COLLECTED STATS GprsSubscriberControl PrepaidShortMessageService ServiceControlPoint

Description

The statistics record generated by the GprsSubscriberControl PrepaidShortMessageService ServiceControlPoint component.

## ATTRIBUTE Gsc PSms Scp transactionSuccesses (succTran)

Description

This attribute counts the total prepaid Prepaid Short Message Service (PSMS) transactions that have successfully completed between the *GprsSubscriberControl (Gsc)* and this external Service Control Point (SCP). Specifically, this indicates the number of Prepaid-CTP INCREMENT DECREMENT TRANSACTION RESPONSE messages that have been successfully received before *transactionTimer* has expired.

This counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc PSms Scp transactionFailures (failTran)

Description

This attribute counts the total Prepaid Short Message Service (PSMS) transactions that have failed between the *GprsSubscriberControl (Gsc)* and this external Service Control Point (SCP). This includes failures due to failed connections, late responses, resource limitations and protocol errors. This counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc PSms Scp networkRelatedTransactionFailures (netTranFail)

Description

This attribute counts the total Prepaid Short Message Service (PSMS) transactions that have failed between the GprsSubscriberControl (Gsc) and this external Service Control Point (SCP) due to network related events. This includes transactions rejected due to connection failures, network congestion, and local network resource limitations. This counter wraps to zero when it exceeds the maximum value.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc PSms Scp prepaidCtpLocalProtocolErrors (locPErr)

Description

This attribute counts the total Prepaid-CTP protocol errors that have been committed locally that the external Service Control Point (SCP) has detected and has reported back to the *GprsSubscriberControl (Gsc)*.

This count consists of the transaction portion, component portion, and parameter error categories. This counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc PSms Scp prepaidCtpRemoteGeneralErrors (remGErr)

Description: This attribute counts the total Prepaid-CTP general errors that have occurred on the external Service Control Point (SCP) and that have been reported back to the *GprsSubscriberControl (Gsc)*. This count consists of the general error category as described in the Prepaid-CTP specification. This counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc PSms Scp prepaidCtpRemoteProtocolErrors (remPErr)

Description: This attribute counts the total Prepaid-CTP protocol errors that have been committed remotely by the external Service Control Point (SCP) that have been detected by the *GprsSubscriberControl (Gsc)*. This count consists of the transaction portion, component portion, and parameter error categories as described in the Prepaid-CTP specification. This counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc PSms Scp nccpLoginSuccesses (nccpLiSucc)

Description: This attribute counts the total Network Connection Control Protocol (NCCP) logins that have successfully completed between the *GprsSubscriberControl (Gsc)* and this external Service Control Point (SCP). Specifically, this indicates the NCCP LOGIN RESPONSE messages received from this SCP before the *nccpLoginResponseTimer* has expired. This counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc PSms Scp nccpLoginFailures (nccpLiFail)

Description

This attribute counts the total Network Connection Control Protocol (NCCP) logins that have failed between the *GprsSubscriberControl (Gsc)* and this external Service Control Point (SCP). This count includes failures due to rejected logins as well as late or lost responses. This counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc PSms Scp nccpLoginResponseTimeouts (nccpRTo)

Description

This attribute counts the *nccpLoginResponseTimer* expiries before receiving a response from the external Service Control Point (SCP) for the Network Connection Control Protocol (NCCP) LOGIN REQUEST message sent. This counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc PSms Scp nccpLogoutSuccesses (nccpLoSucc)

Description

This attribute counts the total Network Connection Control Protocol (NCCP) logouts that have successfully completed between the *GprsSubscriberControl (Gsc)* and this external Service Control Point (SCP). Specifically, this indicates the NCCP LOGOUT RESPONSE messages received from this SCP before the *nccpLogoutResponseTimer* has expired. This counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc PSms Scp nccpLogoutFailures (nccpLoFail)

Description

This attribute counts the total Network Connection Control Protocol (NCCP) logouts that have failed between the *GprsSubscriberControl (Gsc)* and this external Service Control Point (SCP). Specifically, this counts the *nccpLogoutResponseTimer* expirations that have occurred. This counter counts the events in the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Gsc PSms Scp nccpRemoteAborts (nccpRemAbt)

Description This attribute counts the total Network Connection Control Protocol (NCCP) ABORT messages that have been received from this external Service Control Point (SCP). This counter counts the events in the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Gsc PSms Scp nccpLocalAborts (nccpLocAbt)

Description This attribute counts the total Network Connection Control Protocol (NCCP) NCCP ABORT messages that have been sent to this external Service Control Point (SCP). This counter also includes the NCCP ABORT messages sent due to the aborts caused by the expiration of the NCCP KeepAlive timer. This counter counts the events in the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Gsc PSms Scp nccpKeepAliveTimeouts (nccpKpAlTo)

Description This attribute counts the total Network Connection Control Protocol (NCCP) KeepAlive timer expirations that have occurred while communicating with this external Service Control Point (SCP). This counter counts the events in the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Gsc PSms Scp nccpKeepAliveAborts (nccpKpAlAbt)

Description This attribute counts the total aborts caused by the Network Connection Control Protocol (NCCP) KeepAlive timer expiry. Specifically, this counts the number of NCCP Abort messages that have been sent to this external Service Control Point (SCP) due to aborts caused by KeepAlive timer expirations. This counter counts the events in the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Gsc PSms Scp nccpRoundRobinTimeouts (nccpRrTo)

Description This attribute counts number of times the *nccpRoundRobinTimer* expires before the SGSN could establish a connection with any of the Service Processors (SPs) of this external Service Control Point (SCP). This counter counts the events in the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Gsc PSms Scp nccpReconnectTimeouts (nccpRecTo)

Description This attribute counts the total *nccpReconnectTimer* expirations that have occurred while communicating with this external Service Control Point (SCP). This counter counts the events in the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Gsc PSms Scp nccpLocalProtocolErrors (nccpLocPErr)

Description This attribute counts the Network Connection Control Protocol (NCCP) protocol errors that have been committed locally that the external Service Control Point (SCP) has detected and has reported back to the *GprsSubscriberControl (Gsc)*. This counter counts the events in the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Gsc PSms Scp nccpRemoteProtocolErrors (nccpRemPErr)

Description This attribute counts the total Network Connection Control Protocol (NCCP) protocol errors that have been committed remotely by the external Service Control Point (SCP) that have been detected by the *GprsSubscriberControl (Gsc)*. This counter counts the events in the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Gsc PSms Scp tcpConnectSuccesses (tcpConnSucc)

Description This attribute counts the total TCP connections that have been successfully established between the *GprsSubscriberControl (Gsc)* and this external Service Control Point (SCP). This counter counts the events in the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Gsc PSms Scp tcpConnectFailures (tcpConnFail)

Description This attribute counts the total TCP connections that have failed to successfully establish between the *GprsSubscriberControl (Gsc)* and this external Service Control Point (SCP). This counter counts the events in the collection interval.

Values Decimal (0..4294967295)

# COLLECTED STATS GprsSubscriberControl ServiceSwitchingFunction

Description The statistics record generated by the GprsSubscriberControl ServiceSwitchingFunction component.

## ATTRIBUTE Gsc Ssf pdpContextsRedirected (pdpRedir)

Description

This attribute indicates the number of PDP (Packet Data Protocol) Contexts that have been redirected to a different APN (Access Point Name) by an SCP (Service Control Point) during the collection interval.

If this attribute is continuously reporting a high value during each collection interval, the operator may want to examine the network configuration to determine why so many PDP contexts are being redirected. It is possible that the current network configuration is not optimal and that the SCP is redirecting PDP contexts to avoid undesirable or expensive network access paths.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc Ssf attemptedCamelDialogues (attDialogues)

Description

This attribute indicates the total number of CAMEL dialogues that this *Ssf* component has attempted to establish during the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc Ssf unsuccessfulCamelDialogues (unsuccDialogues)

Description

This attribute indicates the total number of unsuccessful CAMEL dialogues establishment attempts caused by errors or reject messages received from an SCP during the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc Ssf totalTssfTimeouts (totTssfTimeouts)

Description

This attribute indicates the total number of Tssf timeouts during the collection interval. The timeout period is specified by the *ssfTimer* attribute of the *Sgsn Gsc* component.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc Ssf totalDefaultGprsHandlings (totDefHand)

Description

This attribute indicates the number of times during the collection interval the SSF (Service Switching Function) detected an error and had to refer to the Default Gprs Handing field of the related mobile's CAMEL Subscriber Information (CSI) to determine whether to continue or fail the PDP (Packet Data Protocol) Context.

If this attribute is continuously reporting a high value during each collection interval, the *totalProtocolErrors* and *totalNoCopFailures* attributes can be examined for information about why the Default Gprs Handling field is so often referenced.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc Ssf totalProtocolErrors (totProtoErr)

Description

This attribute indicates the total number of protocol errors detected in CAP (CAMEL Application Part) messages from an SCP (Service Control Point) during the collection interval.

If this attribute is continuously reporting a high number of errors during each collection interval, there may be a mismatch in the protocol version being used by the SCP and the version being used by the SGSN.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc Ssf totalNoCopFailures (totNoCopFail)

Description

This attribute indicates the total number of PDP (Packet Data Protocol) Contexts that have failed during the collection interval because an IRAU (Inter Routing Area Updates) occurred when the Change Of Position (COP) trigger was not in the TDP (Trigger Detection Point) list of the subscriber for which the PDP Context was requested.

If this attribute is continuously reporting a high number of errors during each collection interval, it may indicate that roaming should be disabled for CAMEL users or that Camel Subscriber Information (CSI) is not properly specified in the HLR for some users.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc Ssf currentCamelDialogues (currDialogues)

Description

This attribute indicates the number of CAMEL dialogues active at the end of the collection interval.

Values

Decimal (0..4294967295)

# COLLECTED STATS GprsSubscriberControl MobileCountryCode MobileNetworkCode LocationAreaCode RoutingAreaCode CellId

Description

The statistics record generated by the GprsSubscriberControl MobileCountryCode MobileNetworkCode LocationAreaCode RoutingAreaCode CellId component.

## ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid msAttachAttemptsPerCell (attAtt)

Description

This attribute counts the number of attach requests received from the mobile subscribers in this cell.

The counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid attachRejIllegalMsPerCell (attRejIllMs)

Description: This attribute counts the GPRS-attaches to this cell that were rejected because of the reject cause "Illegal Ms".

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid attachRejGprsSvcNotAllowedPerCell (attRejGprsSvc)

Description: This attribute counts the GPRS-attaches to this cell that were rejected because of the reject cause “Gprs Service not allowed”.

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid attachRejPlmnNotAllowedPerCell (attRejPlmn)

Description: This attribute counts the GPRS-attaches to this cell that were rejected because of the reject cause “PLMN not allowed”.

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid attachRejPacketNetFailurePerCell (attRejNetFail)

Description: This attribute counts the GPRS-attaches to this cell that were rejected because of the reject cause “Network Failure”.

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid attachRejSgsnCongestionPerCell (attRejCongest)

Description

This attribute counts the GPRS-attaches to this cell that were rejected because of the reject cause “Congestion”.

The counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid attachRejMsgErrorPerCell (attRejMsgErr)

Description

This attribute counts the GPRS-attaches to this cell that were rejected during the collection interval because of one of the following reject causes:
Semantically incorrect message,
Invalid mandatory information,
Message type non-existence or not implemented,
Message type not compatible with the protocol state,
Information element non-existent or not implemented,
Conditional IE error,
Message not compatible with the protocol state,
Protocol error, unspecified.

The counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid nwkDetachReachableTimerPerCell (nwkDetTmr)

Description

This attribute counts the number of network initiated detaches in this cell due to the expiration of reachable timer. The *mobileReachableTimer* attribute is provisioned in the *Sgsn Gsc* component.

The counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid nwkDetachCancelLocationPerCell (nwkDetCanLoc)

Description: This attribute counts the number of network initiated detaches in the specified cell due to the receipt of CANCEL LOCATION Messages from the HLR.

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid nwkDetachDuplicateAttachPerCell (nwkDetDupAtt)

Description: This attribute counts the number of network initiated detaches in this cell due to mobile reattaches with a new random Packet Temporary (PTMSI) without first performing a detach. This is an implicit detach and no detach message is sent to the mobile.

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid nwkDetachTempNwkFailurePerCell (nwkDetTNwkFail)

Description: This attribute counts the number of network initiated detaches or termination of mobility contexts in this cell due to temporary network problems.

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid nwkDetachForReattachPerCell (nwkDetReatt)

Description

This attribute counts the number of network initiated detaches in this cell with a detach cause of "reattach required".

The counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid attachRejSvcNotAllowInPlmnPerCell (attRejGprsSvcPlmn)

Description

This attribute counts the GPRS-attaches to this cell that were rejected because of the reject cause "Gprs Service not allowed in this PLMN".

This counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid attachRejRoamNotAllowedInLocAreaPerCell (attRejRoam)

Description

This attribute counts the GPRS-attaches to this cell that were rejected because of the reject cause “roaming not allowed in location area”.

The counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid msActivationAttemptsPerCell (msAttAct)

Description

This attribute counts the number of Activate PDP context request message received by this SGSN from Mobile Station (MS) in this cell.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid insufficientResourcesPerCell (insufRes)

Description This attribute counts the number of PDP activations rejected by this SGSN in this cell due to reject cause “insufficient resources”.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid missingOrUnknownApnPerCell (mOrUn)

Description This attribute counts the number of PDP activations rejected by this SGSN in this cell due to reject cause “missing or unknown APN”.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid unkPdpAddrOrPdpTypePerCell (unPdpAorT)

Description This attribute counts the number of PDP activations rejected by this SGSN in this cell due to reject cause "unknown PDP address or PDP type".

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid activationsRejByGgsnPerCell (actRejGgsn)

Description

This attribute counts the number of Packet Data Protocol (PDP) activations rejected by this SGSN in this cell due to reject cause "activation rejected by GGSN".

The counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid activationRejUnspecifiedPerCell (actRejUnsp)

Description

This attribute counts the number of Packet Data Protocol (PDP) activations rejected by this SGSN in this cell due to reject cause "unspecified reason".

The counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid serviceOptionNotSupportedPerCell (servOp)

Description

This attribute counts the number of Packet Data Protocol (PDP) activations rejected by this SGSN in this cell due to reject cause "service option not supported".

The counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid reqSvcOptionNotSubscribedPerCell (reqOpt)

Description

This attribute counts the number of Packet Data Protocol (PDP) activation rejected by this SGSN in this cell due to reject cause "requested service option not subscribed".

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid svcOptionTempOutOfOrderPerCell (serOp)

Description This attribute counts the number of Packet Data Protocol (PDP) activation reject by this SGSN in this cell due to reject cause "service option temporarily out of order".

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid protocolErrorPerCell (protErr)

Description This attributes counts the number of Packet Data Protocol (PDP) activation reject by this SGSN in this cell currently because of one of the following reject causes:
Semantically incorrect message,
Invalid mandatory information,
Message not compatible with the protocol state,
Protocol error, unspecified.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Gsc Mcc Mnc Lac Rac Cid currentPdpContextPerCell (curPdpCtx)

Description This attribute counts the number of currently active Packet Data Protocol (PDP) contexts in this cell.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

# COLLECTED STATS GprsSubscriberControl

# LocationServices

Description The statistics record generated by the GprsSubscriberControl LocationServices component.

## ATTRIBUTE Gsc Lcs lcsMaxCurrentEnabledSubscribers (maxEnabledSubs)

Description This attribute indicates the current number of location services enabled subscribers.

The value reported is the peak value for the duration of the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Gsc Lcs lcsMtRequests (mtReq)

Description This attribute counts the total mobile terminated location requests.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Gsc Lcs lcsMtFailures (mtFail)

Description This attribute counts the total unsuccessful mobile terminated location requests.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Gsc Lcs lcsPagingRequests (pagingReq)

Description This attribute counts the total paging requests sent by the *LocationServices* component.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Gsc Lcs lcsPagingFailures (pagingFail)

Description

This attribute counts the total unsuccessful paging requests sent by the *LocationServices* component.

The counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc Lcs lcsRequestTypeNotSupported (reqTypeNotSupp)

Description

This attribute counts the total failed location requests due to a requested location that is not supported.

The counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc Lcs lcsDataMissing (dataMiss)

Description

This attribute counts the total failed location requests due to missing information. For example, Imsi or Msisdn is missing in the location request message.

The counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc Lcs lcsSubscriberNotAttached (subNotAttach)

Description

This attribute counts the total failed location requests due to the subscriber not currently attached.

The counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc Lcs lcsUnauthorizedGmlc (unauthGmlc)

Description

This attribute counts the total failed location requests due to location requests messages received from an unauthorized Gateway Mobile Location Center.

The counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc Lcs lcsUnauthorizedClient (unauthClient)

Description

This attribute counts the total failed location requests due to location requests messages received from an unauthorized client.

The counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc Lcs lcsServiceBusy (servBusy)

Description

This attribute counts the total failed location requests due to another location request already in progress for the same subscriber.

The counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc Lcs lcsNotificationNotPossible (notifyNotPossible)

Description

This attribute counts the total failed location requests due to the reason that it is impossible to send a notification message to the mobile.

The counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc Lcs lcsGadShapeNotSupported (gadShapeNotSupp)

Description

This attribute counts the total failed location requests due to the obtained location estimates using a Geographical Area Description (GAD) shape that are not supported in the Location Request message.

The counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc Lcs lcsInterrupted (interrupted)

Description

This attribute counts the total failed location requests due to information received from the Radio Network Controller (RNC) showing that the Location Services (LCS) entity has been interrupted. For example, LCS can be interrupted by an Inter-SGSN Routing Area Update (IRAU).

The counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc Lcs lcsQosNotAttained (qosNotAttained)

Description

This attribute counts the total failed location requests due to the quality of service information not matching the requested quality of service in the Provide Subscriber Location (PSL) message from the Gateway Mobile Location Center (GMLC).

The counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Gsc Lcs lcsCellInfoMissing (cellInfoMissing)

Description

This attribute counts the total unsuccessful location requests due to the cell information missing in the local cell database.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

# COLLECTED STATS GprsSubscriberDataPath LogicalLinkControl

Description The statistics record generated by the GprsSubscriberDataPath LogicalLinkControl component.

## ATTRIBUTE Gsd Llc currentLlesForUserData (curLles)

Description This attribute indicates the current number of Logical Link Entities (LLEs) used to handle the user data SAPs (Service Access Points) for the *GprsSubscriberDataPath (Gsd)*. This value reported is the peak value in the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Gsd Llc unknownTllis (unTllis)

Description This attribute counts the frames received from the Mobile Station (MS) for an unmapped Temporary Logical Link Identity (TLLI). An unmapped TLLI is one for which no Logical Link Context (LLC) mobile context exists. This counter counts the events in the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Gsd Llc currentLlesForSms

Description This attribute indicates the current number of Logical Link Entities (LLEs) used to handle the Short Message Service (SMS) Service Access Points (SAPs) for the *GprsSubscriberDatapath (Gsd)*. This value reported is the peak value in the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Gsd Llc framesRetransmitted (frRetx)

Description: This attribute counts the number of total frames retransmitted by the LLC layer.

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsd Llc crcErrorsFromMs (crcErrsRx)

Description: This attribute counts the frames received from the Mobile Station (MS) that contained Cyclic Redundancy Check (CRC) errors.

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

# COLLECTED STATS GprsSubscriberDataPath SubNetworkDataConvergenceProtocol

Description: The statistics record generated by the GprsSubscriberDataPath SubNetworkDataConvergenceProtocol component.

## ATTRIBUTE Gsd Sndcp currentNsapis (curNsapis)

Description: This attribute indicates the current number of Network-Service Access Point Identifiers (N-SAPIs) for this instance of *GprsSubscriberDataPath (Gsd)*. This value reported is the peak value in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsd Sndcp currentV42bisEntities (curV42bis)

Description: This attribute indicates the current number of RFC 1144 header
compression entities in the last collection interval for this instance of *GprsSubscriberDataPath (Gsd)*. This value reported is the peak
value in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsd Sndcp currentRfc1144Entities (curRfc1144)

Description: This attribute indicates the current number of V.42bis compression entities in the last collection interval for this instance of *GprsSubscriberDataPath (Gsd)*. This value reported is the peak
value in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsd Sndcp snPdusToMs (snPdusTx)

Description: This attribute counts the SNDCP-Protocol Data Units (SN-PDUs) sent to the Mobile Station (MS) in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsd Sndcp snPdusFromMs (snPdusRx)

Description: This attribute counts the SNDCP-Protocol Data Units (SN-PDUs) received from the Mobile Station (MS), that is, the total number of LL- UNITDATA-PDU and LL-DATA-PDU received from the Logical Link Context (LLC) in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsd Sndcp discardedNpdusFromMs (discNpdusRx)

Description: This attribute counts the Network-Protocol Data Units (N-PDUs)
that originated from the Mobile Station (MS) which could not be re-assembled. This could result from N-PDUs lost or re-ordered.
This counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

# COLLECTED STATS GprsSubscriberDataPath GprsTunnelingProtocol

Description: The statistics record generated by the GprsSubscriberDataPath GprsTunnelingProtocol component.

## ATTRIBUTE Gsd Gtp octetsToNetwork (octToNet)

Description: This attribute counts the total octets of the GPRS Tunneling Protocol (GTP) transmitted in Packet Data Unit (PDU) to Gateway GPRS Support Node (GGSN).

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsd Gtp octetsFromNetwork (octFrNet)

Description: This attribute counts the total octets of the GPRS Tunneling Protocol (GTP) received in Packet Data Unit (PDU) from the Gateway GPRS Support Node (GGSN).

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsd Gtp pdusToNetwork (pduToNet)

Description: This attribute counts the GPRS Tunneling Protocol (GTP) Data Units (PDU) transmitted to the Gateway GPRS Support Node (GGSN).

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsd Gtp pdusFromNetwork (pduFrNet)

Description: This attribute counts the GPRS Tunneling Protocol (GTP) Data Units (PDU) received from the Gateway GPRS Support Node (GGSN).

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Gsd Gtp discPdusFromNetwork (discPdus)

Description: This attribute counts the incoming GPRS Tunneling Protocol (GTP) Protocol Data Units (PDUs) discarded because of traffic congestion or because no Packet Data Protocol (PDP) Context has been established.

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

# COLLECTED STATS GprsSubscriberDataPath TieredSubscription

Description: The statistics record generated by the GprsSubscriberDataPath TieredSubscription component.

## ATTRIBUTE Gsd Ts pktsPerTierToMobile (pktsToM)

| | |
|---|---|
| Description | This attribute counts the number of packets successfully sent by the SGSN or USGSN for each tier in the down link direction in the collection interval. |
| Vector of | Decimal (0..4294967295) |
| Index | Decimal (1..9) |

## ATTRIBUTE Gsd Ts octetsPerTierToMobile (octToM)

| | |
|---|---|
| Description | This attribute counts the number of octets successfully sent by the SGSN or USGSN for each tier in the down link direction in the collection interval. |
| Vector of | Decimal (0..4294967295) |
| Index | Decimal (1..9) |

## ATTRIBUTE Gsd Ts pktsDropped (pktsDr)

| | |
|---|---|
| Description | This attribute counts the packets dropped by the Tiered Subscription of the SGSN or USGSN for each tier in the collection interval.<br><br>For example, if the peak throughput for a context is 56kbit/s and there is a burst of downlink data packets exceeding 56kbit/s, then the excess packets will be dropped, and the *pktsDropped* attribute is incremented every time a packet is dropped. |
| Vector of | Decimal (0..4294967295) |
| Index | Decimal (1..9) |

## ATTRIBUTE Gsd Ts activePdpCServiced (actPdpCSer)

| | |
|---|---|
| Description | This attribute indicates the current number of PDP contexts that are active for each tier. The value is incremented on a PDP context activation for a tier and decremented when a PDP context is deactivated for the tier.<br>This value reported is the value at the end of the collection interval. |
| Vector of | Decimal (0..4294967295) |
| Index | Decimal (1..9) |

## ATTRIBUTE Gsd Ts peakPdpCServiced (peakPdpCSer)

| | |
|---|---|
| Description | This attribute indicates the maximum number of PDP contexts serviced for the tier during the collection interval. The value is incremented every time *currentPdpCServiced* for that tier exceeds the current value of *peakPdpCServiced* for that tier. It is reset to *currentPdpCServiced* after every data collection. |
| Vector of | Decimal (0..4294967295) |
| Index | Decimal (1..9) |

# COLLECTED STATS SgGprsTransportLayer NetworkServiceEntity

| | |
|---|---|
| Description | The statistics record generated by the SgGprsTransportLayer NetworkServiceEntity component. |

## ATTRIBUTE SgGtl Nse currentBvcs (curBvcs)

| | |
|---|---|
| Description | This attribute indicates the current number of BSS GPRS Virtual Connections (BVCs) on this Network Service Entity (NSE) in the collection interval. |
| Values | Decimal (0..4294967295) |

## ATTRIBUTE SgGtl Nse octetsToPcu (octsTxPcu)

Description: This attribute counts the octets sent to the Packet Control Unit (PCU) by all the Network Service Virtual Connections (NS-VCs) served by this Network Service Entity (NSE). This counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE SgGtl Nse octetsFromPcu (octsRxPcu)

Description: This attribute counts the octets received from the Packet Control Unit's (PCU) Network Service Virtual Connections (NS-VCs) served by the peer Network Service Entity (NSE). This counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

# COLLECTED STATS SgGprsTransportLayer NetworkServiceEntity PointToPointBvc

Description: The statistics record generated by the SgGprsTransportLayer NetworkServiceEntity PointToPointBvc component.

## ATTRIBUTE SgGtl Nse PtpBvc pdusFromPcu (pdusRxPcu)

Description: This attribute counts the number of protocol data units (PDUs) received from the Packet Control Unit (PCU) by the BSS GPRS Virtual Connection (BVC) in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE SgGtl Nse PtpBvc pdusToPcu (pdusTxPcu)

Description: This attribute counts the number of protocol data units (PDUs) transmitted to the Packet Control Unit (PCU) by the BSS GPRS Virtual Connection (BVC) in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE SgGtl Nse PtpBvc octetsFromPcu (octsRxPcu)

Description: This attribute counts the number of octets received from the Packet
Control Unit (PCU) by the BSS GPRS Virtual Connection (BVC) in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE SgGtl Nse PtpBvc octetsToPcu (octsTxPcu)

Description: This attribute counts the number of octets transmitted to the Packet Control Unit (PCU) from the Serving GPRS Support Node (SGSN) in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE SgGtl Nse PtpBvc bvcFlowCntlFromPcu (bvcFlRxPcu)

Description: This attribute counts the FLOW-CONTROL-BVC Protocol Data
Units (PDUs) received for this BSS GPRS Virtual Connection (BVC) in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE SgGtl Nse PtpBvc msFlowCntlFromPcu (msFlRxPcu)

Description: This attribute counts the BSSGP-FLOW-CONTROL-MS Protocol Data Units (PDUs) received for this BSS GPRS Virtual Connection (BVC) in the collection interval.

Values: Decimal (0..4294967295)

# COLLECTED STATS SgGprsTransportLayer NetworkServiceEntity NetworkServiceVirtualConnection

Description: The statistics record generated by the SgGprsTransportLayer NetworkServiceEntity NetworkServiceVirtualConnection component.

## ATTRIBUTE SgGtl Nse Nsvc unitDatasFromPcu (unitDataRxPcu)

Description: This attribute counts the NS-UNITDATA Protocol Data Units (PDUs) received from the Packet Control Unit (PCU) in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE SgGtl Nse Nsvc unitDatasToPcu (unitDataTxPcu)

Description: This attribute counts the NS-UNITDATA Protocol Data Units (PDUs) encoded to be sent to the Packet Control Unit (PCU) in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE SgGtl Nse Nsvc octetsFromPcu (octsRxPcu)

Description: This attribute counts the octets the Network Service Virtual Connection (NS-VC) has processed that were received from the
Packet Control Unit (PCU) in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE SgGtl Nse Nsvc octetsToPcu (octsTxPcu)

Description: This attribute counts the octets the Network Service Virtual Connection (NS-VC) has processed that were sent to the Packet Control Unit (PCU) in the collection interval.

Values: Decimal (0..4294967295)

# COLLECTED STATS SgGprsTransportLayer NetworkServiceEntity SignalingBvc

Description: The statistics record generated by the SgGprsTransportLayer NetworkServiceEntity SignalingBvc component.

## ATTRIBUTE SgGtl Nse SigBvc pdusFromPcu (pdusRxPcu)

Description This attribute counts the number of protocol data units (PDUs) received from the Packet Control Unit (PCU) by the BSS GPRS Virtual Connection (BVC) in the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE SgGtl Nse SigBvc pdusToPcu (pdusTxPcu)

Description This attribute counts the number of protocol data units (PDUs) transmitted to the Packet Control Unit (PCU) by the BSS GPRS Virtual Connection (BVC) in the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE SgGtl Nse SigBvc octetsFromPcu (octsRxPcu)

Description This attribute counts the number of octets received from the Packet
Control Unit (PCU) by the BSS GPRS Virtual Connection (BVC) in the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE SgGtl Nse SigBvc octetsToPcu (octsTxPcu)

Description This attribute counts the number of octets transmitted to the Packet Control Unit (PCU) from the Serving GPRS Support Node (SGSN) in the collection interval.

Values Decimal (0..4294967295)

# COLLECTED STATS PcGprsTransportLayer NetworkServiceEntity

Description The statistics record generated by the PcGprsTransportLayer NetworkServiceEntity component.

## ATTRIBUTE PcGtl Nse octetsToSgsn (octsTxSgsn)

Description: This attribute counts the octets sent to the Serving GPRS Support Node (SGSN) by all the Network Service Virtual Connections (NS-VCs) served by this Network Service Entity (NSE). This counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE PcGtl Nse octetsFromSgsn (octsRxSgsn)

Description: This attribute counts the octets received from the Serving GPRS
Support Node's (SGSN) Network Service Virtual Connections (NS-VCs) served by the peer Network Service Entity (NSE). This counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

# COLLECTED STATS PcGprsTransportLayer NetworkServiceEntity NetworkServiceVirtualConnection

Description: The statistics record generated by the PcGprsTransportLayer NetworkServiceEntity NetworkServiceVirtualConnection component.

## ATTRIBUTE PcGtl Nse Nsvc unitDatasFromSgsn (unitDataRxSgsn)

Description: This attribute counts the NS-UNITDATA Protocol Data Units (PDUs) received from the Serving GPRS Support Node (SGSN) in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE PcGtl Nse Nsvc unitDatasToSgsn (unitDataTxSgsn)

Description: This attribute counts the NS-UNITDATA Protocol Data Units (PDUs) encoded to be sent to the Serving GPRS Support Node (SGSN) in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE PcGtl Nse Nsvc octetsFromSgsn (octsRxSgsn)

Description: This attribute counts the octets the Network Service Virtual Connection (NS-VC) has processed that were received from the Serving GPRS Support Node (SGSN) in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE PcGtl Nse Nsvc octetsToSgsn (octsTxSgsn)

Description: This attribute counts the octets the Network Service Virtual Connection (NS-VC) has processed that were sent to the Serving GPRS Support Node (SGSN) in the collection interval.

Values: Decimal (0..4294967295)

# COLLECTED STATS PppIwf Framer

Description: The statistics record generated by the PppIwf Framer component.

## ATTRIBUTE Piwf Framer rxBytes

Description: This attribute provides the number of bytes received on the link by the Framer in the last collection interval.

Values: Long Integer

## ATTRIBUTE Piwf Framer rxFrames

Description: This attribute provides the number of frames received on the link interface by the Framer in the last collection interval.

Values Long Integer

## ATTRIBUTE Piwf Framer txBytes

Description This attribute provides the number of bytes transmitted to the link by the Framer in the last collection interval. This value could be zero if the application sends the frames directly to the link.

Values Long Integer

## ATTRIBUTE Piwf Framer txFrames

Description This attribute provides the number of frames transmitted to the link interface by the Framer in the last collection interval. This value could be zero if the application sends the frames directly to the link.

Values Long Integer

## ATTRIBUTE Piwf Framer rxTotalLinkUtil

Description This attribute provides the average total link utilization computed based on the total number of bytes received on the link in the last collection interval.

Values Decimal (0..100)

# COLLECTED STATS SgsnAccountingServer

Description The statistics record generated by the SgsnAccountingServer component.

## ATTRIBUTE Sas openScdrs

Description This attribute indicates the open SGSN Packet Data Protocol Call Detail Records (S-CDRs) in the SGSN Accounting Server (SAS) during the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Sas openMcdrs

Description: This attribute indicates the open Mobility Call Detail Records (M-CDRs) in the SGSN Accounting Server (SAS) during the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Sas closedScdrs

Description: This attribute indicates the closed SGSN Packet Data Protocol Call Detail Records (S-CDRs) in the SGSN Accounting Server (SAS). Closed S-CDRs are the CDRs that are written to the disk and no longer exist in RAM.

This value reported is the value at the end of the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Sas closedMcdsr

Description: This attribute indicates the closed M-CDRs in the SGSN Accounting Server (SAS). Closed S-CDRs are the CDRs that are written to the disk and no longer exist in RAM.

This value reported is the value at the end of the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Sas scdrsUpdated

Description: This attribute counts the SGSN Packet Data Protocol Call Detail Records (S-CDRs) updated in the SGSN Accounting Server (SAS). Updated means that an open CDR was modified due to some external event. A S-CDR may be updated more than once, and this attribute is incremented for each update.

This counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Sas mcdrsUpdated

Description

This attribute counts the Mobility Call Detail Records (M-CDRs) updated in the SGSN Accounting Server (SAS). Updated means that an open CDR was modified due to some external event. A M-CDR may be updated more than once, and this attribute is incremented for each update.

This counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Sas smoCdrs

Description

This attribute counts the Mobile-Originated Short Message Service (SMS) Call Detail Records (CDRs) generated in the SGSN Accounting Server (SAS). The SMS CDRs do not have states (eg. opened, closed) like other CDR types.When SAS receives a message that a SMS CDR message is sent through the network, SAS writes the SMS CDR directly to disk, which means a SMS CDR is generated.

This counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Sas smtCdrs

Description

This attribute counts the Mobile Terminated Short Message Service (SMS) Call Detail Records (CDRs) generated in the SGSN Accounting Server (SAS). The SMS CDRs do not have states (eg. opened, closed) like other CDR types.When SAS receives a message that a SMS CDR message is sent through the network, SAS writes the SMS CDR directly to disk, which means a SMS CDR is generated.

This counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Sas cdrsXferCgf1

Description

This attribute counts the Call Detail Records (CDRs) successfully transferred from the SGSN Accounting Server (SAS) to the primary Charging Gateway Functionality (CGF). This attribute is incremented each time a CDR is transferred to the CGF.

This counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Sas cdrsXferCgf1Fail

Description

This attribute counts the unsuccessful Call Detail Record (CDR) transferred from the SGSN Accounting Server (SAS) to the primary Charging Gateway Functionality (CGF).

This value is incremented whenever a CDR fails to get transferred to the primary CGF. Multiple attempts to send a CDR increment the statistic only once.

This counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Sas cdrsXferCgf2

Description

This attribute counts the Call Detail Records (CDRs) successfully transferred from the SGSN Accounting Server (SAS) to the secondary Charging Gateway Functionality (CGF). This attribute is incremented each time a CDR is transferred to the CGF.

This counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Sas cdrsXferCgf2Fail

Description

This attribute counts the unsuccessful Call Detail Record (CDR) transfers from the SGSN Accounting Server (SAS) to the secondary Charging Gateway Functionality (CGF).

The value is incremented whenever a CDR fails to get transferred to the secondary CGF. Multiple attempts to send a CDR increment the statistic only once.

This counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Sas gtpMsgXferCgf1

Description

This attribute counts the GPRS Tunnelling Protocol (GTP) messages successfully transferred to the primary Charging Gateway Functionality (CGF) during the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Sas gtpMsgXferCgf1Fail

Description

This attribute counts the unsuccessful GPRS Tunnelling Protocol (GTP) message transfers to the primary Charging Gateway Functionality (CGF) during the collection interval.

The value is incremented whenever a GTP message is rejected or unacknowledged by the primary CGF. Multiple attempts to send a GPT message increment the statistic only once.

Values

Decimal (0..4294967295)

## ATTRIBUTE Sas gtpMsgXferCgf2

Description

This attribute counts the GPRS Tunnelling Protocol (GTP) messages successfully transferred to the secondary Charging Gateway Functionality (CGF) during the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Sas gtpMsgXferCgf2Fail

Description

This attribute counts the unsuccessful GPRS Tunnelling Protocol (GTP) message transfers to the secondary Charging Gateway Functionality (CGF) during the collection interval.

The value is incremented whenever a GTP message is rejected or unacknowledged by the secondary CGF. Multiple attempts to send a GPT message increment the statistic only once.

Values

Decimal (0..4294967295)

## ATTRIBUTE Sas dataVolumeLimitPartialScdrs (dvlPartialScdrs)

Description

This attribute counts the partial SGSN Packet Data Protocol (PDP) Call Detail Records (S-CDRs) generated in the SGSN Accounting Server (SAS) when the threshold of the *dataVolumeLimit* attribute (defined in the *Usgsn* and *Sgsn* components for UMTS and GPRS, respectively) is reached.

This counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Sas timeDurationLimitPartialScdrs (timePartialScdrs)

Description

This attribute counts the partial SGSN Packet Data Protocol (PDP) Call Detail Records (S-CDRs) generated in the SGSN Accounting Server (SAS) due to the expiry of the *scdrPartialRecordInterval* attribute.

This counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Sas maxChargingConditionPartialScdrs (maxCondPartialScdrs)

Description

This attribute counts the partial SGSN Packet Data Protocol (PDP) Call Detail Records (S-CDRs) generated in the SGSN Accounting Server (SAS) when the maximum number of charging condition changes, as specified by the *scdrMaxContainers* attribute, is reached.

This counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Sas qosChangeScdrContainers (qosScdrContainers)

Description

This attribute counts the SGSN Packet Data Protocol (PDP) Call Detail Record (S-CDR) “List of Traffic Data Volumes” containers closed in the SGSN Accounting Server (SAS) due to a QoS change.

This counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Sas tariffTimeChangeScdrContainers (ttcScdrContainers)

Description

This attribute counts the SGSN Packet Data Protocol (PDP) Call Detail Record (S-CDR) “List of Traffic Data Volumes” containers closed in the SGSN Accounting Server (SAS) due to a tariff time change.

This counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Sas timeDurationLimitPartialMcdrs (timePartialMcdrs)

Description

This attribute counts the partial Mobility Call Detail Records (M-CDRs) generated in the SGSN Accounting Server (SAS) due to the expiry of the *mcdrPartialRecordInterval* attribute.

This counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Sas maxChangeConditionPartialMcdrs (maxCondPartialMcdrs)

Description

This attribute counts the partial Mobility Call Detail Records (M-CDRs) generated in the SGSN Accounting Server (SAS) when the maximum number of mobility changes, as specified by the *mcdrMaxContainers* attribute, is reached.

This counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Sas mobilityChangeMcdrContainers (mobilityMcdrContainers)

Description

This attribute counts the Mobility Call Detail Record (M-CDR) “Change of Location” containers closed in the SGSN Accounting Server (SAS) due to a mobility change.

This counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Sas mgmtInterventionPartialScdrs (mgmtPartialScdrs)

Description: This attribute counts the partial SGSN Packet Data Protocol (PDP) Call Detail Records (S-CDRs) generated in the SGSN Accounting Server (SAS) with a partial record reason of “management intervention”.

This counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

# COLLECTED STATS SignallingGateway CsDomain

Description: The statistics record generated by the SignallingGateway CsDomain component.

## ATTRIBUTE Sg Cs rabAssignRequests

Description: This attribute indicates the number of RAB ASSIGNMENT REQUEST messages that were sent to the RNC over the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Sg Cs relocRequests

Description: This attribute indicates the number of RELOCATION REQUEST messages that were sent to the RNC over the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Sg Cs paging

Description: This attribute indicates the number of PAGING messages that were sent to the RNC over the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Sg Cs iuReleaseCmds

Description: This attribute indicates the number of IU RELEASE COMMAND messages that were sent to the RNC over the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Sg Cs relocCmds

Description: This attribute indicates the number of RELOCATION COMMAND messages that were sent to the RNC over the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Sg Cs relocPrepFailures

Description: This attribute indicates the number of RELOCATION PREPARATION FAILURE messages that were sent to the RNC over the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Sg Cs relocCancelAcks

Description: This attribute indicates the number of RELOCATION CANCEL ACKNOWLEDGE messages that were sent to the RNC over the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Sg Cs commonIds

Description: This attribute indicates the number of COMMON ID messages that were sent to the RNC over the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Sg Cs cnInvokeTraces

Description: This attribute indicates the number of CN INVOKE TRACE messages that were sent to the RNC over the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Sg Cs securityModeCmds

Description: This attribute indicates the number of SECURITY MODE COMMAND messages that were sent to the RNC over the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Sg Cs directTransfers

Description: This attribute indicates the total number of DIRECT TRANSFER messages exchanged between the RNC and the Core Network in either direction over the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Sg Cs resets

Description: This attribute indicates the total number of RESET messages between the RNC and the Core Network in either direction over the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Sg Cs resetAcks

Description: This attribute indicates the total number of RESET ACKNOWLDEGE messages between the RNC and the Core Network in either direction over the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Sg Cs errorIndications

Description: This attribute indicates the total number of ERROR INDICATION messages between the RNC and the Core Network in either direction over the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Sg Cs initialUeMessages

Description: This attribute indicates the number of INITIAL UE messages that were received from the RNC over the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Sg Cs rabAssignResponses

Description: This attribute indicates the number of RAB ASSIGNMENT RESPONSE messages that were received from the RNC over the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Sg Cs rabReleaseRequests

Description: This attribute indicates the number of RAB RELEASE REQUEST messages that were received from the RNC over the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Sg Cs iuReleaseRequests

Description: This attribute indicates the number of Iu RELEASE REQUEST messages that were received from the RNC over the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Sg Cs iuReleaseComps

Description: This attribute indicates the number of Iu RELEASE COMPLETE messages that were received from the RNC over the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Sg Cs relocRqds

Description This attribute indicates the number of RELOCATION REQUIRED messages that were received from the RNC over the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Sg Cs relocRequestAcks

Description This attribute indicates the number of RELOCATION REQUEST ACKNOWLEDGE messages that were received from the RNC over the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Sg Cs relocDetects

Description This attribute indicates the number of RELOCATION DETECT messages that were received from the RNC over the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Sg Cs relocComps

Description This attribute indicates the number of RELOCATION COMPLETE messages that were received from the RNC over the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Sg Cs relocFailures

Description This attribute indicates the number of RELOCATION FAILURE messages that were received from the RNC over the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Sg Cs relocCancels

Description: This attribute indicates the number of RELOCATION CANCEL messages that were received from the RNC over the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Sg Cs securityModeComps

Description: This attribute indicates the number of SECURITY MODE COMPLETE messages that were received from the RNC over the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Sg Cs resetCircuits

Description: This attribute indicates the number of RESET CIRCUIT messages between the Core Network and the DMS Call Server over the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Sg Cs unequipCircuits

Description: This attribute indicates the number of UNEQUIPPED CIRCUIT messages received from the DMS Call Server over the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Sg Cs blocks

Description: This attribute indicates the number of BLOCK messages that were sent to the DMS Call Server over the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Sg Cs unblocks

Description: This attribute indicates the number of UNBLOCK messages that were sent to the DMS Call Server over the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Sg Cs circuitGrpBlocks

Description: This attribute indicates the number of CIRCUIT GROUP BLOCK messages that were sent to the DMS Call Server over the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Sg Cs circuitGrpUnblocks

Description: This attribute indicates the number of CIRCUIT GROUP UNBLOCK messages that were sent to m the DMS Call Server over the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Sg Cs securityModeRjcts

Description: This attribute indicates the number of SECURITY MODE REJECT messages that were received from the RNC over the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Sg Cs rabSetups

Description: This attribute indicates the number of RAB SETUP messages that were received from the Virtual Media Gateway over the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Sg Cs rabSetupResps

Description This attribute indicates the number of RAB SETUP RESPONSE messages that were received from the RNC over the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Sg Cs releases

Description This attribute indicates the number of RELEASE messages between RANAP-CS and the Virtual Media Gateway over the collection interval.

Values Decimal (0..4294967295)

# COLLECTED STATS VirtualMediaGateway

Description The statistics record generated by the VirtualMediaGateway component.

## ATTRIBUTE Vmg estReqMsgs (erm)

Description This attribute counts Q.2630 ERQ (establish request) messages that were received from the RNC.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Vmg rejectedCalls (rejCalls)

Description This attribute counts the number of calls rejected by the Media Gateways controlled by this component.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Vmg peakUsedPercentage (pkPct)

Description: This attribute indicates the peak percentage of provisioned DS0s for this component that are in a non-idle state.

The value is set to the current percentage at the beginning of the collection interval.

Values: Decimal (0..100)

# COLLECTED STATS VirtualMediaGateway MediaGatewayInterface

Description: The statistics record generated by the VirtualMediaGateway MediaGatewayInterface component.

## ATTRIBUTE Vmg MgIf crcxMsgs (crcxMsgs)

Description: This attribute indicates the number of CONNECTION REQUEST messages sent to the Media Gateway over the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Vmg MgIf dlcxMsgs (dlcxMsgs)

Description: This attribute indicates the number of DELETE REQUEST messages sent to the Media Gateway over the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Vmg MgIf rinfMsgs (rinfMsgs)

Description: This attribute indicates the number of REQUEST FOR INFORMATION messages sent to the Media Gateway over the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Vmg MgIf resetMsgs (resetMsgs)

Description This attribute indicates the total number of RESET messages sent in either direction over the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Vmg MgIf crcxAckMsgs (crcxAckMsgs)

Description This attribute indicates the number of CONNECTION REQUEST ACKNOWLEDGE messages received from the Media Gateway over the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Vmg MgIf dlcxAckMsgs (dlcxAckMsgs)

Description This attribute indicates the number of DELETE REQUEST ACKNOWLEDGE messages received from the Media Gateway over the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Vmg MgIf updateCicInfo (updateCicInfo)

Description This attribute indicates the number of UPDATE CIC INFO messages received from the Media Gateway over the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Vmg MgIf sigFailMsgs (sigFailMsgs)

Description This attribute indicates the number of SIGNALLING FAILURE messages received from the Media Gateway over the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Vmg MgIf sigOkMsgs (sigOkMsgs)

Description This attribute indicates the number of SIGNALLING OK messages received from the Media Gateway over the collection interval.

Values Decimal (0..4294967295)

# COLLECTED STATS SignallingConnControlPart

Description The statistics record generated by the SignallingConnControlPart component.

## ATTRIBUTE Sccp activeConnections

Description This attribute indicates the number of the current open signalling connections for the *Sccp c*omponent at the end of the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Sccp rejectedConnections

Description This attribute indicates the number of rejected signalling connections for the SCCP component over the collection interval. The reasons include the subsystem being down, the number of open connections exceeding the limit specified by the attribute *maxConnections* and so on, at the end of the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Sccp maxConnectionsExhausted

Description This attribute indicates the number of times a signalling connection establishment request by the application was refused because the number of open connections reached the limit specified by the attribute *maxConnections*, over the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Sccp lostConnections

Description This attribute indicates the number of the open signalling connections lost due to unavailability of the SCCP Subsystem over the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Sccp invalidMessages

Description This attribute indicates the number of invalid (syntax error or undecodable) messages received over the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Sccp messagesTx

Description This attribute indicates the number of the messages sent to layer 3 over the collection interval. This includes maintenance messages.

Values Decimal (0..4294967295)

## ATTRIBUTE Sccp payloadMessagesTx

Description This attribute indicates the number of payload messages transmitted over the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Sccp messagesRx

Description This attribute indicates the number of the messages received from layer 3 over the collection interval. This includes maintenance messages.

Values Decimal (0..4294967295)

## ATTRIBUTE Sccp payloadMessagesRx

Description This attribute indicates the number of payload messages received over the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Sccp localRoutingFailures

Description This attribute indicates the number of the routing failures to the local subsystem over the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Sccp remoteRoutingFailures

Description This attribute indicates the number of the routing failures to the remote subsystem over the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Sccp attemptedConnections (attCon)

Description This attribute indicates the number of signalling connections that this *Sccp c*omponent has attempted to establish during the collection interval.

Values Decimal (0..4294967295)

# COLLECTED STATS MessageTransferPartLayer3

Description The statistics record generated by the MessageTransferPartLayer3 component.

## ATTRIBUTE Mtp3 linkSetsUnavailable (lsUnavail)

Description This attribute indicates the number of linkset unavailable conditions over the collection interval.

Values Decimal (0..4294967295)

# COLLECTED STATS MessageTransferPartLayer3 Linkset Link

Description The statistics record generated by the MessageTransferPartLayer3 Linkset Link component.

## ATTRIBUTE Mtp3 Ls Link pdusRx

Description: This attribute indicates the number of Protocol Data Units (PDUs) received from layer 2 over the collection interval.

This includes the PDUs with and without user payload.

Values: Decimal (0..4294967295)

## ATTRIBUTE Mtp3 Ls Link payloadPdusRx

Description: This attribute indicates the number of Protocol Data Units (PDUs) with payload received from layer 2 over the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Mtp3 Ls Link pdusTx

Description: This attribute indicates the number of Protocol Data Units (PDUs) sent to layer 2 over the collection interval.

This includes PDUs with and without user payload.

Values: Decimal (0..4294967295)

## ATTRIBUTE Mtp3 Ls Link payloadPdusTx

Description: This attribute indicates the number of Protocol Data Units (PDUs) with payload sent to layer 2 over the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Mtp3 Ls Link invalidPdusRx

Description: This attribute indicates the number of number of invalid Protocol Data Units received over the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Mtp3 Ls Link sltFailures

Description This attribute indicates the number of signalling link test message failure conditions over the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Mtp3 Ls Link changeovers

Description This attribute indicates the number of link changeover conditions over the collection interval.

Values Decimal (0..4294967295)

# COLLECTED STATS SaalNni

Description The statistics record generated by the SaalNni component.

## ATTRIBUTE SaalNni insvFailures

Description This attribute indicates the number of in-service link outages over the collection interval. It does not include failures which occur during the alignment process.

Values Decimal (0..4294967295)

## ATTRIBUTE SaalNni pdusTx

Description This attribute indicates the number of protocol data units transmitted over the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE SaalNni pdusRx

Description This attribute indicates the number of protocol data units received over the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE SaalNni pduOctetsTx

Description: This attribute indicates the number of payload PDU octets transmitted over the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE SaalNni pduOctetsRx

Description: This attribute indicates the number of payload PDU octets received over the collection interval.

Values: Decimal (0..4294967295)

# COLLECTED STATS UsgsnSubscriberControl

Description: The statistics record generated by the UsgsnSubscriberControl component.

## ATTRIBUTE Usc cpuOvldAttachesDiscarded (cpuOvldAttDisc)

Description: This attribute counts the number of GPRS Mobility Management (GMM) attach request messages that are discarded due to a CPU overload condition on the GSC and USC applications.

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Usc cpuOvldActivationsDiscarded (cpuOvldActDisc)

Description: This attribute counts the number of Session Management (SM) session activate request messages that are discarded due to CPU overload on the GSC and USC applications.

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Usc subCountOvldAttachesDiscarded (subOvldAttDisc)

Description

This attribute counts the number of GPRS Mobility Management (GMM) attach request messages that are discarded due to subscriber count overload, which occurs when the value of the *currentlyAttached* attribute is equal to the value of the *maxAttachedSubscribers* attribute.

The counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Usc cpuOvldMovingAvg (cpuOvldAvg)

Description

This attribute indicates the CPU moving average calculated from within the defined moving window, the size of which is determined by the value of *cpuOvldWindowSize* attribute.

The value of the attribute is set at the end of the collection interval.

Values

Decimal (0..100)

Units

%

## ATTRIBUTE Usc explicitDetachPurge

Description

This attribute counts the Mobile Subscriber (MS) Purge requests initiated due to an explicit mobile detach. Mobile Subscriber Purge request are initiated upon explicit detach when the *purgeOnExplicitDetach* attribute in (U) SGSN MobileSubscriberPurge is enabled.

The counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Usc operatorInitiatedPurge

Description

This attribute counts the number of Mobile Subscriber (MS) Purge requests initiated by the operator.

An operator initiates the Mobile Subscriber Purge request by issuing the *clear* command on an (U) SGSN *Imsi* component.

The counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Usc contextReusePurge

Description

This attribute counts the number of Mobile Subscriber (MS) Purge requests initiated due to memory reuse.

The counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Usc periodicAuditPurge

Description

This attribute counts the number of Mobile Subscriber (MS) Purge requests initiated due to periodic. During a periodic audit, detached Mobile Subscribers whose age is greater than the value specified by the auditPurgeMinimumInactiveAge attribute in (U) SGSN MobileSubscriberPurge are considered candidates for purge.

The counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Usc msPurgeAckFailures

Description: This attribute counts the Mobile Subscriber (MS) Purge Acknowledgement Failures received by the (UMTS) Serving GPRS Support Node (USGSN or SGSN) from the Home Location Register (HLR).

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Usc msPurgeSendFailures

Description: This attribute counts the Mobile Subscriber (MS) Purge requests that were not sent from the (UMTS) Serving GPRS Support Node (USGSN or SGSN) due to network related faults such as SIG failure and so on.

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

# COLLECTED STATS UsgsnSubscriberControl GtpC

Description: The statistics record generated by the UsgsnSubscriberControl GtpC component.

## ATTRIBUTE Usc GtpC echoRqstsTx

Description: This attribute indicates the number of Echo Request Messages sent over the collection interval.

The count is taken at the end of the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Usc GtpC gnEchoRespTx

Description

This attribute indicates the number of Echo Response Messages sent on the Gn Interface over the collection interval.

The count is taken at the end of the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Usc GtpC pathFailures

Description

This attribute indicates the number of path failures detected by GTPC, based on the attribute *strictPathSupervision* in *Usgsn Usc*, over the collection interval.

If *strictPathSupervision* has the value ***enabled,*** failure of the remote end to respond to any GTP request will result in path failure being declared.
If *strictPathSupervision* has the value ***disabled***, then failure of the remote end to respond to an echo request will be marked as a path failure, but all other failures will not be detected.

Values

Decimal (0..4294967295)

## ATTRIBUTE Usc GtpC idenRqstMsgsTx

Description

This value indicates the number of times the USGSN sent a IDENTIFICATION REQUEST message to the Mobile Station (MS) over the collection interval.

The count is taken at the end of the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Usc GtpC sgsnCntxtRqstMsgsTx

Description

This attribute indicates the number of times the USGSN sent a SGSN CONTEXT REQUEST Message to the Mobile Station over the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Usc GtpC sgsnCntxtAckRqstMsgsTx

Description: This value indicates the number of times the USGSN sent a SGSN CONTEXT ACKNOWLEDGE REQUEST Message to the Mobile Station.

The count is taken at the end of the collection interval.

Values: Decimal (0..4294967295)

# COLLECTED STATS UsgsnSubscriberControl HlrCache

Description: The statistics record generated by the UsgsnSubscriberControl HlrCache component.

## ATTRIBUTE Usc HlrC currHlrCachePdpContexts

Description: This attribute indicates the number of Packet Data Protocol (PDP) context subscription data records that are stored in the Home Location Register (HLR) Cache.

The maximum number of PDP contexts that can be stored in the HLR Cache is provisioned in the attribute *maxPdpContexts*, at the end of the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Usc HlrC cacheHits

Description: This attribute counts the times the Home Location Register (HLR) Cache had the subscriber information locally and did not need to retrieve information from the HLR.

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Usc HlrC cacheMisses

Description

This attribute counts the times the Home Location Register (HLR) Cache does not have the subscriber information locally and must retrieve information from the HLR.

It counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Usc HlrC recordsInactive

Description

This attribute indicates the number of Home Location Register (HLR) Cache Records that are currently inactive, that is, the number of records for which subscribers are detached from the UMTS Serving GPRS Support Node (USGSN).

The count is taken at the end of the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Usc HlrC recordsActive

Description

This attribute indicates the number of Home Location Register (HLR) Cache Records that are currently active, that is, the number of records that are active and the UPDATE GPRS LOCATION RESPONSE has been received from HLR.

The count is taken at the end of the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Usc HlrC recordsToBeReset

Description: This attribute indicates the Home Location Register (HLR) Cache Records currently waiting to be reset. When a RESET message is received from a HLR, all Location Confirmation flags of the HLR Cache Records, corresponding to the HLR is set to false. The GPRS Mobility Management (GMM) is notified to request UPDATE GPRS LOCATION for the HLR Cache Records corresponding to the reset HLR.

The count is taken at the end of the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Usc HlrC recordsWaitingForHlrConf

Description: This attribute indicates the number of Home Location Register (HLR) Cache Records that are currently active and waiting for HLR Confirmation, that is, the number of records which are yet to receive UPDATE GPRS LOCATION RESPONSE from the HLR.

The count is taken at the end of the collection interval.

Values: Decimal (0..4294967295)

# COLLECTED STATS UsgsnSubscriberControl SessionManagement

Description: The statistics record generated by the UsgsnSubscriberControl SessionManagement component.

## ATTRIBUTE Usc Sm currentPdpContexts

Description: This attribute indicates the number of currently active Packet Data Protocol (PDP) contexts.

The count is taken at the end of the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Usc Sm mobileInitActivations

Description

This attribute indicates the number of successful Mobile-Initiated Packet Data Protocol (PDP) context activations.

The counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Usc Sm mobileInitDeacts

Description

This attribute counts the successful Packet Data Protocol (PDP) context deactivations initiated by the Mobile Station (MS).

The counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Usc Sm ggsnInitDeacts

Description

This attribute indicates the number of Packet Data Protocol (PDP) context deactivations initiated by the Gateway GPRS Support Node (GGSN).

The counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Usc Sm usgsnInitDeacts

Description

This attribute indicates the number of Packet Data Protocol (PDP) context deactivations initiated locally from the UMTS Serving GPRS Support Node (USGSN) (for example, an implicit session deactivation as a result of a Gateway GPRS Support Node (GGSN) restart or path failure).

The counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Usc Sm hlrInitDeacts

Description

This attribute indicates the number of Packet Data Protocol (PDP) context deactivations initiated by the Home Location Register (HLR), for example, Delete Subscriber Data (DSD) withdrawing subscription for an active session.

The counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Usc Sm usgsnInitModifies

Description

This attribute indicates the number of Packet Data Protocol (PDP) context Modifications initiated from the UMTS Serving GPRS Support Node (USGSN), for example, as a result of QoS renegotiations with the Mobile Station (MS). This counter is pegged only during a Routing Area Update (RAU) scenario.

The counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Usc Sm currentRoamers

Description

This value indicates the number of mobiles that have entered the PLMN, which is not their home PLMN, and are served by the USGSN.

The count is taken at the end of the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Usc Sm tRabAssgtTimeouts

Description

This value indicates the number of times the tRabAssgtTimer expires. If the value of this attribute increases consistently, the value of the tRabAssgtTimer can be increased.

Values

Decimal (0..4294967295)

## ATTRIBUTE Usc Sm usgsnInitModifyExhaust (usgsnME)

Description

This value indicates the number of times the *usgsnInitModifies* attribute is exhausted during Inter-SGSN Routing Area Update. This counter is incremented in the new SGSN.

The counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Usc Sm attemptedActivationsPdpContexts (attActPdpC)

Description

This attribute indicates the Packet Data Protocol (PDP) contexts that the Mobile Station or the SGSN Session Management Entity has attempted to activate during the collection interval. This counters includes the successful activations counted by the *mobileInitActivations* attribute. This attribute counts both attempted PDP context activations using static addresses and PDP context activations using dynamic PDP addresses.This attribute does not count Inter Routing Area Update (IRAU) activations.

This counter includes static as well as dynamic PDP addresses.

Values

Decimal (0..4294967295)

## ATTRIBUTE Usc Sm activationFailuresPdpContexts (actFailPdpC)

Description

This attribute indicates the Packet Data Protocol (PDP) contexts, initiated by the Mobile Station (MS) or the SGSN Session Management Entity, that were rejected by the Serving GPRS Support Node (SGSN). This attribute counts both the failures for PDP context activations using static addresses and failures for PDP context activations using dynamic PDP addresses. This attribute does not count Inter Routing Area Update (IRAU) activation failures.

The counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Usc Sm actFailSgsnInsufficientResources (actFailSgsnInsufRes)

Description

This attribute indicates, for the collection interval, the activations initiated by the Mobile Station (MS) or the SGSN Session Management Entity, and rejected by the Serving GPRS Support Node (SGSN) due to the cause code NO RESOURCES AVAILABLE. This counter is incremented due to the SGSN having insufficient resources for the session. The value of this attribute is included in the count of *activationFailuresPdpContexts*.

Values

Decimal (0..4294967295)

## ATTRIBUTE Usc Sm actFailMissingOrUnknownApn (actFailMissOrUnkn)

| | |
|---|---|
| Description | This attribute indicates, for the collection interval, the number of times the Serving GPRS Support Node (SGSN) rejected a Mobile Station (MS) or an SGSN Session Management Entity initiated activation due to the requested service being rejected by the external packet data network. The service is rejected because the required Access Point Name (APN) was not included or the APN was not resolved. The value of this attribute is included in the count of *activationFailuresPdpContexts*. |
| Values | Decimal (0..4294967295) |

## ATTRIBUTE Usc Sm actFailUnknownPdpAddrOrPdpType (actFailUnknPdpAddType)

| | |
|---|---|
| Description | This attribute indicates, for the collection interval, the number of times a CREATE PDP CONTEXT RESPONSE message was received from the Gateway GPRS Support Node (GGSN) with the cause code “Unknown PDP address or PDP type”. This could be due to the requested service being rejected by the external packet data network because the Packet Data Protocol (PDP) address or the PDP type was not recognized. This event is also counted by the *activationFailuresPdpContexts* attribute. |
| Values | Decimal (0..4294967295) |

## ATTRIBUTE Usc Sm actFailUserAuthentications (actFailUserAuth)

| | |
|---|---|
| Description | This attribute indicates, for the collection interval, the number of times a CREATE PDP CONTEXT REQUEST message was received from the Gateway GPRS Support Node (GGSN) with the cause code USER AUTHENTICATION FAILED. This could be due to the requested service being rejected by the external packet data network due to a failed user authentication. The value of this attribute is included in the count of *activationFailuresPdpContexts*. |
| Values | Decimal (0..4294967295) |

## ATTRIBUTE Usc Sm actFailRejectedByGgsn (actFailRejGgsn)

| | |
|---|---|
| Description | This attribute indicates, for the collection interval, the number of times the Serving GPRS Support Node (SGSN) rejected a Mobile Station (MS) or an SGSN Session Management Entity initiated activation, due to the requested service being rejected by the Gateway GPRS Support Node (GGSN) with a cause code that does not map to a cause code in the ACTIVATE PDP CONTEXT REJECT message. The value of this attribute is included in the count of *activationFailuresPdpContexts*. |
| Values | Decimal (0..4294967295) |

## ATTRIBUTE Usc Sm actFailGgsnInsufficientResources (ggsnInsufRes)

Description

This attribute indicates, for the collection interval, the activations initiated by the Mobile Station (MS) or the SGSN Session Management Entity, and rejected by the Serving GPRS Support Node (SGSN) due to the cause code NO RESOURCES AVAILABLE. This counter is incremented due to the Gateway GPRS Support Node (GGSN) returning a cause code of NO RESOURCES AVAILABLE in the CREATE PDP CONTEXT RESPONSE message. The value of this attribute is included in the count of *activationFailuresPdpContexts*.

Values

Decimal (0..4294967295)

## ATTRIBUTE Usc Sm attemptedActivationsDynPdpC (attActDynPdpC)

Description

This attribute indicates, for the collection interval, the Packet Data Protocol (PDP) contexts that the Mobile Station or the SGSN Session Management Entity has attempted to activate and that requires the use of a dynamic PDP address. This attribute does not count Inter Routing Area Update (IRAU) activations.

Values

Decimal (0..4294967295)

## ATTRIBUTE Usc Sm activationFailuresDynPdpC (actFailDynPdpC)

Description

This attribute indicates, for the collection interval, the number of times the Serving GPRS Support Node (SGSN) rejected a PDP context activation initiated by a Mobile Station (MS) or an SGSN Session Management Entity and that requires the use of a dynamic PDP address. This attribute does not count Inter Routing Area Update (IRAU) activation failures.

Values

Decimal (0..4294967295)

## ATTRIBUTE Usc Sm maxSubsWithActivationsPdpC (maxSubsActPdpC)

Description

This attribute displays the highest recorded value for the number of subscribers with an active Packet Data Protocol (PDP) context.
The value is obtained by comparing on an update of the actual number of subscribers with activated PDP contexts in the SGSN, with the currently maximal value in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Usc Sm sgsnAttemptedModificationsPdpC (sgsnAttModPdpC)

Description

This attribute indicates the Packet Data Protocol (PDP) contexts that the Service GPRS Support Node (SGSN) has attempted to modify during the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Usc Sm attemptedNetworkDeactivationsPdpC (attNwkDeactPdpC)

Description

This attribute indicates, for the collection interval, the Packet Data Protocol (PDP) context deactivations initiated by the Gateway GPRS Support Node (GGSN), the UMTS Gateway GPRS Support Node (USGSN) or the Home Location Register (HLR).

Values

Decimal (0..4294967295)

## ATTRIBUTE Usc Sm sgsnInitModifyAttempts

Description

This attribute counts the number of Packet Data Protocol (PDP) context modifications initiated by the Serving GPRS Support Node (SGSN), for example, as a result of QoS renegotiations with the Mobile Station (MS). This counter is pegged only during SGSN Initiated PDP Context Modification.

The counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Usc Sm sgsnInitFailAtMs

Description

This attribute counts the unsuccessful Packet Data Protocol (PDP) context modifications initiated by the Serving GPRS Support Node (SGSN) that failed at the Mobile Station (MS).

The counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Usc Sm sgsnInitFailAtGgsn

Description

This attribute counts the unsuccessful Packet Data Protocol (PDP) context modifications initiated by the Serving GPRS Support Node (SGSN) that failed at the Gateway GPRS Support Node (GGSN).

The counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Usc Sm sgsnInitFailAtSgsn

Description

This attribute counts the unsuccessful Packet Data Protocol (PDP) context modifications initiated by the Serving GPRS Support Node (SGSN) that failed at the SGSN.

The counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Usc Sm msInitModifyAttempts

Description: This attribute counts the number of Packet Data Protocol (PDP) context modifications initiated by the Mobile Station (MS).

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Usc Sm msInitFailAtGgsn

Description: This attribute counts the unsuccessful Packet Data Protocol (PDP) context modifications initiated by the Mobile Station (MS) that failed at the Gateway GPRS Support Node (GGSN).

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Usc Sm msInitFailAtSgsn

Description: This attribute counts the unsuccessful Packet Data Protocol (PDP) context modifications initiated by the Mobile Station (MS) that failed at the SGSN.

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Usc Sm sgsnInitFailAtRnc

Description: This attribute counts the unsuccessful Packet Data Protocol (PDP) context modifications initiated by the UMTS Serving GPRS Support Node (USGSN) that failed at the Radio Network Controller (RNC).

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Usc Sm msInitFailAtMs

Description

This attribute counts the unsuccessful Packet Data Protocol (PDP) context modifications initiated by the Mobile Station (MS) that failed at the MS.

The counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Usc Sm msInitFailAtRnc

Description

This attribute counts the unsuccessful Packet Data Protocol (PDP) context modifications initiated by the Mobile Station (MS) that failed at the Radio Network Controller (RNC).

The counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

# COLLECTED STATS UsgsnSubscriberControl SessionManagement Failures

Description

The statistics record generated by the UsgsnSubscriberControl SessionManagement Failures component.

## ATTRIBUTE Usc Sm Failures idenRespMsgsRx

Description

This attribute indicates the number of IDENTIFICATION RESPONSE message failures received with the cause indicated by the instance of the component, over the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Usc Sm Failures sgsnCntxtRespMsgsRx

Description: This attribute indicates the number of SGSN CONTEXT RESPONSE message failures received with the cause indicated by the instance of the component, over the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Usc Sm Failures sgsnCntxtAckRespMsgsRx

Description: This attribute indicates the number of SGSN CONTEXT ACKNOWLEDGE RESPONSE message failures received with the cause indicated by the instance of the component, over the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Usc Sm Failures createPdpCntxtRespMsgsRx

Description: This attribute indicates the number of CREATE PDP CONTEXT RESPONSE message failures received with the cause indicated by the instance of the component, over the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Usc Sm Failures updatePdpCntxtRespMsgsTx

Description: This attribute indicates the number of UPDATE PDP CONTEXT RESPONSE message failures received with the cause indicated by the instance of the component, over the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Usc Sm Failures deletePdpCntxtRespMsgsRx

Description: This attribute indicates the number of DELETE PDP CONTEXT RESPONSE message failures received with the cause indicated by the instance of the component, over the collection interval.

Values Decimal (0..4294967295)

# COLLECTED STATS UsgsnSubscriberControl GprsMobilityManagement

Description The statistics record generated by the UsgsnSubscriberControl GprsMobilityManagement component.

## ATTRIBUTE Usc Gmm pmmIdleStateSubscribers

Description This attribute indicates the number of mobile subscribers that are GPRS-attached and in the PMM-IDLE state at the end of the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Usc Gmm pmmConnectedStateSubscribers

Description This attribute indicates the number of mobile subscribers that are GPRS-attached and in the PMM-CONNECTED state at the end of the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Usc Gmm currentlyAttached

Description This attribute indicates the Mobile Stations (MS) that are currently GPRS-attached and in the PMM-IDLE or PMM-CONNECTED state.
The maximum subscribers that can be GPRS-attached is provisioned in the maxAttachedSubscribers attribute of the parent UmtsSubscriberControl (*Usc*) component.

The count is taken at the end of the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Usc Gmm attachesSuccessful

Description: This attribute indicates the number of GPRS-attaches to this UMTS Serving GPRS Support Node (USGSN) that were successful over the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Usc Gmm attachesWithKnownPtmsi

Description: This attribute indicates the number of ATTACH REQUEST messages received with a Packet-Temporary Mobile Subscriber Identity (P-TMSI) previously assigned by this UMTS Serving GPRS Support Node (USGSN).

This includes all successful and unsuccessful attempts.

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Usc Gmm attachesWithUnknownPtmsi

Description: This attribute indicates the number of ATTACH REQUEST messages received with a Packet-Temporary Mobile Subscriber Identity (P-TMSI) not assigned by this UMTS Serving GPRS Support Node (USGSN) over the collection interval.

This includes all successful and unsuccessful attempts.

Values: Decimal (0..4294967295)

## ATTRIBUTE Usc Gmm attachesWithImsi

Description: This attribute indicates the number of ATTACH REQUEST messages received with an International Mobile Subscriber Identity (IMSI) as an identifier, over the collection interval. This includes all successful and unsuccessful attempts.

Values: Decimal (0..4294967295)

## ATTRIBUTE Usc Gmm authenticationRequests

Description

This attribute indicates the number of times the authentication procedure was initiated by the UMTS Serving GPRS Support Node (USGSN).

The counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Usc Gmm serviceRequestsForSignalling

Description

This attributes counts the successful SERVICE REQUEST messages sent by mobile stations (MS) requesting a signalling connection in order to send uplink signalling messages (such as ATTACH REQUEST, PDP CONTEXT REQUEST, and so on.), over the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Usc Gmm serviceRequestsForData

Description

This attribute counts the successful SERVICE REQUEST messages sent by mobile stations (MS) requesting a resource reservation for active PDP contexts, over the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Usc Gmm serviceRequestsForPagingResponse

Description

This attribute counts the successful SERVICE REQUEST messages sent by mobile stations (MS) indicating a paging response, over the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Usc Gmm detachesSuccessful

Description

This attribute counts the successful DETACHes that are either mobile or network initiated.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Usc Gmm msDetachRejected

Description This attribute counts the Mobile Station (MS) initiated GPRS-DETACH REQUEST messages which have been rejected by this UMTS Serving GPRS Support Node (USGSN).

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Usc Gmm normalIntraUsgsnRaUpdate

Description This attribute counts the normal intra-Serving GPRS Support Node ROUTING AREA UPDATE REQUEST messages received from the Mobile Station (MS).

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Usc Gmm periodicIntraUsgsnRaUpdate

Description This attribute counts the periodic intra-Serving GPRS Support Node ROUTING AREA UPDATE REQUEST messages from the Mobile Station (MS).

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Usc Gmm normalInterUsgsnRaUpdate

Description This attribute counts the inter-UMTS Serving GPRS Support Node ROUTING AREA UPDATE REQUEST messages from the Mobile Station (MS).

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Usc Gmm initialPsPageRequests

Description

This attribute counts the initial PS (Packet-Switched) PAGE REQUEST messages sent to the Mobile Station (MS).

The counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Usc Gmm reattemptPsPageRequests

Description

This attribute counts the re-attempt PS (Packet-Switched) PAGE REQUEST messages sent to the Mobile Station (MS) after the initial page request.

The counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Usc Gmm interSgsnRaUpdateAccepts (irauAccept)

Description

This attribute counts the ROUTING AREA UPDATE ACCEPT messages sent from this SGSN, while acting in the role of new SGSN, to the Mobile Station (MS) in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Usc Gmm interSgsnRaUpdateRejects (irauReject)

Description

This attribute indicates the ROUTING AREA UPDATE REJECT messages sent from this SGSN, while acting in the role of new SGSN, to the Mobile Station (MS). This attribute includes one of the following conditions:

IMSI Unknown In HLR
Service Not Allowed
PLMN Not Allowed
Roaming Not Allowed
Network Failure
Unspecified Protocol Error
Invalid Mandatory Information
Conditional Information Element Error

This counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Usc Gmm intraSgsnRaUpdateRejects (rauReject)

Description

This attribute counts the ROUTING AREA UPDATE REJECT message sent during an Intra-SGSN Routing Area Update to the Mobile Station (MS). This attribute includes one of the following conditions:

IMSI Unknown In HLR
Service Not Allowed
PLMN Not Allowed
Roaming Not Allowed
Network Failure
Unspecified Protocol Error
Invalid Mandatory Information
Conditional Information Element Error

This counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Usc Gmm periodicRaUpdateRejects (periodicRauReject)

Description: This attribute counts the ROUTING AREA UPDATE REJECT message sent during Periodic Routing Area Updates to the Mobile Station (MS) in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Usc Gmm psPagingProcFailures (psPagProcFail)

Description: This attribute indicates the PS (Packet-Switched) paging procedures initiated by the UMTS Serving GPRS Support Node (USGSN) over the Iu interface that are rejected by the Mobile Station (MS).

This counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Usc Gmm securityModeRequests

Description: This attribute counts the number of times the Security Mode procedure was initiated by the UMTS Serving GPRS Support Node (USGSN).

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

# COLLECTED STATS UsgsnSubscriberControl MapClient

Description: The statistics record generated by the UsgsnSubscriberControl MapClient component.

## ATTRIBUTE Usc Mc uglMsgs

Description: This attribute indicates the MAP-UPDATE GPRS LOCATION messages sent to the Home Location Register (HLR) in the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Usc Mc uglResponseMsgs (uglResp)

Description This attribute indicates the successful MAP-UPDATE GPRS LOCATION RESPONSE messages received from the Home Location Register (HLR) in the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Usc Mc isdMsgs

Description This attribute indicates the MAP-INSERT SUBSCRIBER DATA messages received from the Home Location Register (HLR) in the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Usc Mc isdResponseMsgs (isdResp)

Description This attribute indicates the MAP-INSERT SUBSCRIBER DATA RESPONSE messages sent to the Home Location Register (HLR) in the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Usc Mc dsdMsgs

Description This attribute indicates the MAP-DELETE SUBSCRIBER DATA messages received from the Home Location Register (HLR) in the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Usc Mc dsdResponseMsgs (dsdResp)

Description This attribute indicates the MAP-DELETE SUBSCRIBER DATA RESPONSE messages sent to the Home Location Register (HLR) in the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Usc Mc clMsgs

Description: This attribute indicates the MAP-CANCEL LOCATION messages received from the Home Location Register (HLR) in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Usc Mc clResponseMsgs (clResp)

Description: This attribute indicates the MAP-CANCEL LOCATION RESPONSE messages sent to the Home Location Register (HLR) in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Usc Mc rstMsgs

Description: This attribute indicates the MAP-RESET messages received from the Home Location Register (HLR) in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Usc Mc saiMsgs

Description: This attribute indicates the MAP-SEND AUTHENTICATION INFO messages sent to the Home Location Register (HLR) in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Usc Mc saiResponseMsgs (saiResp)

Description: This attribute indicates the MAP-SEND AUTHENTICATION INFO RESPONSE messages received from the Home Location Register (HLR) in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Usc Mc transLimitDiscards (trDisc)

Description: This attribute indicates the number of transactions rejected by the MAP Client when the maximum number of concurrent MAP transactions supported by the MAP Client has been exceeded. The maximum number of MAP transactions is constrained by the MAP Client internal memory available to store the transactions. This counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Usc Mc tmrExpiries (tmrEx)

Description: This attribute indicates the times the *mcTimer* (defined in component *Sgsn GprsSubscriberControl* and *Usgsn UmtsSubscriberControl*) expires before receiving a response from the Home Location Register (HLR). This can be used to determine if the provisionable attribute *mcTimer* must be changed, or a problem exists between the Serving GPRS Support Node (SGSN) or the UMTS Serving General Support Node (USGSN) and the Home Location Register (HLR). This counter counts the value in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Usc Mc afrMsgs

Description: This attribute indicates the AUTHENTICATION FAILURE REPORT messages sent to the Home Location Register (HLR) in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Usc Mc afrResponseMsgs (afrResp)

Description: This attribute indicates the ATHENTICATION FAILURE REPORT RESPONSE messages received from the Home Location Register (HLR) in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Usc Mc currentTransactions (curTr)

Description

This attribute indicates how many MAP transactions are currently being handled by the MAP Client. *currentTransactions* is expressed as a percentage utilization of the number of MAP transactions the MAP Client is capable of handling concurrently.

A SET alarm is generated by the MAP Client when the percentage utilization reaches a high threshold. A CLEAR alarm is generated by the MAP Client when the percentage utilization reaches a low threshold and an outstanding SET alarm exists.

The value reported is the value at the end of the collection interval.

Values

Decimal (0..100)

## ATTRIBUTE Usc Mc sccpServiceRequestTimeouts

Description

This attribute indicates the MAP Stack Service request timeouts in the collection interval. This could occur if the MAP Stack was not responding to Service requests from the MAP Clients, or if there was an SS7-IP Gateway (SIG) or IP network problem.

Retries of the Service request are infinite since the MAP Client can not send or receive MAP messages until it is successfully registered with the MAP Stack.

Values

Decimal (0..4294967295)

## ATTRIBUTE Usc Mc decodeErrors

Description

This attribute indicates, over the collection interval, the number of MAP messages received from the peer nodes that are not decodable. The inability to decode the MAP message is caused by the MAP Client receiving a message with invalid data.

Values

Decimal (0..4294967295)

## ATTRIBUTE Usc Mc dataMissingRespSent

Description: This attribute indicates, over the collection interval, the number of “data missing error” responses sent to the peer nodes. This error may occur when optional data is missing from a MAP message received, when required data is missing from a MAP message received, or when an internal data structure is missing data.

Values: Decimal (0..4294967295)

## ATTRIBUTE Usc Mc unexpectedDataValuesRespSent (unexpDataRespSent)

Description: This attribute indicates, over the collection interval, the number of “unexpected data value” error responses sent to the peer nodes. This error may occur when the parameter type is correct in a MAP message received but contains data which is not relevant for the type of MAP service being invoked.

Values: Decimal (0..4294967295)

## ATTRIBUTE Usc Mc unidentifiedSubscribersRespSent (unidentSubRespSent)

Description: This attribute indicates, over the collection interval, the number of “unidentified subscriber” error responses sent to the peer nodes. This error may occur when the subscriber is not contained in the subscriber database resulting in the failure to establish a call.

Values: Decimal (0..4294967295)

## ATTRIBUTE Usc Mc dataMissingRespRecv

Description: This attribute indicates, over the collection interval, the number of “data missing” error responses received from the peer nodes. This error may occur when optional data is missing from a MAP message sent, when required data is missing from a MAP message sent, or when an internal data structure is missing data.

Values Decimal (0..4294967295)

## ATTRIBUTE Usc Mc unexpectedDataValuesRespRecv (unexpDataRespRecv)

Description This attribute indicates, over the collection interval, the number of “unexpected data value” error responses received from the peer nodes. This error may occur when the parameter type is correct in a MAP message sent but contains data which is not relevant for the type of MAP service being invoked.

Values Decimal (0..4294967295)

## ATTRIBUTE Usc Mc systemFailuresRespRecv (sysFailRespRecv)

Description This attribute indicates, over the collection interval, the number of “system failure” error responses received from the peer nodes. This error may occur when a task specified by a MAP message sent cannot be performed because of a problem with another entity.

Values Decimal (0..4294967295)

## ATTRIBUTE Usc Mc unknownSubscribersRespRecv (unkSubRespRecv)

Description This attribute indicates, over the collection interval, the number of “unknown subscriber” error responses received from the peer nodes. This error may occur when a message sent is processed for a subscription that does not exist.

Values Decimal (0..4294967295)

## ATTRIBUTE Usc Mc roamingNotAllowedRespRecv (noRoamRespRecv)

Description: This attribute indicates, over the collection interval, the number of “roaming not allowed” error responses received from the peer nodes. This error may occur when a location update attempt is made in an area not covered by the subscription.

Values: Decimal (0..4294967295)

## ATTRIBUTE Usc Mc invalidMessages

Description: This attribute indicates, over the collection interval, the number of invalid messages received by the MAP Client. This may occur if the MAP Client receives an unsolicited message, a message with an invalid header, or an invalid dialogue ID.

Values: Decimal (0..4294967295)

## ATTRIBUTE Usc Mc isdMsgsUpdateLocation (isdMsgsUpdLoc)

Description: This attribute indicates, over the collection interval, the number of MAP-INSERT SUBSCRIBER DATA messages received from the Home Location Register (HLR) during a GPRS Update Location procedure.

Values: Decimal (0..4294967295)

## ATTRIBUTE Usc Mc isdMsgsHlrSubUpdate (isdMsgsHlrSubUp)

Description: This attribute indicates, over the collection interval, the number of MAP-INSERT SUBSCRIBER DATA messages received from the Home Location Register (HLR) due to an updated mobile subscription.

Values: Decimal (0..4294967295)

## ATTRIBUTE Usc Mc isdFailures (isdFail)

Description

This attribute indicates the number of MAP-INSERT SUBSCRIBER DATA messages sent to the Home Location Register (HLR) that could not be processed due to one of the following errors:

Data Missing
Unexpected Data Value
Unidentified Subscriber
Decode errors

This counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Usc Mc clMsgsHlrDetach (clMsgsHlrDetach)

Description

This attribute indicates, over the collection interval, the number of MAP-CANCEL LOCATION messages received from the Home Location Register (HLR) due to an HLR initiated Detach.

Values

Decimal (0..4294967295)

## ATTRIBUTE Usc Mc clMsgsSgsnChange (clMsgsSgsnChg)

Description

This attribute indicates, over the collection interval, the number of MAP-CANCEL LOCATION messages received from the Home Location Register (HLR) due to a Service GPRS Support Node (SGSN) change.

Values

Decimal (0..4294967295)

## ATTRIBUTE Usc Mc clMsgsHlrOther (clMsgsHlrOther)

Description

This attribute indicates, over the collection interval, the number of MAP-CANCEL LOCATION messages received from the Home Location Register (HLR) with a cancellation type other than a Service GPRS Support Node (SGSN) change or an HLR initiated Detach.

Values

Decimal (0..4294967295)

## ATTRIBUTE Usc Mc clFailures (clFail)

Description

This attribute counts the MAP-CANCEL LOCATION messages received from the Home Location Register (HLR) that could not be processed due to one of the following errors:

Data Missing
Unexpected Data Value
Decode errors

This counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Usc Mc dsdFailures (dsdFail)

Description

This attribute indicates the number of MAP-DELETE SUBSCRIBER DATA messages sent to the Home Location Register (HLR) that could not be processed due to one of the following errors:

Data Missing
Unexpected Data Value
Unidentified Subscriber
Decode errors

This counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Usc Mc uAbortMsgSent

Description

This attribute indicates, over the collection interval, the number of MAP USER ABORT messages sent by the MAP Client to the peer nodes. This message may be sent as a result of a resource limitation caused by congestion or as a result of the unavailability of resources.

Values

Decimal (0..4294967295)

## ATTRIBUTE Usc Mc pAbortMsgRecv

Description

This attribute indicates, over the collection interval, the number of MAP PROVIDER ABORT messages received by the MAP Client from the peer nodes. This message indicates to the MAP service-user to abort a MAP dialogue. This message may be received due to a MAP service-provider malfunction, supporting dialogue/transaction release, resource limitation, maintenance activity, version incompatibility, or an abnormal MAP dialogue.

Values

Decimal (0..4294967295)

## ATTRIBUTE Usc Mc uAbortMsgRecv

Description

This attribute indicates, over the collection interval, the number of MAP USER ABORT messages received by the MAP Client from the peer nodes. This message indicates to the MAP service-provider to abort a MAP dialogue. This message may be received due to a resource limitation caused by congestion or by unavailability of resources.

Values

Decimal (0..4294967295)

## ATTRIBUTE Usc Mc pmsMsgs

Description

This attribute indicates the number of Mobile Subscriber Purge messages sent to the Home Location Register (HLR).

This counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Usc Mc pmsResponseMsgs (pmsRes)

Description

This attribute indicated the number of Mobile Subscriber Purge Response messages received from the Home Location Register (HLR).

This counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Usc Mc pslMsgs

Description: This attribute counts the MAP-PROVIDE SUBSCRIBER LOCATION messages received by the MAP Client from the Gateway Mobile Location Center (GMLC).

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Usc Mc pslRespMsgs

Description: This attribute counts the MAP-PROVIDE SUBSCRIBER LOCATION response messages sent by the MAP Client to the Gateway Mobile Location Center (GMLC).

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Usc Mc unauthorizedReqNetworkRespSent (unauthReqNetRespSent)

Description: This attribute counts the number of “Unauthorized Requested Network” error responses sent to the Gateway Mobile Location Center (GMLC). This error may occur when a Location Request is denied due to the GMLC not being in the home country.

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Usc Mc unauthorizedLcsClientRespSent (unauthLcsCliRespSent)

Description: This attribute counts the number of “Unauthorized LCS Client” error responses sent to the Gateway Mobile Location Center (GMLC). This error may occur when a Location Request is denied due to privacy restrictions.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Usc Mc positionMethodFailureRespSent (posMethFailRespSent)

Description This attribute counts the number of “Positioning Method Failure” error responses sent to the Gateway Mobile Location Center (GMLC). This error may occur when the position of the mobile cannot be retrieved.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Usc Mc absentSubscriberRespSent (absentSubRespSent)

Description This attribute counts the number of “Absent Subscriber” error responses sent to the Gateway Mobile Location Center (GMLC). This error may occur when the subscriber is International Mobile Subscriber Identity (IMSI) detached, in a restricted area, or does not respond to paging.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

# COLLECTED STATS UsgsnSubscriberControl Ranap

Description The statistics record generated by the UsgsnSubscriberControl Ranap component.

## ATTRIBUTE Usc Ranap rabAssignmentMsgs

Description This attribute indicates the number of RAB ASSIGNMENT messages that were sent to the RNC over the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Usc Ranap rabSetupRequestMsgs

Description This attribute indicates the number of RAB SETUP REQUEST messages that were sent to the RNC over the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Usc Ranap rabReleaseRequestMsgs

Description This attribute indicates the number of RAB RELEASE REQUEST messages that were sent to the RNC over the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Usc Ranap iuReleaseRequestRxMsgs

Description This attribute indicates the number of Iu RELEASE REQUEST messages that were received from the RNC over the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Usc Ranap iuReleaseCommandTxMsgs

Description This attribute indicates the number of Iu RELEASE COMMAND messages that were sent to the RNC over the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Usc Ranap relocRequestMsgs

Description This attribute indicates the number of RELOCATION REQUEST messages that were sent to the RNC over the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Usc Ranap pagingMsgs

Description This attribute indicates the number of PAGING messages that were sent to the RNC over the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Usc Ranap resetMsgs

Description This attribute indicates the number of RESET messages that were received from the RNC over the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Usc Ranap initialUeMsgs

Description This attribute indicates the number of INITIAL UE messages that were received from the RNC over the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Usc Ranap errorIndicationMsgsRx

Description This attribute indicates the number of ERROR INDICATION messages that were received from the RNC over the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Usc Ranap errorIndicationMsgsTx

Description This attribute indicates the number of ERROR INDICATION messages that were sent to the RNC over the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Usc Ranap locationReportingControlMsgs

Description This attribute indicates the number of Location Reporting Control messages that are sent to the Radio Network Controller over the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Usc Ranap locationReportMsgs

Description: This attribute indicates the number of Location Report messages that are received from the Radio Network Controller over the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Usc Ranap rabAssgnRqstSetupFailureMsgs

Description: This attribute indicates the number of times a RAB assignment request of type setup was rejected by the RNC over the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Usc Ranap rabAssgnRqstRelFailureMsgs

Description: This attribute indicates the number of times a RAB assignment message of type release was rejected by the RNC over the collection interval.

Values: Decimal (0..4294967295)

# COLLECTED STATS UsgsnSubscriberControl DifferentiatedService AllocationRetention TrafficClass

Description: The statistics record generated by the UsgsnSubscriberControl DifferentiatedService AllocationRetention TrafficClass component.

## ATTRIBUTE Usc Ds Ar Tc createPdpReq

Description: This attribute indicates the number of CREATE PDP CONTEXT REQUEST messages sent by the (UMTS) Serving GPRS Support Node (USGSN or SGSN) for the allocation retention priority and traffic class represented by this component over the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Usc Ds Ar Tc createPdpRes

Description: This attribute indicates the number of CREATE PDP CONTEXT RESPONSE messages received with the cause REQUEST ACCEPTED for the allocation retention priority and traffic class represented by this component over the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Usc Ds Ar Tc sgsnInitPdpUpdateReq

Description: This attribute indicates the number of UPDATE PDP CONTEXT REQUEST messages sent by the (UMTS) Serving GPRS Support Node (USGSN or SGSN) for the allocation retention priority and traffic class represented by this component over the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Usc Ds Ar Tc sgsnInitPdpUpdateRes

Description: This attribute indicates the number of UPDATE PDP CONTEXT RESPONSE messages sent by the (UMTS) Serving GPRS Support Node (USGSN or SGSN) for the allocation retention priority and traffic class represented by this component over the collection interval..

Values: Decimal (0..4294967295)

## ATTRIBUTE Usc Ds Ar Tc ggsnInitPdpUpdateReq

Description: This attribute indicates the number of UPDATE PDP CONTEXT REQUEST messages received from the Gateway Serving GPRS Support Node (GGSN) for the allocation retention priority and traffic class represented by this component over the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Usc Ds Ar Tc wlcGgsnInitPdpUpdateRes

Description: This attribute indicates the number of UPDATE PDP CONTEXT RESPONSE messages sent with a cause REQUEST ACCEPTED by the (UMTS) Serving GPRS Support Node (USGSN or SGSN) for the allocation retention priority and traffic class represented by this component over the collection interval.

Values: Decimal (0..4294967295)

# COLLECTED STATS UsgsnSubscriberControl GprsSupportNode

Description: The statistics record generated by the UsgsnSubscriberControl GprsSupportNode component.

## ATTRIBUTE Usc Gsn incomingRequestsRejected (inReqReject)

Description: This attribute indicates the number of incoming request messages on the Gn interface that were rejected during the collection interval because the maximum number of outstanding incoming requests was exceeded.

Values: Decimal (0..4294967295)

# COLLECTED STATS UsgsnSubscriberControl ServiceSwitchingFunction

Description: The statistics record generated by the UsgsnSubscriberControl ServiceSwitchingFunction component.

## ATTRIBUTE Usc Ssf pdpContextsRedirected (pdpRedir)

Description

This attribute indicates the number of PDP (Packet Data Protocol) Contexts that have been redirected to a different APN (Access Point Name) by an SCP (Service Control Point) during the collection interval.

If this attribute is continuously reporting a high value during each collection interval, the operator may want to examine the network configuration to determine why so many PDP contexts are being redirected. It is possible that the current network configuration is not optimal and that the SCP is redirecting PDP contexts to avoid undesirable or expensive network access paths.

Values

Decimal (0..4294967295)

## ATTRIBUTE Usc Ssf attemptedCamelDialogues (attDialogues)

Description

This attribute indicates the total number of CAMEL dialogues that this *Ssf* component has attempted to establish during the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Usc Ssf unsuccessfulCamelDialogues (unsuccDialogues)

Description

This attribute indicates the total number of unsuccessful CAMEL dialogues establishment attempts caused by errors or reject messages received from an SCP during the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Usc Ssf totalTssfTimeouts (totTssfTimeouts)

Description

This attribute indicates the total number of Tssf timeouts during the collection interval. The timeout period is specified by the *ssfTimer* attribute of the *Sgsn Gsc* component.

Values

Decimal (0..4294967295)

## ATTRIBUTE Usc Ssf totalDefaultGprsHandlings (totDefHand)

Description

This attribute indicates the number of times during the collection interval the SSF (Service Switching Function) detected an error and had to refer to the Default Gprs Handing field of the related mobile's CAMEL Subscriber Information (CSI) to determine whether to continue or fail the PDP (Packet Data Protocol) Context.

If this attribute is continuously reporting a high value during each collection interval, the *totalProtocolErrors* and *totalNoCopFailures* attributes can be examined for information about why the Default Gprs Handling field is so often referenced.

Values

Decimal (0..4294967295)

## ATTRIBUTE Usc Ssf totalProtocolErrors (totProtoErr)

Description

This attribute indicates the total number of protocol errors detected in CAP (CAMEL Application Part) messages from an SCP (Service Control Point) during the collection interval.

If this attribute is continuously reporting a high number of errors during each collection interval, there may be a mismatch in the protocol version being used by the SCP and the version being used by the SGSN.

Values

Decimal (0..4294967295)

## ATTRIBUTE Usc Ssf totalNoCopFailures (totNoCopFail)

Description

This attribute indicates the total number of PDP (Packet Data Protocol) Contexts that have failed during the collection interval because an IRAU (Inter Routing Area Updates) occurred when the Change Of Position (COP) trigger was not in the TDP (Trigger Detection Point) list of the subscriber for which the PDP Context was requested.

If this attribute is continuously reporting a high number of errors during each collection interval, it may indicate that roaming should be disabled for CAMEL users or that Camel Subscriber Information (CSI) is not properly specified in the HLR for some users.

Values

Decimal (0..4294967295)

## ATTRIBUTE Usc Ssf currentCamelDialogues (currDialogues)

Description

This attribute indicates the number of CAMEL dialogues active at the end of the collection interval.

Values

Decimal (0..4294967295)

# COLLECTED STATS UsgsnSubscriberControl LocationServices

Description

The statistics record generated by the UsgsnSubscriberControl LocationServices component.

## ATTRIBUTE Usc Lcs lcsMaxCurrentEnabledSubscribers (maxEnabledSubs)

Description

This attribute indicates the current number of location services enabled subscribers.

The value reported is the peak value for the duration of the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Usc Lcs lcsMtRequests (mtRequest)

Description: This attribute counts the total mobile terminated location requests.

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Usc Lcs lcsMtFailures (mtFail)

Description: This attribute counts the total unsuccessful mobile terminated location requests.

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Usc Lcs lcsPagingRequests (pagingReq)

Description: This attribute counts the total paging requests sent by the *LocationServices* component.

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Usc Lcs lcsPagingFailures (pagingFail)

Description: This attribute counts the total unsuccessful paging requests sent by the *LocationServices* component.

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Usc Lcs lcsRequestTypeNotSupported (reqTypeNotSupp)

Description: This attribute counts the total failed location requests due to a requested location that is not supported.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Usc Lcs lcsDataMissing (dataMiss)

Description This attribute counts the total failed location requests due to missing information. For example, Imsi or Msisdn is missing in the location request message.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Usc Lcs lcsSubscriberNotAttached (subNotAttach)

Description This attribute counts the total failed location requests due to the subscriber not currently attached.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Usc Lcs lcsUnauthorizedGmlc (unauthGmlc)

Description This attribute counts the total failed location requests due to location requests messages received from an unauthorized Gateway Mobile Location Center.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Usc Lcs lcsUnauthorizedClient (unauthClient)

Description This attribute counts the total failed location requests due to location requests messages received from an unauthorized client.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Usc Lcs lcsServiceBusy (servBusy)

Description

This attribute counts the total failed location requests due to another location request already in progress for the same subscriber.

The counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Usc Lcs lcsNotificationNotPossible (notifyNotPossible)

Description

This attribute counts the total failed location requests due to the reason that it is impossible to send a notification message to the mobile.

The counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Usc Lcs lcsGadShapeNotSupported (gadShapeNotSupp)

Description

This attribute counts the total failed location requests due to the obtained location estimates using a Geographical Area Description (GAD) shape that are not supported in the Location Request message.

The counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

## ATTRIBUTE Usc Lcs lcsInterrupted (interrupted)

Description

This attribute counts the total failed location requests due to information received from the Radio Network Controller (RNC) showing that the Location Services (LCS) entity has been interrupted. For example, LCS can be interrupted by an Inter-SGSN Routing Area Update (IRAU).

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Usc Lcs lcsQosNotAttained (qosNotAttained)

Description This attribute counts the total failed location requests due to the quality of service information not matching the requested quality of service in the Provide Subscriber Location (PSL) message from the Gateway Mobile Location Center (GMLC).

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Usc Lcs lcsNotificationRequests (notifyRequest)

Description This attribute counts the total notification requests to the mobile subscribers.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Usc Lcs lcsNotificationFailures (notifyFail)

Description This attribute counts the total unsuccessful notification requests to the mobile subscribers.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Usc Lcs lcsReportExpiries (reportExpiries)

Description This attribute counts the timer expiries associated with the *locationReportTimer* attribute.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Usc Lcs lcsNotifyExpiries (notifyExpiries)

Description: This attribute counts the timer expiries associated with the *locationNotifyTimer* attribute.

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Usc Lcs lcsClientDeniedByMs (deniedByMs)

Description: This attribute counts the location requests that fail due to the subscriber denying the request.

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Usc Lcs lcsRncPositioningFailure (rncPosFail)

Description: This attribute counts the total failed location requests due to the Radio Network Controller (RNC) failing to determine the location of the subscriber.

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

# COLLECTED STATS UsgsnSubscriberDatapath

Description: The statistics record generated by the UsgsnSubscriberDatapath component.

## ATTRIBUTE Usd currentActiveSessions (currActSess)

Description: This attribute indicates the current number of active session contexts allowed for this instance of *UmtsSubscriberDataPath (Usd)* over the collection interval.

Values: Decimal (0..6000000)

## ATTRIBUTE Usd pdusToUtran

Description: This attribute indicates the number of Protocol Data Units (PDUs) sent to the UMTS Terrestrial Radio Access Network (UTRAN) over the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Usd pdusFromUtran

Description: This attribute indicates the number of Protocol Data Units (PDUs) received from the UMTS Terrestrial Radio Access Network (UTRAN) over the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Usd pdusToNetwork (pdusToNwk)

Description: This attribute indicates the number of GPRS Tunneling Protocol User Plane (GTP-U) Protocol Data Units (PDU) transmitted to the Gateway GPRS Support Node (GGSN) over the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Usd pdusFromNetwork (pdusFromNwk)

Description: This attribute indicates the number of GPRS Tunneling Protocol User Plane (GTP-U) Protocol Data Units (PDU) received from the Gateway GPRS Support Node (GGSN) over the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Usd discardedPdus (discPdus)

Description: This attribute indicates the number of discarded Protocol Data Units (PDUs) received from the GPRS Support Nodes (GSNs) or UMTS Terrestrial Radio Access Network (UTRAN). This includes packets dropped due to GPRS Tunneling Protocol (GTP-U) protocol errors, packets received with no currently linked session context, packets received without a path to send them or packets dropped due to the Tiered Subscription feature policing downlink data.

The counter counts events in the collection interval.

Values: Decimal (0..4294967295)

# COLLECTED STATS UsgsnSubscriberDatapath TieredSubscription

Description: The statistics record generated by the UsgsnSubscriberDatapath TieredSubscription component.

## ATTRIBUTE Usd Ts pktsPerTierToMobile (pktsToM)

Description: This attribute counts the number of packets successfully sent by the SGSN or USGSN for each tier in the down link direction in the collection interval.

Vector of: Decimal (0..4294967295)

Index: Decimal (1..9)

## ATTRIBUTE Usd Ts octetsPerTierToMobile (octToM)

Description: This attribute counts the number of octets successfully sent by the SGSN or USGSN for each tier in the down link direction in the collection interval.

Vector of: Decimal (0..4294967295)

Index: Decimal (1..9)

## ATTRIBUTE Usd Ts pktsDropped (pktsDr)

| | |
|---|---|
| Description | This attribute counts the packets dropped by the Tiered Subscription of the SGSN or USGSN for each tier in the collection interval.<br><br>For example, if the peak throughput for a context is 56kbit/s and there is a burst of downlink data packets exceeding 56kbit/s, then the excess packets will be dropped, and the *pktsDropped* attribute is incremented every time a packet is dropped. |
| Vector of | Decimal (0..4294967295) |
| Index | Decimal (1..9) |

## ATTRIBUTE Usd Ts activePdpCServiced (actPdpCSer)

| | |
|---|---|
| Description | This attribute indicates the current number of PDP contexts that are active for each tier. The value is incremented on a PDP context activation for a tier and decremented when a PDP context is deactivated for the tier.<br>This value reported is the value at the end of the collection interval. |
| Vector of | Decimal (0..4294967295) |
| Index | Decimal (1..9) |

## ATTRIBUTE Usd Ts peakPdpCServiced (peakPdpCSer)

| | |
|---|---|
| Description | This attribute indicates the maximum number of PDP contexts serviced for the tier during the collection interval. The value is incremented every time *currentPdpCServiced* for that tier exceeds the current value of *peakPdpCServiced* for that tier. It is reset to *currentPdpCServiced* after every data collection. |
| Vector of | Decimal (0..4294967295) |
| Index | Decimal (1..9) |

# COLLECTED STATS

# UsgsnSubscriberDatapath DifferentiatedService AllocationRetention TrafficClass

Description The statistics record generated by the UsgsnSubscriberDatapath DifferentiatedService AllocationRetention TrafficClass component.

## ATTRIBUTE Usd Ds Ar Tc dsUplink

Description This attribute indicates the number of octets transferred uplink for the allocation retention priority and traffic class represented by this component over the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Usd Ds Ar Tc dsDownlink

Description This attribute indicates the number of octets transferred downlink for the allocation retention priority and traffic class represented by this component.

Values Decimal (0..4294967295)

# COLLECTED STATS TcapStack

Description The statistics record generated by the TcapStack component.

## ATTRIBUTE Tcap registerAttempts (regAttempts)

Description This attribute indicates the number of SCIP registrations attempted with the SIG during the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Tcap registerSuccessAcks (regAcks)

Description This attribute indicates the number of successful registration responses received from the SIG during the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Tcap registerFailures (regFail)

Description This attribute indicates the number of unsuccessful registration responses received from the SIG during the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Tcap deregisterAttempts (deregAttempts)

Description This attribute indicates the number of SCIP deregistrations attempted with the SIG during the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Tcap deregisterSuccessAcks (deregAcks)

Description This attribute indicates the number of successful deregistration responses received from the SIG during the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Tcap deregisterFailures (deregFail)

Description This attribute indicates the number of unsuccessful deregistration responses received from the SIG during the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Tcap sigSccpNoticeIndications (sccpNotice)

Description This attribute indicates the number of SCCP Notice Indications that have been received from the SIG during the collection interval. SCCP Notice Indications are received from the SIG when there are errors in the messages being sent to it.

Values Decimal (0..4294967295)

## ATTRIBUTE Tcap concurrentTransactionsLowBySs (transLowBySs)

| | |
|---|---|
| Description | This attribute indicates the lowest number of simultaneous TCAP Transactions active during the collection interval for each subsystem.<br><br>***sgsn*** - the SGSN subsystem<br>***cap*** - the CAP subsystem<br>***mscE***- the MSC Emulation subsystem. |
| Vector of | Decimal (0..4000) |
| Index | sgsn<br>cap<br>mscEmulationSubsystem (mscE) |

## ATTRIBUTE Tcap concurrentTransactionsAvgBySs (transAvgBySs)

| | |
|---|---|
| Description | This attribute indicates the average number of simultaneous Tcap Transactions active over the collection interval for each subsystem.<br><br>The average for each subsystem is computed based on the cumulative total of the values of the *currentTransactionsBySubsystem* attribute for that subsystem at each event that causes the attribute to change, divided by the total number of such events during the collection interval.<br><br>***sgsn*** - the SGSN subsystem<br>***cap*** - the CAP subsystem<br>***mscE***- the MSC Emulation subsystem. |
| Vector of | Decimal (0..4000) |
| Index | sgsn<br>cap<br>mscEmulationSubsystem (mscE) |

## ATTRIBUTE Tcap concurrentTransactionsHighBySs (transHighBySs)

| | |
|---|---|
| Description | This attribute indicates the highest number of simultaneous TCAP Transactions active during the collection interval for each subsystem.<br><br>***sgsn*** - the SGSN subsystem<br>***cap*** - the CAP subsystem<br>***mscE***- the MSC Emulation subsystem. |
| Vector of | Decimal (0..4000) |
| Index | sgsn<br>cap<br>mscEmulationSubsystem (mscE) |

## ATTRIBUTE Tcap concurrentInvokesLowBySs (invksLowBySs)

| | |
|---|---|
| Description | This attribute indicates the lowest number of simultaneous Tcap Invokes active during the collection interval for each subsystem.<br><br>***sgsn*** - the SGSN subsystem<br>***cap*** - the CAP subsystem<br>***mscE***- the MSC Emulation subsystem. |
| Vector of | Decimal (0..6000) |
| Index | sgsn<br>cap<br>mscEmulationSubsystem (mscE) |

## ATTRIBUTE Tcap concurrentInvokesAvgBySs (invksAvgBySs)

| | |
|---|---|
| Description | This attribute indicates the average number of simultaneous Tcap Invokes active during the collection interval.<br><br>The average is computed for each subsystem based on the cumulative total of the values of the *currentInvokesBySubsystem* attribute for that subsystem at each event that causes the attribute to change, divided by the total number of such events during the collection interval.<br><br>***sgsn*** - the SGSN subsystem<br>***cap*** - the CAP subsystem<br>***mscE***- the MSC Emulation subsystem |
| Vector of | Decimal (0..6000) |
| Index | sgsn<br>cap<br>mscEmulationSubsystem (mscE) |

## ATTRIBUTE Tcap concurrentInvokesHighBySs (invksHighBySs)

| | |
|---|---|
| Description | This attribute indicates the highest number of simultaneous Tcap Invokes active during the collection interval for each subsystem.<br><br>***sgsn*** - the SGSN subsystem<br>***cap*** - the CAP subsystem<br>***mscE***- the MSC Emulation subsystem |
| Vector of | Decimal (0..6000) |
| Index | sgsn<br>cap<br>mscEmulationSubsystem (mscE) |

## ATTRIBUTE Tcap beginSent (txBegin)

Description: This attribute counts the number of TCAP Begin messages sent to all peer nodes during the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Tcap beginReceived (rxBegin)

Description: This attribute counts the number of TCAP Begin messages received from all peer nodes during the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Tcap continueSent (txContinue)

Description: This attribute counts the number of TCAP Continue messages sent to all peer nodes during the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Tcap continueReceived (rxContinue)

Description: This attribute counts the number of TCAP Continue messages received from all peer nodes during the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Tcap endSent (txEnd)

Description: This attribute counts the number of TCAP End messages sent to all peer nodes during the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Tcap endReceived (rxEnd)

Description: This attribute counts the number of TCAP End messages received from all peer nodes during the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Tcap uabortSent (txUabort)

Description: This attribute counts the number of TCAP User Abort messages sent to all peer nodes during the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Tcap uabortReceived (rxUabort)

Description: This attribute counts the number of TCAP User Abort messages received from all peer nodes during the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Tcap pabortReceived (rxPabort)

Description: This attribute counts the number of TCAP Provider Abort messages received from all peer nodes during the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Tcap noticeReceived (rxNotice)

Description: This attribute counts the number of TCAP Notice messages received from all peer nodes during the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Tcap invokeSent (txInvoke)

Description: This attribute counts the number of TCAP Invoke Components sent to all peer nodes during the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Tcap invokeReceived (rxInvoke)

Description: This attribute counts the number of TCAP Invoke Components received from all peer nodes during the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Tcap resultLastSent (txResultLast)

Description This attribute counts the number of TCAP Result Last Components sent to all peer nodes during the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Tcap resultLastReceived (rxResultLast)

Description This attribute counts the number of TCAP Result Last Components received from all peer nodes during the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Tcap returnErrorSent (txReturnError)

Description This attribute counts the number of TCAP Return Error Components sent to all peer nodes during the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Tcap returnErrorReceived (rxReturnError)

Description This attribute counts the number of TCAP Return Error Components received from all peer nodes during the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Tcap rejectsSent (rejsent)

Description This attribute counts the number of TCAP REJECT Components sent to all peer nodes during the collection interval. A Peer is an application on a different node using data from the same protocol layer.

Values Decimal (0..4294967295)

## ATTRIBUTE Tcap rejectsReceived (rejRcvd)

Description: This attribute counts the number of TCAP REJECT Components received from all peer nodes during the collection interval.

Values: Decimal (0..4294967295)

# COLLECTED STATS TcapStack MapStack

Description: The statistics record generated by the TcapStack MapStack component.

## ATTRIBUTE Tcap Map uglTimeouts (uglTo)

Description: This attribute indicates the number of expiries of the timer specified by the attribute *uglSanityTimer* over the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Tcap Map saiTimeouts (saiTo)

Description: This attribute indicates the number of expiries of the timer specified by the attribute *saiSanityTimer* over the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Tcap Map clTimeouts (clTo)

Description: This attribute indicates the number of expiries of the timer specified by the attribute *clSanityTimer* over the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Tcap Map isdTimeouts (isdTo)

Description: This attribute indicates the number of expiries of the timer specified by the attribute *isdSanityTimer* in the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Tcap Map dsdTimeouts (dsdTo)

Description This attribute indicates the number of expiries of the timer specified by the attribute *dsdSanityTimer* in the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Tcap Map mtfsmTimeouts (mtfsmTo)

Description This attribute indicates the number of expiries of the timer specified by the attribute *mtfsmSanityTimer* in the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Tcap Map mofsmTimeouts (mofsmTo)

Description This attribute indicates the number of expiries of the timer specified by the attribute *mofsmSanityTimer* in the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Tcap Map fsmTimeouts (fsmTo)

Description This attribute indicates the number of expiries of the timer specified by the attribute *fsmSanityTimer* in the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Tcap Map rfsmTimeouts (rfsmTo)

Description This attribute indicates the number of expiries of the timer specified by the attribute *rfsmSanityTimer* in the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Tcap Map afrTimeouts (afrTo)

Description: This attribute indicates the number of expiries of the timer specified by the attribute *afrSanityTimer* in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Tcap Map pmsTimeouts (pmsTo)

Description: This attribute indicates the number of expiries of the *pmsSanityTimer* attribute in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Tcap Map pslTimeouts (pslTo)

Description: This attribute counts the expiries of the timer specified by the *pslSanityTimer* attribute in the collection interval.

Values: Decimal (0..4294967295)

# COLLECTED STATS SignallingSystem7 MessageTransferPartLayer3

Description: The statistics record generated by the SignallingSystem7 MessageTransferPartLayer3 component.

## ATTRIBUTE Ss7 Mtp3 linkSetsUnavailable (lsUnavail)

Description: This attribute indicates the number of linkset unavailable conditions over the collection interval.

Values: Decimal (0..4294967295)

# COLLECTED STATS SignallingSystem7 MessageTransferPartLayer3 Linkset Link

Description: The statistics record generated by the SignallingSystem7 MessageTransferPartLayer3 Linkset Link component.

## ATTRIBUTE Ss7 Mtp3 Ls Link pdusRx

Description: This attribute indicates the number of Protocol Data Units (PDUs) received from layer 2 over the collection interval.

This includes the PDUs with and without user payload.

Values: Decimal (0..4294967295)

## ATTRIBUTE Ss7 Mtp3 Ls Link payloadPdusRx

Description: This attribute indicates the number of Protocol Data Units (PDUs) with payload received from layer 2 over the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Ss7 Mtp3 Ls Link pdusTx

Description: This attribute indicates the number of Protocol Data Units (PDUs) sent to layer 2 over the collection interval.

This includes PDUs with and without user payload.

Values: Decimal (0..4294967295)

## ATTRIBUTE Ss7 Mtp3 Ls Link payloadPdusTx

Description: This attribute indicates the number of Protocol Data Units (PDUs) with payload sent to layer 2 over the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Ss7 Mtp3 Ls Link invalidPdusRx

Description: This attribute indicates the number of number of invalid Protocol Data Units received over the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Ss7 Mtp3 Ls Link sltFailures

Description: This attribute indicates the number of signalling link test message failure conditions over the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Ss7 Mtp3 Ls Link changeovers

Description: This attribute indicates the number of link changeover conditions over the collection interval.

Values: Decimal (0..4294967295)

# COLLECTED STATS SignallingSystem7 SignallingConnControlPart

Description: The statistics record generated by the SignallingSystem7 SignallingConnControlPart component.

## ATTRIBUTE Ss7 Sccp activeConnections

Description: This attribute indicates the number of the current open signalling connections for the *Ss7SignallingConnControlPart* component at the end of the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Ss7 Sccp rejectedConnections

Description: This attribute indicates the number of rejected signalling connections for the *Ss7SignallingConnControlPart* component over the collection interval. The reasons include the subsystem being down, the number of open connections exceeding the limit specified by the attribute *maxConnections* and so on, at the end of the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Ss7 Sccp maxConnectionsExhausted

Description: This attribute indicates the number of times a signalling connection establishment request by the application was refused because the number of open connections reached the limit specified by the attribute *maxConnections*, over the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Ss7 Sccp lostConnections

Description: This attribute indicates the number of the open signalling connections lost due to unavailability of the SCCP Subsystem over the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Ss7 Sccp invalidMessages

Description: This attribute indicates the number of invalid (syntax error or undecodable) messages received over the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Ss7 Sccp messagesTx

Description: This attribute indicates the number of the messages sent to layer 3 over the collection interval. This includes maintenance messages.

Values: Decimal (0..4294967295)

## ATTRIBUTE Ss7 Sccp payloadMessagesTx

Description: This attribute indicates the number of payload messages transmitted over the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Ss7 Sccp messagesRx

Description: This attribute indicates the number of the messages received from layer 3 over the collection interval. This includes maintenance messages.

Values: Decimal (0..4294967295)

## ATTRIBUTE Ss7 Sccp payloadMessagesRx

Description: This attribute indicates the number of payload messages received over the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Ss7 Sccp localRoutingFailures

Description: This attribute indicates the number of the routing failures to the local subsystem over the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Ss7 Sccp remoteRoutingFailures

Description: This attribute indicates the number of the routing failures to the remote subsystem over the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Ss7 Sccp attemptedConnections (attCon)

Description: This attribute indicates the number of signalling connections that this *Ss7SignallingConnControlPart* component has attempted to establish during the collection interval.

Values: Decimal (0..4294967295)

# COLLECTED STATS SignallingSystem7 SaalNni

Description: The statistics record generated by the SignallingSystem7 SaalNni component.

## ATTRIBUTE Ss7 SaalNni insvFailures

Description This attribute indicates the number of in-service link outages over the collection interval. It does not include failures which occur during the alignment process.

Values Decimal (0..4294967295)

## ATTRIBUTE Ss7 SaalNni pdusTx

Description This attribute indicates the number of protocol data units transmitted over the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Ss7 SaalNni pdusRx

Description This attribute indicates the number of protocol data units received over the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Ss7 SaalNni pduOctetsTx

Description This attribute indicates the number of payload PDU octets transmitted over the collection interval.

Values Decimal (0..4294967295)

## ATTRIBUTE Ss7 SaalNni pduOctetsRx

Description This attribute indicates the number of payload PDU octets received over the collection interval.

Values Decimal (0..4294967295)

# Chapter 6
# COMPONENT HIERARCHY (EM)

| | |
|---|---|
| Scope | Device |
| Description | *Em/string*<br>This component represents the local node. An instance of the *EM* component class (with the local node name as its instance string) is automatically created as the root of the component hierarchy; that is, all of the top level components are its subcomponents.<br><br>The local node name is provisioned as the *nodeName* attribute of the *ModuleData* component.<br><br>An operator need not enter the *EM* component at the start of a component name; the local node is assumed by default. However, to specify some other node, it must be entered. Similarly, on output, the local node name is suppressed. |

| | |
|---|---|
| Subcomponents | COMPONENT RncInterfaceNode (RncIn)<br>COMPONENT CpdsNode (Cpds)<br>COMPONENT ProvisioningSystem (Prov)<br>COMPONENT Shelf<br>COMPONENT Software (Sw)<br>COMPONENT ModuleData (Mod)<br>COMPONENT NetworkManagementInterfaceSystem (Nmis)<br>COMPONENT Time (Time)<br>COMPONENT Collector (Col)<br>COMPONENT ActiveAlarmServices (AAServ) |
| Opt. Subcomp. | COMPONENT Router (Rtr)<br>COMPONENT ScpSimulator (ScpSim)<br>COMPONENT PortBridgeGroup (Pbg)<br>COMPONENT LogicalProcessor (Lp)<br>COMPONENT AccessControl (Ac)<br>COMPONENT NetworkSynchronization (NS)<br>COMPONENT DnsAgent (DnsAg)<br>COMPONENT Routing (Rtg)<br>COMPONENT CallRouter (CR)<br>COMPONENT VoiceNetworkingCallServer (Vncs)<br>COMPONENT IpInterfaceOverFrameRelay (IpiFr)<br>COMPONENT IpInterfaceOverVc (Ipivc)<br>COMPONENT Trunk (Trk)<br>COMPONENT DpnGateway (DpnGate)<br>COMPONENT FrameRelayNni (FrNni)<br>COMPONENT FrameRelayUni (FrUni)<br>COMPONENT FrameRelayAtmInterface (FrAtm)<br>COMPONENT VoiceService (Vs)<br>COMPONENT BitTransparentDataService (Btds)<br>COMPONENT HdlcTransparentDataService (Htds)<br>COMPONENT X25Dte<br>COMPONENT AtmRouting (ARtg)<br>COMPONENT VirtualRouter (Vr)<br>COMPONENT FrameRelayDte (FrDte)<br>COMPONENT PointToPointProtocol (Ppp)<br>COMPONENT ClusterBridge (CB)<br>COMPONENT PseudoBridge (PB) |

COMPONENT LanApplication (La)
COMPONENT RemoteServerAgent (Rsa)
COMPONENT FrMux
COMPONENT AtmInterface (AtmIf)
COMPONENT SignallingChannel (SigChan)
COMPONENT VoiceRoute (VRoute)
COMPONENT VoiceSubroute (Vsr)
COMPONENT AtmMultiprotocolEncapsulation (AtmMpe)
COMPONENT Aal1CircuitEmulationService (Aal1Ces)
COMPONENT DataSignallingChannel (DataSigChan)
COMPONENT McsManager (McsMgr)
COMPONENT MpaNetworkLink (Mpanl)
COMPONENT LanEmulationClient (Lec)
COMPONENT NarrowbandServicesTrunkOverATM (Nsta)
COMPONENT GsmIwfCallServer (GsmCs)
COMPONENT GsmIwfBearerChannel (GsmBc)
COMPONENT Dcme
COMPONENT DcmeLink (Dcl)
COMPONENT HuntGroup (Hg)
COMPONENT CallRedirectionServer (Crs)
COMPONENT VirtualMedia (Vm)
COMPONENT AutomaticProtectionSwitching (Aps)
COMPONENT TdmaIwfCallServer (TdmaCs)
COMPONENT TdmaIwfBearerChannel (TdmaBc)
COMPONENT RoutingGateway (RGty)
COMPONENT PCUSupportApplication (Pcusa)
COMPONENT HlrSimulator (HlrSim)
COMPONENT GprsIpServer (Gips)
COMPONENT GprsSubscriberControl (Gsc)
COMPONENT GprsSubscriberDataPath (Gsd)
COMPONENT SgGprsTransportLayer (SgGtl)
COMPONENT PacketControlUnitSupportNode (Pcusn)
COMPONENT PcGprsTransportLayer (PcGtl)
COMPONENT ServingGprsSupportNode (Sgsn)
COMPONENT TdmaIwfFcBearerChannel (TdmaFcBc)
COMPONENT Layer2TunnelingProtocolAccessConcentrator (Lac)
COMPONENT MaintenanceMonitorTx (MmTx)
COMPONENT FrameRelayIpServer (FrIpServer)
COMPONENT PppIwf (Piwf)
COMPONENT SgsnAccountingServer (Sas)

| | |
|---|---|
| | COMPONENT SignallingGateway (Sg)<br>COMPONENT VirtualMediaGateway (Vmg)<br>COMPONENT SignallingConnControlPart (Sccp)<br>COMPONENT MessageTransferPartLayer3 (Mtp3)<br>COMPONENT SaalNni (SaalNni)<br>COMPONENT UmtsServingGprsSupportNode (Usgsn)<br>COMPONENT UsgsnSubscriberControl (Usc)<br>COMPONENT UsgsnSubscriberDatapath (Usd)<br>COMPONENT IuxInterface (IuxIf)<br>COMPONENT LawfulInterceptAccessFunction (Liaf)<br>COMPONENT DualLpEquipmentProtection (Dlep)<br>COMPONENT TcapStack (Tcap)<br>COMPONENT IpDlciGroup (IpDlciGrp)<br>COMPONENT LocalMedia<br>COMPONENT ServiceTrace (SrvTrace)<br>COMPONENT SignallingSystem7 (Ss7)<br>COMPONENT VcTester (Vct)<br>COMPONENT LineAutomaticProtectionSwitching (Laps) |
| Dyn. Subcomp. | COMPONENT FileSystem (Fs)<br>COMPONENT TransportResource (Trm)<br>COMPONENT NumberingPlanIndicator (Npi)<br>COMPONENT LpPair (LpP) |
| Common Verbs | Help<br>List |

# Appendix
# Data types

Attributes have data types that specify the structure of an attribute's data (for example, decimal, hexadecimal, enumeration, vector and array). Component instances also have data types.

The appendix is organized by data type. Each data type description includes information on the nature of the data type (that is, its structure and what it represents), and gives examples.

## Attribute value data types

At their highest level, data types can be divided into *single-value* data types and *multiple-value* data types, as follows:

- Single-value data types represent a single value for the attribute. This group consists of the following:
  - signed integer
  - integer sequence
  - decimal number
  - fixed point decimal
  - hexadecimal number
  - hexadecimal string
  - dashed hexadecimal string
  - IP address
  - enumeration

  - string
  - Extended string
  - BCD
  - component name
  - link
  - time

- Multiple-value data types are types that have more than one value associated with the attribute. Included in this group are:
  - set of...
  - list of...
  - vector of...
  - array of...
  - replicated

## Component instance value data types

Component instance value data types represent a single value for the component. For details, refer to "Component name type" (page 844). Included in this group are:

- signed integer
- integer sequence
- decimal number
- hexadecimal number
- hexadecimal string
- dashed hexadecimal string
- IP address
- enumeration
- string

- BCD
- time

Component instances have one multiple-value data type: it is the multi-indexed component.

# Syntax conventions

All command descriptions in this chapter follow these conventions:

- **bold** indicates a keyword explicitly typed by the operator
- square brackets, [], indicate optional parameters
- curled brackets, { }, indicates a choice of one of the items inside the brackets
- <*italic*> indicates a user-specified parameter
- an asterisk, *, indicates one or more of the previous items unless otherwise specified

## Signed integer type

The *signed integer* type represents a 32-bit signed integer value. The supported values range from -2,147,483,648 to +2,147,483,647. On a text interface device, a signed integer type appears as follows:

attribute_name attribute_value

where:

`attribute_value = [<sign>]<digit> [ <digit> ]*` (that is, one or more digits)

where

sign = one of { **+, -** }

digit = one of { **0, 1, 2, 3, 4, 5, 6, 7, 8, 9** }

**Examples**

0, -0, +0, 00000

-123, 123, +123, 000123

## Integer sequence type

The *integer sequence* type is used for Decnet addresses, AppleTalk addresses, and ObjectIds. On a text interface device, an integer sequence type appears as follows:

attribute_name attribute_value

where

*attribute_value = <number>[ <period><number>...]*

where

number = ranges from { **0** to **4,294,967,295** }

period = { **.** }

**Examples**

1.3.5.1.2.1.10.18
(object identifier for ISO.org.dod.internet.mgmt. Mib-2.transmission.ds1)

65535.255(highest AppleTalk address)

63.1023(highest DECnet address)

## Decimal number type

The *decimal number* type represents a 32-bit or 64-bit decimal value. On a text interface device, you can set a decimal number type as follows:

```
set component_name attribute_name attribute_value
```

where:
`attribute_value = <digit> [<digit>]*` (that is, one or more digits)
`digit` = one of {0, 1, 2, 3, 4, 5, 6, 7, 8, 9}

**Example**

```
> set lp/3 customerIdentifier 55
```

## Fixed point decimal type

The *fixed point decimal* type represents a scaled decimal number. On a text interface device, a fixed point decimal type is entered as follows:

**`set component_name attribute_name attribute_value`**

where:

`attribute_value = <digits> [.<digits>]`

digits = one or more of {0, 1, 2, 3, 4, 5, 6, 7, 8, 9}

**Example**
1.234

## Hexadecimal number type

The *hex number* type represents a 32-bit numeric value which is input and output as a hexadecimal number. On a text interface device, a hex number type is entered as follows:

**`set component_name attribute_name attribute_value`**

where:

`attribute_value = <hex_digit><hex_digit> [<hex_digit><hex_digit>] *` (that is, from one to four pairs of hex digits)

hex_digit = one of { **0, 1, 2, 3, 4, 5, 6, 7, 8, 9, a, b, c, d, e, f, A, B, C, D, E, F**}

**Example**
aC15

## Hexadecimal string type

The *hex string* type represents an *integer* value which is input and output as a hexadecimal number. On a text interface device, a hex string type is entered as follows:

attribute_name attribute_value

where:

`attribute_value = [<hex_digit><hex_digit>] *` (that is, zero or more pairs of hex digits)

hex_digit = one of { **0, 1, 2, 3, 4, 5, 6, 7, 8, 9, a, b, c, d, e, f, A, B, C, D, E, F**}

**Example**
15aC

## Dashed hexadecimal string type

The *dashed hexadecimal string* type allows for IEEE802MAC addresses to be parsed and formatted. On a text interface device, a dashed hexadecimal string type appears as follows:

attribute_name attribute_value

where:

```
attribute_value = [<quote>] <hexDigit><hexDigit>[<dash>
<hexDigit><hexDigit>...] [<quote>]
```

where:

quote = { **“** }

hexDigit = { **0 - 9, a - f, A - F** }

dash = { **-** }

**Examples**
3a

3a-fc

“ “ (zero hex characters for use within list, vectors, arrays, and replicated attributes)

3abc(missing dash, will be formatted with dash)

## IP address type

The *IP address* type represents an IP address. On a text interface device, you can set an IP address type as follows:

```
set component_name attribute_name attribute_value
```

where:
`attribute_value = <number>.<number>.<number>.<number>`
`number = <digit>[<digit>[<digit>]]` (that is, up to three digits. The value range is 0-255.)

**Example**

```
> set ipivc ipaddress 47.208.133.201
```

## Enumeration type

The *enumeration* type represents a finite set of constants that are referred to symbolically by their name. On a text interface device, you can set an enumeration type as follows:

```
set component_name attribute_name attribute_value
```

where:
`attribute_value = <name>` (the constant corresponding to desired value)

**Example**

```
> set shelf card/5 cardType DS1
```

## String type

The *string* type represents an ASCII string. On a text interface device, you can set a string type as follows:

```
set component_name attribute_name attribute_value
```

where:

- for an ASCII string

  `attribute_value = <ascii_only>`
  `ascii_only = [<printable_character>]*`

  ***Note:*** If an ASCII string type contains the characters, {space,(!~/-} or ), then the entire string must be enclosed by double quotes.

  `printable_character` = any printable character on the keyboard, including the space (no carriage returns, line feeds, tabs, or control characters)

  ***Note:*** For the component string instance values, characters are converted to upper case. Except for a single $, white space, empty strings, and < > / : * ” all string data type characters are valid.

- for a HEX string

  ```
  attribute_value = <hex>
  hex = [<hex_digit> <hex_digit>]* [<hex_ascii_toggle>
  <ascii_only> [<hex_ascii_toggle> <hex>]]*
  ```

  ***Note:*** If a hex string type contains the characters, {space,(!~/-} or ), then the entire string must be enclosed by double quotes.

  `hex_digit` = one of {0, 1, 2, 3, 4, 5, 6, 7, 8, 9, a, b, c, d, e, f, A, B, C, D, E, F}

  `hex_ascii_toggle = \x`

### Example

**`> set ac userid/JOE loginDirectory “/spooled/open”`**

***Note:*** If the string is used as an attribute value, it is case-sensitive (as in the above example: “/spooled/open”). If the string is used as an instance value, it is not case-sensitive (as in the above example: JOE).

## Extended string type

The *extended string* type allows for the parsing and displaying of mostly ASCII characters. However, extended characters are parsed and displayed through an escape syntax. The extended string type looks like a *string* type with an escape mechanism to enter non-ASCII characters. On a text interface device, an extended string type appears as follows:

attribute_name attribute_value

where:

```
attribute_value = <quoted string> | <unquoted string>]
```

where:

quoted string = { <quote> <any char> <any char>...<quote> }

where

quote = { “ }

any char = { <ascii char> | <escaped hex> | <exception> }

ascii char = { any ASCII character other than <slash> or <quote> }

escaped hex = { <slash><hex digit><hex digit> }

exception = { <slash><slash> | <slash><quote> }

slash = { / }

hex digit = { a-f | A-F | 0-9 }

unquoted string = { <char><char><char>... }

char = { <alphanumeric> | <escaped hex> | <escaped ascii> }

alphanumeric = { a-z | A-Z | 0-9 }

escaped asscii = { <slash> <other ascii character> }

other ascii character = { any non-alphanumeric char }

**Examples**

Hello

“Hello, how are you?”(spaces and punctuation marks)

R\e9sum\E9(Résumé)

“ R\e9sum\e9”(Résumé)

“She said \”Hello\”.”(the “ character)

“\ \”(the \ character)

hello\ there(the space character)

““ empty

***Note:*** In some cases, the output may contain unexpected characters. For example, “é” may not represent “\e9” on some platforms.

## Binary-coded decimal type

The binary-coded decimal (BCD) type represents a BCD entity (such as DNA). On a text interface device, you can set a BCD type as follows:

```
set component_name attribute_name attribute_value
```

where:

- for wildcarded BCD:

  `attribute_value = [<digit>]*` (that is, zero or more digits)
  `digit` = one of {0, 1, 2, 3, 4, 5, 6, 7, 8, 9, ?}

  **Example**

  ```
  > set callRouter NPI/x121 dna/37498?736?53
  ```

- for other BCD:

  `attribute_value = [<digit>]*` (that is, zero or more digits)
  `digit` = one of {0, 1, 2, 3, 4, 5, 6, 7, 8, 9}

  **Example**

  ```
  > set fruni/34 dna dataNetworkAddress 374984736253
  ```

## Component name type

The component name type represents the full name of a given component. On a text interface device, you can set a component name type as follows:

```
set component_name attribute_name attribute_value
```

where:
`attribute_value = [<component_type>[<separator> <component_instance>]]*`
`component_type` = the type of component
`separator` = /
`component_instance =` simple or multi-indexed

simple `= <decimal value>` (see "Decimal number type" (page 838))
OR `<enum_value>` (see "Enumeration type" (page 841))
OR `<hex_value>` (see "Hexadecimal string type" (page 839))
OR `<dashed_hex_string_value>` (see "Dashed hexadecimal string type" (page 840))
OR `<ip_address_value>` (see "IP address type" (page 840))
OR `<string_value>` (see "String type" (page 841))

OR `<bcd_value>` (see "Binary-coded decimal type" (page 844))
OR `<signed_integer_value>` (see "Signed integer type" (page 837))
OR `<integer_sequence_value>` (see "Integer sequence type" (page 838))

multi-indexed = <simple>, <simple>, ...

### Example

```
> set trk/111 addressplan addressPlanName routing dpn
```

## Link type

The link type represents a bidirectional pointer between two components. The value of this data type consists of a component name. This “remote” component must contain an attribute whose value is compatible with the “local” component’s attribute value.

The text interface format for the link type is identical to that of the component name type.

### Example

```
> set lp/1 mainCard shelf card/1
```

## Time type

The time type represents a specific absolute time. On the text interface device, you can set a time type as follows:

```
set component_name attribute_name attribute_value
```

where:

```
attribute_value = [<date> <separator>] <time> OR <date>
[<separator> <time>]
date = <year> <dash> <month> <dash> <day>
year = <digit><digit><digit><digit>
month = <digit><digit>
day = <digit><digit>
separator = one of {SPACE, T}
time = <hours> [<colon> <minutes> [<colon> <seconds>]]
hours = <digit><digit>
minutes = <digit><digit>
seconds = <digit><digit>
```

`digit` = one of {0, 1, 2, 3, 4, 5, 6, 7, 8, 9}
`dash = -`
`colon = :`

**Example**

```
> set time networkTime 1995-09-11 13:34:02
```

## Set of...type

The set of... type represents a collection of values whose elements must be from a fixed, discrete range of values. Each value in the set must only appear once. For example, if the set represents the 12 months of the year, then July, one month in the set, could only appear once.

The set of... type is available for the following single-value data types:

- decimal (see "Decimal number type" (page 838))
- enumeration (see "Enumeration type" (page 841))
- hex number (see "Hexadecimal number type" (page 839).)

All possible set type attribute values and the defaults are defined. For example, under the components *Nmis Session* the *dataStreams* attribute values are:

```
Set of alarm (ala) debug (deb) log  scn
Default No default
```

There are no default values for the above example.

On a text interface device, you can set a set of... type as follows:

```
set component_name attribute_name attribute_value
```

where:
`attribute_value = <set_value> [<set_value>]*`
`set_value = <empty>` (to empty the set) OR `<delete> <value>` (to delete a value) OR `<value>` (to add a value to the set)
`empty = !`
`delete= ~`
`value = <decimal_value>` OR `<enumeration_value>`

***Note:*** You may be unfamiliar with the use of the tilde "~" character to remove values, therefore exercise extreme caution when using it in string types.

### Example

The following example uses enum as the base data type.

```
> set nmis telnet session/1 dataStreams !
```

### True sets and sets of flags

True sets only list those values that are `ON`. Sets of flags list every value. In tabular format, "*" indicates `ON` and "." indicates `OFF`; in nontabular format, nothing indicates `ON`, and "~" indicates `ON`. Figure 13 on page 847 shows the tabular and nontabular output of true sets and Figure 14 on page 848 shows the tabular and nontabular output of sets of flags.

**Figure 13**
**True sets**

True set - tabular output

```
+==+-----+----------------------------------------
|Lp| Osi |Response
|  |Avail|
+==+-----+----------------------------------------
| 0|     |
| 2|     |
ok             1995-10-26 19:30:04.91
```

*** = ON**
**. = OFF**

True set - nontabular output

```
Lp/0
  availabilityStatus =
Lp/2
  availabilityStatus =
ok             1995-10-26 19:30:22.44
```

**nothing = ON**
**~ = OFF**

**Figure 14**
**Sets of flags**

Set of flags - tabular output

```
+=======+-------+-------------------------------
|Session| data  |Response
|       |Streams|
|       |a d l s|
|       |l e o c|
|       |a b g n|
+=======+-------+-------------------------------
|      1|* . . .|
|      2|* . . .|
|      3|* . . .|
|      4|. . . .|                                 * = ON
|      5|* . . .|                                 . = OFF
ok             1995-10-26 19:26:03.78
```

Set of flags -nontabular output

```
Nmis Telnet Session/1
   dataStreams = ala ~deb ~log ~scn
Nmis Telnet Session/2
   dataStreams = ala ~deb ~log ~scn
Nmis Telnet Session/3
   dataStreams = ala ~deb ~log ~scn
Nmis Telnet Session/4
   dataStreams = ~ala ~deb ~log ~scn
Nmis Telnet Session/5
   dataStreams = ala ~deb ~log ~scn
ok             1995-10-26 19:26:47.43
```

**nothing = ON**
**~ = OFF**

## List of... type

The list of... type represents a collection of values whose elements (in general) are not restricted to any fixed range. Each value in the list must only appear once. The number of values in a list may or may not be bounded.The list of... type is available for the following single-value data types:

- decimal (see "Decimal number type" (page 838))
- hex (see "Hexadecimal string type" (page 839))

- hex number (see "Hexadecimal number type" (page 839))
- dashed hex strings (see "Dashed hexadecimal string type" (page 840))
- IP Address (see "IP address type" (page 840))
- enumeration (see "Enumeration type" (page 841))
- string (see "String type" (page 841))
- extended ASCII string (see "Extended string type" (page 842))
- integer sequence (see "Integer sequence type" (page 838))
- signed numbers (see “Signed integer type” on page 837)
- fixed point decimal (see "Fixed point decimal type" (page 838))
- BCD (see "Binary-coded decimal type" (page 844))
- component name (see "Component name type" (page 844))
- link (see "Link type" (page 845))
- time (see "Time type" (page 845))

All possible values are specified for list of..types. If the size of the list is not specified, the list of values is limitless. The default value appears below the list of values.

Under the component *ModuleData*, the attribute *nodeId* defines all possible values as any number between 1 and 4095:

```
List of Decimal (1..4095)
Default No default
```

The default value is listed under the list of possible values. There are no default values set for the above example.

Under the Components *ModuleData*, *VirtualCircuitSystem*, the complete list of values for the attribute *segmentSize* appears as follows:

```
List of 1 2 4 6 8 16 32 64 128 256 512 1024 2048 4096
Default 128
```

The default value is 128.

On the text interface device, you can set a list of... type as follows:

```
set component_name attribute_name attribute_value
```

where:
`attribute_value = <list_value> [<list_value>]*`
`list_value = <empty>` (to empty the list) OR `<delete> <value>` (to delete a value) OR `<value>` (to add a value to the list)
`empty = !`
`delete = ~`
`value = <any single-value data type>`

### Example

```
> set sw avList base_AA0042 networking_AA0042
frameRelay_AA0042
```

## Vector of... type

The vector of... type represents an indexed collection of values. The number of values in a vector is always fixed.

The vector of... type is available for the following types:

- decimal (see "Decimal number type" (page 838))
- fixed point decimal (see "Fixed point decimal type" (page 838))
- hex (see "Hexadecimal string type" (page 839))
- hex numbers (see "Hexadecimal number type" (page 839))
- dashed hex strings (see "Dashed hexadecimal string type" (page 840))
- IP address (see "IP address type" (page 840))
- enumeration (see "Enumeration type" (page 841))
- string (see "String type" (page 841))
- extended ASCII string (see "Extended string type" (page 842))
- signed number (see "Signed integer type" (page 837))
- BCD (see "Binary-coded decimal type" (page 844))

A vector of... type's index can be of the following types:

- decimal (see "Decimal number type" (page 838))
- enumeration (see "Enumeration type" (page 841))

The index values are included in the vector value information. The attribute c*onnectionPoolCapacity* belongs to the *AtmResourceControl* Component which resides under the *LogicalProcessor* component. The values are written as follows:

```
Vector of Decimal (0;512..4096)
Index Decimal (0..2)
Default ([3] 1536)
```

Vector of refers to the attribute type. Decimal refers to the type of value (decimal or enumeration). The numbers that appear in parenthesis define the possible values that each vector value may have. In the example, each vector value may be 0 or any number between 512 and 4096.

You can determine the size of the vector from the index numbers. The index numbers in the example are 0, 1 and 2. Therefore, there are 3 index values for this attribute.

The default values for the example is 1536. The 3 in square brackets denotes that the proceeding value is used the next three times. The vector default numbers for the example look like this:

| Index | Attribute value |
|---|---|
| 0 | 1536 |
| 1 | 1536 |
| 2 | 1536 |

Index values may be enumerated values or decimal values. The *frmSize* attribute under the *Test* component under *AtmIf* appears as follows:

```
Vector of  Deximal (16..16000)
Index lowPriority
      highPriority
Default (lowPriority: 8192, highPriority: 56)
```

The attribute values can be any number between 16 and 16,000. There are 2 index values; each one has a unique default value. This vector's default values can be illustrated as follows:

| Index value | Attribute value |
|---|---|
| low priority | 8192 |
| high priority | 56 |

On a text interface device, you can set a vector of... type as follows:

```
set component_name attribute_name attribute_value
```

where:

```
attribute_value = <vector_value> [<vector_value>]*
vector_value = <index> <value>
index = <decimal_value> OR <enumeration_value>
value = <single-value data type>
```

**Example**

```
> set shelf card/5 test frmSize lowPriority 8100
highPriority 65
```

## Array of... type

The array of... type represents a double-indexed (two-dimensional) collection of values. The number of values in an array is always fixed.

The array of... type is available for the following types:

- decimal (see "Decimal number type" (page 838))
- fixed point decimal (see "Fixed point decimal type" (page 838))
- hex (see "Hexadecimal string type" (page 839))
- hex numbers (see "Hexadecimal number type" (page 839))
- dashed hex strings (see "Dashed hexadecimal string type" (page 840))
- IP address (see "IP address type" (page 840))
- enumeration (see "Enumeration type" (page 841))
- string (see "String type" (page 841))

- extended ASCII string (see "Extended string type" (page 842))
- signed number (see "Signed integer type" (page 837))
- BCD (see "Binary-coded decimal type" (page 844))

An array of... type's index can be of the following types:

- decimal (see "Decimal number type" (page 838))
- enumeration (see "Enumeration type" (page 841))

Read the values of Passport arrays from left to right.

The values of the *windowSize* attribute of the component *WindowOptions*, under the *ModuleData* component appears as follows:

```
Array of Decimal (1..63)
Row packet Size (pkt) [16 32 64 128 256 512 1024 2048 4096
8192 32768 65535]
Column throughput class (tpt) [Decimal (0..15)]
Default ([12*16] 4)
```

In the first line, the attribute type is defined as an array with possible values between 1 and 63 inclusive.

The index name for the row is packet size. The index numbers are listed, as they appear from left to right.

The column is named throughput class. The index numbers, from top to bottom, begin at 0 and increment by one up to and including 15.

All default values in the example are 4. In square brackets the 12 refers to the number of index items across the row. The 16 refers to the number of index items in the column. The 4 refers to the default value. Each default value is displayed when the values of each cell are different.

On a text interface, you can set an array of... type as follows:

**`set component_name attribute_name attribute_value`**

where:

```
attribute_value = <array_value> [<array_value>]*
array_value = <index_name> <index> <index_name> <index>
<value>
index = <decimal_value> OR <enumeration_value>
value = <single-value data type>
```

**Example**

```
> set mod vcs windowSize packetSize 16 throughputClass
0 8
```

## Replicated types

A replicated type is a general indexed collection of values. The number of values in the replicated type (in general) is not set.

Replicated types support the following types for index and value:

- decimal (see "Decimal number type" (page 838))
- fixed point decimal (see "Fixed point decimal type" (page 838))
- hex (see "Hexadecimal string type" (page 839))
- dashed hex strings (see "Dashed hexadecimal string type" (page 840))
- IP address (see "IP address type" (page 840))
- enumeration (see "Enumeration type" (page 841))
- string (see "String type" (page 841))
- extended ASCII string (see "Extended string type" (page 842))
- integer sequence (see "Integer sequence type" (page 838))
- signed number (see "Signed integer type" (page 837))
- BCD (see "Binary-coded decimal type" (page 844))
- component name (see "Component name type" (page 844))
- time (see "Time type" (page 845))

On a text interface device, you can set a replicated type as follows:

```
set component_name attribute_name attribute_value
```

where:

`attribute_value = <empty>` (to empty all values) OR `<remove> <index>` (to delete a value) OR `<index> <value>` (to add a value)

```
empty = !
remove = ~
index = <any single-value data type>
value = <any single-value data type>
```

### Example

```
> set fruni/34 dlci/18 dc natlFax 1 64
```

Passport 7400, 15000, 20000

# Component Overview

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component Pbg

241-5701-060

Passport 7400, 15000, 20000

# Component Pbg

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT PortBridgeGroup (Pbg)

| | |
|---|---|
| Instance | Decimal (0..15999) |
| Groups | "GROUP Pbg CustomerIdentifierData (CidData)"<br>"GROUP Pbg Provisioned (Prov)"<br>"GROUP Pbg OsiState (State)" |
| Scope | Device |
| Description | *PortBridgeGroup/n*<br>This component manages the port bridging of a SONET interface. During software migration, the *PortBridgeGroup* component ensures that the traffic in and out of a SONET line on a migrating card is bridged to the card that is providing service.<br><br>**Note**: There must be two *Pbg* components provisioned to achieve a Hitless Software Migration.<br><br>**Note**: The *Lp/n Sonet/m Test* component functionality is not supported when that line is provisioned as either working or protection line of the *Pbg* component. |
| Opt. Subcomp. | "COMPONENT Pbg Sts" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP Pbg CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

## ATTRIBUTE Pbg customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.<br><br>Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.<br><br>An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to "basic CIDs" in DPN) may be assigned to specific customers. |
| Values | Decimal (0; 1..8191) |
| Default | 0 |

## GROUP Pbg Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioned attributes for the *Pbg* component. |

### ATTRIBUTE Pbg workingLine (working)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute is a link to the *Sonet* component that provides the working line for the *Pbg* component. A value must be defined for this attribute.<br><br>A pair of valid *workingLine* and *bridgeLine* pairs must exist.<br><br>The following semantic checks exist for the *workingLine* and *bridgeLine* attributes:<br><br>- the *workingLine* and *bridgeLine* attributes must link ports on two different LPs.<br>- the instance numbers of *Sonet* and *SonetBridge* must match (for example, *Lp*/m *Sonet*/0 and *Lp*/n *SonetBridge*/0).<br>- the *Sonet* component specified by the *workingLine* attribute must not have any subcomponents.<br>- each LP component must link to exactly one card (the *Lp/n spareCard* attribute is not allowed to be set on either LP).<br>- each LP component must link to the same type of card (the *Shelf Card/n cardType* attribute must be identical for both cards).<br>- the two cards must be in adjacent slots in the shelf, with the lower-numbered slot being an even number.<br>- each LP component must link to the same *LogicalProcessorType* component.<br>- the connection pool attributes of the *Lp/n Eng Arc* components for the two LPs must have the same values. |
| Values | Link (Hardware, lineAutomaticProtectionSwitch) |
| Default | No default |

### ATTRIBUTE Pbg bridgeLine (bridge)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute is a link to the *SonetBridge* component, which provides port bridging for the *Pbg* component. A value must be |

defined for this attribute.

A pair of valid *workingLine* and *bridgeLine* pairs must exist as described in the *workingLine* attribute.

Values: Link (Hardware, portBridgeGroupLink)

Default: No default

### GROUP Pbg OsiState (State)

Properties: Operational

Description: This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Pbg adminState (osiAdmin)

Access: Read only

Description: This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Pbg operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Pbg usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
idle
active (activ)
busy

Default
idle

### ATTRIBUTE Pbg availabilityStatus (osiAvail)

Access
Read only

Description
If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.

The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.

The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.

The value ***powerOff*** indicates the resource requires power to be

applied and it is not powered on. The *operationalState* is ***disabled***.

The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

## ATTRIBUTE Pbg proceduralStatus (osiProc)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.<br><br>The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.<br><br>The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.<br><br>The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.<br><br>The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***. |
| Set of | initializationRequired (initRq)<br>notInitialized (notInit)<br>initializing (init)<br>reporting (report)<br>terminating (term) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Pbg controlStatus (osiCntrl)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.<br><br>The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.<br><br>The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.<br><br>The value ***suspended*** indicates that the service has been administratively suspended. |
| Set of | subjectToTest (subTst)<br>partOfServicesLocked (partLk)<br>reservedForTest (rsrvd)<br>suspended (suspnd) |
| Default | No default |

### ATTRIBUTE Pbg alarmStatus (osiAlarm)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is |

defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of
underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default
No default

### ATTRIBUTE Pbg standbyStatus (osiStby)

Access
Read only

Description
If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values

hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

Default

notSet

### ATTRIBUTE Pbg unknownStatus (osiUnknw)

Access

Read only

Description

This attribute indicates the OSI Unknown status of the component.

The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.

The value ***true*** indicates that the actual state of the component is not known for sure.

Values

false
true

| | |
|---|---|
| Default | false |

## COMPONENT Pbg Sts

| | |
|---|---|
| Instance | Decimal (0..11) |
| Groups | "GROUP Pbg Sts Provisioned (Prov)"<br>"GROUP Pbg Sts CustomerIdentifierData (CidData)"<br>"GROUP Pbg Sts OsiState (State)"<br>"GROUP Pbg Sts IfEntryProv (IfEntry)"<br>"GROUP Pbg Sts OperationalStatus (OperStatus)"<br>"GROUP Pbg Sts Operational (Oper)"<br>"GROUP Pbg Sts Statistics (Stats)"<br>"GROUP Pbg Sts Provisioned (Prov)" |
| Scope | Device |
| Description | *Lp/n Sonet/n Sts/n*<br>*Laps/n Sts/n*<br>This component controls a path signal that is carried within a SONET signal. The instance number of *Sts* component must be 0 for components on unchannelized cards. On channelized cards, the index of an *Sts* component must be outside the range defined by [j,j+C-1], where j is the index of another *Sts* component (under the same parent *Sonet* component, or if under the *Laps* component, the same working line), and C is the concatenation level defined for that other *Sts* component. On channelized cards, the maximum value of the index of an *Sts* component must be less than or equal to the bandwidth number of the line minus 1. For example, the maximum index value for an *Sts* component under an OC-12 *Sonet* component is 11. On channelized cards, the sum of concatenation values over all *Sts* subcomponents under a *Sonet* component (or the working line if under an *Laps* component) must not be greater than the concatenation level for that *Sonet* component. |

| | |
|---|---|
| Opt. Subcomp. | "COMPONENT Pbg Sts AtmCell (Cell)"<br>"COMPONENT Pbg Sts Vt1dot5" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

### GROUP Pbg Sts Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all of the provisioning data for the component. |

### ATTRIBUTE Pbg Sts applicationFramerName (framer)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines which application is running on the path. |
| Values | Link |
| Default | No default |

### GROUP Pbg Sts CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

### ATTRIBUTE Pbg Sts customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID). |

Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.

Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.

An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to "basic CIDs" in DPN) may be assigned to specific customers.

Values: Decimal (0; 1..8191)

Default: 0

### GROUP Pbg Sts OsiState (State)

Properties: Operational

Description: This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Pbg Sts adminState (osiAdmin)

Access: Read only

Description: This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Pbg Sts operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Pbg Sts usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### ATTRIBUTE Pbg Sts availabilityStatus (osiAvail)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present. |

The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.

The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.

The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.

The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration

activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

### ATTRIBUTE Pbg Sts proceduralStatus (osiProc)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.

The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

### ATTRIBUTE Pbg Sts controlStatus (osiCntrl)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

Set of

subjectToTest (subTst)
partOfServicesLocked (partLk)
reservedForTest (rsrvd)
suspended (suspnd)

Default

No default

### ATTRIBUTE Pbg Sts alarmStatus (osiAlarm)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE Pbg Sts standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values

hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

| | |
|---|---|
| Default | notSet |

### ATTRIBUTE Pbg Sts unknownStatus (osiUnknw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Unknown status of the component.<br><br>The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.<br><br>The value ***true*** indicates that the actual state of the component is not known for sure. |
| Values | false<br>true |
| Default | false |

### GROUP Pbg Sts IfEntryProv (IfEntry)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the ifEntry. |

### ATTRIBUTE Pbg Sts ifAdminStatus (ifState)

| | |
|---|---|
| Access | Read and write |
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE Pbg Sts ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP Pbg Sts OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

### ATTRIBUTE Pbg Sts snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### GROUP Pbg Sts Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the common operational data for the component. |

### ATTRIBUTE Pbg Sts lopAlarm (lop)

| | |
|---|---|
| Access | Read only |

Description

This attribute displays whether a Loss Of Pointer (LOP) alarm state has been entered. An LOP alarm state is entered when LOP defects have been observed and accumulated for a period of 2.5 seconds +/- 0.5 seconds. An LOP defect occurs when no valid SPE or VC pointer was received in 8 contiguous frames. If the LOP defects are intermittently occurring, the LOP defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.

The component goes into an operational state of *disabled* until the LOP alarm condition is cleared. The condition is cleared when no more invalid pointer has been reported for 10 seconds +/- 0.5 seconds.

The *lopAlarm* attribute is always set to ***off*** when the component has been *Lock*ed and left *offline* by the operator or when the component has been *Suspend*ed since the parent component has been *Lock*ed.

Values

on
off

Default

No default

## ATTRIBUTE Pbg Sts rxAisAlarm (ais)

Access

Read only

Description

This attribute displays whether a Path Alarm Indication Signal (P-AIS) alarm state has been entered. A P-AIS alarm state is entered when P-AIS defects have been observed and accumulated for a period of 2.5 seconds +/- 0.5 seconds. The P-AIS defect is the occurrence of the P-AIS signal in three contiguous valid STS or STM frames (all one’s in bytes H1 and H2). If the P-AIS defects are intermittently occurring, the P-AIS defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.

The component goes into an operational state of *disabled* until the P-AIS alarm condition is cleared. The condition is cleared

after no P-AIS defect has been detected for 10 seconds +/- 0.5 seconds.
The *rxAisAlarm* attribute is always set to ***off*** when the component has been *Lock*ed and left *offline* by the operator or when the component has been *Suspend*ed since the parent component has been *Lock*ed.

Values
on
off

Default
No default

### ATTRIBUTE Pbg Sts rxRfiAlarm (rfi)

Access
Read only

Description
This attribute displays whether the Path Remote Failure Indication (P-RFI) alarm state has been entered. A P-RFI alarm state is entered when Path Remote Defect Indicator (P-RDI) defects have been observed and accumulated for a period of 2.5 seconds +/- 0.5 seconds. The P-RDI defect is the occurrence of the P-RDI signal in five contiguous valid STS or STM frames (bit 5 of the G1 byte set to 1). If the P-RDI defects are intermittently occurring, the P-RDI defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10)with all measurements based on a 200 ms polling cycle.

The component goes into an operational state of *disabled* until the P-RFI alarm condition is cleared. The condition is cleared after no P-RDI defect has been detected for 10 seconds +/- 0.5 seconds.
The *rxRfiAlarm* attribute is always set to ***off*** when the component has been *Lock*ed and left *offline* by the operator or when the component has been *Suspend*ed since the parent component has been *Lock*ed.

Values
on
off

Default
No default

### ATTRIBUTE Pbg Sts signalLabelMismatch (slm)

Access
Read only

Description

This attribute displays whether the Path Signal Label Mismatch (P-SLM) failure condition has been entered. A P-SLM failure condition is entered when P-SLM defects have been observed and accumulated for period of 2.5 seconds +/- 0.5 seconds. A P-SLM defect occurs when detecting an unexpected path signal label. The expected Path signal labels are “Mapping for ATM” or “Equipped - Non Specific Payload”. If the P-SLM defects are intermittently occurring, the P-SLM defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.
The component goes into an operational state of *disabled* until the Path Signal Label Mismatch failure condition is cleared. The condition is cleared when an expected path signal label is received for 10 seconds +/- 0.5 seconds.

The *signalLabelMismatch* attribute is always set to ***off*** when the component has been *Lock*ed and left *offline* by the operator or when the component has been *Suspend*ed since the parent component has been *Lock*ed.

Values

on
off

Default

No default

## ATTRIBUTE Pbg Sts txAis

Access

Read only

Description

This attribute displays whether the Path Alarm Indication Signal (P-AIS) signal is being transmitted on the path. The P-AIS signal is transmitted when the component has been *Lock*ed and left *offline* by the operator or when the component has been *Suspend*ed since the parent component has been *Lock*ed.

Values

on
off

Default

No default

## ATTRIBUTE Pbg Sts txRdi

Access

Read only

| | |
|---|---|
| Description | This attribute displays whether the Path Remote Defect Indicator (P-RDI) signal is being transmitted over the path signal. The P-RDI signal is transmitted over the outgoing line upon detection of LOP, P-AIS or the occurrence of the LCD state. This attribute is always set to ***off*** when the component has been *Lock*ed and left *offline* by the operator or when the component has been *Suspend*ed since the parent component has been *Lock*ed. |
| Values | on<br>off |
| Default | No default |

### GROUP Pbg Sts Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the statistics data for the component. |

### ATTRIBUTE Pbg Sts pathErrorFreeSec (pefs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the one second intervals that the component has been in a near-end error free state.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Pbg Sts pathCodeViolations (pcv)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the detected Path Code Violations (PCVs). Each PCV corresponds to a path BIP-8 error. PCV counting is inhibited over second intervals where a Path Severely Errored Second (PSES) is counted. Counting of PCVs is also inhibited over second intervals where a Path Unavailable Second (PUAS) is counted.<br><br>The counter wraps to 0 when it exceeds its maximum value. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Pbg Sts pathErroredSec (pes)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the declared Path Errored Seconds (PESs). A PES is declared for second intervals containing one or more PCVs or one or more LOP or path AIS defects. Counting of PES is inhibited when PUAS is declared over the monitored second.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Pbg Sts pathSevErroredSec (pses)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the declared Path Severely Errored Seconds (PSESs). A PSES is declared for second intervals containing more than *x* PCVs or one or more LOP or path AIS defects. The value of *x* is 2400 for a 155 Mbit/s interface. Counting of PSES is inhibited when PUAS is declared over the monitored second.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Pbg Sts pathAisLopSec (pals)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the path AIS and LOP Seconds (PALSs). A PALS is declared for second intervals containing one or more path AIS or LOP defects. Counting of PALS is inhibited when PUAS is declared over the monitored second.<br><br>The counter wraps to 0 when it exceeds its maximum value. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Pbg Sts pathUnavailSec (puas)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the one second intervals during which the STS/STM path is unavailable. The path becomes unavailable at the onset of 10 consecutive PSESs. The 10 PSESs are included in the unavailable time. Once unavailable, the path becomes available at the onset of 10 contiguous seconds with no PSES. The 10 seconds with no PSES are excluded from the unavailable time. For second intervals where a Path Unavailable Second (PUAS) is declared, counting of PCV, PES, PSES and PALS is inhibited.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Pbg Sts pathFailures (pf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the declarations of a path failure (LOP, P-AIS or Path Signal Label Mismatch failure).<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Pbg Sts farEndPathErrorFreeSec (fepefs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the one second intervals that the component has been in a far-end error free state.<br><br>The counter wraps to 0 when it exceeds its maximum value. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Pbg Sts farEndPathCodeViolations (fepcv)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the Far-End Path Code Violations (FEPCVs) detected. Each FEPCV corresponds to a path FEBE. FEPCV counting is inhibited over second intervals where a Far-End Path Severely Errored Second (FEPSES) is declared. Counting of PCVs is also inhibited over second intervals where a Far-End Path Unavailable Second (FEPUAS) is declared.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Pbg Sts farEndPathErroredSec (fepes)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the Far-End Path Errored Seconds (FEPESs) that have been declared. A FEPES is declared for each one second interval containing one or more FEPCVs or one or more path RDI (P-RDI) defects. Counting of FEPES is inhibited when FEPUAS is declared over the monitored second.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Pbg Sts farEndPathSevErroredSec (fepses)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the Far-End Path Severely Errored Seconds (FEPSESs) that have been declared. A FEPSES is declared for second intervals containing more than $x$ FEPCVs or one or more P-RDI defects. The value of $x$ is 2400 for a 155 Mbit/s interface. |

Counting of FEPSESs is inhibited when FEPUAS is declared over the monitored second.

The counter wraps to 0 when it exceeds its maximum value.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE Pbg Sts farEndPathAisLopSec (fepals)

Access: Read only

Description: This attribute counts the Far-End Path AIS and LOP Seconds (FEPALSs). A FEPALS is declared for each one second interval containing one or more P-RDI defects. Counting of FEPALS is inhibited when FEPUAS is declared over the monitored second.

The counter wraps to 0 when it exceeds its maximum value.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE Pbg Sts farEndPathUnavailSec (fepuas)

Access: Read only

Description: This attribute counts the one second intervals for which the STS/STM far-end path is unavailable. The far-end path becomes unavailable at the onset of 10 consecutive FEPSESs. The 10 FEPSESs are included in the unavailable time. Once unavailable, the far-end path becomes available at the onset of 10 contiguous seconds with no FEPSES. The 10 seconds with no FEPSES are excluded from the unavailable time. For one-second intervals where a Far-End Path Unavailable Second (FEPUAS) is declared, counting of FEPCV, FEPES, FEPSES and FEPALS is inhibited.

The counter wraps to 0 when it exceeds its maximum value.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE Pbg Sts farEndPathFailures (fepf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the declarations of STS/STM far-end path failure (P-RFI failure).<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### GROUP Pbg Sts Provisioned (ChProv)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioning data for *Sts* components provisioned under *Sonet* components that support channelization.. |

### ATTRIBUTE Pbg Sts txPathTrace

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the high order path identifier. The string must be constructed with 7-bit characters only. The path identifier is padded by null characters if necessary to form a 64-octet path trace message transmitted in byte J1 of 64 outgoing SONET frames. At the remote end, the path trace is reassembled, and the message is compared to the *expectedRxPathTrace* attribute. If a mismatch is detected, an alarm is issued.<br><br>The functionality supported by this attribute is not available. |
| Values | String (0..64, ASCII) |
| Default | "" |

### ATTRIBUTE Pbg Sts expectedRxPathTrace

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the expected path trace identifier which is used to identify the high order path. This attribute must match the corresponding *txPathTrace* provisioned at the transmitting equipment end. If it does not, an alarm is issued. |

| | |
|---|---|
| | The functionality supported by this attribute is not available. |
| Values | String (0..64, ASCII) |
| Default | "" |

### ATTRIBUTE Pbg Sts concatNumber

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the STS concatenation level for the *Sts* component on channelized cards. It must be set to a concatenation level supported by the FP upon which the *Sts* is defined, except for non-channelized cards, in which case it must be set to 0. For example, a value of 1 in this attribute would represent STS-1 concatenation, while a value of 3 would represent STS-3c, a value of 12 would represent STS-12c, and so forth. *Sts* channelization to the tributary level is supported only if this attribute is set to 1. |
| Values | Decimal (0; 1; 3; 12; 48) |
| Default | No default |

### COMPONENT Pbg Sts AtmCell (Cell)

| | |
|---|---|
| Groups | "GROUP Pbg Sts Cell Provisioned (Prov)"<br>"GROUP Pbg Sts Cell Operational (Oper)"<br>"GROUP Pbg Sts Cell Statistics (Stats)" |
| Scope | Device |
| Description | The *AtmCell* component contains provisioning and operational attributes. The provisioning attributes are used to set the Loss of Cell Delineation (LCD) alarm activation delay and to turn cell payload scrambling on or off. The operational attributes are used to report about the quality of the ATM cells received by the interface and the cell capacity utilization. The *AtmCell* |

component appears under all port components running on ATM cards.

Common Verbs

Help
List
Display
Add
DELete

## GROUP Pbg Sts Cell Provisioned (Prov)

Properties: Provisioned

Description: This group contains the provisioning attributes for the *AtmCell* component.

## ATTRIBUTE Pbg Sts Cell alarmActDelay (act)

Access: Read and write

Description: This attribute specifies the time during which a Loss of Cell Delineation (LCD) defect should be observed before declaring an LCD alarm (alarm 70115501). When the *Cell* component is provisioned under the *Sonet* or *Sdh* component, this attribute defaults to 500 milliseconds. When it is provisioned under the *Laps* component, the default is 2000 milliseconds. This is necessary to ensure that the services bound to the *Sts* or *Vc4* component are not disrupted during short lived LCD defects caused by a line switchover. Setting this attribute to a lower value when the *Laps* component is provisioned may result in a temporary service outage when a line switchover occurs.

Values: Decimal (0..2000)

Units: msec

Default: No default

## ATTRIBUTE Pbg Sts Cell scrambleCellPayload (scramble)

Access: Read and write

Description: Cell scrambling, as defined by ITU-T Recommendation I.432., can provide a solution to the problem of transmission equipment

which is sensitive to certain bit patterns in the ATM cell payload. This attribute controls whether or not the cell payload is scrambled.
It defaults to ***off*** for *DS1* interfaces, and ***on*** for all other interfaces.
Note that this setting must be the same at both ends of the link.

Values
off
on

Default
No default

### ATTRIBUTE Pbg Sts Cell correctSingleBitHeaderErrors

Access
Read and write

Description
This attribute specifies whether the port corrects single bit errors detected in the headers of received cells. If single bit errors are corrected, the affected cells are passed up to the ATM layer according to normal operation. If single bit errors are not corrected, these errored cells are discarded by the physical layer. Note that cells containing multiple bit errors in their headers are always discarded.

Single bit HEC error correction must remain ***off*** for the following card types: 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 2pJ6MAtm, 3pDS3Atm, and 3pE3Atm.

Values
off
on

Default
off

### ATTRIBUTE Pbg Sts Cell clearDelay (clear)

Access
Read and write

Description
This attribute specifies the minimum elapsed time between the clearing of the Loss of Cell Delineation (LCD) defect and the port returning to service. The LCD defect should be absent for the entire period of elapsed time. This attribute value is specified in minutes. If the value of the *clearDelay* attribute is initially 0 (default), the time is actually about 10 seconds.

This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm.

Values: Decimal (0..60)

Units: minutes

Default: 0

### ATTRIBUTE Pbg Sts Cell hecSampleInterval (hSample)

Access: Read and write

Description: This attribute specifies the sampling interval (in seconds) for errors associated with the *uncorrectableHeaderErrors* attribute. When the sum of errors counted by the *uncorrectableHeaderErrors* attribute over the interval time is greater than or equal to the provisioned *hecErrorLimit* attribute, the sample interval is considered errored. If the number of consecutive errored intervals reaches the limit established in the *hecErrorIntervalLimit* attribute, an LCD alarm is declared and the port is disabled. If the attribute *hecSampleInterval* is set to the default, 0, then the attribute *uncorrectableHeaderErrors* cannot be used to bring down the port.
This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm.

Values: Decimal (0..25)

Units: seconds

Default: 0

### ATTRIBUTE Pbg Sts Cell hecErrorLimit (hLimit)

Access: Read and write

Description: This attribute specifies the error threshold for a HEC error sampling interval beyond which a port is brought down. When the value of the *uncorrectableHeaderErrors* attribute accumulated over the provisioned value of the *hecSampleInterval* attribute is greater than or equal to the provisioned value of the *hecErrorLimit* attribute, the sample interval is considered errored. If the number of consecutive errored intervals reaches the limit established in the *hecErrorIntervalLimit* attribute, an LCD alarm

is declared and the port is disabled. (Please note that a *hecErrorInterval* attribute value of 0 (default) disables the mechanism of using the value of the *uncorrectableHeaderErrors* attribute to disable a port.)
This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm.

Values: Decimal (1..250000)

Default: No default

### ATTRIBUTE Pbg Sts Cell lcdStateDelay (delay)

Access: Read and write

Description: This attribute specifies the time during which an Out of Cell Delineation (OCD) defect should be observed before moving to the Loss of Cell Delineation (LCD) defect state. The time is specified in milliseconds. The valid values are 1 to 50 milliseconds if the *AtmCell c*omponent is located under the *Ds1* or *E1* component, and 1 to 5 milliseconds if under a *Ds3* or *E3* component.
This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm.

Values: Decimal (1..50)

Units: msec

Default: No default

### ATTRIBUTE Pbg Sts Cell hecErrorIntervalLimit (hIntLimit)

Access: Read and write

Description: This attribute counts the instances of the *hecSamplingInterval* attribute for all HEC errors (specified by the *uncorrectableHeaderError* attribute) before an LCD alarm is generated. The alarm is only generated if the value of the *uncorrectableHeaderErrors* attribute in a given interval is greater than the value of the *hecErrorLimit* attribute. For example, if there are 20 HEC errors in 5 seconds, for three times in a row (the number of times in a row is represented by this attribute), an alarm is raised. If there are 24 HEC errors in the 5 seconds, and

14 in the next 5 seconds no alarm is generated because the number of HEC errors should also be more than 20 in the next instances.
This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm.

Values: Decimal (1..25)

Default: 1

## GROUP Pbg Sts Cell Operational (Oper)

Properties: Operational

Description: This group contains the common operational attributes for the *AtmCell* component.

## ATTRIBUTE Pbg Sts Cell lcdAlarm (lcd)

Access: Read only

Description: This attribute displays whether the Loss of Cell Delineation (LCD) failure alarm state has been entered. This state is entered when LCD defects have been observed and accumulated for a period of time specified through the *alarmActDelay* attribute.
In ATM cell direct mapping mode, an LCD defect occurs when Out of Cell Delineation (OCD) anomaly persists for *x* milliseconds, and disappears when the Out of Cell Delineation (OCD) is absent for *x* msec. An OCD anomaly occurs when 7 consecutive incorrect HECs have been detected. An OCD anomaly terminates when 6 consecutive correct HECs have been detected.
For an *AtmCell* component located under a *DS3* or *E3* component with *mapping* = ***PLCP***, the LCD defect is directly derived from the PLCP LOF defect.
If LCD defects are intermittently occurring, the LCD defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle
The component under which is located the *AtmCell* component goes into an operational state of ***disabled*** until the LCD alarm condition is cleared. The condition is cleared after the LCD defect has not been reported for a period of 10 seconds +/- 0.5

seconds.
The *lcdAlarm* attribute is always set to off when the parent of the *AtmCell* component has been *locked* and left *offline*. This can also happen when the *Path* or *Channel* component has been suspended since its parent has been locked.

Values
on
off

Default
off

### GROUP Pbg Sts Cell Statistics (Stats)

Properties
Operational

Description
This group contains the statistics attribute for the *AtmCell* component. Each attribute type is a non-negative integer which monotonically increases until it reaches a maximum value, at which point it wraps around and starts increasing again from zero.

### ATTRIBUTE Pbg Sts Cell uncorrectableHeaderErrors (ucErr)

Access
Read only

Description
This attribute indicates the number of uncorrectable ATM cell header errors that have been detected. Counting of *uncorrectableHeaderErrors* is inhibited when an Out of Cell Delineation (OCD) defect is present. An OCD defect occurs when seven consecutive incorrect HECs have been detected. An OCD defect terminates when six consecutive correct HECs have been detected.

Values
Decimal (0..4294967295)

Default
0

### ATTRIBUTE Pbg Sts Cell sevErroredSec (ses)

Access
Read only

Description
This attribute indicates the total number of ATM Cell Severely Errored Seconds (SESs) that have been counted.

In direct mapping mode, an ATM Cell SES is declared for second

intervals containing one or more Out of Cell Delineation (OCD) defects. An OCD defect occurs when seven consecutive incorrect HECs have been detected. An OCD defect terminates when six consecutive correct HECs have been detected.

If the *AtmCell* component is located under a *Ds3* or *E3* component where the *mapping* attribute is set to ***plcp***, an ATM Cell SES is declared for second intervals containing one or more PLCP LOF defects.

Counting of *uncorrectableHeaderErrors* (*ucErr*) and *correctableHeaderErrors* (*cErr*) is inhibited when the OCD defect is present.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE Pbg Sts Cell receiveCellUtilization (rxutil)

Access: Read only

Description: This attribute is the ratio of the number of valid, assigned cells received on the link to the nominal link capacity. The utilization is calculated over a period of one minute.
This attribute is always set to ***0*** when the parent of the *AtmCell* component has been *locked* and left *offline.* This can also happen when the *Path* or *Channel* component has been *suspended* since its parent has been *locked*.

Values: Decimal (0..100)

Units: %

Default: 0

### ATTRIBUTE Pbg Sts Cell transmitCellUtilization (txutil)

Access: Read only

Description: This attribute is the ratio of the number of valid, assigned cells transmitted on the link to the nominal link capacity. The utilization is calculated over a period of one minute.
This attribute is always set to ***0*** when the parent of the *AtmCell*

component has been *locked* and left *offline*. This can also happen when the *Path* or *Channel* component has been *suspended* since its parent has been *locked*.

| | |
|---|---|
| Values | Decimal (0..100) |
| Units | % |
| Default | 0 |

### ATTRIBUTE Pbg Sts Cell correctableHeaderErrors (cErr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of correctable ATM cell header errors that have been detected and corrected. Counting of *correctableHeaderErrors* is inhibited when an Out of Cell Delineation (OCD) defect is present. An OCD defect occurs when seven consecutive incorrect HECs have been detected. An OCD defect terminates when six consecutive correct HECs have been detected |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT Pbg Sts Vt1dot5

| | |
|---|---|
| Instance | l [Decimal (1..7)]<br>m [Decimal (1..4)] |
| Groups | "GROUP Pbg Sts Vt1dot5 CustomerIdentifierData (CidData)"<br>"GROUP Pbg Sts Vt1dot5 OsiState (State)"<br>"GROUP Pbg Sts Vt1dot5 IfEntryProv (IfEntry)"<br>"GROUP Pbg Sts Vt1dot5 OperationalStatus (OperStatus)"<br>"GROUP Pbg Sts Vt1dot5 Operational (Oper)"<br>"GROUP Pbg Sts Vt1dot5 Statistics (Stats)" |
| Scope | Device |

| | |
|---|---|
| Description | *Lp/n Sonet/n Sts/k Vt1dot5/l,m*<br>This component represents the *Vt1.5* low order path signal that is carried within a SONET signal. |
| Opt. Subcomp. | "COMPONENT Pbg Sts Vt1dot5 DS1" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP Pbg Sts Vt1dot5 CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

## ATTRIBUTE Pbg Sts Vt1dot5 customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.<br><br>Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.<br><br>An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of |

any component. Values 1 to 8191 inclusive (equivalent to “basic CIDs” in DPN) may be assigned to specific customers.

Values — Decimal (0; 1..8191)

Default — 0

### GROUP Pbg Sts Vt1dot5 OsiState (State)

Properties — Operational

Description — This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Pbg Sts Vt1dot5 adminState (osiAdmin)

Access — Read only

Description — This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

| | |
|---|---|
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Pbg Sts Vt1dot5 operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Pbg Sts Vt1dot5 usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
idle
active (activ)
busy

Default
idle

### ATTRIBUTE Pbg Sts Vt1dot5 availabilityStatus (osiAvail)

Access
Read only

Description
If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.

The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.

The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.

The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.

The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

## ATTRIBUTE Pbg Sts Vt1dot5 proceduralStatus (osiProc)

Access

Read only

| | |
|---|---|
| Description | If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.<br><br>The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.<br><br>The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.<br><br>The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.<br><br>The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***. |
| Set of | initializationRequired (initRq)<br>notInitialized (notInit)<br>initializing (init)<br>reporting (report)<br>terminating (term) |
| Default | No default |

### ATTRIBUTE Pbg Sts Vt1dot5 controlStatus (osiCntrl)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.<br><br>The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.<br><br>The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.<br><br>The value ***suspended*** indicates that the service has been administratively suspended. |
| Set of | subjectToTest (subTst)<br>partOfServicesLocked (partLk)<br>reservedForTest (rsrvd)<br>suspended (suspnd) |
| Default | No default |

### ATTRIBUTE Pbg Sts Vt1dot5 alarmStatus (osiAlarm)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user. |

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

## ATTRIBUTE Pbg Sts Vt1dot5 standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not

supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values
hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

Default
notSet

### ATTRIBUTE Pbg Sts Vt1dot5 unknownStatus (osiUnknw)

Access
Read only

Description
This attribute indicates the OSI Unknown status of the component.

The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.

The value ***true*** indicates that the actual state of the component is not known for sure.

Values
false
true

Default
false

### GROUP Pbg Sts Vt1dot5 IfEntryProv (IfEntry)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the ifEntry. |

### ATTRIBUTE Pbg Sts Vt1dot5 ifAdminStatus (ifState)

| | |
|---|---|
| Access | Read and write |
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE Pbg Sts Vt1dot5 ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP Pbg Sts Vt1dot5 OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

### ATTRIBUTE Pbg Sts Vt1dot5 snmpOperStatus

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### GROUP Pbg Sts Vt1dot5 Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the common operational data for the component. |

### ATTRIBUTE Pbg Sts Vt1dot5 rxAisAlarm

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether a Tributary Unit Alarm Indication Signal (TU-AIS) alarm state has been entered. A TU-AIS alarm state is entered when TU-AIS defects have been observed and accumulated for a period of 2.5 seconds +/- 0.5 seconds. The TU-AIS defect occurs when three consecutive TU pointers are in the all 1's state. This alarm is cleared after no TU-AIS defect has been detected for 10 seconds +/- 0.5 seconds. |
| Values | on<br>off |
| Default | No default |

### ATTRIBUTE Pbg Sts Vt1dot5 rxRdiAlarm

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether a Low Order Path Remote Defect Indicator (LP-RDI) alarm state has been entered. An LP-RDI alarm state is entered when LP-RDI defects have been observed and accumulated for a period of 2.5 seconds +/- 0.5 seconds. The LP-RDI defect occurs when RDI conditions are detected in five |

consecutive frames. This alarm is cleared after no LP-RDI defect has been detected for 10 seconds +/- 0.5 seconds.

Values
on
off

Default
No default

### ATTRIBUTE Pbg Sts Vt1dot5 rxRfiAlarm

Access
Read only

Description
This attribute indicates whether a Low Order Path Remote Failure Indicator (LP-RFI) alarm state has been entered. An LP-RFI alarm state is entered when LP-RFI defects have been observed and accumulated for a period of 2.5 seconds +/- 0.5 seconds. The LP-RFI defect occurs when a RFI condition is detected. This alarm is cleared after no LP-RFI defect has been detected for 10 seconds +/- 0.5 seconds.

Values
on
off

Default
No default

### ATTRIBUTE Pbg Sts Vt1dot5 unequippedAlarm

Access
Read only

Description
This attribute indicates whether a Low Order Path Unequipped (LP-UNEQ) alarm state has been entered. An LP-UNEQ alarm state is entered when LP-UNEQ defects have been observed and accumulated for a period of 2.5 seconds +/- 0.5 seconds. The LP-UNEQ defect occurs when an unequipped condition is detected for five consecutive multi frames. This alarm is cleared after no LP-UNEQ defect has been detected for 10 seconds +/- 0.5 seconds.

Values
on
off

Default
No default

### ATTRIBUTE Pbg Sts Vt1dot5 traceIdMismatchAlarm

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether a Low Order Path Trace Identification Mismatch (LP-TIM) alarm state has been entered. An LP-TIM alarm state is entered when LP-TIM defects have been observed and accumulated for a period of 2.5 seconds +/- 0.5 seconds. The LP-TIM defect occurs when a TIM condition is detected. This alarm is cleared after no LP-TIM defect has been detected for 10 seconds +/- 0.5 seconds. |
| Values | on<br>off |
| Default | No default |

### ATTRIBUTE Pbg Sts Vt1dot5 lopAlarm

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether a Tributary Unit Loss of Pointer (TU-LOP) alarm state has been entered. An TU-LOP alarm state is entered when TU-LOP defects have been observed and accumulated for a period of 2.5 seconds +/- 0.5 seconds. The TU-LOP defect occurs when eight consecutive invalid pointer values or eight consecutive New Data Flag (NDF) pointers are detected. This alarm is cleared after no TU-LOP defect has been detected for 10 seconds +/- 0.5 seconds. |
| Values | on<br>off |
| Default | No default |

### ATTRIBUTE Pbg Sts Vt1dot5 txAis

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether the Low order Path Alarm Indication Signal (LP-AIS) is being transmitted on the low order path. The LP-AIS signal is transmitted when the component *adminState* is *locked* or *operationalState* is *disabled* and *availabilityStatus* is *dependency.* |

| | |
|---|---|
| Values | on<br>off |
| Default | No default |

### ATTRIBUTE Pbg Sts Vt1dot5 txRdi

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether the Low Order Path Remote Defect Indication (LP-RDI) is being transmitted on the low order path. The LP-RDI signal is transmitted upon detection of TU-LOP, TU-AIS, LP-TIM or LP-UNEQ. The value is *off* when the component *adminState* is *locked* or *operationalState* is *disabled* and *availabilityStatus* is *dependency.* |
| Values | on<br>off |
| Default | No default |

### GROUP Pbg Sts Vt1dot5 Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the statistics data for the component. |

### ATTRIBUTE Pbg Sts Vt1dot5 pathErrorFreeSec (pefs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the one second intervals that the component has been in a near-end error free state.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Pbg Sts Vt1dot5 pathCodeViolations (pcv)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the detected Path Code Violations (PCVs). Each PCV corresponds to a path BIP-8 error. PCV counting is |

inhibited over second intervals where a Path Severely Errored Second (PSES) is counted. Counting of PCVs is also inhibited over second intervals where a Path Unavailable Second (PUAS) is counted.

The counter wraps to 0 when it exceeds its maximum value.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE Pbg Sts Vt1dot5 pathErroredSec (pes)

Access: Read only

Description: This attribute counts the declared Path Errored Seconds (PESs). A PES is declared for second intervals containing one or more PCVs or one or more LOP or path AIS defects. Counting of PES is inhibited when PUAS is declared over the monitored second.

The counter wraps to 0 when it exceeds its maximum value.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE Pbg Sts Vt1dot5 pathSevErroredSec (pses)

Access: Read only

Description: This attribute counts the declared Path Severely Errored Seconds (PSESs). A PSES is declared for second intervals containing more than *x* PCVs or one or more LOP or path AIS defects. The value of *x* is 2400 for a 155 Mbit/s interface. Counting of PSES is inhibited when PUAS is declared over the monitored second.

The counter wraps to 0 when it exceeds its maximum value.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE Pbg Sts Vt1dot5 pathAisLopSec (pals)

Access: Read only

| | |
|---|---|
| Description | This attribute counts the path AIS and LOP Seconds (PALSs). A PALS is declared for second intervals containing one or more path AIS or LOP defects. Counting of PALS is inhibited when PUAS is declared over the monitored second.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Pbg Sts Vt1dot5 pathUnavailSec (puas)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the one second intervals during which the STS/STM path is unavailable. The path becomes unavailable at the onset of 10 consecutive PSESs. The 10 PSESs are included in the unavailable time. Once unavailable, the path becomes available at the onset of 10 contiguous seconds with no PSES. The 10 seconds with no PSES are excluded from the unavailable time. For second intervals where a Path Unavailable Second (PUAS) is declared, counting of PCV, PES, PSES and PALS is inhibited.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Pbg Sts Vt1dot5 pathFailures (pf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the declarations of a path failure (LOP, P-AIS or Path Signal Label Mismatch failure).<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Pbg Sts Vt1dot5 farEndPathErrorFreeSec (fepefs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the one second intervals that the component has been in a far-end error free state.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Pbg Sts Vt1dot5 farEndPathCodeViolations (fepcv)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the Far-End Path Code Violations (FEPCVs) detected. Each FEPCV corresponds to a path FEBE. FEPCV counting is inhibited over second intervals where a Far-End Path Severely Errored Second (FEPSES) is declared. Counting of PCVs is also inhibited over second intervals where a Far-End Path Unavailable Second (FEPUAS) is declared.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Pbg Sts Vt1dot5 farEndPathErroredSec (fepes)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the Far-End Path Errored Seconds (FEPESs) that have been declared. A FEPES is declared for each one second interval containing one or more FEPCVs or one or more path RDI (P-RDI) defects. Counting of FEPES is inhibited when FEPUAS is declared over the monitored second.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Pbg Sts Vt1dot5 farEndPathSevErroredSec (fepses)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the Far-End Path Severely Errored Seconds (FEPSESs) that have been declared. A FEPSES is declared for second intervals containing more than *x* FEPCVs or one or more P-RDI defects. The value of *x* is 2400 for a 155 Mbit/s interface. Counting of FEPSESs is inhibited when FEPUAS is declared over the monitored second.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Pbg Sts Vt1dot5 farEndPathAisLopSec (fepals)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the Far-End Path AIS and LOP Seconds (FEPALSs). A FEPALS is declared for each one second interval containing one or more P-RDI defects. Counting of FEPALS is inhibited when FEPUAS is declared over the monitored second.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Pbg Sts Vt1dot5 farEndPathUnavailSec (fepuas)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the one second intervals for which the STS/STM far-end path is unavailable. The far-end path becomes unavailable at the onset of 10 consecutive FEPSESs. The 10 FEPSESs are included in the unavailable time. Once unavailable, the far-end path becomes available at the onset of 10 contiguous seconds with no FEPSES. The 10 seconds with no FEPSES are excluded from the unavailable time. For one-second intervals where a Far-End Path Unavailable Second (FEPUAS) is declared, counting of FEPCV, FEPES, FEPSES and FEPALS is inhibited. |

| | |
|---|---|
| | The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Pbg Sts Vt1dot5 farEndPathFailures (fepf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the declarations of STS/STM far-end path failure (P-RFI failure).<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT Pbg Sts Vt1dot5 DS1

| | |
|---|---|
| Groups | "GROUP Pbg Sts Vt1dot5 DS1 Provisioned (Prov)"<br>"GROUP Pbg Sts Vt1dot5 DS1 CustomerIdentifierData (CidData)"<br>"GROUP Pbg Sts Vt1dot5 DS1 AdminInfo (AdminInfo)"<br>"GROUP Pbg Sts Vt1dot5 DS1 IfEntryProv (IfEntry)"<br>"GROUP Pbg Sts Vt1dot5 DS1 OperationalStatus (OperStatus)"<br>"GROUP Pbg Sts Vt1dot5 DS1 OsiState (State)"<br>"GROUP Pbg Sts Vt1dot5 DS1 Operational (Oper)"<br>"GROUP Pbg Sts Vt1dot5 DS1 Statistics (Stats)" |
| Scope | Application |
| Description | *Lp/n DS3/n DS1/n*<br>The *DS1* component controls and monitors a DS1 tributary of a channelized DS3 port on a Function Processor that supports channelization of a DS3. |

| | |
|---|---|
| Subcomponents | "COMPONENT Pbg Sts Vt1dot5 DS1 Channel (Chan)" |
| Dyn. Subcomp. | "COMPONENT Pbg Sts Vt1dot5 DS1 Test (Test)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP Pbg Sts Vt1dot5 DS1 Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all of the provisioning data for a *DS1* component. |

## ATTRIBUTE Pbg Sts Vt1dot5 DS1 lineType (lineType)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the framing of the DS1 tributary.<br>***d4*** defines a framing pattern of 12 frames per multiframe.<br>***esf*** defines a framing pattern of 24 frames per multiframe.<br>***d4Cas*** defines a framing pattern of 12 frames per multiframe with channel associated signalling.<br>***esfCas*** defines a framing pattern of 24 frames per multiframe with channel associated signalling.<br>***unframed*** defines an unknown framing pattern for clear channels.<br><br>For the ***4pDS3ChAtm*** card, only ***d4*** and ***esf*** framing patterns are permitted.<br><br>The ***4pDS3ChAal1*** card supports the ***d4*** and ***esf*** framing patterns, as well as ***unframed***. |
| Values | d4<br>esf |

| | |
|---|---|
| | d4Cas<br>esfCas<br>unframed |
| Default | esf |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 zeroCoding (zeroCoding)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute defines the zero encoding on the DS1 tributary.<br>***bit7Stuffing*** sets bit 7 of every timeslot to a one to guarantee ones's density. This reduces the available bandwidth of the channel by 1/8.<br>***none*** does no zero encoding, it does not change any value of the bits in the timeslot. The value ***none*** is compatible with any zero coding scheme which transports all 8 data bits in a timeslot (this would include both ***ami*** and ***b8zs*** values of the *DS1 zeroCoding* attribute). |
| Values | bit7Stuffing<br>none |
| Default | none |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 clockingSource (clockingSource)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the source of the transmit clock for the DS1 tributary.<br>When the clocking source is ***local***, the crystal on the port generates the clocking for the DS1 tributary.<br>When the clocking source is ***line***, the port synchronizes to the clock from the DS1 tributary.<br>When the clocking source is ***module***, the port's clock synchronizes to the clock provided by the oscillator on the active CP.<br>When the clocking source is ***sameAsDs3***, the Ds1 port's clock synchronizes to the same clock source as that of its parent Ds3 port. |

On a ***1pDS3C*** card, if the *NetworkSynchronization (NS)* component is present, the default value of this attribute will be ***module***; otherwise it will be ***line***.

On a ***2pDS3cAal*** card, the only valid values are ***local*** and ***module***. If the *NS* component is present, the default value of this attribute will be ***module***; otherwise it will be ***local***.

On the ***4pDS3Ch***, ***4pDS3ChAtm***, and ***4pDS3ChAal1*** cards, the only valid value is ***sameAsDs3***. This is because a DS1 must have the same clocking source as its parent DS3.

Values
local
line
module
sameAsDs3

Default
No default

## GROUP Pbg Sts Vt1dot5 DS1 CustomerIdentifierData (CidData)

Properties
Provisioned

Description
This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs.

## ATTRIBUTE Pbg Sts Vt1dot5 DS1 customerIdentifier (cid)

Access
Read and write

Description
This attribute holds the Customer Identifier (CID).

Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.

Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.

| | |
|---|---|
| | An operator CID of 0 is used to identify the Network Manager (referred to as “NetMan” in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to “basic CIDs” in DPN) may be assigned to specific customers. |
| Values | Decimal (0; 1..8191) |
| Default | 0 |

### GROUP Pbg Sts Vt1dot5 DS1 AdminInfo (AdminInfo)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attributes pertaining to the vendor of the equipment. |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 vendor

| | |
|---|---|
| Access | Read and write |
| Description | This is the name of the vendor supplying the facility. |
| Values | String (0..20, ASCII) |
| Default | No default |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 commentText

| | |
|---|---|
| Access | Read and write |
| Description | Any miscellaneous text about the facility. |
| Values | String (0..60, ASCII) |
| Default | No default |

### GROUP Pbg Sts Vt1dot5 DS1 IfEntryProv (IfEntry)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the ifEntry. |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 ifAdminStatus (ifState)

| | |
|---|---|
| Access | Read and write |
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is |

| | |
|---|---|
| | not operational. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP Pbg Sts Vt1dot5 DS1 OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

## GROUP Pbg Sts Vt1dot5 DS1 OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

## ATTRIBUTE Pbg Sts Vt1dot5 DS1 adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |

| | |
|---|---|
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 availabilityStatus (osiAvail)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.<br><br>The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.<br><br>The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.<br><br>The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.<br><br>The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***. |

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 proceduralStatus (osiProc)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.

The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 controlStatus (osiCntrl)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the

user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

Set of: subjectToTest (subTst)
partOfServicesLocked (partLk)
reservedForTest (rsrvd)
suspended (suspnd)

Default: No default

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 alarmStatus (osiAlarm)

Access: Read only

Description: If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the

resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values
hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

Default
notSet

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 unknownStatus (osiUnknw)

Access
Read only

Description
This attribute indicates the OSI Unknown status of the component.

The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.

The value ***true*** indicates that the actual state of the component is not known for sure.

Values
false
true

Default
false

### GROUP Pbg Sts Vt1dot5 DS1 Operational (Oper)

Properties
Operational

Description
This group contains the common operational data for a component in a digital hierarchy interface.

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 rxAisAlarm (rxAisAlarm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether an AIS (Alarm Indication Signal) alarm state has been entered. The AIS Alarm state is entered when AIS defects have been observed and accumulated for 2.5 seconds<br>+/- 0.5 seconds. An AIS defect is detected after having received less than 3 zeros in a 2048 bit period. If the AIS defects are intermittently occurring, the AIS defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle. This tributary goes into an *operationalState* of ***disabled*** for the duration of an AIS alarm state.<br>The AIS alarm state is cleared when AIS defects are absent for 10 seconds +/- 0.5 seconds. |
| Values | on<br>off |
| Default | off |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 lofAlarm (lofAlarm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether a LOF (Loss of Frame) alarm state has been entered. The LOF alarm state is entered when LOF defects (2 out of 5 framing bits in error) have been detected for 3 seconds +/- 0.5 seconds. If the LOF defects are intermittently occurring, the LOF defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle. This tributary goes into an *operationalState* of ***disabled*** until the LOF alarm state is cleared. Also, an RAI alarm is transmitted to the far end for the duration of the LOF alarm state<br>The condition is cleared when framing has been achieved for 10 seconds +/- 0.5 seconds. |
| Values | on<br>off |
| Default | off |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 rxRaiAlarm (rxRaiAlarm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether an RAI (Remote Alarm Indication) alarm state has been entered. An RAI alarm state is entered when the RAI defect indicator has been observed and accumulated for 3.5 seconds +/- 0.5 seconds. If the RAI defects are intermittently occurring, the RAI defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle.<br>The RAI alarm state is cleared when the RAI defect indicator has been absent for 10 seconds +/- 0.5 seconds. The RAI alarm is usually an indication that the far end facility is unable to gain synchronization. |
| Values | on<br>off |
| Default | off |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 txAisAlarm (txAisAlarm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether an AIS (Alarm Indication Signal) alarm is being transmitted on the line. An AIS alarm is transmitted when the tributary is in a locked state. |
| Values | on<br>off |
| Default | off |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 txRaiAlarm (txRaiAlarm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether a RAI signal is being sent on the outgoing line. The RAI signal is transmitted when the tributary detects a LOF alarm condition. |
| Values | on<br>off |

| | |
|---|---|
| Default | off |

### GROUP Pbg Sts Vt1dot5 DS1 Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the common statistical data for a component in a digital hierarchy interface. |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 runningTime (runningTime)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of seconds since the tributary was activated. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 errorFreeSec (efs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of seconds that the tributary has been in an error free state. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 erroredSec (es)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of errored seconds the tributary has counted since it was activated. An errored second is declared when a second with one or more Code Violation Error events, or one or more Out Of Frame events occurs. A code violation error may be a CRC error or a BPV error. An Out Of Frame event occurs when 2 out of 5 framing bits are in error. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 sevErroredSec (ses)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of severely errored seconds the tributary has counted since it was activated. A severely errored second occurs when a second with 320 or more Code Violation Error events or one or more Out Of Frame events occurs. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 sevErroredFrmSec (sefs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of severely errored framing seconds the tributary has counted since it was activated A severely errored framing second occurs when a second with one or more Out Of Frame events occurs. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 unavailSec

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of seconds that the tributary has been in an unavailable signal state. An unavailable signal state occurs at the onset of 10 consecutive Severely Errored Seconds. The state is cleared at the onset of 10 seconds with no Severely Errored Seconds. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 crcErrors (crcErrors)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of CRC-6 errors. These will only be counted when the *lineType* is ***esf***. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 frmErrors (frmErrors)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frame errors. A frame error is an error in the framing bits. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 slipErrors (slipErrors)

| | |
|---|---|
| Access | Read only |
| Description | The total number of times that the line experienced a controlled frame slip. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT Pbg Sts Vt1dot5 DS1 Channel (Chan)

| | |
|---|---|
| Instance | Decimal (0..23) |
| Groups | "GROUP Pbg Sts Vt1dot5 DS1 Chan Provisioned (Prov)"<br>"GROUP Pbg Sts Vt1dot5 DS1 Chan CustomerIdentifierData (CidData)"<br>"GROUP Pbg Sts Vt1dot5 DS1 Chan IfEntryProv (IfEntry)"<br>"GROUP Pbg Sts Vt1dot5 DS1 Chan OperationalStatus (OperStatus)"<br>"GROUP Pbg Sts Vt1dot5 DS1 Chan OsiState (State)"<br>"GROUP Pbg Sts Vt1dot5 DS1 Chan Operational (Oper)"<br>"GROUP Pbg Sts Vt1dot5 DS1 Chan AdminInfo (AdminInfo)" |
| Scope | Application |
| Description | *Channel*<br>The *Channel* component is configured to control a group of timeslots that form a fractional group on a DS1 or E1 port. Cell-based cards allow only one channel per port, and this is |

automatically provisioned with all available timeslots. Similarly, the ***1pDS3C*** card type only allows one channel per port, and this is automatically provisioned with all available timeslots.

Opt. Subcomp. "COMPONENT Pbg Sts Vt1dot5 DS1 Chan AtmCell (Cell)"
"COMPONENT Pbg Sts Vt1dot5 DS1 Chan TrunkConditioning (Tc)"

Dyn. Subcomp. "COMPONENT Pbg Sts Vt1dot5 DS1 Chan Test (Test)"

Common Verbs

Help
List
Display
Add
DELete
LOCK
Unlock

## GROUP Pbg Sts Vt1dot5 DS1 Chan Provisioned (Prov)

Properties Provisioned

Description This group contains all of the provisional data for a *Channel* component.

## ATTRIBUTE Pbg Sts Vt1dot5 DS1 Chan timeslots (ts)

Access Read and write

Criticality Component

Description This attribute contains the list of timeslots that are used by the *Channel* component. Valid numbers are 1-24 for a *Channel* used by a *DS1* component, and 1-31 for a *Channel* used by an *E1* component.

For the ***4pDS3Ch*** card, a timeslot value of ***none*** cannot be combined with other valid timeslot values. When ***none*** is selected, no timeslots are assigned and any service linked to the *Channel* does not function.

| | |
|---|---|
| Set of | none<br>1<br>2<br>3<br>4<br>5<br>6<br>7<br>8<br>9<br>10<br>11<br>12<br>13<br>14<br>15<br>16<br>17<br>18<br>19<br>20<br>21<br>22<br>23<br>24<br>25<br>26<br>27<br>28<br>29<br>30<br>31 |
| Default | No default |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Chan timeslotDataRate (dataRate)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |

| | |
|---|---|
| Description | This attribute selects the data rate of the timeslots in a channel of a DS1 component. For E1, the data rate of the timeslots will always be 64kbit/s regardless of this attribute.<br><br>When ***doNotOverride*** is selected for a channel on a DS1, the data rate of the channel's timeslots are dependant on the *zeroCoding* selection of the DS1 component. If the *zeroCoding* is ***B8ZS*** (where supported on the FP) or ***none***, the timeslot's data rate will be 64kbit/s. If the *zeroCoding* option is ***bit7Stuffing,*** the data rate of a timeslot will be 56kbit/s.<br><br>When ***56k*** is selected for a channel on a DS1, the least significant bit of each timeslot of this *Channel* will always be set to 1 and not used for data. The data rate for the timeslots of this channel is therefore restricted to 56kbit/s.<br><br>On the ***4pDS3Ch*** cards, the *zeroCoding* attribute is restricted to the value *none*, and so when the *timeslotDataRate* is set to ***doNotOverride***, the timeslot's data rate will be 64kbit/s. Timeslot data rate of ***56k*** is also available on this card.<br><br>On the ***4pDS3ChAal1*** card, the only allowed value for this attribute is ***doNotOverride***.<br><br>One application of this attribute is to allow a DS1 line to support mixing channels that originate from lines that use different *zeroCoding* schemes. |
| Values | 56k<br>doNotOverride |
| Default | doNotOverride |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Chan applicationFramerName

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the link to the software stack. It defines which application is running on top of this hardware component. |
| Values | Link (Service, interfaceName) |
| Default | No default |

### GROUP Pbg Sts Vt1dot5 DS1 Chan CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Chan customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.<br><br>Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.<br><br>An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to "basic CIDs" in DPN) may be assigned to specific customers. |
| Values | Decimal (0; 1..8191) |
| Default | 0 |

### GROUP Pbg Sts Vt1dot5 DS1 Chan IfEntryProv (IfEntry)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the ifEntry. |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Chan ifAdminStatus (ifState)

| | |
|---|---|
| Access | Read and write |
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is |

| | |
|---|---|
| | not operational. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Chan ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP Pbg Sts Vt1dot5 DS1 Chan OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Chan snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### GROUP Pbg Sts Vt1dot5 DS1 Chan OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Chan adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Chan operationalState (osiOper)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Chan usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Chan availabilityStatus (osiAvail)

Access: Read only

Description: If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.

The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.

The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.

The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.

The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the

component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Chan proceduralStatus (osiProc)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***initializationRequired*** indicates (for a resource which

doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.

The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Chan controlStatus (osiCntrl)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

Set of

subjectToTest (subTst)
partOfServicesLocked (partLk)
reservedForTest (rsrvd)
suspended (suspnd)

Default

No default

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Chan alarmStatus (osiAlarm)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of
underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default
No default

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Chan standbyStatus (osiStby)

Access
Read only

Description
If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization

activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values
hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

Default
notSet

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Chan unknownStatus (osiUnknw)

Access
Read only

Description
This attribute indicates the OSI Unknown status of the component.

The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.

The value ***true*** indicates that the actual state of the component is not known for sure.

Values
false
true

Default
false

### GROUP Pbg Sts Vt1dot5 DS1 Chan Operational (Oper)

Properties
Operational

Description
This group contains all of the operational data for a *Channel* component.

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Chan actualChannelSpeed

Access
Read only

Description
This attribute displays the measured link speed of the *Channel* component.

Values
Decimal (0..4294967295)

Units
bit/s

| | |
|---|---|
| Default | 0 |

### GROUP Pbg Sts Vt1dot5 DS1 Chan AdminInfo (AdminInfo)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attributes pertaining to the vendor of the equipment. |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Chan vendor

| | |
|---|---|
| Access | Read and write |
| Description | This is the name of the vendor supplying the facility. |
| Values | String (0..20, ASCII) |
| Default | No default |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Chan commentText

| | |
|---|---|
| Access | Read and write |
| Description | Any miscellaneous text about the facility. |
| Values | String (0..60, ASCII) |
| Default | No default |

### COMPONENT Pbg Sts Vt1dot5 DS1 Chan Test (Test)

| | |
|---|---|
| Groups | "GROUP Pbg Sts Vt1dot5 DS1 Chan Test OsiState (State)"<br>"GROUP Pbg Sts Vt1dot5 DS1 Chan Test Setup (Setup)"<br>"GROUP Pbg Sts Vt1dot5 DS1 Chan Test Results (Results)" |
| Scope | Application |
| Description | The *Test* component is configured to control a hardware facility test on a physical (*V35*, *X21*, *DS1*, *E1*, *DS3*, *E3* etc.) or a logical port. |
| Common Verbs | Help<br>List<br>Display |

### VERB START Pbg Sts Vt1dot5 DS1 Chan Test

| | |
|---|---|
| Impact | Service |
| Description | This command invokes a test on the hardware component. Note that some test types requires the parent component (the hardware component) to be locked (using the *Lock* command) before a test can be started. |

### VERB STOP Pbg Sts Vt1dot5 DS1 Chan Test

| | |
|---|---|
| Impact | Service |
| Description | This command stops a test running on the hardware component. |

### GROUP Pbg Sts Vt1dot5 DS1 Chan Test OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Chan Test adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |

| | |
|---|---|
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Chan Test operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Chan Test usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |

| | |
|---|---|
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Pbg Sts Vt1dot5 DS1 Chan Test Setup (Setup)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all of the operational data for a *Test* component. |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Chan Test purpose (purpose)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute records the purpose of the test so that the test results can be associated and properly analyzed. |
| Values | String (0..40, ASCII) |
| Default | No default |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Chan Test type (type)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the type of test to be run. The available test types include the following:<br>***card*** test sets up an internal loop on the board and runs a bit error rate test.<br>***manual*** test assumes the line is looped back externally and a bit error rate test is performed.<br>***localLoop*** test loops back the local modem and performs a bit error rate test.<br>***remoteLoop*** test loops back the remote modem (or CSU) and performs a bit error rate test.<br>***externalLoop*** test loops back the line to the far end.<br>***payloadLoop*** test only loops back the payload data received from the incoming line.<br>***remoteLoopThisTrib*** loops this particular tributary back at the far end, using services provided by the parent.<br>***v54RemoteLoop*** initiates a V.54 Remote Loopback test.<br>***pn127RemoteLoop*** initiates a PN127 Remote Loopback test. |

***lineBIP8Error*** tests line BIP 8 error generation and detection (B2 byte inverted).
***sectionBIP8Error*** tests section BIP 8 error generation and detection (B1 byte inverted).
***pathBIP8Error*** tests path BIP 8 error generation and detection (B3 byte inverted).
***pathBIP2Error*** tests path BIP 2 error generation and detection (bit 1-2 of V5 byte inverted).
Note that not all test types are not supported by all function processors.

Values
card
manual
localLoop
remoteLoop
externalLoop
payloadLoop
remoteLoopThisTrib
v54RemoteLoop
pn127RemoteLoop
lineBIP8Error
sectionBIP8Error
pathBIP8Error
pathBIP2Error

Default
card

## ATTRIBUTE Pbg Sts Vt1dot5 DS1 Chan Test frmSize (size)

Access
Read and write

Description
This attribute defines the size of the test data frames in number of bytes.
This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame.

Values
Decimal (4..4096)

Units
bytes

Default
1024

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Chan Test frmPatternType (fpt)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the type of data pattern generation to use. The following lists the available pattern types:<br>***ccitt32kBitPattern*** is a pseudo-random sequence of 32 kbit.<br>***ccitt8MBitPattern*** is a pseudo-random sequence of 8Mbit.<br>***customizedPattern*** is the pattern defined in the ***customizedPattern*** attribute. |
| Values | ccitt32kBitPattern<br>ccitt8MBitPattern<br>customizedPattern |
| Default | ccitt32kBitPattern |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Chan Test customizedPattern (cp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute allows a customized 32 bit pattern to be defined for use in the test data frames. This attribute is used when the attribute *frmPatternType* is set to ***CustomizedPattern***. Note that a 55 hex pattern is an alternating 1 and 0 pattern. |
| Values | Hex (H.0..H.ffffffff) |
| Units | Hex |
| Default | H.55555555 |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Chan Test dataStartDelay (dsd)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time delay (in seconds) between when the test expects the loop to have been set up, to when the test data actually starts to be transmitted. This attribute is to accommodate some non-standard equipment that requires extra time for setting up a requested loop.<br>This attribute is ignored when the test *type* is set to ***externalLoop***. |
| Values | Decimal (0..1814400) |
| Units | seconds |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Chan Test displayInterval (di)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the interval (in minutes) between which interim test results are to be displayed. Results are displayed at the operator console at which the test was started. When the test *type* is set to ***externalLoop***, this attribute is ignored. There will be no display of results if *displayInterval* is set to 0. This attribute can be changed anytime. |
| Values | Decimal (0..30240) |
| Units | minutes |
| Default | 5 |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Chan Test duration

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the duration for which the test data will be transmitted. In the case of an ***externalLoop***, this is the time that the loop is in effect. Note that *dataStartDelay* does not apply to the ***externalLoop*** test type. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 1.00 |

### GROUP Pbg Sts Vt1dot5 DS1 Chan Test Results (Results)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all the statistics related attributes of the *Test* component. |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Chan Test causeOfTermination

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates either the status of the test or the cause of the test's termination: |

a value of ***neverStarted*** indicates that the test has not yet been started.

a value of ***testRunning*** indicates that the test has been started.

a value of ***stoppedByOperator*** indicates that the operator issued a stop command on a test that was running.

a value of ***testTimeExpired*** indicates that the test ran for the time specified by the test's *duration*.

a value of ***loopCodeSyncFailed*** indicates that the local end failed to synchronize to the loopCode pattern. The local end transmits the loopCode pattern to cause the remote end to apply a loopback, after which the local end should receive the loopCode pattern. The exact pattern used to request loopCode depends on the test *type*. This failure indicates a high rate of transmission errors, or that the remote end has failed to apply the loopback.

a value of ***patternSyncFailed*** indicates that the local end failed to synchronize to the *frmPatternType* test pattern, that should have been looped back at the remote end. This failure indicates a high rate of transmission errors or the absence of a loopback.

a value of ***patternSyncLost*** indicates that the local end gained and then lost synchronization to the returned *frmPatternType* test pattern. This failure indicates a sudden increase in transmission errors, frame slippage, or the removal of an existing loopback.

a value of ***unknown*** is set when a reason to terminate other than those listed here is encountered.

Note: The *causeOfTermination* attribute values of ***loopCodeSyncFailed***, ***patternSyncFailed*** and ***patternSyncLost*** are supported only on MSA cards. *Test* components located on other cards or under an *Ima* component on an MSA card will never terminate the test under the conditions described by these values.

| | |
|---|---|
| Values | testTimeExpired<br>stoppedByOperator<br>unknown<br>neverStarted<br>testRunning<br>hardwareReconfigured<br>loopCodeSyncFailed<br>patternSyncFailed<br>patternSyncLost |
| Default | neverStarted |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Chan Test bitsTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bits sent during the test period. As long as the line speed of the hardware interface is less than 70 Mbit/s, this counter is not expected to reach the maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Chan Test bytesTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes sent during the test period. This counter is not expected to reach its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Chan Test frmTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames sent during the test period. This counter is not expected to reach its maximum value.<br><br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |
| Values | Long Integer |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Chan Test bitsRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bits received during the test period. The counter wraps to zero when it exceeds the maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Chan Test bytesRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes received during the test period. The counter wraps to zero when it exceeds its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Chan Test frmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received during the test period. The counter wraps to zero when it exceeds its maximum value.<br><br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Chan Test erroredFrmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute is not displayed for ATM and MSA32 cards. For ATM cards, the physical layer drops all errored frames at the controller interface. For MSA32 cards, the test does not generate any frame. |

For all other card types, this attribute counts the errored frames received during the test period. The counter wraps to zero when it exceeds its maximum value.

Values: Long Integer

Default: No default

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Chan Test bitErrorRate

Access: Read only

Description: This attribute is not displayed for ATM cards because the physical layer drops all errored frames at the controller interface. For MSA32 cards, this attribute indicates the link bit error rate, regardless of the *frameSize*, which is not supported

For all other card types, this attribute is the calculated bit error rate on the link. Test data are generated and sent in frames of a preset size (*frameSize*). The *Test* component will try to estimate the number of bit errors in any errored frame which is identifiable. The statistics will be updated accordingly. A lost frame (may be due to an error on the flag sequence) will be discarded for the bit error rate calculation. The result is presented in the form of xEsyy, where x is the mantissa, syy is the exponent, for example 0E+00, 2E-09.
Note that the *bitErrorRate* is an estimate only. For more reliable test results, the test should be done over a long period. Multiple tests would also improve the confidence level of the test results.

Values: String (5, ASCII)

Default: No default

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Chan Test elapsedTime

Access: Read only

Description: This attribute indicates the time elapsed since the test started for an ***externalLoop*** test. For a data test, it indicates time since test data was first transmitted.

Values: Decimal (0.00..30240.00)

Units: minutes

| | |
|---|---|
| Default | 0.00 |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Chan Test timeRemaining

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the length of time remaining before the test stops according to the *duration* attribute. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 0.00 |

### COMPONENT Pbg Sts Vt1dot5 DS1 Chan AtmCell (Cell)

| | |
|---|---|
| Groups | "GROUP Pbg Sts Vt1dot5 DS1 Chan Cell Provisioned (Prov)"<br>"GROUP Pbg Sts Vt1dot5 DS1 Chan Cell Operational (Oper)"<br>"GROUP Pbg Sts Vt1dot5 DS1 Chan Cell Statistics (Stats)" |
| Scope | Device |
| Description | The *AtmCell* component contains provisioning and operational attributes. The provisioning attributes are used to set the Loss of Cell Delineation (LCD) alarm activation delay and to turn cell payload scrambling on or off. The operational attributes are used to report about the quality of the ATM cells received by the interface and the cell capacity utilization. The *AtmCell* component appears under all port components running on ATM cards. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Pbg Sts Vt1dot5 DS1 Chan Cell Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioning attributes for the *AtmCell* component. |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Chan Cell alarmActDelay (act)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time during which a Loss of Cell Delineation (LCD) defect should be observed before declaring an LCD alarm (alarm 70115501). When the *Cell* component is provisioned under the *Sonet* or *Sdh* component, this attribute defaults to 500 milliseconds. When it is provisioned under the *Laps* component, the default is 2000 milliseconds. This is necessary to ensure that the services bound to the *Sts* or *Vc4* component are not disrupted during short lived LCD defects caused by a line switchover. Setting this attribute to a lower value when the *Laps* component is provisioned may result in a temporary service outage when a line switchover occurs. |
| Values | Decimal (0..2000) |
| Units | msec |
| Default | No default |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Chan Cell scrambleCellPayload (scramble)

| | |
|---|---|
| Access | Read and write |
| Description | Cell scrambling, as defined by ITU-T Recommendation I.432., can provide a solution to the problem of transmission equipment which is sensitive to certain bit patterns in the ATM cell payload. This attribute controls whether or not the cell payload is scrambled.<br>It defaults to ***off*** for *DS1* interfaces, and ***on*** for all other interfaces.<br>Note that this setting must be the same at both ends of the link. |
| Values | off<br>on |
| Default | No default |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Chan Cell correctSingleBitHeaderErrors

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether the port corrects single bit errors detected in the headers of received cells. If single bit errors are |

corrected, the affected cells are passed up to the ATM layer according to normal operation. If single bit errors are not corrected, these errored cells are discarded by the physical layer. Note that cells containing multiple bit errors in their headers are always discarded.

Single bit HEC error correction must remain ***off*** for the following card types: 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 2pJ6MAtm, 3pDS3Atm, and 3pE3Atm.

Values: off
on

Default: off

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Chan Cell clearDelay (clear)

Access: Read and write

Description: This attribute specifies the minimum elapsed time between the clearing of the Loss of Cell Delineation (LCD) defect and the port returning to service. The LCD defect should be absent for the entire period of elapsed time. This attribute value is specified in minutes. If the value of the *clearDelay* attribute is initially 0 (default), the time is actually about 10 seconds.
This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm.

Values: Decimal (0..60)

Units: minutes

Default: 0

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Chan Cell hecSampleInterval (hSample)

Access: Read and write

Description: This attribute specifies the sampling interval (in seconds) for errors associated with the *uncorrectableHeaderErrors* attribute. When the sum of errors counted by the *uncorrectableHeaderErrors* attribute over the interval time is greater than or equal to the provisioned *hecErrorLimit* attribute, the sample interval is considered errored. If the number of consecutive errored intervals reaches the limit established in the

| | |
|---|---|
| | *hecErrorIntervalLimit* attribute, an LCD alarm is declared and the port is disabled. If the attribute *hecSampleInterval* is set to the default, 0, then the attribute *uncorrectableHeaderErrors* cannot be used to bring down the port.<br>This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm. |
| Values | Decimal (0..25) |
| Units | seconds |
| Default | 0 |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Chan Cell hecErrorLimit (hLimit)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the error threshold for a HEC error sampling interval beyond which a port is brought down. When the value of the *uncorrectableHeaderErrors* attribute accumulated over the provisioned value of the *hecSampleInterval* attribute is greater than or equal to the provisioned value of the *hecErrorLimit* attribute, the sample interval is considered errored. If the number of consecutive errored intervals reaches the limit established in the *hecErrorIntervalLimit* attribute, an LCD alarm is declared and the port is disabled. (Please note that a *hecErrorInterval* attribute value of 0 (default) disables the mechanism of using the value of the *uncorrectableHeaderErrors* attribute to disable a port.)<br>This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm. |
| Values | Decimal (1..250000) |
| Default | No default |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Chan Cell lcdStateDelay (delay)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time during which an Out of Cell Delineation (OCD) defect should be observed before moving to the Loss of Cell Delineation (LCD) defect state. The time is specified in milliseconds. The valid values are 1 to 50 milliseconds if the *AtmCell c*omponent is located under the *Ds1* |

| | |
|---|---|
| | or *E1* component, and 1 to 5 milliseconds if under a *Ds3* or *E3* component.<br>This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm. |
| Values | Decimal (1..50) |
| Units | msec |
| Default | No default |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Chan Cell hecErrorIntervalLimit (hIntLimit)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute counts the instances of the *hecSamplingInterval* attribute for all HEC errors (specified by the *uncorrectableHeaderError* attribute) before an LCD alarm is generated. The alarm is only generated if the value of the *uncorrectableHeaderErrors* attribute in a given interval is greater than the value of the *hecErrorLimit* attribute. For example, if there are 20 HEC errors in 5 seconds, for three times in a row (the number of times in a row is represented by this attribute), an alarm is raised. If there are 24 HEC errors in the 5 seconds, and 14 in the next 5 seconds no alarm is generated because the number of HEC errors should also be more than 20 in the next instances.<br>This attribute is supported only on 3pDS1Atm, 8pDS1Atm, 3pE1Atm, 8pE1Atm, 3pDS3Atm, and 3pE3Atm. |
| Values | Decimal (1..25) |
| Default | 1 |

### GROUP Pbg Sts Vt1dot5 DS1 Chan Cell Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the common operational attributes for the *AtmCell* component. |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Chan Cell lcdAlarm (lcd)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute displays whether the Loss of Cell Delineation (LCD) failure alarm state has been entered. This state is entered when LCD defects have been observed and accumulated for a period of time specified through the *alarmActDelay* attribute.<br>In ATM cell direct mapping mode, an LCD defect occurs when Out of Cell Delineation (OCD) anomaly persists for *x* milliseconds, and disappears when the Out of Cell Delineation (OCD) is absent for *x* msec. An OCD anomaly occurs when 7 consecutive incorrect HECs have been detected. An OCD anomaly terminates when 6 consecutive correct HECs have been detected.<br>For an *AtmCell* component located under a *DS3* or *E3* component with *mapping* = ***PLCP***, the LCD defect is directly derived from the PLCP LOF defect.<br>If LCD defects are intermittently occurring, the LCD defect accumulator is decremented at a rate of 1/10 of the incrementing rate (alarm integration ratio of 1/10), with all measurements based on a 200 ms polling cycle<br>The component under which is located the *AtmCell* component goes into an operational state of ***disabled*** until the LCD alarm condition is cleared. The condition is cleared after the LCD defect has not been reported for a period of 10 seconds +/- 0.5 seconds.<br>The *lcdAlarm* attribute is always set to off when the parent of the *AtmCell* component has been *locked* and left *offline*. This can also happen when the *Path* or *Channel* component has been suspended since its parent has been locked. |
| Values | on<br>off |
| Default | off |

## GROUP Pbg Sts Vt1dot5 DS1 Chan Cell Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the statistics attribute for the *AtmCell* component. Each attribute type is a non-negative integer which monotonically increases until it reaches a maximum value, at which point it wraps around and starts increasing again from zero. |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Chan Cell uncorrectableHeaderErrors (ucErr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of uncorrectable ATM cell header errors that have been detected. Counting of *uncorrectableHeaderErrors* is inhibited when an Out of Cell Delineation (OCD) defect is present. An OCD defect occurs when seven consecutive incorrect HECs have been detected. An OCD defect terminates when six consecutive correct HECs have been detected. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Chan Cell sevErroredSec (ses)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of ATM Cell Severely Errored Seconds (SESs) that have been counted.<br><br>In direct mapping mode, an ATM Cell SES is declared for second intervals containing one or more Out of Cell Delineation (OCD) defects. An OCD defect occurs when seven consecutive incorrect HECs have been detected. An OCD defect terminates when six consecutive correct HECs have been detected.<br><br>If the *AtmCell* component is located under a *Ds3* or *E3* component where the *mapping* attribute is set to ***plcp***, an ATM Cell SES is declared for second intervals containing one or more PLCP LOF defects.<br><br>Counting of *uncorrectableHeaderErrors* (*ucErr*) and *correctableHeaderErrors* (*cErr*) is inhibited when the OCD defect is present. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Chan Cell receiveCellUtilization (rxutil)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute is the ratio of the number of valid, assigned cells received on the link to the nominal link capacity. The utilization is calculated over a period of one minute.<br>This attribute is always set to ***0*** when the parent of the *AtmCell* component has been *locked* and left *offline.* This can also happen when the *Path* or *Channel* component has been *suspended* since its parent has been *locked*. |
| Values | Decimal (0..100) |
| Units | % |
| Default | 0 |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Chan Cell transmitCellUtilization (txutil)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the ratio of the number of valid, assigned cells transmitted on the link to the nominal link capacity. The utilization is calculated over a period of one minute.<br>This attribute is always set to ***0*** when the parent of the *AtmCell* component has been *locked* and left *offline*. This can also happen when the *Path* or *Channel* component has been *suspended* since its parent has been *locked*. |
| Values | Decimal (0..100) |
| Units | % |
| Default | 0 |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Chan Cell correctableHeaderErrors (cErr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of correctable ATM cell header errors that have been detected and corrected. Counting of *correctableHeaderErrors* is inhibited when an Out of Cell Delineation (OCD) defect is present. An OCD defect occurs when seven consecutive incorrect HECs have been detected. An OCD defect terminates when six consecutive correct HECs have been detected |
| Values | Decimal (0..4294967295) |

Default 0

## COMPONENT Pbg Sts Vt1dot5 DS1 Chan TrunkConditioning (Tc)

Groups "GROUP Pbg Sts Vt1dot5 DS1 Chan Tc Provisioned (Prov)"
"GROUP Pbg Sts Vt1dot5 DS1 Chan Tc Operational (Op)"

Scope Device

Description *Lp/n Ds1/n Chan/n Tc*
*Lp/n E1/n Chan/n Tc*
*Lp/n Ds3/n Ds1/n Chan/n Tc*
*Lp/n Sdh/n Vc4/n Vc12/k,l,m E1 Chan/n Tc*
*Lp/n Sonet/n Sts/n Vt1dot5/l,m Ds1 Chan/n Tc*
*Laps/n* Vc4/n Vc12/k,l,m E1 Chan/n T*c*
*Laps/n* Sts/n Vt1dot5/l,m Ds1 Chan/n T*c*

The *Tc* component is used to provision and monitor trunk conditioning options. A separate instance of this component is required for each *Chan* on a Port which is offering a structured constant bit rate service.

Under certain failure alarm conditions, trunk conditioning *replacementData* is substituted into the *timeslots* as defined by the *Chan* component. Trunk conditioning signaling is also substituted into the appropriate Channel Associated Signaling (CAS) bits when a *lineType* that uses CAS has been defined.

When used with AAL1 Circuit Emulation Service, trunk conditioning is transmitted towards the ATM network under the following conditions:
lossOfSignal (LOS)
lossOfFrame (LOF)
remoteAlarmIndication (RAI)
alarmIndicationSignal (AIS)
bufferUnderflow (BU)
and in addition for E1:
lossOfMultiframe (LOMF)
receiveMultiframeRemoteAlarmIndication (RMRAI)

When used with AAL1 Circuit Emulation Service, trunk conditioning is transmitted towards the PDH network under the

following conditions:
bufferUnderflow (BU)
AAL1 protocol errors.

This component needs to be provisioned on 2pDs3cAal and 32pE1Aal FPs.

Common Verbs

Help
List
Display
Add
DELete

## GROUP Pbg Sts Vt1dot5 DS1 Chan Tc Provisioned (Prov)

Properties: Provisioned

Description: This group contains all specific provisioning data for a *Tc* component.

## ATTRIBUTE Pbg Sts Vt1dot5 DS1 Chan Tc replacementData (data)

Access: Read and write

Description: This attribute specifies the trunk conditioning data byte to be substituted into the *timeslots* defined by the *Chan* component under fault conditions.

The attribute *replacementData* can be set to any two digit hexadecimal number. The following are recommended values:
DS1 MUX Out Of Service Code = 0x1A
E1 MUX Out Of Service Code = 0xFF

On the ***4pDS3ChAal1*** card, the only allowed value for this attribute is ***0xFF***.

On the ***4pOC3ChSmIr*** and ***2pOC3ChSmIrVsp3*** cards, the default value for this attribute is ***0x1A*** for DS1 and ***0xFF*** for E1. On all other cards the default value is ***0xFF***.

Values: Hex (H.0..H.ff)

| | |
|---|---|
| Units | Hex |
| Default | No default |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Chan Tc signalOneDuration (duration)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time duration in seconds for which *signalOne* is substituted into the appropriate signaling bits, when a *lineType* that uses CAS has been defined. When *signalOneDuration* has expired *signalTwo* is substituted into the appropriate signaling bits.<br><br>If *signalOneDuration* is set to zero then only *signalTwo* is substituted into the appropriate signaling bits during error conditions.<br><br>The *signalOneDuration* attribute can be set to any integer value from 0 to 60 seconds. |
| Values | Decimal (0..60) |
| Units | seconds |
| Default | 0 |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Chan Tc noServiceResponse (resp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the Channel's egress response when it has no service provisioned, or the service provisioned is unavailable due to a near end failure. The following responses are available:<br><br>***autoConfigure*** - automatically configure the channels response.<br>***tc*** - transmit trunk conditioning on all timeslots provisioned in the egress direction.<br>***ais*** - transmit AIS in the egress direction.<br>***noResponse*** - no response is sent in the egress direction.<br><br>A value of ***autoConfigure*** will result in TC being transmitted for all card types. |

| | |
|---|---|
| Values | autoConfigure<br>tc<br>ais<br>noResponse |
| Default | autoConfigure |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Chan Tc signalOne (sigOne)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the value to be substituted into the ABCD signaling bits for the *timeslots* defined by the *Chan* component under fault conditions. The value will be substituted for the duration provisioned in *signalOneDuration* when a *lineType* that uses CAS has been defined.<br><br>For a *lineType* of ***d4Cas*** (Super Frame), signaling bits C and D are required to equal bits A and B respectively. |
| Vector of | Decimal (0..1) |
| Index | D<br>C<br>B<br>A |
| Default | (1, 1, 1, 1) |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Chan Tc signalTwo (sigTwo)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the value to be substituted into the ABCD signaling bits for the *timeslots* defined by the *Chan* component under fault conditions. The value will be substituted after the duration provisioned in *signalOneDuration* has expired and when a *lineType* that uses CAS has been defined.<br><br>For a *lineType* of ***d4Cas*** (Super Frame), signaling bits C and D are required to equal bits A and B respectively. |

| | |
|---|---|
| Vector of | Decimal (0..1) |
| Index | D<br>C<br>B<br>A |
| Default | (1, 1, 1, 1) |

### GROUP Pbg Sts Vt1dot5 DS1 Chan Tc Operational (Op)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all specific operational data for a *Tc* component. |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Chan Tc ingressConditioning (inCon)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the status of locally generated trunk conditioning towards the ATM network.<br><br>When trunk conditioning is being locally generated towards the ATM network, *ingressConditioning* is set to ***on.***<br><br>When trunk conditioning is not being locally generated towards the ATM network, *ingressConditioning* is set to ***off***.<br><br>Trunk conditioning is transmitted towards the ATM network under the following conditions:<br>lossOfSignal (LOS)<br>lossOfFrame (LOF)<br>remoteAlarmIndication (RAI)<br>alarmIndicationSignal (AIS)<br>bufferUnderflow (BU)<br>and in addition for E1:<br>lossOfMultiframe (LOMF)<br>receiveMultiframeRemoteAlarmIndication (RMRAI) |

| | |
|---|---|
| Values | off<br>on |
| Default | off |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Chan Tc egressConditioning (egCon)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the status of locally generated trunk conditioning towards the PDH line.<br><br>When trunk conditioning is being locally generated towards the PDH line, *egressConditioning* is set to ***on.***<br><br>When trunk conditioning is not being locally generated towards the PDH line, *egressConditioning* is set to ***off***.<br><br>Trunk conditioning is transmitted towards the PDH line under the following conditions:<br>bufferUnderflow (BU)<br>AAL1 protocol errors. |
| Values | off<br>on |
| Default | off |

### COMPONENT Pbg Sts Vt1dot5 DS1 Test (Test)

| | |
|---|---|
| Groups | "GROUP Pbg Sts Vt1dot5 DS1 Test OsiState (State)"<br>"GROUP Pbg Sts Vt1dot5 DS1 Test Setup (Setup)"<br>"GROUP Pbg Sts Vt1dot5 DS1 Test Results (Results)" |
| Scope | Application |
| Description | The *Test* component is configured to control a hardware facility test on a physical (*V35*, *X21*, *DS1*, *E1*, *DS3*, *E3* etc.) or a logical port. |
| Common Verbs | Help<br>List<br>Display |

### VERB START Pbg Sts Vt1dot5 DS1 Test

| | |
|---|---|
| Impact | Service |
| Description | This command invokes a test on the hardware component. Note that some test types requires the parent component (the hardware component) to be locked (using the *Lock* command) before a test can be started. |

### VERB STOP Pbg Sts Vt1dot5 DS1 Test

| | |
|---|---|
| Impact | Service |
| Description | This command stops a test running on the hardware component. |

### GROUP Pbg Sts Vt1dot5 DS1 Test OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Test adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is |

administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Test operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Test usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

| | |
|---|---|
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Pbg Sts Vt1dot5 DS1 Test Setup (Setup)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all of the operational data for a *Test* component. |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Test purpose (purpose)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute records the purpose of the test so that the test results can be associated and properly analyzed. |
| Values | String (0..40, ASCII) |
| Default | No default |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Test type (type)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the type of test to be run. The available test types include the following:<br>***card*** test sets up an internal loop on the board and runs a bit error rate test.<br>***manual*** test assumes the line is looped back externally and a bit error rate test is performed.<br>***localLoop*** test loops back the local modem and performs a bit error rate test.<br>***remoteLoop*** test loops back the remote modem (or CSU) and performs a bit error rate test.<br>***externalLoop*** test loops back the line to the far end.<br>***payloadLoop*** test only loops back the payload data received from the incoming line.<br>***remoteLoopThisTrib*** loops this particular tributary back at the far end, using services provided by the parent.<br>***v54RemoteLoop*** initiates a V.54 Remote Loopback test.<br>***pn127RemoteLoop*** initiates a PN127 Remote Loopback test.<br>***lineBIP8Error*** tests line BIP 8 error generation and detection |

(B2 byte inverted).
***sectionBIP8Error*** tests section BIP 8 error generation and detection (B1 byte inverted).
***pathBIP8Error*** tests path BIP 8 error generation and detection (B3 byte inverted).
***pathBIP2Error*** tests path BIP 2 error generation and detection (bit 1-2 of V5 byte inverted).
Note that not all test types are not supported by all function processors.

Values
card
manual
localLoop
remoteLoop
externalLoop
payloadLoop
remoteLoopThisTrib
v54RemoteLoop
pn127RemoteLoop
lineBIP8Error
sectionBIP8Error
pathBIP8Error
pathBIP2Error

Default
card

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Test frmSize (size)

Access
Read and write

Description
This attribute defines the size of the test data frames in number of bytes.
This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame.

Values
Decimal (4..4096)

Units
bytes

Default
1024

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Test frmPatternType (fpt)

Access
Read and write

| | |
|---|---|
| Description | This attribute defines the type of data pattern generation to use. The following lists the available pattern types:<br>***ccitt32kBitPattern*** is a pseudo-random sequence of 32 kbit.<br>***ccitt8MBitPattern*** is a pseudo-random sequence of 8Mbit.<br>***customizedPattern*** is the pattern defined in the ***customizedPattern*** attribute. |
| Values | ccitt32kBitPattern<br>ccitt8MBitPattern<br>customizedPattern |
| Default | ccitt32kBitPattern |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Test customizedPattern (cp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute allows a customized 32 bit pattern to be defined for use in the test data frames. This attribute is used when the attribute *frmPatternType* is set to ***CustomizedPattern***. Note that a 55 hex pattern is an alternating 1 and 0 pattern. |
| Values | Hex (H.0..H.ffffffff) |
| Units | Hex |
| Default | H.55555555 |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Test dataStartDelay (dsd)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time delay (in seconds) between when the test expects the loop to have been set up, to when the test data actually starts to be transmitted. This attribute is to accommodate some non-standard equipment that requires extra time for setting up a requested loop.<br>This attribute is ignored when the test *type* is set to ***externalLoop***. |
| Values | Decimal (0..1814400) |
| Units | seconds |
| Default | 0 |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Test displayInterval (di)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the interval (in minutes) between which interim test results are to be displayed. Results are displayed at the operator console at which the test was started. When the test *type* is set to ***externalLoop***, this attribute is ignored. There will be no display of results if *displayInterval* is set to 0. This attribute can be changed anytime. |
| Values | Decimal (0..30240) |
| Units | minutes |
| Default | 5 |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Test duration

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the duration for which the test data will be transmitted. In the case of an ***externalLoop***, this is the time that the loop is in effect. Note that *dataStartDelay* does not apply to the ***externalLoop*** test type. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 1.00 |

### GROUP Pbg Sts Vt1dot5 DS1 Test Results (Results)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all the statistics related attributes of the *Test* component. |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Test causeOfTermination

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates either the status of the test or the cause of the test's termination:<br><br>a value of ***neverStarted*** indicates that the test has not yet been started. |

a value of ***testRunning*** indicates that the test has been started.

a value of ***stoppedByOperator*** indicates that the operator issued a stop command on a test that was running.

a value of ***testTimeExpired*** indicates that the test ran for the time specified by the test's *duration*.

a value of ***loopCodeSyncFailed*** indicates that the local end failed to synchronize to the loopCode pattern. The local end transmits the loopCode pattern to cause the remote end to apply a loopback, after which the local end should receive the loopCode pattern. The exact pattern used to request loopCode depends on the test *type*. This failure indicates a high rate of transmission errors, or that the remote end has failed to apply the loopback.

a value of ***patternSyncFailed*** indicates that the local end failed to synchronize to the *frmPatternType* test pattern, that should have been looped back at the remote end. This failure indicates a high rate of transmission errors or the absence of a loopback.

a value of ***patternSyncLost*** indicates that the local end gained and then lost synchronization to the returned *frmPatternType* test pattern. This failure indicates a sudden increase in transmission errors, frame slippage, or the removal of an existing loopback.

a value of ***unknown*** is set when a reason to terminate other than those listed here is encountered.

Note: The *causeOfTermination* attribute values of ***loopCodeSyncFailed***, ***patternSyncFailed*** and ***patternSyncLost*** are supported only on MSA cards. *Test* components located on other cards or under an *Ima* component on an MSA card will never terminate the test under the conditions described by these values.

Values

testTimeExpired
stoppedByOperator
unknown

| | |
|---|---|
| | neverStarted<br>testRunning<br>hardwareReconfigured<br>loopCodeSyncFailed<br>patternSyncFailed<br>patternSyncLost |
| Default | neverStarted |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Test bitsTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bits sent during the test period. As long as the line speed of the hardware interface is less than 70 Mbit/s, this counter is not expected to reach the maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Test bytesTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes sent during the test period. This counter is not expected to reach its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Test frmTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames sent during the test period. This counter is not expected to reach its maximum value.<br><br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Test bitsRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bits received during the test period. The counter wraps to zero when it exceeds the maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Test bytesRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes received during the test period. The counter wraps to zero when it exceeds its maximum value. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Test frmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames received during the test period. The counter wraps to zero when it exceeds its maximum value.<br><br>This attribute is not applicable and is ignored for MSA32 cards because the test does not generate any frame. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Test erroredFrmRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute is not displayed for ATM and MSA32 cards. For ATM cards, the physical layer drops all errored frames at the controller interface. For MSA32 cards, the test does not generate any frame.<br><br>For all other card types, this attribute counts the errored frames received during the test period. The counter wraps to zero when it exceeds its maximum value. |

| | |
|---|---|
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Test bitErrorRate

| | |
|---|---|
| Access | Read only |
| Description | This attribute is not displayed for ATM cards because the physical layer drops all errored frames at the controller interface. For MSA32 cards, this attribute indicates the link bit error rate, regardless of the *frameSize*, which is not supported<br><br>For all other card types, this attribute is the calculated bit error rate on the link. Test data are generated and sent in frames of a preset size (*frameSize*). The *Test* component will try to estimate the number of bit errors in any errored frame which is identifiable. The statistics will be updated accordingly. A lost frame (may be due to an error on the flag sequence) will be discarded for the bit error rate calculation. The result is presented in the form of xEsyy, where x is the mantissa, syy is the exponent, for example 0E+00, 2E-09.<br>Note that the *bitErrorRate* is an estimate only. For more reliable test results, the test should be done over a long period. Multiple tests would also improve the confidence level of the test results. |
| Values | String (5, ASCII) |
| Default | No default |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Test elapsedTime

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the time elapsed since the test started for an ***externalLoop*** test. For a data test, it indicates time since test data was first transmitted. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 0.00 |

### ATTRIBUTE Pbg Sts Vt1dot5 DS1 Test timeRemaining

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the length of time remaining before the test stops according to the *duration* attribute. |
| Values | Decimal (0.00..30240.00) |
| Units | minutes |
| Default | 0.00 |

Passport 7400, 15000, 20000

# Component Pbg

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component PB

241-5701-060

Passport 7400, 15000, 20000

# Component PB

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT PseudoBridge (PB)

| | |
|---|---|
| Groups | "GROUP PB IfEntryProv (IfEntry)"<br>"GROUP PB MediaProv (Mp)"<br>"GROUP PB Operational (Oper)"<br>"GROUP PB OsiState (State)"<br>"GROUP PB OperationalStatus (OperStatus)" |
| Scope | Application |
| Description | *PseudoBridge*<br>The PseudoBridge component represents one PseudoBridge application. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP PB IfEntryProv (IfEntry)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the ifEntry. |

## ATTRIBUTE PB ifAdminStatus (ifState)

| | |
|---|---|
| Access | Read and write |
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is |

| | |
|---|---|
| | not operational. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE PB ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP PB MediaProv (Mp)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the base provisioning data for the media base component. |

### ATTRIBUTE PB linkToProtocolPort (pp)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the *ProtocolPort* to which this interface is linked to. The protocol port is the logical interface to the network. The protocol port component describes the logical characteristics of this interface. |
| Values | Link (Service, linkToMedia) |
| Default | No default |

## GROUP PB Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the operational attibutes which are specific to the PseudoBridge component. |

## ATTRIBUTE PB macAddress (addr)

| | |
|---|---|
| Access | Read only |
| Description | The medium access controller (MAC) address is an address that is only recognized by one station on the attached bus. This address is automatically assigned by the system. |
| Values | String (6, Hex) |
| Default | No default |

## GROUP PB OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

## ATTRIBUTE PB adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it |

is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE PB operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE PB usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

| | |
|---|---|
| | The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP PB OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

### ATTRIBUTE PB snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

Passport 7400, 15000, 20000

# Component PB

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component PcGtl

241-5701-060

Passport 7400, 15000, 20000

# Component PcGtl

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT PcGprsTransportLayer (PcGtl)

| | |
|---|---|
| Instance | Decimal (1..15) |
| Groups | "GROUP PcGtl Provisioned (Prov)" |
| Scope | Application |
| Description | *PcGprsTransportLayer/n*<br><br>This component represents the Transport Layer functionality of the Gb interface of the Packet Control Unit Support Node (PCUSN). |
| Opt. Subcomp. | "COMPONENT PcGtl NetworkServiceEntity (Nse)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP PcGtl Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attribute to specify the Logical Processor of *PcGprsTransportLayer (PcGtl)*. |

## ATTRIBUTE PcGtl linkToLogicalProcessor (lp)

| | |
|---|---|
| Access | Read: All<br>Write: All |

| | |
|---|---|
| Description | This attribute specifies the Logical Processor that the *PcGprsTransportLayer (PcGtl)* and its subcomponents are provisioned on. |
| Values | Link (Hardware, linkToApplications) |
| Default | No default |

## COMPONENT PcGtl NetworkServiceEntity (Nse)

| | |
|---|---|
| Instance | Decimal (0..65535) |
| Groups | "GROUP PcGtl Nse Provisioned (Prov)"<br>"GROUP PcGtl Nse Statistics (Stats)" |

"COLLECTED STATS PcGprsTransportLayer NetworkServiceEntity"

| | |
|---|---|
| Scope | Application |
| Description | *PcGtl/n NetworkServiceEntity/<nsei>*<br><br>This component represents a Network Service Entity (NSE). Each NSE is associated with a single Packet Control Unit (PCU) and is identified by means of a Network Service Entity Identifier (NSEI).<br>The same NSE can be provisioned in multiple *PcGtl* instances to enable load sharing. |
| Opt. Subcomp. | "COMPONENT PcGtl Nse NetworkServiceVirtualConnection (Nsvc)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP PcGtl Nse Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attribute to link the Network Service Entity (NSE) in the *PcGprsTransportLayer (PcGtl)* with the corresponding NSE provisioned in the |

*PacketControlUnitSupportNode (Pcusn).*

### ATTRIBUTE PcGtl Nse linkToMasterNse (lTonse)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the corresponding *Pcusn Nse* component which provides common parameters to all instances of this Network<br>Service Entity (NSE). |
| Values | Link (Service, linkToSlaveNse) |
| Default | No default |

### GROUP PcGtl Nse Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational information of the Network Service Entity (NSE). |

### ATTRIBUTE PcGtl Nse octetsToSgsn (octsTxSgsn)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the octets sent to the Serving GPRS Support Node (SGSN) by all the Network Service Virtual Connections (NS-VCs) served by that Network Service Entity (NSE). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE PcGtl Nse octetsFromSgsn (octsRxSgsn)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the octets received from the Serving GPRS Support Node's (SGSN) Network Service Virtual Connections |

(NS-VCs) served by the peer Network Service Entity (NSE). The counter wraps to zero when it exceeds the maximum value.

Values Decimal (0..4294967295)

Default No default

## COLLECTED STATS PcGprsTransportLayer NetworkServiceEntity

Description The statistics record generated by the PcGprsTransportLayer NetworkServiceEntity component.

### ATTRIBUTE PcGtl Nse octetsToSgsn (octsTxSgsn)

Description This attribute counts the octets sent to the Serving GPRS Support Node (SGSN) by all the Network Service Virtual Connections (NS-VCs) served by this Network Service Entity (NSE). This counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE PcGtl Nse octetsFromSgsn (octsRxSgsn)

Description This attribute counts the octets received from the Serving GPRS Support Node's (SGSN) Network Service Virtual Connections (NS-VCs) served by the peer Network Service Entity (NSE). This counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### COMPONENT PcGtl Nse NetworkServiceVirtualConnection (Nsvc)

Instance Decimal (0..65535)

Groups "GROUP PcGtl Nse Nsvc Provisioned (Prov)"
"GROUP PcGtl Nse Nsvc Operational (Oper)"
"GROUP PcGtl Nse Nsvc Statistics (Stats)"

## "COLLECTED STATS PcGprsTransportLayer NetworkServiceEntity NetworkServiceVirtualConnection"

Scope Application

Description *PcGtl/n Nse/<nsei> Nsvc/<nsvci>*

This component represents the Network Service Virtual Connection (NS-VC) functionality of the Network Service (NS) protocol layer. Each instance provides a virtual connection between the NS peer entities. An NS-VC is unique across all instances of this Network Service Entity Identifier (NSEI).

An NS-VC is associated with a single Frame Relay Data Link Connection Identifier (DLCI). The Frame Relay port and the NS-VC must be located on the same Logical Processor.

Dyn. Subcomp. "COMPONENT PcGtl Nse Nsvc AtmConnection (AtmCon)"

Common Verbs

Help
List
Display
Add
DELete

## GROUP PcGtl Nse Nsvc Provisioned (Prov)

Properties Provisioned

Description This group contains provisionable attributes to associate a Network Service Virtual Connection (NS-VC) with a Frame Relay Data Link Connection Identifier (DLCI). The FR interface is provided by the *FrAtm* component which must be provisioned on the same Logical Processor as this NS-VC.

## ATTRIBUTE PcGtl Nse Nsvc localFrAddress (frAddr)

Access Read: All
Write: All

Criticality Component

Description This attribute specifies the local Frame Relay address (native E.164, native x.121) to be used for this connection. This is the address defined at the peer *FrAtm/n Address* component. The peer *FrAtm* component must be provisioned on the same Logical Processor as this Network Service Virtual Connection (NS-VC).

| | |
|---|---|
| Values | String (1..17, NativeAddress) |
| Default | No default |

### ATTRIBUTE PcGtl Nse Nsvc localFrDlci (frDlci)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the local Frame Relay connection identifier. This identifier is a Frame Relay Data Link Connection Identifier (DLCI) logical channel number. There must be a matching DLCI value at the peer *FrAtm* component. The combination of FrAtm and DLCI value must be unique across all instances of NS-VC for this NSEI. |
| Values | Decimal (16..1007) |
| Default | No default |

### GROUP PcGtl Nse Nsvc Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains Network Service Virtual Connection (NS-VC) operational information. |

### ATTRIBUTE PcGtl Nse Nsvc state (st)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the current state of the Network Service Virtual Connection (NS-VC).<br>***idle -*** This is the initial state of the NS-VC upon activation.<br>***unBlocked -*** Indicates that this NS-VC is unblocked and is now available for traffic.<br>***localInitiatedBlocked -*** This state indicates that the NS-VC is blocked by a locally initiated Block Request. NS-UNITDATA Protocol Data Units (PDUs) received in this state are discarded.<br>***netInitiatedBlocked -*** This state indicates that this NS-VC has been blocked by the remote node. NS-UNITDATA PDUs received in this state are discarded. |

***dead*** **-** This state indicates that the NS-VC is unavailable. This can be because the Frame Relay (FR) link is dead or if an operator locks the Data Link Connection Identifier (DLCI).

Values
idle
unBlocked
localInitiatedBlocked
netInitiatedBlocked
dead

Default
No default

## GROUP PcGtl Nse Nsvc Statistics (Stats)

Properties
Operational

Description
This group contains the Network Service Virtual Connection (NS-VC) statistical information.

## ATTRIBUTE PcGtl Nse Nsvc blocksFromSgsn (blksRxSgsn)

Access
Read: All
Write: Illegal

Description
This attribute counts the NS-BLOCK requests received from the Serving GPRS Support Node (SGSN). The counter wraps to zero when it exceeds the maximum value.

Values
Decimal (0..4294967295)

Default
No default

## ATTRIBUTE PcGtl Nse Nsvc blocksToSgsn (blksTxSgsn)

Access
Read: All
Write: Illegal

Description
This attribute counts the NS-BLOCK Protocol Data Units (PDUs) encoded to be sent to the Serving GPRS Support Node (SGSN). The counter wraps to zero when it exceeds the maximum value.

Values
Decimal (0..4294967295)

Default
No default

### ATTRIBUTE PcGtl Nse Nsvc blockAcksFromSgsn (blkAcksRxSgsn)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the NS-BLOCK ACKs received from the Serving GPRS Support Node (SGSN). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE PcGtl Nse Nsvc blockAcksToSgsn (blkAcksTxSgsn)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the NS-BLOCK ACK Protocol Data Units (PDUs) encoded to be sent to the Serving GPRS Support Node (SGSN). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE PcGtl Nse Nsvc unblocksFromSgsn (unblksRxSgsn)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the NS-UNBLOCK requests received from the Serving GPRS Support Node (SGSN). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE PcGtl Nse Nsvc unblocksToSgsn (unblksTxSgsn)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the NS-UNBLOCK Protocol Data Units (PDUs) encoded to be sent to the Serving GPRS Support Node (SGSN). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE PcGtl Nse Nsvc unblockAcksFromSgsn (unblkAcksRxSgsn)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the NS-UNBLOCK ACKs received from the Serving GPRS Support Node (SGSN). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE PcGtl Nse Nsvc unblockAcksToSgsn (unblkAcksTxSgsn)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the NS-UNBLOCK ACK Protocol Data Units (PDUs) encoded to be sent to the Serving GPRS Support Node (SGSN). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE PcGtl Nse Nsvc unitDatasFromSgsn (unitDataRxSgsn)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the NS-UNITDATA Protocol Data Units (PDUs) received from the Serving GPRS Support Node (SGSN). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE PcGtl Nse Nsvc unitDatasToSgsn (unitDataTxSgsn)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the NS-UNITDATA Protocol Data Units (PDUs) encoded to be sent to the Serving GPRS Support Node (SGSN). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE PcGtl Nse Nsvc alivesFromSgsn (aliveRxSgsn)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the NS-ALIVE requests received from the Serving GPRS Support Node (SGSN). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE PcGtl Nse Nsvc alivesToSgsn (aliveTxSgsn)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the NS-ALIVE Protocol Data Units (PDUs) encoded to be sent to the Serving GPRS Support Node (SGSN). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE PcGtl Nse Nsvc aliveAcksFromSgsn (aliveAcksRxSgsn)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the NS-ALIVE ACKs received from the Serving GPRS Support Node (SGSN). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE PcGtl Nse Nsvc aliveAcksToSgsn (aliveAcksTxSgsn)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the NS-ALIVE ACK Protocol Data Units (PDUs) encoded to be sent to the Serving GPRS Support Node (SGSN). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE PcGtl Nse Nsvc resetsFromSgsn (rstsRxSgsn)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the NS-RESET requests received from the Serving GPRS Support Node (SGSN). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE PcGtl Nse Nsvc resetsToSgsn (rstsTxSgsn)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the NS-RESET Protocol Data Units (PDUs) encoded to be sent to the Serving GPRS Support Node (SGSN). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE PcGtl Nse Nsvc resetAcksFromSgsn (rstAcksRxSgsn)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the NS-RESET ACKs received from the Serving GPRS Support Node (SGSN). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE PcGtl Nse Nsvc resetAcksToSgsn (rstAcksTxSgsn)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the NS-RESET ACK Protocol Data Units (PDUs) encoded to be sent to the Serving GPRS Support Node (SGSN). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE PcGtl Nse Nsvc statusFromSgsn (statusRxSgsn)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the NS-STATUS PDUs received from the Serving GPRS Support Node (SGSN). The SGSN sends an NS-STATUS PDU when it receives an invalid packet or a packet that has undergone corruption over the Gb interface in the SGSN-PCU direction.<br>The counter to zero wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE PcGtl Nse Nsvc statusToSgsn (statusTxSgsn)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the NS-STATUS PDUs sent to the Serving GPRS Support Node (SGSN). The Packet Control Unit (PCU) sends an NS-STATUS PDU when it receives an invalid packet or a packet that has undergone corruption over the Gb interface in the PCU-SGSN direction.<br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE PcGtl Nse Nsvc statusIndications (statusInds)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the NS-STATUS Indications formatted by the Network Service (NS) for this Network Service Virtual Connection (NS-VC). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE PcGtl Nse Nsvc fecnBitSet (fecnBit)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the frames received from the network that contain the Forward Explicit Congestion Notification (FECN) bit set to 1. Setting of the FECN bit to 1 indicates that frames received from the network can experience congestion. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE PcGtl Nse Nsvc becnBitSet (becnBit)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the frames received from the network that contain the Backward Explicit Congestion Notification (BECN) bit set to 1. Setting of the BECN bit to 1 indicates that frames transmitted to the network may experience congestion. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE PcGtl Nse Nsvc octetsFromSgsn (octsRxSgsn)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the octets the Network Service Virtual Connection (NS-VC) has processed that were received from the Serving GPRS Support Node (SGSN). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE PcGtl Nse Nsvc octetsToSgsn (octsTxSgsn)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the octets the Network Service Virtual Connection (NS-VC) has processed that were received from the Serving GPRS Support Node (SGSN). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## COLLECTED STATS PcGprsTransportLayer NetworkServiceEntity NetworkServiceVirtualConnection

Description — The statistics record generated by the PcGprsTransportLayer NetworkServiceEntity NetworkServiceVirtualConnection component.

### ATTRIBUTE PcGtl Nse Nsvc unitDatasFromSgsn (unitDataRxSgsn)

Description — This attribute counts the NS-UNITDATA Protocol Data Units (PDUs) received from the Serving GPRS Support Node (SGSN) in the collection interval.

Values — Decimal (0..4294967295)

### ATTRIBUTE PcGtl Nse Nsvc unitDatasToSgsn (unitDataTxSgsn)

Description — This attribute counts the NS-UNITDATA Protocol Data Units (PDUs) encoded to be sent to the Serving GPRS Support Node (SGSN) in the collection interval.

Values — Decimal (0..4294967295)

### ATTRIBUTE PcGtl Nse Nsvc octetsFromSgsn (octsRxSgsn)

Description — This attribute counts the octets the Network Service Virtual Connection (NS-VC) has processed that were received from the Serving GPRS Support Node (SGSN) in the collection interval.

Values — Decimal (0..4294967295)

### ATTRIBUTE PcGtl Nse Nsvc octetsToSgsn (octsTxSgsn)

Description — This attribute counts the octets the Network Service Virtual Connection (NS-VC) has processed that were sent to the Serving GPRS Support Node (SGSN) in the collection interval.

Values — Decimal (0..4294967295)

### COMPONENT PcGtl Nse Nsvc AtmConnection (AtmCon)

Groups — "GROUP PcGtl Nse Nsvc AtmCon Operational (Oper)"

Scope — Device

| | |
|---|---|
| Description | An AtmConnection component is created for each ATM connection established by an application. It shows where the data traffic for this connection is directed. |
| Common Verbs | Help<br>List<br>Display |

## GROUP PcGtl Nse Nsvc AtmCon Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains the operational attributes for the *NapAtmConnection* component. |

## ATTRIBUTE PcGtl Nse Nsvc AtmCon nextHop

| | |
|---|---|
| Access | Read only |
| Description | This attribute shows the component name of the *AtmIf Vcc Ep* or *AtmCon* component to which this switched connection is established. |
| Values | The name of the component |
| Default | No default |

Passport 7400, 15000, 20000

# Component PcGtl

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component Pcusa

241-5701-060

Passport 7400, 15000, 20000

# Component Pcusa

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT PCUSupportApplication (Pcusa)

| | |
|---|---|
| Instance | Decimal (0..15999) |
| Groups | "GROUP Pcusa Provisioned (Prov)"<br>"GROUP Pcusa OsiState (State)" |
| Scope | Device |
| Description | *PCUSupportApplication/n*<br>This component represents all Packet Control Unit (PCU) for a single Packet Control Unit Services Processor (PCUSP) LP. As such, there is one *Pcusa* per PCUSP FP. Each *Pcusa* can have up to 12 *Connection* subcomponents. |
| Opt. Subcomp. | "COMPONENT Pcusa Connection (Conn)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Pcusa Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisioning data for the *Pcusa* component. |

### ATTRIBUTE Pcusa linkToServer (l2s)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies a hardware link to a *Pcusp* component on a Packet Control Unit Services Processor FP and defines the LP on which the service will run. |
| Values | Link (Hardware, linkToApplication) |
| Default | No default |

### GROUP Pcusa OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Pcusa adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is |

administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Pcusa operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Pcusa usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

| | |
|---|---|
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

## COMPONENT Pcusa Connection (Conn)

| | |
|---|---|
| Instance | Decimal (0..256) |
| Groups | "GROUP Pcusa Conn CustomerIdentifierData (CidData)"<br>"GROUP Pcusa Conn Provisioned (Prov)"<br>"GROUP Pcusa Conn OsiState (State)" |
| Scope | Device |
| Description | *Pcusa/n Connection/n*<br>This component represents a PCUSA connection which corresponds to a group of channels representing all the PCM links on one Base Station Controller (BSC). This component is linked to an *NSE* component, which provides transport to the Frame Relay network. The *Conn* instance value is the BSC identifier. Each *Conn* must have between 1 and 12 *PcmLink* subcomponents. |
| Opt. Subcomp. | "COMPONENT Pcusa Conn PcmLink (PcmLk)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## VERB RESET Pcusa Conn

| | |
|---|---|
| Impact | Service |
| Description | *Reset conn/n*<br>The *Reset* verb is used to reset CAS operational counters under a *Connection*. |

## GROUP Pcusa Conn CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |

| | |
|---|---|
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

### ATTRIBUTE Pcusa Conn customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.<br><br>Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.<br><br>An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to "basic CIDs" in DPN) may be assigned to specific customers. |
| Values | Decimal (0; 1..8191) |
| Default | 0 |

### GROUP Pcusa Conn Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisioning data for the *Connection*. |

### ATTRIBUTE Pcusa Conn linkToNse (l2nse)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies a link to an *NSE* component, which provides transport to the Frame Relay network. |

| | |
|---|---|
| Values | Link (Service, linkToPcuConn) |
| Default | No default |

### GROUP Pcusa Conn OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Pcusa Conn adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Pcusa Conn operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Pcusa Conn usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

## COMPONENT Pcusa Conn PcmLink (PcmLk)

| | |
|---|---|
| Instance | Decimal (0..167) |
| Groups | "GROUP Pcusa Conn PcmLk Provisioned (Prov)"<br>"GROUP Pcusa Conn PcmLk OsiState (State)"<br>"GROUP Pcusa Conn PcmLk Operational (Oper)"<br>"GROUP Pcusa Conn PcmLk RelayStatistics (RelStats)"<br>"GROUP Pcusa Conn PcmLk PcmLkPcu (PcuOper)" |

"COLLECTED STATS PCUSupportApplication Connection PcmLink"

| | |
|---|---|
| Scope | Device |
| Description | *Pcusa/n Conn/n PcmLink/n*<br>This component represents one PCM link and must be linked to a DS1 or E1 channel. |
| Subcomponents | "COMPONENT Pcusa Conn PcmLk LapdSignaling (LapdSig)" |
| Dyn. Subcomp. | "COMPONENT Pcusa Conn PcmLk Cell (Cell)"<br>"COMPONENT Pcusa Conn PcmLk BssgpVirtualConnection (Bvc)"<br>"COMPONENT Pcusa Conn PcmLk CgiCell (CgiCell)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Pcusa Conn PcmLk Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisioning data for the PCM link. |

## ATTRIBUTE Pcusa Conn PcmLk interfaceName (ifName)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies a service link to a *Chan* component located on the TDM card. |

| | |
|---|---|
| Values | Link (Service, applicationFramerName) |
| Default | No default |

### GROUP Pcusa Conn PcmLk OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Pcusa Conn PcmLk adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Pcusa Conn PcmLk operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Pcusa Conn PcmLk usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

## GROUP Pcusa Conn PcmLk Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains status information about the PCM link coming from PCUSA. |

## ATTRIBUTE Pcusa Conn PcmLk processingBlockNumber (pBNum)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the processing block which has been assigned to support this PCM link. |
| Values | The name of the component |
| Default | No default |

## ATTRIBUTE Pcusa Conn PcmLk failureCause (failCause)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the cause for the PCM link's failure.<br>The failure cause messages are:<br>***serviceChanNotReady*** - the TDM LP is down, or waiting for the *Chan* to establish communication.<br>***operatorLock*** - this failure message occurs when a dependent component is locked by the operator.<br>***internalError*** - an internal error, which cannot be determined has occurred.<br>***outOfResource*** - an SPM could not be allocated to handle the requested capacity.<br>***processingResourceNotReady*** - the allocated SPM is under reset or provisioning.<br>***none*** - no failure. |
| Values | none<br>serviceChanNotReady<br>operatorLock<br>internalError<br>outOfResource<br>processingResourceNotReady |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk pcuRole (role)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the role of the PCM link on the Gb interface.<br>***master*** - the PCM link manages the BVCI 0.<br>***slave*** - the PCM link does not manage the BVCI 0. |
| Values | master<br>slave |
| Default | No default |

### GROUP Pcusa Conn PcmLk RelayStatistics (RelStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistical data that pertains to information on the Frame Relay side. |

### ATTRIBUTE Pcusa Conn PcmLk pduDn (pduDn)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the BSSGP PDUs received from the SGSN by all the BVCs associated to this PCM link.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk pduUp (pduUp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the BSSGP PDUs transmitted to the SGSN by all the BVCs associated to this PCM link.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk octetsDn (octDn)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the octets received by all the BVCs associated to this PCM link.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk octetsUp (octUp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the octets sent by all the BVCs associated to this PCM link.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk bvcsBlocked (bvcB)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the BVCs that are currently in blocked state. |
| Values | Decimal (0..120) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk bvcsUnBlocked (bvcUB)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the BVCs that are currently in unblocked state. |
| Values | Decimal (0..120) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk totalBvcs (totbvc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the BVCs that currently exist within an NSE. |
| Values | Decimal (0..120) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk psPaging (psPag)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the BSSGP PAGING PS PDUs received from the SGSN by this PCM link.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk csPaging (csPag)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the BSSGP PAGING CS PDUs received from the SGSN by this PCM link.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk dyAgprsLackOfTimeslots (dyAgprsLTs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times that the PCU has not been able to satisfy the request sent by the most loaded cell that appears to have a lack of resource.<br><br>The counter wraps to zero when it exceeds its maximum value. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Pcusa Conn PcmLk PcmLkPcu (PcuOper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains status information about the PCM link coming from the PCU element. |

### ATTRIBUTE Pcusa Conn PcmLk agprsVersion (agprsVer)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the AGPRS interface version requested by the BSC. When the version number is incorrect, an alarm is to be raised. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk pcuProvisioningState (pcuProvState)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates if the PCU element has received the provisioning information.<br>***notReceived*** - one of the provisioning messages has not been received.<br>***received*** - all the provisioning messages have been received. |
| Values | notReceived<br>received |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk pcuConfiguration (pcuConfig)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates if the PCU element has received the configuration message from the BSC.<br>***pcuConfigMsgReceived*** - the pcuConfig message has been received. |

***pcuConfigMsgNotReceived*** - the pcuConfig message has not been received.

Values
notReceived
received

Default
No default

### ATTRIBUTE Pcusa Conn PcmLk pcuGbState (pcuGbState)

Access
Read only

Description
This attribute indicates the transmission capability on the Gb interface for the related NSE.
***down*** - the transmission capability is null (that is, none of the related NSVCs are unblocked).
***up*** - the transmission capability is not null (that is, at least one of the related NSVCs is unblocked).
***notReceived*** - the transmission capability on the Gb interface has not been received by the PcuElement application.

Values
down
up
notReceived

Default
No default

### ATTRIBUTE Pcusa Conn PcmLk pcuSigBvcState (pcuSigBvcState)

Access
Read only

Description
This attribute indicates the state of the signalization BVC on the Gb interface.
***down*** - the BSSGP BVCI 0 procedure has not been successfully performed.
***up*** - the BSSGP BVCI 0 procedure has been successfully performed.
***notReceived*** - the BSSGP BVCI 0 procedure status has not yet been received.

Values
down
up
notReceived

Default
No default

## COLLECTED STATS PCUSupportApplication Connection PcmLink

Description The statistics record generated by the PCUSupportApplication Connection PcmLink component.

### ATTRIBUTE Pcusa Conn PcmLk pduDn (pduDn)

Description This attribute counts the BSSGP PDUs received from the SGSN by all the BVCs associated to this PCM link during the statistics collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk pduUp (pduUp)

Description This attribute counts the BSSGP PDUs transmitted to the SGSN by all the BVCs associated to this PCM link during the statistics collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk octetsDn (octDn)

Description This attribute counts the octets received by all the BVCs associated to this PCM link during the statistics collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk octetsUp (octUp)

Description This attribute counts the octets sent by all the BVCs associated to this PCM link during the statistics collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk psPaging (psPag)

Description This attribute counts the BSSGP PAGING PS PDUs received from the SGSN by this PCM link during the statistics collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk csPaging (csPag)

Description: This attribute counts the BSSGP PAGING CS PDUs received from the SGSN by this PCM link during the statistics collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk dyAgprsLackOfTimeslots (dyAgprsLTs)

Description: This attribute counts the number of time that the PCU has not been able to satisfy the request sent by the most loaded cell on which appears a lack of resource during the statistics collection interval.

Values: Decimal (0..4294967295)

### COMPONENT Pcusa Conn PcmLk LapdSignaling (LapdSig)

Instance: Decimal (0..31)

Groups: "GROUP Pcusa Conn PcmLk LapdSig Operational (Oper)"
"GROUP Pcusa Conn PcmLk LapdSig Lev1ErrStatistics (L1ErrStats)"
"GROUP Pcusa Conn PcmLk LapdSig Lev2UpStatistics (L2ULStats)"
"GROUP Pcusa Conn PcmLk LapdSig Lev2DownStatistics (L2DLStats)"

#### "COLLECTED STATS PCUSupportApplication Connection PcmLink LapdSignaling"

Scope: Device

Description: *Pcusa/n Conn/n PcmLink/n LapdSignaling*
This component represents the LAPD signaling protocol on a PCM link.

Common Verbs:
Help
List
Display
Add
DELete

### GROUP Pcusa Conn PcmLk LapdSig Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains status information about the communication link. |

### ATTRIBUTE Pcusa Conn PcmLk LapdSig sigStatus (sigStus)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the status of the 3 LAPD SAPIs (GSL, RSL, OML) on the AGPRS interface.<br>***down*** - One of the three LAPD SAPIs is down.<br>***up*** - The three LAPD SAPIs are up. |
| Values | down<br>up |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk LapdSig omlStatus (omlStus)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the status of the OML LAPD SAPI on the AGPRS interface.<br>***down*** - OML LAPD SAPI is down.<br>***up*** - OML LAPD SAPI is up. |
| Values | down<br>up |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk LapdSig gslStatus (gslStus)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the status of the GSL LAPD SAPI on the AGPRS interface.<br>***down*** - GSL LAPD SAPI is down.<br>***up*** - GSL LAPD SAPI is up. |
| Values | down<br>up |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk LapdSig rslStatus (rslStus)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the status of the RSL LAPD SAPI on the AGPRS interface.<br>***down*** - RSL LAPD SAPI is down.<br>***up*** - RSL LAPD SAPI is up. |
| Values | down<br>up |
| Default | No default |

### GROUP Pcusa Conn PcmLk LapdSig Lev1ErrStatistics (L1ErrStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains level 1 error counts collected on LAPD signaling layer frames. |

### ATTRIBUTE Pcusa Conn PcmLk LapdSig framesLostOverflowUp (fLovfUp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the uplink frames lost due to data overrun or receive buffer overflow.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk LapdSig framesLostOverflowDn (fLovfDn)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the downlink frames which were not sent because of buffer overflow.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk LapdSig errorsCRC (errCRC)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames with CRC errors which were received.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk LapdSig framesLostAlignment (fLAlign)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames lost due to abort or lack of alignment.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Pcusa Conn PcmLk LapdSig Lev2UpStatistics (L2ULStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistical data collected on uplink frame types. |

### ATTRIBUTE Pcusa Conn PcmLk LapdSig iFramesUp (iFrmUp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the I frames received.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk LapdSig uiFramesUp (uiFrmUp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the unnumbered I frames received.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Pcusa Conn PcmLk LapdSig Lev2DownStatistics (L2DLStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistical data collected on downlink transmitted frame format. |

### ATTRIBUTE Pcusa Conn PcmLk LapdSig iFramesDn (iFrmDn)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the I frames transmitted.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk LapdSig uiFramesDn (uiFrmDn)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the unnumbered I frames transmitted.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |
| Default | COLLECTED STATS PCUSupportApplication Connection PcmLink LapdSignaling |
| Description | The statistics record generated by the PCUSupportApplication Connection PcmLink LapdSignaling component. |

### ATTRIBUTE Pcusa Conn PcmLk LapdSig framesLostOverflowUp (fLovfUp)

| | |
|---|---|
| Description | This attribute counts the uplink frames lost due to data overrun or receive buffer overflow during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk LapdSig framesLostOverflowDn (fLovfDn)

| | |
|---|---|
| Description | This attribute counts the downlink frames which were not sent because of buffer overflow during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk LapdSig errorsCRC (errCRC)

| | |
|---|---|
| Description | This attribute counts the frames with CRC errors which were received during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk LapdSig framesLostAlignment (fLAlign)

| | |
|---|---|
| Description | This attribute counts the frames lost due to abort or lack of alignment during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk LapdSig iFramesUp (iFrmUp)

| | |
|---|---|
| Description | This attribute counts the I frames received during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk LapdSig uiFramesUp (uiFrmUp)

| | |
|---|---|
| Description | This attribute counts the unnumbered I frames received during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk LapdSig iFramesDn (iFrmDn)

| | |
|---|---|
| Description | This attribute counts the I frames transmitted during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk LapdSig uiFramesDn (uiFrmDn)

Description: This attribute counts the unnumbered I frames transmitted during the statistics collection interval.

Values: Decimal (0..4294967295)

### COMPONENT Pcusa Conn PcmLk Cell (Cell)

Instance: Decimal (0..4294967295)

Groups:
"GROUP Pcusa Conn PcmLk Cell Operational (Oper)"
"GROUP Pcusa Conn PcmLk Cell CellIdentifierOperational (CellIdOper)"
"GROUP Pcusa Conn PcmLk Cell PdchAllocStatistics (AllocStats)"
"GROUP Pcusa Conn PcmLk Cell PdchFullDpxStatistics (FDpxStats)"
"GROUP Pcusa Conn PcmLk Cell PdchUplkStatistics (ULStats)"
"GROUP Pcusa Conn PcmLk Cell PdchDownlkStatistics (DLStats)"
"GROUP Pcusa Conn PcmLk Cell DynAgprsStatistics (DynAgprsStats)"
"GROUP Pcusa Conn PcmLk Cell QoSStatistics (QoSStats)"

#### "COLLECTED STATS PCUSupportApplication Connection PcmLink Cell"

Scope: Device

Description: *Pcusa/n Conn/n PcmLink/n Cell/n*
This dynamic component represents a GSM cell. There can be several *Cell*s per PCM. The *Cell*s are uniquely identified in the GSM system by a cellID value.

Dyn. Subcomp.:
"COMPONENT Pcusa Conn PcmLk Cell Tdma (Tdma)"
"COMPONENT Pcusa Conn PcmLk Cell Ccch (Ccch)"
"COMPONENT Pcusa Conn PcmLk Cell MobileStation (Ms)"

Common Verbs:
Help
List
Display

## GROUP Pcusa Conn PcmLk Cell Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains information about the cell. |

## ATTRIBUTE Pcusa Conn PcmLk Cell cellBVCI

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the corresponding BSSGP Virtual Channel Identifier corresponding to the cell. |
| Values | Decimal (0..65535) |
| Default | No default |

## ATTRIBUTE Pcusa Conn PcmLk Cell cellState (state)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the state of a GSM cell as specified by the BSC.<br>***unConfigured*** - The cell is not configured.<br>***configured*** - The message cell_config has been received from the BSC and acknowledged.<br>***availableOos*** - The message cell_available has been received from the BSC and acknowledged.<br>***inService*** - The message cell_gprs_open has been sent to the BTS, and the BTS has acknowledged the message.<br>***destroying*** - The cell object instance is being destroyed in the PCU element, and is waiting for completion of the BSSGP BVC blocking procedure. |
| Values | unConfigured<br>configured<br>availableOos<br>inService<br>destroying |
| Default | No default |

## GROUP Pcusa Conn PcmLk Cell CellIdentifierOperational (CellIdOper)

| | |
|---|---|
| Properties | Operational |

| | |
|---|---|
| Description | This group contains attributes used for cell‘s identification as defined in the GSM 08.18 Technical Specification. |

### ATTRIBUTE Pcusa Conn PcmLk Cell msCountryCode (mCC)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the mobile country code. |
| Values | Decimal (0..999) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell msNetworkCode (mNC)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the mobile network code. |
| Values | Decimal (0..999) |
| Default | No default |

### GROUP Pcusa Conn PcmLk Cell PdchAllocStatistics (AllocStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistical data. |

### ATTRIBUTE Pcusa Conn PcmLk Cell upMultiSlotRequests (upMSlotReq)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the multislot allocation requests received by the PCU from the mobile station.<br><br>Index 1 counts the number of 1-timeslot allocation requests.<br>Index 2 counts the number of 2-timeslot allocation requests.<br>Index 3 counts the number of 3-timeslot allocation requests.<br>Index 4 counts the number of 4- or more timeslot allocation requests.<br><br>The counters wrap to zero when they exceed their maximum value. |

| | |
|---|---|
| Vector of | Decimal (0..4294967295) |
| Index | Decimal (1..4) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell upMultiSlotAllocations (upMSlotAll)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the multislot granted allocations received by the PCU from the mobile station.<br><br>Index 1 counts the number of 1-timeslot granted allocations.<br>Index 2 counts the number of 2-timeslot granted allocations.<br>Index 3 counts the number of 3-timeslot granted allocations.<br>Index 4 counts the number of 4- or more timeslot granted allocations.<br><br>The counters wrap to zero when they exceed their maximum value. |
| Vector of | Decimal (0..4294967295) |
| Index | Decimal (1..4) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell dnMultiSlotRequests (dnMSlotReq)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the multislot allocation requests received by the mobile station from the PCU.<br><br>Index 1 counts the number of 1-timeslot allocation requests.<br>Index 2 counts the number of 2-timeslots allocation requests.<br>Index 3 counts the number of 3-timeslots allocation requests.<br>Index 4 counts the number of 4- or more timeslot allocation requests.<br><br>The counters wrap to zero when they exceed their maximum |

value.

| | |
|---|---|
| Vector of | Decimal (0..4294967295) |
| Index | Decimal (1..4) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell dnMultiSlotAllocations (dnMSlotAll)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the multislot granted allocations received by the mobile station from the PCU.<br><br>Index 1 counts the number of 1-timeslot granted allocations.<br>Index 2 counts the number of 2-timeslot granted allocations.<br>Index 3 counts the number of 3-timeslot granted allocations.<br>Index 4 counts the number of 4- or more timeslot granted allocations.<br><br>The counters wrap to zero when they exceed their maximum value. |
| Vector of | Decimal (0..4294967295) |
| Index | Decimal (1..4) |
| Default | No default |

### GROUP Pcusa Conn PcmLk Cell PdchFullDpxStatistics (FDpxStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistical data collected on Packet Data Channel (PDCH) full duplex parameters. |

### ATTRIBUTE Pcusa Conn PcmLk Cell fullDuplexTbfEstablishment (fdTbfEst)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts how many full duplex TBFs were established.<br><br>The counter wraps to zero when it exceeds its maximum value. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell currentFullDuplexTbfEstablishment (currFdTbfEst)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of full duplex TBFs currently established. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell pcuEdgeDowngradedTbf (EDgrdTbf)

| | |
|---|---|
| Access | Read only |
| Description | The attribute counts the EGPRS TBFs downgraded in GPRS. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell pcuEdgeTbfEstReq (ETbfEstReq)

| | |
|---|---|
| Access | Read only |
| Description | The attribute counts the EGPRS TBF establishment requests. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Pcusa Conn PcmLk Cell PdchUplkStatistics (ULStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistical data collected on PDCH uplink parameters. |

### ATTRIBUTE Pcusa Conn PcmLk Cell upTbfEstablishment (upTbfEst)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts how many uplink TBFs were established.<br><br>The counter wraps to zero when it exceeds its maximum value. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell currentUpTbfEstablishment (currUpTbfEst)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of uplink TBFs currently established. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell allocatedBlocksUpTbf (allBUpTbf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the blocks allocated for the uplink TBFs.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell currentAllocatedBlocksUpTbf (currAllBUpTbf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the blocks currently allocated for the uplink TBFs. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell nonAckUpTbfEstablishment (nAckUpTbfEst)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the non-acknowledged uplink TBFs established.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell currentNonAckUpTbfEstablishment (currNAckUpTbfEst)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current non-acknowledged uplink TBFs established. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell ackUpTbfEstablishment (ackUpTbfEst)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the acknowledged uplink TBFs established.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell currentAckUpTbfEstablishment (currAckUpTbfEst)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current acknowledged uplink TBFs established.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell upTbfReleases (upTbfRel)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts how many uplink TBFs were released. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell closeEndedUpTbfEstablishment (closeEndUpTbfEst)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the close-ended uplink TBFs established. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell pcuEdgeUpCumUsefulDataPerCell (EUpCumUseDt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the cumulated size, in octets, of all the RLC EDGE data blocks received for the first time on a pipe in verbose state. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell pcuEdgeUpUsefulDataDurationPerCell (EUpUseDtDur)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the cumulated time, in multiple of 20ms, where the pipes for UL EGPRS TBF are in verbose state. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Pcusa Conn PcmLk Cell PdchDownlkStatistics (DLStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistical data collected on PDCH downlink parameters. |

### ATTRIBUTE Pcusa Conn PcmLk Cell dnTbfEstablishment (dnTbfEst)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts how many downlink TBFs were established.<br><br>The counter wraps to zero when it exceeds its maximum value. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell currentDnTbfEstablishment (currDnTbfEst)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current downlink TBFs established. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell currentAllocatedBlocksDnTbf (currAllBDnTbf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the blocks currently allocated for the downlink TBFs. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell nonAckDnTbfEstablishment (nAckDnTbfEst)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the non-acknowledged downlink TBFs established.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell currentNonAckDnTbfEstablishment (currNAckDnTbfEst)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current non-acknowledged downlink TBFs established. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell ackDnTbfEstablishment (ackDnTbfEst)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the acknowledged downlink TBFs established.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell currentAckDnTbfEstablishment (currAckDnTbfEst)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current acknowledged downlink TBFs established. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell dnTbfReleases (dnTbfRel)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts how many downlink TBFs were released. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell pcuEdgeDnCumUsefulDataPerCell (EDnCumUseDt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the cumulated size, in octets, of all the RLC EDGE data blocks sent for the first time on a pipe in verbose state. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell pcuEdgeDnUsefulDataDurationPerCell (EDnUseDtDur)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the cumulated time, in multiple of 20ms, where the pipes for DL EGPRS TBF are in verbose state. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Pcusa Conn PcmLk Cell DynAgprsStatistics (DynAgprsStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistical data collected on dynamic AGPRS parameters. |

### ATTRIBUTE Pcusa Conn PcmLk Cell dyAgprsNbModif (dyAgprsNbMod)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of changes to allocated AGPRS timeslots in the cell. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell dyAgprsAvgNbTimeslots (dyAgprsAvgNbTs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the average number of allocated AGPRS timeslots in the cell. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell dyAgprsMinNbTimeslots (dyAgprsMinNbTs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the minimum number of allocated AGPRS timeslots in the cell. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell dyAgprsMaxNbTimeslots (dyAgprsMaxNbTs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the maximum number of allocated AGPRS timeslots in the cell. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell dyAgprsAvgLoadCriterion (dyAgprsAvgLdCrit)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the average AGPRS load criterion value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell dyAgprsMaxLoadCriterion (dyAgprsMaxLdCrit)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the maximum AGPRS load criterion value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell pcuEdgeDynAgprsJokerCumNbTimeslot (EDyAJkCumTs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the cumulative number of Agprs Joker timeslots allocated to the cell by the BSC. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell pcuEdgeDynAgprsJokerMinNbTimeslot (EDyAJkMinTs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the minimum number of Agprs Joker timeslots allocated to the cell by the BSC. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell pcuEdgeDynAgprsJokerMaxNbTimeslot (EDyAJkMaxTs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the maximum number of Agprs Joker timeslots allocated to the cell by the BSC. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell pcuEdgeAgprsJokerNbofBlocks (EAJkNbBlks)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of TRAU EDGE data blocks sent on the Agprs Joker channels in the DL direction. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell pcuEdgeAgprsMainNbofBlocks (EAMnNbBlks)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of TRAU EDGE data blocks sent on the Agprs Main channels in the DL direction. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Pcusa Conn PcmLk Cell QoSStatistics (QoSStats)

| | |
|---|---|
| Properties | Operational |

| | |
|---|---|
| Description | This group contains statistical data collected on downlink TBFs on which a QoS parameter is attributed. |

### ATTRIBUTE Pcusa Conn PcmLk Cell dnTbfGoldSatisfactMore90pCent (dnTbfGSatM90)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the downlink TBFs with golden QoS that have a satisfaction rate greater or equal to 90 per cent.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell dnTbfGoldSatisfactBet5090pCent (dnTbfGSatB5090)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the downlink TBFs with golden QoS that have a satisfaction rate between 50 to 90 per cent.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell dnTbfGoldSatisfactLess50pCent (dnTbfGSatL50)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the downlink TBFs with golden QoS that have a satisfaction rate lower than 50 per cent.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell dnTbfGoldRejectedForMinTput (dnTbfGRejMinTput)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the downlink TBFs with golden QoS rejected at the establishment due to non-allocation of corresponding minimum throughput.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell dnTbfSilverSatisfactMore90pCent (dnTbfSSatM90)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the downlink TBFs with silver QoS that have a satisfaction rate greater or equal to 90 per cent.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell dnTbfSilverSatisfactBet5090pCent (dnTbfSSatB5090)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the downlink TBFs with silver QoS that have a satisfaction rate between 50 to 90 per cent.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell dnTbfSilverSatisfactLess50pCent (dnTbfSSatL50)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the downlink TBFs with silver QoS that have a satisfaction rate lower than 50 per cent.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell dnTbfSilverRejectedForMinTput (dnTbfSRejMinTput)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the downlink TBFs with silver QoS rejected at the establishment due to non-allocation of corresponding minimum throughput.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell dnTbfBronzeSatisfactMore90pCent (dnTbfBSatM90)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the downlink TBFs with bronze QoS that have a satisfaction rate greater or equal to 90 per cent.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell dnTbfBronzeSatisfactBet5090pCent (dnTbfBSatB5090)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the downlink TBFs with bronze QoS that have a satisfaction rate between 50 to 90 per cent.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell dnTbfBronzeSatisfactLess50pCent (dnTbfBSatL50)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the downlink TBFs with bronze QoS that have a satisfaction rate lower than 50 per cent.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell dnTbfBronzeRejectedForMinTput (dnTbfBRejMinTput)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the downlink TBFs with bronze QoS rejected at the establishment due to non-allocation of corresponding minimum throughput.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |
| Default | COLLECTED STATS PCUSupportApplication Connection PcmLink Cell |
| Description | The statistics record generated by the PCUSupportApplication Connection PcmLink Cell component. |

### ATTRIBUTE Pcusa Conn PcmLk Cell cellBVCI

| | |
|---|---|
| Description | This attribute indicates the corresponding BSSGP Virtual Channel Identifier during the statistics collection interval. |
| Values | Decimal (0..65535) |

### ATTRIBUTE Pcusa Conn PcmLk Cell upMultiSlotRequests (upMSlotReq)

| | |
|---|---|
| Description | This attribute counts the multislot allocation requests received by the PCU from the mobile station during the statistics collection interval.<br><br>Index 1 counts the number of 1- timeslot allocation requests.<br>Index 2 counts the number of 2- timeslot allocation requests.<br>Index 3 counts the number of 3- timeslot allocation requests. |

| | |
|---|---|
| | Index 4 counts the number of 4- or more timeslot allocation requests. |
| Vector of | Decimal (0..4294967295) |
| Index | Decimal (1..4) |

### ATTRIBUTE Pcusa Conn PcmLk Cell upMultiSlotAllocations (upMSlotAll)

| | |
|---|---|
| Description | This attribute counts the multislot granted allocations received by the PCU from the mobile station during the statistics collection interval.<br><br>Index 1 counts the number of 1- timeslot granted allocations.<br>Index 2 counts the number of 2- timeslot granted allocations.<br>Index 3 counts the number of 3- timeslot granted allocations.<br>Index 4 counts the number of 4- or more timeslot granted allocations. |
| Vector of | Decimal (0..4294967295) |
| Index | Decimal (1..4) |

### ATTRIBUTE Pcusa Conn PcmLk Cell dnMultiSlotRequests (dnMSlotReq)

| | |
|---|---|
| Description | This attribute counts the multislot allocation requests received by the mobile station from the PCU during the statistics collection interval.<br><br>Index 1 counts the number of 1- timeslot allocation requests.<br>Index 2 counts the number of 2- timeslot allocation requests.<br>Index 3 counts the number of 3- timeslot allocation requests.<br>Index 4 counts the number of 4- or more timeslot allocation requests. |
| Vector of | Decimal (0..4294967295) |
| Index | Decimal (1..4) |

### ATTRIBUTE Pcusa Conn PcmLk Cell dnMultiSlotAllocations (dnMSlotAll)

| | |
|---|---|
| Description | This attribute counts the multislot granted allocations received by the mobile station from the PCU during the statistics collection interval. |

| | |
|---|---|
| | Index 1 counts the number of 1- timeslot granted allocations.<br>Index 2 counts the number of 2- timeslot granted allocations.<br>Index 3 counts the number of 3- timeslot granted allocations.<br>Index 4 counts the number of 4- or more timeslot granted allocations. |
| Vector of | Decimal (0..4294967295) |
| Index | Decimal (1..4) |

### ATTRIBUTE Pcusa Conn PcmLk Cell fullDuplexTbfEstablishment (fdTbfEst)

| | |
|---|---|
| Description | This attribute counts how many full duplex TBFs were established during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk Cell upTbfReleases (upTbfRel)

| | |
|---|---|
| Description | This attribute counts how many uplink TBFs were released during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk Cell cumulativeTimeUpTbf (cumTimeUpTbf)

| | |
|---|---|
| Description | This attribute indicates the cumulative duration of all uplink TBFs released during the statistics collection interval. |
| Values | Decimal (0..4294967295) |
| Units | seconds |

### ATTRIBUTE Pcusa Conn PcmLk Cell allocatedBlocksUpTbf (allBUpTbf)

| | |
|---|---|
| Description | This attribute counts the blocks allocated for the uplink TBFs during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk Cell nonAckUpTbfEstablishment (nAckUpTbfEst)

| | |
|---|---|
| Description | This attribute counts the non-acknowledged uplink TBFs established during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk Cell ackUpTbfEstablishment (ackUpTbfEst)

| | |
|---|---|
| Description | This attribute counts the acknowledged uplink TBFs established during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk Cell closeEndedUpTbfEstablishment (closeEndUpTbfEst)

| | |
|---|---|
| Description | This attribute counts the close-ended uplink TBFs established during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk Cell dnTbfReleases (dnTbfRel)

| | |
|---|---|
| Description | This attribute counts how many downlink TBFs were released during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk Cell cumulativeTimeDnTbf (cumTimeDnTbf)

| | |
|---|---|
| Description | This attribute indicates the cumulative duration of all downlink TBFs released during the statistics collection interval. |
| Values | Decimal (0..4294967295) |
| Units | seconds |

### ATTRIBUTE Pcusa Conn PcmLk Cell nonAckDnTbfEstablishment (nAckDnTbfEst)

| | |
|---|---|
| Description | This attribute counts the non-acknowledged downlink TBFs established during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk Cell ackDnTbfEstablishment (ackDnTbfEst)

| | |
|---|---|
| Description | This attribute counts the acknowledged downlink TBFs established during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk Cell dyAgprsNbModif (dyAgprsNbMod)

| | |
|---|---|
| Description | This attribute counts the modifications of Agprs timeslots allocated in the cell during the statistics collection interval. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk Cell dyAgprsAvgNbTimeslots (dyAgprsAvgNbTs)

| | |
|---|---|
| Description | This attribute indicates the average number of Agprs timeslots allocated in the cell during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk Cell dyAgprsMinNbTimeslots (dyAgprsMinNbTs)

| | |
|---|---|
| Description | This attribute indicates the minimum number of Agprs timeslots allocated in the cell during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk Cell dyAgprsMaxNbTimeslots (dyAgprsMaxNbTs)

| | |
|---|---|
| Description | This attribute indicates the maximum number of Agprs timeslots allocated in the cell during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk Cell dyAgprsAvgLoadCriterion (dyAgprsAvgLdCrit)

| | |
|---|---|
| Description | This attribute indicates the average Agprs load criterion value during the statistics collection interval. |
| Values | Decimal (0..100) |
| Units | % |

### ATTRIBUTE Pcusa Conn PcmLk Cell dyAgprsMaxLoadCriterion (dyAgprsMaxLdCrit)

| | |
|---|---|
| Description | This attribute indicates the maximum Agprs load criterion value during the statistics collection interval. |
| Values | Decimal (0..100) |
| Units | % |

### ATTRIBUTE Pcusa Conn PcmLk Cell dnTbfGoldSatisfactMore90pCent (dnTbfGSatM90)

| | |
|---|---|
| Description | This attribute counts the downlink TBFs with gold QOS that have a satisfaction rate greater or equal to 90 per cent during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk Cell dnTbfGoldSatisfactBet5090pCent (dnTbfGSatB5090)

Description This attribute counts the downlink TBFs with gold QOS that have a satisfaction rate between 50 to 90 per cent during the statistics collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk Cell dnTbfGoldSatisfactLess50pCent (dnTbfGSatL50)

Description This attribute counts the downlink TBFs with gold QOS that have a satisfaction rate lower than 50 per cent during the statistics collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk Cell dnTbfGoldRejectedForMinTput (dnTbfGRejMinTput)

Description This attribute counts the downlink TBFs with gold QOS rejected at the establishment due to non allocation of corresponding minimum throughput during the statistics collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk Cell dnTbfSilverSatisfactMore90pCent (dnTbfSSatM90)

Description This attribute counts the downlink TBFs with silver QOS that have a satisfaction rate greater or equal to 90 per cent during the statistics collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk Cell dnTbfSilverSatisfactBet5090pCent (dnTbfSSatB5090)

Description This attribute counts the downlink TBFs with silver QOS that have a satisfaction rate between 50 to 90 per cent during the statistics collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk Cell dnTbfSilverSatisfactLess50pCent (dnTbfSSatL50)

Description This attribute counts the downlink TBFs with silver QOS that have a satisfaction rate lower than 50 per cent during the statistics collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk Cell dnTbfSilverRejectedForMinTput (dnTbfSRejMinTput)

| | |
|---|---|
| Description | This attribute counts the downlink TBFs with silver QOS rejected at the establishment due to non allocation of corresponding minimum throughput during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk Cell dnTbfBronzeSatisfactMore90pCent (dnTbfBSatM90)

| | |
|---|---|
| Description | This attribute counts the downlink TBFs with bronze QOS that have a satisfaction rate greater or equal to 90 per cent during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk Cell dnTbfBronzeSatisfactBet5090pCent (dnTbfBSatB5090)

| | |
|---|---|
| Description | This attribute counts the downlink TBFs with bronze QOS that have a satisfaction rate between 50 to 90 per cent during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk Cell dnTbfBronzeSatisfactLess50pCent (dnTbfBSatL50)

| | |
|---|---|
| Description | This attribute counts the downlink TBFs with bronze QOS that have a satisfaction rate lower than 50 per cent during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk Cell dnTbfBronzeRejectedForMinTput (dnTbfBRejMinTput)

| | |
|---|---|
| Description | This attribute counts the downlink TBFs with bronze QOS rejected at the establishment due to non allocation of corresponding minimum throughput during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### COMPONENT Pcusa Conn PcmLk Cell Tdma (Tdma)

| | |
|---|---|
| Instance | Decimal (0..15) |

| | |
|---|---|
| Groups | "GROUP Pcusa Conn PcmLk Cell Tdma Operational (Oper)"<br>"GROUP Pcusa Conn PcmLk Cell Tdma Statistics (Stats)"<br>"GROUP Pcusa Conn PcmLk Cell Tdma UplkStatistics (ULStats)"<br>"GROUP Pcusa Conn PcmLk Cell Tdma DownlkStatistics (DLStats)"<br>"GROUP Pcusa Conn PcmLk Cell Tdma PdchAllocationStatistics (PdchAllocStats)"<br>"GROUP Pcusa Conn PcmLk Cell Tdma ReleaseStatistics (RelStats)" |

### "COLLECTED STATS PCUSupportApplication Connection PcmLink Cell Tdma"

| | |
|---|---|
| Scope | Device |
| Description | *Pcusa/n Conn/n PcmLink/n Cell/n Tdma/n*<br>This component represents a TDMA. There can be several TDMA per *Cell*. |
| Dyn. Subcomp. | "COMPONENT Pcusa Conn PcmLk Cell Tdma Timeslot (Ts)"<br>"COMPONENT Pcusa Conn PcmLk Cell Tdma JokerTimeslot (JokerTs)" |
| Common Verbs | Help<br>List<br>Display |

## GROUP Pcusa Conn PcmLk Cell Tdma Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains attributes describing the time division multiple access. |

## ATTRIBUTE Pcusa Conn PcmLk Cell Tdma tdmaState (state)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the state of a TDMA relative to the BSC. |
| Values | unconfigured<br>configured<br>available |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma pcuTdmaEdgeCapacity (edgeCap)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the EDGE capacity of a TDMA. |
| Values | noEdge<br>upToMCS4DlFullEdgeUl<br>fullEdge<br>upToMCS4DlUl |
| Default | No default |

### GROUP Pcusa Conn PcmLk Cell Tdma Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistical data. |

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma localBusy (locBus)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the blocks sent with the window stalled indicator set.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma remoteBusy (remBus)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the blocks received with the window stalled indicator set.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Pcusa Conn PcmLk Cell Tdma UplkStatistics (ULStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistical data collected by counters in uplink transmission mode. |

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma llcPacketsUp (llcPktUp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the LLC packets reassembled and transmitted to the LLC relay.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma dataBlocksUp (dataBUp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the uplink RLC data blocks received.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma controlBlocksUp (ctrlBUp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the uplink RLC control blocks received.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma invalidBlocksUp (invalidBUp)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the uplink invalid radio blocks received.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma invalidProtocolErrorBlocksUp (invalidProtErrBUp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the uplink invalid radio blocks received with invalid RLC protocol.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma outOfSequenceBlocksUp (outOfSeqBUp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the data blocks received uplink with Block Sequence Number outside the received window.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma packetAckNackUp (pktANUp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the PACKET-UPLINK-ACK-NACK messages received.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma totalRetransmissionRequested (totRtxReq)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the RLC/MAC block retransmission requests.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma pcuEdgeDataBlocksUp (EDtBlkUp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the cumulative number of EGPRS RLC data blocks received by the PCU on this TDMA.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma pcuEdgeUpCumMeanBep (EUpCumMnBep)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the cumulated value of the assumed BEP received by the PCU in each EGPRS RLC data block on this TDMA.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma pcuEdgeUpNbsMeanBep (EUpNbMnBep)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the MEAN_BEP values received by the PCU in each EGPRS RLC data block on this TDMA.<br><br>The counter wraps to zero when it exceeds its maximum value. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Pcusa Conn PcmLk Cell Tdma DownlkStatistics (DLStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistical data collected by counters in downlink transmission mode. |

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma llcPacketsDn (llcPktDn)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the LLC packets segmented into RLC data blocks received.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma dataBlocksDn (dataBDn)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the downlink RLC data blocks transmitted.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma controlBlocksDn (ctrlBDn)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the downlink RLC control blocks transmitted.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma retransmittedDataBlocksDn (rtxDataBDn)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the data blocks retransmitted downlink.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma packetAckNackDn (pktANDn)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the PACKET-DOWNLINK-ACK-NACK messages transmitted.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma pcuEdgeDataBlocksDn (EDtBlkDn)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the cumulative number of EGPRS RLC data blocks sent by the PCU on this TDMA.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma pcuEdgeDnCum8PskMeanBep (EDnCum8PMnB)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the cumulative value of the 8PSK_BEP derived from the 8PSK_MEAN_BEP received from a MS in this TDMA in the EGPRS BEP Link Quality Measurements (8PSK_MEAN_BEP).<br><br>The counter wraps to zero when it exceeds its maximum value. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma pcuEdgeDnNbs8PskMeanBep (EDnNb8PMnB)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the 8PSK_MEAN_BEP values received from a MS in this TDMA in the EGPRS BEP Link Quality Measurements (8PSK_MEAN_BEP).<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma pcuEdgeDnCumGmskMeanBep (EDnCumGMnB)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the cumulative value of the GMSK_BEP derived from the GMSK_MEAN_BEP received from a MS in this TDMA in the EGPRS BEP Link Quality Measurements (GMSK_MEAN_BEP).<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma pcuEdgeDnNbsGmskMeanBep (EDnNbGMnB)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the GMSK_MEAN_BEP values received from a MS in this TDMA in the EGPRS BEP Link Quality Measurements (GMSK_MEAN_BEP).<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Pcusa Conn PcmLk Cell Tdma PdchAllocationStatistics (PdchAllocStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistical data. |

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma configuredTimeslots (cfgTs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of configured timeslots. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma unavailableTimeslots (unavailTs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the unavailable timeslots as signalled by the BSC. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma upActiveTimeslots (upActTs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current number of active uplink timeslots bearing at least one TBF. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma dnActiveTimeslots (dnActTs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current number of active downlink timeslots bearing at least one TBF. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Pcusa Conn PcmLk Cell Tdma ReleaseStatistics (RelStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistical data collected by release counters. |

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma tbfNormalReleaseUp (tbfNormRelUp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the uplink TBFs that terminated normally.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma tbfNormalReleaseDn (tbfNormRelDn)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the downlink TBFs that terminated normally.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma noPacketResourceReq (noPktResReq)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the TBFs abnormally released due to non-receipt of Packet Resource Request.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma lossOfComNN002Max (lOCNN002Max)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the TBFs abnormally released due to V(Q) non-progression.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma lossOfComT3169 (lOCT3169)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the TBFs abnormally released due to T3169 timer expiry.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma lossOfComNT0001 (lOCNT0001)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the TBFs abnormally released due to NT0001 timer expiry.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma lossOfComT3195 (lOCT3195)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the TBFs abnormally released due to T3195 timer expiry.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma lossOfComT3191 (lOCT3191)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the TBFs abnormally released due to T3191 timer expiry.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |
| Default | COLLECTED STATS PCUSupportApplication Connection PcmLink Cell Tdma |
| Description | The statistics record generated by the PCUSupportApplication Connection PcmLink Cell Tdma component. |

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma localBusy (locBus)

| | |
|---|---|
| Description | This attribute counts the blocks sent with the window stalled indicator set during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma remoteBusy (remBus)

| | |
|---|---|
| Description | This attribute counts the blocks received with the window stalled indicator set during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma configuredTimeslots (cfgTs)

| | |
|---|---|
| Description | This attribute indicates the number of configured timeslots at the end of the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma cumulativeUnavailableTimeslots (cumUnavailTs)

| | |
|---|---|
| Description | This attribute indicates the cumulative number of unavailable timeslots at the sample time during the statistics collection interval.<br><br>The average can be calculated by dividing this attribute value by the *nbSamples* value. |

Values Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma cumulativeUpActiveTimeslots (cumUpActTs)

Description This attribute indicates the cumulative number of active uplink timeslots bearing at least one TBF at the sample time during the statistics collection interval.

The average can be calculated by dividing this attribute value by the *nbSamples* value.

Values Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma cumulativeUpTbfPerTimeslots (cumUpTbfPerTs)

Description This attribute indicates the cumulative number of uplink TBFs per timeslots for all the timeslots in the TDMA at the sample time during the statistics collection interval.

The average can be calculated by dividing this attribute value by the *nbSamples* value.

Values Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma cumulativeDnActiveTimeslots (cumDnActTs)

Description This attribute indicates the cumulative number of active downlink timeslots bearing at least one TBF at the sample time during the statistics collection interval.

The average can be calculated by dividing this attribute value by the *nbSamples* value.

Values Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma cumulativeDnTbfPerTimeslots (cumDnTbfPerTs)

Description This attribute indicates the cumulative number of downlink TBFs per timeslots for all the timeslots in the TDMA at the sample time during the statistics collection interval.

The average can be calculated by dividing this attribute value by the *nbSamples* value.

Values Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma nbSamples (nbS)

Description: This attribute indicates how many samples were taken during the statistics collection interval.

This value can be used with the cumulative attribute for average calculs.

Values: Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma llcPacketsUp (llcPktUp)

Description: This attribute counts the LLC packets reassembled and transmitted to the LLC relay during the statistics collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma dataBlocksUp (dataBUp)

Description: This attribute counts the uplink RLC data blocks received during the statistics collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma controlBlocksUp (ctrlBUp)

Description: This attribute counts the uplink RLC control blocks received during the statistics collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma invalidBlocksUp (invalidBUp)

Description: This attribute counts the uplink invalid radio blocks received during the statistics collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma invalidProtocolErrorBlocksUp (invalidProtErrBUp)

Description: This attribute counts the uplink invalid radio blocks received with invalid RLC protocol during the statistics collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma outOfSequenceBlocksUp (outOfSeqBUp)

Description This attribute counts the data blocks received uplink with Block Sequence Number outside the received window during the statistics collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma packetAckNackUp (pktANUp)

Description This attribute counts the PACKET-UPLINK-ACK-NACK messages received during the statistics collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma totalRetransmissionRequested (totRtxReq)

Description This attribute counts the RLC/MAC block retransmission requests during the statistics collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma cumulativeUpRxQual (cumUpRxQual)

Description This attribute indicates the cumulative uplink RxQual value during the statistics collection interval.

The average can be calculated by dividing this attribute value by the *nbSamples* value.

Values Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma cumulativeUpRxLev (cumUpRxLev)

Description This attribute indicates the cumulative uplink RxLev value during the statistics collection interval.

The average can be calculated by dividing this attribute value by the *nbSamples* value.

Values Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma nbSamplesUpQuality (nbSamplesUpQuality)

Description This attribute counts the samples for RxQual and RxLev cumulative values during the statistics collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma llcPacketsDn (llcPktDn)

Description This attribute counts the LLC packets segmented into RLC data blocks received during the statistics collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma dataBlocksDn (dataBDn)

Description This attribute counts the downlink RLC data blocks transmitted during the statistics collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma controlBlocksDn (ctrlBDn)

Description This attribute counts the downlink RLC control blocks transmitted during the statistics collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma retransmittedDataBlocksDn (rtxDataBDn)

Description This attribute counts the data blocks retransmitted downlink during the statistics collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma packetAckNackDn (pktANDn)

Description This attribute counts the PACKET-DOWNLINK-ACK-NACK messages transmitted during the statistics collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma cumulativeDnRxQual (cumDnRxQual)

Description This attribute indicates the cumulative downlink RxQual value during the statistics collection interval.

The average can be calculated by dividing this attribute value by the *nbSamples* value.

Values Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma nbSamplesDnQuality (nbSamplesDnQuality)

Description This attribute counts the samples for RxQual cumulative values during the statistics collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma tbfNormalReleaseUp (tbfNormRelUp)

Description This attribute counts the uplink TBFs which terminated normally during the statistics collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma tbfNormalReleaseDn (tbfNormRelDn)

Description This attribute counts the downlink TBFs which terminated normally during the statistics collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma noPacketResourceReq (noPktResReq)

Description This attribute counts the TBFs abnormally released due to non receipt of Packet Resource Request during the statistics collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma lossOfComNN002Max (lOCNN002Max)

Description This attribute counts the TBFs abnormally released due to V(Q) non progression during the statistics collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma lossOfComT3169 (lOCT3169)

Description This attribute counts the TBFs abnormally released due to timer T3169 expiry during the statistics collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma lossOfComNT0001 (lOCNT0001)

Description This attribute counts the TBFs abnormally released due to NT0001 timer expiry during the statistics collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma lossOfComT3195 (lOCT3195)

Description This attribute counts the TBFs abnormally released due to T3195 timer expiry during the statistics collection interval.

| | |
|---|---|
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma lossOfComT3191 (lOCT3191)

| | |
|---|---|
| Description | This attribute counts the TBFs abnormally released due to T3191 timer expiry during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### COMPONENT Pcusa Conn PcmLk Cell Tdma Timeslot (Ts)

| | |
|---|---|
| Instance | Decimal (0..7) |
| Groups | "GROUP Pcusa Conn PcmLk Cell Tdma Ts Operational (Oper)" |
| Scope | Device |
| Description | *Pcusa/n Conn/n PcmLink/n Cell/n Tdma/n Ts/n*<br>This dynamic component represents a GPRS timeslot in a TDMA. This element is used to obtain configuration information. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Pcusa Conn PcmLk Cell Tdma Ts Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all attributes describing radio parts of the network. |

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma Ts tsNumber (tsNum)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the 16 kbit/s timeslot in the DS0 channel. |
| Values | Decimal (0..3) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma Ts tsState (state)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the state of a *Timeslot*. |

| | |
|---|---|
| Values | unsynchronized<br>synchronized |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma Ts ds0Channel (ds0Ch)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the DS0 channel number carrying this TDMA timeslot in the AGPRS PCM. |
| Values | Decimal (0..30) |
| Default | No default |

### COMPONENT Pcusa Conn PcmLk Cell Tdma JokerTimeslot (JokerTs)

| | |
|---|---|
| Instance | Decimal (0..23) |
| Groups | "GROUP Pcusa Conn PcmLk Cell Tdma JokerTs Operational (Oper)" |
| Scope | Device |
| Description | *Pcusa/n Conn/n PcmLink/n Cell/n Tdma/n* Joker*Ts/n*<br>This dynamic component represents a GPRS EDGE joker timeslot in a TDMA. This element is used to obtain configuration information. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Pcusa Conn PcmLk Cell Tdma JokerTs Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all attributes describing radio parts of the network. |

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma JokerTs tsNumber (tsNum)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the 16 kbit/s timeslot in the DS0 channel. |

| | |
|---|---|
| Values | Decimal (0..3) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma JokerTs tsState (state)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the state of a *Timeslot*. |
| Values | unsynchronized<br>synchronized |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell Tdma JokerTs ds0Channel (ds0Ch)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the DS0 channel number carrying this TDMA timeslot in the AGPRS PCM. |
| Values | Decimal (0..30) |
| Default | No default |

### COMPONENT Pcusa Conn PcmLk Cell Ccch (Ccch)

| | |
|---|---|
| Groups | "GROUP Pcusa Conn PcmLk Cell Ccch UplkStatistics (ULStats)"<br>"GROUP Pcusa Conn PcmLk Cell Ccch DownlkStatistics (DLStats)" |

#### "COLLECTED STATS PCUSupportApplication Connection PcmLink Cell Ccch"

| | |
|---|---|
| Scope | Device |
| Description | *Pcusa/n Conn/n PcmLink/n Cell/n Ccch*<br>This dynamic component represents the *Cell*‘s common control channel. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Pcusa Conn PcmLk Cell Ccch UplkStatistics (ULStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistical data collected by counters. |

### ATTRIBUTE Pcusa Conn PcmLk Cell Ccch upTbfImmediateAssignment (immAssUp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the IMMEDIATE-ASSIGNMENT messages generated by the PCU to the mobile station in the first phase of the two-phase access uplink TBF establishment.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell Ccch upTbfImmAssigRejectNoPdch (noPdch)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the IMMEDIATE-ASSIGNMENT-REJECT messages generated by the PCU to the mobile station with a cause of “No PDCH available for GPRS” in the first phase of the two-phase access uplink TBF establishment.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell Ccch upTbfImmAssigRejectNoTs (noTs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the IMMEDIATE-ASSIGNMENT-REJECT messages generated by the PCU to the mobile station with a cause of “Maximum MS per TS is reached” in the first phase of the two-phase access uplink TBF establishment.<br><br>The counter wraps to zero when it exceeds its maximum value. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell Ccch upTbfImmAssigRejectNoTbf (noTbf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the IMMEDIATE-ASSIGNMENT-REJECT messages generated by the PCU to the mobile station with a cause of “Maximum TBF per TDMA is reached” in the first phase of the two-phase access uplink TBF establishment.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell Ccch channelRequest (chanReq)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the CHANNEL-REQUEST messages received by the PCU from the mobile station in the first phase of the two-phase access uplink TBF establishment.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell Ccch packetResourceRequest (pktResReq)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the PACKET-RESOURCE-REQUEST messages received by the PCU from the mobile station in the second phase of the two-phase access uplink TBF establishment.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell Ccch deleteIndicationUp (delIndUp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the DELETE-INDICATION messages sent by the BTSs when an IMMEDIATE-ASSIGNMENT message for uplink transfer is dropped.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell Ccch packetUpAssignment (pktUpAss)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the PACKET-UPLINK-ASSIGNMENT messages generated by the PCU after a PACKET-RESOURCE-REQUEST in the second phase of the two-phase access uplink TBF establishment.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell Ccch upTbfPacketAccessRejectNoPdch (pktNoPdch)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the PACKET-ACCESS-REJECT messages generated by the PCU to the mobile station with a cause of “No PDCH available for GPRS” in the second phase of the two-phase access uplink TBF establishment.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell Ccch upTbfPacketAccessRejectNoTs (pktNoTs)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the PACKET-ACCESS-REJECT messages generated by the PCU to the mobile station with a cause of “No PDCH available for GPRS” in the second phase of the two-phase access uplink TBF establishment.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell Ccch upTbfPacketAccessRejectNoTbf (pktUpNoTbf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the PACKET-ACCESS-REJECT messages generated by the PCU to the mobile station with a cause of “Maximum TBF per TDMA is reached” in the second phase of the two-phase access uplink TBF establishment.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Pcusa Conn PcmLk Cell Ccch DownlkStatistics (DLStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistical data collected by counters. |

### ATTRIBUTE Pcusa Conn PcmLk Cell Ccch dnTbfImmediateAssignment (immAssDn)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the IMMEDIATE-ASSIGNMENT messages sent for a downlink TBF establishment from the PCU to the mobile station.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell Ccch pagingRequest (pagReq)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the PAGING-REQUEST messages generated by the PCU to the mobile station.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell Ccch deleteIndicationDn (delIndDn)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the DELETE-INDICATION messages sent by the BTSs when an IMMEDIATE-ASSIGNMENT message for downlink transfer is dropped.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell Ccch packetDnAssignment (pktDnAss)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the PACKET-DOWNLINK-ASSIGNMENT messages generated by the PCU to the mobile station in the downlink TBF establishment.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Cell Ccch dnTbfPacketAccessRejectNoPdch (pktDnNoPdch)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the PACKET-ACCESS-REJECT messages generated by the PCU to the mobile station with a cause of “No |

PDCH available for GPRS” in the second phase of the two-phase access downlink TBF establishment.

The counter wraps to zero when it exceeds its maximum value.

Values Decimal (0..4294967295)

Default No default

### ATTRIBUTE Pcusa Conn PcmLk Cell Ccch dnTbfPacketAccessRejectNoTs (pktDnNoTs)

Access Read only

Description This attribute counts the PACKET-ACCESS-REJECT messages generated by the PCU to the mobile station with a cause of “Maximum MS per TS is reached” in the second phase of the two-phase access downlink TBF establishment.

The counter wraps to zero when it exceeds its maximum value.

Values Decimal (0..4294967295)

Default No default

### ATTRIBUTE Pcusa Conn PcmLk Cell Ccch dnTbfPacketAccessRejectNoTbf (pktDnNoTbf)

Access Read only

Description This attribute counts the PACKET-ACCESS-REJECT messages generated by the PCU to the mobile station with a cause of “Maximum TBF per TDMA is reached” in the second phase of the two-phase access downlink TBF establishment.

The counter wraps to zero when it exceeds its maximum value.

Values Decimal (0..4294967295)

Default No default

Default COLLECTED STATS PCUSupportApplication Connection PcmLink Cell Ccch

Description The statistics record generated by the PCUSupportApplication Connection PcmLink Cell Ccch component.

### ATTRIBUTE Pcusa Conn PcmLk Cell Ccch upTbfImmediateAssignment (immAssUp)

Description: This attribute counts IMMEDIATE-ASSIGNMENT messages generated by the PCU to the mobile station in the first phase of the two-phase access uplink TBF establishment during the statistics collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk Cell Ccch upTbfImmAssigRejectNoPdch (noPdch)

Description: This attribute counts IMMEDIATE-ASSIGNMENT-REJECT messages generated by the PCU to the mobile station with a cause of “No PDCH available for GPRS” in the first phase of the two-phase access uplink TBF establishment during the statistics collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk Cell Ccch upTbfImmAssigRejectNoTs (noTs)

Description: This attribute counts IMMEDIATE-ASSIGNMENT-REJECT messages generated by the PCU to the mobile station with a cause of “Maximum MS per TS is reached” in the first phase of the two-phase access uplink TBF establishment during the statistics collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk Cell Ccch upTbfImmAssigRejectNoTbf (noTbf)

Description: This attribute counts IMMEDIATE-ASSIGNMENT-REJECT messages generated by the PCU to the mobile station with a cause of “Maximum TBF per TDMA is reached” in the first phase of the two-phase access uplink TBF establishment during the statistics collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk Cell Ccch channelRequest (chanReq)

Description: This attribute counts CHANNEL-REQUEST messages received by the PCU from the mobile station in the first phase of the two-phase access uplink TBF establishment during the statistics collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk Cell Ccch packetResourceRequest (pktResReq)

| | |
|---|---|
| Description | This attribute counts PACKET-RESOURCE-REQUEST messages received by the PCU from the mobile station in the second phase of the two-phase access uplink TBF establishment during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk Cell Ccch deleteIndicationUp (delIndUp)

| | |
|---|---|
| Description | This attribute counts DELETE-INDICATION messages sent by the BTSs when an IMMEDIATE-ASSIGNMENT message for uplink transfer is dropped during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk Cell Ccch packetUpAssignment (pktUpAss)

| | |
|---|---|
| Description | This attribute counts PACKET-UPLINK-ASSIGNMENT messages generated by the PCU after a PACKET-RESOURCE-REQUEST in the second phase of the two_phase access uplink TBF establishment during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk Cell Ccch upTbfPacketAccessRejectNoPdch (pktNoPdch)

| | |
|---|---|
| Description | This attribute counts PACKET-ACCESS-REJECT messages generated by the PCU to the mobile station with a cause of “No PDCH available for GPRS” in the second phase of the two-phase access uplink TBF establishment during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk Cell Ccch upTbfPacketAccessRejectNoTs (pktNoTs)

| | |
|---|---|
| Description | This attribute counts PACKET-ACCESS-REJECT messages generated by the PCU to the mobile station with a cause of “Maximum MS per TS is reached” in the second phase of the two-phase access uplink TBF establishment during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk Cell Ccch upTbfPacketAccessRejectNoTbf (pktUpNoTbf)

| | |
|---|---|
| Description | This attribute counts PACKET-ACCESS-REJECT messages generated by the PCU to the mobile station with a cause of “Maximum TBF per TDMA is reached” in the second phase of the two-phase access uplink TBF establishment during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk Cell Ccch dnTbfImmediateAssignment (immAssDn)

| | |
|---|---|
| Description | This attribute counts IMMEDIATE-ASSIGNMENT messages sent for a downlink TBF establishment from the PCU to the mobile station during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk Cell Ccch pagingRequest (pagReq)

| | |
|---|---|
| Description | This attribute counts PAGING-REQUEST messages generated by the PCU to the mobile station during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk Cell Ccch deleteIndicationDn (delIndDn)

| | |
|---|---|
| Description | This attribute counts DELETE-INDICATION messages sent by the BTSs when an IMMEDIATE-ASSIGNMENT message for downlink transfer is dropped during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk Cell Ccch packetDnAssignment (pktDnAss)

| | |
|---|---|
| Description | This attribute counts PACKET-DOWNLINK-ASSIGNMENT messages generated by the PCU to the mobile station in the downlink TBF establishment phase during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk Cell Ccch dnTbfPacketAccessRejectNoPdch (pktDnNoPdch)

| | |
|---|---|
| Description | This attribute counts PACKET-ACCESS-REJECT messages generated by the PCU to the mobile station with a cause of “No PDCH available for GPRS” in the second phase of the two-phase access downlink TBF establishment during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk Cell Ccch dnTbfPacketAccessRejectNoTs (pktDnNoTs)

| | |
|---|---|
| Description | This attribute counts PACKET-ACCESS-REJECT messages generated by the PCU to the mobile station with a cause of “Maximum MS per TS is reached” in the second phase of the two-phase access downlink TBF establishment during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk Cell Ccch dnTbfPacketAccessRejectNoTbf (pktDnNoTbf)

| | |
|---|---|
| Description | This attribute counts PACKET-ACCESS-REJECT messages generated by the PCU to the mobile station with a cause of “Maximum TBF per TDMA is reached” in the second phase of the two-phase access downlink TBF establishment during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### COMPONENT Pcusa Conn PcmLk Cell MobileStation (Ms)

| | |
|---|---|
| Instance | Decimal (0..4294967295) |
| Scope | Device |
| Description | *Pcusa/n Conn/n PcmLink/n Cell/n MobileStation/n*<br>This dynamic component represents a mobile station in a *Cell*. It is used to display information on the mobile. |
| Common Verbs | Help<br>List<br>Display |

## COMPONENT Pcusa Conn PcmLk BssgpVirtualConnection (Bvc)

| | |
|---|---|
| Instance | Decimal (0..1536) |
| Groups | "GROUP Pcusa Conn PcmLk Bvc Operational (Oper)"<br>"GROUP Pcusa Conn PcmLk Bvc Statistics (Stats)"<br>"GROUP Pcusa Conn PcmLk Bvc BvcUnitDataStatistics (BvcUnitDataStats)"<br>"GROUP Pcusa Conn PcmLk Bvc BvcComSigStatistics (BvcComSigStats)" |

### "COLLECTED STATS PCUSupportApplication Connection PcmLink BssgpVirtualConnection"

| | |
|---|---|
| Scope | Device |
| Description | *Pcusa/n Conn/n PcmLink/n BssgpVirtualConnection/n*<br>This dynamic component represents a BSSGP Virtual Connection. There is one *Bvc* per *Cell*. It is identified by a *Bvc* identifier coming from the PCU when the *Cell* is created. |
| Common Verbs | Help<br>List<br>Display |

## GROUP Pcusa Conn PcmLk Bvc Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational attributes describing *Bvc* upon receipt of a *Cell* configuration request. |

## ATTRIBUTE Pcusa Conn PcmLk Bvc bvcState (state)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the BVC state. The SGSN sends the BVC blocked and unblocked status to the PCU on the Gb interface. This attribute is set to ***blocked*** when the transmission or reception is stopped and ***unblocked*** when the transmission or reception is resumed. |
| Values | blocked<br>unblocked |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Bvc maxBucketSize (maxBktSize)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the maximum bucket size for the BVC. This parameter sent by the PCU is used by the BVC flow control algorithm in SGSN. |
| Values | Decimal (0..32000) |
| Units | kbyte |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Bvc bucketLeakRate (bktLRate)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the maximum allowed BVC leak rate. The SGSN does not leak more traffic for a BVC to the PCU than is specified by this attribute. |
| Values | Decimal (0..6144) |
| Units | bit/s |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Bvc bufferSize (buffSize)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of bytes currently buffered for a BVC. |
| Values | Decimal (0..32000) |
| Units | kbyte |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Bvc cell

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the cell identity number associated with this BVC. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Bvc bvcCellLocationArea (bvcCLA)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the location area associated with the BVC and the cell. This attribute is used for paging. |
| Values | Decimal (0..65535) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Bvc bvcCellRoutingArea (bvcCRA)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the routing area associated with the BVC and the cell. |
| Values | Decimal (0..256) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Bvc bvcNumberMs (bvcNbMs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of mobiles in the cell that are currently transferring data. |
| Values | Decimal (0..960) |
| Default | No default |

### GROUP Pcusa Conn PcmLk Bvc Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistical data collected by counters. |

### ATTRIBUTE Pcusa Conn PcmLk Bvc pduDn

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the PDUs received by this BVC from the Gb interface.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Bvc pduUp

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the PDUs sent by this BVC to the Gb interface.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Bvc octetsDn (octDn)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the octets received by the BVC from the Gb interface.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Bvc octetsUp (octUp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the octets sent by the BVC to the Gb interface.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Pcusa Conn PcmLk Bvc BvcUnitDataStatistics (BvcUnitDataStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistical data collected by counters. |

### ATTRIBUTE Pcusa Conn PcmLk Bvc pduDataDn

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the UNIT-DATA PDUs received by the BVC from the Gb interface.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Bvc pduDataUp

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the UNIT-DATA PDUs sent by the BVC to the Gb interface.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Bvc octetsDataDn

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the octets received by the BVC from the Gb interface in DL-UNIT-DATA PDUs.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Bvc octetsDataUp

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the octets sent by the BVC to the Gb interface in UL-UNIT-DATA PDUs.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Bvc maxSizeDataDn

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the largest size of LLC frame received. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Bvc maxSizeDataUp

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the largest size of LLC frame sent. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Pcusa Conn PcmLk Bvc BvcComSigStatistics (BvcComSigStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistical data collected by counters. |

### ATTRIBUTE Pcusa Conn PcmLk Bvc bvcBlockRequests (bvcBReq)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times the BVC-BLOCK PDU message was sent by the BVC.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..32767) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Bvc bvcUnBlockRequests (bvcUBReq)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times the BVC-UNBLOCK PDU message was sent by the BVC.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..32767) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Bvc bvct1TimeOuts (t1TO)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times the BVC-BLOCK-ACK timer as well as BVC-UNBLOCK-ACK timer expired.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..32767) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Bvc bvcResetRequestsUp (bvcResReqUp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times a BVC-RESET PDU message was sent by a BVC.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..32767) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Bvc bvcResetRequestsDn (bvcResReqDn)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times a BVC-RESET PDU message was received by the BVC.<br><br>The counter wraps to zero when it exceeds its maximum value. |

| | |
|---|---|
| Values | Decimal (0..32767) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Bvc bvct2TimeOuts (t2TO)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times the BVC-RESET-ACK timer expired.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..32767) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Bvc bvcFlowControlRequests (bvcFCtrlReq)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the FLOW-CONTROL-BVC PDUs sent by the BVC.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..32767) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Bvc msFlowControlRequests (msFCtrlReq)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the FLOW-CONTROL-MS PDUs sent by the BVC.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..32767) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Bvc llcDiscardedPdu (llcDiscPdu)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the LLC-DISCARDED PDUs sent by the BVC.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..65535) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Bvc llcDiscardedOctets (llcDiscOct)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the octets discarded according to the LLC-DISCARDED-INDICATION message sent by the BVC.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Bvc nmStatusUp (nmStusUp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the NM-STATUS PDUs sent by a BVC.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..65535) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Bvc nmStatusDn (nmStusDn)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the NM-STATUS PDUs received by a BVC.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..65535) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Bvc msFlushLLRequest (msFlushLLReq)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the FLUSH-LL PDUs sent from the SGSN to the PCU.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..65535) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Bvc msRadioStatusInd (msRadStusInd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the INDICATION messages when a radio exception condition occurred on the radio interface in the BVC.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..65535) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Bvc msSuspendReq (msSusReq)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the SUSPEND PDUs sent by the BVC.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..65535) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Bvc msRaCapabilityInd (msRaCapInd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the RA-CAPABILITY PDUs received by the BVC.<br><br>The counter wraps to zero when it exceeds its maximum value. |

| | |
|---|---|
| Values | Decimal (0..65535) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Bvc msRaCapabilityUpdateReq (msRaCapUpdateReq)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the RA-CAPABILITY-UPDATE PDUs sent by the BVC.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..65535) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Bvc bvct3TimeOuts (t3TO)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times the SUSPEND-ACK timer expired.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..32767) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Bvc bvct5TimeOuts (t5TO)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times the RA-CAPABILITY-UPDATE-ACK timer expired.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..32767) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk Bvc msCellTransitionDn (msCellTransDn)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the FLUSH-LL PDUs that are sent by SGSN to PCU when the Mobile Station located on a cell indicated by the BVCI has moved to another cell indicated to the new BVCI.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..65535) |
| Default | No default |
| Default | COLLECTED STATS PCUSupportApplication Connection PcmLink BssgpVirtualConnection |
| Description | The statistics record generated by the PCUSupportApplication Connection PcmLink BssgpVirtualConnection component. |

### ATTRIBUTE Pcusa Conn PcmLk Bvc cell

| | |
|---|---|
| Description | This attribute indicates the cell identity number associated to this BVC. |
| Values | Decimal (0..65535) |

### ATTRIBUTE Pcusa Conn PcmLk Bvc pduDn

| | |
|---|---|
| Description | This attribute counts the PDUs received by this BVC from the Gb interface during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk Bvc pduUp

| | |
|---|---|
| Description | This attribute counts the PDUs sent by this BVC to the Gb interface during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk Bvc octetsDn (octDn)

| | |
|---|---|
| Description | This attribute counts the octets received by the BVC from the Gb interface during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk Bvc octetsUp (octUp)

Description This attribute counts the octets sent by the BVC to the Gb interface during the statistics collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk Bvc pduDataDn

Description This attribute counts the UNIT-DATA PDUs received by the BVC from the Gb interface during the statistics collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk Bvc pduDataUp

Description This attribute counts the UNIT-DATA PDUs sent by the BVC to the Gb interface during the statistics collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk Bvc octetsDataDn

Description This attribute counts the octets received by the BVC from the Gb interface in DL-UNIT-DATA PDUs during the statistics collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk Bvc octetsDataUp

Description This attribute counts the octets sent by the BVC to the Gb interface in UL-UNIT-DATA PDUs during the statistics collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk Bvc maxSizeDataDn

Description This attribute indicates the largest size of LLC frame received during the statistics collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk Bvc maxSizeDataUp

Description This attribute indicates the biggest size of LLC frames sent during the statistics collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk Bvc bvcBlockRequests (bvcBReq)

Description This attribute counts BVC-BLOCK PDU messages sent by the BVC during the statistics collection interval.

Values Decimal (0..65535)

### ATTRIBUTE Pcusa Conn PcmLk Bvc bvcUnBlockRequests (bvcUBReq)

Description This attribute counts BVC-UNBLOCK PDU messages sent by the BVC during the statistics collection interval.

Values Decimal (0..65535)

### ATTRIBUTE Pcusa Conn PcmLk Bvc bvct1TimeOuts (t1TO)

Description This attribute counts BVC-BLOCK-ACK and BVC-UNBLOCK-ACK timer expiries during the statistics collection interval.

Values Decimal (0..65535)

### ATTRIBUTE Pcusa Conn PcmLk Bvc bvcResetRequestsUp (bvcResReqUp)

Description This attribute counts BVC-RESET PDU messages sent by a BVC during the statistics collection interval.

Values Decimal (0..65535)

### ATTRIBUTE Pcusa Conn PcmLk Bvc bvcResetRequestsDn (bvcResReqDn)

Description This attribute counts BVC-RESET PDU messages received by the BVC during the statistics collection interval.

Values Decimal (0..65535)

### ATTRIBUTE Pcusa Conn PcmLk Bvc bvct2TimeOuts (t2TO)

Description This attribute counts BVC-RESET-ACK timer expiries during the statistics collection interval.

Values Decimal (0..65535)

### ATTRIBUTE Pcusa Conn PcmLk Bvc bvcFlowControlRequests (bvcFCtrlReq)

Description This attribute counts FLOW-CONTROL-BVC PDUs sent by the BVC during the statistics collection interval.

Values Decimal (0..65535)

### ATTRIBUTE Pcusa Conn PcmLk Bvc msFlowControlRequests (msFCtrlReq)

Description This attribute counts FLOW-CONTROL-MS PDUs sent by the BVC during the statistics collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk Bvc llcDiscardedPdu (llcDiscPdu)

Description This attribute counts LLC-DISCARDED PDUs sent by the BVC during the statistics collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk Bvc llcDiscardedOctets (llcDiscOct)

Description This attribute counts the octets discarded with a LLC-DISCARDED-INDICATION message sent by the BVC during the statistics collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk Bvc nmStatusUp (nmStusUp)

Description This attribute counts NM-STATUS PDUs sent by a BVC during the statistics collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk Bvc nmStatusDn (nmStusDn)

Description This attribute counts NM-STATUS PDUs received by a BVC during the statistics collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk Bvc msFlushLLRequest (msFlushLLReq)

Description This attribute counts FLUSH-LL PDUs sent from the SGSN to the PCU during the statistics collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk Bvc msRadioStatusInd (msRadStusInd)

Description This attribute counts INDICATION messages reporting that a radio exception condition occurred on the radio interface in the BVC during the statistics collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk Bvc msSuspendReq (msSusReq)

Description This attribute counts SUSPEND PDUs sent by the BVC during the statistics collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk Bvc msRaCapabilityInd (msRaCapInd)

Description This attribute counts RA-CAPABILITY-INDICATION PDUs received by the BVC during the statistics collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk Bvc msRaCapabilityUpdateReq (msRaCapUpdateReq)

Description This attribute counts RA-CAPABILITY-UPDATE PDUs sent by the BVC during the statistics collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk Bvc bvct3TimeOuts (t3TO)

Description This attribute counts SUSPEND-ACK timer expiries during the statistics collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk Bvc bvct5TimeOuts (t5TO)

Description This attribute counts RA-CAPABILITY-UPDATE-ACK timer expiries during the statistics collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk Bvc msCellTransitionDn (msCellTransDn)

Description This attribute counts FLUSH-LL PDUs sent by the SGSN to the PCU when the mobile station located on a cell indicated by the BVCI has moved to another cell indicated to the new BVCI.

| | |
|---|---|
| Values | Decimal (0..4294967295) |

## COMPONENT Pcusa Conn PcmLk CgiCell (CgiCell)

| | |
|---|---|
| Instance | cellLocationArea [Decimal (0..65535)]<br>cellId [Decimal (0..65535)] |
| Groups | "GROUP Pcusa Conn PcmLk CgiCell Operational (Oper)"<br>"GROUP Pcusa Conn PcmLk CgiCell CellIdentifierOperational (CellIdOper)"<br>"GROUP Pcusa Conn PcmLk CgiCell PdchAllocStatistics (AllocStats)"<br>"GROUP Pcusa Conn PcmLk CgiCell PdchFullDpxStatistics (FDpxStats)"<br>"GROUP Pcusa Conn PcmLk CgiCell PdchUplkStatistics (ULStats)"<br>"GROUP Pcusa Conn PcmLk CgiCell PdchDownlkStatistics (DLStats)"<br>"GROUP Pcusa Conn PcmLk CgiCell DynAgprsStatistics (DynAgprsStats)"<br>"GROUP Pcusa Conn PcmLk CgiCell QoSStatistics (QoSStats)" |

"COLLECTED STATS PCUSupportApplication Connection PcmLink CgiCell"

| | |
|---|---|
| Scope | Device |
| Description | *Pcusa/n Conn/n PcmLink/n* Cgi*Cell/n*<br>This dynamic component represents a GSM cell. There can be several *CgiCell* components per PCM. Each *CgiCell* component is uniquely identified in the GSM system by its cell location area and cellID index. |
| Dyn. Subcomp. | "COMPONENT Pcusa Conn PcmLk CgiCell Tdma (Tdma)"<br>"COMPONENT Pcusa Conn PcmLk CgiCell Ccch (Ccch)"<br>"COMPONENT Pcusa Conn PcmLk CgiCell MobileStation (Ms)" |
| Common Verbs | Help<br>List<br>Display |

### GROUP Pcusa Conn PcmLk CgiCell Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains information about the cell. |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell cellBVCI

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the corresponding BSSGP Virtual Channel Identifier corresponding to the cell. |
| Values | Decimal (0..65535) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell cellState (state)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the state of a GSM cell as specified by the BSC.<br>***unConfigured*** - The cell is not configured.<br>***configured*** - The message cell_config has been received from the BSC and acknowledged.<br>***availableOos*** - The message cell_available has been received from the BSC and acknowledged.<br>***inService*** - The message cell_gprs_open has been sent to the BTS, and the BTS has acknowledged the message.<br>***destroying*** - The cell object instance is being destroyed in the PCU element, and is waiting for completion of the BSSGP BVC blocking procedure. |
| Values | unConfigured<br>configured<br>availableOos<br>inService<br>destroying |
| Default | No default |

### GROUP Pcusa Conn PcmLk CgiCell CellIdentifierOperational (CellIdOper)

| | |
|---|---|
| Properties | Operational |

| | |
|---|---|
| Description | This group contains attributes used for cell‘s identification as defined in the GSM 08.18 Technical Specification. |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell msCountryCode (mCC)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the mobile country code. |
| Values | Decimal (0..999) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell msNetworkCode (mNC)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the mobile network code. |
| Values | Decimal (0..999) |
| Default | No default |

### GROUP Pcusa Conn PcmLk CgiCell PdchAllocStatistics (AllocStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistical data. |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell upMultiSlotRequests (upMSlotReq)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the multislot allocation requests received by the PCU from the mobile station.<br><br>Index 1 counts the number of 1-timeslot allocation requests.<br>Index 2 counts the number of 2-timeslot allocation requests.<br>Index 3 counts the number of 3-timeslot allocation requests.<br>Index 4 counts the number of 4- or more timeslot allocation requests. |

| | |
|---|---|
| | The counters wrap to zero when they exceed their maximum value. |
| Vector of | Decimal (0..4294967295) |
| Index | Decimal (1..4) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell upMultiSlotAllocations (upMSlotAll)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the multislot granted allocations received by the PCU from the mobile station.<br><br>Index 1 counts the number of 1-timeslot granted allocations.<br>Index 2 counts the number of 2-timeslot granted allocations.<br>Index 3 counts the number of 3-timeslot granted allocations.<br>Index 4 counts the number of 4- or more timeslot granted allocations.<br><br>The counters wrap to zero when they exceed their maximum value. |
| Vector of | Decimal (0..4294967295) |
| Index | Decimal (1..4) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell dnMultiSlotRequests (dnMSlotReq)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the multislot allocation requests received by the mobile station from the PCU.<br><br>Index 1 counts the number of 1-timeslot allocation requests.<br>Index 2 counts the number of 2-timeslots allocation requests.<br>Index 3 counts the number of 3-timeslots allocation requests.<br>Index 4 counts the number of 4- or more timeslot allocation requests. |

| | |
|---|---|
| | The counters wrap to zero when they exceed their maximum value. |
| Vector of | Decimal (0..4294967295) |
| Index | Decimal (1..4) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell dnMultiSlotAllocations (dnMSlotAll)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the multislot granted allocations received by the mobile station from the PCU.<br><br>Index 1 counts the number of 1-timeslot granted allocations.<br>Index 2 counts the number of 2-timeslot granted allocations.<br>Index 3 counts the number of 3-timeslot granted allocations.<br>Index 4 counts the number of 4- or more timeslot granted allocations.<br><br>The counters wrap to zero when they exceed their maximum value. |
| Vector of | Decimal (0..4294967295) |
| Index | Decimal (1..4) |
| Default | No default |

### GROUP Pcusa Conn PcmLk CgiCell PdchFullDpxStatistics (FDpxStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistical data collected on Packet Data Channel (PDCH) full duplex parameters. |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell fullDuplexTbfEstablishment (fdTbfEst)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts how many full duplex TBFs were established.<br><br>The counter wraps to zero when it exceeds its maximum value. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell currentFullDuplexTbfEstablishment (currFdTbfEst)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of full duplex TBFs currently established. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell pcuEdgeDowngradedTbf (EDgrdTbf)

| | |
|---|---|
| Access | Read only |
| Description | The attribute counts the EGPRS TBFs downgraded in GPRS. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell pcuEdgeTbfEstReq (ETbfEstReq)

| | |
|---|---|
| Access | Read only |
| Description | The attribute counts the EGPRS TBF establishment requests. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Pcusa Conn PcmLk CgiCell PdchUplkStatistics (ULStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistical data collected on PDCH uplink parameters. |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell upTbfEstablishment (upTbfEst)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts how many uplink TBFs were established.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell currentUpTbfEstablishment (currUpTbfEst)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of uplink TBFs currently established. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell allocatedBlocksUpTbf (allBUpTbf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the blocks allocated for the uplink TBFs.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell currentAllocatedBlocksUpTbf (currAllBUpTbf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the blocks currently allocated for the uplink TBFs. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell nonAckUpTbfEstablishment (nAckUpTbfEst)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the non-acknowledged uplink TBFs established. |

| | |
|---|---|
| | The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell currentNonAckUpTbfEstablishment (currNAckUpTbfEst)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current non-acknowledged uplink TBFs established. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell ackUpTbfEstablishment (ackUpTbfEst)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the acknowledged uplink TBFs established.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell currentAckUpTbfEstablishment (currAckUpTbfEst)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current acknowledged uplink TBFs established.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell upTbfReleases (upTbfRel)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts how many uplink TBFs were released. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell closeEndedUpTbfEstablishment (closeEndUpTbfEst)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the close-ended uplink TBFs established. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell pcuEdgeUpCumUsefulDataPerCell (EUpCumUseDt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the cumulated size, in octets, of all the RLC EDGE data blocks received for the first time on a pipe in verbose state. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell pcuEdgeUpUsefulDataDurationPerCell (EUpUseDtDur)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the cumulated time, in multiple of 20ms, where the pipes for UL EGPRS TBF are in verbose state. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Pcusa Conn PcmLk CgiCell PdchDownlkStatistics (DLStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistical data collected on PDCH downlink parameters. |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell dnTbfEstablishment (dnTbfEst)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts how many downlink TBFs were established.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell currentDnTbfEstablishment (currDnTbfEst)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current downlink TBFs established. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell currentAllocatedBlocksDnTbf (currAllBDnTbf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the blocks currently allocated for the downlink TBFs. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell nonAckDnTbfEstablishment (nAckDnTbfEst)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the non-acknowledged downlink TBFs established.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell currentNonAckDnTbfEstablishment (currNAckDnTbfEst)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current non-acknowledged downlink TBFs established. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell ackDnTbfEstablishment (ackDnTbfEst)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the acknowledged downlink TBFs established.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell currentAckDnTbfEstablishment (currAckDnTbfEst)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current acknowledged downlink TBFs established. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell dnTbfReleases (dnTbfRel)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts how many downlink TBFs were released. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell pcuEdgeDnCumUsefulDataPerCell (EDnCumUseDt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the cumulated size, in octets, of all the RLC EDGE data blocks sent for the first time on a pipe in verbose state. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell pcuEdgeDnUsefulDataDurationPerCell (EDnUseDtDur)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the cumulated time, in multiple of 20ms, where the pipes for DL EGPRS TBF are in verbose state. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Pcusa Conn PcmLk CgiCell DynAgprsStatistics (DynAgprsStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistical data collected on dynamic AGPRS parameters. |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell dyAgprsNbModif (dyAgprsNbMod)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of changes to allocated AGPRS timeslots in the cell. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell dyAgprsAvgNbTimeslots (dyAgprsAvgNbTs)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the average number of allocated AGPRS timeslots in the cell. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell dyAgprsMinNbTimeslots (dyAgprsMinNbTs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the minimum number of allocated AGPRS timeslots in the cell. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell dyAgprsMaxNbTimeslots (dyAgprsMaxNbTs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the maximum number of allocated AGPRS timeslots in the cell. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell dyAgprsAvgLoadCriterion (dyAgprsAvgLdCrit)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the average AGPRS load criterion value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell dyAgprsMaxLoadCriterion (dyAgprsMaxLdCrit)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the maximum AGPRS load criterion value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell pcuEdgeDynAgprsJokerCumNbTimeslot (EDyAJkCumTs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the cumulative number of Agprs Joker timeslots allocated to the cell by the BSC. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell pcuEdgeDynAgprsJokerMinNbTimeslot (EDyAJkMinTs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the minimum number of Agprs Joker timeslots allocated to the cell by the BSC. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell pcuEdgeDynAgprsJokerMaxNbTimeslot (EDyAJkMaxTs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the maximum number of Agprs Joker timeslots allocated to the cell by the BSC. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell pcuEdgeAgprsJokerNbofBlocks (EAJkNbBlks)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of TRAU EDGE data blocks sent on the Agprs Joker channels in the DL direction. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell pcuEdgeAgprsMainNbofBlocks (EAMnNbBlks)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of TRAU EDGE data blocks sent on the Agprs Main channels in the DL direction. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Pcusa Conn PcmLk CgiCell QoSStatistics (QoSStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistical data collected on downlink TBFs on which a QoS parameter is attributed. |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell dnTbfGoldSatisfactMore90pCent (dnTbfGSatM90)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the downlink TBFs with golden QoS that have a satisfaction rate greater or equal to 90 per cent.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell dnTbfGoldSatisfactBet5090pCent (dnTbfGSatB5090)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the downlink TBFs with golden QoS that have a satisfaction rate between 50 to 90 per cent.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell dnTbfGoldSatisfactLess50pCent (dnTbfGSatL50)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the downlink TBFs with golden QoS that have a satisfaction rate lower than 50 per cent.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell dnTbfGoldRejectedForMinTput (dnTbfGRejMinTput)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the downlink TBFs with golden QoS rejected at the establishment due to non-allocation of corresponding minimum throughput.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell dnTbfSilverSatisfactMore90pCent (dnTbfSSatM90)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the downlink TBFs with silver QoS that have a satisfaction rate greater or equal to 90 per cent.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell dnTbfSilverSatisfactBet5090pCent (dnTbfSSatB5090)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the downlink TBFs with silver QoS that have a satisfaction rate between 50 to 90 per cent.<br><br>The counter wraps to zero when it exceeds its maximum value. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell dnTbfSilverSatisfactLess50pCent (dnTbfSSatL50)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the downlink TBFs with silver QoS that have a satisfaction rate lower than 50 per cent.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell dnTbfSilverRejectedForMinTput (dnTbfSRejMinTput)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the downlink TBFs with silver QoS rejected at the establishment due to non-allocation of corresponding minimum throughput.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell dnTbfBronzeSatisfactMore90pCent (dnTbfBSatM90)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the downlink TBFs with bronze QoS that have a satisfaction rate greater or equal to 90 per cent.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell dnTbfBronzeSatisfactBet5090pCent (dnTbfBSatB5090)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the downlink TBFs with bronze QoS that have a satisfaction rate between 50 to 90 per cent.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell dnTbfBronzeSatisfactLess50pCent (dnTbfBSatL50)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the downlink TBFs with bronze QoS that have a satisfaction rate lower than 50 per cent.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell dnTbfBronzeRejectedForMinTput (dnTbfBRejMinTput)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the downlink TBFs with bronze QoS rejected at the establishment due to non-allocation of corresponding minimum throughput.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

| | |
|---|---|
| Default | COLLECTED STATS PCUSupportApplication Connection PcmLink CgiCell |
| Description | The statistics record generated by the PCUSupportApplication Connection PcmLink CgiCell component. |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell cellBVCI

| | |
|---|---|
| Description | This attribute indicates the corresponding BSSGP Virtual Channel Identifier during the statistics collection interval. |
| Values | Decimal (0..65535) |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell upMultiSlotRequests (upMSlotReq)

| | |
|---|---|
| Description | This attribute counts the multislot allocation requests received by the PCU from the mobile station during the statistics collection interval.<br><br>Index 1 counts the number of 1- timeslot allocation requests.<br>Index 2 counts the number of 2- timeslot allocation requests.<br>Index 3 counts the number of 3- timeslot allocation requests.<br>Index 4 counts the number of 4- or more timeslot allocation requests. |
| Vector of | Decimal (0..4294967295) |
| Index | Decimal (1..4) |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell upMultiSlotAllocations (upMSlotAll)

| | |
|---|---|
| Description | This attribute counts the multislot granted allocations received by the PCU from the mobile station during the statistics collection interval.<br><br>Index 1 counts the number of 1- timeslot granted allocations.<br>Index 2 counts the number of 2- timeslot granted allocations.<br>Index 3 counts the number of 3- timeslot granted allocations.<br>Index 4 counts the number of 4- or more timeslot granted allocations. |
| Vector of | Decimal (0..4294967295) |
| Index | Decimal (1..4) |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell dnMultiSlotRequests (dnMSlotReq)

| | |
|---|---|
| Description | This attribute counts the multislot allocation requests received by the mobile station from the PCU during the statistics collection interval.<br><br>Index 1 counts the number of 1- timeslot allocation requests.<br>Index 2 counts the number of 2- timeslot allocation requests.<br>Index 3 counts the number of 3- timeslot allocation requests.<br>Index 4 counts the number of 4- or more timeslot allocation requests. |
| Vector of | Decimal (0..4294967295) |
| Index | Decimal (1..4) |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell dnMultiSlotAllocations (dnMSlotAll)

| | |
|---|---|
| Description | This attribute counts the multislot granted allocations received by the mobile station from the PCU during the statistics collection interval.<br><br>Index 1 counts the number of 1- timeslot granted allocations.<br>Index 2 counts the number of 2- timeslot granted allocations.<br>Index 3 counts the number of 3- timeslot granted allocations.<br>Index 4 counts the number of 4- or more timeslot granted allocations. |
| Vector of | Decimal (0..4294967295) |
| Index | Decimal (1..4) |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell fullDuplexTbfEstablishment (fdTbfEst)

| | |
|---|---|
| Description | This attribute counts how many full duplex TBFs were established during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell upTbfReleases (upTbfRel)

| | |
|---|---|
| Description | This attribute counts how many uplink TBFs were released during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell cumulativeTimeUpTbf (cumTimeUpTbf)

| | |
|---|---|
| Description | This attribute indicates the cumulative duration of all uplink TBFs released during the statistics collection interval. |
| Values | Decimal (0..4294967295) |
| Units | seconds |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell allocatedBlocksUpTbf (allBUpTbf)

| | |
|---|---|
| Description | This attribute counts the blocks allocated for the uplink TBFs during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell nonAckUpTbfEstablishment (nAckUpTbfEst)

| | |
|---|---|
| Description | This attribute counts the non-acknowledged uplink TBFs established during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell ackUpTbfEstablishment (ackUpTbfEst)

| | |
|---|---|
| Description | This attribute counts the acknowledged uplink TBFs established during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell closeEndedUpTbfEstablishment (closeEndUpTbfEst)

| | |
|---|---|
| Description | This attribute counts the close-ended uplink TBFs established during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell dnTbfReleases (dnTbfRel)

| | |
|---|---|
| Description | This attribute counts how many downlink TBFs were released during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell cumulativeTimeDnTbf (cumTimeDnTbf)

| | |
|---|---|
| Description | This attribute indicates the cumulative duration of all downlink TBFs released during the statistics collection interval. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Units | seconds |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell nonAckDnTbfEstablishment (nAckDnTbfEst)

| | |
|---|---|
| Description | This attribute counts the non-acknowledged downlink TBFs established during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell ackDnTbfEstablishment (ackDnTbfEst)

| | |
|---|---|
| Description | This attribute counts the acknowledged downlink TBFs established during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell dyAgprsNbModif (dyAgprsNbMod)

| | |
|---|---|
| Description | This attribute counts the modifications of Agprs timeslots allocated in the cell during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell dyAgprsAvgNbTimeslots (dyAgprsAvgNbTs)

| | |
|---|---|
| Description | This attribute indicates the average number of Agprs timeslots allocated in the cell during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell dyAgprsMinNbTimeslots (dyAgprsMinNbTs)

| | |
|---|---|
| Description | This attribute indicates the minimum number of Agprs timeslots allocated in the cell during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell dyAgprsMaxNbTimeslots (dyAgprsMaxNbTs)

| | |
|---|---|
| Description | This attribute indicates the maximum number of Agprs timeslots allocated in the cell during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell dyAgprsAvgLoadCriterion (dyAgprsAvgLdCrit)

| | |
|---|---|
| Description | This attribute indicates the average Agprs load criterion value during the statistics collection interval. |
| Values | Decimal (0..100) |
| Units | % |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell dyAgprsMaxLoadCriterion (dyAgprsMaxLdCrit)

| | |
|---|---|
| Description | This attribute indicates the maximum Agprs load criterion value during the statistics collection interval. |
| Values | Decimal (0..100) |
| Units | % |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell dnTbfGoldSatisfactMore90pCent (dnTbfGSatM90)

| | |
|---|---|
| Description | This attribute counts the downlink TBFs with gold QOS that have a satisfaction rate greater or equal to 90 per cent during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell dnTbfGoldSatisfactBet5090pCent (dnTbfGSatB5090)

| | |
|---|---|
| Description | This attribute counts the downlink TBFs with gold QOS that have a satisfaction rate between 50 to 90 per cent during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell dnTbfGoldSatisfactLess50pCent (dnTbfGSatL50)

| | |
|---|---|
| Description | This attribute counts the downlink TBFs with gold QOS that have a satisfaction rate lower than 50 per cent during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell dnTbfGoldRejectedForMinTput (dnTbfGRejMinTput)

| | |
|---|---|
| Description | This attribute counts the downlink TBFs with gold QOS rejected at the establishment due to non allocation of corresponding minimum throughput during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell dnTbfSilverSatisfactMore90pCent (dnTbfSSatM90)

| | |
|---|---|
| Description | This attribute counts the downlink TBFs with silver QOS that have a satisfaction rate greater or equal to 90 per cent during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell dnTbfSilverSatisfactBet5090pCent (dnTbfSSatB5090)

| | |
|---|---|
| Description | This attribute counts the downlink TBFs with silver QOS that have a satisfaction rate between 50 to 90 per cent during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell dnTbfSilverSatisfactLess50pCent (dnTbfSSatL50)

| | |
|---|---|
| Description | This attribute counts the downlink TBFs with silver QOS that have a satisfaction rate lower than 50 per cent during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell dnTbfSilverRejectedForMinTput (dnTbfSRejMinTput)

| | |
|---|---|
| Description | This attribute counts the downlink TBFs with silver QOS rejected at the establishment due to non allocation of corresponding minimum throughput during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell dnTbfBronzeSatisfactMore90pCent (dnTbfBSatM90)

| | |
|---|---|
| Description | This attribute counts the downlink TBFs with bronze QOS that have a satisfaction rate greater or equal to 90 per cent during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell dnTbfBronzeSatisfactBet5090pCent (dnTbfBSatB5090)

| | |
|---|---|
| Description | This attribute counts the downlink TBFs with bronze QOS that have a satisfaction rate between 50 to 90 per cent during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell dnTbfBronzeSatisfactLess50pCent (dnTbfBSatL50)

| | |
|---|---|
| Description | This attribute counts the downlink TBFs with bronze QOS that have a satisfaction rate lower than 50 per cent during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell dnTbfBronzeRejectedForMinTput (dnTbfBRejMinTput)

| | |
|---|---|
| Description | This attribute counts the downlink TBFs with bronze QOS rejected at the establishment due to non allocation of corresponding minimum throughput during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### COMPONENT Pcusa Conn PcmLk CgiCell Tdma (Tdma)

| | |
|---|---|
| Instance | Decimal (0..15) |
| Groups | "GROUP Pcusa Conn PcmLk CgiCell Tdma Operational (Oper)"<br>"GROUP Pcusa Conn PcmLk CgiCell Tdma Statistics (Stats)"<br>"GROUP Pcusa Conn PcmLk CgiCell Tdma UplkStatistics (ULStats)"<br>"GROUP Pcusa Conn PcmLk CgiCell Tdma DownlkStatistics (DLStats)" |

| | |
|---|---|
| | "GROUP Pcusa Conn PcmLk CgiCell Tdma PdchAllocationStatistics (PdchAllocStats)"<br>"GROUP Pcusa Conn PcmLk CgiCell Tdma ReleaseStatistics (RelStats)" |

"COLLECTED STATS PCUSupportApplication Connection PcmLink CgiCell Tdma"

| | |
|---|---|
| Scope | Device |
| Description | *Pcusa/n Conn/n PcmLink/n Cell/n Tdma/n*<br>This component represents a TDMA. There can be several TDMA per *Cell*. |
| Dyn. Subcomp. | "COMPONENT Pcusa Conn PcmLk CgiCell Tdma Timeslot (Ts)"<br>"COMPONENT Pcusa Conn PcmLk CgiCell Tdma JokerTimeslot (JokerTs)" |
| Common Verbs | Help<br>List<br>Display |

### GROUP Pcusa Conn PcmLk CgiCell Tdma Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains attributes describing the time division multiple access. |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma tdmaState (state)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the state of a TDMA relative to the BSC. |
| Values | unconfigured<br>configured<br>available |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma pcuTdmaEdgeCapacity (edgeCap)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the EDGE capacity of a TDMA. |

| | |
|---|---|
| Values | noEdge<br>upToMCS4DlFullEdgeUl<br>fullEdge<br>upToMCS4DlUl |
| Default | No default |

### GROUP Pcusa Conn PcmLk CgiCell Tdma Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistical data. |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma localBusy (locBus)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the blocks sent with the window stalled indicator set.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma remoteBusy (remBus)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the blocks received with the window stalled indicator set.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Pcusa Conn PcmLk CgiCell Tdma UplkStatistics (ULStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistical data collected by counters in uplink transmission mode. |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma llcPacketsUp (llcPktUp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the LLC packets reassembled and transmitted to the LLC relay.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma dataBlocksUp (dataBUp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the uplink RLC data blocks received.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma controlBlocksUp (ctrlBUp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the uplink RLC control blocks received.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma invalidBlocksUp (invalidBUp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the uplink invalid radio blocks received.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma invalidProtocolErrorBlocksUp (invalidProtErrBUp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the uplink invalid radio blocks received with invalid RLC protocol.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma outOfSequenceBlocksUp (outOfSeqBUp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the data blocks received uplink with Block Sequence Number outside the received window.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma packetAckNackUp (pktANUp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the PACKET-UPLINK-ACK-NACK messages received.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma totalRetransmissionRequested (totRtxReq)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the RLC/MAC block retransmission requests.<br><br>The counter wraps to zero when it exceeds its maximum value. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma pcuEdgeDataBlocksUp (EDtBlkUp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the cumulative number of EGPRS RLC data blocks received by the PCU on this TDMA.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma pcuEdgeUpCumMeanBep (EUpCumMnBep)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the cumulated value of the assumed BEP received by the PCU in each EGPRS RLC data block on this TDMA.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma pcuEdgeUpNbsMeanBep (EUpNbMnBep)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the MEAN_BEP values received by the PCU in each EGPRS RLC data block on this TDMA.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Pcusa Conn PcmLk CgiCell Tdma DownlkStatistics (DLStats)

| | |
|---|---|
| Properties | Operational |

| | |
|---|---|
| Description | This group contains statistical data collected by counters in downlink transmission mode. |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma llcPacketsDn (llcPktDn)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the LLC packets segmented into RLC data blocks received.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma dataBlocksDn (dataBDn)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the downlink RLC data blocks transmitted.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma controlBlocksDn (ctrlBDn)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the downlink RLC control blocks transmitted.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma retransmittedDataBlocksDn (rtxDataBDn)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the data blocks retransmitted downlink.<br><br>The counter wraps to zero when it exceeds its maximum value. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma packetAckNackDn (pktANDn)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the PACKET-DOWNLINK-ACK-NACK messages transmitted.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma pcuEdgeDataBlocksDn (EDtBlkDn)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the cumulative number of EGPRS RLC data blocks sent by the PCU on this TDMA.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma pcuEdgeDnCum8PskMeanBep (EDnCum8PMnB)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the cumulative value of the 8PSK_BEP derived from the 8PSK_MEAN_BEP received from a MS in this TDMA in the EGPRS BEP Link Quality Measurements (8PSK_MEAN_BEP).<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma pcuEdgeDnNbs8PskMeanBep (EDnNb8PMnB)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the 8PSK_MEAN_BEP values received from a MS in this TDMA in the EGPRS BEP Link Quality Measurements (8PSK_MEAN_BEP).<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma pcuEdgeDnCumGmskMeanBep (EDnCumGMnB)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the cumulative value of the GMSK_BEP derived from the GMSK_MEAN_BEP received from a MS in this TDMA in the EGPRS BEP Link Quality Measurements (GMSK_MEAN_BEP).<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma pcuEdgeDnNbsGmskMeanBep (EDnNbGMnB)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the GMSK_MEAN_BEP values received from a MS in this TDMA in the EGPRS BEP Link Quality Measurements (GMSK_MEAN_BEP).<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Pcusa Conn PcmLk CgiCell Tdma PdchAllocationStatistics (PdchAllocStats)

| | |
|---|---|
| Properties | Operational |

| | |
|---|---|
| Description | This group contains statistical data. |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma configuredTimeslots (cfgTs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of configured timeslots. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma unavailableTimeslots (unavailTs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the unavailable timeslots as signalled by the BSC. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma upActiveTimeslots (upActTs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current number of active uplink timeslots bearing at least one TBF. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma dnActiveTimeslots (dnActTs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current number of active downlink timeslots bearing at least one TBF. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Pcusa Conn PcmLk CgiCell Tdma ReleaseStatistics (RelStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistical data collected by release counters. |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma tbfNormalReleaseUp (tbfNormRelUp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the uplink TBFs that terminated normally.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma tbfNormalReleaseDn (tbfNormRelDn)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the downlink TBFs that terminated normally.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma noPacketResourceReq (noPktResReq)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the TBFs abnormally released due to non-receipt of Packet Resource Request.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma lossOfComNN002Max (lOCNN002Max)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the TBFs abnormally released due to V(Q) non-progression.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma lossOfComT3169 (lOCT3169)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the TBFs abnormally released due to T3169 timer expiry.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma lossOfComNT0001 (lOCNT0001)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the TBFs abnormally released due to NT0001 timer expiry.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma lossOfComT3195 (lOCT3195)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the TBFs abnormally released due to T3195 timer expiry.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma lossOfComT3191 (lOCT3191)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the TBFs abnormally released due to T3191 timer expiry. |

| | |
|---|---|
| | The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |
| Default | COLLECTED STATS PCUSupportApplication Connection PcmLink CgiCell Tdma |
| Description | The statistics record generated by the PCUSupportApplication Connection PcmLink CgiCell Tdma component. |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma localBusy (locBus)

| | |
|---|---|
| Description | This attribute counts the blocks sent with the window stalled indicator set during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma remoteBusy (remBus)

| | |
|---|---|
| Description | This attribute counts the blocks received with the window stalled indicator set during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma configuredTimeslots (cfgTs)

| | |
|---|---|
| Description | This attribute indicates the number of configured timeslots at the end of the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma cumulativeUnavailableTimeslots (cumUnavailTs)

| | |
|---|---|
| Description | This attribute indicates the cumulative number of unavailable timeslots at the sample time during the statistics collection interval.<br><br>The average can be calculated by dividing this attribute value by the *nbSamples* value. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma cumulativeUpActiveTimeslots (cumUpActTs)

Description — This attribute indicates the cumulative number of active uplink timeslots bearing at least one TBF at the sample time during the statistics collection interval.

The average can be calculated by dividing this attribute value by the *nbSamples* value.

Values — Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma cumulativeUpTbfPerTimeslots (cumUpTbfPerTs)

Description — This attribute indicates the cumulative number of uplink TBFs per timeslots for all the timeslots in the TDMA at the sample time during the statistics collection interval.

The average can be calculated by dividing this attribute value by the *nbSamples* value.

Values — Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma cumulativeDnActiveTimeslots (cumDnActTs)

Description — This attribute indicates the cumulative number of active downlink timeslots bearing at least one TBF at the sample time during the statistics collection interval.

The average can be calculated by dividing this attribute value by the *nbSamples* value.

Values — Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma cumulativeDnTbfPerTimeslots (cumDnTbfPerTs)

Description — This attribute indicates the cumulative number of downlink TBFs per timeslots for all the timeslots in the TDMA at the sample time during the statistics collection interval.

The average can be calculated by dividing this attribute value by the *nbSamples* value.

Values — Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma nbSamples (nbS)

Description: This attribute indicates how many samples were taken during the statistics collection interval.

This value can be used with the cumulative attribute for average calculs.

Values: Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma llcPacketsUp (llcPktUp)

Description: This attribute counts the LLC packets reassembled and transmitted to the LLC relay during the statistics collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma dataBlocksUp (dataBUp)

Description: This attribute counts the uplink RLC data blocks received during the statistics collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma controlBlocksUp (ctrlBUp)

Description: This attribute counts the uplink RLC control blocks received during the statistics collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma invalidBlocksUp (invalidBUp)

Description: This attribute counts the uplink invalid radio blocks received during the statistics collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma invalidProtocolErrorBlocksUp (invalidProtErrBUp)

Description: This attribute counts the uplink invalid radio blocks received with invalid RLC protocol during the statistics collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma outOfSequenceBlocksUp (outOfSeqBUp)

| | |
|---|---|
| Description | This attribute counts the data blocks received uplink with Block Sequence Number outside the received window during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma packetAckNackUp (pktANUp)

| | |
|---|---|
| Description | This attribute counts the PACKET-UPLINK-ACK-NACK messages received during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma totalRetransmissionRequested (totRtxReq)

| | |
|---|---|
| Description | This attribute counts the RLC/MAC block retransmission requests during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma cumulativeUpRxQual (cumUpRxQual)

| | |
|---|---|
| Description | This attribute indicates the cumulative uplink RxQual value during the statistics collection interval.<br><br>The average can be calculated by dividing this attribute value by the *nbSamples* value. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma cumulativeUpRxLev (cumUpRxLev)

| | |
|---|---|
| Description | This attribute indicates the cumulative uplink RxLev value during the statistics collection interval.<br><br>The average can be calculated by dividing this attribute value by the *nbSamples* value. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma nbSamplesUpQuality (nbSamplesUpQuality)

| | |
|---|---|
| Description | This attribute counts the samples for RxQual and RxLev cumulative values during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma llcPacketsDn (llcPktDn)

Description: This attribute counts the LLC packets segmented into RLC data blocks received during the statistics collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma dataBlocksDn (dataBDn)

Description: This attribute counts the downlink RLC data blocks transmitted during the statistics collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma controlBlocksDn (ctrlBDn)

Description: This attribute counts the downlink RLC control blocks transmitted during the statistics collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma retransmittedDataBlocksDn (rtxDataBDn)

Description: This attribute counts the data blocks retransmitted downlink during the statistics collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma packetAckNackDn (pktANDn)

Description: This attribute counts the PACKET-DOWNLINK-ACK-NACK messages transmitted during the statistics collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma cumulativeDnRxQual (cumDnRxQual)

Description: This attribute indicates the cumulative downlink RxQual value during the statistics collection interval.

The average can be calculated by dividing this attribute value by the *nbSamples* value.

Values: Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma nbSamplesDnQuality (nbSamplesDnQuality)

Description: This attribute counts the samples for RxQual cumulative values during the statistics collection interval.

| | |
|---|---|
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma tbfNormalReleaseUp (tbfNormRelUp)

| | |
|---|---|
| Description | This attribute counts the uplink TBFs which terminated normally during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma tbfNormalReleaseDn (tbfNormRelDn)

| | |
|---|---|
| Description | This attribute counts the downlink TBFs which terminated normally during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma noPacketResourceReq (noPktResReq)

| | |
|---|---|
| Description | This attribute counts the TBFs abnormally released due to non receipt of Packet Resource Request during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma lossOfComNN002Max (lOCNN002Max)

| | |
|---|---|
| Description | This attribute counts the TBFs abnormally released due to V(Q) non progression during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma lossOfComT3169 (lOCT3169)

| | |
|---|---|
| Description | This attribute counts the TBFs abnormally released due to timer T3169 expiry during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma lossOfComNT0001 (lOCNT0001)

| | |
|---|---|
| Description | This attribute counts the TBFs abnormally released due to NT0001 timer expiry during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma lossOfComT3195 (lOCT3195)

| | |
|---|---|
| Description | This attribute counts the TBFs abnormally released due to T3195 timer expiry during the statistics collection interval. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma lossOfComT3191 (lOCT3191)

| | |
|---|---|
| Description | This attribute counts the TBFs abnormally released due to T3191 timer expiry during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### COMPONENT Pcusa Conn PcmLk CgiCell Tdma Timeslot (Ts)

| | |
|---|---|
| Instance | Decimal (0..7) |
| Groups | "GROUP Pcusa Conn PcmLk CgiCell Tdma Ts Operational (Oper)" |
| Scope | Device |
| Description | *Pcusa/n Conn/n PcmLink/n Cell/n Tdma/n Ts/n*<br>This dynamic component represents a GPRS timeslot in a TDMA. This element is used to obtain configuration information. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Pcusa Conn PcmLk CgiCell Tdma Ts Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all attributes describing radio parts of the network. |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma Ts tsNumber (tsNum)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the 16 kbit/s timeslot in the DS0 channel. |
| Values | Decimal (0..3) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma Ts tsState (state)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the state of a *Timeslot*. |

| | |
|---|---|
| Values | unsynchronized<br>synchronized |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma Ts ds0Channel (ds0Ch)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the DS0 channel number carrying this TDMA timeslot in the AGPRS PCM. |
| Values | Decimal (0..30) |
| Default | No default |

### COMPONENT Pcusa Conn PcmLk CgiCell Tdma JokerTimeslot (JokerTs)

| | |
|---|---|
| Instance | Decimal (0..23) |
| Groups | "GROUP Pcusa Conn PcmLk CgiCell Tdma JokerTs Operational (Oper)" |
| Scope | Device |
| Description | *Pcusa/n Conn/n PcmLink/n Cell/n Tdma/n* Joker*Ts/n*<br>This dynamic component represents a GPRS EDGE joker timeslot in a TDMA. This element is used to obtain configuration information. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Pcusa Conn PcmLk CgiCell Tdma JokerTs Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all attributes describing radio parts of the network. |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma JokerTs tsNumber (tsNum)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the 16 kbit/s timeslot in the DS0 channel. |

| | |
|---|---|
| Values | Decimal (0..3) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma JokerTs tsState (state)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the state of a *Timeslot*. |
| Values | unsynchronized<br>synchronized |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Tdma JokerTs ds0Channel (ds0Ch)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the DS0 channel number carrying this TDMA timeslot in the AGPRS PCM. |
| Values | Decimal (0..30) |
| Default | No default |

### COMPONENT Pcusa Conn PcmLk CgiCell Ccch (Ccch)

| | |
|---|---|
| Groups | "GROUP Pcusa Conn PcmLk CgiCell Ccch UplkStatistics (ULStats)"<br>"GROUP Pcusa Conn PcmLk CgiCell Ccch DownlkStatistics (DLStats)" |

#### "COLLECTED STATS PCUSupportApplication Connection PcmLink CgiCell Ccch"

| | |
|---|---|
| Scope | Device |
| Description | *Pcusa/n Conn/n PcmLink/n Cell/n Ccch*<br>This dynamic component represents the *Cell*‘s common control channel. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Pcusa Conn PcmLk CgiCell Ccch UplkStatistics (ULStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistical data collected by counters. |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Ccch upTbfImmediateAssignment (immAssUp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the IMMEDIATE-ASSIGNMENT messages generated by the PCU to the mobile station in the first phase of the two-phase access uplink TBF establishment.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Ccch upTbfImmAssigRejectNoPdch (noPdch)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the IMMEDIATE-ASSIGNMENT-REJECT messages generated by the PCU to the mobile station with a cause of “No PDCH available for GPRS” in the first phase of the two-phase access uplink TBF establishment.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Ccch upTbfImmAssigRejectNoTs (noTs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the IMMEDIATE-ASSIGNMENT-REJECT messages generated by the PCU to the mobile station with a cause of “Maximum MS per TS is reached” in the first phase of the two-phase access uplink TBF establishment.<br><br>The counter wraps to zero when it exceeds its maximum value. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Ccch upTbfImmAssigRejectNoTbf (noTbf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the IMMEDIATE-ASSIGNMENT-REJECT messages generated by the PCU to the mobile station with a cause of “Maximum TBF per TDMA is reached” in the first phase of the two-phase access uplink TBF establishment.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Ccch channelRequest (chanReq)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the CHANNEL-REQUEST messages received by the PCU from the mobile station in the first phase of the two-phase access uplink TBF establishment.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Ccch packetResourceRequest (pktResReq)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the PACKET-RESOURCE-REQUEST messages received by the PCU from the mobile station in the second phase of the two-phase access uplink TBF establishment.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Ccch deleteIndicationUp (delIndUp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the DELETE-INDICATION messages sent by the BTSs when an IMMEDIATE-ASSIGNMENT message for uplink transfer is dropped.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Ccch packetUpAssignment (pktUpAss)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the PACKET-UPLINK-ASSIGNMENT messages generated by the PCU after a PACKET-RESOURCE-REQUEST in the second phase of the two-phase access uplink TBF establishment.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Ccch upTbfPacketAccessRejectNoPdch (pktNoPdch)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the PACKET-ACCESS-REJECT messages generated by the PCU to the mobile station with a cause of “No PDCH available for GPRS” in the second phase of the two-phase access uplink TBF establishment.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Ccch upTbfPacketAccessRejectNoTs (pktNoTs)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the PACKET-ACCESS-REJECT messages generated by the PCU to the mobile station with a cause of “No PDCH available for GPRS” in the second phase of the two-phase access uplink TBF establishment.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Ccch upTbfPacketAccessRejectNoTbf (pktUpNoTbf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the PACKET-ACCESS-REJECT messages generated by the PCU to the mobile station with a cause of “Maximum TBF per TDMA is reached” in the second phase of the two-phase access uplink TBF establishment.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Pcusa Conn PcmLk CgiCell Ccch DownlkStatistics (DLStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistical data collected by counters. |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Ccch dnTbfImmediateAssignment (immAssDn)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the IMMEDIATE-ASSIGNMENT messages sent for a downlink TBF establishment from the PCU to the mobile station.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Ccch pagingRequest (pagReq)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the PAGING-REQUEST messages generated by the PCU to the mobile station.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Ccch deleteIndicationDn (delIndDn)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the DELETE-INDICATION messages sent by the BTSs when an IMMEDIATE-ASSIGNMENT message for downlink transfer is dropped.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Ccch packetDnAssignment (pktDnAss)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the PACKET-DOWNLINK-ASSIGNMENT messages generated by the PCU to the mobile station in the downlink TBF establishment.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Ccch dnTbfPacketAccessRejectNoPdch (pktDnNoPdch)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the PACKET-ACCESS-REJECT messages generated by the PCU to the mobile station with a cause of “No |

PDCH available for GPRS” in the second phase of the two-phase access downlink TBF establishment.

The counter wraps to zero when it exceeds its maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Ccch dnTbfPacketAccessRejectNoTs (pktDnNoTs)

Access: Read only

Description: This attribute counts the PACKET-ACCESS-REJECT messages generated by the PCU to the mobile station with a cause of “Maximum MS per TS is reached” in the second phase of the two-phase access downlink TBF establishment.

The counter wraps to zero when it exceeds its maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Ccch dnTbfPacketAccessRejectNoTbf (pktDnNoTbf)

Access: Read only

Description: This attribute counts the PACKET-ACCESS-REJECT messages generated by the PCU to the mobile station with a cause of “Maximum TBF per TDMA is reached” in the second phase of the two-phase access downlink TBF establishment.

The counter wraps to zero when it exceeds its maximum value.

Values: Decimal (0..4294967295)

Default: No default

Default: COLLECTED STATS PCUSupportApplication Connection PcmLink CgiCell Ccch

Description: The statistics record generated by the PCUSupportApplication Connection PcmLink CgiCell Ccch component.

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Ccch upTbfImmediateAssignment (immAssUp)

Description: This attribute counts IMMEDIATE-ASSIGNMENT messages generated by the PCU to the mobile station in the first phase of the two-phase access uplink TBF establishment during the statistics collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Ccch upTbfImmAssigRejectNoPdch (noPdch)

Description: This attribute counts IMMEDIATE-ASSIGNMENT-REJECT messages generated by the PCU to the mobile station with a cause of “No PDCH available for GPRS” in the first phase of the two-phase access uplink TBF establishment during the statistics collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Ccch upTbfImmAssigRejectNoTs (noTs)

Description: This attribute counts IMMEDIATE-ASSIGNMENT-REJECT messages generated by the PCU to the mobile station with a cause of “Maximum MS per TS is reached” in the first phase of the two-phase access uplink TBF establishment during the statistics collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Ccch upTbfImmAssigRejectNoTbf (noTbf)

Description: This attribute counts IMMEDIATE-ASSIGNMENT-REJECT messages generated by the PCU to the mobile station with a cause of “Maximum TBF per TDMA is reached” in the first phase of the two-phase access uplink TBF establishment during the statistics collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Ccch channelRequest (chanReq)

Description: This attribute counts CHANNEL-REQUEST messages received by the PCU from the mobile station in the first phase of the two-phase access uplink TBF establishment during the statistics collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Ccch packetResourceRequest (pktResReq)

Description: This attribute counts PACKET-RESOURCE-REQUEST messages received by the PCU from the mobile station in the second phase of the two-phase access uplink TBF establishment during the statistics collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Ccch deleteIndicationUp (delIndUp)

Description: This attribute counts DELETE-INDICATION messages sent by the BTSs when an IMMEDIATE-ASSIGNMENT message for uplink transfer is dropped during the statistics collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Ccch packetUpAssignment (pktUpAss)

Description: This attribute counts PACKET-UPLINK-ASSIGNMENT messages generated by the PCU after a PACKET-RESOURCE-REQUEST in the second phase of the two_phase access uplink TBF establishment during the statistics collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Ccch upTbfPacketAccessRejectNoPdch (pktNoPdch)

Description: This attribute counts PACKET-ACCESS-REJECT messages generated by the PCU to the mobile station with a cause of “No PDCH available for GPRS” in the second phase of the two-phase access uplink TBF establishment during the statistics collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Ccch upTbfPacketAccessRejectNoTs (pktNoTs)

Description: This attribute counts PACKET-ACCESS-REJECT messages generated by the PCU to the mobile station with a cause of “Maximum MS per TS is reached” in the second phase of the two-phase access uplink TBF establishment during the statistics collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Ccch upTbfPacketAccessRejectNoTbf (pktUpNoTbf)

| | |
|---|---|
| Description | This attribute counts PACKET-ACCESS-REJECT messages generated by the PCU to the mobile station with a cause of “Maximum TBF per TDMA is reached” in the second phase of the two-phase access uplink TBF establishment during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Ccch dnTbfImmediateAssignment (immAssDn)

| | |
|---|---|
| Description | This attribute counts IMMEDIATE-ASSIGNMENT messages sent for a downlink TBF establishment from the PCU to the mobile station during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Ccch pagingRequest (pagReq)

| | |
|---|---|
| Description | This attribute counts PAGING-REQUEST messages generated by the PCU to the mobile station during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Ccch deleteIndicationDn (delIndDn)

| | |
|---|---|
| Description | This attribute counts DELETE-INDICATION messages sent by the BTSs when an IMMEDIATE-ASSIGNMENT message for downlink transfer is dropped during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Ccch packetDnAssignment (pktDnAss)

| | |
|---|---|
| Description | This attribute counts PACKET-DOWNLINK-ASSIGNMENT messages generated by the PCU to the mobile station in the downlink TBF establishment phase during the statistics collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Ccch dnTbfPacketAccessRejectNoPdch (pktDnNoPdch)

Description: This attribute counts PACKET-ACCESS-REJECT messages generated by the PCU to the mobile station with a cause of “No PDCH available for GPRS” in the second phase of the two-phase access downlink TBF establishment during the statistics collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Ccch dnTbfPacketAccessRejectNoTs (pktDnNoTs)

Description: This attribute counts PACKET-ACCESS-REJECT messages generated by the PCU to the mobile station with a cause of “Maximum MS per TS is reached” in the second phase of the two-phase access downlink TBF establishment during the statistics collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Pcusa Conn PcmLk CgiCell Ccch dnTbfPacketAccessRejectNoTbf (pktDnNoTbf)

Description: This attribute counts PACKET-ACCESS-REJECT messages generated by the PCU to the mobile station with a cause of “Maximum TBF per TDMA is reached” in the second phase of the two-phase access downlink TBF establishment during the statistics collection interval.

Values: Decimal (0..4294967295)

### COMPONENT Pcusa Conn PcmLk CgiCell MobileStation (Ms)

Instance: Decimal (0..4294967295)

Scope: Device

Description: *Pcusa/n Conn/n PcmLink/n Cell/n MobileStation/n*
This dynamic component represents a mobile station in a *Cell*. It is used to display information on the mobile.

Common Verbs:
- Help
- List
- Display

Passport 7400, 15000, 20000

# Component Pcusa

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component Pcusn

241-5701-060

Passport 7400, 15000, 20000

# Component Pcusn

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT PacketControlUnitSupportNode (Pcusn)

| | |
|---|---|
| Scope | Application |
| Description | *PacketControlUnitSupportNode*<br><br>This component represents the Packet Control Unit Support Node (PCUSN) functionality of GPRS and organizes all its related subcomponents. |
| Subcomponents | "COMPONENT Pcusn GprsTransportLayer (Gtl)" |
| Opt. Subcomp. | "COMPONENT Pcusn NetworkServiceEntity (Nse)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## COMPONENT Pcusn GprsTransportLayer (Gtl)

| | |
|---|---|
| Groups | "GROUP Pcusn Gtl NsProv" |
| Scope | Application |
| Description | *Pcusn GprsTransportLayer*<br><br>This component represents the Transport Layer functionality of |

the Gb interface of the Packet Control Unit Support Node (PCUSN).

Common Verbs

Help
List
Display

## GROUP Pcusn Gtl NsProv

Properties: Provisioned

Description: This group contains provisionable attributes for the Network Service (NS) protocol layer of GPRS.

## ATTRIBUTE Pcusn Gtl nsBlockTimer (tnsBlk)

Access: Read: All
Write: All

Description: This attribute specifies the timer to guard the Network Service Virtual Connection (NS-VC) BLOCK and UNBLOCK procedures. This is the time interval between an NS-BLOCK and NS-BLOCK ACK, or between an NS-UNBLOCK and NS-UNBLOCK
ACK.

The timer must be provisioned to a value that is greater than the maximum expected round trip delay of a Protocol Data Unit (PDU). The default value is the value provided in the GPRS specification.

Values: Decimal (1..120)

Units: seconds

Default: 3

## ATTRIBUTE Pcusn Gtl nsBlockRetries (nBlk)

Access: Read: All
Write: All

| | |
|---|---|
| Description | This attribute specifies the number of times the NS-BLOCK message can be retried if NS-BLOCK ACK is not received before the *nsBlockTimer* expires. |
| Values | Decimal (0..10) |
| Default | 3 |

### ATTRIBUTE Pcusn Gtl nsUnBlockRetries (nUnBlk)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the number of times the NS-UNBLOCK message can be retried if NS-UNBLOCK ACK is not received before the *nsBlockTimer* expires. The default value is the value provided in the GPRS specification. |
| Values | Decimal (3..15) |
| Default | 3 |

### ATTRIBUTE Pcusn Gtl nsResetTimer (tnsReset)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the timer to guard the Network Service Virtual Connection (NS-VC) RESET procedure. This is the time interval between an NS-RESET and NS-RESET ACK.<br><br>The timer must be provisioned to a value that is greater than the maximum expected round trip delay of a Protocol Data Unit (PDU). The default value is the value provided in the GPRS specification. |
| Values | Decimal (1..120) |
| Units | seconds |
| Default | 3 |

### ATTRIBUTE Pcusn Gtl nsResetRetries (nReset)

| | |
|---|---|
| Access | Read: All<br>Write: All |

| | |
|---|---|
| Description | This attribute specifies the times the NS-RESET message can be retried if NS-RESET ACK is not received before the *nsResetTimer* expires. |
| Values | Decimal (3..10) |
| Default | 5 |

### ATTRIBUTE Pcusn Gtl nsTestTimer (tnsTest)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the periodicity of the Network Service Virtual Connection (NS-VC) TEST procedure which is the initiation of the NS-ALIVE Protocol Data Unit (PDU).<br>The range is the value provided in the GPRS specification. |
| Values | Decimal (1..60) |
| Units | seconds |
| Default | 30 |

### ATTRIBUTE Pcusn Gtl nsAliveTimer (tnsAlive)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the timer to guard the Network Service Virtual Connection (NS-VC) ALIVE procedure. This is the time interval between an NS-ALIVE and NS-ALIVE ACK.<br><br>The timer must be provisioned to a value that is greater than the maximum expected round trip delay of a Protocol Data Unit (PDU). The default value is the value provided in the GPRS specification. |
| Values | Decimal (1..10) |
| Units | seconds |
| Default | 3 |

## ATTRIBUTE Pcusn Gtl nsAliveRetries (nAlive)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the number of times the NS-ALIVE message can be retried if NS-ALIVE ACK is not received before the *nsAliveTimer* expires. |
| Values | Decimal (3..10) |
| Default | 10 |

## COMPONENT Pcusn NetworkServiceEntity (Nse)

| | |
|---|---|
| Instance | Decimal (0..65535) |
| Groups | "GROUP Pcusn Nse Provisioned (Prov)" |
| Scope | Application |
| Description | *Pcusn NetworkServiceEntity/<nsei>*<br><br>This component represents a Network Service Entity (NSE). Each NSE is associated with a single Packet Control Unit (PCU) and is identified by means of a Network Service Entity Identifier (NSEI). The same NSE can be provisioned in multiple PcGtl instances to<br>enable load sharing. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Pcusn Nse Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisionable attributes for the BSS GPRS Protocol (BSSGP) layer of GPRS. |

### ATTRIBUTE Pcusn Nse linkToPcuConn (lToPcu)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies a *Pcusa Connection* component that this NSE associates with. The purpose is to associate an NSE (Gb interface) with a *Connection* which groups the PCM links to a BSC (a GPRS interface). The operator will provision this link when setting up the conections through the PCUSN for the BSC to SGSN. |
| Values | Link (Service, linkToNse) |
| Default | No default |

### ATTRIBUTE Pcusn Nse bvcBlockUnblockTimer (tBlkUnblk)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the timer to guard the blocking and unblocking procedures. The Packet Control Unit (PCU) sends a BVC-BLOCK (UNBLOCK) Protocol Data Unit (PDU) to the Serving GPRS Support Node (SGSN) and starts the *bvcBlockUnblockTimer*. The PCU stops the timer upon reception of a BVC-BLOCK (UNBLOCK)-ACK PDU from the SGSN. If the timer expires, the PCU retries the BVC-BLOCK(UNBLOCK) procedure.<br><br>The timer must be provisioned to a value that is greater than the maximum expected round trip delay of a Protocol Data Unit (PDU). |
| Values | Decimal (1..30) |
| Units | seconds |
| Default | 15 |

### ATTRIBUTE Pcusn Nse bvcBlockRetries (nBvcBlk)

| | |
|---|---|
| Access | Read: All<br>Write: All |

| | |
|---|---|
| Description | This attribute specifies the maximum number of times the Packet Control Unit (PCU) can send the BVC-BLOCK Protocol Data Unit (PDU) in case a BVC-BLOCK ACK is not received before the *bvcBlockUnblockTimer* expiry (defined in *Pcusn Nse* component). |
| Values | Decimal (0..6) |
| Default | 3 |

### ATTRIBUTE Pcusn Nse bvcUnblockRetries (nBvcUnblk)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the maximum number of times the Packet Control Unit (PCU) can resend the BVC-UNBLOCK Protocol Data Unit (PDU) in case a BVC-UNBLOCK ACK is not received before the *bvcBlockUnblockTimer* expires. |
| Values | Decimal (0..6) |
| Default | 3 |

### ATTRIBUTE Pcusn Nse bvcResetReqTimer (tReset)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the timer to guard the BVC-RESET procedure. The Packet Control Unit (PCU) sends a BVC-RESET Protocol Data Unit (PDU) to the Serving GPRS Support Node (SGSN) and starts the *bvcResetReqTimer* for a BVC. The PCU stops the timer upon reception of a BVC-RESET-ACK PDU from the SGSN. If the timer expires, the PCU retries the BVC-RESET procedure.<br><br>The timer must be provisioned to a value that is greater than the maximum expected round trip delay of a Protocol Data Unit (PDU). |
| Values | Decimal (1..120) |
| Units | seconds |

| | |
|---|---|
| Default | 60 |

### ATTRIBUTE Pcusn Nse bvcResetReqRetries (nBvcRst)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the maximum number of times the Packet Control Unit (PCU) can resend the BVC-RESET Protocol Data Unit (PDU) in case a BVC-RESET ACK is not received before the *bvcResetReqTimer* expires. |
| Values | Decimal (0..6) |
| Default | 3 |

### ATTRIBUTE Pcusn Nse suspendTimer (tSuspend)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the timer to guard the SUSPEND procedure. The Packet Control Unit (PCU) sends a SUSPEND Protocol Data Unit (PDU) to the Serving GPRS Support Node (SGSN) and starts the *suspendTimer*. The PCU stops the timer upon reception of a SUSPEND-ACK (NACK) PDU from the SGSN. If the timer expires, the PCU retries the SUSPEND procedure.<br><br>The timer must be provisioned to a value that is greater than the maximum expected round trip delay of a Protocol Data Unit (PDU). |
| Values | Decimal (1..10) |
| Units | seconds |
| Default | 5 |

### ATTRIBUTE Pcusn Nse suspendRetries (nSuspend)

| | |
|---|---|
| Access | Read: All<br>Write: All |

| | |
|---|---|
| Description | This attribute specifies the maximum number of times the Packet Control Unit (PCU) can resend the SUSPEND Protocol Data Unit (PDU) in case a SUSPEND ACK is not received before the *suspendTimer* expires. |
| Values | Decimal (0..6) |
| Default | 3 |

### ATTRIBUTE Pcusn Nse resumeTimer (tResume)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the timer to guard the RESUME procedure. The Packet Control Unit (PCU) sends a RESUME Protocol Data<br>Unit (PDU) to the Serving GPRS Support Node (SGSN) and starts the *resumeTimer.* The PCU stops the timer upon reception of a RESUME-ACK (NACK) PDU from the SGSN. If the timer expires, the PCU retries the RESUME procedure.<br><br>The timer must be provisioned to a value that is greater than the maximum expected round trip delay of a Protocol Data Unit (PDU). |
| Values | Decimal (1..10) |
| Units | seconds |
| Default | 5 |

### ATTRIBUTE Pcusn Nse resumeRetries (nResume)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the maximum number of times the Packet Control Unit (PCU) can resend the RESUME PDU in case a RESUME ACK is not received before the *resumeTimer* expires. |
| Values | Decimal (0..6) |
| Default | 3 |

### ATTRIBUTE Pcusn Nse raCapabilityUpTimer (tRaUp)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the timer to guard the RA-CAPABILITY-UPDATE procedure. When the Packet Control Unit (PCU) sends a RA-CAPABILITY-UPDATE Protocol Data Unit (PDU) to the Serving GPRS Support Node (SGSN) it starts the *raCapabilityUpTimer*. The PCU stops the timer upon reception of a RA-CAPABILITY-UPDATE-ACK PDU from the SGSN. If the timer expires, the PCU retries the RA-CAPABILITY-UPDATE procedure.<br><br>The timer must be provisioned to a value that is greater than the maximum expected round trip delay of a Protocol Data Unit (PDU). |
| Values | Decimal (1..30) |
| Units | seconds |
| Default | 15 |

### ATTRIBUTE Pcusn Nse raCapabiltyUpRetries (nRaUp)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the maximum number of times the Packet Control Unit (PCU) can resend the RA-CAPABILITY-UPDATE PDU in case a RA-CAPABILITY-UPDATE ACK is not received before the *raCapabilityUpTimer* expires. |
| Values | Decimal (0..6) |
| Default | 3 |

### ATTRIBUTE Pcusn Nse flowControlMaxRate (flCntlMaxRt)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the minimum interval between sending consequent Flow Control Protocol Data Unit (PDU) for a given |

| | |
|---|---|
| | BSS GPRS Virtual Connection (BVC) or for a Mobile Station (MS).<br>Changing the value can affect the flow control function at the Packet Control Unit (PCU) level, with the Logical Link Control (LLC) frames discarded due to overflow of the MS or the BVC buckets. |
| Values | Decimal (100..10000) |
| Units | msec |
| Default | 1000 |

### ATTRIBUTE Pcusn Nse tsFlowCntlBucketSize (tsBmax)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the maximum bucket size (Bmax) for a BSS GPRS Virtual Connection (BVC) Flow Control procedure. The value is the BVC Max Bucket size for a BVC with 1 time slot. The Packet Control Unit (PCU) calculates the actual BVC Max Bucket size for the configuration, by multiplying this provisioned value by the number of time slots in the cell, dynamically given by the Base Station Control (BSC). The default value has been estimated based on the *msFlowCntlBucketSize* default value, with 8 Mobiles in downlink transfer. The unit is 100 bytes. |
| Values | Decimal (0..65535) |
| Default | 720 |

### ATTRIBUTE Pcusn Nse tsLeakRate (tsLeakRt)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the leak rate parameter for a BSS GPRS Virtual Connection (BVC) with 1 time slot. The Packet Control Unit (PCU) calculates the actual BVC leak rate for the configuration, by multiplying this provisioned value by the number of time slots in the cell, dynamically given by the Base Station Control (BSC). The default value assumes a CS1 Mobile |

| | |
|---|---|
| | Station (MS), with a throughput of 10000 bit/s, with assumption that the flow is statistically regular in the cell. The unit is 100 bit/s. |
| Values | Decimal (0..65535) |
| Default | 100 |

### ATTRIBUTE Pcusn Nse msFlowCntlBucketSize (msBmax)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the Mobile Station (MS) maximum bucket size. The default value assumes 6 Logical Link Control (LLC) frames in the bucket. The unit is 100 bytes. |
| Values | Decimal (0..65535) |
| Default | 90 |

### ATTRIBUTE Pcusn Nse linkToSlaveNse (lTonse)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the corresponding *PcGtl Nse* component instances provisioned on the FPs. The purpose is to provide common parameters to all instances of this NSE on the FPs and also to associate the *Pcusa Connection* component with this NSE. |
| List of | Link (Service, linkToMasterNse) |
| Default | No default |

Passport 7400, 15000, 20000

# Component Pcusn

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component Piwf

241-5701-060

Passport 7400, 15000, 20000

# Component Piwf

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT PppIwf (Piwf)

| | |
|---|---|
| Instance | Decimal (1..65535) |
| Groups | "GROUP Piwf CustomerIdentifierData (CidData)"<br>"GROUP Piwf IfEntryProv (IfEntry)"<br>"GROUP Piwf OsiState (State)"<br>"GROUP Piwf OperationalStatus (OperStatus)" |
| Scope | Application |
| Description | *PppIwf/n*<br>This component defines an instance of the *Ppp* interworking function. It provides a means for Ppp (RFC1661) to interwork with different forms of transport protocols (MPLS and AtmMpe). |
| Subcomponents | "COMPONENT Piwf Link (Lnk)"<br>"COMPONENT Piwf LinkQualityMonitor (Lqm)"<br>"COMPONENT Piwf NetworkControlProtocol (Ncp)"<br>"COMPONENT Piwf Framer" |
| Opt. Subcomp. | "COMPONENT Piwf AtmAdaptionPoint (AtmAp)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP Piwf CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |

| | |
|---|---|
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

### ATTRIBUTE Piwf customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.<br><br>Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.<br><br>An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to "basic CIDs" in DPN) may be assigned to specific customers. |
| Values | Decimal (0; 1..8191) |
| Default | 0 |

### GROUP Piwf IfEntryProv (IfEntry)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the ifEntry. |

### ATTRIBUTE Piwf ifAdminStatus (ifState)

| | |
|---|---|
| Access | Read and write |
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed. |

| | |
|---|---|
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE Piwf ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP Piwf OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Piwf adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users |

only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Piwf operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Piwf usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has

spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Piwf OperationalStatus (OperStatus)

Properties
Operational

Description
This group includes the Operational Status attribute. This attribute defines the current operational state of this component.

### ATTRIBUTE Piwf snmpOperStatus

Access
Read only

Description
The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed.

Values
up
down
testing

Default
up

### COMPONENT Piwf Link (Lnk)

Groups
"GROUP Piwf Lnk Provisioned (Prov)"
"GROUP Piwf Lnk Operational (Oper)"

Scope
Application

Description
*Ppp/n Link*
This component is used to contain all the attributes related to the

*Ppp* link. This is a mandatory subcomponent of *Ppp* and does not need to be added.

Common Verbs

Help
List
Display

## GROUP Piwf Lnk Provisioned (Prov)

Properties: Provisioned

Description: This group contains the provisioned attributes for the *Ppp* Link component.

## ATTRIBUTE Piwf Lnk configInitialMru (cimru)

Access: Read and write

Description: This is the initial Maximum Receive Unit (Mru) that the local *Ppp* entity will advertise to the remote entity. A change to this attribute will not take effect until *Ppp* is restarted (lock/unlock).

Values: Decimal (68..18000)

Units: octets

Default: 18000

## ATTRIBUTE Piwf Lnk configMagicNumber (cmn)

Access: Read and write

Description: If ***enabled*** the local node will attempt to perform Magic Number negotiation with the remote node. If ***disabled*** this negotiation is not performed. In any event, the local node will comply with any magic number negotiations attempted by the remote node, per the *Ppp* specification. A change to this attribute will not take effect until *Ppp* is restarted (lock/unlock).

Values:
disabled
enabled

Default: enabled

### ATTRIBUTE Piwf Lnk restartTimer (rtimer)

| | |
|---|---|
| Access | Read and write |
| Description | This is the time, in milliseconds, that *Ppp* will wait for a response to a configure request or a terminate request before retrying. |
| Values | Decimal (1000..10000) |
| Units | msec |
| Default | 3000 |

### ATTRIBUTE Piwf Lnk continuityMonitor (cntmon)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute turns on/off (***enabled/disabled***) the Link Continuity Monitor. If set to ***enabled***, periodic keep alive echo packet will be sent over the *Ppp* link. If set to ***disabled***, no keep alive packets will be sent. A change to this attribute will not take effect until *Ppp* is restarted (lock/unlock). |
| Values | enabled<br>disabled |
| Default | disabled |

### ATTRIBUTE Piwf Lnk negativeAckTries (naks)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum negative acknowledgments sent to the remote *Ppp* entity during negotiation before defaulting its configuration parameters. |
| Values | Decimal (0..4294967295) |
| Default | 10 |

### ATTRIBUTE Piwf Lnk qualityThreshold (quality)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the minimum allowed line quality before the line is considered too poor to continue operation. The value for this attribute is a percentage measure of the line quality given |

| | |
|---|---|
| | in integers (10 to 99). The higher the value, the more stringent the line requirements. |
| Values | Decimal (10..99) |
| Units | % |
| Default | 90 |

### ATTRIBUTE Piwf Lnk qualityWindow (qwindow)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the number of seconds used for sampling line quality. If line quality drops below the level set with the *qualityThreshold* attribute during this window, this instance of *Ppp* will be marked down until line quality recovers. |
| Values | Decimal (10..400) |
| Units | seconds |
| Default | 30 |

### ATTRIBUTE Piwf Lnk terminateRequestTries (term)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum terminate requests to be sent, when closing the connection, and not answered before this instance of *Ppp* enters a closing state. |
| Values | Decimal (0..4294967295) |
| Default | 10 |

### ATTRIBUTE Piwf Lnk configureRequestTries (try)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the number of configuration requests that will be sent out and not answered before this instance of *Ppp* enters a listening state. If both sides enter the listening state then the link will not come up. To eliminate this possibility, this attribute should be set to 1000000000. This will ensure that this end of the *Ppp* link will continue to try until the link is good. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 1000000000 |

### GROUP Piwf Lnk Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the *Ppp* Link Operational attributes. |

### ATTRIBUTE Piwf Lnk operState (state)

| | |
|---|---|
| Access | Read only |
| Description | This is the operational state of the Link Control Protocol. For more information as to the definition of each state see RFC1331 section 5.3. |
| Values | initial<br>starting<br>closed<br>stopped<br>closing<br>stopping<br>reqsent<br>ackrcvd<br>acksent<br>opened |
| Default | initial |

### ATTRIBUTE Piwf Lnk lineCondition (lcond)

| | |
|---|---|
| Access | Read only |
| Description | This attribute describes the condition of the physical line that *Ppp* is running over.<br>***ok***: The condition of the line is good.<br>***looped***: The line is looped back on itself, probably at the remote end.<br>***noClock***: There is a hardware problem with the line. The cable may not be plugged in correctly.<br>***badLineCondition***: The quality of the line is below the *qualityThreshold*. |

| | |
|---|---|
| Values | ok<br>looped<br>noClock<br>badLineCondition |
| Default | ok |

### ATTRIBUTE Piwf Lnk badAddresses (ba)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of packets received with an incorrect Address Field. If this count is going up quickly, it could indicate that there is a line quality problem or that the remote end is transmitting a protocol other than *Ppp*. This counter will wrap around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Piwf Lnk badControls (bc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of packets received on this link with an incorrect Control Field. If this count is going up quickly, it could indicate that there is a line quality problem or that the remote end is transmitting a protocol other than *Ppp*. This counter will wrap around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Piwf Lnk packetTooLongs (ptl)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of packets received that have been discarded because their length exceeded the Maximum Receive Unit (Mru). This counter will wrap around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE Piwf Lnk badFcss (bfcs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of packets received that have been discarded due to having an incorrect Frame Check Sequence (Fcs). This counter will wrap around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Piwf Lnk localMru (lmru)

| | |
|---|---|
| Access | Read only |
| Description | This is the current value of the Maximum Receive Unit (Mru) for the local *Ppp* Entity. This value is the Mru that the remote entity is using when sending packets to the local *Ppp* entity. |
| Values | Decimal (1..2147483648) |
| Units | octets |
| Default | 1 |

### ATTRIBUTE Piwf Lnk remoteMru (rmru)

| | |
|---|---|
| Access | Read only |
| Description | This is the current value of the Maximum Receive Unit (Mru) for the remote *Ppp* entity. This value is the Mru that the local entity is using when sending packets to the remote *Ppp* entity. |
| Values | Decimal (1..2147483648) |
| Units | octets |
| Default | No default |

### ATTRIBUTE Piwf Lnk transmitFcsSize (tfcs)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This is the size of the Frame Check Sequence (Fcs) in bits that the local node will generate when sending packets to the remote node. |
| Values | Decimal (0..128) |
| Units | bits |
| Default | 0 |

### ATTRIBUTE Piwf Lnk receiveFcsSize (rfcs)

| | |
|---|---|
| Access | Read only |
| Description | This is the size of the Frame Check Sequence (Fcs) in bits that the remote node will generate when sending packets to the local node. |
| Values | Decimal (0..128) |
| Units | bits |
| Default | 0 |

### COMPONENT Piwf LinkQualityMonitor (Lqm)

| | |
|---|---|
| Groups | "GROUP Piwf Lqm Provisioned (Prov)"<br>"GROUP Piwf Lqm Operational (Oper)" |
| Scope | Application |
| Description | *Ppp/n LinkQualityMonitor*<br>This component is used to contain all the operational attributes for the *Ppp* Link Quality Monitor. This is a mandatory subcomponent of *Ppp* and does not need to be manually added. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Piwf Lqm Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |

| | |
|---|---|
| Description | This group contains the provisioned attributes for the *Ppp* Link Quality Monitor component. |

### ATTRIBUTE Piwf Lqm configPeriod (cfgper)

| | |
|---|---|
| Access | Read and write |
| Description | This is the *Lqm* reporting period that the local *Ppp* entity will attempt to negotiate with the remote entity, in units of hundredths of a second. A value of “0” allows the remote *Ppp* entity to determine the reporting period. A value greater than 180,000 (1/2 hour) allows the period to be determined dynamically as a function of the transmit data rate. A value from 1-9 is rounded up to 10 during negotiation. A change to this attribute does not take effect until *Ppp* is restarted (lock/unlock). |
| Values | Decimal (0..2147483647) |
| Units | centiseconds |
| Default | 0 |

### ATTRIBUTE Piwf Lqm configStatus (cfgstat)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | If this attribute is ***enabled***, the local node will attempt to perform *Lqm* negotiation with the remote node. If it is ***disabled*** this negotiation is not performed. A change to this attribute will not take effect until *Ppp* is restarted (lock/unlock). |
| Values | disabled<br>enabled |
| Default | disabled |

### GROUP Piwf Lqm Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for the *Ppp* Link Quality Monitor component. |

### ATTRIBUTE Piwf Lqm quality (qual)

| | |
|---|---|
| Access | Read only |
| Description | This is the current quality of the link as declared by the local *Ppp* entity's LinkQuality Management modules. A value of ***good*** indicates that *LinkQualityMonitor configStatus* is ***enabled*** and *Link quality* is above *LinkQuality Threshold*. A value of ***bad*** indicates that *LinkQualityMonitor configStatus* is ***enabled*** and *Link quality* is not above *Link qualityThreshold*. A value of ***notDetermined*** indicates that *LinkQualityMonitor configStatus* is ***enabled*** and the quality of the link has not been calculated yet or *LinkQualityMonitor configStatus* is ***disabled***. |
| Values | good<br>bad<br>notDetermined |
| Default | notDetermined |

### ATTRIBUTE Piwf Lqm inGoodOctets (ingo)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of good octets received. This counter wraps around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Piwf Lqm localPeriod (localp)

| | |
|---|---|
| Access | Read only |
| Description | This is the *Lqm* reporting period, in hundredths of a second that is in effect for the local *Ppp* entity. |
| Values | Decimal (1..4294967295) |
| Units | centiseconds |
| Default | 1 |

### ATTRIBUTE Piwf Lqm remotePeriod (remotep)

| | |
|---|---|
| Access | Read only |
| Description | This is the *Lqm* reporting period, in hundredths of a second, that is in effect for the remote *Ppp* entity. |
| Values | Decimal (1..4294967295) |
| Units | centiseconds |
| Default | 1 |

### ATTRIBUTE Piwf Lqm outLqrs (outr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of link quality reports sent out. This counter wraps around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Piwf Lqm inLqrs (inr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of link quality reports received. This counter wraps around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT Piwf NetworkControlProtocol (Ncp)

| | |
|---|---|
| Groups | "GROUP Piwf Ncp IpOperational (IpOper)"<br>"GROUP Piwf Ncp MplsOperational (MplsOper)" |
| Scope | Application |
| Description | *Ppp/n NetworkControlProtocol*<br>This component is used to contain all the operational attributes for the *Ppp* Network Control Protocols (*Ncp*). This is a |

mandatory subcomponent of *Ppp* and does not need to be manually added.

Common Verbs

Help
List
Display

## GROUP Piwf Ncp IpOperational (IpOper)

Properties: Operational

Description: This group contains the Ip Network Control Protocol operational attributes.

## ATTRIBUTE Piwf Ncp ipOperState (ipostate)

Access: Read only

Description: This is the operational state of the Ip network protocol. For more information as to the definition of each state see RFC1331 section 5.3.

Values:
initial
starting
closed
stopped
closing
stopping
reqsent
ackrcvd
acksent
opened

Default: initial

## GROUP Piwf Ncp MplsOperational (MplsOper)

Properties: Operational

Description: This group contains the MPLS Network Control Protocol operational attribute.

## ATTRIBUTE Piwf Ncp mplsOperState (mplsostate)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the operational states of the MPLS Network Control Protocol. In the initial state the lower layer (LCP in this case) is in a Down state The lower layer is also Down in the starting state where in contrast an administrative Open has been recieved. When the lower Layer is Up a req-sent is sent to the peer awaiting an ackrcvd. An ack-sent is reached when an ack is sent in reply to the peer ack-req request. An open state is reached when both peers have sent ack-req and recieved ack-rcvd. Closing is before closed state when waiting for a terminate-ack after sending a terminate-req. The same for stopping and stopped states with the difference that the The Stopping state provides a well defined opportunity to terminate the link before allowing new traffic. (for more information as to the definition of each state see RFC 1331 section 5.3). |
| Values | initial<br>starting<br>closed<br>stopped<br>closing<br>stopping<br>reqsent<br>ackrcvd<br>acksent<br>opened |
| Default | initial |

## COMPONENT Piwf Framer

| | |
|---|---|
| Groups | "GROUP Piwf Framer Provisioned (Prov)"<br>"GROUP Piwf Framer OsiState (State)"<br>"GROUP Piwf Framer Statistics (Stats)"<br>"GROUP Piwf Framer LinkUtilization (Util)" |

## "COLLECTED STATS PppIwf Framer"

| | |
|---|---|
| Scope | Application |

Description

*Ppp/n Framer*

The *Framer* component controls link layer framing for application components sending and receiving data on a link interface. It is also through *Framer* that an application component is associated with a specific hardware link interface.

The *Framer* component provides provisionable attributes related to datapath aspects of the hardware interface (such as crc and frame length) rather than interface specific attributes (such as modem leads and clocking) which are associated with specific hardware components (such as *V35/n* or *DS1/n*). The *Framer* component also provides a provisionable attribute that binds the application component to a specific hardware component.

The *Framer* component contains operational attributes for link interface datapath statistics (such as frame counts and aborts).

Common Verbs

Help
List
Display

## GROUP Piwf Framer Provisioned (Prov)

Properties Provisioned

Description

This group contains the base provisioning data for the *Framer* component. Application or hardware interface specific provisioning data is contained in other provisionable *Framer* groups.

## ATTRIBUTE Piwf Framer interfaceName

Access Read and write

Criticality Process

Description

This attribute contains a hardware component name.

The attribute associates the application with a specific link. This defines the logical processor on which *Framer*'s parent component (as well as *Framer* itself) will run.

Values: Link (Hardware, applicationFramerName)

Default: No default

### GROUP Piwf Framer OsiState (State)

Properties: Operational

Description: This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Piwf Framer adminState (osiAdmin)

Access: Read only

Description: This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values:
locked (lck)
unlocked (unlck)
shuttingDown (shut)

| | |
|---|---|
| Default | unlocked |

### ATTRIBUTE Piwf Framer operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Piwf Framer usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

## GROUP Piwf Framer Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational statistics data for a *Framer* component. |

## ATTRIBUTE Piwf Framer aborts

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of aborts received. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## ATTRIBUTE Piwf Framer crcErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames with CRC errors. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## ATTRIBUTE Piwf Framer lrcErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames with LRC errors. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## ATTRIBUTE Piwf Framer nonOctetErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames that were non octet aligned. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Piwf Framer overruns

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames received from the link for which overruns occurred. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Piwf Framer underruns

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames transmitted to the link for which underruns occurred. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Piwf Framer largeFrmErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames received that were too large. The frame execeeded the *maximumFrameLengthLimit* provisioned attribute or it contained more than the 255 block hardware limit. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Piwf Framer octetToIf

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of octets transmitted to the link interface by *Framer.* |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Piwf Framer octetFromIf

| | |
|---|---|
| Access | Read only |
| Description | This attritube counts the number of octetes received from the link interface by *Framer.* |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Piwf Framer frmFromIf

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames received from the link interface by *Framer.* |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Piwf Framer frmToIf

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames transmitted to the link interface by *Framer.*<br><br>Note: For the 1pOC48SmIrPos card, the count includes frames transmitted directly to the hardware queue; for all other cards, these frames are not included.. |
| Values | Long Integer |
| Default | No default |

### GROUP Piwf Framer LinkUtilization (Util)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the link utilization operational data for a Framer component. |

### ATTRIBUTE Piwf Framer normPrioLinkUtilToIf

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute is the utilization of the normal priority data sent to the link as a percentage of the available bandwidth on the link. The utilization is the average for the last minute. |
| Values | Decimal (0..100) |
| Units | % |
| Default | 0 |

### ATTRIBUTE Piwf Framer normPrioLinkUtilFromIf

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the utilization of the normal priority data received from the link as a percentage of the available bandwidth on the link. The utilization is the average for the last minute. |
| Values | Decimal (0..100) |
| Units | % |
| Default | 0 |

### COLLECTED STATS PppIwf Framer

| | |
|---|---|
| Description | The statistics record generated by the PppIwf Framer component. |

### ATTRIBUTE Piwf Framer rxBytes

| | |
|---|---|
| Description | This attribute provides the number of bytes received on the link by the Framer in the last collection interval. |
| Values | Long Integer |

### ATTRIBUTE Piwf Framer rxFrames

| | |
|---|---|
| Description | This attribute provides the number of frames received on the link interface by the Framer in the last collection interval. |
| Values | Long Integer |

### ATTRIBUTE Piwf Framer txBytes

| | |
|---|---|
| Description | This attribute provides the number of bytes transmitted to the link by the Framer in the last collection interval. This value could be zero if the application sends the frames directly to the link. |

Values Long Integer

### ATTRIBUTE Piwf Framer txFrames

Description This attribute provides the number of frames transmitted to the link interface by the Framer in the last collection interval. This value could be zero if the application sends the frames directly to the link.

Values Long Integer

### ATTRIBUTE Piwf Framer rxTotalLinkUtil

Description This attribute provides the average total link utilization computed based on the total number of bytes received on the link in the last collection interval.

Values Decimal (0..100)

## COMPONENT Piwf AtmAdaptionPoint (AtmAp)

Groups "GROUP Piwf AtmAp Provisioned (AtmApProv)"
"GROUP Piwf AtmAp OsiState (State)"
"GROUP Piwf AtmAp Operational (AapOper)"

Scope Application

Description *Piwf/n AtmAdaptionPoint*
This component represents a SoftPVC between Point-to-Point Protocol and remote ATM Interface. Multiprotocol Encapsulation as specified in RFC1483 is used to transfer higher-layer protocol (IP) data across a virtual channel in an ATM network.

Subcomponents "COMPONENT Piwf AtmAp TrafficManagement (Tm)"

Dyn. Subcomp. "COMPONENT Piwf AtmAp AtmConnection (AtmCon)"

Common Verbs
Help
List
Display
Add
DELete
LOCK
Unlock

### VERB Restart Piwf AtmAp

| | |
|---|---|
| Impact | Service |
| Description | This command is used to restart the automatic connections procedure. The operational attributes *retryTimerValue* and *retryFailures* will also be reset.<br><br>This command may be used after the connection procedure has been abandoned due to reaching the maximum number of retries allowed, as specified by *retryLimit*, or before the limit has been reached.<br><br>This command may also be used when a connection has been established, in which case the connection will first be released.<br><br>This command will fail if the *channel* associated with the *Framer* component is disabled, or if *spvcStatus* has the value ***initialising***. If *spvcStatus* has the value ***failed***, this command may fail. |

### GROUP Piwf AtmAp Provisioned (AtmApProv)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the previsional attribute for *AtmAdaptionPoint* component. |

### ATTRIBUTE Piwf AtmAp maxTransmissionUnit (mtu)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the size of the largest datagram which can be sent on the SoftPVC. This includes the size of the Logical Link Control header (if applicable) as well as the protocol data unit. |
| Values | Decimal (256..9188) |
| Units | octets |
| Default | 9188 |

## ATTRIBUTE Piwf AtmAp encapType (etype)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the RFC1483 encapsulation type to be used for the *AtmConnections* under this *PppAtmIwf*. Specifying ***llcEncap*** allows multiplexing of multiple protocols over the VCCs. The protocol of the carried PDU will be identified by an IEEE 802.2 Logical Link Control header. If Bridging or Inverse ARP is to be carried over a VCC, ***llcEncap*** must be used. Specifying ***ipVcEncap*** indicates that the VCC (e.g. *AtmConnection*) under an *AtmAdaptionPoint* component will use VC based multiplexing and will carry IP PDUs only. |
| Values | llcEncap<br>ipVcEncap |
| Default | ipVcEncap |

## ATTRIBUTE Piwf AtmAp localAddress (localAddr)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the local NSAP address.<br><br>If the switch prefix (the *nodePrefix* attribute of the *ModuleData* component) has been provisioned, a default value for *localAddress* based on *nodePrefix* will be provided.<br><br>If *ModuleData nodePrefix* is empty and one or more alternate switch prefixes (the *alternatePorsPrefixes* attribute of the *ModuleData* component) have been provisioned, a default value for *localAddress* based on the first provisioned *alternatePorsPrefix* value will be provided.<br><br>If switch prefixes are empty, *localAddress* will default to an empty string. To obtain a valid default *localAddress* in this case, either or both of the *ModuleData nodePrefix* and *ModuleData alternatePorsPrefixes* attributes must be provisioned, and this end point component must then be deleted and re-added. |

| | |
|---|---|
| Values | String (40, AESANsapAddress) |
| Default | No default |

### ATTRIBUTE Piwf AtmAp calledVpiVci (vc)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | *calledVpiVci* specifies the identity of the PVC at the remote ATM node on which the SoftPVC connection terminates. |
| Values | Integer Sequence (0..4095; 1..65535) |
| Default | No default |

### ATTRIBUTE Piwf AtmAp addressToCall (addrToCall)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the remote NSAP address which this *AtmAdaptionPoint* will call. |
| Values | String (40, AESANsapAddress) |
| Default | No default |

### ATTRIBUTE Piwf AtmAp firstRetryInterval (int)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the time to wait, in seconds, before attempting to establish the connection after the first failed attempt.<br><br>The time to wait between subsequent call attempts will generally differ due to a backoff scheme. |
| Values | Decimal (1..3600) |
| Units | seconds |

| | |
|---|---|
| Default | 10 |

### ATTRIBUTE Piwf AtmAp retryLimit (limit)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | *retryLimit* specifies the maximum number of consecutive unsuccessful connection setup attempts that may be made before further attempts are abandoned.<br><br>If this limit is reached, the *Restart* verb may be used to restart connection attempts.<br><br>If *retryLimit* is ***0***, there is no limit; attempts will continue indefinitely until a successful connection is established. |
| Values | Decimal (0..65535) |
| Default | 0 |

### GROUP Piwf AtmAp OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Piwf AtmAp adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***. |

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Piwf AtmAp operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Piwf AtmAp usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

## GROUP Piwf AtmAp Operational (AapOper)

Properties
Operational

Description
This group contains operational attributes for *AtmAdaptionPoint* component.

## ATTRIBUTE Piwf AtmAp spvcStatus (status)

Access
Read only

Description
*spvcStatus* indicates the status of the incoming and outgoing connections.

When this attribute has the value ***initialising***, it indicates that the component is initialising when first created; a connection has not been established, and no incoming setup requests will be processed.

When this attribute has the value ***connecting***, it indicates that a connection has not yet been established, but that incoming setup requests will be sent.

When this attribute has the value ***connected***, it indicates that a connection has been established.

When this attribute has the value ***idle***, it indicates that a connection has not been established, and the component is waiting to restart.

When this attribute has the value ***retriesExhausted***, it indicates that *retryLimit* consecutive connection setup attempts have failed, and the connection procedure has been aborted.

When this attribute has the value ***failed***, it indicates that the ATM Networking resources are not available to setup the connection.

Values
initialising
connecting
connected
idle
retriesExhausted
failed

Default
No default

### ATTRIBUTE Piwf AtmAp retryTimeRemaining (timer)

Access
Read only

Description
*retryTimerValue* is the current value of the retry timer for this connection; it indicates the number of seconds before the next connection attempt will be made. *retryTimerValue* is initialized when a connection attempt fails.

When *retryTimerValue* reaches ***0***, an attempt will be made to establish the connection.

When the timer is not running, for example when the connection has been established, *retryTimerValue* will be ***0***.

Values
Decimal (0..86400)

Units
seconds

Default
No default

### ATTRIBUTE Piwf AtmAp retryFailures (failures)

Access
Read only

Description
*retryFailures* counts the number of consecutive failed connection attempts.

| | |
|---|---|
| | *retryFailures* is reset to ***0*** whenever a connection is successfully established, or the connection is restarted using the *Restart* verb. The counter wraps when the maximum value is exceeded. |
| Values | Decimal (0..2147483647) |
| Default | No default |

### ATTRIBUTE Piwf AtmAp lastSetupFailureCause (failCause)

| | |
|---|---|
| Access | Read only |
| Description | *lastSetupFailureCause* indicates the cause of the last connection setup failure.<br><br>The values are as defined in the ATM Forum ATM User-Network Interface (UNI) Specification. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE Piwf AtmAp lastSetupFailureDiagnostic (failDiag)

| | |
|---|---|
| Access | Read only |
| Description | *lastSetupFailureDiagnostic* provides a diagnostic to supplement the *lastSetupFailureCause* attribute.<br><br>The values are as defined in the ATM Forum ATM User-Network Interface (UNI) Specification. |
| Values | String (0..8, ASCII) |
| Default | No default |

### ATTRIBUTE Piwf AtmAp lastTearDownCause (cause)

| | |
|---|---|
| Access | Read only |
| Description | *lastTearDownCause* indicates the cause of the last connection tear down.<br><br>The values are as defined in the ATM Forum ATM User-Network Interface (UNI) Specification. |

| | |
|---|---|
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE Piwf AtmAp lastTearDownDiagnostic (diag)

| | |
|---|---|
| Access | Read only |
| Description | *lastTearDownDiagnostic* provides a diagnostic to supplement the *lastTearDownCause* attribute.<br><br>The values are as defined in the ATM Forum ATM User-Network Interface (UNI) Specification. |
| Values | String (0..8, ASCII) |
| Default | No default |

### COMPONENT Piwf AtmAp TrafficManagement (Tm)

| | |
|---|---|
| Groups | "GROUP Piwf AtmAp Tm Provisioned (TmProv)" |
| Scope | Application |
| Description | *Piwf/n AtmAp trafficManagement*<br>This component contains ATM QoS information used by the SPVC connection to request a particular QoS from ATM. |
| Common Verbs | Help<br>List<br>Display<br>LOCK<br>Unlock |

### GROUP Piwf AtmAp Tm Provisioned (TmProv)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisional attribute for *TrafficManagement* component. |

### ATTRIBUTE Piwf AtmAp Tm atmServiceCategory (service)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the desired ATM service category for this connection.<br><br>Refer to NTP 241-5701-705 for more information on ATM Traffic Management. |
| Values | unspecifiedBitRate (ubr)<br>rtVariableBitRate (rtvbr)<br>nrtVariableBitRate (nrtvbr)<br>constantBitRate (cbr) |
| Default | unspecifiedBitRate |

### ATTRIBUTE Piwf AtmAp Tm peakCellRate (pcr)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the desired peak cell rate (PCR) for this connection.<br><br>Refer to NTP 241-5701-705 for more information on ATM Traffic Management. |
| Values | Decimal (0..2147483647) |
| Default | 0 |

### COMPONENT Piwf AtmAp AtmConnection (AtmCon)

| | |
|---|---|
| Groups | "GROUP Piwf AtmAp AtmCon Operational (Oper)" |
| Scope | Device |

| | |
|---|---|
| Description | An AtmConnection component is created for each ATM connection established by an application. It shows where the data traffic for this connection is directed. |
| Common Verbs | Help<br>List<br>Display |

## GROUP Piwf AtmAp AtmCon Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains the operational attributes for the *NapAtmConnection* component. |

## ATTRIBUTE Piwf AtmAp AtmCon nextHop

| | |
|---|---|
| Access | Read only |
| Description | This attribute shows the component name of the *AtmIf Vcc Ep* or *AtmCon* component to which this switched connection is established. |
| Values | The name of the component |
| Default | No default |

Passport 7400, 15000, 20000

# Component Piwf

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component Ppp

241-5701-060

Passport 7400, 15000, 20000

# Component Ppp

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT PointToPointProtocol (Ppp)

| | |
|---|---|
| Instance | Decimal (1..65535) |
| Groups | "GROUP Ppp CustomerIdentifierData (CidData)"<br>"GROUP Ppp IfEntryProv (IfEntry)"<br>"GROUP Ppp MediaProv (Mp)"<br>"GROUP Ppp OsiState (State)"<br>"GROUP Ppp OperationalStatus (OperStatus)" |
| Scope | Application |
| Description | *PointToPointProtocol/n*<br>This component defines an instance of the *Ppp* link level protocol. The component instance value is a unique number. |
| Subcomponents | "COMPONENT Ppp Link (Lnk)"<br>"COMPONENT Ppp LinkQualityMonitor (Lqm)"<br>"COMPONENT Ppp NetworkControlProtocol (Ncp)"<br>"COMPONENT Ppp Framer" |
| Opt. Subcomp. | "COMPONENT Ppp ConnectionAdministrator (Ca)"<br>"COMPONENT Ppp LinkEmissionQueue (Leq)"<br>"COMPONENT Ppp EgressWeightedFairQueuing (Ewfq)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

### GROUP Ppp CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

### ATTRIBUTE Ppp customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.<br><br>Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.<br><br>An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to "basic CIDs" in DPN) may be assigned to specific customers. |
| Values | Decimal (0; 1..8191) |
| Default | 0 |

### GROUP Ppp IfEntryProv (IfEntry)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the ifEntry. |

### ATTRIBUTE Ppp ifAdminStatus (ifState)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE Ppp ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP Ppp MediaProv (Mp)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the base provisioning data for the Media Application component. |

### ATTRIBUTE Ppp linkToProtocolPort (pp)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute contains a protocol port component name. The attribute associates the application with a protocol port. |
| Values | Link (Service, linkToMedia) |
| Default | No default |

## GROUP Ppp OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

## ATTRIBUTE Ppp adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

## ATTRIBUTE Ppp operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component. |

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Ppp usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Ppp OperationalStatus (OperStatus)

Properties
Operational

Description
This group includes the Operational Status attribute. This attribute defines the current operational state of this component.

## ATTRIBUTE Ppp snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

## COMPONENT Ppp ConnectionAdministrator (Ca)

| | |
|---|---|
| Groups | "GROUP Ppp Ca Provisioned (Prov)"<br>"GROUP Ppp Ca Operational (Oper)" |
| Scope | Application |
| Description | *Ppp/n ConnectionAdministrator*<br>This component manages the link bandwidth, and reports the information about the link usage.<br><br>This component can only be provisioned if the *MplsPort* component is provisioned. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Ppp Ca Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes of the *Ca* component. |

### ATTRIBUTE Ppp Ca percentBandwidthManaged (pBwManaged)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the percentage of link capacity used for transmitting the network clients' MPLS traffic and managed by the bandwidth manager. If this percent is selected to be less than 100% then an explicit amount of bandwidth is reserved for other traffic that is not managed by the bandwidth manager such as IP native traffic or IP control traffic. It should be noted that this attribute is used for bandwidth reservation for Connection Admission Control purpose and does not control the actual transmission of traffic which is controlled by the scheduler configuration.<br><br>The total bandwidth for transmitting the network clients' MPLS traffic (*managedBandwidthTotal*) can be obtained as the multiplication of this attribute and the link transmitting capacity. |
| Values | Decimal (0..100) |
| Units | % |
| Default | 100 |

### GROUP Ppp Ca Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational attributes of the *Ca* component. |

### ATTRIBUTE Ppp Ca managedBandwidthTotal (bwTotal)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total bandwidth for transmitting the network clients' traffic. Its value is equal to the multiplication of link capacity and the provisioned value of *percentBandwidthManaged*. |
| Values | Decimal (0..4294967295) |
| Units | kbit/s |
| Default | No default |

### ATTRIBUTE Ppp Ca maxBandwidthPool (maxBwPool)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the maximum amount of bandwidth allowed for each pool.<br><br>The value of each pool is equal to the multiplication of *managedBandwidthTotal* and the provisioned value of *percentMaxBandwidthPool*. |
| Vector of | Decimal (0..4294967295) |
| Units | kbit/s |
| Index | Decimal (0..3) |
| Default | No default |

### ATTRIBUTE Ppp Ca guaranteedBandwidthPool (gBwPool)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the amount of bandwidth guaranteed for each pool.<br><br>This value is equal to the multiplication of *managedBandwidthTotal* and the provisioned value of *percentGuaranteeBandwidthPool*. |
| Vector of | Decimal (0..4294967295) |
| Units | kbit/s |
| Index | Decimal (0..3) |
| Default | No default |

### ATTRIBUTE Ppp Ca poolAdmittedBandwidth (poolAdmBw)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the bandwidth reserved by the admitted T-LSPs in each bandwidth pool by each holding priority. |
| Array of | Decimal (0..4294967295) |
| Units | kbit/s |
| Row | pool [Decimal (0..3)] |
| Column | holdingPriority [Decimal (0..7)] |
| Default | No default |

### ATTRIBUTE Ppp Ca poolAvailableBandwidth (poolAvlBw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the available bandwidth in each bandwidth pool by each setup priority. |
| Array of | Decimal (0..4294967295) |
| Units | kbit/s |
| Row | pool [Decimal (0..3)] |
| Column | setupPriority [Decimal (0..7)] |
| Default | No default |

### ATTRIBUTE Ppp Ca igAvailBwDataPath (igBwDp)

| | |
|---|---|
| Access | Read only |
| Description | For cards with multiple ingress datapaths, this attribute indicates the available bandwidth on each ingress card datapath.<br><br>On the ***1pOC48SmSrPos*** and ***1pOC48SmIrPos*** FPs there are two ingress card datapath each limited to 1,198,080 kbit/s (OC-24). Connections with an even receive service label (*receiveLabel*) are assigned to card datapath 0, connections with an odd receive service label are assigned to card datapath 1. |

| | |
|---|---|
| | This attribute is not displayed for other cards. |
| Vector of | Decimal (0..100) |
| Units | % |
| Index | Decimal (0..1) |
| Default | No default |

### ATTRIBUTE Ppp Ca egAvailBwDataPath (egBwDp)

| | |
|---|---|
| Access | Read only |
| Description | For cards with multiple egress datapaths, this attribute indicates the available bandwidth on each egress card datapath.<br><br>On the ***1pOC48SmSrPos*** and ***1pOC48SmIrPos*** FPs, there are two egress card datapaths each limited to 1,198,080 kbit/s (OC-24). Connections with an even transmit service label (*transmitLabel*) are assigned to card datapath 0, connections with an odd transmit service label are assigned to card datapath 1.<br><br>This attribute is not displayed for other cards. |
| Vector of | Decimal (0..100) |
| Units | % |
| Index | Decimal (0..1) |
| Default | No default |

### COMPONENT Ppp Link (Lnk)

| | |
|---|---|
| Groups | "GROUP Ppp Lnk Provisioned (Prov)"<br>"GROUP Ppp Lnk Operational (Oper)" |
| Scope | Application |
| Description | *Ppp/n Link*<br>This component is used to contain all the attributes related to the |

*Ppp* link. This is a mandatory subcomponent of *Ppp* and does not need to be added.

Common Verbs

Help
List
Display

## GROUP Ppp Lnk Provisioned (Prov)

Properties: Provisioned

Description: This group contains the provisioned attributes for the *Ppp* Link component.

## ATTRIBUTE Ppp Lnk configInitialMru (cimru)

Access: Read and write

Description: This is the initial Maximum Receive Unit (Mru) that the local *Ppp* entity will advertise to the remote entity. A change to this attribute will not take effect until *Ppp* is restarted (lock/unlock).

Values: Decimal (68..18000)

Units: octets

Default: 18000

## ATTRIBUTE Ppp Lnk configMagicNumber (cmn)

Access: Read and write

Description: If ***enabled*** the local node will attempt to perform Magic Number negotiation with the remote node. If ***disabled*** this negotiation is not performed. In any event, the local node will comply with any magic number negotiations attempted by the remote node, per the *Ppp* specification. A change to this attribute will not take effect until *Ppp* is restarted (lock/unlock).

Values:
disabled
enabled

Default: enabled

### ATTRIBUTE Ppp Lnk restartTimer (rtimer)

| | |
|---|---|
| Access | Read and write |
| Description | This is the time, in milliseconds, that *Ppp* will wait for a response to a configure request or a terminate request before retrying. |
| Values | Decimal (1000..10000) |
| Units | msec |
| Default | 3000 |

### ATTRIBUTE Ppp Lnk continuityMonitor (cntmon)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute turns on/off (***enabled/disabled***) the Link Continuity Monitor. If set to ***enabled***, periodic keep alive echo packet will be sent over the *Ppp* link. If set to ***disabled***, no keep alive packets will be sent. A change to this attribute will not take effect until *Ppp* is restarted (lock/unlock). |
| Values | enabled<br>disabled |
| Default | disabled |

### ATTRIBUTE Ppp Lnk negativeAckTries (naks)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum negative acknowledgments sent to the remote *Ppp* entity during negotiation before defaulting its configuration parameters. |
| Values | Decimal (0..4294967295) |
| Default | 10 |

### ATTRIBUTE Ppp Lnk qualityThreshold (quality)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the minimum allowed line quality before the line is considered too poor to continue operation. The value for this attribute is a percentage measure of the line quality given |

| | |
|---|---|
| | in integers (10 to 99). The higher the value, the more stringent the line requirements. |
| Values | Decimal (10..99) |
| Units | % |
| Default | 90 |

### ATTRIBUTE Ppp Lnk qualityWindow (qwindow)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the number of seconds used for sampling line quality. If line quality drops below the level set with the *qualityThreshold* attribute during this window, this instance of *Ppp* will be marked down until line quality recovers. |
| Values | Decimal (10..400) |
| Units | seconds |
| Default | 30 |

### ATTRIBUTE Ppp Lnk terminateRequestTries (term)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum terminate requests to be sent, when closing the connection, and not answered before this instance of *Ppp* enters a closing state. |
| Values | Decimal (0..4294967295) |
| Default | 10 |

### ATTRIBUTE Ppp Lnk configureRequestTries (try)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the number of configuration requests that will be sent out and not answered before this instance of *Ppp* enters a listening state. If both sides enter the listening state then the link will not come up. To eliminate this possibility, this attribute should be set to 1000000000. This will ensure that this end of the *Ppp* link will continue to try until the link is good. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 1000000000 |

### GROUP Ppp Lnk Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the *Ppp* Link Operational attributes. |

### ATTRIBUTE Ppp Lnk operState (state)

| | |
|---|---|
| Access | Read only |
| Description | This is the operational state of the Link Control Protocol. For more information as to the definition of each state see RFC1331 section 5.3. |
| Values | initial<br>starting<br>closed<br>stopped<br>closing<br>stopping<br>reqsent<br>ackrcvd<br>acksent<br>opened |
| Default | initial |

### ATTRIBUTE Ppp Lnk lineCondition (lcond)

| | |
|---|---|
| Access | Read only |
| Description | This attribute describes the condition of the physical line that *Ppp* is running over.<br>***ok***: The condition of the line is good.<br>***looped***: The line is looped back on itself, probably at the remote end.<br>***noClock***: There is a hardware problem with the line. The cable may not be plugged in correctly.<br>***badLineCondition***: The quality of the line is below the *qualityThreshold*. |

| | |
|---|---|
| Values | ok<br>looped<br>noClock<br>badLineCondition |
| Default | ok |

### ATTRIBUTE Ppp Lnk badAddresses (ba)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of packets received with an incorrect Address Field. If this count is going up quickly, it could indicate that there is a line quality problem or that the remote end is transmitting a protocol other than *Ppp*. This counter will wrap around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Ppp Lnk badControls (bc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of packets received on this link with an incorrect Control Field. If this count is going up quickly, it could indicate that there is a line quality problem or that the remote end is transmitting a protocol other than *Ppp*. This counter will wrap around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Ppp Lnk packetTooLongs (ptl)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of packets received that have been discarded because their length exceeded the Maximum Receive Unit (Mru). This counter will wrap around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE Ppp Lnk badFcss (bfcs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of packets received that have been discarded due to having an incorrect Frame Check Sequence (Fcs). This counter will wrap around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Ppp Lnk localMru (lmru)

| | |
|---|---|
| Access | Read only |
| Description | This is the current value of the Maximum Receive Unit (Mru) for the local *Ppp* Entity. This value is the Mru that the remote entity is using when sending packets to the local *Ppp* entity. |
| Values | Decimal (1..2147483648) |
| Units | octets |
| Default | 1 |

### ATTRIBUTE Ppp Lnk remoteMru (rmru)

| | |
|---|---|
| Access | Read only |
| Description | This is the current value of the Maximum Receive Unit (Mru) for the remote *Ppp* entity. This value is the Mru that the local entity is using when sending packets to the remote *Ppp* entity. |
| Values | Decimal (1..2147483648) |
| Units | octets |
| Default | No default |

### ATTRIBUTE Ppp Lnk transmitFcsSize (tfcs)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This is the size of the Frame Check Sequence (Fcs) in bits that the local node will generate when sending packets to the remote node. |
| Values | Decimal (0..128) |
| Units | bits |
| Default | 0 |

### ATTRIBUTE Ppp Lnk receiveFcsSize (rfcs)

| | |
|---|---|
| Access | Read only |
| Description | This is the size of the Frame Check Sequence (Fcs) in bits that the remote node will generate when sending packets to the local node. |
| Values | Decimal (0..128) |
| Units | bits |
| Default | 0 |

### COMPONENT Ppp LinkQualityMonitor (Lqm)

| | |
|---|---|
| Groups | "GROUP Ppp Lqm Provisioned (Prov)"<br>"GROUP Ppp Lqm Operational (Oper)" |
| Scope | Application |
| Description | *Ppp/n LinkQualityMonitor*<br>This component is used to contain all the operational attributes for the *Ppp* Link Quality Monitor. This is a mandatory subcomponent of *Ppp* and does not need to be manually added. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Ppp Lqm Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |

| | |
|---|---|
| Description | This group contains the provisioned attributes for the *Ppp* Link Quality Monitor component. |

### ATTRIBUTE Ppp Lqm configPeriod (cfgper)

| | |
|---|---|
| Access | Read and write |
| Description | This is the *Lqm* reporting period that the local *Ppp* entity will attempt to negotiate with the remote entity, in units of hundredths of a second. A value of “0” allows the remote *Ppp* entity to determine the reporting period. A value greater than 180,000 (1/2 hour) allows the period to be determined dynamically as a function of the transmit data rate. A value from 1-9 is rounded up to 10 during negotiation. A change to this attribute does not take effect until *Ppp* is restarted (lock/unlock). |
| Values | Decimal (0..2147483647) |
| Units | centiseconds |
| Default | 0 |

### ATTRIBUTE Ppp Lqm configStatus (cfgstat)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | If this attribute is ***enabled***, the local node will attempt to perform *Lqm* negotiation with the remote node. If it is ***disabled*** this negotiation is not performed. A change to this attribute will not take effect until *Ppp* is restarted (lock/unlock). |
| Values | disabled<br>enabled |
| Default | disabled |

### GROUP Ppp Lqm Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for the *Ppp* Link Quality Monitor component. |

### ATTRIBUTE Ppp Lqm quality (qual)

| | |
|---|---|
| Access | Read only |
| Description | This is the current quality of the link as declared by the local *Ppp* entity's LinkQuality Management modules. A value of ***good*** indicates that *LinkQualityMonitor configStatus* is ***enabled*** and *Link quality* is above *LinkQuality Threshold*. A value of ***bad*** indicates that *LinkQualityMonitor configStatus* is ***enabled*** and *Link quality* is not above *Link qualityThreshold*. A value of ***notDetermined*** indicates that *LinkQualityMonitor configStatus* is ***enabled*** and the quality of the link has not been calculated yet or *LinkQualityMonitor configStatus* is ***disabled***. |
| Values | good<br>bad<br>notDetermined |
| Default | notDetermined |

### ATTRIBUTE Ppp Lqm inGoodOctets (ingo)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of good octets received. This counter wraps around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Ppp Lqm localPeriod (localp)

| | |
|---|---|
| Access | Read only |
| Description | This is the *Lqm* reporting period, in hundredths of a second that is in effect for the local *Ppp* entity. |
| Values | Decimal (1..4294967295) |
| Units | centiseconds |
| Default | 1 |

### ATTRIBUTE Ppp Lqm remotePeriod (remotep)

| | |
|---|---|
| Access | Read only |
| Description | This is the *Lqm* reporting period, in hundredths of a second, that is in effect for the remote *Ppp* entity. |
| Values | Decimal (1..4294967295) |
| Units | centiseconds |
| Default | 1 |

### ATTRIBUTE Ppp Lqm outLqrs (outr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of link quality reports sent out. This counter wraps around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Ppp Lqm inLqrs (inr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of link quality reports received. This counter wraps around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT Ppp NetworkControlProtocol (Ncp)

| | |
|---|---|
| Groups | "GROUP Ppp Ncp IpOperational (IpOper)"<br>"GROUP Ppp Ncp MplsOperational (MplsOper)" |
| Scope | Application |
| Description | *Ppp/n NetworkControlProtocol*<br>This component is used to contain all the operational attributes for the *Ppp* Network Control Protocols (*Ncp*). This is a |

mandatory subcomponent of *Ppp* and does not need to be manually added.

Common Verbs

Help
List
Display

## GROUP Ppp Ncp IpOperational (IpOper)

Properties: Operational

Description: This group contains the Ip Network Control Protocol operational attributes.

## ATTRIBUTE Ppp Ncp ipOperState (ipostate)

Access: Read only

Description: This is the operational state of the Ip network protocol. For more information as to the definition of each state see RFC1331 section 5.3.

Values:
initial
starting
closed
stopped
closing
stopping
reqsent
ackrcvd
acksent
opened

Default: initial

## GROUP Ppp Ncp MplsOperational (MplsOper)

Properties: Operational

Description: This group contains the MPLS Network Control Protocol operational attribute.

### ATTRIBUTE Ppp Ncp mplsOperState (mplsostate)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the operational states of the MPLS Network Control Protocol. In the initial state the lower layer (LCP in this case) is in a Down state The lower layer is also Down in the starting state where in contrast an administrative Open has been recieved. When the lower Layer is Up a req-sent is sent to the peer awaiting an ackrcvd. An ack-sent is reached when an ack is sent in reply to the peer ack-req request. An open state is reached when both peers have sent ack-req and recieved ack-rcvd. Closing is before closed state when waiting for a terminate-ack after sending a terminate-req. The same for stopping and stopped states with the difference that the The Stopping state provides a well defined opportunity to terminate the link before allowing new traffic. (for more information as to the definition of each state see RFC 1331 section 5.3). |
| Values | initial<br>starting<br>closed<br>stopped<br>closing<br>stopping<br>reqsent<br>ackrcvd<br>acksent<br>opened |
| Default | initial |

### COMPONENT Ppp Framer

| | |
|---|---|
| Groups | "GROUP Ppp Framer Provisioned (Prov)"<br>"GROUP Ppp Framer OsiState (State)"<br>"GROUP Ppp Framer Statistics (Stats)"<br>"GROUP Ppp Framer LinkUtilization (Util)" |

### "COLLECTED STATS PointToPointProtocol Framer"

| | |
|---|---|
| Scope | Application |

Description *Ppp/n Framer*

The *Framer* component controls link layer framing for application components sending and receiving data on a link interface. It is also through *Framer* that an application component is associated with a specific hardware link interface.

The *Framer* component provides provisionable attributes related to datapath aspects of the hardware interface (such as crc and frame length) rather than interface specific attributes (such as modem leads and clocking) which are associated with specific hardware components (such as *V35/n* or *DS1/n*). The *Framer* component also provides a provisionable attribute that binds the application component to a specific hardware component.

The *Framer* component contains operational attributes for link interface datapath statistics (such as frame counts and aborts).

Common Verbs
Help
List
Display

## GROUP Ppp Framer Provisioned (Prov)

Properties Provisioned

Description This group contains the base provisioning data for the *Framer* component. Application or hardware interface specific provisioning data is contained in other provisionable *Framer* groups.

## ATTRIBUTE Ppp Framer interfaceName

Access Read and write

Criticality Process

Description This attribute contains a hardware component name.

The attribute associates the application with a specific link. This

| | |
|---|---|
| | defines the logical processor on which *Framer*'s parent component (as well as *Framer* itself) will run. |
| Values | Link (Hardware, applicationFramerName) |
| Default | No default |

### GROUP Ppp Framer OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Ppp Framer adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

## ATTRIBUTE Ppp Framer operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

## ATTRIBUTE Ppp Framer usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

## GROUP Ppp Framer Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational statistics data for a *Framer* component. |

## ATTRIBUTE Ppp Framer aborts

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of aborts received. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## ATTRIBUTE Ppp Framer crcErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames with CRC errors. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## ATTRIBUTE Ppp Framer lrcErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames with LRC errors. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## ATTRIBUTE Ppp Framer nonOctetErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames that were non octet aligned. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Ppp Framer overruns

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames received from the link for which overruns occurred. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Ppp Framer underruns

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames transmitted to the link for which underruns occurred. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Ppp Framer largeFrmErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames received that were too large. The frame execeeded the *maximumFrameLengthLimit* provisioned attribute or it contained more than the 255 block hardware limit. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Ppp Framer octetToIf

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of octets transmitted to the link interface by *Framer.* |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Ppp Framer octetFromIf

| | |
|---|---|
| Access | Read only |
| Description | This attritube counts the number of octetes received from the link interface by *Framer.* |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Ppp Framer frmFromIf

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames received from the link interface by *Framer.* |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Ppp Framer frmToIf

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames transmitted to the link interface by *Framer.*<br><br>Note: For the 1pOC48SmIrPos card, the count includes frames transmitted directly to the hardware queue; for all other cards, these frames are not included.. |
| Values | Long Integer |
| Default | No default |

### GROUP Ppp Framer LinkUtilization (Util)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the link utilization operational data for a Framer component. |

### ATTRIBUTE Ppp Framer normPrioLinkUtilToIf

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute is the utilization of the normal priority data sent to the link as a percentage of the available bandwidth on the link. The utilization is the average for the last minute. |
| Values | Decimal (0..100) |
| Units | % |
| Default | 0 |

### ATTRIBUTE Ppp Framer normPrioLinkUtilFromIf

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the utilization of the normal priority data received from the link as a percentage of the available bandwidth on the link. The utilization is the average for the last minute. |
| Values | Decimal (0..100) |
| Units | % |
| Default | 0 |

### COLLECTED STATS PointToPointProtocol Framer

| | |
|---|---|
| Description | The statistics record generated by the PointToPointProtocol Framer component. |

### ATTRIBUTE Ppp Framer rxBytes

| | |
|---|---|
| Description | This attribute provides the number of bytes received on the link by the Framer in the last collection interval. |
| Values | Long Integer |

### ATTRIBUTE Ppp Framer rxFrames

| | |
|---|---|
| Description | This attribute provides the number of frames received on the link interface by the Framer in the last collection interval. |
| Values | Long Integer |

### ATTRIBUTE Ppp Framer txBytes

Description: This attribute provides the number of bytes transmitted to the link by the Framer in the last collection interval. This value could be zero if the application sends the frames directly to the link.

Values: Long Integer

### ATTRIBUTE Ppp Framer txFrames

Description: This attribute provides the number of frames transmitted to the link interface by the Framer in the last collection interval. This value could be zero if the application sends the frames directly to the link.

Values: Long Integer

### ATTRIBUTE Ppp Framer rxTotalLinkUtil

Description: This attribute provides the average total link utilization computed based on the total number of bytes received on the link in the last collection interval.

Values: Decimal (0..100)

### COMPONENT Ppp LinkEmissionQueue (Leq)

Groups:
"GROUP Ppp Leq Provisioned (Prov)"
"GROUP Ppp Leq Statistics (Stats)"
"GROUP Ppp Leq TotalStatistics (TStats)"
"GROUP Ppp Leq CurrentStatistics (CStats)"
"GROUP Ppp Leq ThresholdStatistics (ThrStats)"

Scope: Application

Description: *Ppp/n LinkEmissionQueue*
This component provides a means of statistics gathering and packet discard.

Common Verbs:
Help
List
Display
Add
DELete

## GROUP Ppp Leq Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioned attributes for the *LinkEmissionQueue* component. |

## ATTRIBUTE Ppp Leq maxPackets (maxP)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum number of packets allowed in the *Leq* before being discarded. If this attribute is set to zero then the maximum number of packets is calculated from the transmit data rate. This calculated value is placed in *queuePktThreshold*. |
| Values | Decimal (0..2048) |
| Default | 0 |

## ATTRIBUTE Ppp Leq maxMsecData (maxData)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum number of “Milliseconds worth of data” allowed in the *Leq* before packets are discarded. The *queueByteThreshold* will be calculated from this attribute, based on the transmit data rate. |
| Values | Decimal (100..60000) |
| Default | 10000 |

## ATTRIBUTE Ppp Leq maxPercentMulticast (mpm)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum percentage of multicast packets allowed in the *Leq*, based on *queuePktThreshold*, before being discarded. The calculated value will be placed in *queueMulticastThreshold*. |
| Values | Decimal (1..100) |
| Default | 50 |

### ATTRIBUTE Ppp Leq timeToLive (ttl)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the “Milliseconds Time To Live” of packets in the *Leq*. If the *timeToLive* of a packet expires, it will be discarded. |
| Values | Decimal (100..60000) |
| Units | msec |
| Default | 10000 |

### GROUP Ppp Leq Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains Link Emission Queue general statistics. |

### ATTRIBUTE Ppp Leq timedOutPkt (topkt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of packets that have been discarded due to exceeding the *timeToLive*. This counter will wrap around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Ppp Leq hardwareForcedPkt (hfpkt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of hardware forced packets on this instance of *Ppp*. This counter will wrap around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Ppp Leq forcedPktDiscards (fpktd)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the total number of hardware forced packets that had to be discarded due to link failure. This counter will wrap around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Ppp Leq queuePurgeDiscards (qpd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of packets discarded by a queue purge (i.e. a discarding of all packets on the queue). This counter will wrap around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### GROUP Ppp Leq TotalStatistics (TStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains Link Emission Queue total statistics. |

### ATTRIBUTE Ppp Leq totalPktHandled (tpkthand)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of packets handled by the *Leq*. This counter will wrap around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Ppp Leq totalPktForwarded (tpktfor)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of packets forwarded by the *Leq*. This counter will wrap around to 0 when it exceeds its maximum count. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Ppp Leq totalPktQueued (tpktq)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of packets that required queuing by the *Leq* due to transmit congestion. This counter will wrap around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Ppp Leq totalMulticastPkt (tmulp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of multicast packets handled by this instance of *Ppp*. This counter will wrap around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Ppp Leq totalPktDiscards (tpktdis)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of packets that were discarded for this instance of *Ppp*. This is the sum of *timedOutPkt*, *forcedPktDiscards*, *queuePurgeDiscards*, *pktThresholdExceeded*, *byteThresholdExceeded*, *mulThresholdExceeded*, and *memThresholdExceeded*. This counter will wrap around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### GROUP Ppp Leq CurrentStatistics (CStats)

| | |
|---|---|
| Properties | Operational |

| | |
|---|---|
| Description | This group contains Link Emission Queue current statistics. |

### ATTRIBUTE Ppp Leq currentPktQueued (cpktq)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the current number of packets queued. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Ppp Leq currentBytesQueued (cbytesq)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the current number of bytes queued. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Ppp Leq currentMulticastQueued (cmulq)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the current number of multicast packets in the queue. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### GROUP Ppp Leq ThresholdStatistics (ThrStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains Link Emission Queue threshold statistics. |

### ATTRIBUTE Ppp Leq queuePktThreshold (qpthr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the maximum number of packets that can be contained in the queue before being discarded. If *maxPackets* was set to 0 then this attribute will contain the value that has been calculated based on the transmit data rate. If *maxPackets* was set to one or more than this attribute will contain that number. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Ppp Leq pktThresholdExceeded (pthrx)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of packets discarded due to the *queuePktThreshold* being exceeded. This counter will wrap around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Ppp Leq queueByteThreshold (qbytethr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the maximum number of bytes allowed in the queue based on *maxMsecData* and the transmit data rate. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Ppp Leq byteThresholdExceeded (bthrx)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of packets discarded due to the *queueByteThreshold* being exceeded. This counter will wrap around to 0 when it exceeds its maximum count. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Ppp Leq queueMulticastThreshold (qmolthr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the number of multicast packets allowed in the queue based on *maxPercentMulticast* and *maxPackets*. |
| Values | Decimal (0..4294967295) |

Default 0

### ATTRIBUTE Ppp Leq mulThresholdExceeded (multhrx)

Access Read only

Description This attribute counts the number of packets discarded due to the *queueMulticastThreshold* being exceeded. This counter will wrap around to 0 when it exceeds its maximum count.

Values Decimal (0..4294967295)

Default 0

### ATTRIBUTE Ppp Leq memThresholdExceeded (memthrx)

Access Read only

Description This attribute counts the number of packets discarded due to exceeding the memory usage threshold for *Leq*. The memory usage threshold is determined by the *Leq* software, guaranteeing that the *Leq* does not consume all of the memory. This counter will wrap around to 0 when it exceeds its maximum count.

Values Decimal (0..4294967295)

Default 0

### COMPONENT Ppp EgressWeightedFairQueuing (Ewfq)

Groups "GROUP Ppp Ewfq Provisioned (Prov)"

Scope Application

Description Ppp/n EgressWeightedFairQueuin*g*
The egressWeightedFairQueuing component provides a mechanism to redistribute the WFQ servicing values among the queues in a manner which satisfy the requirements for the end users. The servicing values for the queues must add up to 100.

Common Verbs
Help
List
Display
Add
DELete

## GROUP Ppp Ewfq Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the EgressWeightedFairQueuing component. There are four attributes in this group and the sum of their values must add up to 100. |

## ATTRIBUTE Ppp Ewfq egressServicingForQueue0 (q0)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the transmission frequency of queue 0 as a percentage of the total (100) port capacity. |
| Values | Decimal (0..100) |
| Units | % |
| Default | 91 |

## ATTRIBUTE Ppp Ewfq egressServicingForQueue1 (q1)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the transmission frequency of queue 1 as a percentage of the total (100) port capacity. |
| Values | Decimal (0..100) |
| Units | % |
| Default | 3 |

## ATTRIBUTE Ppp Ewfq egressServicingForQueue2 (q2)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the transmission frequency of queue 2 as a percentage of the total (100) port capacity. |
| Values | Decimal (0..100) |
| Units | % |
| Default | 3 |

## ATTRIBUTE Ppp Ewfq egressServicingForQueue3 (q3)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the transmission frequency of queue 3 as a percentage of the total (100) port capacity. |
| Values | Decimal (0..100) |
| Units | % |
| Default | 3 |

Passport 7400, 15000, 20000

# Component Ppp

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component Prov

241-5701-060

Passport 7400, 15000, 20000

# Component Prov

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT ProvisioningSystem (Prov)

| | |
|---|---|
| Groups | "GROUP Prov OsiState (State)"<br>"GROUP Prov Operational (Oper)"<br>"GROUP Prov Provisioned (Prov)" |
| Scope | Application |
| Description | *ProvisioningSystem*<br>This component implements the operator commands that are specific to the provisioning system. It also provides information about the state of the provisioning system. |
| Dyn. Subcomp. | "COMPONENT Prov View"<br>"COMPONENT Prov SoftwareMigration (Migration)" |
| Common Verbs | Help<br>List<br>Display |

## VERB ACTivate Prov

Impact: Service

Description: *Activate [-file(<file name>)] [-force] [-noPause] Prov*
This verb is used to activate (or bring into service) the provisioning data changes in the edit view or from a specified provisioning data file.

After activation completes, the operator must issue a *Confirm* command in order to prevent automatic re-activation of the committed view. Note that the committed view is not necessarily the same as the view which was in effect prior to the activation.

**Options:**
*-file (<file name>)*
specifies the name of a file containing provisioning data to be loaded, checked and activated. Note that only this form of the activate verb is allowed outside of provisioning mode.

The *file name* argument has the form
*name[.type[.number]]*
where *name* is the name of the file; *type* must be ***full***; and *number* is the unique sequence number of the file.

The *name* part of the argument must be between 1 and 31 characters in length, and may contain only alphanumeric characters and underscores. Note that file names are case-sensitive. If *number* is omitted, the most recent file beginning with *name.type* will be used; if both *type* and *number* are omitted, the most recent (complete) file beginning with *name.**full*** will be used.

*-force*
When a complete provisioning view is activated, the provisioning system checks to make sure that all the software necessary to activate the components contained in the view is currently running on the module. If any necessary software is missing, the *Activate* command fails and a list of missing software is displayed. The *-force* option overrides the checks for required software, and causes the file to be loaded and activated by

reloading the module with this provisioning data file.

When an unchecked provisioning view is being activated, the provisioning system runs a semantic *check* to issue errors and warnings. Some warnings are considered critical. For example, a service may have to be restarted in order to activate the specified provisioning data change, or a complete system restart may be required. If a semantic check error or critical warning occurs, the *activate* command is aborted. The *-force* option overrides the critical warnings, and activates the changes regardless. Note that semantic check errors can not be overridden.

In addition, if the journaled current view can be restored, then the *Activate Prov* command may cause the journaled current view to be purged, and a restore to be no longer possible. In this case, the *-force* option is required for the activation to proceed. Note that a restore is only possible if the attribute *restorePossible* is set to ***yes***.

*-noPause*
A staged software migration may enter a paused state if certain events occur. These events include software and hardware alarms on the migration shelf, provisioning data that is nacked, and the failure of an application to indicate that it is ready for the migration switchover. Once a software migration is paused, the user must issue the *Continue* command to unpause it.

The *-noPause* option indicates that the migration is never paused, even if a pausable event occurs.

*-pause*
A staged software migration is going to enter a paused state. Once a software migration is paused, the user must issue the *Continue* command to unpause it.

The *-noPause* and *-pause* Options are mutually exclusive.

## VERB Check Prov

| | |
|---|---|
| Impact | Configuration |
| Description | *Check [-stopOnError][-component (<name>) [-nonrecursive]] [-changed] Prov*<br><br>This verb checks the provisioning data in the edit view to ensure it is semantically correct. A view cannot be activated until this check has been successfully completed.<br><br>If the semantic check fails, all errors must be corrected before an activation attempt will succeed.<br><br>**Options:**<br>*-stopOnError*<br>This option specifies that the check should be aborted immediately upon finding the first error. If this option is not specified, the system will abort after five (or more) errors have been detected.<br><br>*-component(<name>)*<br>This option specifies that the named component and all its subcomponents (recursively) are to be checked for semantic correctness. That is, the entire subtree, rooted at the named component will be checked. If this option is not specified, the entire edit view is checked.<br><br>*-nonrecursive*<br>This option specifies that only the named component (that is, none of its subcomponents) is to be checked for semantic correctness.<br><br>*-changed*<br>This option specifies that checks will only be run on added or changed components. Note that this may mean that not all required checks will run. This option is not valid when the *-component* option is used. |

## VERB CLEAR Prov

Impact: System_admin

Description: *Clear [-removedFeature] Prov*
This verb, when used with no options, will remove all deletable components (and their subcomponents) from the edit view. Components which cannot be deleted (and their subcomponents) are not affected.

**Options**:
*-removedFeature*
This option is typically used in conjunction with previously having removed one or more features from one or more LPTs. This option specifies that all components, both deletable and non-deletable, which will have their associated software unloaded from the switch, are to be removed from the edit view by the provisioning system.

## VERB COMMIT Prov

Impact: Service

Description: *Commit [-file(<file name>)] [-force] Prov*
*Commit* makes the current view of the provisioning data the "committed" view. The committed view is the configuration that the module will activate following a Control Processor reset.

If the command specifies a filename, *Commit* will save the data for the current view in that file. If the current view has not been saved, the filename must be specified.

Note: in a system having two disks, the disks must be synchronized before the *commit* command will be accepted.

**Options:**
*-file(<file name>)*
specifies the name of the output file (actually the prefix for the output file name, as explained below) to be used for saving the current view data. If this option is not specified, the data for the current view must have already been saved, otherwise an error response will be generated.

The *file name* argument must be between 1 and 31 characters in length, and may contain only alphanumeric characters and underscores. File names are case-sensitive.

The actual file name used for the saved data has the form *name*.full.*number*
where *name* is the name specified in the *-file* option; and *number* is a unique sequence number for the file generated by the provisioning system.

*-force*
If the journaled current view can be restored, then the *Commit Prov* command will cause the journaled current view to be purged, and a restore will no longer be possible. In this case, the *-force* option is required for the *commit prov* command to proceed. Note that a restore is only possible if the attribute *restorePossible* is set to ***yes***.

## VERB Confirm Prov

| | |
|---|---|
| Impact | Service |
| Description | *Confirm Prov*<br>A *Confirm* command must be issued following each *Activate* command. This ensures that management connectivity has not been lost when a new provisioning view is brought into service.<br><br>If a *Confirm* is not entered within a reasonable time following an *Activate*, a system restart will occur and the committed view will be re-activated by the system. Service will be disrupted while the restart is in progress. |

## VERB Copy Prov

| | |
|---|---|
| Impact | Configuration |
| Description | *Copy [-source(<component name>) [-current] [-nonrecursive] [-destination(<component name>)] ]Prov*<br>This verb is used to copy all or part of a view into the edit view.<br><br>If no options are provided, the entire current view is copied into the edit view, replacing whatever was in the edit view previously, so that the two views are identical afterward.<br><br>**Options:**<br>*-source(<component name>)*<br>specifies that only the named component and its subcomponents are to be copied. If any of these components already exist in the edit view, the copy fails and the edit view is unchanged. When *-source* is the only option specified, the system automatically copies the component and its subcomponents, if any, from the current view into the edit view.<br><br>*-current*<br>specifies that components are to be copied from the current view to the edit view, rather than being copied from the edit view.<br><br>*-nonrecursive*<br>This option is valid only if the *-source* option is also present. It specifies that the named *source* component (but not its subcomponents) should be copied. If, however, the copied component has “required” subcomponents, the default instances of these “required” subcomponents are always created. (This is similar to the behavior of the *Add* command.)<br><br>*-destination(<component name>)*<br>specifies the name to be given to the copy of the *source* component when it is put into the edit view. Any copied subcomponents of the *source* component will be likewise renamed in the edit view. If any renamed component already exists in the edit view, the copy fails and the edit view is unchanged. |

## VERB End Prov

Impact: Configuration

Description:

*End Prov*
This verb is used to leave provisioning mode.

The edit view is unchanged by this command. The edit view is not automatically saved on disk; it will be presented to the next provisioning operator as it was when the *End* command was executed.

## VERB Load Prov

Impact: Configuration

Description:

*Load [-force] -file(<file name>) Prov*
This verb is used to load a specified file of provisioning data from the disk into the edit view.

**Options:**
*-file (<file name>)*
specifies the name of the file containing the provisioning data to be loaded.The *file name* argument has the form
*name[.type[.number]]*
where *name* is the name of the file; *type* is either ***full*** if the file contains a complete view, or ***part*** if the file contains only a particular component (and its subcomponents); and *number* is the unique sequence number of the file.

The *name* part of the argument must be between 1 and 31 characters in length, and may contain only alphanumeric characters and underscores. Note that file names are case-sensitive. If *number* is omitted, the most recent file beginning with *name.type* will be used; if both *type* and *number* are omitted, the most recent (complete) file beginning with *name.**full*** will be used.

*-force*
Normally, when a complete provisioning view is loaded, the provisioning system checks to make sure that all the software necessary to activate the components contained in the view is

currently running on the module. If any necessary software is missing, the *Load* command fails and a list of missing software is displayed.

The *-force* option overrides the checks for required software; that is, it causes the file to be loaded regardless of what software is currently running. When this option is used, error messages and software alarms may appear during loading of the file, and some components which are present in the file may be missing from the edit view when loading is complete.

The *-force* option also ensures the system processes the entire provisioning file rather than stopping after 5 errors.

## VERB Save Prov

Impact: Configuration

Description: *Save [-current] [-file(<file name>)] [-component(<component name>)] [-ascii] [-portable] Prov*
This verb is used to save all or part of a provisioning view on the disk.

If no options are provided, the entire edit view is saved, using a default file name (see the description of the *-file* option below).

**Options:**
*-current*
specifies that the provisioning data of the current view is to be saved. If this option is not specified, the data of the edit view is saved.

*-file(<file name>)*
This option specifies the name of the output file (actually the prefix for the output file name, as explained below). The name must be between 1 and 31 characters in length, and may contain only alphanumeric characters and underscores.

The actual file name used for the saved data has the form
*name.type.number*
where *name* is the name specified in the *-file* option; *type* is

automatically set to ***full*** if the file contains a complete view, or ***part*** otherwise; and *number* will be a unique sequence number for the file, generated by the provisioning system.

If the *-file* option is not specified, the *name* used in the most recent *Save*, *Load* or *Commit* command involving a complete view is used to construct the output file name as described above.

*-component(<component name>)*
This option specifies a particular component to be saved; the named component must be provisionable. Only this component and its subcomponents will appear in the saved provisioning data.

When this option is used, the *-file* option must also be specified; the name of the saved file will always have the form *name.**part**.number*

*-ascii*
This option is used to force the system to write a file in ASCII format. This format is not required by the Passport switch itself, but a file in this format may be used by external tools.

*-portable*
This option forces the system to write a complete file to disk. The ***portable*** format may at times be automatically generated when needed and the user would not normally be required to use this option. One reason to use this option is that the ***portable*** format is one complete unit (not dependent on any other view) and may be backed up, while the ***delta*** format has dependencies on the current view when saved.

If the *-ascii*, *-component* and *-portable* options are not specified, the system will save the differences between the edit and current views in the ***delta*** format.

## VERB Start (St) Prov

Impact: Configuration

Description:

*Start [-force] Prov*
This verb is used to enter the provisioning mode. Only one operator session can be in provisioning mode at a given time. Therefore a *Start* command is normally rejected if another session is in provisioning mode.

**Options:**
*-force*
This option allows an operator with at least ***systemAdministration*** impact to enter provisioning mode even when another operator's session is already in provisioning mode.

The other operator's session is forced out of provisioning mode, after completing any commands in progress. A message alarm is generated to indicate that the other session is no longer in provisioning mode. The contents of the edit view created by the other operator are unaffected by the change of ownership of the provisioning session; therefore on entering provisioning mode the new provisioning operator may see a partially provisioned edit view created by the previous provisioning operator. Note that this view might not have been saved on disk by the previous operator.

## VERB Tidy Prov

Impact: Configuration

Description:

*Tidy[-all]*
*[-keep(<file> ...)]*
*[-remove(<file> ...)]*
*[-fromDate(<date>) -toDate(<date>)]*

This verb causes the system to remove old provisioning views and/or software from the disk. Note that at least one option must be included in the command.

The following views and files are never removed by the *Tidy* command, regardless of the options specified in the command:
- the committed view

- the most recent complete view used by an *Activate*, *Load*, *Save* or *Commit* command
- the current view, if it exists as a saved view
- any view that is a base view for another kept view
- all protected views
- views that are currently opened for reading or writing
- non-provisioning files

The sequence of tidying events is as follows:
- prepare a list of candidate files for deletion (using the *-all*, *-remove* options)
- remove files from the list if they must be kept (using the *-keep*, *-fromDate*, *-toDate* option)
- remove the files on the list

This means that if the options specify a particular file (either explicitly or by wild-carding) both for removal and keeping, then the file will be kept.

**Options:**

*-all*
specifies that all views except the special views mentioned above are to be removed. This option can not be combined with the *-remove*, *-fromDate*, or *-toDate* options.

*-keep(<view> <view> ...)*
specifies that all views except the given list of views and the special views mentioned above are to be removed. Combining the *-all* option with this option is redundant.

*-remove(<view> <view>...)*
specifies that the given list of views are to be removed.

*-fromDate(<date>)*
specifies the start date (which has a format of yyyy-mm-dd) of the period for which views are to be removed. The period

specification is inclusive, that is, views created or modified on this date will be removed. If this option is specified, the *-toDat*e option must also be specified in the command. Also, the time specified by *toDate* must not be earlier than *fromDate*.

*-toDate(<date>)*
specifies the end date (which has a format of yyyy-mm-dd) of the period for which views are to be removed. The period specification is inclusive, that is, views created or modified on this date will be removed. If this option is specified, the *-fromDate* option must also be specified in the command. Also, the time specified by *toDate* must not be earlier than *fromDate*.

## VERB STOP Prov

Impact: Configuration

Description: *Stop Prov*
This verb causes certain potentially long-running *ProvisioningSystem* commands to be aborted. Only the *Apply*, *Check*, *Load*, *Save*, and *Activate* commands can be stopped in this manner and they can only be stopped by a user in provisioning mode.

If *provisioningActivity* has the value "***semantic checking***", "***saving***" or "***loading or applying***", the *ProvisioningSystem* attempts to abort the activity at the earliest possible time. This may not happen immediately as the command must finish the phase it is in before aborting. If *provisioningActivity* has the value "***activating***" and this is a software upgrade and only the sw component was changed, then *ProvisioningSystem* attempts to abort the command.

The *activityProgress* indicates the status of the abort until it has occurred. Note that the *Stop* command itself completes immediately (indicating success) even if the long-running command does not (the long-running command will indicate that it has been cancelled when it actually stops).

If *provisioningActivity* has any other value, or is not applicable to the activation, the user is notified that the *Stop* command is not supported for the current activity.

## VERB APPly Prov

| | |
|---|---|
| Impact | Configuration |
| Description | *Apply [-force] -file(<file name>) Prov*<br>This verb is used to apply a previously stored set of changes (saved in ***delta*** format) to the edit view.<br><br>**Options:**<br>*-file (<file name>)*<br>specifies the file, saved with a ***delta*** format, containing the changes to be applied.The *file name* argument has the form *name[*.full*[.number]]*<br>where *name* is the name of the file; and *number* is the unique sequence number of the file.<br><br>The *name* must refer to a file saved with a ***delta*** format, that is, created by the *Save Prov* command without the *-ascii* or *-portable* options. Note that file names are case-sensitive. If *number* is omitted, the most recent file beginning with *name.**full*** will be used; if only name is specified, the most recent (complete) file beginning with *name.**full*** will be used.<br><br>*-force*<br>Normally, when a complete provisioning view is applied, the provisioning system checks to make sure that all the software necessary to activate the components contained in the view is currently running on the module. If any necessary software is missing, the *Apply* command fails and a list of missing software is displayed.<br><br>The *-force* option overrides the checks for required software; that is, it causes the file to be loaded regardless of what software is currently running. When this option is used, error messages and software alarms may appear during processing of the file, and some components which are present in the file may be missing from the edit view when the apply completes.<br><br>The *-force* option also ensures the system processes the entire provisioning file rather than stopping after 5 errors. |

## VERB Continue Prov

| | |
|---|---|
| Impact | Service |
| Description | *Continue [-force] Prov*<br>This verb causes a software migration activation to be continued if it has been paused. Only an *Activate* command where the *provisioningActivity* has the value "***software migration paused, manual intervention required***" can be continued.<br><br>If *provisioningActivity* has any other value, the user is notified that this command is not supported for the current activity.<br><br>*-force*<br>The *-force* option is going to continue software migration regardless of the pause cause. Pause cause can be that operator used *Activate* command with *-pause* option, or some pausable event occurred. These events include software and hardware alarms on the migration shelf, provisioning data that is nacked, and the failure of an application to indicate that it is ready for the migration switchover. |

## VERB REStore Prov

| | |
|---|---|
| Impact | Service |
| Description | *Restore Prov*<br>This verb causes the provisioning system to re-activate the journaled current view if a switch resets to the committed view. The attribute *restorePossible* is set to ***yes*** in the case where the *Restore Prov* command can be issued to restore the journaled current view. |

## GROUP Prov OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component |

which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Prov adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Prov operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the |

component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Prov usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Prov Operational (Oper)

Properties
Operational

Description
This group contains the operational attributes for the *ProvisioningSystem* component.

### ATTRIBUTE Prov provisioningActivity

Access
Read only

Description
This attribute describes the type of provisioning activity that the *ProvisioningSystem* component is performing.

Values
initial loading
none

activation
initial activation
rolling back
saving
loading or applying
semantic checking
waiting for confirm
clearing
copying
committing
deleting
confirming
adding
restoring

Default: No default

### ATTRIBUTE Prov activityProgress

Access: Read only

Description: This attribute indicates the status relating to a long-running command handled by the *ProvisioningSystem*. It is usually expressed as a percentage of the number of elements (for example, components) processed with respect to the total set of elements that need to be processed for that activity. Note that, one cannot assume that the percentage implies how much time the task may still take. The time to complete the activity is dependent on many things which are beyond the control of the *ProvisioningSystem* itself.

Values: String (1..255, ASCII)

Default: No default

### ATTRIBUTE Prov committedFileName

Access: Read only

Description: This attribute contains the name of the committed file. This is the file that will be used to obtain the provisioning data if the module restarts.

| | |
|---|---|
| | Immediately after system power-up, this attribute contains the name of the file used during initial loading. |
| Values | String (1..40, ASCII) |
| Default | No default |

### ATTRIBUTE Prov currentViewFileName

| | |
|---|---|
| Access | Read only |
| Description | This attribute contains the name of the provisioning file that contains the current view provisioning data.<br><br>After system power-up, this attribute contains the name of the file used during initial loading.<br><br>If the current view data has not been saved, this attribute is empty. |
| Values | String (1..40, ASCII) |
| Default | No default |

### ATTRIBUTE Prov lastUsedFileName

| | |
|---|---|
| Access | Read only |
| Description | This attribute contains the last saved, loaded or committed file name. If a *Load*, *Save* or *Commit* command returns an error, this attribute remains unchanged.<br><br>Immediately after system power-up, this attribute contains the name of the file used during initial loading. |
| Values | String (1..40, ASCII) |
| Default | No default |

### ATTRIBUTE Prov provisioningSession (session)

| | |
|---|---|
| Access | Read only |
| Description | This attribute contains the component name of the operator session which is currently in provisioning mode. For example, |

| | |
|---|---|
| | ***NMIS Telnet Session/2***<br>If no session is in provisioning mode, this attribute will be empty. |
| Values | The name of the component |
| Default | No default |

### ATTRIBUTE Prov provisioningUser (user)

| | |
|---|---|
| Access | Read only |
| Description | This attribute contains the *userid* of the operator who is currently provisioning the module. If no session is in provisioning mode, this attribute will be empty. |
| Values | String (1..8, ASCII) |
| Default | No default |

### ATTRIBUTE Prov checkRequired

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether semantic checking is required before activating the edit view. |
| Values | yes<br>no |
| Default | No default |

### ATTRIBUTE Prov confirmRequired

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether the operator must enter a *Confirm Prov* command in order to keep a newly activated or restored current view in effect.<br><br>If an activation or restore is not confirmed within 20 minutes of its completion, the module will restart using the committed provisioning data. |
| Values | yes<br>no |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Prov editViewName (evName)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the name of the provisioning view that represents the edit view provisioning data.<br><br>If the edit view data has not been saved, this attribute is empty. |
| Values | String (0..40, ASCII) |
| Default | No default |

### ATTRIBUTE Prov editViewAddedComponents (evAdded)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of provisioning components that have been added to the edit view with respect to the current view. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Prov editViewDeletedComponents (evDeleted)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of provisioned components that have been deleted from the edit view with respect to the current view. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Prov editViewChangedComponents (evChanged)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of provisioned components whose attributes differ between the edit and current views. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Prov standbyCpActivity

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current activity being performed by the provisioning system on the standby CP. This attribute may take the following values:<br>***none*** - When no provisioning activity is in progress.<br>***loading provisioning data*** - When a committed file is being loaded.<br>***saving commit-format provisioning data*** - When provisioning data is being saved with commit formats in preparation for a software migration.<br>***delivering provisioning data on migrating cards*** - When the standby CP is being activated as the migration active card for a software migration.<br>***synchronizing provisioning data***- When a journal log file is being loaded on the standby CP in order to synchronize the standby CP configuration database with the active CP configuration database. This occurs after a manual activation has been confirmed when CP equipment protection is provisioned.<br>***loading new software on CP*** - When the standby CP is coming up and is being loaded with software. |
| Values | none<br>loading provisioning data<br>saving commit-format provisioning data<br>delivering provisioning data on migrating cards<br>synchronizing provisioning data<br>loading new software on CP |
| Default | No default |

### ATTRIBUTE Prov standbyCpActivityProgress

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the status of the provisioning activity which the *ProvisioningSystem* is performing on the standby CP. |
| Values | String (1..255, ASCII) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Prov journalDisabledReason

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the reason (if any) that journal log file saving is disabled. This attribute may take the following values:<br>***"not disabled"*** - If journal log file saving is operationally enabled.<br>***"not configured"*** - If journal log file saving is provisioned to be disabled.<br>***"file system error***" - If journal log file saving is operationally disabled due to a file system problem, such as disk full or file system locked.<br>***"threshold exceeded"*** - If journal log file saving is operationally disabled because the maximum number of journal log files has already been reached.<br>***"reload activation***" - If journal log file saving is operationally disabled because the last activation was a reload activation.<br>***"initial commit required"*** - If journaling has just been enabled by provisioning but a *Commit Prov* has not been issued.<br>"***restore failed***" - If journal log saving is operationally disabled because the *restore prov* command failed to restore all the journal logs.<br><br>After the error condition is corrected, a *Commit Prov* command causes journaling to become enabled once again. |
| Values | not disabled<br>not configured<br>file system error<br>threshold exceeded<br>reload activation<br>initial commit required<br>restore failed |
| Default | No default |

### ATTRIBUTE Prov restorePossible

| | |
|---|---|
| Access | Read only |

Description

This attribute indicates whether or not it is possible to use the *Restore Prov* command to restore to the last known current view after a switch reset.
If a switch comes up and a *Restore Prov* command is possible, a warning alarm with index 7000 0038 will be raised against the *Prov* component. This alarm will be cleared when the *Restore Prov* command is issued by the operator. It will also be cleared if the operator does not perform a *Restore Prov* command, but performs an *Activate Prov* or a *Commit Prov.*
Note that an activation or commit before a *Restore Prov* command results in the removal of all the existing journal log files, so that a *Restore Prov* command will no longer be possible. This situation is indicated to the operator by a semantic check warning.

Values

yes
no

Default

No default

### ATTRIBUTE Prov currentJournal (currentJn)

Access

Read only

Description

This attribute indicates the number of journal logs files that have been saved since the last *Commit Prov* command.

When the value of the *currentJournal* attribute approaches the provisioned maximum allowed number of journal log files (a value represented by the *maxNumberJournalFiles* attribute), an alarm with index 7000 0036 is raised against the *Prov* component. The severity of the alarm depends on the percentage of the maximum allowed number of journal log files that have been saved since the last *Commit Prov* command:

75% - Warning
85% - Minor
95% - Major

If the user does not perform a *Commit Prov* command and allows the value of the *currentJournal* attribute to equal the *maxNumberJournalFiles* attribute, journal log file saving becomes operationally disabled. In this case, a critical alarm with

index 7000 0037 is raised against the *Prov* component. The resulting impact is that CP equipment protection is disabled, and a CP switchover attempt would result in a shelf reset instead.

When the user enters a *Commit Prov* command, all previous journal logs are removed and the *currentJournal* attribute is reset to zero. If an alarm was raised because journal log saving was disabled, it is cleared. If an alarm was raised due to the number of journal log files before the commit prov, it is cleared. If CP equipment protection and journal log saving were disabled before the *Commit Prov* command because of the number of journal log files, they become enabled after the *Commit Prov* command.

Values: Decimal (0..2000)

Default: No default

## GROUP Prov Provisioned (Prov)

Properties: Provisioned

Description: This group contains the provisionable attributes for the *ProvisioningSystem* component.

## ATTRIBUTE Prov maxNumberJournalFiles (maxJn)

Access: Read and write

Description: This attribute specifies the maximum number of journal files that can be saved. A value of ***none*** specifies that journaling is disabled, while any other value specifies that journaling is enabled. The *Shelf cpEquipmentProtection* attribute must be set to ***cold*** when the *maxNumberJournalFiles* attribute is set to ***none***.

The value of the *maxNumberJournalFiles* attribute must be greater than the value of the *Prov currentJournal* operational attribute. If it is not, the resulting impact is that journal log file saving becomes operationally disabled. A critical alarm with index 7000 0037 is also raised against the *Prov* component. A *Commit Prov* command would need to be entered to re-enable journaling.

The operator may want to set the *maxNumberJournalFiles*

attribute to be less than the default value of ***2000*** in order to force a *Commit Prov* command to be entered more frequently. If a switch reset to the committed view occurs, the *Restore Prov* command may take less time to complete in this case, since there are fewer journal log files to load and activate.

Values: Decimal (100..2000)
none

Default: 2000

## COMPONENT Prov View

Instance: String (1..40, ASCII)

Groups: "GROUP Prov View Operational (Oper)"

Scope: Application

Description: *Prov View/<string>*
This component represents information about provisioning views.

Most of these views have been saved and can be activated or loaded. In this case, the format for <string> is
<name>.<type>.<number>
where <name> is the view's name; <type> is either ***full*** or ***part***, <number> is a unique sequence number generated by the system.

The ***current*** and ***edit*** views are not necessarily saved.

Common Verbs:
Help
List
Display

## GROUP Prov View Operational (Oper)

Properties: Operational

Description: This group contains the operational attributes for the *View* component.

## ATTRIBUTE Prov View user

Access: Read only

| | |
|---|---|
| Description | This attribute indicates the *userid* of the operator who first saved this view. It may be empty if unknown or if the view has not been saved. |
| Values | String (0..8, ASCII) |
| Default | No default |

### ATTRIBUTE Prov View checkState

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the semantic check state of the view when it was saved. The values are described in worst to best order.<br><br>The ***failed*** state indicates that the view has failed a semantic check and cannot be activated.<br><br>The ***unknown*** state indicates that semantic checks have not been run and the view cannot be activated.<br><br>The ***partial*** state indicates that the view has passed incomplete checks, that is *Check -changed Prov* has succeeded. This is also the best state value for a partial view. Thew view cannot be activated until it has been fully checked.<br><br>The ***softwareChanged*** state indicates that the view has passed complete checks, but by software other than that to be activated, that is, either the application versions have changed, or features have been added. After activation, the new software may detect semantic errors. After correcting these errors, if any, the view will need to be re-saved or re-committed as appropriate.<br><br>The ***full*** state indicates that the view has passed complete checks, that is, it has been fully verified. It can be activated. |
| Values | failed (fail)<br>unknown (unk)<br>partial (part)<br>softwareChanged (sw)<br>full |
| Default | No default |

## ATTRIBUTE Prov View components (comps)

| | |
|---|---|
| Access | Read only |
| Description | This attributes indicates the number of provisioned components that have been (or could be) saved. |
| Values | Decimal (0..999999) |
| Default | No default |

## ATTRIBUTE Prov View formats

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the formats of the saved information. Each serves a different purpose.<br><br>The ***ascii*** format is readable by operators and can be easily parsed and generated by scripts. NMS makes use of this format. Note that the syntax is subject to change without notice. This format is generated via *Save -ascii Prov.* A view with an ascii format can be loaded and activated.<br><br>The ***commit*** format is generated via *Commit Prov* and allows for fast activation, that is, a shorter service outage time. The system will never leave a view with only this format, as it cannot be loaded.<br><br>The ***delta*** format contains the changes made between the current view and the edit view. It is, therefore, much smaller and faster to *Load* or *Save* than the other formats. A view containing this format can be loaded or have the changes applied to the edit view. This provides a mechanism to propagate a set of changes from one view to another. A view containing only this format can be activated if this would not require a system reload. To generate this format, issue *Save Prov* without the *-ascii* or *-portable* options.<br><br>The ***part*** format is generated via *Save -component() Prov.* The part format can be loaded. The syntax of this format is subject to change without notice. |

| | |
|---|---|
| | The ***portable*** format is a compact representation that can be quickly loaded. It can be transported from one Passport to another, or to an NMS. It is generated via *Save -portable Prov.* The portable format can be loaded and activated. |
| Set of | ascii<br>commit<br>delta<br>part<br>portable (port) |
| Default | No default |

### ATTRIBUTE Prov View baseView (base)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the name of the view upon which this view's changes are based (even if the ***delta*** format does not exists). In other words, it indicates the name of the current view that existed at the time that this view was saved. This may not be the name of the current view that is running now.<br><br>This attribute is empty when the view is unsaved or if the current view was saved. |
| Values | String (0..40, ASCII) |
| Default | No default |

### ATTRIBUTE Prov View version

| | |
|---|---|
| Access | Read only |
| Description | This attribute represents the version of base software that saved this view.<br><br>It is empty if unknown. |
| Values | String (0..16, ASCII) |
| Default | No default |

### ATTRIBUTE Prov View creationDate

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the creation date of this view. |
| Values | Time (DHMS) |
| Default | No default |

### COMPONENT Prov SoftwareMigration (Migration)

| | |
|---|---|
| Groups | "GROUP Prov Migration OsiState (State)" |
| Scope | Application |
| Description | *Prov SoftwareMigration*<br>This component coordinates the migration visible alarms generated by the migration shelf while a software migration activation is in progress. The *Migration* component is automatically created at the start of a software migration activation and is removed at the completion of a software migration activation, whether successful or unsuccessful. The presence of the *Migration* component indicates that a software migration activation is being performed. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Prov Migration OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Prov Migration adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |

Description

This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values

locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default

unlocked

### ATTRIBUTE Prov Migration operationalState (osiOper)

Access

Read only

Description

This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values

enabled (ena)
disabled (dis)

Default

disabled

## ATTRIBUTE Prov Migration usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

Passport 7400, 15000, 20000

# Component Prov

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component RGty

241-5701-060

Passport 7400, 15000, 20000

# Component RGty

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT RoutingGateway (RGty)

| | |
|---|---|
| Instance | Decimal (0..4294967295) |
| Groups | "GROUP RGty OsiState (State)"<br>"GROUP RGty Prov (Prov)"<br>"GROUP RGty Oper (Oper)"<br>"GROUP RGty CustomerIdentifierData (CidData)" |
| Scope | Network |
| Description | *RoutingGateway/n*<br>This component must be provisioned on nodes where calls cross boundaries between topology regions. It must also be provisioned on nodes where calls cross boundaries between cluster and non-cluster nodes. A *RGty* is responsible for bridging calls across these boundaries. A *RGty* upon the receipt of a call setup message terminates the existing segment of the call coming from the direction of its source and originates a new path segment of the call towards its destination. This means that each call handled by the *RGty* consists of two segments: one leading to the source of the call and the other leading to the destination of the call.<br><br>The *RGty* may be provisioned on one or more logical processors (*Lp*s). If an *RGty* is provisioned on a single *Lp*, all calls bridged across the above mentioned boundaries through this node will have their path segments terminated and originated on this *Lp*. If a single *Lp* does not have sufficient capacity to bridge all of the calls then multiple *RGty*s may be provisioned on multiple *Lp*s and the calls will be equally shared among all the *RGty*s.<br><br>For more information as to which *Lp* to choose for the *RGty*, or |

for information as to how many *RGty*s should be provisioned on a node please refer to the Engineering Guidelines.

Dyn. Subcomp. "COMPONENT RGty Call (Call)"

Common Verbs

Help
List
Display
Add
DELete
LOCK
Unlock

## GROUP RGty OsiState (State)

Properties Operational

Description This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

## ATTRIBUTE RGty adminState (osiAdmin)

Access Read only

Description This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE RGty operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE RGty usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in

use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
idle
active (activ)
busy

Default
idle

### ATTRIBUTE RGty availabilityStatus (osiAvail)

Access
Read only

Description
If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.

The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.

The value ***dependency*** indicates that the component cannot

operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.

The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.

The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

| | |
|---|---|
| Set of | inTest<br>failed<br>dependency (depend)<br>powerOff (pwrOff)<br>offLine<br>offDuty<br>degraded (degrad)<br>notInstalled (notIn)<br>logFull<br>migrating |
| Default | No default |

### ATTRIBUTE RGty proceduralStatus (osiProc)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.<br><br>The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.<br><br>The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***. |

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

### ATTRIBUTE RGty controlStatus (osiCntrl)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

| | |
|---|---|
| | The value ***suspended*** indicates that the service has been administratively suspended. |
| Set of | subjectToTest (subTst)<br>partOfServicesLocked (partLk)<br>reservedForTest (rsrvd)<br>suspended (suspnd) |
| Default | No default |

### ATTRIBUTE RGty alarmStatus (osiAlarm)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.<br><br>The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.<br><br>The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.<br><br>The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***. |

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE RGty standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values

hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

| | |
|---|---|
| Default | notSet |

### ATTRIBUTE RGty unknownStatus (osiUnknw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Unknown status of the component.<br><br>The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.<br><br>The value ***true*** indicates that the actual state of the component is not known for sure. |
| Values | false<br>true |
| Default | false |

### GROUP RGty Prov (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all the provisionable attributes of the *RGty.* |

### ATTRIBUTE RGty logicalProcessor (lp)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies a logical processor (*Lp*) on which the *RGty* resides. The *RGty* may reside on any *Lp* simply by pointing this attribute to the *Lp/n* component. Only one *RGty* may reside on an *Lp*.<br><br>For more information as to which *Lp* to choose for the *RGty,* or for information as to how many *RGty*s should be provisioned on a node please refer to the Engineering Guidelines. |
| Values | Link (Hardware, linkToApplications) |
| Default | No default |

### ATTRIBUTE RGty maxCalls (maxc)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the maximum number of calls that the *RGty* can handle, thus the attribute is used to limit resource (CPU and memory) usage by the *RGty.* The attribute is also used to control the spreading of calls among multiple *RGty*s. When a call needs to cross a topology region or cluster boundary, the *RGty* selected to handle the call is the one which has the smallest ratio of *currentCalls* to *maxCalls*. For example, assume there are two *RGty*s, first with *currentCalls* = 1 and *maxCalls* = 10, second with *currentCalls* = 1 and *maxCalls* = 100. New calls will go to the second *RGty* until it has *currentCalls* = 11 at which time the first *RGty* will take one call giving it the ratio of 2 *currentCalls* to 10 *maxCalls*. Then, 10 more calls will go to the second *RGty* and the next call to the first *RGty*, and so on.<br><br>Note that the spreading algorithm is approximate and does not yield exact results due to latency in the delivery and caching of the required distributed data.<br><br>It is important to note that this attribute does not guarantee enough resources are available to handle the maximum number of calls. It simply guarantees that no more than the maximum number of calls will be handled by the *RGty.* |
| Values | Decimal (0..1000) |
| Default | 100 |

### GROUP RGty Oper (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes of the *RGty.* |

### ATTRIBUTE RGty currentCalls (curc)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the number of calls that the *RGty* is currently handling. Note that *currentCalls* may exceed *maxCalls* when *maxCalls* was decreased at the time when the *RGty* had *currentCalls* greater than the new *maxCalls*. For example, if the *RGty* has *currentCalls* = 70 and *maxCalls* = 100 when *maxCalls* is decreased to 50 then until 20 calls are cleared *currentCalls* will be greater than *maxCalls*. |
| Values | Decimal (0..65535) |
| Default | No default |

### ATTRIBUTE RGty setupFromGateway (sfg)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the call setup messages that the *RGty* has received across the topology region or cluster boundary. |
| Values | Decimal (0..65535) |
| Default | No default |

### ATTRIBUTE RGty setupToGateway (stg)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the call setup messages that the *RGty* has sent across the topology region or cluster boundary. |
| Values | Decimal (0..65535) |
| Default | No default |

### ATTRIBUTE RGty connectFromGateway (cfg)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the call connect messages that the *RGty* has received across the topology region or cluster boundary. |
| Values | Decimal (0..65535) |
| Default | No default |

### ATTRIBUTE RGty connectToGateway (ctg)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the call connect messages that the *RGty* has sent across the topology region or cluster boundary. |
| Values | Decimal (0..65535) |
| Default | No default |

### ATTRIBUTE RGty releaseFromGateway (rfg)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the call release messages that the *RGty* has received across the topology region or cluster boundary. |
| Values | Decimal (0..65535) |
| Default | No default |

### ATTRIBUTE RGty releaseToGateway (rtg)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the call release messages that the *RGty* has sent across the topology region or cluster boundary. |
| Values | Decimal (0..65535) |
| Default | No default |

### ATTRIBUTE RGty rerouteFromGateway (rrfg)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the Passport proprietary reroute messages that the *RGty* has received across the topology region or cluster boundary. This reflects the number of times a call handled by the *RGty* has been moved from one boundary (inter-region or cluster) link to another. The call is moved as a result of a successful reroute due to link failure, or as a result of call balancing or optimization occurring on the local node or node across the boundary. |
| Values | Decimal (0..65535) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE RGty rerouteToGateway (rrtg)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the Passport proprietary reroute messages that the *RGty* has sent across the topology region or cluster boundary. This reflects the number of times a call handled by the *RGty* has been moved from one path to another within the *RGty*'s topology region or cluster. The call is moved as a result of a successful reroute due to a link failure within the *RGty*'s topology region or cluster, or as a result of call balancing or optimization occurring within this region or cluster. |
| Values | Decimal (0..65535) |
| Default | No default |

### ATTRIBUTE RGty failedCallAttempts (fc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the calls handled by the *RGty* that have failed during their establishment phase (setup and connect). |
| Values | Decimal (0..65535) |
| Default | No default |

### ATTRIBUTE RGty localResourceExhaustionReleases (lr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the call release messages that the *RGty* has generated due to a lack of resources required to process a call setup or connect message. |
| Values | Decimal (0..65535) |
| Default | No default |

### ATTRIBUTE RGty lastFailedAttemptCalledAddress (fcda)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the final destination NSAP address of the last call handled by the *RGty* which failed in its establishment phase. An empty string implies that there has been no call establishment failure so far. |
| Values | String (0..40, ASCII) |
| Default | No default |

### ATTRIBUTE RGty lastFailedAttemptCallingAddress (fcca)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the initial source NSAP address of the last call handled by the *RGty* which failed in its establishment phase. An empty string implies that there has been no call establishment failure so far. |
| Values | String (0..40, ASCII) |
| Default | No default |

### ATTRIBUTE RGty lastFailedAttemptReleaseCause (fcrc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Q.2931 release cause for the last call handled by the *RGty* which failed in its establishment phase. A value of 0 implies that there has been no call establishment failure so far. The most common release causes are as follows:<br><br>3 = No Route To Destination, (routing system cannot get there)<br>17 = User Busy, (called party already has a call up)<br>18 = No User Response, (called party not responding)<br>21 = Call Rejected, (called party not accepting call)<br>37 = Cell Rate Unavailable (network congestion upstream)<br>41 = Temporary Failure (upstream card failure, etc.)<br>45 = No VPI VCI Available (got route but no B/W or VCC upstream)<br>47 = Resource Unavailable (got route but no resources upstream)<br>88 = Incompatible destination (called party not compatible)<br>102 = Timer Recovery (control or data congestion upstream) |

| | |
|---|---|
| Values | Decimal (0..65535) |
| Default | No default |

### ATTRIBUTE RGty lastFailedAttemptReleaseDiag (fcrd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Q.2931 release diagnostic for the last call handled by the *RGty* which failed in its establishment phase. An empty string implies that there has been no call establishment failure so far. |
| Values | String (0..8, ASCII) |
| Default | No default |

### ATTRIBUTE RGty lastFailedAttemptTime (fct)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the time at which the *RGty* processed the last call that failed in its establishment phase. If no call establishment failures have occurred then it gives the time the *RGty* was created. |
| Values | Time (DHMS) |
| Default | No default |

### GROUP RGty CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

### ATTRIBUTE RGty customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; |

otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.

Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.

An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to "basic CIDs" in DPN) may be assigned to specific customers.

| | |
|---|---|
| Values | Decimal (0; 1..8191) |
| Default | 0 |

## COMPONENT RGty Call (Call)

| | |
|---|---|
| Instance | Decimal (0..65534) |
| Groups | "GROUP RGty Call Oper (Oper)" |
| Scope | Network |
| Description | *RGty/n Call/n*<br>This component represents a call from source to destination that is handled by the *RGty*. The *RGty* upon the receipt of a call setup message terminates the existing path segment of the call coming from the direction of its source and originates a new path segment of the call towards the destination. This means that each *RGtyCall* consists of two path segments: one leading to the source of the call and the other leading to the destination of the call. |
| Dyn. Subcomp. | "COMPONENT RGty Call Segment (Seg)" |
| Common Verbs | Help<br>List<br>Display |

### VERB CLEAR RGty Call

| | |
|---|---|
| Impact | Service |
| Description | Clearing a *RoutingGatewayCall* causes the termination of the entire call handled by *RGty*. That is, path segments leading to both the source and destinaiton are terminated. |

### GROUP RGty Call Oper (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes of the *RGtyCall*. |

### ATTRIBUTE RGty Call stateToSource (sts)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current state of the path segment of the *RGtyCall* leading towards the source of the call. See the *state* attribute of *RGtyCallSegment* component for more details. |
| Values | String (0..30, ASCII) |
| Default | No default |

### ATTRIBUTE RGty Call stateToDestination (std)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current state of the path segment of the *RGtyCall* leading towards the destination of the call. See the *state* attribute of *RGtyCallSegment* component for more details. |
| Values | String (0..30, ASCII) |
| Default | No default |

### ATTRIBUTE RGty Call calledAddress (cda)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the final destination NSAP address of the *RGtyCall*. |
| Values | String (0..40, ASCII) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE RGty Call callingAddress (cga)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the initial source NSAP address of the *RGtyCall*. |
| Values | String (0..40, ASCII) |
| Default | No default |

### COMPONENT RGty Call Segment (Seg)

| | |
|---|---|
| Instance | toSource (s)<br>toDestination (d) |
| Groups | "GROUP RGty Call Seg Oper (Oper)" |
| Scope | Network |
| Description | *RGty/n Call/n Segment/n*<br>This component represents one of the two path segments of the call handled by the *RGty*: the one leading to the source of the call or the one leading to the destination of the call. Under each *RGtyCallSegment* is the *LogicalConnection* component for the routing system which is responsible for the management of that path segment. |
| Dyn. Subcomp. | "COMPONENT RGty Call Seg AtmConnection (AtmCon)"<br>"COMPONENT RGty Call Seg LogicalConnection (LCo)" |
| Common Verbs | Help<br>List<br>Display |

### GROUP RGty Call Seg Oper (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes of the *RGtyCallSegment*. |

### ATTRIBUTE RGty Call Seg state (st)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current state of the *RGtyCallSegment*. |
| Values | String (0..15, ASCII) |
| Default | No default |

### COMPONENT RGty Call Seg AtmConnection (AtmCon)

| | |
|---|---|
| Groups | "GROUP RGty Call Seg AtmCon Operational (Oper)" |
| Scope | Device |
| Description | An AtmConnection component is created for each ATM connection established by an application. It shows where the data traffic for this connection is directed. |
| Common Verbs | Help<br>List<br>Display |

### GROUP RGty Call Seg AtmCon Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains the operational attributes for the *NapAtmConnection* component. |

### ATTRIBUTE RGty Call Seg AtmCon nextHop

| | |
|---|---|
| Access | Read only |
| Description | This attribute shows the component name of the *AtmIf Vcc Ep* or *AtmCon* component to which this switched connection is established. |
| Values | The name of the component |
| Default | No default |

## COMPONENT RGty Call Seg LogicalConnection (LCo)

| | |
|---|---|
| Groups | "GROUP RGty Call Seg LCo PathData"<br>"GROUP RGty Call Seg LCo Statisitics (Stats)" |
| Scope | Application |
| Description | ...*Lc*<br>This component contains all of the operation attributes for a Path Oriented Logical Connection. |
| Common Verbs | Help<br>List<br>Display |

## VERB RERoute RGty Call Seg LCo

| | |
|---|---|
| Impact | Service |
| Description | RERoute ..Lc<br>This command is used to request a *LogicalConnection (LCo)* to attempt a reroute. A new path will be established if it is better than the current path. The current path will not be interrupted if the *RERoute* command is not completely successful. The connection must not be attempting rerouting at present. This command is only valid on components with the *PLC remoteName* specified.<br>This command is intended to be used on the calling end of a connection. For a single region call, it may be used on the called end of a connection if all the *PLC* parameters match. Note that the calling end or the called end of a connection means the *end* attribute of an *LCo* is equal to the value of ***calling*** or ***called*** respectively.<br><br>When used on an *LCo* with *pathType* attribute set to ***manual*** or ***forced,*** this command can be used to re-setup the path.<br><br>If this command is attempted on a connection that is not up but its *state* attribute is equal to ***pathDownRetrying,*** an immediate route request is sent. |

### GROUP RGty Call Seg LCo PathData

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all operational attributes for the path oriented LCo. |

### ATTRIBUTE RGty Call Seg LCo state

| | |
|---|---|
| Access | Read only |
| Description | This attribute reflects the current state of the connection. The ***pathDown*** state indicates a connection that has no remote end provisioned or the application has not yet signaled for a path. The ***selectingRoute*** state occurs when a request has been sent to route selector and it has not yet responded. The ***connectingState*** occurs while a path is being established. The ***pathUp*** state is the normal operational state of a path. The ***pathDownRetrying*** state indicates a path that attempted route selection but received no route and is now waiting to retry route selection again. |
| Values | pathDown<br>selectingRoute<br>connecting<br>pathUp<br>pathDownRetrying |
| Default | No default |

### ATTRIBUTE RGty Call Seg LCo overrideRemoteName (orn)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | If set ***and*** the current PLC remoteName is blank this remoteName will override the blank PLC remoteName. Usually you would set this attribute and then lock/unlock the service component which will result in this new overrideRemoteName being used as if it had been provisioned into the PLC remoteName. The advantage of this attribute is that the connection's remoteName can be changed immediately without having to "activate prov" but the disadvantage is that the overrideRemoteName is not permanent and if the card or switch is reset the override will be lost. |
| Values | String (0..40, ASCII) |

| | |
|---|---|
| Default | "" |

### ATTRIBUTE RGty Call Seg LCo end

| | |
|---|---|
| Access | Read only |
| Description | This attribute identifies whether this is the calling or called end of the path. |
| Values | calling<br>called |
| Default | No default |

### ATTRIBUTE RGty Call Seg LCo costMetric (cost)

| | |
|---|---|
| Access | Read only |
| Description | This attribute gives the route's total cost metric. It is calculated as the sum of the cost metric of all trunks in the path at the time the connection was established. The cost metric of a trunk is defined by the *trunkCost* attribute of the Trunk component. The *costMetric* for an LCo that is originated and terminated on the same module is 0. |
| Values | Decimal (0..65535) |
| Default | No default |

### ATTRIBUTE RGty Call Seg LCo delayMetric (delay)

| | |
|---|---|
| Access | Read only |
| Description | This attribute gives the total delay of the route as the one way delay for a 512 byte packet. It is calculated as the sum of the delays of all trunks in the path stored in topology at the time the connection was established. The delay for an LCo that is originated and terminated on the same module is 0. |
| Values | Decimal (0..100000) |
| Units | msec |
| Default | No default |

### ATTRIBUTE RGty Call Seg LCo roundTripDelay (rtd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the time taken for a packet (cell) of 44 bytes to be transmitted inband to the remote *LCo* and return to this LCo. The value reported is rounded to the nearest millisecond.<br>For Unack PORS trunks and AAL5 MUX PORS trunks, the test packet is sent inband and receives the same treatment as regular data packets, giving a round trip delay which corresponds to regular data traffic.<br>For SPO MUX PORS trunks and MAP PORS trunks, the test packet is sent along the parent trunk's VCC, giving a round trip delay which corresponds to the parent trunk's round trip delay. The round trip delay does not directly reflect the round trip delay of data packets travelling on the non-parent VCC.<br>When the *LCo* is originated and terminated on the same module, a value of 1 millisecond is reported. The value of 1 millisecond is the minimum reported time even though the delay may be less than 1 millisecond. |
| Values | Decimal (0..200000) |
| Units | msec |
| Default | No default |

### ATTRIBUTE RGty Call Seg LCo setupPriority (spri)

| | |
|---|---|
| Access | Read only |
| Description | This attribute gives the priority at which the current path is established. Zero is the highest priority and four is the lowest. The *holdingPriority*, a complementary attribute of this component, indicates the priority a path maintains once it is established. |
| Values | Decimal (0..4) |
| Default | No default |

### ATTRIBUTE RGty Call Seg LCo holdingPriority (hpri)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute gives the priority at which a path holds its current path once the path is established. Zero is the highest priority and four is the lowest. The *setupPriority*, a complementary attribute, indicates the priority of a path at establishment time. |
| Values | Decimal (0..4) |
| Default | No default |

### ATTRIBUTE RGty Call Seg LCo requiredTxBandwidth (tbw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute gives the actual bandwidth (in bits per second) reserved by this path on each of the trunks of its route. This attribute represents the bandwidth for traffic outgoing to the remote end point. The originating end of the connection determines this value. |
| Values | Decimal (0..4294967295) |
| Units | bit/s |
| Default | No default |

### ATTRIBUTE RGty Call Seg LCo requiredRxBandwidth (rbw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute gives the actual bandwidth (in bits per second) reserved by this path on each of trunks of its route. This attribute represents the bandwidth for traffic incoming from the remote end point. The originating end of the connection determines this value |
| Values | Decimal (0..4294967295) |
| Units | bit/s |
| Default | No default |

### ATTRIBUTE RGty Call Seg LCo requiredTrafficType (rttyp)

| | |
|---|---|
| Access | Read only |
| Description | This operational attribute indicates the type of traffic transmitted over the path. There are eight possible traffic types, and the path |

can transmit only one of them. The originating end of the connection determines the type. These are arbitrary designations for traffic type. The ***voice***, ***data*** and ***video*** traffic types are defined, and five other arbitrary traffic types can be defined by the network administration. This attribute is used in the route selection process to restrict the route to trunks that support this traffic type. The *supportedTrafficType* trunk attribute lists all the types of traffic allowed on the trunk. For example, if *requiredTrafficType* is specified as ***trafficType1*** then only trunks that include ***trafficType1*** in *supportedTrafficType***,** will be candidates for this connection.

Values

voice
data
video
trafficType1 (tt1)
trafficType2 (tt2)
trafficType3 (tt3)
trafficType4 (tt4)
trafficType5 (tt5)

Default

No default

## ATTRIBUTE RGty Call Seg LCo permittedTrunkTypes (pttyp)

Access

Read only

Description

This operational attribute lists up to eight types of trunk that can be used on the route. The originating end of the connection determines the types. The ***terrestrial*** and ***satellite*** trunk types have been defined, leaving six remaining arbitrary types that can be defined by the network administration. The trunk's type is indicated in the *trunkType* attribute of the Trunk component. When selecting a route, PORS only chooses trunks whose *trunkType* are in the *permittedTrunkTypes* for the path.

| | |
|---|---|
| Set of | terrestrial<br>satellite<br>trunkType1 (tt1)<br>trunkType2 (tt2)<br>trunkType3 (tt3)<br>trunkType4 (tt4)<br>trunkType5 (tt5)<br>trunkType6 (tt6) |
| Default | No default |

### ATTRIBUTE RGty Call Seg LCo requiredSecurity (rsec)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the required minimum level of security of the trunks on the route. Zero represents the most secure and seven represents the least secure. The trunk's security is indicated by the *trunkSecurity* attribute of the Trunk component, and has values identical in range and meaning to the *requiredSecurity* attribute. PORS ensures that any route selected does not contain a trunk whose *trunkSecurity* attribute is numerically greater than the *requiredSecurity.* |
| Values | Decimal (0..7) |
| Default | No default |

### ATTRIBUTE RGty Call Seg LCo requiredCustomerParameter (rcparm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the allowed customer defined parameter of the trunks on the route.The originating end of the connection determines the customer defined parameter. Its value, a number from zero to seven, is chosen by a network administration to have a meaning specific to their network, thus allowing them to customize the use of their trunks. A complementary trunk attribute, *customerParameter*, also has a value from zero to seven. The route selection process does not consider trunks |

whose *customerParameter* is greater than the *requiredCustomerParameter* of the path.

Values: Decimal (0..7)

Default: No default

### ATTRIBUTE RGty Call Seg LCo emissionPriority (epri)

Access: Read only

Description: This attribute indicates the urgency with which packets on the path are emitted by the trunks on the route. The originating end of the connection selects the *emissionPriority. EmissionPriority* of zero indicates the highest emission priority, while two indicates the lowest emission priority. Packets with a higher *emissionPriority* (or numerically less) are serviced and sent out before the packets of lower *emissionPriority* (or numerically higher).

Values: Decimal (0..2)

Default: No default

### ATTRIBUTE RGty Call Seg LCo discardPriority (dpri)

Access: Read only

Description: This attribute indicates the importance of the packets on the path. The originating end of the connection sets *discardPriority.* One is used for paths carrying the most important traffic, and three is used for paths carrying the least important traffic. Packets with lower *discardPriority*(numerically) are discarded after packets with a higher *discardPriority*(numerically).

Values: Decimal (1..3)

Default: No default

### ATTRIBUTE RGty Call Seg LCo pathType (pType)

Access: Read only

Description: This attribute indicates whether the path for this PLC was determined automatically or by static provisioning. ***Normal*** *pathTypes* are selected automatically by Route Selector.The other

*pathTypes* are both manual *pathTypes* where the operator must specify, through provisioning, a static route termed the *manualPath*. A manual *pathType* connection is nearly identical to a normal path type connection with the exception that the route is pre-provisioned. For a manual *pathType*, bandwidth reservations are respected along the path exactly as in a normal path. The last type, the ***forced*** *pathType*, is also a manual path but regardless of the bandwidth available the route is granted provided the trunks are operational and there are sufficient Logical Channels (LChs).

The ***forced*** *pathType* could result in over committing the reserved bandwidth allowed on a trunk. A better way to achieve the effects of a ***forced*** *pathType* is to use a ***manual*** *pathType* with *setupPriority* = ***0*** and *holdingPriority* = ***0***. In this manner the path will reserve correct bandwidth and it will bump other paths if required while not being bumped itself.

Values
normal
manual
forced

Default
No default

## ATTRIBUTE RGty Call Seg LCo retryCount (rcount)

Access
Read only

Description
This attribute is the count of the number of times the path chosen during route selection could not be instantiated. This count should be three or below if the network is performing adequately. A high value indicates that the route selection is often performed using an out-of-date view of available network bandwidth and/or topology.
This attribute will only increase at the calling end of an un-segmented connection. The attribute should be ignored for segmented connections.This attribute is reset each time a path reconnects and stops counting when it reaches its maximum value.

Values
Decimal (0..255)

Default
No default

### ATTRIBUTE RGty Call Seg LCo pathFailureCount (pfcount)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the count of the number of times the path has successfully connected. It is set to zero the first time the path is up. If a path fails anytime after connecting this count will be incremented when the path is up again. Failed route requests do not count in this statistic. See *retryCount* above. This attribute stops counting at its maximum value. |
| Values | Decimal (0..65535) |
| Default | No default |

### ATTRIBUTE RGty Call Seg LCo reasonForNoRoute (rnr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the route selection's *reasonForNoRoute* and provides a brief reason for which a route was not selected. The reasons are essentially self-explanatory. Perhaps two reasons for no route require some explanation. The reason ***unknownRemoteNodeName*** is issued when the remote node name is not in the topological database. The reason ***plcAttributesNotMet*** is issued when there is no network connectivity at a level specified by the PLC attributes. This reason is also issued when there is no physical connectivity between two end nodes. |
| Values | none<br>destinationNameTooLong<br>destinationNotSpecified<br>unknownDestinationName<br>incorrectDestination<br>incorrectDestinationEndPoint<br>unknownSource<br>unknownDestination<br>sameNode<br>routeCostTooMuch<br>routesDelayTooLong<br>attributesNotMet<br>anError |

| | |
|---|---|
| | attributeProfileProblem<br>manualPathIndexProblem |
| Default | none |

### ATTRIBUTE RGty Call Seg LCo lastTearDownReason

| | |
|---|---|
| Access | Read only |
| Description | This attribute reflects the last tear down reason for a connection (LCo). In many cases this displays the reason for a momentary service interruption. This attribute applies to the last path failure only. If a path is no longer up, this may give an indication to the reason that the path has failed. In many cases an alarm will also be generated with more specific information. The following is a brief description of the reasons:<br>***none*** - This path has no information for the teardown this is typical of a path provisioned with no *remoteName* that has not been up.<br>***normalShutDown*** - This path has gone down due to normal call termination.<br>***insufficientTxLcOrBandwidth*** - At present there is either no available bandwidth or logical channel numbers available on one or more of the trunks for this path in the transmit direction.<br>***insufficientRxLcOrBandwidth*** - At present there is either no available bandwidth or logical channel numbers available on one or more of the trunks for this path in the receive direction.<br>***trunkFailure***- A trunk on the path has failed or has gone down due to a provisioning change of a critical attribute.<br>***trunkCardFailure***- A trunk FP card has failed along the path.<br>***accessCardFailure***- The FP on which the peer access service was running has failed.<br>***operatorForced***- The path has terminated due to the operator locking a trunk along the path.<br>***lostLcnClash***- The path has terminated because the PA's at both ends of an intermediate trunk have allocated the same LC to different calls. When this happens both calls must go down and then try to come up again a fraction of a second later (effectively ensuring that they will now be assigned different LC's). It is normal to get the odd clash especially when the PA's usedLC is approaching the PA's maxLC.<br>***networkCongestion*** - The path has failed due to control |

information being lost and not recoverable.
***trunkNotFound*** - Occurs on a ***manual*** path usually. Check for trunks not up or names provisioned incorrectly.
***farEndNotFound*** - The far end is not provisioned or is not up. Check remote Name.
***wrongModuleReached*** - This may occur on a ***manual*** path. Check provisioning for correct trunk and service names. For a ***normal*** path, the network Topology may be changing check *remoteName*.
***farEndBusy*** - The far end has been reached but it is busy. Check *remoteName* and remote end provisioning.
***callLoopedBack*** - This LCo is provisioned to call itself. Re-provision since this is invalid.
***unknownReason*** - The failure was not resolved.
***farEndNotReady*** - The remote end was reached but the connection was refused due to the remote end not being enabled.
***remoteNameMismatch*** - The remote end has alarmed and rejected this setup due to remoteName provisioning.
***serviceTypeMismatch*** - The remote Service Type does not match this service type. Check provisioning.
***reconnectFromFarEnd*** - The remote end re-established this connection. Check the remote end *lastTearDownReason* to determine the real reason.
***bumped*** - Another call bumped this path from a trunk to get bandwidth (or an LC) which it required to come up. This other path had a higher *setupPriority* than this path's *holdingPriority* hence it was allowed to steal the bandwidth (or LC) from this path.
***optimized*** - This call has been rerouted due to the optimization feature. The call is still active this just indicates why the path changed.
***trunkOrFarEndDidNotSupportMode*** - This call was unable to complete because a mode required by the service was not supported by one of the trunks the route went through or by the far end service it connected to. Currently the only mode that this applies to is the map/mux mode on TRUNK PA ATM component. Map mode was required by the application (CES/FrAtm etc.) but was not available on the TRUNK PA ATM component through which the call was routed or the far end CES/FrAtm component did not specify the same mode.

Values

none
normalShutDown
insufficientTxLcOrBandwidth
insufficientRxLcOrBandwidth
trunkFailure
trunkCardFailure
operatorForced
lostLcnClash
networkCongestion
trunkNotFound
farEndNotFound
wrongModuleReached
farEndBusy
callLoopedBack
unknownReason
farEndNotReady
remoteNameMismatch
serviceTypeMismatch
reconnectFromFarEnd
bumped
accessCardFailure
optimized
overrideRemoteName
trunkOrFarEndDidNotSupportMode

Default

none

### ATTRIBUTE RGty Call Seg LCo pathFailureAction

Access

Read only

Description

This attribute displays whether the application is set to tolerate momentary interruption of a path while a new path is selected. If ***disconnectConnection*** is displayed, the application is informed as soon as possible about a failure by disconnection. If the attribute displays ***reRoutePath***, the path may attempt an immediate reroute, provided the failure is a recoverable failure. If rerouting fails the application is informed of the failure.
With this option set to ***reRoutePath*** the LCo may wait up to 30 seconds before informing the service of complete disconnection in order to allow both ends to attempt to reconnect. Note that if PLC components are different at both ends only the calling end is

allowed to reconnect.

All *pathTypes* respect this attribute. Also on a *manualPath* with both ends provisioned with independent paths (at least with respect to the failure) this option will have the desired effect that the path is rerouted without complete disconnection at both ends

Values
reRoutePath
disconnectConnection

Default
No default

### ATTRIBUTE RGty Call Seg LCo bumpPreference (bpref)

Access
Read only

Description
This attribute specifies when bumping will occur during route selection process. Bumping may occur when necessary or always. It will be necessary for a connection to bump if there is not enough resources for the connection to be established and these resources are occupied by a connection whose *setupPriority* is lower (numerically higher) than the connection's *setupPriority*. A connection may also always bump in order to obtain the best route.

Values
bumpWhenNecessary
bumpToObtainBestRoute

Default
No default

### ATTRIBUTE RGty Call Seg LCo optimization (opt)

Access
Read only

Description
This attribute is used to specify whether this connection should attempt to optimize its path when requested by the routing PORS component. Every path is as optimal as it can be when it is established, but as network traffic patterns and configurations change this path may no longer be as optimal as it could be. The PORS connection manager on a module requests circuits to optimize at the optimization interval.

Values
disabled
enabled

| | |
|---|---|
| Default | No default |

### ATTRIBUTE RGty Call Seg LCo pathUpDateTime

| | |
|---|---|
| Access | Read: Service<br>Write: Illegal |
| Description | This is the time stamp when the current path was established or reestablished. |
| Values | Time (DHMS) |
| Default | No default |

### ATTRIBUTE RGty Call Seg LCo path

| | |
|---|---|
| Access | Read only |
| Description | This attribute contains the trunk component names over which the path has been instantiated and the remote end point name terminating the path. |
| List of | String (0..40, ASCII) |
| List Size | 21 |
| Default | No default |

### GROUP RGty Call Seg LCo Statisitics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational statistics attributes for the path oriented LCo. |

### ATTRIBUTE RGty Call Seg LCo pktsToNetwork

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of packets transmitted to the network over this Logical Connection. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE RGty Call Seg LCo bytesToNetwork

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of bytes sent to the network over this Logical Connection. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE RGty Call Seg LCo pktsFromNetwork

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of packets received from the remote LCo via the network. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE RGty Call Seg LCo bytesFromNetwork

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of bytes received from the remote LCo via the network. |
| Values | Long Integer |
| Default | No default |

Passport 7400, 15000, 20000

# Component RGty

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component RncIn

241-5701-060

Passport 7400, 15000, 20000

# Component RncIn

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT RncInterfaceNode (RncIn)

| | |
|---|---|
| Groups | "GROUP RncIn Provisioned (Prov)"<br>"GROUP RncIn OsiState (State)" |
| Scope | Network |
| Description | *RncInterfaceNode*<br>This component represents system level information related to a passport configured either as a classic I-Node in an RNC or as a RNC Compact. |
| Common Verbs | Help<br>List<br>Display |

## GROUP RncIn Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioning attributes of the *RncInterfaceNode* component. |

## ATTRIBUTE RncIn primaryOmuIpAddress (priOmuAddr)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the IP address of the primary Omu in the Control Node. This IP address is used to establish a link between the I-Node and the C-Node in the RNC. This address must be the same as the C-Node primary OmuIP address configured in the CT-2000. If the value of this attribute is changed, the Master and |

| | |
|---|---|
| | Standby APs must be reset after the *Activate Prov* command has completed. |
| Values | IP address |
| Default | No default |

### ATTRIBUTE RncIn secondaryOmuIpAddress (secOmuAddr)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the Ip Address of the secondary Omu in the Control Node. This attribute is used to establish a link between the I-Node and the C-Node in the case where the primary Omu is not active. This address must be the same as the secondary OMU IP address configured in the CT-2000. If the value of this attribute is changed, the Master and Standby APs must be reset after the *Activate Prov* command has completed. |
| Values | IP address |
| Default | No default |

### ATTRIBUTE RncIn protocolConverterResources (pcRes)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This value represents the percentage of processing resources for Protocol Converters (PC). When this value increases, more resources will be devoted to Protocol converters. When this value decreases, more resources will be devoted to Radio Access Bearer services. If you change this value, the new value takes effect as new processing resources come into service. To force the new percentage to be effective immediately, either reset the whole shelf or enough processing resources. The processing resources for protocol converters will be allocated based on the nearest percentage possible to the specified one. |
| Values | Decimal (0..100) |
| Units | % |
| Default | 17 |

## ATTRIBUTE RncIn mode (mode)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Module |
| Description | This attribute specifies the mode of RNC configuration. A value of *InodeClassic* indicates a normal Classic configuration. A value of *RncCompact* indicates a complete RNC Compact configuration. |
| Values | inodeClassic<br>rncCompact |
| Default | inodeClassic |

## GROUP RncIn OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

## ATTRIBUTE RncIn adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down. |

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE RncIn operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE RncIn usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

| | |
|---|---|
| | The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

Passport 7400, 15000, 20000

# Component RncIn

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component Rsa

241-5701-060

Passport 7400, 15000, 20000

# Component Rsa

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT RemoteServerAgent (Rsa)

| | |
|---|---|
| Instance | String (1..8, ASCII) |
| Groups | "GROUP Rsa Options"<br>"GROUP Rsa OsiState (State)"<br>"GROUP Rsa Operational" |
| Scope | Network |
| Description | *RemoteServerAgent/<string>*<br>The *Rsa* component provides non-Passport based applications access to Passport servers via a Frame Relay SVC connection. The *Rsa* component can be provisioned on any Passport module in the network. Multiple *Rsa* components can be provisioned for load sharing and/or backup purposes. The component instance value is a unique string within the module. |
| Subcomponents | "COMPONENT Rsa DataNetworkAddress (Dna)" |
| Opt. Subcomp. | "COMPONENT Rsa VncsAccess" |
| Dyn. Subcomp. | "COMPONENT Rsa Connection" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Rsa Options

| | |
|---|---|
| Properties | Provisioned |

| | |
|---|---|
| Description | The *Options* group defines provisionable attributes associated with the *Rsa* component. |

### ATTRIBUTE Rsa logicalProcessor (lp)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the logical processor on which the RSA process will execute. |
| Values | Link (Hardware, linkToApplications) |
| Default | No default |

### GROUP Rsa OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Rsa adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is |

administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Rsa operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Rsa usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

| | |
|---|---|
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Rsa Operational

| | |
|---|---|
| Properties | Operational |
| Description | The *Operational* group defines operational attributes associated with the *Rsa* component. |

### ATTRIBUTE Rsa maxRsiConnections

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the maximum number of RSI connections which can be supported by this *Rsa*. |
| Values | Decimal (1000) |
| Default | No default |

### ATTRIBUTE Rsa rsiConnections

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the number of active RSI connections currently supported by the *Rsa* component. |
| Values | Decimal (0..1000) |
| Default | No default |

### COMPONENT Rsa DataNetworkAddress (Dna)

| | |
|---|---|
| Groups | "GROUP Rsa Dna Address"<br>"GROUP Rsa Dna OutgoingOptions"<br>"GROUP Rsa Dna IncomingOptions" |
| Scope | Network |
| Description | *Rsa/n DataNetworkAddress*<br>This is the description of the Remote Server Agent *Dna* |

component. It includes the attributes which apply to a *Vc* between the RSI and RSA.

Opt. Subcomp. "COMPONENT Rsa Dna ClosedUserGroup (Cug)"

Common Verbs
Help
List
Display

## GROUP Rsa Dna Address

Properties Provisioned

Description The *Address* group contains attributes common to all *Dna's*. Every *Dna* used in the network is defined with this group of 2 attributes. The string of address digits is complemented by the type of address or Npi. These attributes are used to interpret the format of the address digits.

## ATTRIBUTE Rsa Dna numberingPlanIndicator (npi)

Access Read and write

Description This attribute indicates the Numbering Plan Indicator (NPI) of the *Dna* that is entered. An address may belong to the X.121 or E.164 numbering plans. X.121 is used in packet switched data networks.

Values
x121
e164

Default x121

## ATTRIBUTE Rsa Dna dataNetworkAddress (dna)

Access Read and write

Description The *Dna* attribute contains digits which form a unique identifier of the customer interface. It can be compared (approximation only) to a telephone number where each phone number identifies a unique telephone set. *Dna* digits are selected and assigned by network operators.

Values BCD (1..15)

| | |
|---|---|
| Default | No default |

### GROUP Rsa Dna OutgoingOptions

| | |
|---|---|
| Properties | Provisioned |
| Description | The *OutgoingOptions* group defines call options of a *Dna* for calls which are made out of the interface represented by the *Dna*. These options are not used for calls arriving to the interface represented by the *Dna*. |

### ATTRIBUTE Rsa Dna outCalls (ouc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute, if set to a value of ***allowed*** indicates that outgoing calls (from the DTE to the network) can be made using this particular *D*na. If set to a value of ***disallowed***, then outgoing calls cannot be made using this *Dna* - such calls will be cleared by the local DCE. This attribute corresponds to the ITU-T 'Outgoing Calls Barred' feature for *Dnas* in that outgoing calls are barred if this attribute is set to a value of ***disallowed***. Either *outCalls*, or *incCalls* (or both) must be set to a value of ***allowed*** for this *Dna* to be usable. |
| Values | disallowed<br>allowed |
| Default | disallowed |

### GROUP Rsa Dna IncomingOptions

| | |
|---|---|
| Properties | Provisioned |
| Description | *IncomingOptions* defines the set of options for incoming calls. These options are used for calls arriving to the interface represented by the *Dna*. For calls originated from the interface, *IncomingOptions* attributes are not used. |

### ATTRIBUTE Rsa Dna incCalls (inc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute, if set to a value of ***allowed*** indicates that incoming calls (from the network to the DTE) can be made to this *Dna*. If |

set to a value of ***disallowed***, then incoming calls cannot be made to this *Dna* - such calls will be cleared by the local DCE. This attribute corresponds to the ITU-T 'Incoming Calls Barred' feature for *Dna's* in that incoming calls are barred if this attribute is set to a value of ***disallowed***.
Either *outCalls*, or *incCalls* (or both) must be set to a value of ***allowed*** for this *Dna* to be usable.

Values: disallowed
allowed

Default: allowed

## ATTRIBUTE Rsa Dna incAccess (ina)

Access: Read and write

Description: This attribute is an extension of the Closed User Group (CUG) facility, as follows:
This attribute, if set to a value of ***allowed*** indicates that incoming calls (from the network to the DTE) from the open (non-CUG) part of the network are permitted. It also permits incoming calls from DTEs that have Outgoing Access capabilities. If set to a value of ***disallowed***, then such calls cannot be made to this *Dna* - such calls will be cleared by the local DCE.
This attribute corresponds to the ITU-T 'Closed User Group with Incoming Access' feature for *Dnas* in that incoming access is granted if this attribute is set to a value of ***allowed***.

Values: disallowed
allowed

Default: disallowed

## COMPONENT Rsa Dna ClosedUserGroup (Cug)

Instance: Decimal (0..255)

Groups: "GROUP Rsa Dna Cug CugOptions"

Scope: Network

Description: *Rsa/n Dna ClosedUserGroup*
*ClosedUserGroup* defines options associated with a national or international *Cug* Identifier. Other *Dna*s in the network can have

*Cug*s defined which group these *Dna*s by *Cug interlockCode*. If *Dna*s are defined with *Cugs*, calls from *Dna*s which do not have the same *interlockCode* defined are refused. Attributes *incAccess* and *outAccess* can override this rule.

Common Verbs

Help
List
Display
Add
DELete
LOCK
Unlock

## GROUP Rsa Dna Cug CugOptions

Properties: Provisioned

Description: Attributes in this group define *ClosedUserGroup* options associated with this particular *interlockCode*. *Dna's* with the same *Cug* (*interlockCode*) can make calls within this group. Various combinations which permit or prevent calls in the same *Cug* group are defined here.

## ATTRIBUTE Rsa Dna Cug type

Access: Read and write

Description: This attribute specifies the Cug type - the Cug is either a national Cug, or an international Cug. International closed user groups are usually established between DTEs for which there is an X.75 Gateway between; whereas national closed user groups are usually established between DTEs for which there is no X.75 Gateway between. (National Cugs cannot normally traverse an X.75 Gateway).
If this attribute is set to ***national***, then the *Cug* is a national *Cug*, in which case, the *dnic* should be left at its default value since it is not part of a national *Cug*. If this attribute is set to ***international***, then the *Cug* is an international *Cug*, in which case, the *dnic* should be set appropriately as part of the *Cug interlockCode*.

| | |
|---|---|
| Values | national<br>international |
| Default | national |

### ATTRIBUTE Rsa Dna Cug dnic

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the *dnic* (Data Network ID Code) of the *Cug* by which packet networks are identified. This attribute is not applicable if the *Cug* is a ***national*** *Cug*, as specified by the Cug *type* attribute. There are usually 1 or 2 *dnics* assigned per country, for public networks. The U.S. is an exception where each BOC has a *dnic*. Also, a group of private networks can have its own *dnic*.<br>*dnic* value is not an arbitrary number. It is assigned by international agreement and controlled by ITU-T. |
| Values | BCD (4) |
| Default | 0000 |

### ATTRIBUTE Rsa Dna Cug interlockCode (ilc)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the *Cug* identifier of a national or international *Cug* call. It is an arbitrary number and it also can be called Cug in some descriptions. Interfaces (*Dna's*) defined with this number can make calls to *Dna's* with the same *interlockCode*. |
| Values | Decimal (0..65535) |
| Default | 0 |

### ATTRIBUTE Rsa Dna Cug preferential (pre)

| | |
|---|---|
| Access | Read only |
| Description | This attribute, if set to ***yes*** indicates that this *Cug* is the preferential *Cug*, in which case it will be used during the call establishment phase if the DTE has not explicitly specified a *Cug* index in the call request packet. If set to ***no***, then this *Cug* is not |

| | |
|---|---|
| | the preferential *Cug*.<br>Only one of the *Cugs* associated with a particular *Dna* can be the preferential *Cug* - only one *Cug* can have this attribute set to ***yes***. |
| Values | no<br>yes |
| Default | no |

### ATTRIBUTE Rsa Dna Cug outCalls (ouc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute, if set to ***allowed*** indicates that outgoing calls (from the DTE into the network) can be made using this particular *Cug*. If set to a value of ***disallowed***, then outgoing calls cannot be made using this *Cug* - such calls will be cleared by the local DCE.<br>This attribute corresponds to the ITU-T 'Outgoing Calls Barred' feature for *Cugs* in that outgoing calls are barred if this attribute is set to a value of ***disallowed***. |
| Values | disallowed<br>allowed |
| Default | disallowed |

### ATTRIBUTE Rsa Dna Cug incCalls (inc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute, if set to ***allowed*** indicates that incoming calls (from the network to the DTE) can be made using this particular *Cug*. If set to ***disallowed***, then incoming calls cannot be made using this *Cug* - such calls will be cleared by the local DCE.<br>This attribute corresponds to the ITU-T 'Incoming Calls Barred' feature for *Cugs* in that incoming calls are barred if this attribute is set to a value of ***disallowed***. |
| Values | disallowed<br>allowed |
| Default | allowed |

## ATTRIBUTE Rsa Dna Cug privileged (pri)

| | |
|---|---|
| Access | Read only |
| Description | This attribute, if set to ***yes*** indicates that this *Cug* is a privileged *Cug*. In DPN, at least one side of a call setup within a *Cug* must have the *Cug* as a privileged *Cug*. If set to ***no***, then the *Cug* is not privileged.<br>If both the local DTE and the remote DTE subscribe to the *Cug*, but it is not privileged, then the call will be cleared. This attribute is typically used for a host DTE which must accept calls from many other DTEs in which case the other DTEs cannot call one another, but can call the host. In this example, the host would have the privileged *Cug*, and the other DTEs would belong to the same *Cug*, but it would not be privileged. |
| Values | no<br>yes |
| Default | yes |

## COMPONENT Rsa VncsAccess

| | |
|---|---|
| Groups | "GROUP Rsa VncsAccess Provisioned"<br>"GROUP Rsa VncsAccess OsiState (State)"<br>"GROUP Rsa VncsAccess Operational" |
| Scope | Network |
| Description | *Rsa/<string> VncsAccess*<br>The *VncsAccess* component provides access to the Passport Voice Networking Call Server. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Rsa VncsAccess Provisioned

| | |
|---|---|
| Properties | Provisioned |

| | |
|---|---|
| Description | The *Provisioned* group defines provisioned attributes associated with the *VncsAccess* component. |

### ATTRIBUTE Rsa VncsAccess timeToLive

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the length of time VNCS requests are allowed to remain queued for transmission before they are considered too old and are discarded. This attribute should be set in consideration with the voice application timeout interval. |
| Values | Decimal (1..5) |
| Units | seconds |
| Default | 2 |

### GROUP Rsa VncsAccess OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Rsa VncsAccess adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down. |

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Rsa VncsAccess operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Rsa VncsAccess usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

| | |
|---|---|
| | The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Rsa VncsAccess Operational

| | |
|---|---|
| Properties | Operational |
| Description | The *Operational* group defines operational attributes associated with the *VncsAccess* component. |

### ATTRIBUTE Rsa VncsAccess requestsSent (sent)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of translation requests sent to VNCS. This counter wraps to zero when it reaches its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Rsa VncsAccess repliesReceived (received)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of translation replies received from VNCS. This counter wraps to zero when it reaches its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Rsa VncsAccess requestsQueued (queued)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of translation requests queued for transmission to VNCS. |

| | |
|---|---|
| Values | Decimal (0..65535) |
| Default | 0 |

### ATTRIBUTE Rsa VncsAccess requestsDiscarded (discarded)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of translation requests discarded before being sent to VNCS. Requests are discarded if the queue becomes too large or the VNCS server is unavailable. This counter wraps to zero when it reaches its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT Rsa Connection

| | |
|---|---|
| Instance | Decimal (1..1000) |
| Groups | "GROUP Rsa Connection Operational"<br>"GROUP Rsa Connection ServerStatistics (ServerStats)"<br>"GROUP Rsa Connection LapfStatus (LapfStatus)"<br>"GROUP Rsa Connection LapfStatistics (LapfStats)" |
| Scope | Network |
| Description | *Rsa/<string> Connection/n*<br>*Rsi Connection/n*<br>The *Connection* component contains information relating to the connection between the RSA and RSI. This component is named by the logical channel number of the connection. |
| Dyn. Subcomp. | "COMPONENT Rsa Connection Vc" |
| Common Verbs | Help<br>List<br>Display |

### GROUP Rsa Connection Operational

| | |
|---|---|
| Properties | Operational |

| | |
|---|---|
| Description | The *Operational* group defines operational attributes associated with the *Connection* component. |

### ATTRIBUTE Rsa Connection remoteName

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies an ASCII string identifier for the remote module which is retrieved from the call request as user data. |
| Values | String (0..32, ASCII) |
| Default | No default |

### ATTRIBUTE Rsa Connection callState

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the state of the connection. The normal state for the connection is ***dataTransfer***. The other states are transient states used to setup or clear the connection. |
| Values | initializing<br>creatingVc<br>calling<br>acceptingCall<br>registeringFmo<br>establishingLapf<br>dataTransfer<br>clearingCall<br>terminating<br>terminatingVc<br>terminated |
| Default | No default |

### GROUP Rsa Connection ServerStatistics (ServerStats)

| | |
|---|---|
| Properties | Operational |
| Description | The *ServerStatistics* group provides individual server usage statistics for the connection. |

### ATTRIBUTE Rsa Connection vncsRequests

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the number of VNCS translation requests sent or received on this connection. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Rsa Connection vncsReplies

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of VNCS translation replies sent or received on this connection. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### GROUP Rsa Connection LapfStatus (LapfStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the LAPF status. |

### ATTRIBUTE Rsa Connection lapfState

| | |
|---|---|
| Access | Read only |
| Description | This attribute shows the current state of the LAPF interface. The normal states are ***informationTransfer*** and ***waitingAck***. Since the LAPF interface is not over a physical link the other states are transitional. |
| Values | disconnected<br>linkSetup<br>disconnectRequest<br>informationTransfer<br>waitingAck |
| Default | No default |

### ATTRIBUTE Rsa Connection lapfQueueSize

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of frames in the LAPF transmit queue. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Rsa Connection LapfStatistics (LapfStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the LAPF statistics. |

### ATTRIBUTE Rsa Connection lapfStateChanges

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times the LAPF interface has changed state. While the LAPF interface is in ***informationTransfer*** state, this counter will increment on each expiry of *idleProbeTimer* as its state goes from ***informationTransfer*** to ***waitingAck*** and back. When this count reaches maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Rsa Connection lapfRemoteBusy

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times transmission of an I-frame was unsuccessful due to a perceived remote busy condition (window closed or remote busy). When this count reaches maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Rsa Connection lapfAckTimeouts

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times the *ackTimer* has expired. Frequent increments of this counter indicate improper values have been chosen for *ackTimer* and *ackDelayTimer* |

between the local and remote ends. When this count reaches maximum, it wraps to zero.

Values Decimal (0..4294967295)

Default No default

### ATTRIBUTE Rsa Connection lapfRejectFramesRx

Access Read only

Description

This attribute counts the number of REJ frames received. When this count reaches maximum, it wraps to zero.

Values Decimal (0..4294967295)

Default No default

### ATTRIBUTE Rsa Connection lapfIFramesTx

Access Read only

Description This attribute counts the number of I-frames transmitted. An I-frame may be counted more than once if there are retransmissions. When this count reaches maximum, it wraps to zero.

Values Decimal (0..4294967295)

Default No default

### ATTRIBUTE Rsa Connection lapfIFramesTxDiscarded

Access Read only

Description This attribute counts the number of transmit I-frames that have been discarded. Discard reasons may be one of the following:
1.The frame length is beyond allowed limit.
2.The LAPF interface is in ***disconnected*** state.
3.The transmit queue has been purged because the queue length has reached the reset threshold.
When this count reaches maximum, it wraps to zero.

Values Decimal (0..4294967295)

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Rsa Connection lapfIFramesRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of I-frames received. When this count reaches maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Rsa Connection lapfIFramesRxDiscarded

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of received I-frames that have been discarded. The discard reasons are:<br>1.Incorrect frame size.<br>2.Frame is out of sequence.<br>3.Frame received while not in ***informationTransfer*** or ***waitingAck*** state.<br>When this count reaches maximum, it wraps to zero. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT Rsa Connection Vc

| | |
|---|---|
| Groups | "GROUP Rsa Connection Vc CallData (Cad)"<br>"GROUP Rsa Connection Vc IntervalData (Intd)"<br>"GROUP Rsa Connection Vc FrameRelayData (Frd)" |
| Scope | Application |
| Description | This component defines attributes collected by Frame Relay *Vc*. |
| Common Verbs | Help<br>List<br>Display |

## VERB Ping Rsa Connection Vc

Impact: Passive

Description: *Ping [-roundTripDelay] [-sendPktDataSize(octets)] [-returnPktDataSize(octets)] FrUni/<n> Dlci/<n> Vc*

*Ping* causes a query packet to be sent to the destination module where the Frame Relay DLCI VC terminates. It can be used to either display the path of the VC being used by the Frame Relay DLCI or to measure the round trip delay of the Frame Relay DLCI connection. Since the query packet carries the same path selector as the Frame Relay data packets and the Frame Relay VC's transfer priority (TP) is used to set the RCOS, reliability and emission priority of the query packet, the path taken by the *ping* query packet will be the same as that of the Frame Relay data except at the source and destination module. The *ping* packets originate from the CP rather than the Frame Relay DLCI's FP. At the far end, it is also the CP that receives the ping packets and returns them, rather than the Frame Relay FP.

Note that this command does not provide any information regarding the status of the far end VC process. If, however, the destination module is unreachable or the VC path is congested, the operator will be notified.

The *ping* command can be issued with or without options. If no options are specified, the command reports the path of the VC associated with the Frame Relay DLCI. When the command is used to find the VC path, it displays the RID and MID of each module that the query packet passes through on its way to the destination. If the *roundTripDelay* option is specified, the command reports the time taken to reach the destination and back. For the *roundTripDelay* option, the path taken by the query packets in both directions (from the source to the destination and from the destination back to the source) is the same as that of the Frame Relay data except at the source and destination where the *ping* packets are generated and bounced back by the CP rather than the Frame Relay DLCI's FP.

The *ping* command supports the following options:

*-roundTripDelay (-rtd):* If this option is selected, the round trip delay time to reach the destination and back will be reported. The round trip delay is calculated by timing how long it takes to send five packets to the destination node and back. The packet size can be specified using the *sendPktSize* and *returnPktSize* options. The minimum, maximum and average time taken by the returned packets are reported. If this option is not selected, the path taken to the destination is displayed.

*-sendPktDataSize:* This option specifies the number of data octets to be included in the round trip delay query packet. The rtd query packet consists of the Passport common header (2 octets), the subnet header (11 octets), plus the data. The minimum data size is 12, since 12 octets are required to carry the ping control information. If the value specified for this option is less than 12, 12 octets are sent to the destination. The actual number of data octets sent is displayed in the ping response. Note that the total packet size (headers plus data) is identical to that of a Frame Relay packet carrying the same number of octets of data.

If this option is not selected the default value is 64 octets if *transferPriority* of the *Frame Relay DLCI Dc* is 11, and 128 octets otherwise. This option is ignored if the *-rtd* option is not specified. If the specified packet data size exceeds the capability of some facilities on the path, the packet will be discarded and the operator will get the timeout response.

*-returnPktDataSize:* This option specifies the number of data octets to be included in the round trip delay acknowledge packet. The rtd acknowledge packet consists of the Passport common header (2 octets), the subnet header (11 octets), plus the data. The minimum data size is 12, since 12 octets are required to carry the ping control information. If the value specified for this option is

less than 12, 12 octets are returned to the source. The actual number of data octets returned is displayed in the ping response. Note that the total packet size (headers plus data) is identical to that of a Frame Relay packet carrying the same number of octets of data.

If this option is not selected the default value is 64 octets if *transferPriority* of the *Frame Relay DLCI Dc* is 11, and 128 octets otherwise. This option is ignored if the *-rtd* option is not specified. If the specified packet data size exceeds the capability of some facilities on the path, the packet will be discarded and the operator will get the timeout response.

### GROUP Rsa Connection Vc CallData (Cad)

| | |
|---|---|
| Properties | Operational |
| Description | This group represents operational call data related to Frame Relay *Vc*. It can be displayed only for Frame Relay *Vc* which is created by application. |

### ATTRIBUTE Rsa Connection Vc type

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the type of call, ***pvc***, ***svc, spvc*** or ***frf10spvc***. |
| Values | pvc<br>svc<br>spvc<br>frf10spvc |
| Default | No default |

### ATTRIBUTE Rsa Connection Vc state

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the state of call control. P5 state is not supported but is listed for completeness. Transitions from one state to another take very short time. *state* most often displayed is ***dataTransferP4***. |

| | |
|---|---|
| Values | creating<br>readyP1<br>dteWaitingP2<br>dceWaitingP3<br>dataTransferP4<br>unsupportedP5<br>dteClearRequestP6<br>dceClearIndicationP7<br>termination |
| Default | No default |

### ATTRIBUTE Rsa Connection Vc previousState

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the previous state of call control. This is a valuable field to determine how the processing is progressing. |
| Values | creating<br>readyP1<br>dteWaitingP2<br>dceWaitingP3<br>dataTransferP4<br>unsupportedP5<br>dteClearRequestP6<br>dceClearIndicationP7<br>termination |
| Default | No default |

### ATTRIBUTE Rsa Connection Vc diagnosticCode

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the internal substate of call control. It is used to further refine *state* of call processing. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE Rsa Connection Vc previousDiagnosticCode

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute displays the internal substate of call control. It is used to further refine *state* of call processing. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE Rsa Connection Vc calledNpi

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the Numbering Plan Indicator (NPI) of the called end. |
| Values | x121<br>e164 |
| Default | No default |

### ATTRIBUTE Rsa Connection Vc calledDna

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the Data Network Address (*Dna*) of the called (destination) DTE to which this call is sent. This address if defined at receiving end will complete *Vc* connection. |
| Values | BCD (1..15) |
| Default | No default |

### ATTRIBUTE Rsa Connection Vc calledLcn

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the Logical Channel Number of the called end. It is valid only after both ends of *Vc* exchanged relevant information. |
| Values | Decimal (1..65535) |
| Default | No default |

### ATTRIBUTE Rsa Connection Vc callingNpi

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute displays the Numbering Plan Indicator (NPI) of the calling end. |
| Values | x121<br>e164 |
| Default | No default |

### ATTRIBUTE Rsa Connection Vc callingDna

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the Data Network Address (*Dna*) of the calling end. |
| Values | BCD (1..15) |
| Default | No default |

### ATTRIBUTE Rsa Connection Vc callingLcn

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the Logical Channel Number of the calling end. |
| Values | Decimal (1..65535) |
| Default | No default |

### ATTRIBUTE Rsa Connection Vc accountingEnabled

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates that this optional section of accounting record is suppressed or permitted. If *accountingEnabled* is ***yes***, conditions for generation of accounting record were met. These conditions include billing options, vc recovery conditions and Module wide accounting data options. |
| Values | yes<br>no |
| Default | No default |

### ATTRIBUTE Rsa Connection Vc fastSelectCall

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays that this is a fast select call. |
| Values | yes<br>no |
| Default | No default |

### ATTRIBUTE Rsa Connection Vc pathReliability

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the path reliability. |
| Values | high<br>normal |
| Default | No default |

### ATTRIBUTE Rsa Connection Vc accountingEnd

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates if this end should generate an accounting record. Normally, ***callingEnd*** is the end to generate an accounting record. |
| Values | callingEnd<br>calledEnd |
| Default | No default |

### ATTRIBUTE Rsa Connection Vc priority

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays whether the call is a ***normal*** or a ***high*** priority call. |
| Values | normal<br>high |
| Default | No default |

### ATTRIBUTE Rsa Connection Vc segmentSize

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the segment size (in bytes) used on the call. It is used to calculate the number of segments transmitted and received. |
| Values | Decimal (0..4096) |
| Default | No default |

### ATTRIBUTE Rsa Connection Vc maxSubnetPktSize

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the maximum packet size allowed on the *Vc*. |
| Values | Decimal (0..4096) |
| Default | No default |

### ATTRIBUTE Rsa Connection Vc rcosToNetwork (rcosto)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the routing metric routing class of service to<br>the network. |
| Values | throughput<br>delay<br>multimedia |
| Default | No default |

### ATTRIBUTE Rsa Connection Vc rcosFromNetwork (rcosfrom)

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the routing metric Routing Class of Service from the Network. |
| Values | throughput<br>delay<br>multimedia |

Default No default

### ATTRIBUTE Rsa Connection Vc emissionPriorityToNetwork (epto)

Access Read only

Description This attribute displays the network internal emission priority to the
network.

Values normal
high
interrupting

Default No default

### ATTRIBUTE Rsa Connection Vc emissionPriorityFromNetwork (epfrom)

Access Read only

Description This attribute displays the network internal emission priority from the network.

Values normal
high
interrupting

Default No default

### ATTRIBUTE Rsa Connection Vc dataPath (dapa)

Access Read only

Description

This attribute indicates the data path used by the connection. The data path is provisioned in *Dna* and *DirectCall* components. The displayed value of this attribute can be different from the provisioned value.

If the connection is using ***dprsOnly*** data path, the string ***dprsOnly*** is displayed. (dynamic packet routing system)

If the connection is using ***dprsMcsOnly*** data path, the string ***dprsMcsOnly*** is displayed.

If the connection is using ***dprsMcsFirst*** data path, the string ***dprsMcsFirst*** is displayed.

Values: String (0..32, ASCII)

Default: No default

### ATTRIBUTE Rsa Connection Vc dprsMcsEndPoint (dmep)

Access: Read only

Description: This attribute displays the data path used by the connection. Data path is provisioned in *Dna* and *DirectCall* components.

If the connection is using ***dprsOnly*** data path, this attribute is empty.

If the connection is using ***dprsMcsOnly*** or ***dprsMcsFirst*** data path, this attribute displays component name of the dprsMcsEndPoint.

List of: The name of the component

Default: No default

### GROUP Rsa Connection Vc IntervalData (Intd)

Properties: Operational

Description: This group defines display of interval data collected by *Vc*. Data in this group is variable and may depend on time when this *display* command is issued.

### ATTRIBUTE Rsa Connection Vc elapsedTimeTillNow

Access: Read only

Description: This attribute displays the elapsed time representing the period of this interval data. It is elapsed time in 0.1 second increments since *Vc* started.

Values: Decimal (0..16777215)

Default: No default

### ATTRIBUTE Rsa Connection Vc segmentsRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of segments received at the time command was issued. This is the segment received count maintained by accounting at each end of the *Vc*. This counter is updated only when the packet cannot be successfully delivered out of the sink *Vc* and to the sink AP Conditions in which packets may be discarded by the sink *Vc* include: missing packets due to subnet discards, segmentation protocol violations due to subnet discard, duplicated and out-of-ranged packets and packets that arrive while *Vc* is in path recovery state. |
| Values | Decimal (0..16777215) |
| Default | No default |

### ATTRIBUTE Rsa Connection Vc segmentsSent

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of segments sent at the time command was issued. This is the segment sent count maintained by accounting at the source *Vc*. *Vc* only counts packets that *Vc* thinks can be delivered successfully into the subnet. In reality, these packets may be dropped by trunking, for instance. This counter is not updated when splitting fails, when *Vc* is in a path recovery state, when packet forwarding fails to forward this packet and when subsequent packets have to be discarded as we want to minimize the chance of out-of-sequence and do not intentionally send out-of-sequenced packets into the subnet. |
| Values | Decimal (0..16777215) |
| Default | No default |

### ATTRIBUTE Rsa Connection Vc startTime

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the start time of this interval period. If *Vc* spans 12 hour time or time of day change *startTime* reflects new time as recorded at 12 hour periods or time of day changes. |

| | |
|---|---|
| Values | Time (DHMS) |
| Default | No default |

### ATTRIBUTE Rsa Connection Vc callReferenceNumber

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the call reference number which is a unique number generated by the switch.The same Call Reference Number is stored in the interval data (accounting record) at both ends of the call. It can be used as one of the attributes in matching duplicate records generated at each end of the call. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Rsa Connection Vc FrameRelayData (Frd)

| | |
|---|---|
| Properties | Operational |
| Description | This group defines Frame Relay attributes collected by Frame Relay *Vc*.<br>The purpose of *Vc* attributes is to aid end users and verification people to understand the *Vc* internal behavior. This is particularly useful when the network has experienced abnormality and we want to isolate problems and pinpoint trouble spots.<br>Attributes are collected on a per *Vc* basis. Until a need is identified, statistics are not collected at a processor level. Each attribute is stored in a 32 bit field and is initialized to zero when a *Vc* enters into the data transfer state. When a PVC is disconnected and then connected again, the attributes will be reset. Attributes cannot be reset through other methods.<br>Frame Relay *Vc* uses a best effort data packet delivery protocol and a different packet segmentation and combination methods from the General *Vc*. The Frame Relay *Vc* uses the same call setup and control mechanism (e.g. the support of non-flow control data packets) as in a General *Vc*. Most General *Vc* statistics and internal variables are used in a Frame Relay *Vc* and are displayed by software developers |

### ATTRIBUTE Rsa Connection Vc frmCongestedToSubnet

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of frames from link discarded due to lack of resources. It keeps track of the number of frames from link that have to be discarded. The discard reasons include insufficient memory for splitting the frame into smaller subnet packet size. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE Rsa Connection Vc cannotForwardToSubnet

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of discarded packets that can not be forwarded into the subnet because of subnet congestion. Number of frames from link discarded due to failure in forwarding a packet from *Vc* into the subnet.- This attribute is increased when packet forwarding fails to forward a packet into the subnet. If a frame is split into multiple subnet packets and a partial packet has to be discarded, all subsequent partial packets that have not yet been delivered to the subnet will be discarded as well. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE Rsa Connection Vc notDataXferToSubnet

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the number of frames from link discarded when the *Vc* tries to recover from internal path failure. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE Rsa Connection Vc outOfRangeFrmFromSubnet

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute displays the number of frames from subnet discarded due to out of sequence range for arriving too late. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE Rsa Connection Vc combErrorsFromSubnet

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the number of subnet packets discarded at the sink *Vc* due to the *Vc* segmentation and combination protocol error. Usually, this occurs when the subnet discards packets and thus this statistics can be used to guest the number of subnet packets that are not delivered to the *Vc*. It cannot be used as an actual measure because some subnet packets may have been delivered to *Vc* but have to be discarded because these are partial packets to a frame in which some other partial packets have not been properly delivered to *Vc* |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE Rsa Connection Vc duplicatesFromSubnet

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of subnet packets discarded due to duplication. Although packets are not retransmitted by the Frame Relay *Vc*, it is possible for the subnet to retransmit packets. When packets are out-of-sequenced and copies of the same packets arrive, then this attribute is increased. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE Rsa Connection Vc notDataXferFromSubnet

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of subnet packets discarded when data transfer is suspended in *Vc* recovery. |

| | |
|---|---|
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE Rsa Connection Vc frmLossTimeouts

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of lost frame timer expiries. When this count is excessive, the network is very congested and packets have been discarded in the subnet. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE Rsa Connection Vc ooSeqByteCntExceeded

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number times that the out of sequence byte threshold is exceeded. When the threshold is exceeded, this condition is treated as if the loss frame timer has expired and all frames queued at the sink *Vc* are delivered to the AP. We need to keep this count to examine if the threshold is engineered properly. This should be used in conjunction with the peak value of out-of-sequenced queue and the number of times the loss frame timer has expired. This count should be relatively small when compared with loss frame timer expiry count. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE Rsa Connection Vc peakOoSeqPktCount

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the frame relay peak packet count of the out of sequence queue. This attribute records the maximum queue length of the out-of-sequenced queue. The counter can be used to deduce the message buffer requirement on a *Vc*. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE Rsa Connection Vc peakOoSeqFrmForwarded

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the frame relay peak size of the sequence packet queue. The subnet may deliver packets out-of-sequenced. These packets are then queued in an out-of-sequenced queue, waiting for a packet with the expected sequence number to come. When that packet arrives, this attribute records the maximum number of packets that were out-of-sequenced, but now have become in-sequenced. The statistics is used to measure expected queue size due to normal subnet packet disorder (not due to subnet packet discard). Current implementation also uses this statistics to set a maximum size for the out-of-sequenced queue. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE Rsa Connection Vc sendSequenceNumber

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the Vc internal packet's send sequence number. Note that a "packet" in this context, may be either a user data packet, or an OAM frame. |
| Values | Decimal (0..1048575) |
| Default | No default |

### ATTRIBUTE Rsa Connection Vc pktRetryTimeouts

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of packets which have retransmission time-outs. When this count is excessive, the network is very congested and packets have been discarded in the subnet. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE Rsa Connection Vc peakRetryQueueSize

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the peak size of retransmission queue. This attribute is used as an indicator of the acknowledgment behavior across the subnet. Records the largest body of unacknowledged packets. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE Rsa Connection Vc subnetRecoveries

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of successful *Vc* recovery attempts. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE Rsa Connection Vc ooSeqPktCntExceeded

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number times that the out of sequence packet threshold is exceeded. When the threshold is exceeded, this condition is treated as if the loss frame timer has expired and all frames queued at the sink *Vc* are delivered to the AP. We need to keep this count to examine if the threshold is engineered properly. This should be used in conjunction with the peak value of out-of-sequenced queue and the number of times the loss frame timer has expired. This count should be relatively small when compared with loss frame timer expiry count. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE Rsa Connection Vc peakOoSeqByteCount

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute displays the frame relay peak byte count of the out of sequence queue. This attribute records the maximum queue length of the out-of-sequenced queue. The counter can be used to deduce the message buffer requirement on a *Vc*. |
| Values | Decimal (0..50000) |
| Default | No default |

Passport 7400, 15000, 20000

# Component Rsa

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component Rtg

241-5701-060

Passport 7400, 15000, 20000

# Component Rtg

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT Routing (Rtg)

| | |
|---|---|
| Groups | "GROUP Rtg Provisioned (Prov)" |
| Scope | Network |
| Description | *Routing*<br>This is the description for the *Routing* system component. This is the top level component of the routing hierarchy. |
| Subcomponents | "COMPONENT Rtg DpnAddressPlan (Dpn)"<br>"COMPONENT Rtg Topology (Top)" |
| Opt. Subcomp. | "COMPONENT Rtg PathOrientedRoutingSystem (Pors)"<br>"COMPONENT Rtg SummaryAddress (SumAddr)" |
| Dyn. Subcomp. | "COMPONENT Rtg RouteSelector (Rs)" |
| Common Verbs | Help<br>List<br>Display<br>Add |

## GROUP Rtg Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioning data for the routing system. |

## ATTRIBUTE Rtg tandemTraffic

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether tandem traffic is permitted through the node. |

Tandem traffic is traffic that arrives at the node on a trunk and leaves the node on another trunk.

The default value of this attribute is ***allowed***, which permits tandem traffic to pass through the node. When this attribute is set to ***denied***, DPRS and PORS traffic is not permitted to tandem through the node in most circumstances.

However, there are some exceptions on DPRS gateway nodes, backbone border nodes, and cluster border nodes. For DPRS, traffic is allowed to tandem through these nodes with this attribute set to ***denied*** in the following situations:

1) On a DPRS gateway node, DPRS traffic that flows out of the subnet or enters the subnet is allowed to tandem through the node, even if this attribute is set to ***denied***. Traffic that is from one node and destined to another node in the same subnet is not allowed to tandem through the gateway node when this attribute is set to ***denied***. DPRS gateway nodes include RID gateway nodes (the nodes that are connected to another Passport RID subnet or to DPN-100 RMs) and MID gateway nodes (the nodes that are connected to DPN-100 AM clusters).

2) On a backbone border node, DPRS traffic that is destined to either leave the backbone (to a cluster) or enter the backbone (from a cluster) is allowed to tandem through the node, even if this attribute is set to ***denied***. Traffic that is from one backbone node and destined to another backbone node in the same RID subnet is not allowed to tandem through the backbone border node when this attribute is set to ***denied***.

3) On a cluster border node, DPRS traffic that is destined to either leave the cluster (to the backbone or to another cluster) or enter the cluster is allowed to tandem through the node, even if this attribute is set to ***denied***. Intra-cluster DPRS traffic is generally not allowed to tandem through any cluster border node which has this attribute set to ***denied***. However, setting the attribute to ***denied*** on a cluster border node could cause that some nodes in the cluster become unreachable, from the source cluster node, through all paths inside the cluster. In this case, intra-cluster

DPRS traffic between these nodes would be attempted to route through the default route. A cluster border node that is on the default route of a cluster node allows intra-cluster DPRS traffic to tandem through it, even if this attribute is set to ***denied***.

Changing this attribute has no effect on PORS calls that were set up before the change. These calls can be manually forced to reroute using the new setting by clearing the calls or locking the trunks on which they are routed.

Values
allowed
denied

Default
allowed

### ATTRIBUTE Rtg clusterNode

Access
Read and write

Description
This attribute identifies whether a Passport module is a cluster node in a Passport network. The default value of ***no*** indicates that this node is not a cluster node. When this attribute is provisioned to ***yes***, this node becomes a cluster node.

One or more Passport cluster nodes interconnected with each other forms a Passport cluster. Deploying Passport clusters in a Topology Region reduces the memory, CPU and control traffic bandwidth required to maintain the topology database in the Topology Region and thus improves network scaling. This is because only minimum routing information is exchanged between a Passport cluster and other Passport non-cluster nodes in a topology region.

Cluster nodes are typically used to support Passport access services. A Passport cluster must be connected to other Passport nodes located in the backbone of the Passport network within the same RID subnet. It cannot be connected to nodes with different region identifiers (provisioned in the *regionId* attribute under the *ModuleData* component).

Values
no
yes

Default no

### ATTRIBUTE Rtg fullTopExchgOnClusterLinks (fullTopExchg)

Access Read and write

Description This attribute specifies whether this Passport node wishes to exchange full topological information across its cluster-backbone links. A cluster-backbone link is a link between a cluster node and a backbone node. A cluster node is a Passport with the *rtg clusterNode* attribute set to the value of ***yes***. A backbone node is a non-cluster node.

If this attribute is set to the value of ***disabled*** on at least one Passport node connected with cluster-backbone links, then only summarized topological information is propagated across those links. If this attribute is set to the value of ***enabled*** on two Passport nodes connected with cluster-backbone links, then summarized and full topological information is propagated across those links.

This attribute should only be set to the value of ***enabled*** during a clusters migration. During normal operation, this attribute should be set to the value of ***disabled*** in order to avoid accidental exchange of full topological information across the cluster-backbone boundary.

Values disabled
enabled

Default disabled

### ATTRIBUTE Rtg splittingRegionIds

Access Read and write

Description This attribute specifies which connected neighbour nodes, in different topology regions, are allowed to exchange topological information with this node. It should be used only when splitting or merging existing topology regions. This node only exchanges topological information with a connected node under either of the following conditions: (i) this node and the neighbor node are in the same topology region. That is, this node's *regionId* attribute

and the neighbor's *regionId* attribute (under *Mod* component) are provisioned with the same value, or (ii) this node and the neighbor node are in different topology regions, and this node's *splittingRegionIds* attribute is provisioned to contain the neighbor's *regionId*, and the neighbour's *splittingRegionIds* attribute is provisioned to contain this node's *regionId*.

When this attribute is used during migration of topology regions, values provisioned for the attribute are normally the old and new *regionIds* of the node. Use of this attribute makes it possible to migrate existing topology regions in the following cases: (i) splitting a topology region into two without isolating a node, and (ii) merging two different topology regions into one without introducing an extra topological barrier.

The attribute should be cleared when all migration activities are complete. At this point, the region boundary takes effect.

List of: Decimal (0..126)

Default: No default

## COMPONENT Rtg RouteSelector (Rs)

Groups:
"GROUP Rtg Rs SelectedRoute"
"GROUP Rtg Rs RouteSelectorControls (Controls)"
"GROUP Rtg Rs PathAttributes"
"GROUP Rtg Rs Statistics (Stats)"

Scope: Application

Description:
*Routing RouteSelector*
This component sits directly under the *Routing* component. It is dynamically created by Routing System and thus is always present when PORS software is loaded on a Passport node. *RouteSelector* is used by PORS services for the following purposes:
- Selecting a route to a destination through the current topology region. The route may be directly to the destination node or to a gateway node through which the destination can be reached.
- Returning a manual route stored as part of manual path profile.

*RouteSelector* is invoked with a route request data containing one

of the following:
- Parameters which must be met by the selected route.
- Parameter profile reference where parameters which must be met by the selected route are stored.
- Manual path profile reference.

When the route request data contains a manual path profile reference then *RouteSelector* returns the manual path route associated with that reference. The manual path route is returned in the selected route description data. *RouteSelector* does not verify the manual path route.

When the route request data contains parameter profile reference then *RouteSelector* obtains route request data parameters associated with that reference and then proceeds as though the parameters were contained in the route request data.

Using the route request data parameters, *RouteSelector* uses a route selection algorithm, based on Dijkstra's Shortest-Path-First algorithm, to select the best route to the destination. That route may be directly to the destination node or to a gateway node through which the destination can be reached. The selected route must satisfy all the route request data parameters. The route selection is done against the current view of the topological database maintained by Routing Topology System of the current topology region. Once the route is selected, selected route description data is returned by *RouteSelector.*

*RouteSelector* can be used in two modes: automatic and manual.

In the automatic mode, a route request message containing the route request data is originated by a PORS VC and sent to *RouteSelector. RouteSelector* then selects a route or gets a manual route and returns its description in the selected route description data in the selected route message back to the PORS VC.

In the manual mode, *RouteSelector* allows the operator to modify the parameters in the route request data (except for the manual path profile reference), and to initiate route selection using that

data. When *RouteSelector* selects the route it displays its description to the operator.

Common Verbs

Help
List
Display

### GROUP Rtg Rs SelectedRoute

Properties: Operational

Description: This group contains operational attributes describing the last selected or manual route returned by *RouteSelector.* These attributes form selected route description data.

### ATTRIBUTE Rtg Rs routeCostMetric (rcm)

Access: Read only

Description: This attribute indicates the sum of cost metrics of trunks that make up the selected route returned by *RouteSelector.* If the cost metrics at both ends of a trunk differ, the larger metric is used for that trunk. If a route could not be selected for whatever reason then the *routeCostMetric* is set to a value 999999 intended to symbolize unknown cost. For manual routes the value of *routeCostMetric* is also 999999. This is because *RouteSelector* does not verify manual routes thus *routeCostMetric* is unknown.

Values: Decimal (0..999999)

Default: 999999

### ATTRIBUTE Rtg Rs routeDelayMetric (rdm)

Access: Read only

Description: This attribute indicates the sum of delay metrics of trunks that make up the selected route returned by *RouteSelector.* The delay metric of a trunk is equal to half the *measuredRoundTripDelay* operational attribute of the trunk. If the delay metrics at both ends of a trunk differ, the larger metric is used for that trunk. If a route could not be selected for whatever reason then the *routeDelayMetric* is set to a value 999999 intended to symbolize unknown delay. For manual routes the value of *routeDelayMetric*

is also 999999. This is because *RouteSelector* does not verify manual routes, thus *routeDelayMetric* is unknown.

Values: Decimal (0..999999)

Units: msec

Default: 999999

### ATTRIBUTE Rtg Rs routeBumpingPriority (rbp)

Access: Read only

Description: This attribute indicates the priority at which a route has been selected, or a value of 4 for manual routes since no route selection was made. Since *RouteSelector* does not verify manual routes the value of 4 for *routeBumpingPriority* symbolizes an unknown value for manual routes. The remainder of the description is not applicable to manual routes.

The bumping priority of a route specifies a priority at which a path along that route can be established. The lowest bumping priority is 4, the highest bumping priority is equal to a setup priority contained in the route request data. If a route is selected at bumping priority 4, then no paths will be bumped since there appears to be enough free bandwidth on selected trunks, and also since this bumping priority is not better than the lowest holding priority (4) of any path.

If a route cannot be selected at bumping priority 4 and a setup priority is 3 or better, then a route may be selected at bumping priority 3. This means that paths at holding priority 4 may be bumped if currently there is not enough free bandwidth on selected trunks to establish the new path with setup priority 3.

If a route cannot be selected at bumping priority 3 and a setup priority is 2 or better, then a route may be selected at bumping priority 2. In this case paths with holding priority 4 and 3 may be bumped if there is not enough free bandwidth on selected trunks to establish the new path with setup priority 2.

If a route cannot be selected at bumping priority 2 and a setup priority is 1 or better, then a route may be selected at bumping

priority 1. In this case paths with holding priority 4, 3, and 2 may be bumped if there is not enough free bandwidth on selected trunks to establish the new path with setup priority 1.

If a route cannot be selected at bumping priority 1 and a setup priority is 0, then a route may be selected at bumping priority 0. In this case paths with holding priority 4, 3, 2, and 1 may be bumped if there is not enough free bandwidth on selected trunks to establish the new path with setup priority 0.

Values — Decimal (0..4)

Default — No default

### ATTRIBUTE Rtg Rs reasonForNoRoute (rnr)

Access — Read only

Description — This attribute indicates the reason for which a route was not selected by *RouteSelector.*

If the route was selected then *reasonForNoRoute* has a value of ***none***.

If the destination in the form of ASCII name was specified (see *destination*) and the name of node is too long (more than 12 characters) then *reasonForNoRoute* has a value of ***destinationNameTooLong***. Check and correct node name in the *destination* attribute.

If the destination was not specified, that is *destination* is blank, then *reasonForNoRoute* has a value of ***destinationNotSpecified***. *Destination* attribute should not be blank.

If the destination in the form of ASCII name was specified (see *destination*) and the name of node cannot be found in topological database then *reasonForNoRoute* has a value of ***unknownDestinationName***. Check and correct node name in the *destination* attribute. If it is correct then this node does not appear in local topological database as this node may lie across the topology region or cluster boundary.

If the destination cannot be found in the topological database or cannot be reached through any gateway node then *reasonForNoRoute* has a value of ***unknownDestination***. Ensure the destination specified in *destination* attribute resides in the topology region, or can be reached through a Routing Gateway. That is, at least one reachable address provisioned under a *Trunk Address* component representing a gateway link can reach the destination NSAP address.

If the destination was specified using an incorrect format (see *destination*) then *reasonForNoRoute* has a value of ***incorrectDestination***. Use the correct format for *destination* attribute.

If there is no physical connectivity to the destination or gateway node, or number of hops to such node exceeds a limit of 20 hops, or a route to such node cannot satisfy all the parameters in the route request data then *reasonForNoRoute* has a value of ***attributeNotMet***. Set *operationMode* to ***manual*** and issue *d rtg rs* command and inspect *attributeNotMet* to determine which attribute could not be satisfied.

If the route to the destination could not be selected for some internal reason then *reasonForNoRoute* has a value of ***internalReason***. A Software Alarm generated in association with this situation should be reported to Nortel Networks technical support.

If the route to the destination could not be selected because of profile reference problem then *reasonForNoRoute* has a value of ***attributeProfileProblem***.

If the route to the destination could not be selected because of manual path reference problem then *reasonForNoRoute* has a value of ***manualPathIndexProblem***.

The following values of *reasonForNoRoute* are no longer generated: ***routeCostTooMuch***, ***routeDelayTooMuch***, ***incorrectDestinationEndPoint***, and ***sameNode***.

Values
none
destinationNameTooLong
destinationNotSpecified
unknownDestinationName
incorrectDestination
incorrectDestinationEndPoint
unknownSource
unknownDestination
sameNode
routeCostTooMuch
routeDelayTooLong
attributesNotMet
internalReason
attributeProfileProblem
manualPathIndexProblem

Default
none

### ATTRIBUTE Rtg Rs attributeNotMet (anm)

Access
Read only

Description
This attribute indicates the name of a possible route request data parameter which prevents *RouteSelector* from selecting the route. This attribute always has a value of ***allAttributesMet*** for manual routes since *RouteSelector* does not verify manual routes. This attribute has a meaningful value if *reasonForNoRoute* attribute has a value of ***attributesNotMet***. The value of *attributeNotMet* is only computed when *RouteSelector* operates in manual mode. That is, when route selection has been initiated by the operator in which case *operationMode* has a value of ***manual***.

*RouteSelector* determines which of the attributes: *requiredRxBandwidth*, *requiredTxBandwidth*, *requiredTrunkModes*, *maximumAcceptableCost*, *maximumAcceptableDelay*, *maximumAcceptableGatewaCost*, *requiredTrafficType*, *permittedTrunkTypes*, *requiredSecurity*, *requiredCustomerParameter*, and *maximumTransmissionUnit* prevents successful route selection by dropping the constraints associated with that attribute and reselecting the route. If that route can be successfully selected then the attribute for which the constraints were dropped is the attribute preventing successful

route selection.

For example, *RouteSelector* drops bandwidth constraints by selecting a route with *requiredRxBandwidth* or *requiredTxBandwidth* of 0. If the route can be selected then bandwidth is preventing successful route selection.

A value of ***unknownAttributeNotMet*** indicates that *RouteSelector* cannot determine why route cannot be selected. Constraints for all attributes are dropped yet successful route cannot be computed. This usually indicates a lack physical connectivity to the destination or gateway node. Alternatively, this may indicate that destination or gateway node is more than 20 hops away where 20 hops is the maximum number of hops in the route.

Values

unknownAttributeNotMet
allAttributesMet
requiredRxBandwidth
requiredTxBandwidth
requiredTrunkModes
maximumAcceptableCost
maximumAcceptableDelay
requiredTrafficType
permittedTrunkTypes
requiredSecurity
requiredCustomerParm
maximumTransmissionUnit
maximumAcceptableGatewayCost
maximumGatewayHops

Default

allAttributesMet

### ATTRIBUTE Rtg Rs routeGatewayCostMetric (rgcm)

Access

Read only

Description

This attribute indicates the cost metric associated with reaching the destination indirectly through a gateway node or gateway link that is part of the selected route If the selected route leads directly to the destination node then the *routeGatewayCostMetric* is set to a value 0. If a route could not be selected for whatever reason

then the *routeGatewayCostMetric* is set to a value 999999 intended to symbolize unknown cost. For manual routes the value of *routeGatewayCostMetric* is also 999999. This is because *RouteSelector* does not verify manual routes thus *routeGatewayCostMetric* is unknown.

Values: Decimal (0..999999)

Default: 0

### ATTRIBUTE Rtg Rs routeType (rtyp)

Access: Read only

Description: This attribute indicates the type of route that was selected by *RouteSelector.*

If no route was selected then *routeType* has a value of ***noRoute***.

If the destination resides on the current node then *routeType* has a value of ***sameNode***.

If the destination resides on a different node and can be reached directly as opposed to indirectly through a gateway node then *routeType* has a value of ***destinationNode*** or ***destinationNodeLegacy*** with the latter only possible when legacy gateway selection algorithm was used (see *gatewaySelectionAlgorithm*).

If the destination can be reached indirectly through a gateway node with the gateway node being different from the current node then *routeType* has a value of ***gatewayNode*** or ***gatewayLink*** depending on whether or not the route consists of a single gateway link. A route consists of a single gateway link only when the route requestor (see *routeRequestor*) is a Routing Gateway (in inbound or outbound direction) and the route leads immediately across topology region or cluster boundary.

If the destination can be reached indirectly through a gateway node with the gateway node being the current node and the route requestor (see *routeRequestor*) is an application service as opposed to a Routing Gateway then *routeType* has a value of

***routingGateway***.

If selected route is a manual route then *routeType* has a value of ***manual***.

Note that the type of route, except for manual route, depends on who is the route requestor (application service, Routing Gateway serving as inbound or outbound gateway), where it resides (gateway or non-gateway node), how the destination can be reached (directly or indirectly through a gateway node), and what is the gateway selection algorithm (cost-based, random or legacy).

Values

noRoute
sameNode
destinationNode
destinationNodeLegacy
gatewayNode
gatewayLink
routingGateway
manual

Default

noRoute

### ATTRIBUTE Rtg Rs routeDescription (rd)

Access

Read only

Description

This attribute indicates a vector of strings describing the selected or manual route returned by *RouteSelector*. Each entry in the vector describes one hop of the route. The hops are identified using a node name and either
- a TRM allocated trunk identification or exit number (TRM uses a component ‘link’, or ‘Lk’ in short form, to refer to trunks), or
- a trunk name,
which is local to that node. TRM allocated exit number is used for routes selected by *RouteSelector*. Trunk name is used for manual routes.

For example, a hop out of node StarBase using exit number 99 is described as “EM/STARBASE Trm Lk/99” for the selected route. A hop out of node StarBase using trunk name 123 is described as

| | |
|---|---|
| | "EM/STARBASE TRK/123" for the manual route. A command *display Trm Lk/99* on node StarBase can be used to find out the trunk name corresponding to exit number 99. |
| Vector of | String (0..40, ASCII) |
| Index | Decimal (1..20) |
| Default | No default |

### ATTRIBUTE Rtg Rs destinationOrGatewayNodes (dgn)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates a set of node IDs of destination or gateway nodes which directly or indirectly support the destination and to which *RouteSelector* attempted to find a route. Node to which the *RouteSelector* selected the route is also included in *destinationOrGatewayNodes*. |
| List of | Decimal (0..4095) |
| List Size | 10 |
| Default | No default |

### GROUP Rtg Rs RouteSelectorControls (Controls)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains attributes used to control *RouteSelector.* |

### ATTRIBUTE Rtg Rs operationMode (om)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates the mode in which the *RouteSelector* is currently operating. The two possible modes are automatic and manual.<br><br>In the automatic mode, a route request message containing the route request data is originated by a PORS VC and sent to the *RouteSelector. RouteSelector* then selects a route or gets a manual route and returns its description in the selected route description data in the selected route message back to the PORS VC. |

In the manual mode, the *RouteSelector* allows the operator to modify the parameters in the route request data (except for the manual path profile reference), and to initiate route selection using that data. When *RouteSelector* selects the route it displays its description to the operator.

Note that even when *operationMode* is set to ***manual***, *RouteSelector* handles route request messages originated by services' VCs in the same way as it does when *operationMode* is set to ***automatic***.

Values: automatic
manual

Default: automatic

### ATTRIBUTE Rtg Rs lastRouteSelectionTime (lrst)

Access: Read only

Description: This attribute indicates the time when *RouteSelector* last handled a route request message.

Values: Time (DHMS)

Default: No default

### GROUP Rtg Rs PathAttributes

Properties: Operational

Description: This group contains parameters in route request data that govern the route selection. Values of these parameters are obtained either from an operator or from the last route request message from a PORS VC that contained such parameters or a reference to such parameters (parameter profile reference) as part of the route request data. Route request messages from a PORS VC that ask for a manual route do not contain such parameters or reference to such parameters. All other route request messages either explicitly contain route request data parameters or a reference to a profile containing such parameters.

This group of attributes is therefore not applicable to manual routes.

### ATTRIBUTE Rtg Rs sourceNodeId (snid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates the node ID of the source node from which a route to the destination is to be found. It is typically the current node. The term ‘source’ is used in relation to the route selection process and not the node where *RouteSelector* resides, that is the current node. That is, the source node need not be the current node although the selected route will be based on the topological database of the current node. |
| Values | Decimal (1..16777215) |
| Default | 1 |

### ATTRIBUTE Rtg Rs setupPriority (sp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates the required priority for path establishment along the selected. Zero is the highest priority and four is the lowest. This attribute is closely related to *bumpingPriority* attribute. |
| Values | Decimal (0..4) |
| Default | 2 |

### ATTRIBUTE Rtg Rs requiredTxBandwidth (tbw)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates the required transmit bandwidth in bits per second to send data to the destination. |
| Values | Decimal (0..4294967295) |
| Units | bit/s |
| Default | 64000 |

### ATTRIBUTE Rtg Rs requiredRxBandwidth (rbw)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute indicates the required receive bandwidth in bits per second to receive data from the destination. |
| Values | Decimal (0..4294967295) |
| Units | bit/s |
| Default | 64000 |

### ATTRIBUTE Rtg Rs maximumTransmissionUnit (maxtu)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates the size of the largest packet that can be transported along the selected route. It is used by *RouteSelector* to select a route which avoids trunks whose maximum transmission unit is less than *maximumTransmissionUnit* and as a result would be unable to transport packets of this size. The default value of 0 permits all trunks to be eligible with respect to this attribute. |
| Values | Decimal (0..8192) |
| Default | 0 |

### ATTRIBUTE Rtg Rs requiredSecurity (rsec)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates the required minimum level of security of the trunks along the selected route. Zero represents the most secure and seven represents the least secure. The trunk's security is indicated by the *trunkSecurity* attribute of the *Trunk PathAdministrator (Trk Pa)* component. *RouteSelector* ensures that any route selected does not contain a trunk whose *trunkSecurity* attribute is numerically greater than the *requiredSecurity.* |
| Values | Decimal (0..7) |
| Default | 4 |

### ATTRIBUTE Rtg Rs requiredTrafficType (rttyp)

| | |
|---|---|
| Access | Read and write |

Description

This attribute indicates the required type of traffic that can be transported along the selected route. There are eight possible traffic types, and only one type can be transported. The ***voice***, ***data,*** and ***video*** traffic types are already defined, and five other traffic types can be defined by the network administrator. The *supportedTrafficType* attribute of the *Trunk PathAdministrator (Trk Pa)* component lists all the types of traffic allowed on the trunk. When selecting a route, *RouteSelector* only chooses trunks whose *supportedTrafficType* contains the *requiredTrafficType*.

Values

voice
data
video
trafficType1 (tt1)
trafficType2 (tt2)
trafficType3 (tt3)
trafficType4 (tt4)
trafficType5 (tt5)

Default

voice

### ATTRIBUTE Rtg Rs permittedTrunkTypes (pttyp)

Access

Read and write

Description

This attribute indicates a maximum of eight types of trunks that can be part of the selected route. The ***terrestrial*** and ***satellite*** trunk types have been defined already, leaving six remaining types that can be defined by the network administrator. The *trunkType* attribute of the *Trunk PathAdministrator (Trk Pa)* component specifies the type of the trunk. When selecting a route, *RouteSelector* only chooses trunks whose *trunkType* is one of the *permittedTrunkTypes*.

Set of

terrestrial
satellite
trunkType1 (tt1)
trunkType2 (tt2)
trunkType3 (tt3)
trunkType4 (tt4)
trunkType5 (tt5)
trunkType6 (tt6)

| | |
|---|---|
| Default | (terrestrial, satellite, trunkType1, trunkType2, trunkType3) |

### ATTRIBUTE Rtg Rs requiredCustomerParm (rcpar)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates the mechanism to customize the usage of trunks. Any trunk, whose *customerParameter* attribute under the *Trunk PathAdministrator (Trk Pa)* component is larger than the *requiredCustomerParameter* is not eligible to become part of the selected route. |
| Values | Decimal (0..7) |
| Default | 4 |

### ATTRIBUTE Rtg Rs pathAttributeToMinimize (pamin)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates whether a route should be selected on the basis of minimizing the route cost or the route delay. Each trunk has a cost and a delay metric associated with it. The cost of a route is the sum of the trunk cost metrics for all trunks included in the route. The delay of a route is the sum of the trunk delay metrics for all trunks included in the route. The delay metric of a trunk is equal to half the *measuredRoundTripDelay* operational attribute of the trunk. |
| Values | cost<br>delay |
| Default | cost |

### ATTRIBUTE Rtg Rs maximumAcceptableCost (maxCost)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates the upper bound on the cost metric of the selected route, which is the sum of the cost metrics of all trunks on the route. *RouteSelector* ensures the cost metric of the selected route does not exceed the *maximumAcceptableCost*. |
| Values | Decimal (0..65535) |
| Default | 1280 |

### ATTRIBUTE Rtg Rs maximumAcceptableDelay (maxDelay)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates the upper bound on the delay metric of the selected route, which is the sum of the delay metrics of all trunks on the route. *RouteSelector* ensures the delay metric of the selected route does not exceed the *maximumAcceptableDelay.* The delay metric of a trunk is equal to half the *measuredRoundTripDelay* operational attribute of the trunk. |
| Values | Decimal (0..100000) |
| Units | msec |
| Default | 100000 |

### ATTRIBUTE Rtg Rs bumpPreference (bprf)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates whether bumping may be considered when selecting a route. By default, bumping may be considered only when it is necessary. That is, only when no other route to the destination or gateway node can be found An indication to always bump in order to find the best route may be set. In this case an absolutely best route to the destination or gateway node is found even if other paths along that route would need bumping. |
| Values | bumpWhenNecessary<br>bumpToObtainBestRoute |
| Default | bumpWhenNecessary |

### ATTRIBUTE Rtg Rs requiredTrunkModes (rtmod)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates which trunk modes to consider during route selection. The operational *mode* attribute of the *Trunk PathAdministrator (Trk Pa)* component specifies the mode of the trunk. When selecting a route, *RouteSelector* can either consider trunks with any mode, or only trunks with *mode* set to ***mapping***. That is, the selected route may contain trunks with any mode, or all trunks with *mode* set to ***mapping***. |

| | |
|---|---|
| Values | any<br>mapping |
| Default | any |

### ATTRIBUTE Rtg Rs maximumAcceptableGatewayCost (maxGCost)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates the upper bound on the cost metric associated with reaching the destination along the selected route and through a gateway node. Such cost metrics are provisioned under *Trunk Address* component on a gateway node specifying costs of reaching an address through the gateway node and more accurately through the gateway link represented by the *Trunk* component. |
| Values | Decimal (0..65535) |
| Default | 2048 |

### ATTRIBUTE Rtg Rs routeRequestor (rreq)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates the type of entity that makes a request for a route (route requestor). Three types of entities can make route requests: application service, Routing Gateway serving as inbound gateway at a gateway node, or Routing Gateway serving as outbound gateway at a gateway node. |
| Values | applicationService<br>inboundRGty<br>outboundRGty |
| Default | applicationService |

### ATTRIBUTE Rtg Rs gatewaySelectionAlg (gsalg)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates the type of algorithm to use when a route to the destination has to be selected indirectly through a gateway node. The following types of algorithms are available: cost based, random, and legacy. |

For cost based algorithm, *RouteSelector* selects gateway node that advertised it can reach the destination at the smallest cost.

For random algorithm, *RouteSelector* selects randomly any gateway node that advertised it can reach the destination.

For legacy algorithm, *RouteSelector* selects a complete route to the destination without attempting to route through gateway nodes. This is only possible during single to multi topology region migration, or cluster migration but before such migration is complete. During such migrations routing to the destination is initially attempted through gateway nodes, but if such routing fails then legacy routing is attempted.

Values: costBased
random
legacy

Default: costBased

### ATTRIBUTE Rtg Rs destination (dest)

Access: Read and write

Description: This attribute indicates either the ASCII name, node ID, or NSAP address of the destination node to which a route needs to be found. The format for *destination* is either
1. “EM/nodeName serviceName/instance”, for ASCII name, for example “EM/MoonBase VS/3”, or
2. “NID/nodeId”, for node ID, for example “NID/1226”, or
3. “NSAP/nsapAddress”, for NSAP address, for example “NSAP/12234001”.

For NSAP address formats a full ATM End System Address, node summary, or reachable address can be specified, as well as a node prefix.

Values: String (0..45, ASCII)

Default: No default

## GROUP Rtg Rs Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistics gathered by *RouteSelector* and relating to route selections. |

## ATTRIBUTE Rtg Rs routeStatistics

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates a table (or an array) of the number of route requests and the number of routes selected. There are six rows and five columns in the table. The first row contains a number of route requests in a column. Each column corresponds to a value of *setupPriority* (= 0,1,2,3,4). An element in the first row gives a number of route request per given *setupPriority.* The five subsequent rows provide numbers of routes selected at *bumpingPriority* 0,1,2,3,4. The second row provides numbers of route selections at *bumpingPriority* 0. Only route requests of *setupPriority* 0 could be given routes of the *bumpingPriority* 0. By virtue of the property of *bumpingPriority* that it cannot be better than the *setupPriority* the rows two to six form a lower triangular matrix. Route selections performed upon operator request (manual route requests) are not counted. |
| Array of | Decimal (0..4294967295) |
| Row | setupPriority [routesRequested<br>routesSelectedAtBp_0<br>routesSelectedAtBp_1<br>routesSelectedAtBp_2<br>routesSelectedAtBp_3<br>routesSelectedAtBp_4] |
| Column | statisticsTable [Decimal (0..4)] |
| Default | No default |

## COMPONENT Rtg DpnAddressPlan (Dpn)

| | |
|---|---|
| Groups | "GROUP Rtg Dpn Provisioned (Prov)"<br>"GROUP Rtg Dpn Operational (Oper)" |

| | |
|---|---|
| | "GROUP Rtg Dpn ControlStatistics (ConStats)"<br>"GROUP Rtg Dpn ForwardingStatistics (FwdStats)" |
| Scope | Network |
| Description | *Routing DpnAddressPlan*<br>This component is a subcomponent of *Routing*. It resides on all Passport nodes that carry DPN traffic and is responsible for maintaining the routing information required to route this traffic.<br><br>It is required on nodes that (i) support gateways to RMs and/or AMs, (ii) nodes that source and/or sink DPN traffic (for example, nodes which support VC end points), and (iii) intermediary nodes that simply carry DPN traffic. |
| Subcomponents | "COMPONENT Rtg Dpn AutomaticRouteTester (Art)"<br>"COMPONENT Rtg Dpn PerformanceStatistics (PerfStats)" |
| Opt. Subcomp. | "COMPONENT Rtg Dpn RidFilterInfo (RidFilter)" |
| Dyn. Subcomp. | "COMPONENT Rtg Dpn ReachableRidInfo (Rid)"<br>"COMPONENT Rtg Dpn ReachableMidInfo (Mid)"<br>"COMPONENT Rtg Dpn ReachableCallServerInfo (Cs)"<br>"COMPONENT Rtg Dpn LocalLinkGroups (Lg)"<br>"COMPONENT Rtg Dpn LpStatistics (LpStats)"<br>"COMPONENT Rtg Dpn DefaultRoute (DefRoute)" |
| Common Verbs | Help<br>List<br>Display |

## GROUP Rtg Dpn Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioning data for the *DpnAddressPlan*. Attributes in this group must be set to allow the *DpnAddressPlan* component to function properly. |

## ATTRIBUTE Rtg Dpn logicalNetworkNumber (lnn)

| | |
|---|---|
| Access | Read only |
| Criticality | Module |

| | |
|---|---|
| Description | This attribute specifies the Logical Network Number for the *DpnAddressPlan*. Since only one instance of this component can exist, this value is always set to one. It is provided here to be consistent with other address plans and so that it can be queried. |
| Values | Decimal (1..1) |
| Default | 1 |

### ATTRIBUTE Rtg Dpn routingId

| | |
|---|---|
| Access | Read and write |
| Criticality | Module |
| Description | This attribute specifies the Routing Identifier (RID) associated with the Passport node.<br><br>The RID is used to identify a group of one or more interconnected Passport nodes (called a subnet) supporting the transport of DPN traffic. Its value must be the same as that of the other Passport nodes in this subnet and different from that of all RMs and other Passport subnets in the network.<br><br>The *routingId* must be set when a *DpnAddressPlan* component is configured on an Passport node.<br><br>Changing the value of the *routingId* will cause the node to restart. |
| Values | Decimal (1..126) |
| Default | No default |

### ATTRIBUTE Rtg Dpn moduleId

| | |
|---|---|
| Access | Read and write |
| Criticality | Module |
| Description | This attribute specifies the Module Identifier (MID) associated with the Passport node.<br><br>The MID is used to identify an Passport node supporting the transport of DPN traffic. Its value must be different from that of all MIDs assigned to Passport nodes in this RID subnet |

(interconnected Passport nodes sharing a RID) and AMs in clusters supported by this subnet. If routing zones are used, it must also be unique from all other MIDs in this zone.

The *moduleId* must be set when a *DpnAddressPlan* component is configured on an Passport node.

Changing the value of the *moduleId* will cause the node to restart.

Values: Decimal (1..1909)

Default: No default

### ATTRIBUTE Rtg Dpn delayMetricCutOff (delayC)

Access: Read and write

Description: This attribute specifies the delay metric value beyond which a destination RID should be considered unreachable. That is, if a delay metric to a RID is equal to or greater than this value then the RID is considered to be unreachable in the delay class of service.

Lowering this value has the effect of speeding up the detection of the loss of reachability to a RID. It also reduces the amount of Routing Table Update (RTU) traffic generated in this scenario. Care must be taken to ensure that the value chosen is big enough for the longest delay path in the network.

This attribute is optional; a default of 128 is used when it is not set. It is recommended that all nodes in the network be provisioned with the same cut off value.

Values: Decimal (64..250)

Default: 128

### ATTRIBUTE Rtg Dpn throughputMetricCutOff (tputC)

Access: Read and write

Description: This attribute specifies the throughput metric value beyond which a destination RID should be considered unreachable. That is, if a throughput metric to a RID is equal to or greater than this value

then the RID will be considered to be unreachable in the throughput class of service.

Lowering this value has the effect of speeding up the detection of the loss of reachability to a RID. It also reduces the amount of Routing Table Update (RTU) traffic generated in this scenario.Care must be taken to ensure that the value chosen is big enough for the longest throughput path in the network.

This attribute is optional; a default of 245 is used when it is not set. It is recommended that all nodes in the network be provisioned with the same cut off value.

| | |
|---|---|
| Values | Decimal (128..245) |
| Default | 245 |

### ATTRIBUTE Rtg Dpn forwardingPolicy

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the forwarding policy used by packet forwarding to handle DPN traffic on a Passport module.<br><br>When this attribute is set to ***loadshare***, DPN traffic is shared among preferred links in a link group in proportion to the available bandwidth on each link; the traffic is not forwarded in an order-preserved manner and needs resequencing at the destination, but the available bandwidth in a link group is utilized efficiently.<br><br>When this attribute is set to ***loadspread***, DPN traffic is forwarded in an order-preserved manner along a randomly selected route; the traffic sticks to a particular link in a link group, and will not spill over to other links in the link group unless there is congestion on the selected link.<br><br>When this attribute is set to ***loadspreadFast***, DPN traffic is forwarded in an order-preserved manner along a randomly selected route; the traffic sticks to a particular link in a link group, and will not spill over to other links in the link group. Choosing this value may improve throughput but traffic may be discarded in |

the presence of congestion.

It is recommended that all nodes in the network be provisioned with the same forwarding policy.

Note that though ***loadshare***, ***loadspread*** and ***loadspreadFast*** are all supported on Passport 7000 switches, ***loadspreadFast*** is the only forwarding policy that is supported on Passport 15000 and Passport 20000 switches. On a Passport 15000 or Passport 20000, if the *forwardingPolicy* attribute is set to either ***loadshare*** or ***loadspread***, the provisioning check will pass, but the underlying forwarding policy defaults to the value of ***loadspreadFast***.

A change in this attribute will not take effect on any already established Frame Relay (FR) connections. The existing FR connections should be restarted to adopt the new forwarding policy.

Values: loadspread (spread)
loadshare (share)
loadspreadFast (spFast)

Default: loadspread

### ATTRIBUTE Rtg Dpn delayMetricRangeBoundary (delayR)

Access: Read and write

Description: This attribute specifies the total path delay metric below which the *variance* value specified for delay COS and a low metric range is used, and at or above which the *variance* value specified for delay COS and a high metric range is used.

This attribute defaults to 0, so that the *variance* value specified for delay COS and a high metric range is used for all delay paths. If this attribute is set to 2147483647, the *variance* value specified for delay COS and a low metric range is used for all delay paths.

Values: Decimal (0..2147483647)

Default: 0

### ATTRIBUTE Rtg Dpn tputMetricRangeBoundary (tputR)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the total path throughput metric below which the *variance* value specified for throughput COS and a low metric range is used, and at or above which the *variance* value specified for throughput COS and a high metric range is used.<br><br>This attribute defaults to 0, so that the *variance* value specified for throughput COS and a high metric range is used for all delay paths. If this attribute is set to 2147483647, the *variance* value specified for throughput COS and a low metric range is used for all throughput paths. |
| Values | Decimal (0..2147483647) |
| Default | 0 |

### ATTRIBUTE Rtg Dpn variance

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the variance values for high and low metric ranges, for each class of service (COS). A variance value is the maximum allowed difference in metric between the best path and the second path, as a percentage of the best path metric. High and low metric ranges are defined for each COS by the *delayMetricRangeBoundary* and *tputMetricRangeBoundary* attributes, and refer to total path metrics.<br><br>When a variance value for a certain COS and metric range is set to the default value of 0, only equal metric paths can be used under that COS when the best path metric is in that range. When it is set to a value greater than 0, an alternate path which is safe (that is, non-looping) and which has a metric within this percentage of the best path metric can be used as a multipath.<br><br>The special value of 9999 signifies an infinite variance, so that any safe alternate path may be used in addition to the single best path, regardless of its metric. |
| Array of | Decimal (0..500; 9999) |

| | | |
|---|---|---|
| Units | % | |
| Row | cos [delay throughput] | |
| Column | metricRange [low high] | |
| Default | ([2 * 2] 0) | |

### ATTRIBUTE Rtg Dpn csrmRoute

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the loadsharing mechanism for CSRM routing (csrmRoute). When this attribute is set to ***share***, all call request packets that originate from or transit through the node will be forwarded to the two active CSRM's on a round-robin basis. When this attribute is set to ***closest***, all the call request packets will be forwarded to the closest CSRM. The default behavior is set to forward the calls to the closest CSRM. |
| Values | closest (cl)<br>shared (sh) |
| Default | closest |

### GROUP Rtg Dpn Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group of attributes provides information about the functioning of the *DpnAddressPlan* component. |

### ATTRIBUTE Rtg Dpn callServerModuleRids

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the RIDs of the Call Server Resource Modules (CSRMs) currently in use to support Call Server functions, such as SCR and DCR, for the Passport subnet. Up to two CSRMs can be in use to support such Call Server functions.<br><br>Note that packets destined to Call Server functions are routed to the closest CSRM supporting the required server functionality. |

| | |
|---|---|
| List of | Decimal (1..126) |
| Default | No default |

### GROUP Rtg Dpn ControlStatistics (ConStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group of attributes provides statistics about the behavior of the *DpnAddressPlan* component. The statistics concern the distribution of routing information, required to support the routing of DPN traffic, to all Passport nodes in the RID subnet. |

### ATTRIBUTE Rtg Dpn controlPktTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of internal Passport DPN control packets, originating from this node, sent to other Passport nodes in the RID subnet. The packets contain DPN routing information required by the *DpnAddressPlan* component to support the transport of DPN traffic. The Packets received from a neighbor node and forwarded to other neighbors are not counted. The counter wraps around to zero when the maximum value is reached. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Rtg Dpn controlPktRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of internal Passport DPN control packets received from other Passport nodes in the RID subnet. The packets contain DPN routing information required by the *DpnAddressPlan* component to support the transport of DPN traffic. The counter wraps around to zero when the maximum value is reached. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Rtg Dpn controlBytesTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of internal Passport DPN control packet bytes, originating from the node, sent to other Passport nodes in the RID subnet. The packets contain DPN routing information required by the *DpnAddressPlan* component to support the transport of DPN traffic. Packet bytes received from a neighbor node and forwarded to other neighbors are not counted. The counter wraps around to zero when the maximum value is reached. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Rtg Dpn controlBytesRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of internal Passport DPN control packet bytes received from other Passport nodes in the RID subnet. The packets contain DPN routing information required by the *DpnAddressPlan* component to support the transport of DPN traffic. The counter wraps around to zero when the maximum value is reached. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Rtg Dpn outOfSequencePkt

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of internal Passport DPN control packets received and rejected. These packets contained old sequence numbers. The packets contain DPN routing information required by the *DpnAddressPlan* component to support the transport of DPN traffic. The counter wraps around to zero when the maximum value is reached. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Rtg Dpn ForwardingStatistics (FwdStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group of attributes provides statistics for the traffic handled by DPN packet forwarding on this module. The statistics can be used to monitor the connectionless traffic profile on this module. |

### ATTRIBUTE Rtg Dpn totalPackets

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the delay and throughput packets handled by DPN packet forwarding on this module when the *forwardingPolicy* attribute of the *Routing DpnAddressPlan* component is set to a value of ***loadshare***, ***loadspread*** or ***loadspreadFast.*** It is the aggregate of *totalPackets* attribute of all *LpStatistics* components on the module. Note that DPRS packets leaving the network at this module are not counted. The counter wraps to zero when the maximum value is exceeded. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Rtg Dpn throughputPackets

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the throughput packets handled by DPN packet forwarding on this module when the *forwardingPolicy* attribute of the *Routing DpnAddressPlan* component is set to a value of ***loadshare***, ***loadspread*** or ***loadspreadFast***. It is the aggregate of *throughputPackets* attribute of all *LpStatistics* components on the module. Note that DPRS packets leaving the network at this module are not counted. The counter wraps to zero when the maximum value is exceeded. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Rtg Dpn delayPackets

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the delay packets handled by DPN packet forwarding on this module when the *forwardingPolicy* attribute of the *Routing DpnAddressPlan* component is set to a value of ***loadshare***, ***loadspread*** or ***loadspreadFast***. It is the aggregate of *delayPackets* attribute of all *LpStatistics* components on the module. Note that DPRS packets leaving the network at this module are not counted. The counter wraps to zero when the maximum value is exceeded. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Rtg Dpn normalReliabilityPackets

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the normal reliability packets handled by DPN packet forwarding on this module when the *forwardingPolicy* attribute of the *Routing DpnAddressPlan* component is set to a value of ***loadshare***, ***loadspread*** or ***loadspreadFast***. It is the aggregate of *normalReliabilityPackets* attribute of all *LpStatistics* components on the module. Note that DPRS packets leaving the network at this module are not counted. The counter wraps to zero when the maximum value is exceeded. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Rtg Dpn highReliabilityPackets

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the high reliability packets handled by DPN packet forwarding on this module when the *forwardingPolicy* attribute of the *Routing DpnAddressPlan* component is set to a value of ***loadshare***, ***loadspread*** or ***loadspreadFast***. It is the aggregate of *highReliabilityPackets* attribute of all *LpStatistics* components on the module. Note that DPRS packets leaving the |

network at this module are not counted. The counter wraps to zero when the maximum value is exceeded.

Values: Long Integer

Default: No default

### ATTRIBUTE Rtg Dpn discardNoRoute

Access: Read only

Description: This attribute counts the packets that have been discarded by packet forwarding due to failure to find a route to forward the packets on this module when the *forwardingPolicy* attribute of the *Routing DpnAddressPlan* component is set to a value of ***loadshare***, ***loadspread*** or ***loadspreadFast***. It is the aggregate of *discardNoRoute* attribute of all *LpStatistics* components on the module. Note that DPRS packets leaving the network at this module are not counted. The counter wraps to zero when the maximum value is exceeded.

Values: Long Integer

Default: No default

### ATTRIBUTE Rtg Dpn interruptingPackets

Access: Read only

Description: This attribute counts the multimedia packets handled by DPN packet forwarding on this module when the *forwardingPolicy* attribute of the *Routing DpnAddressPlan* component is set to a value of ***loadshare***, ***loadspread*** or ***loadspreadFast***. It is the aggregate of *interruptingPackets* attribute of all *LpStatistics* components on the module. Note that DPRS packets leaving the network at this module are not counted. The counter wraps to zero when the maximum value is exceeded.

Values: Long Integer

Default: No default

### ATTRIBUTE Rtg Dpn discardLpCongested

Access: Read only

| | |
|---|---|
| Description | This attribute counts the packets that have been discarded by packet forwarding due to LP congestion on this module when the *forwardingPolicy* attribute of the *Routing DpnAddressPlan* component is set to a value of ***loadshare***, ***loadspread*** or ***loadspreadFast***. A packet encounters LP congestion when there is insufficient shared memory. This attribute is the aggregate of *discardLpCongested* attribute of all *LpStatistics* components on the module. Note that DPRS packets leaving the network at this module are not counted. The counter wraps to zero when the maximum value is exceeded. |
| Values | Long Integer |
| Default | No default |

## COMPONENT Rtg Dpn ReachableRidInfo (Rid)

| | |
|---|---|
| Instance | Decimal (0..127) |
| Groups | "GROUP Rtg Dpn Rid Operational (Oper)" |
| Scope | Network |
| Description | *Routing Dpn ReachableRidInfo/<rid>*<br>This component is a dynamic subcomponent of the *DpnAddressPlan*. It provides information about the paths to RIDs in the network that are reachable.<br><br>There is one instance per reachable RID. |
| Dyn. Subcomp. | "COMPONENT Rtg Dpn Rid Mid" |
| Common Verbs | Help<br>List<br>Display |

## VERB Ping Rtg Dpn Rid

| | |
|---|---|
| Impact | Passive |
| Description | *Ping [-sensitivity(throughput/delay\|multimedia)] [-reliability(high/normal)] [-priority(normal/high)] [-roundTripDelay] [-sendPktDataSize(octets)] [-returnPktDataSize(octets)] [-allPaths] Routing Dpn Rid/<rid>* |

*Ping* causes a query packet to be sent to the RID destination. It can be used to either find a path to a destination or to measure the round trip delay to reach the destination.

The *ping* command can also be used to ensure that the destination is reachable. If the destination is unreachable or the network is congested, the operator will be notified.

The *ping* command can be issued with or without options. If no options are specified, the command reports the path used to reach the destination. When *ping* is used to find a path, it displays the RID and MID of each module that the query packet passes through on its way to the destination.

The *ping* command supports the following options:

-*sensitivity:* This option specifies the sensitivity for the route to be taken by the *ping* packet. If ***delay*** sensitivity is specified, the packet is routed on the minimum delay path. If ***throughput*** sensitivity is specified, the packet is routed on the highest bandwidth route. If ***multimedia*** sensitivity is specified, the packet is routed on the minimum delay path using the highest emission priority link transmit queue available. If this option is not selected, ***throughput*** sensitivity is used.

-*reliability:* This option specifies the reliability for the route to be taken by the *ping* packet. If ***high*** reliability is specified, the packet is routed on an overflow path if the primary path is congested. If ***normal*** reliability is specified, the ping packet is discarded if the primary path is congested. If this option is not selected, ***high*** reliability is used.

*-priority:* This option influences the priority of the *ping* packet. If ***high*** priority is specified, the packet is less likely to be discarded in the network. If this option is not selected, ***normal*** priority is used.

*-roundTripDelay (-rtd):* If this option is selected, the round trip delay time to reach the destination and back will be reported. The round trip delay is calculated by timing how long it takes to send five packets to the destination node and back. The packet size can be specified using the *sendPktSize* and *returnPktSize* options. The minimum, maximum and average time taken by the returned packets are reported. This option is ignored if the *allPaths* option is selected. If this option is not selected, the path taken to the destination is displayed.

*-sendPktDataSize:* This option specifies the number of data octets to be included in the round trip delay query packet. This option is ignored if the *-rtd* option is not specified.

The rtd query packet consists of the Passport common header (2 octets), the subnet header (11 octets), plus the data. The minimum data size is 12, since 12 octets are required to carry the ping control information. If the value specified for this option is less than 12, 12 octets are sent to the destination. The actual number of data octets sent is displayed in the ping response.

If this option is not selected the default value is 64 octets if ***multimedia*** sensitivity has been specified, and 128 octets otherwise. If the specified packet data size exceeds the capability of some facilities on the path, the packet will be discarded and the operator will get the timeout response.

*-returnPktDataSize:* This option specifies the number of data octets to be included in the round trip delay acknowledge packet. This option is ignored if the *-rtd* option is not specified.

The rtd acknowledge packet consists of the Passport common header (2 octets), the subnet header (11 octets), plus the data. The minimum data size is 12, since 12 octets are required to carry the ping control information. If the value specified for this option is

less than 12, 12 octets are returned to the source. The actual number of data octets returned is displayed in the ping response.

If this option is not selected the default value is 64 octets if ***multimedia*** sensitivity has been specified, and 128 octets otherwise. If the specified packet data size exceeds the capability of some facilities on the path, the packet will be discarded and the operator will get the timeout response.

*-allPaths (-all)*: If this option is selected, 16 query packets will be sent to the destination, and all possible paths (up to 16) to reach the destination will be reported. Since there are 16 path selection values used in the DPRS packet forwarding system, 16 query packets that each carry a different path selector will collect path information for all possible paths. All query packets which return to the source node within the timeout period are included in the response. The response indicates how many query packets were sent, how many were returned, and how many unique paths were taken.

## GROUP Rtg Dpn Rid Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group of attributes is maintained by the *DpnAddressPlan* component to provide information about the RIDs reachable in the network. |

## ATTRIBUTE Rtg Dpn Rid dpnDelayMetric

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the minimum DPN delay metric to the destination RID. The delay metric associated with a path is computed by the routing system by translating the smallest *delayMetric* calculated for the destination. A path with a lower metric value is preferable to one with a higher value as it is associated with lower delay facilities. The metric displayed is that of the best path to the destination. This metric is advertised to neighbor RMs and Passports in a different RID subnet.<br><br>A metric value of 255 means the RID is unreachable in the delay |

class of service. A value of 0 indicates that no cost is associated with the path to the destination. This would be the case for the local node's RID. A metric value of 252 indicates that the destination RID is that of a Network Module (NM).

Values — Decimal (0..255)

Default — No default

### ATTRIBUTE Rtg Dpn Rid dpnTputMetric

Access — Read only

Description — This attribute indicates the minimum DPN throughput metric to the destination RID. The throughput metric associated with a path is computed by the routing system by translating the smallest *tputMetric* calculated for the destination. A path with a lower metric value is preferable to one with a higher value as it is associated with higher bandwidth facilities. The metric displayed is that of the best path to the destination. This metric is advertised to neighbor RMs and Passports in a different RID subnet.

A metric value of 255 means the RID is unreachable in the throughput class of service. A value of 0 indicates that no cost is associated with the path to the destination. This would be the case for the local node's RID.

Values — Decimal (0..255)

Default — No default

### ATTRIBUTE Rtg Dpn Rid routeType

Access — Read only

Description — This attribute indicates whether the paths in use to reach the destination RID are learned or default routes. When the paths in use are learned paths, the attribute value is ***learned***. When the paths are default routes, the attribute value is ***default***.

The paths in use are always learned when this node is not a Passport cluster node. There are up to two paths to reach a destination RID for each delay and throughput class of service. The paths displayed are the best and next best paths among all

available paths to the destination.

The paths in use are default routes only when this node is a cluster node. A cluster node has no knowledge about RID subnets other than its own. All packets destined to unknown RIDs, i.e. RIDs other than its own RID, will first be sent out of the cluster in which this node is located, and further forwarded by the nodes outside of the cluster to reach the destination. Therefore, the delay and throughput paths in use to reach a RID other than the cluster node's own RID are the two best and next best delay or throughput paths to get out of the cluster, and are called the default routes.

Values
learned
default

Default
learned

### ATTRIBUTE Rtg Dpn Rid delayNextHopLinkGroups

Access
Read only

Description
This attribute indicates the delay link group, or groups, that are being used to reach a neighbor which is the next hop in the path to the destination RID. DPN traffic will be spread across the links, in up to two link groups, when available. The link groups selected are those associated with the two loop-free paths with the lowest delay metrics to the destination.

The link group can be that of either a Passport node interconnection or a gateway to an RM.

If no link groups are listed then the destination is not reachable in the delay class of service (except in the case of the local node's RID).

Link group instances are managed by the *TransportResource* component. Further information about the links in the group can be obtained from it.

Values
The name of the component

Replication
Decimal (0..1)

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Rtg Dpn Rid tputNextHopLinkGroups

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the throughput link group, or groups, that are being used to reach a neighbor which is the next hop in the path to the destination RID. DPN traffic will be spread across the links, in up to two link groups, when available. The link groups selected are those associated with the two loop-free paths with the lowest throughput metrics to the destination.<br><br>The link group can be that of either a Passport node interconnection or a gateway to an RM.<br><br>If no link groups are listed then the destination is not reachable in the throughput class of service (except in the case of the local node's RID).<br><br>Link group instances are managed by the *TransportResource* component. Further information about the links in the group can be obtained from it. |
| Values | The name of the component |
| Replication | Decimal (0..1) |
| Default | No default |

### ATTRIBUTE Rtg Dpn Rid delayPathTrafficProportions

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the target percentages of the total delay traffic flows to the destination which are sent over each delay path. These percentages are achieved when there is a large number of virtual circuits (VCs). |
| Values | Decimal (0..100) |
| Units | % |
| Replication | Decimal (0..1) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Rtg Dpn Rid tputPathTrafficProportions

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the target percentages of the total throughput traffic flows to the destination which are sent over each throughput path. These percentages are achieved when there is a large number of virtual circuits (VCs). |
| Values | Decimal (0..100) |
| Units | % |
| Replication | Decimal (0..1) |
| Default | No default |

### ATTRIBUTE Rtg Dpn Rid delayMetric

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the delay metrics of up to two paths to the destination RID. The delay metric associated with a path is computed by the routing system based on the sum of the delays associated with the links in the path to the destination. A path with a lower metric value is preferable to one with a higher value as it is associated with lower delay facilities. The metrics displayed are those of the paths being used to reach the destination.<br><br>Metric values of 2147483647 for both paths means the RID is unreachable in the delay class of service. A metric value of 2147483647 for the second path only means that there is only one viable delay path to the destination. A value of 0 indicates that no cost is associated with the path to the destination. This would be the case for the local node's RID. Metric values of 2147483646 indicate that the destination RID is that of a Network Module (NM). |
| Values | Decimal (0..2147483647) |
| Replication | Decimal (0..1) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Rtg Dpn Rid tputMetric

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the throughput metrics of up to two paths to the destination RID. The throughput metric associated with a path is computed by the routing system based on the sum of the bandwidth associated with the links in the path to the destination. A path with a lower metric value is preferable to one with a higher value as it is associated with higher bandwidth facilities. The metrics displayed are those of the paths being used to reach the destination.<br><br>Metric values of 2147483647 for both paths means the RID is unreachable in the throughput class of service. A metric value of 2147483647 for the second path only means that there is only one viable throughput path to the destination. A value of 0 indicates that no cost is associated with the path to the destination. This would be the case for the local node's RID. |
| Values | Decimal (0..2147483647) |
| Replication | Decimal (0..1) |
| Default | No default |

### COMPONENT Rtg Dpn Rid Mid

| | |
|---|---|
| Instance | Decimal (0..2046) |
| Scope | Network |
| Description | *Routing Dpn Rid/<rid> Mid/<mid>*<br>This component is a subcomponent of *ReachableRidInfo*. It supports the ping verb by providing the ability to ping a MID under a RID that is known to be reachable. The state (reachable/ unreachable) of MIDs, other than those supported by the local |

RID subnet (see the *ReachableMidInfo* subcomponent), is not maintained by the *DpnAddressPlan* component.

Common Verbs

Help
List
Display

## VERB Ping Rtg Dpn Rid Mid

Impact

Passive

Description

*Ping [-sensitivity(throughput/delay|multimedia)] [-reliability(high/normal)] [-priority(normal/high)] [-roundTripDelay] [-sendPktDataSize(octets)] [-returnPktDataSize(octets)] [-allPaths] Routing Dpn Rid/<rid> Mid/<mid>*

*Ping* causes a query packet to be sent to the RID MID destination. It can be used to either find a path to a destination or to measure the round trip delay to reach the destination.

The *ping* command can also be used to ensure that the destination is reachable. If the destination is unreachable or the network is congested, the operator will be notified.

The *ping* command can be issued with or without options. If no options are specified, the command reports the path used to reach the destination. When *ping* is used to find a path, it displays the RID and MID of each module that the query packet passes through on its way to the destination.

The *ping* command supports the following options:

*-sensitivity:* This option specifies the sensitivity for the route to be taken by the *ping* packet. If ***delay*** sensitivity is specified, the packet is routed on the minimum delay path. If ***throughput*** sensitivity is specified, the packet is routed on the highest bandwidth route. If ***multimedia*** sensitivity is specified**,** the packet is routed on the minimum delay path using the highest emission priority link transmit queue available. If this option is not selected, ***throughput*** sensitivity is used.

*-reliability:* This option specifies the reliability for the route to be taken by the *ping* packet. If ***high*** reliability is specified, the packet is routed on an overflow path if the primary path is congested. If ***normal*** reliability is specified, the ping packet is discarded if the primary path is congested. If this option is not selected, ***high*** reliability is used.

*-priority:* This option influences the priority of the *ping* packet. If ***high*** priority is specified, the packet is less likely to be discarded in the network. If this option is not selected, ***normal*** priority is used.

*-sendPktDataSize:* This option specifies the number of data octets to be included in the round trip delay query packet. This option is ignored if the *-rtd* option is not specified.

The rtd query packet consists of the Passport common header (2 octets), the subnet header (11 octets), plus the data. The minimum data size is 12, since 12 octets are required to carry the ping control information. If the value specified for this option is less than 12, 12 octets are sent to the destination. The actual number of data octets sent is displayed in the ping response.

If this option is not selected the default value is 64 octets if ***multimedia*** sensitivity has been specified, and 128 octets otherwise. If the specified packet data size exceeds the capability of some facilities on the path, the packet will be discarded and the operator will get the timeout response.

*-returnPktDataSize:* This option specifies the number of data octets to be included in the round trip delay acknowledge packet. This option is ignored if the *-rtd* option is not specified.

The rtd acknowledge packet consists of the Passport common header (2 octets), the subnet header (11 octets), plus the data. The minimum data size is 12, since 12 octets are required to carry the ping control information. If the value specified for this option is less than 12, 12 octets are returned to the source. The actual number of data octets returned is displayed in the ping response.

If this option is not selected the default value is 64 octets if ***multimedia*** sensitivity has been specified, and 128 octets otherwise. If the specified packet data size exceeds the capability of some facilities on the path, the packet will be discarded and the operator will get the timeout response.

*-allPaths (-all)*: If this option is selected, 16 query packets will be sent to the destination, and all possible paths (up to 16) to reach the destination will be reported. Since there are 16 path selection values used in the DPRS packet forwarding system, 16 query packets that each carry a different path selector will collect path information for all possible paths. All query packets which return to the source node within the timeout period are included in the response. The response indicates how many query packets were sent, how many were returned, and how many unique paths were taken.

## COMPONENT Rtg Dpn ReachableMidInfo (Mid)

| | |
|---|---|
| Instance | Decimal (0..2046) |
| Groups | "GROUP Rtg Dpn Mid Operational (Oper)" |
| Scope | Network |
| Description | *Routing Dpn ReachableMidInfo/<mid>*<br>This component is a dynamic subcomponent of the *DpnAddressPlan*. It provides information about the MIDs supported by the local RID subnet that are, or were once, reachable.<br><br>If the node is not a Passport cluster node, an instance of this component represents the MID of any one of the nodes supported in the RID subnet. These includes Passport nodes located inside or outside a Passport cluster, DPN-100 AMs subtended off a Passport cluster, and DPN-100 AMs connected to a Passport node outside of a Passport cluster.<br><br>If the node is a Passport cluster node, an instance of this component represents the MID of any one of the nodes supported by the local cluster in the subnet. These include only Passport |

modules in the local cluster and DPN-100 AMs subtended off the cluster. In other words, MIDs located outside of the cluster are not shown.

Note that the node is in a Passport cluster and is a Passport cluster node when the *clusterNode* attribute under the *Routing* component is provisioned as ***yes***.

Common Verbs

Help
List
Display

## VERB Ping Rtg Dpn Mid

Impact

Passive

Description

*Ping [-sensitivity(throughput/delay/multimedia)] [-reliability(high/normal)] [-priority(normal/high)] [-roundTripDelay] [-sendPktDataSize(octets)] [-returnPktDataSize(octets)] [-allPaths] Routing Dpn Mid/<mid>*

*Ping* causes a query packet to be sent to the MID destination. It can be used to either find a path to a destination or to measure the round trip delay to reach the destination.

The *ping* command can also be used to ensure that the destination is reachable. If the destination is unreachable or the network is congested, the operator will be notified.

The *ping* command can be issued with or without options. If no options are specified, the command reports the path used to reach the destination. When *ping* is used to find a path, it displays the RID and MID of each module that the query packet passes through on its way to the destination.

The *ping* command supports the following options:

*-sensitivity:* This option specifies the sensitivity for the route to be taken by the *ping* packet. If ***delay*** sensitivity is specified, the packet is routed on the minimum delay path. If ***throughput***

sensitivity is specified, the packet is routed on the highest bandwidth route. If ***multimedia*** sensitivity is specified**,** the packet is routed on the minimum delay path using the highest emission priority link transmit queue available. If this option is not selected, ***throughput*** sensitivity is used.

-*reliability:* This option specifies the reliability for the route to be taken by the *ping* packet. If ***high*** reliability is specified, the packet is routed on an overflow path if the primary path is congested. If ***normal*** reliability is specified, the ping packet is discarded if the primary path is congested. If this option is not selected, ***high*** reliability is used.

-*priority:* This option influences the priority of the *ping* packet. If ***high*** priority is specified, the packet is less likely to be discarded in the network. If this option is not selected, ***normal*** priority is used.

-*roundTripDelay (-rtd):* If this option is selected, the round trip delay time to reach the destination and back will be reported. The round trip delay is calculated by timing how long it takes to send five packets to the destination node and back. The packet size can be specified using the *sendPktSize* and *returnPktSize* options. The minimum, maximum and average time taken by the returned packets are reported. This option is ignored if the *allPaths* option is selected. If this option is not selected, the path taken to the destination is displayed.

-*sendPktDataSize:* This option specifies the number of data octets to be included in the round trip delay query packet. This option is ignored if the -*rtd* option is not specified.

The rtd query packet consists of the Passport common header (2 octets), the subnet header (11 octets), plus the data. The minimum data size is 12, since 12 octets are required to carry the ping control information. If the value specified for this option is less than 12, 12 octets are sent to the destination. The actual number of data octets sent is displayed in the ping response.

If this option is not selected the default value is 64 octets if ***multimedia*** sensitivity has been specified, and 128 octets

otherwise. If the specified packet data size exceeds the capability of some facilities on the path, the packet will be discarded and the operator will get the timeout response.

*-returnPktDataSize:* This option specifies the number of data octets to be included in the round trip delay acknowledge packet. This option is ignored if the *-rtd* option is not specified.

The rtd acknowledge packet consists of the Passport common header (2 octets), the subnet header (11 octets), plus the data. The minimum data size is 12, since 12 octets are required to carry the ping control information. If the value specified for this option is less than 12, 12 octets are returned to the source. The actual number of data octets returned is displayed in the ping response.

If this option is not selected the default value is 64 octets if ***multimedia*** sensitivity has been specified, and 128 octets otherwise. If the specified packet data size exceeds the capability of some facilities on the path, the packet will be discarded and the operator will get the timeout response.

*-allPaths (-all)*: If this option is selected, 16 query packets will be sent to the destination, and all possible paths (up to 16) to reach the destination will be reported. Since there are 16 path selection values used in the DPRS packet forwarding system, 16 query packets that each carry a different path selector will collect path information for all possible paths. All query packets which return to the source node within the timeout period are included in the response. The response indicates how many query packets were sent, how many were returned, and how many unique paths were taken.

## GROUP Rtg Dpn Mid Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group of attributes is maintained by *DpnAddressPlan* component to provide information about the MIDs reachable, or once reachable, through the local RID subnet. |

## ATTRIBUTE Rtg Dpn Mid routeType

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether the paths in use to reach the destination MID is learned or default routes. When the paths in use are learned paths, the attribute value is ***learned***. When the paths are default routes, the attribute value is ***default***.<br><br>The paths in use are always learned when this node is not a Passport cluster node. There are up to two paths to reach a destination MID for each delay and throughput class of service. The paths displayed are the best and next best paths among all available paths to the destination.<br><br>The paths in use can be learned or default routes when this node is a cluster node. The paths are learned when the destination MID and this node are located in the same cluster. When the destination MID is located outside of the cluster, all packets destined to that MID will first be sent out of the cluster, and further forwarded by the nodes outside of the cluster to reach the destination. Therefore, the delay and throughput paths in use to send packets to all MIDs located outside of the cluster are the two best and next best delay or throughput paths to get out of the cluster, and are called the default routes. |
| Values | learned<br>default |
| Default | learned |

## ATTRIBUTE Rtg Dpn Mid midType

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the type of the MID for the module in the subnet.<br>***em*** - for a backbone (that is, non-cluster) Passport node.<br>***am*** - for a DPN-100 node.<br>***cluster*** - for a Passport node inside a cluster.<br>***unknown*** - for a node which is unknown to the cluster node. |

| | |
|---|---|
| Values | em<br>am<br>cluster<br>unknown |
| Default | No default |

### ATTRIBUTE Rtg Dpn Mid substituteRid

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the substitute RID in use for the MID. This RID will be substituted for the RID in DPN packets destined to the local node's RID and the MID in question when the MID is unreachable (when, for example, all links to an AM from the Passport subnet are down). It will also be used in the case where the path through the substitute RID is better than that available through the subnet's connection to the cluster containing the AM MID.<br><br>Substitute RIDs are learned from AM clusters that are supported by two RIDs (the Passport subnet's RID and another one). The operator can check this value to determine if a possible back up route to an AM exists. When there are no *delayNextHopLinkGroups* or *tputNextHopLinkGroups* shown to reach the MID, the substitute RID will be used.<br><br>A value of 128 indicates that no substitute RID is known. |
| Values | Decimal (1..128) |
| Default | 128 |

### ATTRIBUTE Rtg Dpn Mid delayNextHopLinkGroups

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the delay link group, or groups, that are being used to reach a neighbor which is the next hop in the path to the destination MID. DPN traffic will be spread across the links, in up to two link groups, when available. The link groups selected are those associated with the two loop-free paths with the lowest delay metrics to the destination. |

The link group can be that of either a Passport node interconnection or a gateway to an AM.

If no link groups are listed then the destination is not reachable in the delay class of service (except in the case of the local node's MID, or when a substitute RID path is available).

Link group instances are managed by the *TransportResource* component. Further information about the links in the group can be obtained from it.

| | |
|---|---|
| Values | The name of the component |
| Replication | Decimal (0..1) |
| Default | No default |

### ATTRIBUTE Rtg Dpn Mid tputNextHopLinkGroups

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the throughput link group, or groups, that are being used to reach a neighbor which is the next hop in the path to the destination MID. DPN traffic will be spread across the links, in up to two link groups, when available. The link groups selected are those associated with the two loop-free paths with the lowest throughput metrics to the destination.<br><br>The link group can be that of either a Passport node interconnection or a gateway to an AM.<br><br>If no link groups are listed then the destination is not reachable in the throughput class of service (except in the case of the local node's MID, or when a substitute RID path is available).<br><br>Link group instances are managed by the *TransportResource* component. Further information about the links in the group can be obtained from it. |
| Values | The name of the component |
| Replication | Decimal (0..1) |
| Default | No default |

### ATTRIBUTE Rtg Dpn Mid delayMetric

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the delay metrics of up to two paths to the destination MID. The delay metric associated with a path is computed by the routing system based on the sum of the delays associated with the links (or estimated delays for links to AMs) in the path to the destination. It is computed for every possible path to the destination and is used by the *DpnAddressPlan* component for path comparison purposes. A path with a lower metric value is preferable to one with a higher value as it is associated with lower delay facilities. The metrics displayed are those of the paths being used to reach the destination.<br><br>Metric values of 2147483647 for both paths means the MID is unreachable in the delay class of service (though it might still be reachable via its substitute RID). A metric value of 2147483647 for the second path only means that there is only one viable delay path to the destination.A value of 0 indicates that no cost is associated with the path to the destination. This would be the case for the local node's MID. |
| Values | Decimal (0..2147483647) |
| Replication | Decimal (0..1) |
| Default | No default |

### ATTRIBUTE Rtg Dpn Mid tputMetric

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the throughput metrics to the destination MID. The throughput metric associated with a path is computed by the routing system based on the sum of the bandwidth associated with the links (or estimated bandwidth for links to AMs) in the path to the destination. It is computed for every possible path to the destination and is used by the *DpnAddressPlan* component for path comparison purposes. A path with a lower metric value is preferable to one with a higher value as it is associated with higher bandwidth facilities. The metrics displayed are those of the paths being used to reach the |

destination.

Metric values of 2147483647 for both paths means the MID is unreachable in the throughput class of service (though it might still be reachable via its substitute RID). A metric value of 2147483647 for the second path only means that there is only one viable throughput path to the destination. A value of 0 indicates that no cost is associated with the path to the destination. This would be the case for the local node's RID.

| | |
|---|---|
| Values | Decimal (0..2147483647) |
| Replication | Decimal (0..1) |
| Default | No default |

### ATTRIBUTE Rtg Dpn Mid delayPathTrafficProportions

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the target percentages of the total delay traffic flows to the destination which are sent over each delay path. These percentages are achieved when there is a large number of virtual circuits (VCs). |
| Values | Decimal (0..100) |
| Units | % |
| Replication | Decimal (0..1) |
| Default | No default |

### ATTRIBUTE Rtg Dpn Mid tputPathTrafficProportions

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the target percentages of the total throughput traffic flows to the destination which are sent over each throughput path. These percentages are achieved when there is a large number of virtual circuits (VCs). |
| Values | Decimal (0..100) |

| | |
|---|---|
| Units | % |
| Replication | Decimal (0..1) |
| Default | No default |

## COMPONENT Rtg Dpn ReachableCallServerInfo (Cs)

| | |
|---|---|
| Instance | dcr<br>nui<br>crd<br>lnui<br>scr<br>npm<br>grman<br>gscr<br>gdcr<br>lcr |
| Groups | "GROUP Rtg Dpn Cs Operational (Oper)" |
| Scope | Network |
| Description | *Routing Dpn ReachableCallServerInfo/<server>*<br>This component is a dynamic subcomponent of the *DpnAddressPlan*. It provides information about the Call Server functions, supported by one of the up to two Call Server Resource Modules, that are reachable.<br><br>The information is accessed by specifying one of the following abbreviated names:<br>scr - Source Call Routing Agent<br>dcr - Destination Call Routing Agent<br>gscr - Gateway Source Call Router Server<br>gdcr - Gateway Destination Call Router Server<br>grman - Gateway Call Routing Manager<br>crd - Call Redirection Remote Server Interface<br>lcr - (Limping) Call Redirection Server<br>nui - Network User Identifier Remote Server Interface |

lnui - (Limping) Network User Identifier
npm - Network Process Monitor System

Common Verbs

Help
List
Display

## GROUP Rtg Dpn Cs Operational (Oper)

Properties: Operational

Description: This group of attributes is maintained by the *DpnAddressPlan* component to provide information about the Call Server functions reachable on the Call Server Resource Modules.

## ATTRIBUTE Rtg Dpn Cs routeType

Access: Read only

Description: This attribute indicates whether the paths in use to reach the destination call server is learned or default routes. When the paths in use are learned paths, the attribute value is ***learned***. When the paths are default routes, the attribute value is ***default***.

The paths in use are always learned when this node is not a Passport cluster node. There are up to two paths to reach a destination call server for each delay and throughput class of service. The paths displayed are the best and next best paths among all available paths to the destination.

The paths in use can be learned or default routes when this node is a cluster node. The paths are learned when the call server in use is in the same cluster where this node is located. When the call server in use is located outside of the cluster, all packets destined to that call server will first be sent out of the cluster, and further forwarded by the nodes outside of the cluster to reach the module supporting the call server. Therefore, the delay and throughput paths in use to send packets to all call servers located outside of the cluster are the two best and next best delay or throughput paths to get out of the cluster, and are called the default routes.

| | |
|---|---|
| Values | learned<br>default |
| Default | learned |

### ATTRIBUTE Rtg Dpn Cs delayNextHopLinkGroups

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the delay link group, or groups, that are being used to reach a neighbor which is the next hop in the path to the Call Server Resource Module (CSRM) supporting the server. DPN server traffic will be load shared across the links, in up to two link groups, when available. The link groups selected are those associated with the two loop-free paths with the lowest delay metrics to the destination.<br><br>The link group can be that of either a Passport node interconnection or a gateway to a CSRM.<br><br>If no link groups are listed then the server is not reachable in the delay class of service.<br><br>Link group instances are managed by the *TransportResource* component. Further information about the links in the group can be obtained from it. |
| Values | The name of the component |
| Replication | Decimal (0..1) |
| Default | No default |

### ATTRIBUTE Rtg Dpn Cs tputNextHopLinkGroups

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the throughput link group, or groups, that are being used to reach a neighbor which is either the next hop in the path to the Call Server Resource Module (CSRM) supporting the server. DPN server traffic will be load shared across the links, in up to two link groups, when available. The link groups selected are those associated with the two loop-free paths with the lowest throughput metrics to the destination. |

The link group can be that of either a Passport node interconnection or a gateway to the CSRM.

If no link groups are listed then the server is not reachable in the throughput class of service.

Link group instances are managed by the *TransportResource* component. Further information about the links in the group can be obtained from it.

Values: The name of the component

Replication: Decimal (0..1)

Default: No default

### ATTRIBUTE Rtg Dpn Cs delayMetric

Access: Read only

Description: This attribute indicates the delay metrics of up to two paths to the server supported on a Call Server Resource Module (CSRM). The delay metric associated with a path is computed by the routing system based on the sum of the delays associated with the links in the path to the CSRM supporting the server. It is computed for every possible path to the server and is used by the *DpnAddressPlan* component for path comparison purposes. A path with a lower metric value is preferable to one with a higher value as it is associated with lower delay facilities. The metrics displayed are those of the paths being used to reach the destination.

Metric values of 2147483647 for both paths means the server is unreachable in the delay class of service. A metric value of 2147483647 for the second path only means that there is only one viable delay path to the destination. A value of 0 indicates that no cost is associated with the path to the destination.

Values: Decimal (0..2147483647)

Replication: Decimal (0..1)

Default: No default

### ATTRIBUTE Rtg Dpn Cs tputMetric

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the throughput metrics of up to two paths to reach the server supported on a Call Server Resource Module (CSRM). The throughput metric associated with a path is computed by the routing system based on the sum of the bandwidth associated with the links in the path to the CSRM supporting the server. It is computed for every possible path to the server and is used by the *DpnAddressPlan* component for path comparison purposes. A path with a lower metric value is preferable to one with a higher value as it is associated with higher bandwidth facilities. The metrics displayed are those of the paths being used to reach the destination.<br><br>Metric values of 2147483647 for both paths means the server is unreachable in the throughput class of service. A metric value of 2147483647 for the second path only means that there is only one viable throughput path to the destination. A value of 0 indicates that no cost is associated with the path to the destination. |
| Values | Decimal (0..2147483647) |
| Replication | Decimal (0..1) |
| Default | No default |

### ATTRIBUTE Rtg Dpn Cs delayPathTrafficProportions

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the target percentages of the total delay traffic flows to the destination which are sent over each delay path. These percentages are achieved when there is a large number of virtual circuits (VCs). |
| Values | Decimal (0..100) |
| Units | % |
| Replication | Decimal (0..1) |
| Default | No default |

## ATTRIBUTE Rtg Dpn Cs tputPathTrafficProportions

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the target percentages of the total throughput traffic flows to the destination which are sent over each throughput path. These percentages are achieved when there is a large number of virtual circuits (VCs). |
| Values | Decimal (0..100) |
| Units | % |
| Replication | Decimal (0..1) |
| Default | No default |

## COMPONENT Rtg Dpn LocalLinkGroups (Lg)

| | |
|---|---|
| Instance | String (1..12, ASCII) |
| Groups | "GROUP Rtg Dpn Lg Operational (Oper)" |
| Scope | Network |
| Description | *Routing Dpn LocalLinkGroups/<neighborNodeName>*<br>This component is a dynamic subcomponent of the *DpnAddressPlan*. It provides information about the support of external gateways to RMs and AMs connected to this Passport node. |
| Common Verbs | Help<br>List<br>Display |

## GROUP Rtg Dpn Lg Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group of attributes provides information about the gateways in use to reach Passports, RMs and AMs connected to this Passport node. |

### ATTRIBUTE Rtg Dpn Lg farEndType

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the type of the far end module (EM, AM or RM). |
| Values | em<br>rm<br>am |
| Default | No default |

### ATTRIBUTE Rtg Dpn Lg farEndRid

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the far end neighbor RID. If the neighbor is an AM then the RID is that of the Passport node. |
| Values | Decimal (1..126) |
| Default | No default |

### ATTRIBUTE Rtg Dpn Lg farEndMid

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the far end neighbor MID. |
| Values | Decimal (1..1910) |
| Default | No default |

### ATTRIBUTE Rtg Dpn Lg delayMetric

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the delay metric calculated for the link group.<br><br>If the type of the far end switch is AM, the delay metric is calculated for MID routing, ranging from 1 to 2147483647.<br><br>If the type of the far end switch is EM or RM, the delay metric, ranging from 1 to 255, is based on the measured round trip delay |

of the delay preferred links in the group. A link group with a low metric value is preferable to one with a higher value as it is associated with lower delay facilities.

Values: Decimal (1..2147483647)

Default: No default

### ATTRIBUTE Rtg Dpn Lg tputMetric

Access: Read only

Description: This attribute indicates the throughput metric calculated for the link group.

If the type of the far end switch is AM, the throughput metric is calculated for MID routing, ranging from 1 to 2147483647.

If the type of the far end switch is EM or RM, the throughput metric, ranging from 1 to 255, is based on the sum of the bandwidth available for all links in the group. A link group with a low metric value is preferable to one with a higher value as it is associated with higher bandwidth facilities.

Values: Decimal (1..2147483647)

Default: No default

### COMPONENT Rtg Dpn LpStatistics (LpStats)

Instance: Decimal (0..15)

Groups: "GROUP Rtg Dpn LpStats ForwardingStatistics (FwdStats)"

Scope: Network

Description: *Routing Dpn LpStatistics/n*
This component provides DPN packet forwarding statistics for the
LP identified by this component instance.

Common Verbs:
Help
List
Display

## GROUP Rtg Dpn LpStats ForwardingStatistics (FwdStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group of attributes provides DPN packet forwarding statistics<br>for this LP. The statistics can be used to monitor the connectionless<br>traffic profile on this LP. |

## ATTRIBUTE Rtg Dpn LpStats totalPackets

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the delay and throughput packets handled by DPN packet forwarding on this LP when the *forwardingPolicy* attribute of the *Routing DpnAddressPlan* component is set to a value of ***loadshare***, ***loadspread*** or ***loadspreadFast***. Note that DPRS packets leaving the network at this LP are not counted. Also, if the card type of this LP is PQC, and the *forwardingPolicy* attribute of the *Routing DpnAddressPlan* component is set to the value of ***loadspreadFast***, DPRS packets that are tandem through the module at this LP are not counted. The counter wraps to zero when the maximum value is exceeded. |
| Values | Long Integer |
| Default | No default |

## ATTRIBUTE Rtg Dpn LpStats throughputPackets

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the throughput packets handled by DPN packet forwarding on this LP when the *forwardingPolicy* attribute of the *Routing DpnAddressPlan* component is set to a value of ***loadshare***, ***loadspread*** or ***loadspreadFast***. Note that DPRS packets leaving the network at this LP are not counted. Also, if the card type of this LP is PQC, and the *forwardingPolicy* attribute of the *Routing DpnAddressPlan* component is set to the value of ***loadspreadFast,*** DPRS packets that are tandem through the module at this LP are not counted. The counter wraps to zero when the maximum value is exceeded. |

| | |
|---|---|
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Rtg Dpn LpStats delayPackets

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the delay packets handled by DPN packet forwarding on this LP when the *forwardingPolicy* attribute of the *Routing DpnAddressPlan* component is set to a value of ***loadshare***, ***loadspread*** or ***loadspreadFast***. Note that DPRS packets leaving the network at this LP are not counted. Also, if the card type of this LP is PQC, and the *forwardingPolicy* attribute of the *Routing DpnAddressPlan* component is set to the value of ***loadspreadFast,*** DPRS packets that are tandem through the module at this LP are not counted. The counter wraps to zero when the maximum value is exceeded. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Rtg Dpn LpStats normalReliabilityPackets

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the normal reliability packets handled by DPN packet forwarding on this LP when the *forwardingPolicy* attribute of the *Routing DpnAddressPlan* component is set to a value of ***loadshare***, ***loadspread*** or ***loadspreadFast***. Note that DPRS packets leaving the network at this LP are not counted. Also, if the card type of this LP is PQC, and the *forwardingPolicy* attribute of the *Routing DpnAddressPlan* component is set to the value of ***loadspreadFast,*** DPRS packets that are tandem through the module at this LP are not counted. The counter wraps to zero when the maximum value is exceeded. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Rtg Dpn LpStats highReliabilityPackets

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the high reliability packets handled by DPN packet forwarding on this LP when the *forwardingPolicy* attribute of the *Routing DpnAddressPlan* component is set to a value of ***loadshare***, ***loadspread*** or ***loadspreadFast***. Note that DPRS packets leaving the network at this LP are not counted. Also, if the card type of this LP is PQC, and the *forwardingPolicy* attribute of the *Routing DpnAddressPlan* component is set to the value of ***loadspreadFast,*** DPRS packets that are tandem through the module at this LP are not counted. The counter wraps to zero when the maximum value is exceeded. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Rtg Dpn LpStats discardNoRoute

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the packets that have been discarded by packet forwarding due to failure to find a route to forward the packets on this LP when the *forwardingPolicy* attribute of the *Routing DpnAddressPlan* component is set to a value of ***loadshare***, ***loadspread*** or ***loadspreadFast***. Note that DPRS packets leaving the network at this LP are not counted. The counter wraps to zero when the maximum value is exceeded. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Rtg Dpn LpStats interruptingPackets

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the multimedia packets handled by DPN packet forwarding on this LP when the *forwardingPolicy* attribute of the *Routing DpnAddressPlan* component is set to a value of ***loadshare***, ***loadspread*** or ***loadspreadFast***. Note that DPRS packets leaving the network at this LP are not counted. Also, if the card type of this LP is PQC, and the *forwardingPolicy* attribute of the *Routing DpnAddressPlan* component is set to the value of ***loadspreadFast***, DPRS packets |

| | |
|---|---|
| | that are tandem through the module at this LP are not counted. The counter wraps to zero when the maximum value is exceeded. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Rtg Dpn LpStats discardLpCongested

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the packets that have been discarded by DPN packet forwarding, on the entire module, due to congestion on this LP when the *forwardingPolicy* attribute of the *Routing DpnAddressPlan* component is set to a value of ***loadshare***, ***loadspread*** or ***loadspreadFast***. This value is the sum of the packets discarded by all LPs due to insufficient shared memory on this one. Note that DPRS packets leaving the network at this LP are not counted. Also, if the card type of this LP is PQC, and the *forwardingPolicy* attribute of the *Routing DpnAddressPlan* component is set to the value of ***loadspreadFast***, DPRS packets that are tandem through the module at this LP are not counted. The counter wraps to zero when the maximum value is exceeded. |
| Values | Long Integer |
| Default | No default |

### COMPONENT Rtg Dpn RidFilterInfo (RidFilter)

| | |
|---|---|
| Instance | Decimal (1..126) |
| Groups | "GROUP Rtg Dpn RidFilter Provisioned (Prov)" |
| Scope | Network |
| Description | *Routing Dpn RidFilterInfo/<rid>*<br>This component maintains information related to the filtering of |

RID reachability information in Routing Table Updates (RTUs) sent to and received from the instance RID.

Common Verbs

Help
List
Display
Add
DELete

## GROUP Rtg Dpn RidFilter Provisioned (Prov)

Properties: Provisioned

Description: This group of attributes specifies the criteria for filtering Routing Table Updates (RTUs) sent to and received from a neighboring RID.

## ATTRIBUTE Rtg Dpn RidFilter importRidList

Access: Read and write

Description: This attribute specifies the list of RIDs whose reachability information will be accepted from the instance RID. Information about RIDs which do not appear in this list will be ignored and this node considers those RIDs to be unreachable from the instance RID. Note that this also applies to the instance RID itself, that is, if the instance RID does not appear in the import list, this node considers the instance RID to be unreachable from the instance RID.

By default this list contains all valid RIDs, meaning that information about all RIDs will be accepted from the instance RID.

When this list is empty, no RID information is accepted from the instance RID, therefore, no RID traffic will be routed to it. A warning is generated when an empty import list is detected.

RID 127 is the Network Services Sharing (NSS) RID, used to identify DPN-100 nodes running call servers which can be used

for remote call processing. This RID can be filtered like any other using the import RID list.

List of Decimal (1..127)

Default (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127)

### ATTRIBUTE Rtg Dpn RidFilter exportRidList

Access Read and write

Description This attribute specifies the list of RIDs whose true reachability is advertised to the instance RID. RIDs which do not appear in this list are advertised to the instance RID as being unreachable from this node.

By default, this list contains all valid RIDs, meaning that true reachability information for all RIDs is advertised to the instance RID.

When this list is empty, all RIDs will be advertised to the instance RID as unreachable, including this node's own RID, therefore the instance RID will not route any RID traffic to this RID. A warning is generated when an empty export list is detected.

RID 127 is the Network Services Sharing (NSS) RID, used to identify DPN-100 nodes running call servers which can be used for remote call processing. This RID can be filtered like any other using the import RID list.

List of Decimal (1..127)

Default (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74,

75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127)

## COMPONENT Rtg Dpn DefaultRoute (DefRoute)

| | |
|---|---|
| Groups | "GROUP Rtg Dpn DefRoute Operational (Oper)" |
| Scope | Network |
| Description | *Routing Dpn defaultRoute*<br>This is a dynamic subcomponent of *DpnAddressPlan*. It has only one instance and only resides on a Passport node when the *clusterNode* under the *Routing* component is provisioned as ***yes*** meaning the node is a Passport cluster node. It provides information about the default paths in use to any RID, MID or Call Server unknown to the Passport cluster node. |
| Common Verbs | Help<br>List<br>Display |

## GROUP Rtg Dpn DefRoute Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group of attributes is maintained by the *DpnAddressPlan* component to provide information about the default routes to any unknown RID, MID or Call Server from a Passport cluster node. |

## ATTRIBUTE Rtg Dpn DefRoute delayNextHopLinkGroups

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the delay link group, or groups, that are being used at a cluster node to reach a neighbor which is the next hop in the default path to an unknown RID, MID, or Call Server. DPN traffic will be spread across the links, in up to two link groups, when available. The link groups selected are those associated with the two loop-free paths with the lowest delay metrics to the backbone. |

If no link groups are listed then the backbone and thus all RIDs, MIDs, and Call Servers outside of the local cluster are not reachable in the delay class of service.

Link group instances are managed by the *TransportResource* component. Further information about the links in the group can be obtained from it.

Values: The name of the component

Replication: Decimal (0..1)

Default: No default

### ATTRIBUTE Rtg Dpn DefRoute tputNextHopLinkGroups

Access: Read only

Description: This attribute indicates the throughput link group, or groups, that are being used at a cluster node to reach a neighbor which is the next hop in the default route to an unknown RID, MID, or Call Server. DPN traffic will be spread across the links, in up to two link groups, when available. The link groups selected are those associated with the two loop-free paths with the lowest throughput metrics to the backbone.

If no link group is listed then the backbone and thus all RIDs, MIDs and Call Servers outside of the local cluster are not reachable in the throughput class of service.

Link group instances are managed by the *TransportResource* component. Further information about the links in the group can be obtained from it.

Values: The name of the component

Replication: Decimal (0..1)

Default: No default

### ATTRIBUTE Rtg Dpn DefRoute delayPathTrafficProportions

Access: Read only

| | |
|---|---|
| Description | This attribute indicates the target percentages of the total delay traffic flows over each delay default path from the cluster node to reach a RID, MID, or Call Server outside of the cluster. These percentages are achieved when there is a large number of virtual circuits (VCs). |
| Values | Decimal (0..100) |
| Units | % |
| Replication | Decimal (0..1) |
| Default | No default |

### ATTRIBUTE Rtg Dpn DefRoute tputPathTrafficProportions

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the target percentages of the total throughput traffic flows over each throughput default path from the cluster node to reach a RID, MID or Call Server outside of the cluster. These percentages are achieved when there is a large number of virtual circuits (VCs). |
| Values | Decimal (0..100) |
| Units | % |
| Replication | Decimal (0..1) |
| Default | No default |

### ATTRIBUTE Rtg Dpn DefRoute delayMetric

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the delay metrics of up to two paths in use at a cluster node for forwarding packets to any unknown RID, MID, or Call server. The paths in use are the paths towards the backbone of the Passport network. Packets destined to any unknown RID, MID, or Call Server are forwarded to a non-cluster node outside of the cluster and further handled by the node outside of the cluster to reach their destinations.<br><br>Paths from the local cluster node to all connected non-cluster |

Passport nodes in the RID subnet are found by the Routing System. The delay metric displayed is computed based on the sum of the delays associated with the links in a path from the local node to one of those non-cluster nodes. A path with a lower metric value is preferable to one with a higher value as it is associated with lower delay facilities.

Metric values of 2147483647 for both paths means no default paths are in use and thus all unknown RIDs, MIDs, and Call Servers are unreachable in the delay class of service. A metric value of 2147483647 for the second path only means that there is only one viable delay path to get off the cluster.

| | |
|---|---|
| Values | Decimal (0..2147483647) |
| Replication | Decimal (0..1) |
| Default | No default |

### ATTRIBUTE Rtg Dpn DefRoute tputMetric

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the throughput metrics of up to two paths in use at a cluster node for forwarding packets to any unknown RID, MID, or Call server. The paths in use are the paths towards the backbone of the Passport network.. Packets destined to any unknown RID, MID, or Call Server are forwarded to a non-cluster node outside of the cluster and further handled by the node outside of the cluster to reach their destinations.<br><br>Paths from the local cluster node to all connected non-cluster Passport nodes in the RID subnet are found by the Routing System. The throughput metric displayed is computed based on the sum of the throughputs associated with the links in a path from the local node to one of those non-cluster nodes. A path with a lower metric value is preferable to one with a higher value as it is associated with lower throughput facilities.<br><br>Metric values of 2147483647 for both paths means no default paths are in use and thus all unknown RIDs, MIDs, and Call Servers are unreachable in the throughput class of service. A |

metric value of 2147483647 for the second path only means that there is only one viable throughput path to get off the cluster.

| | |
|---|---|
| Values | Decimal (0..2147483647) |
| Replication | Decimal (0..1) |
| Default | No default |

## COMPONENT Rtg Dpn AutomaticRouteTester (Art)

| | |
|---|---|
| Groups | "GROUP Rtg Dpn Art Provisioned (Prov)"<br>"GROUP Rtg Dpn Art Operational (Oper)" |
| Scope | Network |
| Description | *Rtg Dpn AutomaticRouteTester*<br>This component is a subcomponent of *DpnAddressPlan*. It provides the DPN automatic route testing capability by periodically sending DPN Ping packets to each reachable RID and MID destination in the DPN routing table. It monitors if these Ping packets are returned in a reasonable period of time (about 15 seconds), and analyzes the route information collected in these packets.<br><br>An alarm will be raised if one or more of the following problems are detected to at least one of the destinations in the DPN routing table:<br>(1) “Timeout”<br>After sending three Ping packets (one round-trip-delay Ping packet and two path Ping packets) to a destination, none of them return back in a reasonable period of time. This is referred to as a “timeout” problem to this destination.<br>(2) “Routing Loop”<br>After analyzing the route information collected in the path Ping packet(s) that have returned in time ( a path Ping packet logs the route information (forward direction only) of all the tandem node(s) this Ping packet has traversed before it reached the destination), a routing loop is detected if a specific node appears more than once on the route. This is referred to as a "routing loop" (sometimes simply “loop”) problem to this destination.<br><br>Information about each error destination is accessible via a |

dynamic sub-component under this component. If the destination is a RID destination, it will be *ErrorRid/x* (where x is the RID value of the RID destination). For MID destination, it will be *ErrorMid/y* (where y is the MID value of the MID destination). The maximum number of error destinations (counting both the RID and the MID destinations) that can be simultaneously tracked (and thus appear here) is 10.

Please note that *ErrorRid/x* or *ErrorMid/y only* exist as long as there is a problem to this destination. If the problem no longer exist or this error destination becomes unreachable, the component (*ErrorRid/x* or *ErrorMid/y)* that keeps track of this error destination will be automatically removed.

Dyn. Subcomp. "COMPONENT Rtg Dpn Art ErrorRid (ErrRid)"
"COMPONENT Rtg Dpn Art ErrorMid (ErrMid)"

Common Verbs
Help
List
Display

## GROUP Rtg Dpn Art Provisioned (Prov)

Properties Provisioned

Description This group of attributes provides information about the option(s) and parameter(s) that the operator can set to control the behavior of automatic route tester.

## ATTRIBUTE Rtg Dpn Art cosUnderTest

Access Read and write

Description This attribute specifies the COS type(s) (delay, throughput, delay and throughput) for which the automatic route testing is conducted.

A description of possible values for this attribute follows:
***none***: Do not conduct route testing for any COS type (essentially the automatic route tester is turned off).
***delayCosOnly***: Conduct route testing to each reachable RID and MID destination for delay COS only.

***tputCosOnly***: Conduct route testing to each reachable RID and MID destination for throughput COS only.
***delayAndTputCos***: Conduct route testing to each reachable RID and MID destination for delay and throughput COSs.

Setting this attribute to "***none***" allows the operator to turn off the automatic route tester. Using value "***delayCosOnly***" or "***tputCosOnly***" tells the automated route tester to only work on one COS of the operator's choice. Choosing value "***delayAndTputCos***" when both the delay and throughput COSs are to be tested.

The network resources consumption (such as CPU, memory, link bandwidth) of the automatic route tester working on two COSs will roughly be two times as much as working on only one COS. The time to complete a full cycle of route testing to every reachable destination is also expected to be twice as long when working on two COSs.

Values
none
delayCosOnly
tputCosOnly
delayAndTputCos

Default
none

## ATTRIBUTE Rtg Dpn Art testInterval (interval)

Access
Read and write

Description
This attribute specifies the time interval between the successive tests on different destinations. The automatic route tester periodically tries to test the route to a different reachable destination (RID or MID). In order not to put too heavy a load on the network, it will wait for a period of time equal to this interval before it will start working on another destination.

The smaller the value of this attribute, the more frequently the automatic route tester gets invoked to work on route testing. On one hand, doing so will reduce the amount of time needed to complete a fully cycle of route testing to every reachable destination. One the other hand, this will increase the resource

consumption of the automatic route tester accordingly.

During each testInterval, the automatic route tester will first retry the routes to each error destination, if any, to see if they have recovered. After the retries of all these error destinations, another RID/MID destination from the DPN routing table (not in the error destination list) will be chosen to conduct route testing only if the current number of error destinations is less than 10. If the number of error destinations has reached 10, no other destinations will be chosen and the automatic route tester will focus on retrying only these error destinations at each testInterval. However, if the routes to at least one error destination has recovered or has become unreachable, the number of error destinations will fall below 10, and the selection and conducting of route testing on another destination from the DPN routing table will resume.

| | |
|---|---|
| Values | Decimal (5..900) |
| Units | seconds |
| Default | 60 |

### GROUP Rtg Dpn Art Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group of attributes provides information about the outstanding error destinations discovered by the automatic route tester. |

### ATTRIBUTE Rtg Dpn Art numOfLoopDests (numOfLoop)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of RID and MID destinations to which a routing loop problem has been detected.<br><br>Whenever a new error destination of routing loop type is found, this value is increased by one, and whenever the loop problem to one destination goes away or this destination has become unreachable, this value is decreased by one. |
| Values | Decimal (0..10) |

Default 0

### ATTRIBUTE Rtg Dpn Art numOfTimeoutDests (numOfTimeout)

Access Read only

Description

This attribute indicates the total number of RID and MID destinations to which a timeout problem has been detected.

Whenever a new error destination of timeout type is found, this value is increased by one, and whenever the timeout problem to one destination goes away or this destination has become unreachable, this value is decreased by one.

Values Decimal (0..10)

Default 0

### COMPONENT Rtg Dpn Art ErrorRid (ErrRid)

Instance Decimal (1..127)

Groups "GROUP Rtg Dpn Art ErrRid Operational (Oper)"

Scope Network

Description *Rtg Dpn Art ErrorRid/**
This component provides information about one outstanding problematic RID destination that has a timeout problem, loop problem, or both.

There is one instance of this component per error RID destination.

Common Verbs
Help
List
Display

### GROUP Rtg Dpn Art ErrRid Operational (Oper)

Properties Operational

| | |
|---|---|
| Description | This group of attributes provides information about a single error destination (RID or MID) discovered by the automatic route tester. |

### ATTRIBUTE Rtg Dpn Art ErrRid delayCosErrType (delayErrType)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the type of error that was found with the route to this destination (on delay COS) by the automatic route tester. |
| Values | noError<br>timeout<br>loop |
| Default | noError |

### ATTRIBUTE Rtg Dpn Art ErrRid throughputCosErrType (tputErrType)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the type of error that was found with this destination (on throughput COS) by the automatic route tester. |
| Values | noError<br>timeout<br>loop |
| Default | noError |

### ATTRIBUTE Rtg Dpn Art ErrRid delayCosErrPathInfo (delayErrPath)

| | |
|---|---|
| Access | Read only |
| Description | This attribute provides hop-by-hop route information for a destination to which a routing loop problem (on delay COS) was found. For a timeout problem, this information is not provided. |
| List of | String (0..32, ASCII) |
| Default | No default |

### ATTRIBUTE Rtg Dpn Art ErrRid throughputCosPathInfo (tputErrPath)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute provides hop-by-hop route information for a destination to which a routing loop problem (on throughput COS) was found. For a timeout problem, this information is not provided. |
| List of | String (0..32, ASCII) |
| Default | No default |

### COMPONENT Rtg Dpn Art ErrorMid (ErrMid)

| | |
|---|---|
| Instance | Decimal (1..2046) |
| Groups | "GROUP Rtg Dpn Art ErrMid Operational (Oper)" |
| Scope | Network |
| Description | *Rtg Dpn Art ErrorMid/**<br>This component provides information about one outstanding problematic MID destination that has a timeout problem, loop problem, or both.<br><br>There is one instance of this component per error MID destination. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Rtg Dpn Art ErrMid Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group of attributes provides information about a single error destination (RID or MID) discovered by the automatic route tester. |

### ATTRIBUTE Rtg Dpn Art ErrMid delayCosErrType (delayErrType)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the type of error that was found with the route to this destination (on delay COS) by the automatic route tester. |

| | |
|---|---|
| Values | noError<br>timeout<br>loop |
| Default | noError |

### ATTRIBUTE Rtg Dpn Art ErrMid throughputCosErrType (tputErrType)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the type of error that was found with this destination (on throughput COS) by the automatic route tester. |
| Values | noError<br>timeout<br>loop |
| Default | noError |

### ATTRIBUTE Rtg Dpn Art ErrMid delayCosErrPathInfo (delayErrPath)

| | |
|---|---|
| Access | Read only |
| Description | This attribute provides hop-by-hop route information for a destination to which a routing loop problem (on delay COS) was found. For a timeout problem, this information is not provided. |
| List of | String (0..32, ASCII) |
| Default | No default |

### ATTRIBUTE Rtg Dpn Art ErrMid throughputCosPathInfo (tputErrPath)

| | |
|---|---|
| Access | Read only |
| Description | This attribute provides hop-by-hop route information for a destination to which a routing loop problem (on throughput COS) was found. For a timeout problem, this information is not provided. |
| List of | String (0..32, ASCII) |
| Default | No default |

### COMPONENT Rtg Dpn PerformanceStatistics (PerfStats)

| | |
|---|---|
| Scope | Network |

Description

*Rtg Dpn PerfStats*
This component is a subcomponent of *Rtg Dpn* component. It is responsible for monitoring the performance of *Dpn* component by recording statistics. Statistics maintained by this component include (1) number of routing control packets and bytes that are transmitted and received by the *Dpn* component, and (2) RID subnet statistics (such as number of MIDs, number of gateway nodes etc.) that are stored in the database and maintained by the *Dpn* component.

Routing control packets (also known as routing protocol packets), which are sent and received by the *Dpn* component, can be categorized into two types: intra subnet protocol packets and inter subnet protocol packets. Intra subnet protocol packets are also called broadcast packets, and are used to advertise reachable RID, MID, Call Server functions, Call Server Resource Module (CSRM) RID, and substitute RID information in a subnet. Inter subnet protocol packets are used to convey routing information between RID subnets and to inter-network with DPN-100 networks. The packet statistics provided by this component include only broadcast packets that are transmitted to and received from other Passport nodes in the subnet in which this node resides.

The subnet statistics (*DpnRidSubnetStatistics*), maintained by this component, provide subnet characteristics from this node's view. When there are no Passport clusters being deployed in a RID subnet, the *PerfStats DpnRidSubnetStatistics* provided by each node in the subnet should be identical. If there exist Passport clusters in a RID subnet, the subnet statistics provided by subnet backbone nodes and cluster nodes would be different. However, the *PerfStats DpnRidSubnetStatistics* provided by each subnet backbone node should be identical; the *PerfStats*

*DpnRidSubnetStatistics* provided by each cluster node in the same cluster should be identical.

Dyn. Subcomp. "COMPONENT Rtg Dpn PerfStats LinkGroupStatistics (LgStats)"

Common Verbs
Help
List
Display

## COMPONENT Rtg Dpn PerfStats LinkGroupStatistics (LgStats)

Instance String (1..12, ASCII)

Scope Network

Description *Rtg Dpn PerfStats LgStats/<aNeighborNodeName>*
This component is a dynamic subcomponent of *Rtg Dpn PerfStats* component. It provides statistics of broadcast packets that are transmitted to and received from the neighbor Passport node identified by the *LgStats* component.

Note that there is one *LgStats* instance per spanning tree link group (also known as spanning tree neighbor), and that not all physical link groups staged on this node are present as *LgStats* instances. This is because a spanning tree forwarding algorithm is used by the *Dpn* component to perform broadcasting (that is, broadcast packets are forwarded only along the spanning tree branches, not forwarded on every physical link groups staged on a Passport node) in order to achieve broadcast efficiency and lower broadcast traffic. The spanning tree is computed by the *Rtg Top* component, and is computed on a per RID subnet basis upon topology change. Even though the spanning tree spans and covers every node, including cluster nodes, in the subnet, the *Dpn* component is informed only the local link groups that are on the spanning tree, as only these spanning tree link groups are needed to perform the broadcasting. Therefore, for each local spanning tree link group inside the subnet in which this node locates, there is an *LgStats* instance added to record the statistics of broadcast packet that are transmitted to and received from the spanning tree neighbor.

Note also that some *Dpn* broadcasts in a subnet do go across backbone and cluster border. Therefore, on a backbone or cluster border node, a spanning tree link group, identified by an *LgStats* instance, may be a backbone cluster border link group.

An *LgStats* instance also represents a broadcast neighbor. When the link group to a broadcast neighbor goes down and then comes back, statistics maintained by the *LgStats* instance will be reset and restart from zero.

Common Verbs

Help
List
Display

## COMPONENT Rtg Topology (Top)

Groups "GROUP Rtg Top Statistics (Stats)"

Scope Network

Description

*Rtg Topology*
This component is a subcomponent of *Routing*. It resides on all Passport modules and is responsible for maintaining a topological database describing the Passport network topology in terms of nodes and connectivity between them in a topology region. Note that a topology region is an autonomous groups of Passport modules, in which each of the Passport nodes has its *regionId* (attribute of *ModuleData* component) set to the same value. A Passport module only exchanges topology information with connected nodes in the same region.

This component also computes the reachability costs to each Passport node within the topology region for multiple address plans taking into account the underlying transport attributes of interest to them.

| | |
|---|---|
| Subcomponents | "COMPONENT Rtg Top PerformanceStatistics (PerfStats)" |
| Dyn. Subcomp. | "COMPONENT Rtg Top Node"<br>"COMPONENT Rtg Top BorderLinkGroup (BLg)" |
| Common Verbs | Help<br>List<br>Display |

### GROUP Rtg Top Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | *Rtg Top Statistics*<br>This group contains operational data stored and maintained by this component for recording statistics of Passport routing control packets which have been sent or received by *Topology.* |

### ATTRIBUTE Rtg Top controlPktRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute shows the total number of topology routing control packets which have been received by this node from other Passport nodes in the network. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Rtg Top controlBytesRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute shows the total number of topology routing control packet bytes received by this node from other Passport nodes in the network. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Rtg Top controlPktTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute shows the total number of topology routing control packets which have been sent by this node to other Passport nodes in the network. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Rtg Top controlBytesTx

| | |
|---|---|
| Access | Read only |
| Description | This attribute shows the total number of topology routing control packet bytes sent by this node to other Passport nodes in the network. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT Rtg Top Node

| | |
|---|---|
| Instance | String (1..12, ASCII) |
| Groups | "GROUP Rtg Top Node Operational (Oper)" |
| Scope | Network |
| Description | *Rtg Top Node/<neighborNodeName>*<br>This component is a dynamic subcomponent of *Topology*. It describes the existence of a Passport module whose *clusterNode* (attribute under the *Routing* component) is provisioned the same value as that of this node, and indicates this node's view of interconnections to the Passport module.<br><br>If this node is a cluster node, that is the attribute *clusterNode* for this node is provisioned with the value ***yes***, then this component provides reachability information for each Passport module supported in the cluster in which this node is located. Note that a Passport cluster, consisting of one or more interconnected cluster nodes, is typically deployed at the edge of a topology region to |

provide access services. Therefore, in other words, if this node is in a cluster of a topology region, there is one instance of this component for each Passport module in the cluster topology.

Similarly, if this node is a non-cluster node, that is the attribute *clusterNode* for this node is provisioned with the value ***no***, then this component provides reachability information for each Passport module supported in the topology region but excluding all cluster nodes. Note that, in contrast, a non-cluster node typically provides transportation for traffic flows originating or terminating on cluster nodes. A group of interconnected non-cluster nodes is typically located in the center of a topology region to connect clusters. To simplify the description of all subcomponents of *Node* component as well as their attributes in the following text, this group of interconnected non-cluster nodes in a topology region is referred as the backbone or a topology region's backbone, and a non-cluster node in the backbone is referred as a backbone node. Therefore, if this node is in the backbone of a topology region, there is one instance of this component for each Passport module located in the backbone.

Dyn. Subcomp.

"COMPONENT Rtg Top Node LinkGroup (Lg)"
"COMPONENT Rtg Top Node ClusterNode"
"COMPONENT Rtg Top Node PeerBorderNode"
"COMPONENT Rtg Top Node NodeAddress (Addr)"
"COMPONENT Rtg Top Node ReachableAddr (RAddr)"

Common Verbs

Help
List
Display

## GROUP Rtg Top Node Operational (Oper)

Properties

Operational

Description

*Rtg Top Node/<neighborNodeName> Operational*
This group contains operational data stored and maintained by the *Node* component for recognizing interconnections to Passport modules existing in either the backbone or a cluster where this node locates.

## ATTRIBUTE Rtg Top Node nodeId

| | |
|---|---|
| Access | Read only |
| Description | This attribute is a number that uniquely identifies the *Node* component instance in a Passport topology region. It is the identifier used in the routing control packets sent by this node to other Passport nodes in the same topology region.<br><br>The *nodeId* for each node in a topology region is learned from the Passport routing protocol packets. |
| Values | Decimal (1..4095) |
| Default | No default |

## COMPONENT Rtg Top Node LinkGroup (Lg)

| | |
|---|---|
| Instance | String (1..12, ASCII) |
| Groups | "GROUP Rtg Top Node Lg Operational (Oper)" |
| Scope | Network |
| Description | *Rtg Top Node/<neighborNodeName> LinkGroup/ <neighborNodeName>*<br>This component is a dynamic subcomponent of the *Node* component. It describes the Passport link group that connects two Passport modules with the same *clusterNode* value, more precisely, from a cluster node to a cluster node or from a non cluster node to a non cluster node (referred to as backbone node). This type of link group is also known as the normal link group.<br><br>This component provides information, in this node's view, about normal link groups supported on each Passport module in either the backbone or a cluster depending on the location of this node.<br><br>If this Passport module is in a cluster, there is one instance of this component for each link group (excluding cluster border link group) supported by each node in the cluster.<br><br>Similarly, if this node is a non-cluster node, i.e. it is located in the backbone of a topology region, there is one instance of this |

component for each link group (excluding cluster border link groups) supported by each node in the backbone.

Dyn. Subcomp. "COMPONENT Rtg Top Node Lg PorTrunkObject (TrkObj)"

Common Verbs
Help
List
Display

## GROUP Rtg Top Node Lg Operational (Oper)

Properties Operational

Description *Rtg Top Node/<neighborNodeName> LinkGroup/ <neighborNodeName> Operational*

*Rtg Top BorderLinkGroup/<neighborNodeName> Operational*

This group contains the operational data stored and maintained by the *LinkGroup* and *BorderLinkGroup* components to recognize characteristics of link groups staged on a Passport module.

## ATTRIBUTE Rtg Top Node Lg delayMetric

Access Read only

Description This attribute indicates the outbound cost to forward packets across the link group for the delay class of service. It is calculated using the average delay of delay preferred links in the link group. A low outbound cost is preferable to a higher value as it is associated with higher speed facilities.

A metric value of 2147483647 means that the link group is unusable for the delay class of service.

Values Decimal (1..2147483647)

Default No default

## ATTRIBUTE Rtg Top Node Lg tputMetric

Access Read only

| | |
|---|---|
| Description | This attribute indicates the outbound cost to forward packets across the link group for a throughput class of service. It is computed from the combined speed of each link in the link group. A low outbound cost is preferable to a higher value as it is associated with higher speed facilities.<br><br>A metric value of 2147483647 means that the trunk group is unusable for the throughput class of service. |
| Values | Decimal (1..2147483647) |
| Default | No default |

### ATTRIBUTE Rtg Top Node Lg logicalNetworkNumber (lnn)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is a list of integers which indicate the logical network numbers supported by the trunk group.<br><br>Each of these numbers corresponds with a particular instance of network protocol supported on this switch. LNN 0 is present on all link groups by default to allow Passport control traffic on the link group. |
| List of | Decimal (0..2047) |
| Default | No default |

### COMPONENT Rtg Top Node Lg PorTrunkObject (TrkObj)

| | |
|---|---|
| Instance | Decimal (1..1023) |
| Groups | "GROUP Rtg Top Node Lg TrkObj Operational (Oper)" |
| Scope | Network |
| Description | *Rtg Top Node/<neighborNodeName> LinkGroup/ <neighborNodeName> Trunk/<Trm Lk Id>*<br>This component corresponds to a trunk object stored in topological database. There is one instance of this component for each link that can carry PORS traffic in the *LinkGroup* or *BorderLinkGroup* component. The *PorTrunkObject* instance is the same as the *Link* instance allocated by *Trm* for the Passport |

trunk. Display command applied to this component shows PORS data of the trunk object in topological database.

Common Verbs

Help
List
Display

### GROUP Rtg Top Node Lg TrkObj Operational (Oper)

Properties: Operational

Description: *Rtg Top Node/<neighborNodeName> LinkGroup/ <neighborNodeName> Trunk/<Trm Lk Id> Operational*
This group contains the operational data stored and maintained by the *PorTrunkObject* component.

### ATTRIBUTE Rtg Top Node Lg TrkObj maxReservableBwOut (mrbwo)

Access: Read only

Description: This attribute displays trunk bandwidth which can be used for reservations on behalf of connections requiring path oriented routing. This bandwidth is displayed in bit/s and has been calculated by concerned trunk path administrator from the trunk bandwidth and from the percentage of trunk bandwidth provisioned for reservations by PORS.

Values: Decimal (0..4294967295)

Units: bit/s

Default: No default

### ATTRIBUTE Rtg Top Node Lg TrkObj trunkCost (cost)

Access: Read only

Description: This attribute displays trunk cost metric provisioned as *trunkCost* attribute of a concerned trunk path administrator.

Values: Decimal (1..255)

Default: No default

### ATTRIBUTE Rtg Top Node Lg TrkObj trunkDelay (delay)

Access: Read only

| | |
|---|---|
| Description | This attribute displays one-directional trunk delay measured by trunk during staging. This is half (rounded down to an integer) of the delay displayed by attribute *delay* under *Trm Link*. |
| Values | Decimal (0..65535) |
| Units | msec |
| Default | No default |

### ATTRIBUTE Rtg Top Node Lg TrkObj trunkSecurity (sec)

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays trunk security metric provisioned as *trunkSecurity* attribute under the trunk path administrator. |
| Values | Decimal (0..7) |
| Default | No default |

### ATTRIBUTE Rtg Top Node Lg TrkObj supportedTrafficTypes (sttyp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the type of traffic that can be transmitted on the trunk. There are eight possible traffic types and the trunk can transmit all of them if desired. The voice, data and video traffic types are defined, and five other traffic types can be defined in using *supportedTrafficTypes* under the trunk path administrator. This attribute is used in the route selection process to limit the route to trunks that support the traffic to be carried by the path. |
| Set of | voice<br>data<br>video<br>trafficType1 (tt1)<br>trafficType2 (tt2)<br>trafficType3 (tt3)<br>trafficType4 (tt4)<br>trafficType5 (tt5) |
| Default | No default |

### ATTRIBUTE Rtg Top Node Lg TrkObj trunkType (typ)

| | |
|---|---|
| Access | Read only |
| Description | This attribute lists the type of the trunk. There can be up to eight types of trunks. The terrestrial and satellite trunk types have been defined, leaving six remaining types that can be defined by the network administration. The set of allowed trunk types for a path is indicated in the *permittedTrunkTypes* attribute of the *PLC*. When selecting a route, PORS only chooses trunks whose *Pa trunkType* is in the *permittedTrunkTypes* set of the path. |
| Values | terrestrial<br>satellite<br>trunkType1 (tt1)<br>trunkType2 (tt2)<br>trunkType3 (tt3)<br>trunkType4 (tt4)<br>trunkType5 (tt5)<br>trunkType6 (tt6) |
| Default | No default |

### ATTRIBUTE Rtg Top Node Lg TrkObj customerParameter (cpar)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the customer defined parameter for the trunk. Its value, a number from zero to seven, is chosen by a network administration to have a meaning specific to their network, thus allowing them to customize the use of their trunks. A complementary *PLC* attribute, *requiredCustomerParam*, also has a value from zero to seven. The Route Selector does not consider trunks whose *Pa customerParameter* is greater than the *requiredCustomerParam* of the path. |
| Values | Decimal (0..7) |
| Default | No default |

### ATTRIBUTE Rtg Top Node Lg TrkObj farEndTrmLkInstance (far)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates identification of the corresponding trunk providing the reverse direction of transmission. |

| | |
|---|---|
| Values | Decimal (1..1023) |
| Default | No default |

### ATTRIBUTE Rtg Top Node Lg TrkObj mapMode

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates if the trunk is in Map Mode or not. A value of ***yes*** indicates that the trunk is in Map mode and ***no*** if it is not. |
| Values | no<br>yes |
| Default | No default |

### ATTRIBUTE Rtg Top Node Lg TrkObj unreservedBwOut (unres)

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays a table. In the first row there are setup priorities. In the second row there are numerators of parts of unreserved bandwidth corresponding to setup priority 0 (first column) through 4 (fifth column). The denominator is 255. |
| Array of | Decimal (0..255) |
| Row | setupPriority [bwPartOver255] |
| Column | unreservedBwParts [Decimal (0..4)] |
| Default | No default |

### COMPONENT Rtg Top Node ClusterNode

| | |
|---|---|
| Instance | String (1..12, ASCII) |
| Groups | "GROUP Rtg Top Node ClusterNode Operational (Oper)" |
| Scope | Network |
| Description | *Rtg Top Node/<backboneBorderNodeName> ClusterNode/ <clusterNodeName>*<br><br>*Rtg Top BorderLinkGroup/<neighborNodeName> ClusterNode/ <clusterNodeName>* |

This component is a dynamic subcomponent of both the *Node* and *BorderLinkGroup* components. It exists only on a non cluster node (also referred as a backbone node), that is, this component is present under *Node* and/or *BorderLinkGroup* only if the attribute *clusterNode* for this node is provisioned with ***no***. This component does not exist on any cluster node.

If this node is a backbone node, this component, under *Node*, describes the reachability from a border node in the backbone to a cluster node. Note that a border node refers to the node that is connected by cluster border link groups. Therefore, this component provides information, in this backbone node's view, about all cluster nodes (which might be located in multiple clusters) reachable through all border nodes in the backbone. There is one instance of this component for each cluster node reachable through a border node.

If this node is also a border node in the backbone, that is, this node is a backbone node and has at least one cluster border link group staged on it. Then, this component, under the *BorderLinkGroup*, describes the reachability to a cluster node through a local cluster border link group. There is one instance of this component for each cluster node in a cluster that can be reached through a cluster border link group. Note that this information (reachable cluster nodes through a cluster border link group) is only known to the local Passport module, and is not shared with the other nodes in the backbone.

Common Verbs

Help
List
Display

## GROUP Rtg Top Node ClusterNode Operational (Oper)

Properties

Operational

Description

*Rtg Top Node/<backboneBorderNodeName> ClusterNode/ <clusterNodeName> Operational*

*Rtg Top BorderLinkGroup/<neighborNodeName> ClusterNode/*

*<clusterNodeName> Operational*

*Rtg Top Node/<clusterBorderNodeName> PeerBorderNode/ <backboneBorderNodeName> Operational*

This group contains the operational data stored and maintained by the *ClusterNode* component on a backbone node and/or the *PeerBorderNode* component on a cluster node.

### ATTRIBUTE Rtg Top Node ClusterNode nodeId

| | |
|---|---|
| Access | Read only |
| Description | This attribute is a number that uniquely identifies the *ClusterNode* and/or the *PeerBorderNode* instance in Passport topology region. It is the identifier used in the routing control packets sent by this node to other Passport nodes in the same topology region.<br><br>The *nodeId* for each node in a topology region is learned from the Passport routing protocol packets. |
| Values | Decimal (1..4095) |
| Default | No default |

### ATTRIBUTE Rtg Top Node ClusterNode delayMetric

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the outbound cost for the delay class of service to reach the destination (a cluster node or a peer border node in the backbone). It is the sum of delay metrics of multiple hops from the border node to reach the destination. A low outbound cost is preferable to a higher value as it is associated with higher speed facilities.<br><br>A metric value of 2147483647 means that the destination is unreachable for the delay class of service. |
| Values | Decimal (1..2147483647) |
| Default | No default |

## ATTRIBUTE Rtg Top Node ClusterNode tputMetric

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the outbound cost for the throughput class of service to reach the destination (a cluster node or a peer border node in the backbone). It is the sum of throughput metrics of multiple hops from the border node to reach the destination. A low outbound cost is preferable to a higher value as it is associated with higher speed facilities.<br><br>A metric value of 2147483647 means that the destination is unreachable for the throughput class of service. |
| Values | Decimal (1..2147483647) |
| Default | No default |

## COMPONENT Rtg Top Node PeerBorderNode

| | |
|---|---|
| Instance | String (1..12, ASCII) |
| Groups | "GROUP Rtg Top Node PeerBorderNode Operational (Oper)" |
| Scope | Network |
| Description | *Rtg Top Node/<clusterBorderNodeName> PeerBorderNode/ <backboneBorderNodeName>*<br>This component is a dynamic subcomponent of the *Node* component. It exists only on a cluster node, that is this component is present under *Node* only if the attribute *clusterNode* for this node is provisioned as ***yes***. This component does not exist on any non- cluster node (also referred as backbone node).<br><br>This component describes the reachability from a border node in the cluster to a peer border node in the backbone. It provides information, in this node's view, about those peer border nodes in the backbone reachable through each border node in the cluster. There is one instance of this component for each peer border node in the backbone reachable through a cluster border node. |

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display |

### GROUP Rtg Top Node PeerBorderNode Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | *Rtg Top Node/<backboneBorderNodeName> ClusterNode/ <clusterNodeName> Operational*<br><br>*Rtg Top BorderLinkGroup/<neighborNodeName> ClusterNode/ <clusterNodeName> Operational*<br><br>*Rtg Top Node/<clusterBorderNodeName> PeerBorderNode/ <backboneBorderNodeName> Operational*<br><br>This group contains the operational data stored and maintained by the *ClusterNode* component on a backbone node and/or the *PeerBorderNode* component on a cluster node. |

### ATTRIBUTE Rtg Top Node PeerBorderNode nodeId

| | |
|---|---|
| Access | Read only |
| Description | This attribute is a number that uniquely identifies the *ClusterNode* and/or the *PeerBorderNode* instance in Passport topology region. It is the identifier used in the routing control packets sent by this node to other Passport nodes in the same topology region.<br><br>The *nodeId* for each node in a topology region is learned from the Passport routing protocol packets. |
| Values | Decimal (1..4095) |
| Default | No default |

### ATTRIBUTE Rtg Top Node PeerBorderNode delayMetric

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the outbound cost for the delay class of service to reach the destination (a cluster node or a peer border node in the backbone). It is the sum of delay metrics of multiple hops from the border node to reach the destination. A low outbound cost is preferable to a higher value as it is associated with higher speed facilities.<br><br>A metric value of 2147483647 means that the destination is unreachable for the delay class of service. |
| Values | Decimal (1..2147483647) |
| Default | No default |

### ATTRIBUTE Rtg Top Node PeerBorderNode tputMetric

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the outbound cost for the throughput class of service to reach the destination (a cluster node or a peer border node in the backbone). It is the sum of throughput metrics of multiple hops from the border node to reach the destination. A low outbound cost is preferable to a higher value as it is associated with higher speed facilities.<br><br>A metric value of 2147483647 means that the destination is unreachable for the throughput class of service. |
| Values | Decimal (1..2147483647) |
| Default | No default |

### COMPONENT Rtg Top Node NodeAddress (Addr)

| | |
|---|---|
| Instance | String (1..40, ASCII) |
| Scope | Network |
| Description | *Rtg Top Node/<nodeName> NodeAddress/<nodeAddress>*<br>This component represents an NSAP address (or prefix) which can be reached from the node identified by the instance of the *Node* component . Each instance of this component actually represents a *nodePrefix* or an *alternatePorsPrefixes* provisioned under the *Mod* component on the Passport node identified by the instance of the *Node* component. |

Instances of this component associated with a remote node are learned from the topology information broadcast sent by the remote node. Topology information is exchanged only between Passport nodes within the same topology region's backbone or cluster. Instances of this component under all *Node* components represent the set of all node addresses stored in the topology database maintained by the local node.

Common Verbs

Help
List
Display

## COMPONENT Rtg Top Node ReachableAddr (RAddr)

Instance

address [String (1..40, ASCII)]
linkId [Decimal (0..9999)]

Groups

"GROUP Rtg Top Node RAddr Operational (Oper)"

Scope

Network

Description

*Rtg Top Node/<nodeName> ReachableAddr/ <reachableAddr>,<linkId>*
This component represents an NSAP address (or prefix) as well as the associated link ID which can be reached from the node identified by the instance of the *Node* component. Actually , an instance of this component really represents either an *Address* component provisioned under a *Trunk* component or a *SummaryAddress* component provisioned under the *Routing* component on the Passport node identified by the instance of the *Node* component.

Instances of this component associated with a remote node are learned from the topology information broadcast sent by the remote node. Topology information is exchanged only between Passport nodes within the same topology region's backbone or cluster. Instances of this component under all *Node* components represent the set of all reachable addresses stored in the topology database maintained by the local node.

If a *SummaryAddress* component, provisioned under the *Routing*

component, is the prefix of an *Address* component provisioned under a *Trunk* component on the same node, the *Address* component will be removed from the list of *ReachableAddr* instances associated with and broadcast by that node. This behavior is also referred as reachable addresses summarization. That is, if an *Address* component is summarized by a *SummaryAddress* component provisioned on the same node, the *Address* component will not be broadcast by that node, therefore, it will not be displayed through a *ReachableAddr* component instance associated with that node.

Common Verbs

Help
List
Display

## GROUP Rtg Top Node RAddr Operational (Oper)

Properties: Operational

Description: *Rtg Top Node/<aNodeName> ReachableAddr/<anAddress> Operational*
This group contains the operational data stored and maintained by a *ReachableAddr* component in the topology database of the local node.

## ATTRIBUTE Rtg Top Node RAddr cost

Access: Read only

Description: This attribute indicates the cost to reach the *ReachableAddr* component from the node identified by the instance of the *Node* component. The value of this attribute associated with a *ReachableAddr* component provisioned on a remote Passport node is learned from the topology information exchange protocol packets sent by the remote node.

If the *ReachableAddr* represents a *Trunk Address* component on a node (which could be either a remote node or the local node), the value displayed in this attribute is actually the cost provisioned in the *cost* attribute under the *Trunk Address* component on the node. If the *ReachableAddr* represents a *Routing SummaryAddress* component on a node, then the value displayed

in this attribute is the cost provisioned in the *cost* attribute under the *Routing SummaryAddress* on the node.

Values: Decimal (0..2147483647)

Default: No default

### ATTRIBUTE Rtg Top Node RAddr porsReachable (prsR)

Access: Read only

Description: This attribute indicates whether the *Trunk* component under which the *ReachableAddr* is provisioned is able to carry PORS traffic or not. In other words, this attribute indicates whether there is a *PathAdmin* component present under the *Trunk* Component which is also the parent component of the *ReachableAddr* component.The value of this attribute associated with a *ReachableAddr* component provisioned on a remote node is learned from the topology information exchange protocol packets sent by the remote node.

The value of this attribute is ***yes*** if there is a *PathAdmin* component existing under the *ReachableAddr* component's parent - the *Trunk* component, and is ***no*** otherwise.

Values:
no
yes

Default: No default

### ATTRIBUTE Rtg Top Node RAddr clusterBorderNode (cbn)

Access: Read only

Description: This attribute indicates whether the *ReachableAddr* is provisioned on a backbone-cluster border node or not. The value of this attribute associated with a *ReachableAddr* component provisioned on a remote Passport node is learned from the topology information exchange protocol packets sent by the remote node.

The value of this attribute is ***yes*** if the node on which the *ReachableAddr* is provisioned is a backbone border node or a cluster border node, and is ***no*** otherwise.

| | |
|---|---|
| Values | no<br>yes |
| Default | No default |

## COMPONENT Rtg Top BorderLinkGroup (BLg)

| | |
|---|---|
| Instance | String (1..12, ASCII) |
| Groups | "GROUP Rtg Top BLg Operational (Oper)" |
| Scope | Network |
| Description | *Rtg Top BorderLinkGroup/<neighborNodeName>*<br>This component is a dynamic subcomponent of *Topology*. It describes the Passport link group that connects two Passport modules with different *clusterNode* values, or more precisely, from a cluster node to a non-cluster node (also referred as a backbone node). This type of link group is also known as the cluster border link group.<br><br>This component provides information about the support of cluster border link groups connected to this Passport module, regardless whether this node is a cluster node or a backbone node. |
| Dyn. Subcomp. | "COMPONENT Rtg Top BLg PorTrunkObject (TrkObj)"<br>"COMPONENT Rtg Top BLg ClusterNode" |
| Common Verbs | Help<br>List<br>Display |

## GROUP Rtg Top BLg Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | *Rtg Top Node/<neighborNodeName> LinkGroup/ <neighborNodeName> Operational*<br><br>*Rtg Top BorderLinkGroup/<neighborNodeName> Operational*<br><br>This group contains the operational data stored and maintained by the *LinkGroup* and *BorderLinkGroup* components to |

recognize characteristics of link groups staged on a Passport module.

### ATTRIBUTE Rtg Top BLg delayMetric

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the outbound cost to forward packets across the link group for the delay class of service. It is calculated using the average delay of delay preferred links in the link group. A low outbound cost is preferable to a higher value as it is associated with higher speed facilities.<br><br>A metric value of 2147483647 means that the link group is unusable for the delay class of service. |
| Values | Decimal (1..2147483647) |
| Default | No default |

### ATTRIBUTE Rtg Top BLg tputMetric

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the outbound cost to forward packets across the link group for a throughput class of service. It is computed from the combined speed of each link in the link group. A low outbound cost is preferable to a higher value as it is associated with higher speed facilities.<br><br>A metric value of 2147483647 means that the trunk group is unusable for the throughput class of service. |
| Values | Decimal (1..2147483647) |
| Default | No default |

### ATTRIBUTE Rtg Top BLg logicalNetworkNumber (lnn)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is a list of integers which indicate the logical network numbers supported by the trunk group.<br><br>Each of these numbers corresponds with a particular instance of |

network protocol supported on this switch. LNN 0 is present on all link groups by default to allow Passport control traffic on the link group.

List of: Decimal (0..2047)

Default: No default

## COMPONENT Rtg Top BLg PorTrunkObject (TrkObj)

Instance: Decimal (1..1023)

Groups: "GROUP Rtg Top BLg TrkObj Operational (Oper)"

Scope: Network

Description: *Rtg Top Node/<neighborNodeName> LinkGroup/ <neighborNodeName> Trunk/<Trm Lk Id>*
This component corresponds to a trunk object stored in topological database. There is one instance of this component for each link that can carry PORS traffic in the *LinkGroup* or *BorderLinkGroup* component. The *PorTrunkObject* instance is the same as the *Link* instance allocated by *Trm* for the Passport trunk. Display command applied to this component shows PORS data of the trunk object in topological database.

Common Verbs:
Help
List
Display

## GROUP Rtg Top BLg TrkObj Operational (Oper)

Properties: Operational

Description: *Rtg Top Node/<neighborNodeName> LinkGroup/ <neighborNodeName> Trunk/<Trm Lk Id> Operational*
This group contains the operational data stored and maintained by the *PorTrunkObject* component.

## ATTRIBUTE Rtg Top BLg TrkObj maxReservableBwOut (mrbwo)

Access: Read only

Description: This attribute displays trunk bandwidth which can be used for reservations on behalf of connections requiring path oriented

| | |
|---|---|
| | routing. This bandwidth is displayed in bit/s and has been calculated by concerned trunk path administrator from the trunk bandwidth and from the percentage of trunk bandwidth provisioned for reservations by PORS. |
| Values | Decimal (0..4294967295) |
| Units | bit/s |
| Default | No default |

### ATTRIBUTE Rtg Top BLg TrkObj trunkCost (cost)

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays trunk cost metric provisioned as *trunkCost* attribute of a concerned trunk path administrator. |
| Values | Decimal (1..255) |
| Default | No default |

### ATTRIBUTE Rtg Top BLg TrkObj trunkDelay (delay)

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays one-directional trunk delay measured by trunk during staging. This is half (rounded down to an integer) of the delay displayed by attribute *delay* under *Trm Link*. |
| Values | Decimal (0..65535) |
| Units | msec |
| Default | No default |

### ATTRIBUTE Rtg Top BLg TrkObj trunkSecurity (sec)

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays trunk security metric provisioned as *trunkSecurity* attribute under the trunk path administrator. |
| Values | Decimal (0..7) |
| Default | No default |

### ATTRIBUTE Rtg Top BLg TrkObj supportedTrafficTypes (sttyp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the type of traffic that can be transmitted on the trunk. There are eight possible traffic types and the trunk can transmit all of them if desired. The voice, data and video traffic types are defined, and five other traffic types can be defined in using *supportedTrafficTypes* under the trunk path administrator. This attribute is used in the route selection process to limit the route to trunks that support the traffic to be carried by the path. |
| Set of | voice<br>data<br>video<br>trafficType1 (tt1)<br>trafficType2 (tt2)<br>trafficType3 (tt3)<br>trafficType4 (tt4)<br>trafficType5 (tt5) |
| Default | No default |

### ATTRIBUTE Rtg Top BLg TrkObj trunkType (typ)

| | |
|---|---|
| Access | Read only |
| Description | This attribute lists the type of the trunk. There can be up to eight types of trunks. The terrestrial and satellite trunk types have been defined, leaving six remaining types that can be defined by the network administration. The set of allowed trunk types for a path is indicated in the *permittedTrunkTypes* attribute of the *PLC*. When selecting a route, PORS only chooses trunks whose *Pa trunkType* is in the *permittedTrunkTypes* set of the path. |
| Values | terrestrial<br>satellite<br>trunkType1 (tt1)<br>trunkType2 (tt2)<br>trunkType3 (tt3)<br>trunkType4 (tt4)<br>trunkType5 (tt5)<br>trunkType6 (tt6) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Rtg Top BLg TrkObj customerParameter (cpar)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the customer defined parameter for the trunk. Its value, a number from zero to seven, is chosen by a network administration to have a meaning specific to their network, thus allowing them to customize the use of their trunks. A complementary *PLC* attribute, *requiredCustomerParam*, also has a value from zero to seven. The Route Selector does not consider trunks whose *Pa customerParameter* is greater than the *requiredCustomerParam* of the path. |
| Values | Decimal (0..7) |
| Default | No default |

### ATTRIBUTE Rtg Top BLg TrkObj farEndTrmLkInstance (far)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates identification of the corresponding trunk providing the reverse direction of transmission. |
| Values | Decimal (1..1023) |
| Default | No default |

### ATTRIBUTE Rtg Top BLg TrkObj mapMode

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates if the trunk is in Map Mode or not. A value of ***yes*** indicates that the trunk is in Map mode and ***no*** if it is not. |
| Values | no<br>yes |
| Default | No default |

### ATTRIBUTE Rtg Top BLg TrkObj unreservedBwOut (unres)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute displays a table. In the first row there are setup priorities. In the second row there are numerators of parts of unreserved bandwidth corresponding to setup priority 0 (first column) through 4 (fifth column). The denominator is 255. |
| Array of | Decimal (0..255) |
| Row | setupPriority [bwPartOver255] |
| Column | unreservedBwParts [Decimal (0..4)] |
| Default | No default |

## COMPONENT Rtg Top BLg ClusterNode

| | |
|---|---|
| Instance | String (1..12, ASCII) |
| Groups | "GROUP Rtg Top BLg ClusterNode Operational (Oper)" |
| Scope | Network |
| Description | *Rtg Top Node/<backboneBorderNodeName> ClusterNode/ <clusterNodeName>*<br><br>*Rtg Top BorderLinkGroup/<neighborNodeName> ClusterNode/ <clusterNodeName>*<br><br>This component is a dynamic subcomponent of both the *Node* and *BorderLinkGroup* components. It exists only on a non cluster node (also referred as a backbone node), that is, this component is present under *Node* and/or *BorderLinkGroup* only if the attribute *clusterNode* for this node is provisioned with ***no***. This component does not exist on any cluster node.<br><br>If this node is a backbone node, this component, under *Node*, describes the reachability from a border node in the backbone to a cluster node. Note that a border node refers to the node that is connected by cluster border link groups. Therefore, this component provides information, in this backbone node's view, about all cluster nodes (which might be located in multiple clusters) reachable through all border nodes in the backbone. There is one instance of this component for each cluster node reachable through a border node. |

If this node is also a border node in the backbone, that is, this node is a backbone node and has at least one cluster border link group staged on it. Then, this component, under the *BorderLinkGroup*, describes the reachability to a cluster node through a local cluster border link group. There is one instance of this component for each cluster node in a cluster that can be reached through a cluster border link group. Note that this information (reachable cluster nodes through a cluster border link group) is only known to the local Passport module, and is not shared with the other nodes in the backbone.

Common Verbs

Help
List
Display

## GROUP Rtg Top BLg ClusterNode Operational (Oper)

Properties

Operational

Description

*Rtg Top Node/<backboneBorderNodeName> ClusterNode/ <clusterNodeName> Operational*

*Rtg Top BorderLinkGroup/<neighborNodeName> ClusterNode/ <clusterNodeName> Operational*

*Rtg Top Node/<clusterBorderNodeName> PeerBorderNode/ <backboneBorderNodeName> Operational*

This group contains the operational data stored and maintained by the *ClusterNode* component on a backbone node and/or the *PeerBorderNode* component on a cluster node.

## ATTRIBUTE Rtg Top BLg ClusterNode nodeId

Access

Read only

Description

This attribute is a number that uniquely identifies the *ClusterNode* and/or the *PeerBorderNode* instance in Passport topology region. It is the identifier used in the routing control packets sent by this node to other Passport nodes in the same topology region.

The *nodeId* for each node in a topology region is learned from the Passport routing protocol packets.

Values: Decimal (1..4095)

Default: No default

### ATTRIBUTE Rtg Top BLg ClusterNode delayMetric

Access: Read only

Description: This attribute indicates the outbound cost for the delay class of service to reach the destination (a cluster node or a peer border node in the backbone). It is the sum of delay metrics of multiple hops from the border node to reach the destination. A low outbound cost is preferable to a higher value as it is associated with higher speed facilities.

A metric value of 2147483647 means that the destination is unreachable for the delay class of service.

Values: Decimal (1..2147483647)

Default: No default

### ATTRIBUTE Rtg Top BLg ClusterNode tputMetric

Access: Read only

Description: This attribute indicates the outbound cost for the throughput class of service to reach the destination (a cluster node or a peer border node in the backbone). It is the sum of throughput metrics of multiple hops from the border node to reach the destination. A low outbound cost is preferable to a higher value as it is associated with higher speed facilities.

A metric value of 2147483647 means that the destination is unreachable for the throughput class of service.

Values: Decimal (1..2147483647)

Default: No default

## COMPONENT Rtg Top PerformanceStatistics (PerfStats)

Scope: Network

Description

*Rtg Top PerfStats*
This component is a subcomponent of *Rtg Top* component. It is responsible for monitoring the performance of *Top* component by recording statistics. Statistics maintained by this component include the number of (1) routing control packets and (2) various information fragments (also known as database entries) that are stored and maintained in the topology database by the *Top* component.

Routing control packets (also known as routing protocol packets), sent and received by the *Top* component, can be categorized into two types: topology protocol packets and cluster protocol packets. Topology protocol packets are used to advertise topology information and are exchanged only between Passport nodes in the same flat topology region, region's backbone, or cluster. Therefore, the topology database, maintained by the *Top* component, contains only information of Passport nodes in the same flat topology region, region's backbone, or cluster. Cluster protocol packets are used to convey routing information across the backbone-cluster boundary and are exchanged only between backbone and cluster border nodes.

If clusters are not deployed, the packet statistics provided by this component include only topology protocol packets that are transmitted to and received from other Passport nodes in the same topology region. The database statistics maintained by this component provides information of the topology database that contains all nodes in the same topology region in which this node resides.

If clusters are deployed in the topology region, on a backbone node, the packet statistics provided by this component include only topology protocol packets that are transmitted to and received from other Passport nodes in the backbone. On a backbone border node, the packet statistics provided by this component also include the cluster protocol packets that are sent to and received from the connected cluster border nodes. Since the topology database, maintained by a *Top* component, is the same on either a backbone node or a backbone border node, the database statistics provided by this component should be identical on all nodes in the backbone.

Similarly, on a cluster node, the packet statistics provided by this component include only topology protocol packets that are transmitted to and received from other Passport node in the cluster. On a cluster border node, the packet statistics provided by this component also include the cluster protocol packets that are sent to and received from the connected backbone border nodes. Since the topology database, maintained by a *Top* component, is the same on either a cluster node or a cluster border node, the database statistics provided by this component should be identical on all nodes in the same cluster.

Dyn. Subcomp. "COMPONENT Rtg Top PerfStats LinkGroupStatistics (LgStats)"

Common Verbs
Help
List
Display

## COMPONENT Rtg Top PerfStats LinkGroupStatistics (LgStats)

Instance String (1..12, ASCII)

Scope Network

Description *Rtg Top PerfStats LgStats/<aNeighborNodeName>*
This component is a dynamic subcomponent of *Rtg Top PerfStats* component. It provides statistics of topology protocol packets that are transmitted to and received from the neighbor Passport node identified by the *LgStats* component.

Note that there is one *LgStats* instance per locally staged *Lg* on this node. Topology protocol packets are exchanged only between neighbor Passport nodes that are in the same flat topology region, region's backbone, or cluster, they are not sent across a topology region border nor a backbone-cluster border. Therefore, for each locally staged *Lg* that is in the same flat topology region, region's backbone, or cluster in which this node resides, there is one *LgStats* instance added to record the statistic of topology protocol packets that are transmitted to and received from the neighbor Passport node.

Statistics maintained by an *LgStats* instance only exist for the duration of the *Lg* component. When the *Lg* to a neighbor goes down and then comes back, statistics maintained by the corresponding *LgStats* instance will be reset and restart from zero.

Common Verbs

Help
List
Display

## COMPONENT Rtg PathOrientedRoutingSystem (Pors)

Groups

"GROUP Rtg Pors Provisioned (Prov)"
"GROUP Rtg Pors Information (Info)"

Scope

Application

Description

This is the *Routing PathOrientedRoutingSystem* Component. It is used to display attributes of the PORS connections on a module and attributes for setting optimization timing for PORS connections. The *PathOrientedRoutingSystem* component also optimizes PORS connections on this module.

Opt. Subcomp.

"COMPONENT Rtg Pors Profile (Prof)"
"COMPONENT Rtg Pors ManualPath (Mpath)"

Common Verbs

Help
List
Display
Add
DELete

### VERB Optimize (Opt) Rtg Pors

| | |
|---|---|
| Impact | Service |
| Description | Optimize [-segmented] Rtg Pors<br><br>If this module is not optimizing, this command forces an optimization process to begin immediately. Optimization is carried out on each active connection, on the module, at a rate of one per second.<br><br>If no option is specified, all unsegmented PORS connections sourced on the module that allow optimization will attempt to optimize.<br><br>If the -segmented option is specified, disruptive optimization will be triggered for segmented calls. Calls sourced on the module that are specified in the *optimizationScope* attribute and that allow optimization will be selected. Simultaneous optimization of segmented and unsegmented call types is not permitted.<br><br>This command may be used regardless of whether periodic optimization has been disabled by setting the *optimizationInterval* to zero. |

### GROUP Rtg Pors Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all provisionable attributes for the *Routing PathOrientedRoutingSystem* component. |

### ATTRIBUTE Rtg Pors optimizationInterval

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the interval at which periodic optimization occurs. The time defined is from the end of one optimization pass until the start of another pass. Periodic optimization has no effect on segmented calls.<br><br>If an interval of zero is specified periodic optimization is disabled on this module. |

| | |
|---|---|
| Values | Decimal (0; 1..1440) |
| Units | minutes |
| Default | 30 |

### ATTRIBUTE Rtg Pors optimizationScope (opts)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the type of routing point that is considered for segmented optimization. Note that only routing points that are sourcing call segments can be considered. Segmented optimization occurs when the destination node of the call segment is switched, or when an alternate path to the existing call segment destination node has at least a 10% improvement in path cost over the current path. Segmented optimization is disruptive to the call or calls being optimized. Three types of routing points can be selected as candidates for segmented optimization.<br><br>***applicationService***:<br>The source application. Enabling this routing point selects all calls sourced on the node. Call disruption will affect all call segments.<br><br>***outboundRGty***:<br>The outbound gateway that is leaving the region or cluster. Enabling this routing point selects all calls leaving the region or cluster from this node. Call disruption is from the outbound link to the destination node.<br><br>***inboundRGty***:<br>The inbound gateway that is entering a new region or cluster. Enabling this routing point will select all calls that enter the region or cluster through this node. Call disruption is from the current node to the destination node. |
| Set of | applicationService<br>inboundRGty<br>outboundRGty |

| | |
|---|---|
| Default | No default |

### GROUP Rtg Pors Information (Info)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational information for the *PathOrientedRoutingSystem* component. |

### ATTRIBUTE Rtg Pors activeConnections

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the current number of active PORS connections on this module. Active connections are connections that are in the Logical Connection component ***pathUp*** *state*.<br><br>This value is updated when requested and represents the current number of active PORS connections. During *Pors* optimization this number represents all the connections that receive optimization requests. |
| Values | Decimal (0..65535) |
| Default | No default |

### ATTRIBUTE Rtg Pors optimizationState

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the current state of the *Pors* optimization. The ***disabled*** state means that the *optimizationInterval* has been set to zero. The ***scheduled*** state means that the optimization will be started at the *nextOptimizationTime.* The optimizing state means that *Pors* is currently attempting to optimize all connections on the module. |
| Values | disabled<br>scheduled<br>optimizing |
| Default | No default |

### ATTRIBUTE Rtg Pors lastOptimizationTime

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute specifies the time that the last optimization started. |
| Values | Time (DHMS) |
| Default | No default |

### ATTRIBUTE Rtg Pors nextOptimizationTime

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the time the next optimization process will begin.<br><br>In the event that *optimizationInterval* is set to zero this value is also set to 0. |
| Values | Time (DHMS) |
| Default | No default |

### ATTRIBUTE Rtg Pors optimizationPasses

| | |
|---|---|
| Access | Read only |
| Description | This is the number of optimization passes for the PORS connection manager. An optimization pass consists of a notification to each active PORS connection to attempt to optimize.<br>All types of optimization passes are included in this statistic. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Rtg Pors optimizationProgress

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the percentage of active connections that have been sent an optimization request. A message is sent to each *Pors* component LC requesting it to optimize its route.<br><br>This value is cleared at the beginning of each optimization pass. |
| Values | Decimal (0..100) |

| | |
|---|---|
| Units | % |
| Default | No default |

### ATTRIBUTE Rtg Pors pathsOptimized

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the number of successfully optimized paths for the latest optimization pass. Successfully optimized paths are paths that switched to a better route.<br><br>This value is cleared at the beginning of each optimization pass. |
| Values | Decimal (0..65535) |
| Default | No default |

### ATTRIBUTE Rtg Pors totalPathsOptimized

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the number of successfully optimized paths on this module since the CP became active. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT Rtg Pors Profile (Prof)

| | |
|---|---|
| Instance | Decimal (1..255) |
| Groups | "GROUP Rtg Pors Prof Provisioned (Prov)" |
| Scope | Application |
| Description | *Rtg Pors Prof/n*<br>This component includes all attributes which may generically apply to a set of *LogicalConnections*. It is basically identical to the *PermanentLogicalConnection* except it does not include a *remoteName* or *manualPath* attribute. The specification of emission and discard priority is also a bit different in that they may be left unspecified in which case the emission and discard priority of the connection will be selected by the application. |

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Rtg Pors Prof Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all provisionable attributes for a PORS profile.. |

### ATTRIBUTE Rtg Pors Prof setupPriority (spri)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the priority at which a path is established. Zero is the highest priority and four is the lowest. When PORS establishes a path through the network, it uses the *setupPriority* attribute to determine its potential for bumping established paths to acquire their bandwidth. The *holdingPriority*, a complementary attribute of this attribute, specifies the priority a path maintains once it is established. A new path can bump an existing path if the new path's *setupPriority* is higher (numerically less) than the existing path's *holdingPriority.* |
| Values | Decimal (0..4) |
| Default | 2 |

### ATTRIBUTE Rtg Pors Prof holdingPriority (hpri)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the priority that a path holds once it is established. Zero is the highest priority and four is the lowest. A path's *holdingPriority* determines this path's likelihood of being bumped by a new path to acquire its bandwidth. The *setupPriority*, a complementary attribute, indicates the priority of a path at establishment time. A new path can bump an existing |

path if the new path's *setupPriority* is higher (numerically less) than the existing path's *holdingPriority.*

Values: Decimal (0..4)

Default: 2

### ATTRIBUTE Rtg Pors Prof requiredTxBandwidth (tbw)

Access: Read and write

Description: This attribute specifies the bandwidth (in bits per second) reserved by a path on each of the trunks of its route.This attribute represents the bandwidth for traffic outgoing to the remote end point. This value should be chosen to achieve the amount of statistical bandwidth sharing that is desired by the network administration. This reservation is not enforced but is used to determine how many paths can be supported on a trunk. Both ends should be provisioned with the correct values allowing for the fact that transmit at this end represents receive at the remote end. Note that when the values do not correspond, the originating end of the connection determines the value. A value of 0 (the default) means that the bandwidth will be the Peak Cell Rate for CLP0+1 as chosen by the user. A non zero value overrides this reservation.

Values: Decimal (0..155520000)

Units: bit/s

Default: 0

### ATTRIBUTE Rtg Pors Prof requiredRxBandwidth (rbw)

Access: Read and write

Description: This attribute specifies the bandwidth (in bits per second) reserved by a path on each of trunks of its route. This attribute represents the bandwidth for traffic incoming from the remote end point. This value should be chosen to achieve the amount of statistical bandwidth sharing that is desired by the network administration. This reservation is not enforced but is used to determine how many paths can be supported on a trunk. Both ends should be provisioned with the correct values allowing for

the fact that transmit at this end represents receive at the remote end. Note that when the values do not correspond, the originating end of the connection determines the value. A value of 0 (the default) means that the bandwidth will be the Peak Cell Rate for CLP0+1 as chosen by the user. A non zero value overrides this reservation.

Values: Decimal (0..155520000)

Units: bit/s

Default: 0

### ATTRIBUTE Rtg Pors Prof requiredTrafficType (rttyp)

Access: Read and write

Description: This attribute specifies the type of traffic transmitted over the path. There are eight possible traffic types, and the path can transmit only one of them. The originating end of the connection determines the type. The ***voice***, ***data*** and ***video*** traffic types are defined, and five other arbitrary traffic types can be defined by the network administration. This attribute is used in the route selection process to restrict the route to trunks that support this traffic type. The *supportedTrafficType* trunk attribute lists all the types of traffic allowed on the trunk. For example, if *requiredTrafficType* is specified as ***trafficType1,*** then only trunks that include ***trafficType1*** in *supportedTrafficType* will be candidates for this connection.

Values:
voice
data
video
trafficType1 (tt1)
trafficType2 (tt2)
trafficType3 (tt3)
trafficType4 (tt4)
trafficType5 (tt5)

Default: data

### ATTRIBUTE Rtg Pors Prof permittedTrunkTypes (pttyp)

Access: Read and write

| | |
|---|---|
| Description | This attribute specifies up to eight types of trunk that can be used on the route. The ***terrestrial*** and ***satellite*** trunk types have been defined, leaving six remaining arbitrary types that can be defined by the network administration. The trunk's type is indicated in the *trunkType* attribute of the *Trunk* component. When selecting a route, PORS only chooses trunks whose *trunkType* are in the *permittedTrunkTypes* for the path. |
| Set of | terrestrial<br>satellite<br>trunkType1 (tt1)<br>trunkType2 (tt2)<br>trunkType3 (tt3)<br>trunkType4 (tt4)<br>trunkType5 (tt5)<br>trunkType6 (tt6) |
| Default | (terrestrial, satellite, trunkType1, trunkType2, trunkType3) |

### ATTRIBUTE Rtg Pors Prof requiredSecurity (rsec)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the required minimum level of security of the trunks on the route. A value of zero represents the most secure while seven represents the least secure. The trunk's security is indicated by the *trunkSecurity* attribute of the *Trunk* component, and has values identical in range and meaning to the *requiredSecurity* attribute. PORS ensures that any route selected does not contain a trunk whose *trunkSecurity* attribute is numerically greater than the *requiredSecurity.* |
| Values | Decimal (0..7) |
| Default | 4 |

### ATTRIBUTE Rtg Pors Prof requiredCustomerParm (rcparm)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the allowed customer defined parameter of the trunks on the route. Its value, a number from zero to seven, is chosen by network administration to have a meaning specific to their network, thus allowing them to customize the use of their |

trunks. A complementary trunk attribute, *customerParameter*, also has a value from zero to seven. The route selection process does not consider trunks whose *customerParameter* is greater than the *requiredCustomerParameter* of the path.

Values: Decimal (0..7)

Default: 4

### ATTRIBUTE Rtg Pors Prof pathAttributeToMinimize (pamin)

Access: Read and write

Description: This attribute specifies whether a route is selected on the basis of minimizing the cost or the delay. Each trunk has a cost and a delay metric associated with it. The cost of a selected route is the sum of the trunk cost metrics for all trunks included in the route. The delay of a selected route is the sum of the trunk delay metric for all trunks included in the route.

Values: cost
delay

Default: cost

### ATTRIBUTE Rtg Pors Prof maximumAcceptableCost (maxCost)

Access: Read and write

Description: This attribute specifies an upper bound on the cost metric of a route, which is the sum of the cost metrics of all trunks on the route. The cost metric is the *trunkCost* attribute of the Trunk component. If for any trunk the *trunkCost* is larger than the *maximumAcceptableCost*, then that trunk is not considered during the route selection. While a shortest route is being selected, the route cost is being compared with the *maximumAcceptableCost* attribute, and this is done regardless of the value of *pathAttributeToMinimize*. No route is selected if the cost metric of the shortest route is larger than the *maximumAcceptableCost*.

Values: Decimal (0..65535)

Default: 1280

### ATTRIBUTE Rtg Pors Prof maximumAcceptableDelay (maxDelay)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies an upper bound on the delay of a route, which is the sum of the delay of all trunks on the route. It should be provisioned with a reasonable maximum acceptable delay for the end to end one way delay of a 512 byte packet. Remember, that during its staging, the trunk measures a *measuredRoundTripDelay.* This delay is divided by two and truncated to an integer number of milliseconds to provide a one way delay which is used to populate the delay in this trunk object in the topological database. The value includes emission, propagation, and queuing delays. A 512 byte data packet is used to perform the measurement.<br>If for any trunk, half of the trunk's *measuredRoundTripDelay* is larger than the *maximumAcceptableDelay*, then that trunk is not considered during the route selection.<br>While a shortest route is being selected, the route delay is being compared with the *maximumAcceptableDelay* attribute, and this is done for any minimization criterion. No route is selected if the delay metric of the shortest route is larger than the *maximumAcceptableDelay.* |
| Values | Decimal (0..100000) |
| Units | msec |
| Default | 100000 |

### ATTRIBUTE Rtg Pors Prof emissionPriority (epri)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the urgency with which packets on the path are emitted by the trunks on the route. An *EmissionPriority* of zero indicates the highest emission priority, while two indicates the lowest emission priority. Packets with a higher *emissionPriority* (or numerically less) are serviced and sent out before the packets of lower *emissionPriority* (or numerically higher). The default value for this attribute *(sameAsApplication)* will cause the connection's emissionPriority to be inherited from the user of the profile. In other words, setting this attribute to |

anything other than the default acts as an override to the priority normally used by the application linked to this profile.

Values
sameAsApplication
ep0
ep1
ep2

Default
sameAsApplication

### ATTRIBUTE Rtg Pors Prof discardPriority (dpri)

Access
Read and write

Description
This attribute specifies the importance of the packets on the path. One is used for paths carrying the most important traffic, and three is used for paths carrying the least important traffic. Packets with lower *discardPriority* (numerically lower) are discarded after packets with a higher *discardPriority* (numerically higher). The default value for this attribute *(sameAsApplication)* will cause the connection's discardPriority to be inherited from the user of the profile. In other words, setting this attribute to anything other than the default acts as an override to the priority normally used by the application linked to this profile.

Values
sameAsApplication
dp1
dp2
dp3

Default
sameAsApplication

### ATTRIBUTE Rtg Pors Prof pathFailureAction (pfa)

Access
Read and write

Description
This attribute specifies whether the application can tolerate momentary interruption of a path while a new path is selected. If ***disconnectConnection*** is chosen, the application is informed as soon as possible about a failure by disconnection. If the attribute is set to ***reRoutePath***, the path may attempt an immediate reroute, provided the failure is a recoverable failure. If rerouting fails the application is informed of the failure.
With this option set to ***reRoutePath*** the LCo may wait up to 30

seconds before informing the service of complete disconnection in order to allow both ends to attempt to reconnect. Note that if PLC components are different at both ends only the calling end is allowed to reconnect.

Values: reRoutePath
disconnectConnection

Default: reRoutePath

### ATTRIBUTE Rtg Pors Prof bumpPreference (bpref)

Access: Read and write

Description: This attribute specifies when bumping may be triggered as a result of this call being routed/rerouted or optimized. There are two possibilities:
***bumpWhenNecessary***: means that this call will only trigger the bumping of another call (subject to setup/holding priority restrictions) when there is no other way to establish a route for this call.
***bumpToObtainBestRoute***: means that this call may trigger the bumping of other calls (subject to setup/holding priority restrictions) if doing so would result in this call obtaining a better (lower cost/delay) route.
Since bumping to obtain the best route can be somewhat intrusive the default is only to bump when there is no other way to route the call.

Values: bumpWhenNecessary
bumpToObtainBestRoute

Default: bumpWhenNecessary

### ATTRIBUTE Rtg Pors Prof optimization (opt)

Access: Read and write

Description: If this attribute is ***enabled***, this connection will be optimized periodically as specified by the *Rtg Pors* attribute *optimizationInterval*. If this attribute is ***disabled***, the connection will use the route it was given for the life of the connection or until a failure or *lock* results in the call being rerouted.

| | |
|---|---|
| Values | disabled<br>enabled |
| Default | enabled |

### ATTRIBUTE Rtg Pors Prof users (usr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies all of the components which are associated with this *Profile*. Users of this profile will select and instantiate routes based on the attributes of this profile when PORS is used to choose and instantiate the route. If IISP or PNNI are used to choose and instantiate the route these attributes are ignored since they have no counterparts in IISP or PNNI routing. |
| List of | Link (Service, profile) |
| Default | No default |

### COMPONENT Rtg Pors ManualPath (Mpath)

| | |
|---|---|
| Instance | Decimal (1..255) |
| Groups | "GROUP Rtg Pors Mpath Provisioned (Prov)"<br>"GROUP Rtg Pors Mpath Operational (Oper)" |
| Scope | Application |
| Description | *Rtg Pors ManualPath/n*<br>This component specifies the sequence of *Trunk*s used by a service as the route between source and destination nodes. Services with a link to this component bypass PORS automatic route selection in favor of the route specified in the *route* attribute. This component, along with the *Rtg Pors Profile/n* component and the signaled called party NSAP address, determine the end to end path. An instance of this component should be provisioned for every unique list of *Trunks* used as a route by a service bypassing PORS automatic routing. |

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Rtg Pors Mpath Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all provisionable attributes for a PORS manual path. |

## ATTRIBUTE Rtg Pors Mpath route

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the sequence of trunks used as the route for a path. If any trunk in the sequence does not meet the requirements (bandwidth, permittedTrunkType, security, customerParm, etc.) for a component listed in *users*, path validation fails and no path is instantiated for that user.<br>Changing this attribute will cause active connections of users of this *ManualPath* to move to the new route only if the users have *optimization* ***enabled*** and *Rtg Pors optimizationInterval* > 0. Otherwise, changing this attribute will cause the users' current connections to stay on the old *route* with all new calls instantiating their paths with the new *route*. Optimization can be disabled by having the application use a *Rtg Pors Prof/n* component with *optimization* ***disabled*** or by setting *Rtg Pors optimizationInterval* ***0***.<br>As an example, the trunk component name for the trunk instance 10 on node MoonBase is *EM/MoonBase Trk/10*. These strings are case insensitive but the complete component name must be input.<br>Note 1: the trunk designation must be in the 3-letter form 'trk'.<br>Note 2: only the outbound trunk component names are used to provision the *route*. |

| | |
|---|---|
| Vector of | String (0..40, ASCII) |
| Index | Decimal (0..19) |
| Default | ([20] "") |

### ATTRIBUTE Rtg Pors Mpath users (usr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies all of the components that will use this *ManualPath* to instantiate a path. Users of this component have paths that follow the sequence of *Trunks* specified in the *route* attribute of this component when PORS is used to choose and instantiate the route. |
| List of | Link (Service, porsManualPath) |
| List Size | 30 |
| Default | No default |

### GROUP Rtg Pors Mpath Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational information for the *Rtg Pors ManualPath/n* component. |

### ATTRIBUTE Rtg Pors Mpath lastSetupFailureReason (lfr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the reason for the most recent failure for an attempted connection using this *ManualPath*'s *route*. The following is a brief description of the reasons:<br>***none*** - This path has no information for the teardown.<br>***insufficientTxLcOrBandwidth*** - At present there is either no available bandwidth or logical channel numbers available on one or more of the *Trunks* for this path in the transmit direction. If a trunk in the *route* attribute was previously locked, or has a *Trk PA* subcomponent that is not in the ***up*** *state* , that *Trunk* is considered as having no available bandwidth. If the *Trunk PA* is |

in ***mapped*** *mode*, the inability to allocate an *Atmif Vcc* also results in this failure reason.
***insufficientRxLcOrBandwidth*** - At present there is either no available bandwidth or logical channel numbers available on one or more of the *Trunks* for this path in the receive direction. If a trunk in the *route* attribute was previously locked, or has a *Trk PA* subcomponent that is not in the ***up*** *state* , that *Trunk* is considered as having no available bandwidth.
***trunkFailure***- A *Trunk* on the path has failed or has gone down, due to a provisioning change of a critical attribute, as the path was being established.
***trunkCardFailure***- A *Trunk* FP card has failed along the path as the path was being established.
***accessCardFailure***- The FP on which the peer access service was running has failed as the path was being established.
***operatorForced***- The path has terminated due to the operator locking a *Trunk* along the path as the path was being established.
***lostLcnClash***- The path has terminated because the *Trk PA*'s at both ends of an intermediate trunk have allocated the same *Trk LC* to different calls. When this happens both calls must go down and then try to come up again a fraction of a second later (effectively ensuring that they will now be assigned different *Trk LC*'s). It is normal to get the odd clash especially when the *Trk PA usedLC* is approaching the *Trk PA maxLC*. An LCN clash results in the path failing to instantiate only if the application disabled rerouting. By default rerouting is enabled for all applications. Applications can disable rerouting by using a *Rtg Pors Prof/n* component with *pathFailureAction* set to ***disconnectConnection***.
***networkCongestion*** - The path has failed to establish due to control information being lost and not being recoverable.
***trunkNotFound*** - Check for *Trunks* not up or names provisioned incorrectly in *route* attribute .
***farEndNotFound*** - The far end is not provisioned or is not up. The called NSAP address cannot be reached through the last node in the *Rtg Pors ManualPath path*.
***farEndBusy*** - The far end has been reached but it is busy. Check remote end provisioning.
***unknownReason*** - The failure was not resolved.
***farEndNotReady*** - The remote end was reached but the connection was refused due to the remote end not being enabled.

***serviceTypeMismatch*** - The remote service type does not match this service type. Check provisioning.
***bumped*** - Another call bumped this path, as it was being established, from a trunk to get bandwidth (or an LC) which it required to come up. This other path had a higher *setupPriority* than this path's *holdingPriority* hence it was allowed to steal the bandwidth (or LC) from this path. A manual path that is bumped fails to instantiate if it cannot bump another path along the same *route*, or if it has *pathFailureAction* set to ***disconnectConnection***.
***trunkOrFarEndDidNotSupportMode*** - This call was unable to complete because a *mode* required by the service was not supported by one of the *Trunks* the route went through or by the far end service it connected to. Currently the only mode that this applies to is the map/mux mode on *Trk Pa Atm* component.

Values

none
insufficientTxLcOrBandwidth
insufficientRxLcOrBandwidth
trunkFailure
trunkCardFailure
operatorForced
lostLcnClash
networkCongestion
trunkNotFound
farEndNotFound
farEndBusy
unknownReason
farEndNotReady
serviceTypeMismatch
bumped
accessCardFailure
trunkOrFarEndDidNotSupportMode

Default

none

## ATTRIBUTE Rtg Pors Mpath lastSetupFailurePoint (lfp)

Access

Read only

Description

This attribute indicates the point in the *route* at which the path failed to establish. A failure at either end of a trunk will result in the display of the name of the trunk nearer the calling end.

| | |
|---|---|
| Values | String (0..40, ASCII) |
| Default | No default |

### ATTRIBUTE Rtg Pors Mpath lastSetupFailedUser (lfu)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the component in the *users* attribute that last failed to instantiate a path based on the *route*. |
| Values | The name of the component |
| Default | No default |

### COMPONENT Rtg SummaryAddress (SumAddr)

| | |
|---|---|
| Instance | String (0..40, ASCII) |
| Groups | "GROUP Rtg SumAddr Prov" |
| Scope | Application |
| Description | *Rtg SummaryAddress/<sumAddr>*<br>This is an optional subcomponent of the *Routing* component. It is used to summarize a set of addresses provisioned as the *Trunk/<n> Address/<addr>* components. When one or more of those addresses have a prefix in common, an instance of this component can be added using the common prefix as the instance value.<br><br>If this node is not a Passport cluster node, the summary address identified by this component will be distributed to all nodes but not to any cluster node in the Topology region.<br><br>If this is a Passport cluster node, this summary address will be distributed to all cluster nodes located in the local cluster only. That is, the address will not be distributed outside of this cluster. |
| Common Verbs | Help<br>List<br>Display<br>LOCK<br>Unlock |

## GROUP Rtg SumAddr Prov

| | |
|---|---|
| Properties | Provisioned |
| Description | This group of attributes specifies the provisionable characteristics of the *Routing SummaryAddress* component. |

## ATTRIBUTE Rtg SumAddr cost (cost)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies a cost of reaching the addresses summarized by the *Routing SummaryAddress/<sumAddr>* component. The value is assigned by the network administrator to represent the network cost of reaching the summarized address through this node. It can be related to distance, speed, dollars, or any other factor that could be taken into consideration. |
| Values | Decimal (0..65435) |
| Default | 200 |

Passport 7400, 15000, 20000

# Component Rtg

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component SaalNni

241-5701-060

Passport 7400, 15000, 20000

# Component SaalNni

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT SaalNni (SaalNni)

| | |
|---|---|
| Instance | Decimal (0..255) |
| Groups | "GROUP SaalNni Provisioned (Prov)"<br>"GROUP SaalNni SscopProv (Sscop)"<br>"GROUP SaalNni SscfProv (Sscf)"<br>"GROUP SaalNni OsiState (State)"<br>"GROUP SaalNni Operational (Oper)"<br>"GROUP SaalNni WlcCustomCounters (WlcCustomCntr)" |

"COLLECTED STATS SaalNni"

| | |
|---|---|
| Scope | Application |
| Description | *SaalNni/n*<br><br>This component represents the SAAL-NNI layer that provides an adaptation layer to run signalling traffic over ATM using AAL5. |
| Subcomponents | "COMPONENT SaalNni NailedupAdaptationPoint (Nap)"<br>"COMPONENT SaalNni MemoryPoolManager (Mpm)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP SaalNni Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |

| | |
|---|---|
| Description | This group contains the provisionable attributes of this component. |

### ATTRIBUTE SaalNni linkToPort (lToPort)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies a link to *Gips IpAddr UDP Port* component on an IP Server. This determines the Ip Address and UDP port that the SAAL NNI user uses to address the *SaalNni* component.<br><br>Changing this value will cause the ATM link to be restarted. |
| Values | Link (Service, linkToApplication) |
| Default | No default |

### ATTRIBUTE SaalNni layer3IpAddress (l3IpAddr)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the IP address of the SAAL-NNI user. This address must match the IP address provisioned in the corresponding *Mtp3/n* component specified by its *linkToPort* attribute.<br><br>Changing this attribute will cause the ATM link to be restarted. |
| Values | IP address |
| Default | No default |

### ATTRIBUTE SaalNni layer3Port (l3Port)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |

| | |
|---|---|
| Description | This attribute specifies the remote UDP port of the SAAL-NNI user. This value must match the port provisioned in the corresponding *Mtp3/n* component specified by its *linkToPort* attribute.<br><br>Changing this attribute will cause the ATM link to be restarted. |
| Values | Decimal (0..65535) |
| Default | No default |

### ATTRIBUTE SaalNni linkToApplications

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute specifies a list of components started on the same hardware as this *Saal* instance. The specified components are started on all *Lp* instances with which this *Saal* instance is associated via the *atmConnection* attribute of its *Nap* subcomponent.<br><br>At this time, this attribute is used to specify the *Gips* component that will serve this *Saal* instance. In the future up to 10 components can be linked to a *Saal* instance and thereby started on its hardware. |
| List of | Link |
| List Size | 10 |
| Default | No default |

### GROUP SaalNni SscopProv (Sscop)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes needed by the SSCOP sub-layer of SAAL-NNI. |

### ATTRIBUTE SaalNni maxPdusBetweenPolls (maxPdus)

| | |
|---|---|
| Access | Read: All<br>Write: All |

| | |
|---|---|
| Description | This attribute specifies the maximum number of Signalling Data PDUs that can be sent without sending a POLL PDU, as defined in ITU-T recommendation Q.2110. |
| Values | Decimal (1..1000) |
| Default | 500 |

### ATTRIBUTE SaalNni ccTimer (cc)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the time between transmissions of ‘BGN’, ‘END’, ‘RS’ and ‘ER’ PDUs, as defined in ITU-T recommendation Q.2110.<br><br>The timer is started when any one of these PDUs is transmitted.<br><br>The timer is stopped when a proper acknowledgement is received (e.g. BGNAK, ENDAK, RSACK, or ERACK).<br><br>Upon timer expiry the PDU will be retransmitted. The PDU is transmitted a maximum of *maxCc* times.<br><br>If the timer expires *maxCc* times, the link will be released, and the and the number of times this happens will be indicated by the attribute *maxCcReached.*<br><br>Layer 3 will attempt to bring the link back up. |
| Values | Decimal (100..1000) |
| Units | msec |
| Default | 200 |

### ATTRIBUTE SaalNni maxCc

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the maximum number of allowed unacknowledged transmissions of ‘BGN’, ‘END’, ‘ER’ or ‘RS’ |

Protocol Data Units (PDUs) as defined in ITU-T recommendation Q.2110.

If the number of unacknowledged transmissions exceeds this value, the link will be released, and the number of times this happens will be indicated by the attribute *maxCcReached*.

Values: Decimal (1..1000)

Default: 4

### ATTRIBUTE SaalNni keepAliveTimer (tKeepAl)

Access: Read: All
Write: All

Description: This attribute specifies the time between sending of POLL PDUs when there is no activity on the link, as defined in ITU-T recommendation Q.2110.

The timer is started when either the *pollTimer* or the *keepAliveTimer* expires and there are no PDUs queued for sending.

The timer is stopped when a data request (SD PDU) is ready to be sent.

Upon expiry this timer sends a POLL PDU.

The value of *keepAliveTimer* should be set to a value greater that *pollTimer* and greater than the round-trip delay of a PDU.

Values: Decimal (100..1000)

Units: msec

Default: 100

### ATTRIBUTE SaalNni noResponseTimer (noResp)

Access: Read: All
Write: All

| | |
|---|---|
| Description | This attribute specifies the time interval during which at least one STAT PDU should be received.<br><br>The timer is started when a POLL PDU is sent.<br><br>The timer is stopped when a STAT PDU is received.<br><br>Upon timer expiry, the link is released, that is, brought out of service. Layer 3 will then attempt to bring it back to service.<br><br>The value of the *noResponseTimer* must not be less than the sum of the *keepAliveTimer* and one round-trip delay of a Protocol Data Unit (PDU).<br><br>The number of expiries of this timer is indicated by the attribute *noResponseTimeouts*. |
| Values | Decimal (500..2000) |
| Units | msec |
| Default | 1500 |

### ATTRIBUTE SaalNni pollTimer

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the time between sending of POLL PDUs when the link has traffic, as defined in ITU-T recommendation Q.2110.<br><br>The timer is started when the link enters the Data Transfer Ready State.<br><br>The timer is stopped when the link is released.<br><br>Upon expiry, a POLL PDU is sent and *pollTimer* is restarted if the link has traffic. |
| Values | Decimal (100..1000) |
| Units | msec |

| | |
|---|---|
| Default | 100 |

### ATTRIBUTE SaalNni idleTimer

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the idle time after receipt of a STAT PDU, as defined in ITU-T recommendation Q.2110.<br><br>The timer is started when a STAT PDU is received.<br><br>The timer is stopped when data is sent or received on the link.<br><br>Upon expiry, a POLL PDU is sent and the *noResponseTimer* is started.<br><br>The value of the *idleTimer* must be greater that the sum of the *pollTimer* and the maximum round trip delay of a PDU. |
| Values | Decimal (100..1000) |
| Units | msec |
| Default | 100 |

### GROUP SaalNni SscfProv (Sscf)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisionable attributes needed by the SSCF sub layer of SAAL-NNI. |

### ATTRIBUTE SaalNni provingMode

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute allows the operator to place the link into one of the link proving modes defined in ITU-T recommendation Q.2140.<br><br>***normal*** - This mode corresponds to the MAAL-FORCE_PROVING-request. It forces the SAAL-NNI layer to utilize proving when bringing up the link. |

***neutral*** - This mode corresponds to the MAAL-CLEAR_FORCE_MODES-request.It specifies that the layer using SAAL-NNI will select the proving mode.

***emergency*** - This mode corresponds to the MAAL-FORCE_EMERGENCY-request. It causes proving to be skipped.

When this attribute is set to ***neutral,*** the layer that uses SAAL_NNI (MTP3) selects the proving mode, but when the attribute is set to ***normal*** or ***emergency***, instructions from the entity which uses SAAL-NNI are ignored.

Values
normal
neutral
emergency

Default
neutral

### ATTRIBUTE SaalNni linkReEstablishTimer (t1)

Access
Read: All
Write: All

Description
This attributes specifies the time between the link release action and the next link re-establish action during alignment, as defined in ITU-T recommendation Q.2140.

This timer is started when a release indication or confirmation is received while the link is in the Alignment or InService state.

This timer is stopped in one of two cases:

If the SAAL-NNI layer successfully receives an establish request or establish confirm from the peer SAAL-NNI layer.
If the SAAL_NNI layer receives a stop indication or release request from the layer 3 user or layer management respectively.

Upon timer expiration, link alignment and proving is re-started.

Values
Decimal (0..30)

Units
seconds

Default 5

### ATTRIBUTE SaalNni alignmentAcceptTimer (t2)

Access
Read: All
Write: All

Description
This attributes specifies the total time to attempt alignment and is defined in ITU-T recommendation Q.2140.

This timer is started when a start request is received. If the link is put in service before the expiry of this timer, no action is performed.

This timer is stopped in one of two cases.
If the SAAL-NNI layer successfully passes from the link proving state to the InService state.

If the SAAL-NNI layer receives a stop indication from the layer 3, or a release request from layer management.

Upon timer expiration, link establishment is cancelled and link is taken out of service. Layer 3 will attempt to bring the link back in service.

The value of this timer can be adjusted if link proving fails due to an inability to send the target number proving PDUs indicated by the attribute *targetProvingPdus.* The current number of proving PDUs sent successfully is indicated by the attribute *currentProvingPdus*.

Values Decimal (5..150)

Units seconds

Default 30

### GROUP SaalNni OsiState (State)

Properties Operational

Description
This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state

combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE SaalNni adminState (osiAdmin)

Access: Read only

Description: This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values: locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default: unlocked

### ATTRIBUTE SaalNni operationalState (osiOper)

Access: Read only

Description: This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available

for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE SaalNni usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP SaalNni Operational (Oper)

Properties
Operational

Description
This group contains the operational attributes of this component.

### ATTRIBUTE SaalNni state (provSt)

Access
Read: All
Write: Illegal

Description
This attribute indicates the proving state of the link. The different states are:
***notStarted*** - Proving has not started.
***incomplete*** - Proving is in progress, but not completed yet.

***completeSuccess* -** Proving has been completed successfully.
***completeFailed* -** This proving attempt failed.

Values
notStarted
inComplete
completeSuccess
completeFailed

Default
No default

### ATTRIBUTE SaalNni targetProvingPdus (n1)

Access
Read: All
Write: Illegal

Description
This attribute indicates the target number of proving PDUs to be sent across the link during the proving period.

The current number of proving PDUs that have been sent is indicated by the attribute *currentProvingPdus*.

Values
Decimal (0..4294967295)

Default
No default

### ATTRIBUTE SaalNni currentProvingPdus (c1)

Access
Read: All
Write: Illegal

Description
This attribute indicates the number of proving PDUs that have been sent across the link during this proving period.

The target number of proving PDUs that must be sent is indicated by the attribute *targetProvingPdus*

Values
Decimal (0..4294967295)

Default
No default

### ATTRIBUTE SaalNni inSrvDuration (inSrvDur)

Access
Read: All
Write: Illegal

| | |
|---|---|
| Description | This attribute indicates the time that the signalling link has remained in the in-service state since it was most recently brought in service. |
| Values | Decimal (0..4294967295) |
| Units | seconds |
| Default | No default |

### ATTRIBUTE SaalNni maxCcReached (maxCcR)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of times the signalling link has been released because the number of unacknowledeged transmissions of ‘BGN’, ‘END’, ‘ER’ or ‘RS’ Protocol Data Units (PDUs) has exceeded the value provisioned in the attribute *maxCc*.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE SaalNni noResponseTimeouts (noRespTo)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the expiries of the No Response timer, specified by the attribute *noResponseTimer.*<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE SaalNni pdusTx (pduTx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the protocol data units transmitted.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE SaalNni pdusRx (pduRx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the protocol data units received.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE SaalNni pduOctetsTx (pduOctTx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the payload PDU octets transmitted.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE SaalNni pduOctetsRx (pduOctRx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the payload PDU octets received over the collection interval. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE SaalNni insvFailures (insvFail)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the in-service link outages. It does not include failures which occur during the alignment process.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP SaalNni WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE SaalNni customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE SaalNni customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE SaalNni customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COLLECTED STATS SaalNni

| | |
|---|---|
| Description | The statistics record generated by the SaalNni component. |

### ATTRIBUTE SaalNni insvFailures

| | |
|---|---|
| Description | This attribute indicates the number of in-service link outages over the collection interval. It does not include failures which occur during the alignment process. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE SaalNni pdusTx

| | |
|---|---|
| Description | This attribute indicates the number of protocol data units transmitted over the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE SaalNni pdusRx

| | |
|---|---|
| Description | This attribute indicates the number of protocol data units received over the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE SaalNni pduOctetsTx

| | |
|---|---|
| Description | This attribute indicates the number of payload PDU octets transmitted over the collection interval. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |

### ATTRIBUTE SaalNni pduOctetsRx

| | |
|---|---|
| Description | This attribute indicates the number of payload PDU octets received over the collection interval. |
| Values | Decimal (0..4294967295) |

### COMPONENT SaalNni NailedupAdaptationPoint (Nap)

| | |
|---|---|
| Groups | "GROUP SaalNni Nap Provisioned (Prov)"<br>"GROUP SaalNni Nap WlcCustomCounters (WlcCustomCntr)" |
| Scope | Application |
| Description | *SaalNni/n NailedupAdaptationPoint*<br><br>This component is used to provide access to a nailed-up ATM connection (an *Atmif/n Vcc/n Nep*). |
| Common Verbs | Help<br>List<br>Display |

### GROUP SaalNni Nap Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes of this component. |

### ATTRIBUTE SaalNni Nap atmConnection (atmConn)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies a link to an *AtmIf Vcc Nep* component which provides access to an ATM network. The *SaalNni* process is started on the *Lp* or *Lp* pair associated with the *AtmIf* that is the parent of the specified *Nep* component. |
| Values | Link (Hardware, applicationName) |

| | |
|---|---|
| Default | No default |

### GROUP SaalNni Nap WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE SaalNni Nap customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE SaalNni Nap customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE SaalNni Nap customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

## COMPONENT SaalNni MemoryPoolManager (Mpm)

| | |
|---|---|
| Scope | Application |
| Description | *Gsc/n MemoryPoolManager*<br>*Gsd/n MemoryPoolManager*<br>*Gtl/n MemoryPoolManager*<br>*DnsAgent/<vr>,n MemoryPoolManager*<br><br>This component represents the memory resources of a given GPRS application that are managed as pools of objects. |
| Dyn. Subcomp. | "COMPONENT SaalNni Mpm MemoryPoolClient (Mpc)" |
| Common Verbs | Help<br>List<br>Display |

## COMPONENT SaalNni Mpm MemoryPoolClient (Mpc)

| | |
|---|---|
| Instance | String (1..30, ASCII) |
| Scope | Application |
| Description | *Gsc/n Mpm MemoryPoolClient/<name>*<br>*Gsd/n Mpm MemoryPoolClient/<name>*<br>*SgGtl/n Mpm MemoryPoolClient/<name>*<br>*DnsAgent/<vr>,n Mpm MemoryPoolClient/<name>*<br><br>This component represents a pool of objects of a particular class that a GPRS application currently owns as well as all the objects that could be owned by that application. All the objects in the pool are of the same class. The instance value of this component is a string which is the class name of the objects in the pool. |
| Common Verbs | Help<br>List<br>Display |

Passport 7400, 15000, 20000

# Component SaalNni

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component Sas

241-5701-060

Passport 7400, 15000, 20000

# Component Sas

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT SgsnAccountingServer (Sas)

| | |
|---|---|
| Instance | Decimal (1..1) |
| Groups | "GROUP Sas Provisioned (Prov)"<br>"GROUP Sas Statistics (Stats)"<br>"GROUP Sas OsiState (State)" |

"COLLECTED STATS SgsnAccountingServer"

| | |
|---|---|
| Scope | Application |
| Description | *SgsnAccountingServer*<br><br>This component represents the Billing functionality of the Serving GPRS Support Node (SGSN). This component must be provisioned if billing is to be supported by the SGSN. |
| Subcomponents | "COMPONENT Sas MemoryPoolManager (Mpm)" |
| Dyn. Subcomp. | "COMPONENT Sas RemoteApplicationConnection (RaConn)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Sas Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisionable attributes of the *SgsnAccountingServer (Sas)*. |

### ATTRIBUTE Sas linkToLogicalProcessor (lp)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the Logical Processor (LP) that the *SgsnAccountingServer (Sas)* and its subcomponents are provisioned on. |
| Values | Link (Hardware, linkToApplications) |
| Default | No default |

### ATTRIBUTE Sas linkToPort (lToPort)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the IP address and UDP port number that the *SgsnAccountingServer (Sas)* uses to communicate with the Charging Gateway Functionality (CGF). |
| Values | Link (Service, linkToApplication) |
| Default | No default |

### GROUP Sas Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the statistical attributes of the *SgsnAccountingServer (Sas)*. |

### ATTRIBUTE Sas openScdrs

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the SGSN Packet Data Protocol Call Detail Records (S-CDRs) which have been opened by the SGSN Accounting Server (SAS). |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sas openMcdrs

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Mobility Call Detail Records (M-CDRs) which have been opened by the SGSN Accounting Server (SAS). |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sas closedScdrs

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the SGSN Packet Data Protocol Call Detail Records (S-CDRs) which have been closed by the SGSN Accounting Server (SAS). Closed S-CDRs are the CDRs which have been written to the disk. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sas closedMcdrs

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Mobility Call Detail Records (M-CDRs) which have been closed by the SGSN Accounting Server (SAS). Closed M-CDRs are the CDRs which have been written to the disk. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sas scdrsUpdated

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the SGSN Packet Data Protocol Call Detail Records (S-CDRs) updated in the SGSN Accounting Server (SAS). Updated means that an open CDR was modified due to some external event. A S-CDR may be updated more than once, and this attribute is incremented for each update.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sas mcdrsUpdated

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Mobility Call Detail Records (M-CDRs) updated in the SGSN Accounting Server (SAS). Updated means that an open CDR was modified due to some external event. A M-CDR may be updated more than once, and this attribute is incremented for each update.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sas smoCdrs

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Mobile Originated Short Message Service (SMS) Call Detail Records (CDRs) generated in the SGSN Accounting Server (SAS). The SMS CDRs do not have states (such as opened, closed) like other CDR types.When SAS receives a message that a SMS CDR message is sent through the network, SAS writes the SMS CDR directly to disk, which means a SMS CDR is generated.<br><br>The counter wraps to zero when it exceeds the maximum value. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sas smtCdrs

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Mobile Terminated Short Message Service (SMS) Call Detail Records (CDRs) generated in the SGSN Accounting Server (SAS). The SMS CDRs do not have states (such as opened, closed) like other CDR types.When SAS receives a message that a SMS CDR message is sent through the network, SAS writes the SMS CDR directly to disk, which means a SMS CDR is generated.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sas cdrsXferCgf1

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Call Detail Records (CDRs) successfully transferred from the SGSN Accounting Server (SAS) to the primary Charging Gateway Functionality (CGF). This attribute is incremented each time a CDR is transferred to the CGF.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sas cdrsXferCgf1Fail

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the unsuccessful Call Detail Record (CDR) transfers from the SGSN Accounting Server (SAS) to the primary Charging Gateway Functionality (CGF).<br><br>This value is incremented whenever a CDR fails to get transferred to the primary CGF. Multiple attempts to send a CDR increment the statistic only once. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sas cdrsXferCgf2

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Call Detail Records (CDRs) successfully transferred from the SGSN Accounting Server (SAS) to the secondary Charging Gateway Functionality (CGF). This attribute is incremented each time a CDR is transferred to the CGF.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sas cdrsXferCgf2Fail

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the unsuccessful Call Detail Record (CDR) transfers from the SGSN Accounting Server (SAS) to the secondary Charging Gateway Functionality (CGF).<br><br>The value is incremented whenever a CDR fails to get transferred to the secondary CGF. Multiple attempts to send a CDR increment the statistic only once. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Sas gtpMsgXferCgf1

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the GPRS Tunnelling Protocol (GTP) messages successfully transferred to the primary Charging Gateway Functionality (CGF). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sas gtpMsgXferCgf1Fail

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the unsuccessful GPRS Tunnelling Protocol (GTP) message transfers to the primary Charging Gateway Functionality (CGF).<br><br>The value is incremented whenever a GTP message is rejected or unacknowledged by the primary CGF. Multiple message attempts increment the statistic only once. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sas gtpMsgXferCgf2

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the GPRS Tunnelling Protocol (GTP) messages successfully transferred to the secondary Charging Gateway Functionality (CGF).The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |

Default No default

### ATTRIBUTE Sas gtpMsgXferCgf2Fail

Access Read: All
Write: Illegal

Description This attribute counts the unsuccessful GPRS Tunnelling Protocol (GTP) message transfers to the secondary Charging Gateway Functionality (CGF).

The value is incremented whenever a GTP message is rejected or unacknowledged by the secondary CGF. Multiple attempts to send a GPT message increment the statistic only once. The counter wraps to zero when it exceeds the maximum value.

Values Decimal (0..4294967295)

Default No default

### ATTRIBUTE Sas dataVolumeLimitPartialScdrs (dvlPartialScdrs)

Access Read: All
Write: Illegal

Description This attribute counts the partial SGSN Packet Data Protocol (PDP) Call Detail Records (S-CDRs) generated in the SGSN Accounting Server (SAS) when the threshold of the *dataVolumeLimit* attribute (defined in the *Usgsn* and *Sgsn* components for UMTS and GPRS, respectively) is reached.

The counter wraps to zero when it exceeds the maximum value.

Values Decimal (0..4294967295)

Default No default

### ATTRIBUTE Sas timeDurationLimitPartialScdrs (timePartialScdrs)

Access Read: All
Write: Illegal

Description This attribute counts the partial SGSN Packet Data Protocol (PDP) Call Detail Records (S-CDRs) generated in the SGSN Accounting Server (SAS) due to the expiry of the

*scdrPartialRecordInterval* attribute.

The counter wraps to zero when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Sas maxChargingConditionPartialScdrs (maxCondPartialScdrs)

Access: Read: All
Write: Illegal

Description: This attribute counts the partial SGSN Packet Data Protocol (PDP) Call Detail Records (S-CDRs) generated in the SGSN Accounting Server (SAS) when the maximum number of charging condition changes, as specified by the *scdrMaxContainers* attribute, is reached.

The counter wraps to zero when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Sas qosChangeScdrContainers (qosScdrContainers)

Access: Read: All
Write: Illegal

Description: This attribute counts the SGSN Packet Data Protocol (PDP) Call Detail Record (S-CDR) “List of Traffic Data Volumes” containers closed in the SGSN Accounting Server (SAS) due to a QoS change.

The counter wraps to zero when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Sas tariffTimeChangeScdrContainers (ttcScdrContainers)

Access: Read: All
Write: Illegal

| | |
|---|---|
| Description | This attribute counts the SGSN Packet Data Protocol (PDP) Call Detail Record (S-CDR) “List of Traffic Data Volumes” containers closed in the SGSN Accounting Server (SAS) due to a tariff time change.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sas timeDurationLimitPartialMcdrs (timePartialMcdrs)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the partial Mobility Call Detail Records (M-CDRs) generated in the SGSN Accounting Server (SAS) due to the expiry of the *mcdrPartialRecordInterval* attribute.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sas maxChangeConditionPartialMcdrs (maxCondPartialMcdrs)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the partial Mobility Call Detail Records (M-CDRs) generated in the SGSN Accounting Server (SAS) when the maximum number of mobility changes, as specified by the *mcdrMaxContainers* attribute, is reached.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sas mobilityChangeMcdrContainers (mobilityMcdrContainers)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Mobility Call Detail Record (M-CDR) “Change of Location” containers closed in the SGSN Accounting Server (SAS) due to a mobility change.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sas mgmtInterventionPartialScdrs (mgmtPartialScdrs)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the partial SGSN Packet Data Protocol (PDP) Call Detail Records (S-CDRs) generated in the SGSN Accounting Server (SAS) with a partial record reason of “management intervention”.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Sas OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Sas adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |

Description

This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values

locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default

unlocked

### ATTRIBUTE Sas operationalState (osiOper)

Access

Read only

Description

This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values

enabled (ena)
disabled (dis)

Default

disabled

### ATTRIBUTE Sas usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### COLLECTED STATS SgsnAccountingServer

| | |
|---|---|
| Description | The statistics record generated by the SgsnAccountingServer component. |

### ATTRIBUTE Sas openScdrs

| | |
|---|---|
| Description | This attribute indicates the open SGSN Packet Data Protocol Call Detail Records (S-CDRs) in the SGSN Accounting Server (SAS) during the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Sas openMcdrs

| | |
|---|---|
| Description | This attribute indicates the open Mobility Call Detail Records (M-CDRs) in the SGSN Accounting Server (SAS) during the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Sas closedScdrs

Description

This attribute indicates the closed SGSN Packet Data Protocol Call Detail Records (S-CDRs) in the SGSN Accounting Server (SAS). Closed S-CDRs are the CDRs that are written to the disk and no longer exist in RAM.

This value reported is the value at the end of the collection interval.

Values

Decimal (0..4294967295)

### ATTRIBUTE Sas closedMcdsr

Description

This attribute indicates the closed M-CDRs in the SGSN Accounting Server (SAS). Closed S-CDRs are the CDRs that are written to the disk and no longer exist in RAM.

This value reported is the value at the end of the collection interval.

Values

Decimal (0..4294967295)

### ATTRIBUTE Sas scdrsUpdated

Description

This attribute counts the SGSN Packet Data Protocol Call Detail Records (S-CDRs) updated in the SGSN Accounting Server (SAS). Updated means that an open CDR was modified due to some external event. A S-CDR may be updated more than once, and this attribute is incremented for each update.

This counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

### ATTRIBUTE Sas mcdrsUpdated

Description

This attribute counts the Mobility Call Detail Records (M-CDRs) updated in the SGSN Accounting Server (SAS). Updated means that an open CDR was modified due to some external event. A M-CDR may be updated more than once, and this attribute is incremented for each update.

This counter counts the events in the collection interval.

| | |
|---|---|
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Sas smoCdrs

| | |
|---|---|
| Description | This attribute counts the Mobile-Originated Short Message Service (SMS) Call Detail Records (CDRs) generated in the SGSN Accounting Server (SAS). The SMS CDRs do not have states (eg. opened, closed) like other CDR types.When SAS receives a message that a SMS CDR message is sent through the network, SAS writes the SMS CDR directly to disk, which means a SMS CDR is generated.<br><br>This counter counts the events in the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Sas smtCdrs

| | |
|---|---|
| Description | This attribute counts the Mobile Terminated Short Message Service (SMS) Call Detail Records (CDRs) generated in the SGSN Accounting Server (SAS). The SMS CDRs do not have states (eg. opened, closed) like other CDR types.When SAS receives a message that a SMS CDR message is sent through the network, SAS writes the SMS CDR directly to disk, which means a SMS CDR is generated.<br><br>This counter counts the events in the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Sas cdrsXferCgf1

| | |
|---|---|
| Description | This attribute counts the Call Detail Records (CDRs) successfully transferred from the SGSN Accounting Server (SAS) to the primary Charging Gateway Functionality (CGF). This attribute is incremented each time a CDR is transferred to the CGF.<br><br>This counter counts the events in the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Sas cdrsXferCgf1Fail

Description

This attribute counts the unsuccessful Call Detail Record (CDR) transferred from the SGSN Accounting Server (SAS) to the primary Charging Gateway Functionality (CGF).

This value is incremented whenever a CDR fails to get transferred to the primary CGF. Multiple attempts to send a CDR increment the statistic only once.

This counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

### ATTRIBUTE Sas cdrsXferCgf2

Description

This attribute counts the Call Detail Records (CDRs) successfully transferred from the SGSN Accounting Server (SAS) to the secondary Charging Gateway Functionality (CGF). This attribute is incremented each time a CDR is transferred to the CGF.

This counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

### ATTRIBUTE Sas cdrsXferCgf2Fail

Description

This attribute counts the unsuccessful Call Detail Record (CDR) transfers from the SGSN Accounting Server (SAS) to the secondary Charging Gateway Functionality (CGF).

The value is incremented whenever a CDR fails to get transferred to the secondary CGF. Multiple attempts to send a CDR increment the statistic only once.

This counter counts the events in the collection interval.

Values

Decimal (0..4294967295)

### ATTRIBUTE Sas gtpMsgXferCgf1

Description

This attribute counts the GPRS Tunnelling Protocol (GTP) messages successfully transferred to the primary Charging Gateway Functionality (CGF) during the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Sas gtpMsgXferCgf1Fail

Description This attribute counts the unsuccessful GPRS Tunnelling Protocol (GTP) message transfers to the primary Charging Gateway Functionality (CGF) during the collection interval.

The value is incremented whenever a GTP message is rejected or unacknowledged by the primary CGF. Multiple attempts to send a GPT message increment the statistic only once.

Values Decimal (0..4294967295)

### ATTRIBUTE Sas gtpMsgXferCgf2

Description This attribute counts the GPRS Tunnelling Protocol (GTP) messages successfully transferred to the secondary Charging Gateway Functionality (CGF) during the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Sas gtpMsgXferCgf2Fail

Description This attribute counts the unsuccessful GPRS Tunnelling Protocol (GTP) message transfers to the secondary Charging Gateway Functionality (CGF) during the collection interval.

The value is incremented whenever a GTP message is rejected or unacknowledged by the secondary CGF. Multiple attempts to send a GPT message increment the statistic only once.

Values Decimal (0..4294967295)

### ATTRIBUTE Sas dataVolumeLimitPartialScdrs (dvlPartialScdrs)

Description This attribute counts the partial SGSN Packet Data Protocol (PDP) Call Detail Records (S-CDRs) generated in the SGSN Accounting Server (SAS) when the threshold of the *dataVolumeLimit* attribute (defined in the *Usgsn* and *Sgsn* components for UMTS and GPRS, respectively) is reached.

This counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Sas timeDurationLimitPartialScdrs (timePartialScdrs)

Description: This attribute counts the partial SGSN Packet Data Protocol (PDP) Call Detail Records (S-CDRs) generated in the SGSN Accounting Server (SAS) due to the expiry of the *scdrPartialRecordInterval* attribute.

This counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Sas maxChargingConditionPartialScdrs (maxCondPartialScdrs)

Description: This attribute counts the partial SGSN Packet Data Protocol (PDP) Call Detail Records (S-CDRs) generated in the SGSN Accounting Server (SAS) when the maximum number of charging condition changes, as specified by the *scdrMaxContainers* attribute, is reached.

This counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Sas qosChangeScdrContainers (qosScdrContainers)

Description: This attribute counts the SGSN Packet Data Protocol (PDP) Call Detail Record (S-CDR) “List of Traffic Data Volumes” containers closed in the SGSN Accounting Server (SAS) due to a QoS change.

This counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Sas tariffTimeChangeScdrContainers (ttcScdrContainers)

Description: This attribute counts the SGSN Packet Data Protocol (PDP) Call Detail Record (S-CDR) “List of Traffic Data Volumes” containers closed in the SGSN Accounting Server (SAS) due to a tariff time change.

This counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Sas timeDurationLimitPartialMcdrs (timePartialMcdrs)

| | |
|---|---|
| Description | This attribute counts the partial Mobility Call Detail Records (M-CDRs) generated in the SGSN Accounting Server (SAS) due to the expiry of the *mcdrPartialRecordInterval* attribute.<br><br>This counter counts the events in the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Sas maxChangeConditionPartialMcdrs (maxCondPartialMcdrs)

| | |
|---|---|
| Description | This attribute counts the partial Mobility Call Detail Records (M-CDRs) generated in the SGSN Accounting Server (SAS) when the maximum number of mobility changes, as specified by the *mcdrMaxContainers* attribute, is reached.<br><br>This counter counts the events in the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Sas mobilityChangeMcdrContainers (mobilityMcdrContainers)

| | |
|---|---|
| Description | This attribute counts the Mobility Call Detail Record (M-CDR) “Change of Location” containers closed in the SGSN Accounting Server (SAS) due to a mobility change.<br><br>This counter counts the events in the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Sas mgmtInterventionPartialScdrs (mgmtPartialScdrs)

| | |
|---|---|
| Description | This attribute counts the partial SGSN Packet Data Protocol (PDP) Call Detail Records (S-CDRs) generated in the SGSN Accounting Server (SAS) with a partial record reason of “management intervention”.<br><br>This counter counts the events in the collection interval. |
| Values | Decimal (0..4294967295) |

### COMPONENT Sas MemoryPoolManager (Mpm)

| | |
|---|---|
| Scope | Application |

Description

*Gsc/n MemoryPoolManager*
*Gsd/n MemoryPoolManager*
*Gtl/n MemoryPoolManager*
*DnsAgent/<vr>,n MemoryPoolManager*

This component represents the memory resources of a given GPRS application that are managed as pools of objects.

Dyn. Subcomp. "COMPONENT Sas Mpm MemoryPoolClient (Mpc)"

Common Verbs

Help
List
Display

## COMPONENT Sas Mpm MemoryPoolClient (Mpc)

Instance String (1..30, ASCII)

Scope Application

Description

*Gsc/n Mpm MemoryPoolClient/<name>*
*Gsd/n Mpm MemoryPoolClient/<name>*
*SgGtl/n Mpm MemoryPoolClient/<name>*
*DnsAgent/<vr>,n Mpm MemoryPoolClient/<name>*

This component represents a pool of objects of a particular class that a GPRS application currently owns as well as all the objects that could be owned by that application. All the objects in the pool are of the same class. The instance value of this component is a string which is the class name of the objects in the pool.

Common Verbs

Help
List
Display

## COMPONENT Sas RemoteApplicationConnection (RaConn)

Instance

appType [String (1..8, ASCII)]
shelfId [Decimal (0..50)]
instance (n) [Decimal (1..15)]

| | |
|---|---|
| Groups | "GROUP Sas RaConn OsiState (State)"<br>"GROUP Sas RaConn WlcCustomCounters (WlcCustomCntr)" |
| Scope | Application |
| Description | ... *RemoteApplicationConnection/<appType, shelfId, n>*<br><br>This component represents the Remote Application Connection information of an application that talks to applications on other shelves. For each application that it can communicate with, one of these connection components is created and is instantiated with the name of the remote application, the Id of the shelf on which the application runs, and the instance number of the application. ShelfId ***0*** represents the Master shelf. |
| Dyn. Subcomp. | "COMPONENT Sas RaConn AtmConnection (AtmCon)" |
| Common Verbs | Help<br>List<br>Display |

## GROUP Sas RaConn OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

## ATTRIBUTE Sas RaConn adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***. |

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Sas RaConn operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Sas RaConn usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in

use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Sas RaConn WlcCustomCounters (WlcCustomCntr)

Properties
Operational

Description
This group contains the spare counters that can be dynamically patched.

### ATTRIBUTE Sas RaConn customCounter1 (customCntr1)

Access
Read: All
Write: Illegal

Description
This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch.

Values
Decimal (0..4294967295)

Default
No default

### ATTRIBUTE Sas RaConn customCounter2 (customCntr2)

Access
Read: All
Write: Illegal

Description
This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch.

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sas RaConn customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT Sas RaConn AtmConnection (AtmCon)

| | |
|---|---|
| Groups | "GROUP Sas RaConn AtmCon Operational (Oper)" |
| Scope | Device |
| Description | An AtmConnection component is created for each ATM connection established by an application. It shows where the data traffic for this connection is directed. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Sas RaConn AtmCon Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains the operational attributes for the *NapAtmConnection* component. |

### ATTRIBUTE Sas RaConn AtmCon nextHop

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute shows the component name of the *AtmIf Vcc Ep* or *AtmCon* component to which this switched connection is established. |
| Values | The name of the component |
| Default | No default |

Passport 7400, 15000, 20000

# Component Sas

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component Sccp

241-5701-060

Passport 7400, 15000, 20000

# Component Sccp

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT SignallingConnControlPart (Sccp)

| | |
|---|---|
| Instance | Decimal (0..255) |
| Groups | "GROUP Sccp Provisioned (Prov)"<br>"GROUP Sccp OsiState (State)"<br>"GROUP Sccp Operational (Oper)"<br>"GROUP Sccp WlcCustomCounters (WlcCustomCntr)" |

"COLLECTED STATS SignallingConnControlPart"

| | |
|---|---|
| Scope | Application |
| Description | *SignallingConnControlPart/n*<br><br>This component represents the SCCP layer of the SS7 stack. |
| Subcomponents | "COMPONENT Sccp Mtp3Connection (Mtp3Conn)"<br>"COMPONENT Sccp MemoryPoolManager (Mpm)" |
| Opt. Subcomp. | "COMPONENT Sccp LocalSubsystem (Loc)"<br>"COMPONENT Sccp RemoteSubsystem (Rem)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP Sccp Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes of this component. |

## ATTRIBUTE Sccp linkToLogicalProcessor (lp)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the Logical Processor (LP) that this component and its subcomponents are provisioned on. |
| Values | Link (Hardware, linkToApplications) |
| Default | No default |

## ATTRIBUTE Sccp maxConnections (maxC)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the maximum number of signalling connections supported by an SCCP instance across all the local subsystems.<br><br>The current number of open signalling connections is indicated by the attribute *activeConnections.* The number of times a signalling connection establishment was refused because the number of open connections has reached the maximum value is indicated by the attribute *rejectedConnections.*<br><br>Changes to this attribute affect only new connections. No existing connections will be affected by any changes made to this attribute. |
| Values | Decimal (1000..200000) |
| Default | 16000 |

### ATTRIBUTE Sccp timerConnEst (tConnEst)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the value of the TConnEst timer defined in the ITU-T spec Q.714. This is the period of time to wait for a CONNECTION CONFIRM message from the remote user of SCCP.<br><br>This timer is started when a CONNECT REQUEST message is sent to the remote SCCP layer.<br><br>This timer is stopped when either a CONNECT CONFIRM, RELEASED, or CONNECT REFUSED message is received, or when a routing failure happens.<br><br>Upon timer expiration, the resources associated with the connection are released and a disconnect message is sent to the local user(s).<br><br>The number of timeouts of this timer is indicated by the attribute *connEstTmouts*. |
| Values | Decimal (60..120) |
| Units | seconds |
| Default | 60 |

### ATTRIBUTE Sccp timerInactivitySend (tIas)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the value of the Tias timer defined in Q.714. This is the period of time to wait before sending an INACTIVITY TEST message for a connection when there are no messages to send.<br><br>The timer is started when a CONNECT CONFIRM or CONNECT RESPONSE message is received. |

The timer is restarted if a DATA FORM 1 message is transmitted.

This timer is stopped when a DISCONNECT, RELEASE COMPLETE or ERROR message is received, or when a routing failure occurs.

If the timer expires on an open connection, an INACTIVITY TEST message is sent.

It is recommended that the timer be set to a value that is half as long as the *tIarTimer.*

| | |
|---|---|
| Values | Decimal (300..600) |
| Units | seconds |
| Default | 300 |

### ATTRIBUTE Sccp timerInactivityReceive (tIar)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the value of the inactivity receive timer defined in Q.714. This is the period of time to wait on receiving a message for a connection, before releasing the connection.<br><br>This timer is started when a CONNECT CONFIRM or CONNECT RESPONSE message is received.<br><br>This timer is restarted if a DATA FORM 1 or INACTIVITY TEST message is received.<br><br>This timer is stopped when a DISCONNECT, RELEASED, or ERROR message is received, or when a routing failure occurs.<br><br>If this timer expires on an open connection, a DISCONNECT message is sent and the resources are released.<br><br>It is recommended that the timer be set to a value that is twice as long as *tIasTimer.* |

The number of timeouts of this timer is indicated by the attribute *inactivityReceiveTimeouts*.

Values: Decimal (660..1260)

Units: seconds

Default: 660

### ATTRIBUTE Sccp timerRel (tRel)

Access: Read: All
Write: All

Description: This attribute specifies the value of the release timer defined in Q.714. This is the period of time to wait for a RELEASE COMPLETE message in response to the initial release attempt.

This timer is started when a RELEASED message is sent.

This timer is stopped when a RELEASE COMPLETE or ERROR message is received, or on a routing failure.

Upon timer expiration, a RELEASE message is sent and the *tRepeatRelTimer* is started.

The number of timeouts of this timer is indicated by the attribute *tRelTimeouts*.

Values: Decimal (10..20)

Units: seconds

Default: 10

### ATTRIBUTE Sccp timerRepeatRel (tRepeatRel)

Access: Read: All
Write: All

Description: This attribute specifies the value of the repeat release timer. This is the period of time to wait for a RELEASE COMPLETE message after *tRelTimer* has expired. This timer determines the interval between successive release retries.

This timer is started when *tRelTimer* expires.

This timer is stopped when a RELEASE COMPLETE or an ERROR message is received, or when a routing failure occurs.

Upon timer expiration, the timer is restarted for a maximum of ten times. Upon the tenth timer expiration, the resources are released.

The number of timeouts of this timer is indicated by the attribute *tRepeatRelTimeouts*.

Values: Decimal (10..20)

Units: seconds

Default: 10

### ATTRIBUTE Sccp classOfService (classOfServ)

Access: Read: All
Write: All

Description: This attribute specifies the type of service provided by the SCCP layer.
The different service classes are:
***0*** - This class represents basic connectionless service.
***2***- This class represents basic connection-oriented service.

Any combination of these classes can be provisioned by the user, but at least one class must be specified.

Set of: 0
2

Default: (0, 2)

### GROUP Sccp OsiState (State)

Properties: Operational

Description: This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state

combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Sccp adminState (osiAdmin)

Access: Read only

Description: This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values:
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default: unlocked

### ATTRIBUTE Sccp operationalState (osiOper)

Access: Read only

Description: This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available

for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Sccp usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Sccp Operational (Oper)

Properties
Operational

Description
This group contains the operational attributes of the *Sccp* component.

### ATTRIBUTE Sccp timerConnEstTimeouts (tConnEstTo)

Access
Read: All
Write: Illegal

Description
This attribute counts the timeouts of the *tConnEstTimer*.

The counter wraps to zero when it exceeds the maximum value.

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sccp timerInactivityReceiveTimeouts (tIarTo)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the timeouts of the timer specified by the attribute *timerInactivityReceive.*<br><br>The counter wraps to zero when it exceeds the maximum value |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sccp timerRelTimeouts (tRelTo)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the timeouts of the timer specified by the attribute *tRelTimer.*<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sccp timerRepeatRelTimeouts (repRelTo)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the timeouts of the timer specified by the attribute *tRepeatRelTimer.*<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sccp activeConnections (actConn)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the current open signalling connections for the *Sccp c*omponent. The maximum number of open signalling connections is set by the attribute *maxConnections.* |
| Values | Decimal (0..1000000) |
| Default | No default |

### ATTRIBUTE Sccp rejectedConnections (rejConn)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of times a signalling connection establishment request by the application was refused. The reasons include the subsystem being down, the number of open connections exceeding the limit specified by the attribute *maxConnections* and so on. This includes the number of rejected connections indicated by the attribute *maxConnExhausted*.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sccp maxConnectionsExhausted (maxConnEx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of times a signalling connection establishment request by the application was refused because the number of open connections reached the limit specified by the attribute *maxConnection.*<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Sccp lostConnections (lostConn)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of the open signalling connections lost due to unavailability of the SCCP Subsystem.<br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sccp unsupportedMessages (unsuppMsgs)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of unsupported (class1, class3) messages received.<br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sccp gttRequests (gttRqsts)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of messages received that require Global Title Translation.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sccp segmentationRequests (segRqsts)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the number of messages received that require segmentation.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sccp reassemblyRequests (reassemblyRqsts)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of messages received that require reassembly.<br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sccp localRoutingFailures (localRoutFail)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of the routing failures to the local subsystem. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sccp remoteRoutingFailures (remRoutFail)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of the routing failures to the remote subsystem. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Sccp messagesTx (msgsTx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of the messages sent to layer 3. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sccp payloadMessagesTx (plMsgsTx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of payload messages transmitted. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sccp messagesRx (msgsRx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of the messages received from layer 3. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sccp payloadMessagesRx (plMsgsRx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the number of payload messages received from layer 3. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sccp invalidMessages (invMsgs)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of invalid (syntax error or undecodable) messages received.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sccp attemptedConnections (attCon)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of signalling connections that this *Sccp c*omponent has attempted to establish. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Sccp WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Sccp customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sccp customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sccp customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## COLLECTED STATS SignallingConnControlPart

| | |
|---|---|
| Description | The statistics record generated by the SignallingConnControlPart component. |

### ATTRIBUTE Sccp activeConnections

| | |
|---|---|
| Description | This attribute indicates the number of the current open signalling connections for the *Sccp c*omponent at the end of the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Sccp rejectedConnections

| | |
|---|---|
| Description | This attribute indicates the number of rejected signalling connections for the SCCP component over the collection interval. The reasons include the subsystem being down, the number of open connections exceeding the limit specified by the attribute *maxConnections* and so on, at the end of the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Sccp maxConnectionsExhausted

| | |
|---|---|
| Description | This attribute indicates the number of times a signalling connection establishment request by the application was refused because the number of open connections reached the limit specified by the attribute *maxConnections,* over the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Sccp lostConnections

| | |
|---|---|
| Description | This attribute indicates the number of the open signalling connections lost due to unavailability of the SCCP Subsystem over the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Sccp invalidMessages

| | |
|---|---|
| Description | This attribute indicates the number of invalid (syntax error or undecodable) messages received over the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Sccp messagesTx

| | |
|---|---|
| Description | This attribute indicates the number of the messages sent to layer 3 over the collection interval. This includes maintenance messages. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Sccp payloadMessagesTx

| | |
|---|---|
| Description | This attribute indicates the number of payload messages transmitted over the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Sccp messagesRx

| | |
|---|---|
| Description | This attribute indicates the number of the messages received from layer 3 over the collection interval. This includes maintenance messages. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Sccp payloadMessagesRx

| | |
|---|---|
| Description | This attribute indicates the number of payload messages received over the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Sccp localRoutingFailures

| | |
|---|---|
| Description | This attribute indicates the number of the routing failures to the local subsystem over the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Sccp remoteRoutingFailures

| | |
|---|---|
| Description | This attribute indicates the number of the routing failures to the remote subsystem over the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Sccp attemptedConnections (attCon)

| | |
|---|---|
| Description | This attribute indicates the number of signalling connections that this *Sccp c*omponent has attempted to establish during the collection interval. |
| Values | Decimal (0..4294967295) |

### COMPONENT Sccp LocalSubsystem (Loc)

| | |
|---|---|
| Instance | Decimal (0..255) |
| Groups | "GROUP Sccp Loc Provisioned (Prov)"<br>"GROUP Sccp Loc OsiState (State)"<br>"GROUP Sccp Loc WlcCustomCounters (WlcCustomCntr)" |
| Scope | Application |
| Description | *Sccp/n LocalSubsystem*<br><br>This component represents a local subsystem that is providing services using this *Sccp* component. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Sccp Loc Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes of this component. |

### ATTRIBUTE Sccp Loc linkToSccpConnection (lToSccpConn)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies a link to the local subsystem represented by this component. |

This attribute must be set to ***Sg/n RncIf SccpConn*** if the parent *Sccp/n* component is part of the SS7 stack on the Iu interface.

This attribute must be set to ***Sg/n CsDomain SccpConn*** if the parent *Sccp/n* component is part of the SS7 stack on the interface to the Call Server.

If this attribute is changed, it will result in a loss of service for the *Loc* component.

Values: Link (Service, linkToLocalSubsystem)

Default: No default

### ATTRIBUTE Sccp Loc subsystemNumber (ssn)

Access: Read: All
Write: All

Description: This attribute specifies the subsystem number of the local subsystem represented by this component.

Values: ranap

Default: ranap

### GROUP Sccp Loc OsiState (State)

Properties: Operational

Description: This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Sccp Loc adminState (osiAdmin)

Access: Read only

Description: This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values: locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default: unlocked

### ATTRIBUTE Sccp Loc operationalState (osiOper)

Access: Read only

Description: This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values: enabled (ena)
disabled (dis)

Default: disabled

### ATTRIBUTE Sccp Loc usageState (osiUsage)

Access: Read only

| | |
|---|---|
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Sccp Loc WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Sccp Loc customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sccp Loc customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a |

| | |
|---|---|
| | mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sccp Loc customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT Sccp RemoteSubsystem (Rem)

| | |
|---|---|
| Instance | Decimal (0..255) |
| Groups | "GROUP Sccp Rem Provisioned (Prov)"<br>"GROUP Sccp Rem OsiState (State)"<br>"GROUP Sccp Rem WlcCustomCounters (WlcCustomCntr)" |
| Scope | Application |
| Description | *Sccp/n RemoteSubsystem*<br><br>This optional component represents a remote subsystem that can be accessed by this *Sccp* component. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Sccp Rem Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |

| | |
|---|---|
| Description | This group contains the provisionable attributes of this component. |

### ATTRIBUTE Sccp Rem subsystemNumber (subsNum)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the subsystem number of the remote subsystem represented by this component. |
| Values | ranap |
| Default | ranap |

### GROUP Sccp Rem OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Sccp Rem adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is |

administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Sccp Rem operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Sccp Rem usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

| | |
|---|---|
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Sccp Rem WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Sccp Rem customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sccp Rem customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sccp Rem customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## COMPONENT Sccp Mtp3Connection (Mtp3Conn)

| | |
|---|---|
| Groups | "GROUP Sccp Mtp3Conn Provisioned (Prov)"<br>"GROUP Sccp Mtp3Conn WlcCustomCounters (WlcCustomCntr)" |
| Scope | Application |
| Description | Vmg/n Mtp3Connection<br>Sccp/n Mtp3Connection<br><br>This component represents a connection to an MTP3 layer. |
| Common Verbs | Help<br>List<br>Display |

## GROUP Sccp Mtp3Conn Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes of the *Mtp3Connection*component. |

## ATTRIBUTE Sccp Mtp3Conn linkToServiceIndicator (lToSI)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies a link to an *Mtp3/n ServiceIndicator/n* component for MTP 3 services. |

| | |
|---|---|
| | Changing this attribute will cause the application using the MTP3 layer's services to be restarted. |
| Values | Link (Service, linkToMtp3Connection) |
| Default | No default |

### GROUP Sccp Mtp3Conn WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Sccp Mtp3Conn customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sccp Mtp3Conn customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sccp Mtp3Conn customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## COMPONENT Sccp MemoryPoolManager (Mpm)

| | |
|---|---|
| Scope | Application |
| Description | *Gsc/n MemoryPoolManager*<br>*Gsd/n MemoryPoolManager*<br>*Gtl/n MemoryPoolManager*<br>*DnsAgent/<vr>,n MemoryPoolManager*<br><br>This component represents the memory resources of a given GPRS application that are managed as pools of objects. |
| Dyn. Subcomp. | "COMPONENT Sccp Mpm MemoryPoolClient (Mpc)" |
| Common Verbs | Help<br>List<br>Display |

## COMPONENT Sccp Mpm MemoryPoolClient (Mpc)

| | |
|---|---|
| Instance | String (1..30, ASCII) |
| Scope | Application |
| Description | *Gsc/n Mpm MemoryPoolClient/<name>*<br>*Gsd/n Mpm MemoryPoolClient/<name>*<br>*SgGtl/n Mpm MemoryPoolClient/<name>*<br>*DnsAgent/<vr>,n Mpm MemoryPoolClient/<name>*<br><br>This component represents a pool of objects of a particular class that a GPRS application currently owns as well as all the objects that could be owned by that application. All the objects in the pool are of the same class. The instance value of this component is a string which is the class name of the objects in the pool. |

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display |

Passport 7400, 15000, 20000

# Component Sccp

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component ScpSim

241-5701-060

Passport 7400, 15000, 20000

# Component ScpSim

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT ScpSimulator (ScpSim)

| | |
|---|---|
| Scope | Application |
| Description | *ScpSimulator*<br><br>This component simulates the CAMEL functionality of a Service Control Point (SCP) node. The *ScpSim* communicates with the Service Switching Function (SSF) component in the USC/GSC process.<br><br>The *ScpSim* component is intended for internal use and is to be used only by Nortel Networks personnel. It is not a supported customer tool. |
| Opt. Subcomp. | "COMPONENT ScpSim Profile" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## COMPONENT ScpSim Profile

| | |
|---|---|
| Instance | Decimal (1..100) |
| Scope | Application |
| Description | *ScpSim Profile/n*<br><br>This component represents the information required by the *ScpSim* to simulate a CAMEL dialogue with the Service |

Switching Function (SSF). A subscriber may be assigned to an instance of this component.

Opt. Subcomp. "COMPONENT ScpSim Profile Subscriber (Subs)"

Common Verbs

Help
List
Display
Add
DELete

## COMPONENT ScpSim Profile Subscriber (Subs)

Instance BCD (5..15)

Scope Application

Description *ScpSim Profile/n Subscriber/<imsi>*

This component represents a single subscriber that is provisioned for CAMEL service and is set up for automatic message processing. In automatic message processing, CAMEL dialogues are simulated by the *ScpSim* based on the values specified in the attributes of the profile to which the subscriber has been assigned. The instance value of the *ScpSimSubscriber* component is the International Mobile Subscriber Identity (IMSI) for the Mobile Station (MS) being simulated.

Common Verbs

Help
List
Display
Add
DELete

Passport 7400, 15000, 20000

# Component ScpSim

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component SgGtl

241-5701-060

Passport 7400, 15000, 20000

# Component SgGtl

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT SgGprsTransportLayer (SgGtl)

| | |
|---|---|
| Instance | Decimal (1..15) |
| Groups | "GROUP SgGtl Provisioned (Prov)"<br>"GROUP SgGtl WlcCustomCounters (WlcCustomCntr)" |
| Scope | Application |
| Description | *SgGprsTransportLayer/n*<br><br>This component represents the Transport Layer functionality of the Gb interface of the Serving GPRS Support Node (SGSN). The Transport Layer includes protocol layers such as the Network Service (NS) and the BSS GPRS Protocol (BSSGP). Only one *SgGtl* Component can be provisioned on an FP card. |
| Subcomponents | "COMPONENT SgGtl MemoryPoolManager (Mpm)" |
| Opt. Subcomp. | "COMPONENT SgGtl NetworkServiceEntity (Nse)" |
| Dyn. Subcomp. | "COMPONENT SgGtl RemoteApplicationConnection (RaConn)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP SgGtl Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |

| | |
|---|---|
| Description | This group contains the provisionable attributes of the *SgGprsTransportLayer (SgGtl).* |

### ATTRIBUTE SgGtl linkToLogicalProcessor (lp)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the Logical Processor that the *SgGprsTransportLayer (SgGtl)* and its subcomponents are provisioned on. |
| Values | Link (Hardware, linkToApplications) |
| Default | No default |

### ATTRIBUTE SgGtl bvcBlockedTimer (tBvcBlocked)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the time that a BSS GPRS Virtual Connection (BVC) can remain blocked without generating an alarm condition.<br><br>A timer starts with the *bvcBlockedTimer* attribute value when the Serving GPRS Support Node (SGSN) receives a BVC_BLOCK Protocol Data Unit (PDU) from the Packet Control Unit (PCU). The timer stops when the SGSN receives a BVC_UNBLOCK PDU from the PCU. If the timer expires, the Network Service Entity (NSE) is notified that the BVC is unavailable.<br><br>The *bvcBlockedTimeouts* attribute indicates the number of times the timer timed out. |
| Values | Decimal (1..200) |
| Units | minutes |
| Default | 10 |

### ATTRIBUTE SgGtl bvcBmaxTimer (tBvcBmax)

| | |
|---|---|
| Access | Read: All<br>Write: All |

| | |
|---|---|
| Description | This attribute specifies the time that the BSS GPRS Virtual Connection (BVC) flow control parameter Bmax can remain at value 0 without generating an alarm condition.<br><br>A timer starts with the *bvcBmaxTimer* attribute value when the Serving GPRS Support Node (SGSN) receives a BVC_FLOW_CONTROL Protocol Data Unit (PDU) with a Bmax value of 0 from the Packet Control Unit (PCU). The timer stops when the SGSN receives a BVC_FLOW_CONTROL PDU from the PCU with a Bmax value greater than 0. If the timer expires, the Network Service Entity (NSE) is notified that the BVC is unavailable.<br><br>The *bvcBmaxTimeouts* attribute indicates the number of times the timer timed out. |
| Values | Decimal (1..200) |
| Units | minutes |
| Default | 10 |

### ATTRIBUTE SgGtl bvcLeakRateTimer (tBvcLeakRate)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the time that the BSS GPRS Virtual Connection (BVC) Leak Rate flow control parameter can remain at value 0 without generating an alarm condition.<br><br>A timer starts with the *bvcLeakRateTimer* attribute value when the Serving GPRS Support Node (SGSN) receives a BVC_FLOW_CONTROL Protocol Data Unit (PDU) with a Leak Rate value of 0 from the Packet Control Unit (PCU). The timer stops when the SGSN receives a BVC_FLOW_CONTROL PDU from the PCU with a Leak Rate value greater than 0. If the timer expires, the Network Service Entity (NSE) is notified that the BVC is unavailable.<br><br>The *bvcLeakRateTimeouts* attribute indicates the number of times the timer timed out. |

| | |
|---|---|
| Values | Decimal (1..200) |
| Units | minutes |
| Default | 10 |

### ATTRIBUTE SgGtl bvcBlockedSetThreshold (bvcBlockedSet)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the threshold at which the BVC Blocked alarm is set. The value of the attribute is the number of unavailable BSS GPRS Virtual Connections (BVC) associated with a Network Service Entity (NSE) that is deemed acceptable.<br><br>The Packet Control Unit (PCU) can render a BVC unavailable by sending a BVC_BLOCK Protocol Data Unit (PDU) or a BVC_FLOW_CONTROL PDU to the Serving GPRS Support Node (SGSN). When the number of unavailable BVCs exceeds the value of the *bvcBlockedSetThreshold* attribute, the BVC Blocked alarm is set.<br><br>The value of the *bvcBlockedSetThreshold* attribute must be greater than or equal to the *bvcBlockedClrThreshold* attribute value. |
| Values | Decimal (1..600) |
| Default | 10 |

### ATTRIBUTE SgGtl bvcBlockedClrThreshold (bvcBlockedClr)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the threshold at which the BVC Blocked alarm is cleared.<br><br>The Packet Control Unit (PCU) can render a BSS GPRS Virtual Connections (BVC) unavailable by sending a BVC_BLOCK Protocol Data Unit (PDU) or a BVC_FLOW_CONTROL PDU to the Serving GPRS Support Node (SGSN). If the BVC Blocked alarm is active and the number of Network Service Entity (NSE) |

| | |
|---|---|
| | unavailable BVCs drops below the value of the *bvcBlockedClrThreshold* attribute, the BVC Blocked alarm is cleared.<br><br>The value of the *bvcBlockedClrThreshold* attribute must be less than or equal to the *bvcBlockedSetThreshold* attribute value. |
| Values | Decimal (1..600) |
| Default | 5 |

### ATTRIBUTE SgGtl associatedGtl (aGtl)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the paired *SgGprsTransportLayer (SgGtl)* instance used to enable load sharing. Both *SgGtl* instances must have the same *SgGtl/n Nse/<nsei>* components provisioned. If this attribute is not set, then load sharing is disabled for the Network Service Entities (NSE) on this GPRS Transport Layer (GTL). |
| Values | Link (Service, associatedGtl) |
| Default | No default |

### GROUP SgGtl WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE SgGtl customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE SgGtl customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE SgGtl customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT SgGtl NetworkServiceEntity (Nse)

| | |
|---|---|
| Instance | Decimal (0..65535) |
| Groups | "GROUP SgGtl Nse NseStatistics (NseStats)"<br>"GROUP SgGtl Nse OsiState (State)" |

"COLLECTED STATS SgGprsTransportLayer NetworkServiceEntity"

| | |
|---|---|
| Scope | Application |
| Description | *SgGtl/n NetworkServiceEntity/<nsei>*<br><br>This component represents a Network Service Entity (NSE). Each NSE is associated with a single Packet Control Unit (PCU) and is identified by means of a Network Service Entity Identifier |

(NSEI). Load sharing on a pair of SgGtl components is enabled by provisioning the same NSEs on the pair and using the associatedGtl attribute.

There may be no more than 200 unique *Nse* component instances provisioned over all *SgGtl* components and no more than 128 *Nsvc* components provisioned under any given *SgGtl/n Nse/<nsei>* component.

| | |
|---|---|
| Subcomponents | "COMPONENT SgGtl Nse SignalingBvc (SigBvc)" |
| Opt. Subcomp. | "COMPONENT SgGtl Nse NetworkServiceVirtualConnection (Nsvc)" |
| Dyn. Subcomp. | "COMPONENT SgGtl Nse PointToPointBvc (PtpBvc)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP SgGtl Nse NseStatistics (NseStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes of the Network Service Entity (NSE). |

## ATTRIBUTE SgGtl Nse octetsToPcu (octsTxPcu)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the octets sent to the Packet Control Unit (PCU) by all the Network Service Virtual Connections (NS-VCs) served by this Network Service Entity (NSE). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE SgGtl Nse octetsFromPcu (octsRxPcu)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the octets received from the Packet Control Unit's (PCU) Network Service Virtual Connections (NS-VCs) served by the peer Network Service Entity (NSE). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP SgGtl Nse OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE SgGtl Nse adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is |

administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE SgGtl Nse operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE SgGtl Nse usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values idle
active (activ)
busy

Default idle

## COLLECTED STATS SgGprsTransportLayer NetworkServiceEntity

Description The statistics record generated by the SgGprsTransportLayer NetworkServiceEntity component.

### ATTRIBUTE SgGtl Nse currentBvcs (curBvcs)

Description This attribute indicates the current number of BSS GPRS Virtual Connections (BVCs) on this Network Service Entity (NSE) in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE SgGtl Nse octetsToPcu (octsTxPcu)

Description This attribute counts the octets sent to the Packet Control Unit (PCU) by all the Network Service Virtual Connections (NS-VCs) served by this Network Service Entity (NSE). This counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE SgGtl Nse octetsFromPcu (octsRxPcu)

Description This attribute counts the octets received from the Packet Control Unit’s (PCU) Network Service Virtual Connections (NS-VCs) served by the peer Network Service Entity (NSE). This counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### COMPONENT SgGtl Nse PointToPointBvc (PtpBvc)

Instance Decimal (1..65535)

Groups "GROUP SgGtl Nse PtpBvc Operational (Oper)"
"GROUP SgGtl Nse PtpBvc Statistics (Stats)"

"COLLECTED STATS SgGprsTransportLayer NetworkServiceEntity PointToPointBvc"

| | |
|---|---|
| Scope | Application |
| Description | *SgGtl/n Nse/<nsei> PointToPointBvc/<bvci>*<br><br>This component represents the Point To Point BSS GPRS Virtual Connection (BVC) protocol layer functionality of the Serving GPRS Support Node (SGSN). Each instance value represents the BSS GPRS Virtual Connection Identifier (BVCI) and is created dynamically at the SGSN upon receipt of a BVC RESET from the Packet Control Unit (PCU) with an unknown BVCI. |
| Common Verbs | Help<br>List<br>Display |

## GROUP SgGtl Nse PtpBvc Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the BSS GPRS Virtual Connection (BVC) operational information. |

## ATTRIBUTE SgGtl Nse PtpBvc state

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the current state for a BSS GPRS Virtual Connection (BVC). A BVC can be in one of the following possible states:<br>***blocked***, Indicates that the BVC is blocked by the Packet Control Unit (PCU). In this state it can neither send nor receive data.<br>***unblockedNoTx***, Indicates that the BVC can receive data from the PCU, but is not allowed to transmit data to the PCU.<br>***unblocked***, Indicates that the BVC is active and data can be sent and received to (and from) the PCU.<br>***resetReqPending***, Indicates that the BVC-RESET request was sent to the PCU and that the BVC is awaiting a BVC-RESET-ACK confirmation. |
| Values | blocked<br>unblockedNoTx |

| | |
|---|---|
| | unblocked<br>resetReqPending |
| Default | No default |

### ATTRIBUTE SgGtl Nse PtpBvc flowCntlBucketSize (bmax)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the maximum bucket size for the BSS GPRS Virtual Connection (BVC) sent by the Packet Control Unit (PCU). This parameter is used by the BVC flow control algorithm. The unit is 100 bytes. |
| Values | Decimal (0..65535) |
| Default | No default |

### ATTRIBUTE SgGtl Nse PtpBvc leakRate (leakRt)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the leak rate for the BSS GPRS Virtual Connection (BVC), sent by the Packet Control Unit (PCU). This parameter is used by the BVC flow control algorithm. The unit is 100 bit/s. |
| Values | Decimal (0..65535) |
| Default | No default |

### ATTRIBUTE SgGtl Nse PtpBvc availabilityStatus (availStatus)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the current status of a BSS GPRS Virtual Connection (BVC). The BVC availability status can either be ***bvcAvailable,*** meaning that the BVC is available, or one or more of the other three conditions listed below:<br><br>A value of ***bvcBlocked*** indicates that the BVC is blocked by the Packet Control Unit (PCU) and is unavailable. The amount of |

time the BVC is blocked before it is marked as unavailable, is provisionable through the *bvcBlockedTimer* attribute of the *SgGtl* component.

A value of ***bvcBmax0*** indicates that the maximum bucket size flow control parameter for the BVC sent by the PCU is 0 and the BVC is unavailable. The amount of time the bucket size is 0 before it is marked as unavailable, is provisionable through the *bvcBmaxTimer* attribute of the *SgGtl* component.

A value of ***bvcLeakRate0*** indicates that the leak rate flow control parameter for the BVC sent by the PCU is 0 and the BVC is unavailable. The amount of time the leak rate is 0 before it is marked as unavailable, is provisionable through the *bvcLeakRateTimer* attribute of the *SgGtl* component.

Set of
bvcAvailable
bvcBlocked
bvcBmax0
bvcLeakRate0

Default
No default

## ATTRIBUTE SgGtl Nse PtpBvc bvcGlobalCellId (bvcCellId)

Access
Read: All
Write: Illegal

Description
This attribute indicates the current Global Cell ID of the BSS GPRS Virtual Connection (BVC). The format of the Global Cell ID is “<MCC>.<MNC>.<LAC>.<RAC>.<CellID>”.

Values
String (1..30, ASCII)

Default
No default

## ATTRIBUTE SgGtl Nse PtpBvc bvcBlockedTimeouts (bvcBlockedT)

Access
Read: All
Write: Illegal

Description
This attribute counts the number of times the BVC has been blocked for a span of minutes defined by the *bvcBlockedTimer*

attribute. The counter wraps to 0 when the maximum value is exceeded.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE SgGtl Nse PtpBvc bvcBmaxTimeouts (bvcBmaxT)

Access: Read: All
Write: Illegal

Description: This attribute counts the number of times the BVC Bmax flow control parameter is 0 for a span of minutes defined by the *bvcBmaxTimer* attribute. The counter wraps to 0 when the maximum value is exceeded.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE SgGtl Nse PtpBvc bvcLeakRateTimeouts (bvcLeakRateT)

Access: Read: All
Write: Illegal

Description: This attribute counts the number of times the BVC Leak Rate flow control parameter is 0 for a span of minutes defined by the *bvcLeakRateTimer* attribute. The counter wraps to 0 when the maximum value is exceeded.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE SgGtl Nse PtpBvc fullRatio (fullRt)

Access: Read: All
Write: Illegal

Description: This attribute indicates the percentage of the bucket that is filled with data for a BSS GPRS Virtual Connection (BVC).

This attribute is used by the BVC bucket flow control algorithm if the Current Bucket Level feature is negotiated between the Packet Control Unit (PCU) and the Serving GPRS Support Node

(SGSN). The result of this negotiation is reflected in the *currentBucketLevelFeature* attribute.

A value of ***0*** means that the bucket is empty, while a value of ***100*** means that the bucket is exactly full. A value greater than ***100*** means that the bucket is full and overflowing by that percentage. For example, a value of ***150*** means the bucket is full and overflowing by 50%. A value of ***disabled*** means that this attribute is not used by the flow control algorithm because the Current Bucket Level feature is not negotiated.

| | |
|---|---|
| Values | Decimal (0..255)<br>disabled |
| Units | % |
| Default | No default |

## GROUP SgGtl Nse PtpBvc Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the BSS GPRS Virtual Connection (BVC) statistical information. |

## ATTRIBUTE SgGtl Nse PtpBvc pdusFromPcu (pdusRxPcu)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Protocol Data Units (PDUs) received from the Packet Control Unit (PCU) by the Point To Point BSS GPRS Virtual Connection (BVC). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## ATTRIBUTE SgGtl Nse PtpBvc pdusToPcu (pdusTxPcu)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the Protocol Data Units (PDUs) transmitted to the Packet Control Unit (PCU) by the Point To Point BSS GPRS Virtual Connection (BVC). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE SgGtl Nse PtpBvc octetsFromPcu (octsRxPcu)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the octets received from the Packet Control Unit (PCU) by the BSS GPRS Virtual Connection (BVC). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE SgGtl Nse PtpBvc octetsToPcu (octsTxPcu)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the octets transmitted to the Packet Control Unit (PCU) from the Serving GPRS Support Node (SGSN). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE SgGtl Nse PtpBvc blocksFromPcu (blksRxPcu)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the BVC-BLOCK PDUs received from the Packet Control Unit (PCU) for this BSS GPRS Virtual Connection (BVC). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE SgGtl Nse PtpBvc unblocksFromPcu (unblksRxPcu)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the BVC-UNBLOCK PDUs received from the Packet Control Unit (PCU) for this BSS GPRS Virtual Connection (BVC). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE SgGtl Nse PtpBvc resetsFromPcu (rstsRxPcu)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the BVC-RESET PDUs received from the Packet Control Unit (PCU) for this BSS GPRS Virtual Connection (BVC). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE SgGtl Nse PtpBvc resetsToPcu (rstsTxPcu)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the BVC-RESET PDUs sent to the Packet Control Unit (PCU) for this BSS GPRS Virtual Connection (BVC). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE SgGtl Nse PtpBvc statusFromPcu (statusRxPcu)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the NM-STATUS PDUs received from the Packet Control Unit (PCU). The PCU sends an NM-STATUS PDU<br>when it receives an invalid packet or a packet that has undergone corruption over the Gb interface in the SGSN-PCU direction. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE SgGtl Nse PtpBvc statusToPcu (statusTxPcu)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the NM-STATUS PDUs sent to the Packet Control Unit (PCU). The SGSN sends an NM-STATUS PDU when<br>it receives an invalid packet or a packet that has undergone corruption over the Gb interface in the PCU-SGSN direction. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE SgGtl Nse PtpBvc bvcFlowCntlFromPcu (bvcFlRxPcu)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the FLOW-CONTROL-BVC Protocol Data Units (PDUs) received for this BSS GPRS Virtual Connection (BVC). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE SgGtl Nse PtpBvc msFlowCntlFromPcu (msFlRxPcu)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the FLOW-CONTROL-MS Protocol Data Units (PDUs) received for this BSS GPRS Virtual Connection (BVC). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## COLLECTED STATS SgGprsTransportLayer NetworkServiceEntity PointToPointBvc

| | |
|---|---|
| Description | The statistics record generated by the SgGprsTransportLayer NetworkServiceEntity PointToPointBvc component. |

### ATTRIBUTE SgGtl Nse PtpBvc pdusFromPcu (pdusRxPcu)

| | |
|---|---|
| Description | This attribute counts the number of protocol data units (PDUs) received from the Packet Control Unit (PCU) by the BSS GPRS Virtual Connection (BVC) in the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE SgGtl Nse PtpBvc pdusToPcu (pdusTxPcu)

| | |
|---|---|
| Description | This attribute counts the number of protocol data units (PDUs) transmitted to the Packet Control Unit (PCU) by the BSS GPRS Virtual Connection (BVC) in the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE SgGtl Nse PtpBvc octetsFromPcu (octsRxPcu)

| | |
|---|---|
| Description | This attribute counts the number of octets received from the Packet<br>Control Unit (PCU) by the BSS GPRS Virtual Connection (BVC) in the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE SgGtl Nse PtpBvc octetsToPcu (octsTxPcu)

Description: This attribute counts the number of octets transmitted to the Packet Control Unit (PCU) from the Serving GPRS Support Node (SGSN) in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE SgGtl Nse PtpBvc bvcFlowCntlFromPcu (bvcFlRxPcu)

Description: This attribute counts the FLOW-CONTROL-BVC Protocol Data Units (PDUs) received for this BSS GPRS Virtual Connection (BVC) in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE SgGtl Nse PtpBvc msFlowCntlFromPcu (msFlRxPcu)

Description: This attribute counts the BSSGP-FLOW-CONTROL-MS Protocol Data Units (PDUs) received for this BSS GPRS Virtual Connection (BVC) in the collection interval.

Values: Decimal (0..4294967295)

### COMPONENT SgGtl Nse NetworkServiceVirtualConnection (Nsvc)

Instance: Decimal (1..65535)

Groups: "GROUP SgGtl Nse Nsvc Provisioned (Prov)"
"GROUP SgGtl Nse Nsvc Operational (Oper)"
"GROUP SgGtl Nse Nsvc Statistics (Stats)"

"COLLECTED STATS SgGprsTransportLayer NetworkServiceEntity NetworkServiceVirtualConnection"

Scope: Application

Description: *SgGtl/n Nse/<nsei> Nsvc/<nsvci>*

This component represents the Network Service Virtual Connection (NS-VC) functionality of the Network Service (NS) protocol layer. Each instance provides a virtual connection between the NS peer entities. An NS-VC is unique across all instances of this Network Service Entity Identifier (NSEI).

An NS-VC is associated with a single Frame Relay Data Link Connection Identifier (DLCI). The Frame Relay port and the NS-VC must be located on the same Logical Processor.

Dyn. Subcomp. "COMPONENT SgGtl Nse Nsvc AtmConnection (AtmCon)"

Common Verbs

Help
List
Display
Add
DELete

## GROUP SgGtl Nse Nsvc Provisioned (Prov)

Properties Provisioned

Description This group contains provisionable attributes to associate a Network Service Virtual Connection (NS-VC) with a Frame Relay Data Link Connection Identifier (DLCI). The FR interface is provided by the *FrAtm* component which must be provisioned on the same Logical Processor as this NS-VC.

## ATTRIBUTE SgGtl Nse Nsvc localFrAddress (frAddr)

Access Read: All
Write: All

Criticality Component

Description This attribute specifies the local Frame Relay address (native E.164, native x.121) to be used for this connection. This is the address defined at the peer *FrAtm/n Address* component. The peer *FrAtm* component must be provisioned on the same Logical Processor as this Network Service Virtual Connection (NS-VC).

Values String (1..17, NativeAddress)

Default No default

### ATTRIBUTE SgGtl Nse Nsvc localFrDlci (frDlci)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the local Frame Relay connection identifier. This identifier is a Frame Relay Data Link Connection Identifier (DLCI) logical channel number. There must be a matching DLCI value at the peer *FrAtm* component. The combination of FrAtm and DLCI value must be unique across all instances of NS-VC for this NSEI. |
| Values | Decimal (16..1007) |
| Default | No default |

### GROUP SgGtl Nse Nsvc Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains Network Service Virtual Connection (NS-VC) operational information. |

### ATTRIBUTE SgGtl Nse Nsvc state (st)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the current state of the Network Service Virtual Connection (NS-VC).<br>***idle*** **-** This is the initial state of the NS-VC upon activation.<br>***unBlocked*** **-** Indicates that this NS-VC is unblocked and is now available for traffic.<br>***localInitiatedBlocked*** **-** This state indicates that the NS-VC is blocked by a locally initiated Block Request. NS-UNITDATA Protocol Data Units (PDUs) received in this state are discarded.<br>***netInitiatedBlocked*** **-** This state indicates that this NS-VC has been blocked by the remote node. NS-UNITDATA PDUs received in this state are discarded.<br>***dead*** **-** This state indicates that the NS-VC is unavailable. This can be because the Frame Relay (FR) link is dead or if an operator locks the Data Link Connection Identifier (DLCI). |

| | |
|---|---|
| Values | idle<br>unBlocked<br>localInitiatedBlocked<br>netInitiatedBlocked<br>dead |
| Default | No default |

### GROUP SgGtl Nse Nsvc Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the Network Service Virtual Connection (NS-VC) statistical information. |

### ATTRIBUTE SgGtl Nse Nsvc blocksFromPcu (blksRxPcu)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the NS-BLOCK requests received from the Packet Control Unit (PCU). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE SgGtl Nse Nsvc blocksToPcu (blksTxPcu)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the NS-BLOCK Protocol Data Units (PDUs) encoded to be sent to the Packet Control Unit (PCU). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE SgGtl Nse Nsvc blockAcksFromPcu (blkAcksRxPcu)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the NS-BLOCK ACKs received from the Packet Control Unit (PCU). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE SgGtl Nse Nsvc blockAcksToPcu (blkAcksTxPcu)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the NS-BLOCK ACK Protocol Data Units (PDUs) encoded to be sent to the Packet Control Unit (PCU). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE SgGtl Nse Nsvc unblocksFromPcu (unblksRxPcu)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the NS-UNBLOCK requests received from the Packet Control Unit (PCU). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE SgGtl Nse Nsvc unblocksToPcu (unblksTxPcu)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the NS-UNBLOCK Protocol Data Units (PDUs) encoded to be sent to the Packet Control Unit (PCU). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE SgGtl Nse Nsvc unblockAcksFromPcu (unblkAcksRxPcu)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the NS-UNBLOCK ACKs received from the Packet Control Unit (PCU). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE SgGtl Nse Nsvc unblockAcksToPcu (unblkAcksTxPcu)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the NS-UNBLOCK ACK Protocol Data Units (PDUs) encoded to be sent to the Packet Control Unit (PCU). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE SgGtl Nse Nsvc unitDatasFromPcu (unitDataRxPcu)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the NS-UNITDATA Protocol Data Units (PDUs) received from the Packet Control Unit (PCU). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE SgGtl Nse Nsvc unitDatasToPcu (unitDataTxPcu)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the NS-UNITDATA Protocol Data Units (PDUs) encoded to be sent to the Packet Control Unit (PCU). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE SgGtl Nse Nsvc alivesFromPcu (aliveRxPcu)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the NS-ALIVE requests received from the Packet Control Unit (PCU). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE SgGtl Nse Nsvc alivesToPcu (aliveTxPcu)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the NS-ALIVE Protocol Data Units (PDUs) encoded to be sent to the Packet Control Unit (PCU). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE SgGtl Nse Nsvc aliveAcksFromPcu (aliveAcksRxPcu)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the NS-ALIVE ACKs received from the Packet Control Unit (PCU). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE SgGtl Nse Nsvc aliveAcksToPcu (aliveAcksTxPcu)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the NS-ALIVE ACK Protocol Data Units (PDUs) encoded to be sent to the Packet Control Unit (PCU). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE SgGtl Nse Nsvc resetsFromPcu (rstsRxPcu)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the NS-RESET requests received from the Packet Control Unit (PCU). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE SgGtl Nse Nsvc resetsToPcu (rstsTxPcu)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the NS-RESET Protocol Data Units (PDUs) encoded to be sent to the Packet Control Unit (PCU). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE SgGtl Nse Nsvc resetAcksFromPcu (rstAcksRxPcu)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the NS-RESET ACKs received from the Packet Control Unit (PCU). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE SgGtl Nse Nsvc resetAcksToPcu (rstAcksTxPcu)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the NS-RESET ACK Protocol Data Units (PDUs) encoded to be sent to the Packet Control Unit (PCU). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE SgGtl Nse Nsvc statusFromPcu (statusRxPcu)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the NS-STATUS PDUs received from the Packet Control Unit (PCU). The PCU sends an NS-STATUS PDU when it receives an invalid packet or a packet that has undergone corruption over the Gb interface in the SGSN-PCU direction.<br>The counter to zero wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE SgGtl Nse Nsvc statusToPcu (statusTxPcu)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the NS-STATUS PDUs sent to the Packet Control Unit (PCU). The Serving GPRS Support Node (SGSN) sends an NS-STATUS PDU when it receives an invalid packet or a packet that has undergone corruption over the Gb interface in |

| | |
|---|---|
| | the PCU-SGSN direction.<br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE SgGtl Nse Nsvc statusIndications (statusInds)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the NS-STATUS Indications formatted by the Network Service (NS) for this Network Service Virtual Connection (NS-VC). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE SgGtl Nse Nsvc fecnBitSet (fecnBit)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the frames received from the network that contain the Forward Explicit Congestion Notification (FECN) bit set to 1. Setting of the FECN bit to 1 indicates that frames received from the network can experience congestion. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE SgGtl Nse Nsvc becnBitSet (becnBit)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the frames received from the network that contain the Backward Explicit Congestion Notification (BECN) bit set to 1. Setting of the BECN bit to 1 indicates that frames transmitted to the network may experience congestion. |
| Values | Decimal (0..4294967295) |

Default No default

### ATTRIBUTE SgGtl Nse Nsvc octetsFromPcu (octsRxPcu)

Access Read: All
Write: Illegal

Description This attribute counts the octets the Network Service Virtual Connection (NS-VC) has processed that were received from the Packet Control Unit (PCU). The counter wraps to zero when it exceeds the maximum value.

Values Decimal (0..4294967295)

Default No default

### ATTRIBUTE SgGtl Nse Nsvc octetsToPcu (octsTxPcu)

Access Read: All
Write: Illegal

Description This attribute counts the octets the Network Service Virtual Connection (NS-VC) has processed that were received from the Packet Control Unit (PCU). The counter wraps to zero when it exceeds the maximum value.

Values Decimal (0..4294967295)

Default No default

## COLLECTED STATS SgGprsTransportLayer NetworkServiceEntity NetworkServiceVirtualConnection

Description The statistics record generated by the SgGprsTransportLayer NetworkServiceEntity NetworkServiceVirtualConnection component.

### ATTRIBUTE SgGtl Nse Nsvc unitDatasFromPcu (unitDataRxPcu)

Description This attribute counts the NS-UNITDATA Protocol Data Units (PDUs) received from the Packet Control Unit (PCU) in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE SgGtl Nse Nsvc unitDatasToPcu (unitDataTxPcu)

| | |
|---|---|
| Description | This attribute counts the NS-UNITDATA Protocol Data Units (PDUs) encoded to be sent to the Packet Control Unit (PCU) in the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE SgGtl Nse Nsvc octetsFromPcu (octsRxPcu)

| | |
|---|---|
| Description | This attribute counts the octets the Network Service Virtual Connection (NS-VC) has processed that were received from the Packet Control Unit (PCU) in the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE SgGtl Nse Nsvc octetsToPcu (octsTxPcu)

| | |
|---|---|
| Description | This attribute counts the octets the Network Service Virtual Connection (NS-VC) has processed that were sent to the Packet Control Unit (PCU) in the collection interval. |
| Values | Decimal (0..4294967295) |

### COMPONENT SgGtl Nse Nsvc AtmConnection (AtmCon)

| | |
|---|---|
| Groups | "GROUP SgGtl Nse Nsvc AtmCon Operational (Oper)" |
| Scope | Device |
| Description | An AtmConnection component is created for each ATM connection established by an application. It shows where the data traffic for this connection is directed. |
| Common Verbs | Help<br>List<br>Display |

### GROUP SgGtl Nse Nsvc AtmCon Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains the operational attributes for the *NapAtmConnection* component. |

### ATTRIBUTE SgGtl Nse Nsvc AtmCon nextHop

| | |
|---|---|
| Access | Read only |
| Description | This attribute shows the component name of the *AtmIf Vcc Ep* or *AtmCon* component to which this switched connection is established. |
| Values | The name of the component |
| Default | No default |

### COMPONENT SgGtl Nse SignalingBvc (SigBvc)

| | |
|---|---|
| Groups | "GROUP SgGtl Nse SigBvc Statistics (Stats)"<br>"GROUP SgGtl Nse SigBvc Operational (Oper)" |

"COLLECTED STATS SgGprsTransportLayer NetworkServiceEntity SignalingBvc"

| | |
|---|---|
| Scope | Application |
| Description | *SgGtl/n Nse/<nsei> SignalingBvc*<br><br>This component represents the Signaling BSS GPRS Virtual Connection (BVC) protocol layer functionality of the Serving GPRS Support Node (SGSN). |
| Common Verbs | Help<br>List<br>Display |

### GROUP SgGtl Nse SigBvc Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains signaling BSS GPRS Virtual Connection (BVC) statistical information. |

### ATTRIBUTE SgGtl Nse SigBvc llcDiscardedPdus (llcDiscPdus)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the LLC-DISCARDED-PDU messages received from the Packet Control Unit (PCU). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE SgGtl Nse SigBvc pdusFromPcu (pdusRxPcu)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Protocol Data Units (PDUs) received from the Packet Control Unit (PCU) by the signalling BSS GPRS Virtual Connection (BVC). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE SgGtl Nse SigBvc pdusToPcu (pdusTxPcu)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Protocol Data Units (PDUs) transmitted to the Packet Control Unit (PCU) by the signalling BSS GPRS Virtual Connection (BVC). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE SgGtl Nse SigBvc octetsFromPcu (octsRxPcu)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the octets received from the Packet Control Unit (PCU) by the BSS GPRS Virtual Connection (BVC). The counter wraps to zero when it exceeds the maximum value. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE SgGtl Nse SigBvc octetsToPcu (octsTxPcu)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the octets transmitted to the Packet Control Unit (PCU) from the Serving GPRS Support Node (SGSN). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE SgGtl Nse SigBvc blocksFromPcu (blksRxPcu)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the BVC-BLOCK Protocol Data Units (PDU) received from the Packet Control Unit (PCU) for all the BSS GPRS Virtual Connections (BVC). The *blocksFromPcu* gives the total count of requests for all the Point To Point (PTP) BVCs for that Network Service Entity (NSE) recognized by this FP. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE SgGtl Nse SigBvc unblocksFromPcu (unblksRxPcu)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the BVC-UNBLOCK Protocol Data Units (PDU) received from the Packet Control Unit (PCU) for all the BSS GPRS Virtual Connections (BVCs). The *unblocksFromPcu* gives the total count of requests for all the Point To Point (PTP) BVCs for that Network Service Entity (NSE) recognized by this |

FP. The counter wraps to zero when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE SgGtl Nse SigBvc resetsFromPcu (rstsRxPcu)

Access: Read: All
Write: Illegal

Description: This attribute counts the BVC-RESET Protocol Data Units (PDU) received from the Packet Control Unit (PCU) for all the BSS GPRS Virtual Connections (BVCs). The *resetsFromPcu* gives the total count of requests for all the BVCs for that Network Service Entity (NSE) recognized by this FP. The counter wraps to zero when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE SgGtl Nse SigBvc resetsToPcu (rstsTxPcu)

Access: Read: All
Write: Illegal

Description: This attribute counts the BVC-RESET Protocol Data Units (PDU) sent to the Packet Control Unit (PCU) for a particular BSSGP Virtual Connection (BVC). The *resetsToPcu* gives the total count of requests for all BVCs for that Network Service Entity (NSE) recognized by this FP. The counter wraps to zero when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE SgGtl Nse SigBvc statusFromPcu (statusRxPcu)

Access: Read: All
Write: Illegal

Description: This attribute counts the NM-STATUS PDUs received from the Packet Control Unit (PCU). The PCU sends an NM-STATUS

| | |
|---|---|
| | PDU when it receives an invalid packet or a packet that has undergone corruption over the Gb interface in the SGSN-PCU direction. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE SgGtl Nse SigBvc statusToPcu (statusTxPcu)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the NM-STATUS PDUs sent to the Packet Control Unit (PCU). The SGSN sends an NM-STATUS PDU when it receives an invalid packet or a packet that has undergone corruption over the Gb interface in the PCU-SGSN direction. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP SgGtl Nse SigBvc Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the BSS GPRS Virtual Connection (BVC) operational information. |

### ATTRIBUTE SgGtl Nse SigBvc packetFlowContextFeature (pfc)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates whether the Packet Flow Context feature is enabled or disabled. The Packet Flow Context feature is negotiated during the reset of the Signalling BSS GPRS Virtual Connection (BVC) as part of the negotiation of the Feature Bitmap Information Element between the Packet Control Unit (PCU) and the Serving GPRS Support Node (SGSN). |
| Values | disabled<br>enabled |

Default No default

### ATTRIBUTE SgGtl Nse SigBvc currentBucketLevelFeature (cbl)

Access Read: All
Write: Illegal

Description This attribute indicates whether the Current Bucket Level feature is enabled or disabled. The Current Bucket Level feature is negotiated during the reset of the Signalling BSS GPRS Virtual Circuit (BVC) as part of the negotiation of the Feature Bitmap Information Element between the Packet Control Unit (PCU) and the Serving GPRS Support Node (SGSN).

If the value is ***enabled***, the information in the *fullRatio* attribute in the *SgGtl Nse PtpBvc* component and the *bucketFullRatio* attribute in the *Gsd Tlli Llc* component are used in the flow control algorithms for the BVC and mobile.

Values disabled
enabled

Default No default

## COLLECTED STATS SgGprsTransportLayer NetworkServiceEntity SignalingBvc

Description The statistics record generated by the SgGprsTransportLayer NetworkServiceEntity SignalingBvc component.

### ATTRIBUTE SgGtl Nse SigBvc pdusFromPcu (pdusRxPcu)

Description This attribute counts the number of protocol data units (PDUs) received from the Packet Control Unit (PCU) by the BSS GPRS Virtual Connection (BVC) in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE SgGtl Nse SigBvc pdusToPcu (pdusTxPcu)

Description This attribute counts the number of protocol data units (PDUs) transmitted to the Packet Control Unit (PCU) by the BSS GPRS Virtual Connection (BVC) in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE SgGtl Nse SigBvc octetsFromPcu (octsRxPcu)

| | |
|---|---|
| Description | This attribute counts the number of octets received from the Packet<br>Control Unit (PCU) by the BSS GPRS Virtual Connection (BVC) in the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE SgGtl Nse SigBvc octetsToPcu (octsTxPcu)

| | |
|---|---|
| Description | This attribute counts the number of octets transmitted to the Packet Control Unit (PCU) from the Serving GPRS Support Node (SGSN) in the collection interval. |
| Values | Decimal (0..4294967295) |

### COMPONENT SgGtl MemoryPoolManager (Mpm)

| | |
|---|---|
| Scope | Application |
| Description | *Gsc/n MemoryPoolManager*<br>*Gsd/n MemoryPoolManager*<br>*Gtl/n MemoryPoolManager*<br>*DnsAgent/<vr>,n MemoryPoolManager*<br><br>This component represents the memory resources of a given GPRS application that are managed as pools of objects. |
| Dyn. Subcomp. | "COMPONENT SgGtl Mpm MemoryPoolClient (Mpc)" |
| Common Verbs | Help<br>List<br>Display |

### COMPONENT SgGtl Mpm MemoryPoolClient (Mpc)

| | |
|---|---|
| Instance | String (1..30, ASCII) |
| Scope | Application |
| Description | *Gsc/n Mpm MemoryPoolClient/<name>*<br>*Gsd/n Mpm MemoryPoolClient/<name>*<br>*SgGtl/n Mpm MemoryPoolClient/<name>* |

*DnsAgent/<vr>,n Mpm MemoryPoolClient/<name>*

This component represents a pool of objects of a particular class that a GPRS application currently owns as well as all the objects that could be owned by that application. All the objects in the pool are of the same class. The instance value of this component is a string which is the class name of the objects in the pool.

Common Verbs

Help
List
Display

## COMPONENT SgGtl RemoteApplicationConnection (RaConn)

Instance

appType [String (1..8, ASCII)]
shelfid [Decimal (0..50)]
instance (n) [Decimal (1..15)]

Groups

"GROUP SgGtl RaConn OsiState (State)"
"GROUP SgGtl RaConn WlcCustomCounters (WlcCustomCntr)"

Scope

Application

Description

*... RemoteApplicationConnection/<appType, shelfId, n>*

This component represents the Remote Application Connection information of an application that talks to applications on other shelves. For each application that it can communicate with, one of these connection components is created and is instantiated with the name of the remote application, the Id of the shelf on which the application runs, and the instance number of the application. ShelfId ***0*** represents the Master shelf.

Dyn. Subcomp.

"COMPONENT SgGtl RaConn AtmConnection (AtmCon)"

Common Verbs

Help
List
Display

## GROUP SgGtl RaConn OsiState (State)

Properties

Operational

Description

This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE SgGtl RaConn adminState (osiAdmin)

Access

Read only

Description

This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values

locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default

unlocked

### ATTRIBUTE SgGtl RaConn operationalState (osiOper)

Access

Read only

Description

This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be

providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values: enabled (ena)
disabled (dis)

Default: disabled

### ATTRIBUTE SgGtl RaConn usageState (osiUsage)

Access: Read only

Description: This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values: idle
active (activ)
busy

Default: idle

### GROUP SgGtl RaConn WlcCustomCounters (WlcCustomCntr)

Properties: Operational

Description: This group contains the spare counters that can be dynamically patched.

### ATTRIBUTE SgGtl RaConn customCounter1 (customCntr1)

Access: Read: All
Write: Illegal

| | |
|---|---|
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE SgGtl RaConn customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE SgGtl RaConn customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT SgGtl RaConn AtmConnection (AtmCon)

| | |
|---|---|
| Groups | "GROUP SgGtl RaConn AtmCon Operational (Oper)" |
| Scope | Device |

| | |
|---|---|
| Description | An AtmConnection component is created for each ATM connection established by an application. It shows where the data traffic for this connection is directed. |
| Common Verbs | Help<br>List<br>Display |

## GROUP SgGtl RaConn AtmCon Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains the operational attributes for the *NapAtmConnection* component. |

## ATTRIBUTE SgGtl RaConn AtmCon nextHop

| | |
|---|---|
| Access | Read only |
| Description | This attribute shows the component name of the *AtmIf Vcc Ep* or *AtmCon* component to which this switched connection is established. |
| Values | The name of the component |
| Default | No default |

Passport 7400, 15000, 20000

# Component SgGtl

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component Sgsn

241-5701-060

Passport 7400, 15000, 20000

# Component Sgsn

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT ServingGprsSupportNode (Sgsn)

| | |
|---|---|
| Groups | "GROUP Sgsn Provisioned (Prov)"<br>"GROUP Sgsn VolumeCounts (Vc)" |
| Scope | Application |
| Description | *ServingGprsSupportNode*<br><br>This component represents the Serving GPRS Support Node (SGSN) functionality of the GPRS. It is to be added on both the Master shelf (*Sgsn* with only the *Gsc* components) and the Slave shelves (*Sgsn* with only *Gsd* and *Gtl* components). |

| | |
|---|---|
| Subcomponents | "COMPONENT Sgsn GprsSubscriberControl (Gsc)"<br>"COMPONENT Sgsn GprsTransportLayer (Gtl)"<br>"COMPONENT Sgsn GprsSubscriberDatapath (Gsd)"<br>"COMPONENT Sgsn DnsAgent (DnsAg)"<br>"COMPONENT Sgsn Shelf (Sh)" |
| Opt. Subcomp. | "COMPONENT Sgsn PlmnImsiRange (Pir)"<br>"COMPONENT Sgsn MobileCountryCode (Mcc)"<br>"COMPONENT Sgsn GprsVisitorLocationRegister (GprsVlr)"<br>"COMPONENT Sgsn TieredSubscription (Ts)"<br>"COMPONENT Sgsn Accounting (Acct)"<br>"COMPONENT Sgsn PrepaidShortMessageService (PSms)"<br>"COMPONENT Sgsn EquivalentPlmn (EquivPlmn)" |
| Dyn. Subcomp. | "COMPONENT Sgsn TemporaryLogicalLinkId (Tlli)"<br>"COMPONENT Sgsn InternationalMobileSubscriberId (Imsi)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Sgsn Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains general provisioning data for *ServingGprsSupportNode (Sgsn)* and to provide Software Optionality Control (SOC). |

## ATTRIBUTE Sgsn resetTimer (rstTim)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the reset timer used for a *GprsSubscriberControl (Gsc)*. This timer is started when an FP on which a *Gsc* component is provisioned comes up. During the reset timer period, the *Gsc* is considered to have recently |

experienced a restart, and the GPRS Mobility Management (GMM) ignores and discards messages from the mobile (except ATTACH Requests and ROUTING AREA UPDATE Requests). If the reset timer has expired, and the mobile subscriber has not performed a subsequent GPRS-Attach, any received messages are considered a protocol violation and responded to with the appropriate reject or a GMM STATUS message, until the mobile performs another GPRS-Attach.

Values: Decimal (0..255)

Units: minutes

Default: No default

## ATTRIBUTE Sgsn maxSubscribers (maxSubs)

Access: Read: All
Write: All

Description: This attribute specifies the total number of 'GPRS-Attached' subscribers this Serving GPRS Support Node (SGSN) can support simultaneously. It does this by limiting the total of all the individual *maxAttachedSubscribers* attribute in all the *GprsSubscriberControl (Gsc)* components.

For example, if this SGSN has two FP *GprsSubscriberControl* provisioned, the first *GprsSubscriberControl* provisioned to support ***5000*** subscribers and the second to support ***2500*** subscribers, this attribute must be provisioned with a value of ***7500*** or greater. The value of this attribute cannot be greater than the number authorized by the access code. The access code (attribute *maxSubsAccessCode*) is unique for each SGSN. Please contact your local Nortel Networks Customer Service representative for more information.

The current number of 'GPRS-Attached' subscribers can be obtained from the sum of the *currentlyAttached* attribute defined in the *Gsc GprsMobilityManagement* component for all the *Gsc* instances.

Values: Decimal (1000..5000000)

| | |
|---|---|
| Default | 1000 |

### ATTRIBUTE Sgsn maxSubsAccessCode (mSubsCode)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the access code that allows the *maxSubscribers* attribute to be changed to a higher value. The access code must be obtained from an authorized Nortel Networks representative. Each Serving GPRS Support Node (SGSN) requires a unique access code for each and every increase to the *maxSubscribers* attribute. |
| Values | BCD (0..18) |
| Default | No default |

### ATTRIBUTE Sgsn maxNseSupported (maxNse)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Module |
| Description | This attribute specifies the maximum Network Service Entities (NSEs) supported on this SGSN. The value provisioned for *maxNseSupported* affects the allowed value for *maxBvcPerNse*, and vice versa. The higher the value for *maxNseSupported*, the lower the allowed value for *maxBvcPerNse*.<br><br>The product of *maxNseSupported* and *maxBvcPerNse* should not exceed 51200. Changing the value of *maxNseSupported* will result in a system reload. |
| Values | Decimal (1..256) |
| Default | 256 |

### ATTRIBUTE Sgsn maxBvcPerNse (maxBvc)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Module |

| | |
|---|---|
| Description | This attribute specifies the maximum BSS GPRS Virtual Connections (BVCs) supported per Network Service Entity (NSE). The value provisioned for *maxNseSupported* affects the allowed value for *maxBvcPerNse*, and vice versa. The higher the value for *maxNseSupported*, the lower the allowed value for *maxBvcPerNse*.<br><br>The product of *maxNseSupported* and *maxBvcPerNse* should not exceed 51200. Changing the value of *maxBvcPerNse* will result in a system reload. |
| Values | Decimal (1..600) |
| Default | 200 |

### ATTRIBUTE Sgsn networkOpId (nwOpId)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the Network Operator Identity, and identifies the operator of the SGSN to external devices (for example, Lawful Intercept Gateway). |
| Values | String (1..37, ASCII) |
| Default | "Nortel Networks" |

### ATTRIBUTE Sgsn longMncMccs (longMnc)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies which Mobile Country Codes (MCC) use a three digit Mobile Network Code (MNC). All MCCs not in this list are assumed to use a two digit MNC.<br><br>This information is used to construct an APN-Operator Identity in the format mnc<MNC digits>.mcc<MCC digits>.gprs for APN translations during DNS queries.<br><br>An operator would need to add entries to this list, if he has |

| | |
|---|---|
| | roamers from another PLMN with 3 digit MNCs for whom he needs to do APN translations. |
| List of | BCD (3) |
| Default | No default |

### GROUP Sgsn VolumeCounts (Vc)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisionable attributes for the *ServingGprsSupportNode (Sgsn)* component to provide traffic volume control. |

### ATTRIBUTE Sgsn tariffTimeChangeTrigger (ttcTrig)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies whether the Tariff Time Change Trigger (TTCT) feature is ***enabled*** or ***disabled***. When enabled, SGSN Accounting Server closes existing Change of Charging Condition containers and opens new containers in SGSN Packet Data Protocol (PDP) Call Detail Records (S-CDRs) to indicate to the down stream billing device that a Tariff Time Change event has occurred. This enables the down stream billing system to use different billing rates for different time containers.<br><br>TTCT relies on Time of Day Accounting (TODA) for provisioning the tariff periods. Both the SGSN Accounting Server and the Subscriber Data applications register with TODA for notification of tariff time changes.<br><br>When the *tariffTimeChangeTrigger* attribute is enabled, the *collectionTimes* attribute (defined in the *Collector/Accounting* component) must not specify more than 6 periods with no period closer than 4 hours. |
| Values | disabled<br>enabled |
| Default | disabled |

## ATTRIBUTE Sgsn dataVolumeLimit (dvl)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies when partial SGSN Packet Data Protocol (PDP) Call Detail Records (S-CDRs) are generated with a partial record reason of “data volume limit” based upon the number of combined uplink and downlink kilobytes that have been transferred by the active session.<br><br>If this attribute is set to ***disabled***, then a default value of 2 gigabytes for the volume limit is used to trigger the generation of partial S-CDRs. |
| Values | Decimal (128..5120)<br>disabled |
| Units | kbyte |
| Default | disabled |

## COMPONENT Sgsn GprsSubscriberControl (Gsc)

| | |
|---|---|
| Groups | "GROUP Sgsn Gsc MapClientProv (Mc)"<br>"GROUP Sgsn Gsc GmmProv (Gmm)"<br>"GROUP Sgsn Gsc HlrCacheProv (HlrC)"<br>"GROUP Sgsn Gsc SmProv (Sm)"<br>"GROUP Sgsn Gsc GtpProv (Gtp)"<br>"GROUP Sgsn Gsc GtpPathMgmtProv (GtpPm)"<br>"GROUP Sgsn Gsc BssapProv (Bssap)"<br>"GROUP Sgsn Gsc SmsProv (Sms)"<br>"GROUP Sgsn Gsc BssapSccpUserInfoProv (BssapSccp)"<br>"GROUP Sgsn Gsc SsfGlobalProv (Ssf)"<br>"GROUP Sgsn Gsc MobileSubscriberPurge (MsPurge)" |
| Scope | Application |
| Description | *Sgsn GprsSubscriberControl*<br><br>This component represents the GPRS Mobility Management (GMM), the Session Management (SM), the GPRS Tunneling |

Protocol (GTP) control path protocol layers of GPRS, the *MapClient* entity, and the *HlrCache* entity.

Common Verbs

Help
List
Display

## GROUP Sgsn Gsc MapClientProv (Mc)

Properties: Provisioned

Description: This group contains the common provisionable attributes for the *MapClient* subcomponents of *GprsSubscriberControl* on the FPs. The *MapClient* subcomponent provides Mobile Application Part (MAP) over SS7 to interact with the Home Location Register (HLR) via the SS7-IP Gateway.

## ATTRIBUTE Sgsn Gsc mcTimer (tMc)

Access: Read: All
Write: All

Description: This attribute specifies the amount of time the *MapClient* allows for a response from the Home Location Register (HLR). The timer is started when messages MAP-SEND AUTHENTICATION INFO, stand-alone MAP-INSERT SUBSCRIBER DATA, MAP-UPDATE GPRS LOCATION, MAP-PURGE MS, or READY-FOR-SMS are sent to the HLR.

The timer must be provisioned to a value that is greater than the maximum expected round trip delay of a Protocol Data Unit (PDU) and greater than all the timers provisioned in the *MapStack* component for messages sent to the HLR.

Values: Decimal (1..32)

Units: seconds

Default: 27

## ATTRIBUTE Sgsn Gsc uglRetries (nUgl)

Access: Read: All
Write: All

| | |
|---|---|
| Description | This attribute specifies the times the Serving GPRS Support Node (SGSN) can send the MAP-UPDATE GPRS LOCATION to the Home Location Register (HLR) upon no reception of the MAP-UPDATE GPRS LOCATION ACK. |
| Values | Decimal (0..4) |
| Default | 1 |

### ATTRIBUTE Sgsn Gsc saiRetries (nSai)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the times the Serving GPRS Support Node (SGSN) can send the MAP-SEND AUTHENTICATION INFO to the Home Location Register (HLR) upon no reception of the MAP-SEND AUTHENTICATION INFO ACK. |
| Values | Decimal (0..4) |
| Default | 1 |

### ATTRIBUTE Sgsn Gsc mcFallbackTimer (tFbMc)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the amount of time the MAP Client allows to reset the MAP Client Fallback Table. The Fallback Table is used by the MAP Client to track the messaging version supported by each Home Location Register (HLR). If the *mcFallbackTimer* attribute changes or the timer expires, the Fallback Table is deleted and the messaging version is renegotiated with each HLR. The timer is also restarted with either the existing timeout value if the timer expired or the modified value if the value was modified.<br><br>If the timer is set to ***disabled***, the timer is not started and the Fallback Table is not deleted. Message version renegotiation with the HLR does not take place until the timer is set to a value other than ***disabled***. |

| | |
|---|---|
| Values | Decimal (1..365)<br>disabled |
| Units | days |
| Default | 30 |

### ATTRIBUTE Sgsn Gsc mscEmulationMode (mscEmMode)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies whether the SGSN should emulate an MSC when messaging with the Short Message Service Center (SMSC). Currently the MAP specification requires that the MSC SubSystem Number (SSN) be used in the Calling Party Address (CgPA) when the SGSN addresses an entity that does not support inter-working with the SGSN.<br><br>When this attribute is set to ***on***, the SGSN emulates an MSC when messaging with the SMSC. The SMSC is either the Short Message Service Interworking MSC (SMS-IWMSC) or the Short Message Service Gateway MSC (SWS-GMSC).<br><br>When this attribute is set to ***off***, the SGSN's SSN is used when messaging with the SMSC. |
| Values | off<br>on |
| Default | off |

### ATTRIBUTE Sgsn Gsc mscSubsystemNumber (mscSubsysNum)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the MAP SGSN SSN. This SSN is only used if the *mscEmulationMode* attribute is set to ***on***. Otherwise this attribute is ignored.<br><br>If this attribute is changed after the MAP Client has registered with the MAP Stack, any outstanding MAP transactions is lost. |

| | |
|---|---|
| Values | Decimal (1..255) |
| Default | 8 |

### GROUP Sgsn Gsc GmmProv (Gmm)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains system-wide provisionable attributes to provide the GPRS Mobility Management (GMM) functionality of *GprsSubscriberControl (Gsc)*. |

### ATTRIBUTE Sgsn Gsc readyTimer (t3314)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the READY Timer (T3314) for GPRS Mobility Management (GMM) state transition. The timer is restarted whenever a signaling or data Protocol Data Unit (PDU) is received from the Mobile Station (MS). In the event of *readyTimer* expiry, the *gmmState* (defined in *MobilityContext*) transitions to ***standby*** state.<br><br>The value of the READY Timer is used by both the MS and the Serving GPRS Support Node (SGSN). It is negotiated between the MS and the SGSN. There are three possible values of the READY Timer: ***useMsValue***, ***forceStandby***, and normal timer values. The normal timer values<br>should be a multiple of 2(seconds),60 (1 minute) or 360(6 minutes)<br>which are the only units supported for READY Timer.<br><br>If the value is set to the ***useMsValue***, the value sent by the MS is used as the READY Timer. However, if the value is set to ***useMsValue*** and the MS attempts to cancel the READY Timer, the SGSN overrides the cancel attempt by using the ***forceStandby*** value. The ***forceStandby*** value causes the *gmmState* attribute to immediately transition to ***standby*** state after the Attach Complete message is received by the SGSN. For all transactions that follow, the default value for this attribute is used.<br><br>All other values of this attribute cause both the SGSN and MS to |

use this value. The MS cannot negotiate it. The *readyTimer* value should be at least 10% greater than the *t200RetransmitTimer* provisioned in the *SapiControl* component.,except when *readyTimer* is set to ***forceStandby*** or ***useMsValue***.

The negotiated value for the *readyTimer* for an MS can be displayed in the *MobilityContext* component.

The timer must be provisioned to a value that is greater than the maximum expected round trip delay of a Protocol Data Unit (PDU).

Values: Decimal (1..11160)
useMsValue
forceStandby

Units: seconds

Default: 44

### ATTRIBUTE Sgsn Gsc mobileReachableTimer (tReachable)

Access: Read: All
Write: All

Description: This attribute specifies the MOBILE REACHABLE Timer for the GPRS Mobility Management (GMM) state transition. The timer value must be at least four minutes longer than the longest *periodicRaUpdateTimer* (defined in component *Sgsn MobileCountryCode/<Mcc> MobileNetworkCode/<Mnc> LocationAreaCode/<Lac> RoutingAreaCode/<Rac>)*. The MOBILE REACHABLE Timer is started when the Mobile Station (MS) drops from Ready state to Standby state or when the MS is forced to Standby state. In the event of *mobileReachableTimer* expiry, the GMM starts the *implicitDetachTimer.*

The timer must be provisioned to a value that is greater than the maximum expected round trip delay of a Protocol Data Unit (PDU).

Values: Decimal (0..255)

| | |
|---|---|
| Units | minutes |
| Default | 58 |

### ATTRIBUTE Sgsn Gsc implicitDetachTimer (tImplicit)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the timer value used by the GPRS Mobility Management (GMM) for the removal of GMM context in an implicit detach after the *mobileReachableTimer* has expired.<br><br>The timer must be provisioned to a value that is greater than the maximum expected round trip delay of a Protocol Data Unit (PDU). |
| Values | Decimal (0..255) |
| Units | minutes |
| Default | 0 |

### ATTRIBUTE Sgsn Gsc pagingTimer (t3313)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the timer used for the GPRS Paging procedure. Upon expiry of the *pagingTimer*, if the Paging procedure is not completed, the GPRS Paging procedure is restarted for a maximum of *pagingRetries (n3313)*.<br><br>The value of the attribute *rpResponseTimer* cannot be less than the sum of the maximum number of *cpResponseRetries(tc1nRet)* multiplied by the *cpResponseTimer(tc1n)* value plus the maximum number of *pagingRetries (n3313)* multiplied by the *pagingTimer (t3313)* value.<br><br>The timer must be provisioned to a value that is greater than the maximum expected round trip delay of a Protocol Data Unit (PDU). |
| Values | Decimal (1..255) |

| | |
|---|---|
| Units | seconds |
| Default | 8 |

### ATTRIBUTE Sgsn Gsc pagingRetries (n3313)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the number of retry attempts after the *pagingTimer (t3313)* expires.<br><br>The value of the attribute *rpResponseTimer* cannot be less than the sum of the maximum number of *cpResponseRetries(tc1nRet)* multiplied by the *cpResponseTimer(tc1n)* value plus the maximum number of *pagingRetries (n3313)* multiplied by the *pagingTimer (t3313)* value. |
| Values | Decimal (0..4) |
| Default | 1 |

### ATTRIBUTE Sgsn Gsc nwkInitiatedDetachTimer (t3322)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the timer used in the Network-Initiated Detach procedure. Upon expiry of *nwkInitiatedDetachTimer*, if the Detach procedure is not completed, the Network-Initiated Detach procedure is restarted for a maximum of *nwkInitDetachRetries (n3322)*.<br>The timer must be provisioned to a value that is greater than the maximum expected round trip delay of a Protocol Data Unit (PDU). |
| Values | Decimal (1..255) |
| Units | seconds |
| Default | 6 |

### ATTRIBUTE Sgsn Gsc nwkInitDetachRetries (n3322)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the number of retry attempts after the *nwkInitiatedDetachTimer (t3322)* expires. |
| Values | Decimal (0..8) |
| Default | 4 |

### ATTRIBUTE Sgsn Gsc idRequestTimer (t3370)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the timer used in Identification procedure. Upon expiry of the *idRequestTimer*, if the Identification procedure is not finished, the identification procedure is restarted for a maximum of *idRequestRetries (n3370)*.<br><br>The timer must be provisioned to a value that is greater than the maximum expected round trip delay of a Protocol Data Unit (PDU). |
| Values | Decimal (1..255) |
| Units | seconds |
| Default | 6 |

### ATTRIBUTE Sgsn Gsc idRequestRetries (n3370)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the number of retry attempts after the *idRequestTimer (t3370)* expires. |
| Values | Decimal (0..8) |
| Default | 4 |

### ATTRIBUTE Sgsn Gsc ptmsiReallocTimer (t3350)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the timer used in the Packet-Temporary Mobile Subscriber Identity (P-TMSI) Reallocation procedure. The P-TMSI reallocation procedure can also be performed within the Attach or Routing Area Update procedures, as well. Upon expiry of the *ptmsiReallocTimer*, if the P-TMSI Reallocation procedure is not finished, P-TMSI Reallocation procedure is restarted for a maximum of *ptmsiReallocRetries (n3350)*.<br><br>The timer must be provisioned to a value that is greater than the maximum expected round trip delay of a Protocol Data Unit (PDU). |
| Values | Decimal (1..255) |
| Units | seconds |
| Default | 6 |

### ATTRIBUTE Sgsn Gsc ptmsiReallocRetries (n3350)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the number of retry attempts after the *ptmsiReallocTimer (t3350)* expires. |
| Values | Decimal (0..8) |
| Default | 4 |

### ATTRIBUTE Sgsn Gsc authCipheringTimer (t3360)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the timer used in Authentication and Ciphering procedure. Upon expiry of the *t3360* timer, if the Authentication and Ciphering procedure is not finished, this procedure is restarted for a maximum of *authCipheringRetries* |

*(n3360)*.

The timer must be provisioned to a value that is greater than the maximum expected round trip delay of a Protocol Data Unit (PDU).

| | |
|---|---|
| Values | Decimal (1..255) |
| Units | seconds |
| Default | 6 |

### ATTRIBUTE Sgsn Gsc authCipheringRetries (n3360)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the number of retry attempts after the *authCipheringTimer (t3360)* expires. |
| Values | Decimal (0..8) |
| Default | 4 |

### ATTRIBUTE Sgsn Gsc authEvents (authEvents)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the number, N, which indicates that at every<br>Nth event requiring authentication, the Authentication procedure is<br>initiated with the mobile subscriber.<br>For example, when this value is set to ***never***, the Authentication procedure is never performed, when the value is set to ***1***, the Authentication procedure is performed every time an event that triggers authentication occurs. The provisioning of any other value N for this attribute indicates that every Nth event that can be authenticated undergoes this Authentication procedure. This parameter is not per Mobile Station (MS); rather, it is used to count events over all the affected procedures per *GprsSubscriberControl (Gsc)*. |

| | |
|---|---|
| Values | Decimal (1..255)<br>never |
| Default | 20 |

### ATTRIBUTE Sgsn Gsc subsRegisterRecoveryUpdateTimer (tSubsReg)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the maximum recovery delay time used by the SGSN to re-create the association between the Home Location Register (HLR), in the case of the HLR Reset, or VLR, in the case of VLR Reset, and a Mobile Station (MS). The timer is started on a receipt of a valid LLC frame from the MS following the Reset HLR or VLR to which this MS is attached. When the timer expires the appropriate procedure is initiated by the GPRS Mobility Management (GMM). The actual timer used is a randomized value less than this value in order to distribute the traffic to HLR or VLR after an HLR or VLR Reset.<br><br>In the case of an HLR Reset, a MAP-UPDATE GPRS LOCATION (UGL) is performed and in the case of a VLR Reset a MAP-LOCATION UPDATE is performed. |
| Values | Decimal (0..10) |
| Units | seconds |
| Default | 5 |

### ATTRIBUTE Sgsn Gsc t3TunnelTimer (t3Tunnel)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the time that the old SGSN will continue to forward packets to the new SGSN during an Inter SGSN Routing Area Update (IRAU). The timer is started in the old SGSN when it receives a GTP SGSN CONTEXT REQUEST message and there is at least one active Packet Data Protocol (PDP) context. |
| Values | Decimal (1..40) |

| | |
|---|---|
| Units | seconds |
| Default | 20 |

### ATTRIBUTE Sgsn Gsc cipheringAlgorithms (ciphAlgo)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the Ciphering Algorithms supported on this<br>Serving GPRS Support Node (SGSN) in descending order of preference. The mobile provides a list of the ciphering algorithms it supports to the SGSN. The SGSN compares the mobile provided values with the values listed in this attribute. The first value provisioned in this attribute that is also in the mobile provided list is chosen as the ciphering algorithm for use in communicating with this mobile.<br>The ciphering algorithms supported are:<br>***noCiphering*** - No ciphering is used.<br>***geav1*** - GPRS algorithm is performed. |
| Vector of | noCiphering<br>geav1 |
| Index | Decimal (1..2) |
| Default | (noCiphering, noCiphering) |

### GROUP Sgsn Gsc HlrCacheProv (HlrC)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains system-wide provisioning data for the *HlrCache* functionality of the *GprsSubscriberControl (Gsc)*. |

### ATTRIBUTE Sgsn Gsc authTripletsReuse (authTrip)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the maximum number of times each Authentication Triplet can be reused when authenticating a subscriber. The reuse of the Authentication Triplets is done only in abnormal situations, when new triplets cannot be received from |

| | |
|---|---|
| | the Home Location Register (HLR) due to connectivity breakdown between the Serving GPRS Support Node (SGSN) and the HLR. |
| Values | Decimal (0..5000) |
| Default | 5000 |

### GROUP Sgsn Gsc SmProv (Sm)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains system-wide provisioning data for the Session<br>Management (SM) functionality of the *GprsSubscriberControl (Gsc)*. |

### ATTRIBUTE Sgsn Gsc nwkPdpDeactTimer (t3395)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the timer value used in the Serving GPRS Support Node (SGSN) or in the Gateway GPRS Support Node (GGSN) initiated Packet Data Protocol (PDP) Context Deactivation procedures.<br><br>This timer is started when a DEACTIVATE PDP CONTEXT REQUEST message is sent to the Mobile Station (MS) and is stopped when a DEACTIVATE PDP CONTEXT ACCEPT message is received from the MS. If this timer expires before the receipt of a DEACTIVATE PDP CONTEXT ACCEPT message, the SGSN or GGSN initiated PDP Context deactivation procedure is retried for a maximum of *nwkPdpDeactRetries*.<br><br>The timer must be provisioned to a value that is greater than the maximum expected round trip delay of a Protocol Data Unit (PDU). |
| Values | Decimal (1..255) |
| Units | seconds |
| Default | 8 |

### ATTRIBUTE Sgsn Gsc nwkPdpDeactRetries (t3395Retry)

Access
Read: All
Write: All

Description
This attribute specifies the number of retry attempts after the *nwkPdpDeactTimer (t3395)* expires during a Serving GPRS Support Node (SGSN) or a Gateway GPRS Support Node (GGSN)-initiated PDP Context Deactivation procedure.

Values
Decimal (0..4)

Default
4

### ATTRIBUTE Sgsn Gsc defApnOperatorId (defApnOp)

Access
Read: All
Write: All

Description

This attribute specifies the default Access Point Name (APN) Operator Identifier for this Public Land Mobile Network (PLMN). It is a fully qualified domain name according to the Domain Name System (DNS) naming conventions and consists of three labels (that is, <DNS-label>.<DNS-label>.gprs). It is expected that the operator uses this attribute to fill in a human-readable format of the APN Operator Identifier (that is, an APN Operator Identifier not in the mnc<MNC digits>.mcc<MCC digits>.gprs format).

Its use includes being the VPLMN APN Operator Identifier as defined in specification 23.060 Annex A or any other text clarifying its use.

A value of *defApnOperatorId* is used when an ACTIVATE PDP CONTEXT REQUEST message is received from an MS. If the MS sends an APN Operator Identity that is not in the format “mnc<MNC>.mcc<MCC>.gprs” and if it is not the same as the provisioned *defApnOperatorId* then it is assumed that the received APN Operator Identifier does not belong to this PLMN. The ACTIVATE PDP CONTEXT REQUEST message is then rejected.

The selected APN Operator identifier for a particular session can be displayed as part of the *selectedApnOperatorId* attribute (defined in *SessionContext*).

Values: String (1..37, ASCII)

Default: " "

### ATTRIBUTE Sgsn Gsc nwkPdpModifyTimer (t3386)

Access: Read: All
Write: All

Description: This attribute specifies the timer value used in the Serving GPRS Support Node (SGSN) initiated Packet Data Protocol (PDP) Context Modification procedures.

This timer is started when a MODIFY PDP CONTEXT REQUEST message is sent to the Mobile Station (MS) and is stopped when a MODIFY PDP CONTEXT ACCEPT message is received from the MS. If this timer expires before the receipt of a MODIFY PDP CONTEXT ACCEPT message, the PDP Context modification procedure is retried for a maximum of *nwkPdpModifyRetries*.

The timer must be provisioned to a value that is greater than the maximum expected round trip delay of a Protocol Data Unit (PDU).

Values: Decimal (1..255)

Units: seconds

Default: 8

### ATTRIBUTE Sgsn Gsc nwkPdpModifyRetries (n3386)

Access: Read: All
Write: All

Description: This attribute specifies the number of times the SGSN, while acting as the new SGSN, resends a MODIFY PDP CONTEXT REQUEST message to the Mobile Station (MS) if the *nwkPdpModifyTimer* expires while the MS is undergoing an

Inter-SGSN Routing Area Update (IRAU). If this attribute is exhausted, the *nwkPdpModifyRetriesExhausted* attribute will be incremented.

Values: Decimal (1..20)

Default: 4

### ATTRIBUTE Sgsn Gsc defApnNetworkId (defApnNwk)

Access: Read: All
Write: All

Description: This attribute specifies the default Access Point Name (APN) Network Identifier for different Packet Data Protocol (PDP) types. It is a label (for example “corporation”) or a set of labels separated by dots, which is a fully qualified domain name according to the Domain Name System (DNS) naming conventions (for example, “company.com”).

The *defApnNetworkId* must not start with the strings “rac”, “lac” or “sgsn” and it must not end in “.gprs”. It must also not take the value “*”. In order to guarantee uniqueness of the APN Network Identifier across all GPRS PLMNs, an APN Network Identifier containing more than one label corresponds to an Internet domain name. This name must only be allocated by the Public Land Mobile Network (PLMN) to an organization that has officially reserved this name in the Internet domain. Other types of APN Network Identifiers are not guaranteed to be unique within the GPRS PLMN(s).

This *defApnNetworkId* is used if the Mobile Station (MS) does not send the APN Network Identifier as part of the ACTIVATE PDP CONTEXT REQUEST and if its subscription record received from the HLR has a wildcard (*) APN. If the defApnNetworkId is not entered in such a case, the ACTIVATE PDP CONTEXT REQUEST
message is then rejected.

The selected APN Network Identifier for a particular session can

| | |
|---|---|
| | be displayed as part of the *selectedApnNetworkId* attribute (defined in *SessionContext*). |
| Vector of | String (0..63, ASCII) |
| Index | x25<br>ip<br>ppp |
| Default | ([0] "", [1] "", [2] "") |

### GROUP Sgsn Gsc GtpProv (Gtp)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisionable attributes to define the GPRS Tunneling Protocol (GTP) provisioning function of the Serving GPRS Support Node (SGSN). |

### ATTRIBUTE Sgsn Gsc n3CreateRequest (n3CrReq)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the maximum number of attempts made by the GPRS Tunneling Protocol (GTP) to send the CREATE PDP CONTEXT REQUEST message to a Gateway GPRS Support Node<br>(GGSN). It is recommended that the total wait time (that is, the product of *n3CreateRequest* and *t3CreateResponse*) is to be shorter than the Mobile Station (MS) wait time between retries of ATTACH and RA-UPDATE messages. |
| Values | Decimal (1..10) |
| Default | 5 |

### ATTRIBUTE Sgsn Gsc t3CreateResponse (t3CrResp)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the maximum wait time for a response of a CREATE PDP CONTEXT REQUEST message. It is recommended that the total wait time (that is, the product of |

*n3CreateRequest* and *t3CreateResponse*) is to be shorter than the Mobile Station (MS) wait time between retries of ATTACH and RA-UPDATE messages.

The timer must be provisioned to a value that is greater than the maximum expected round trip delay of a Protocol Data Unit (PDU) from this Serving GPRS Support Node (SGSN) to any Gateway GPRS Support Node (GGSN).

Values: Decimal (1..30)

Units: seconds

Default: 5

### ATTRIBUTE Sgsn Gsc n3DeleteRequest (n3DelReq)

Access: Read: All
Write: All

Description: This attribute specifies the maximum number of attempts made by the GPRS Tunneling Protocol (GTP) to send the DELETE PDP CONTEXT REQUEST message to the Gateway GPRS Support Node (GGSN). It is recommended that the total wait time (that is, the product of *n3DeleteRequest* and *t3DeleteResponse*) is to be shorter than the Mobile Station (MS) wait time between retries of ATTACH and RA-UPDATE messages.

Values: Decimal (1..10)

Default: 5

### ATTRIBUTE Sgsn Gsc t3DeleteResponse (t3DelResp)

Access: Read: All
Write: All

Description: This attribute specifies the maximum wait time for a response of a DELETE PDP CONTEXT REQUEST message from the Gateway GPRS Support Node (GGSN). It is recommended that the total wait time (that is, the product of *n3DeleteRequest* and *t3DeleteResponse*) is to be shorter than the Mobile Station (MS) wait time between retries of ATTACH and RA-UPDATE

| | |
|---|---|
| | messages.<br><br>The timer must be provisioned to a value that is greater than the maximum expected round trip delay of a Protocol Data Unit (PDU). |
| Values | Decimal (1..30) |
| Units | seconds |
| Default | 5 |

### ATTRIBUTE Sgsn Gsc n3EchoRequest (n3EcReq)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the maximum number of attempts made by the GPRS Tunneling Protocol (GTP) to send the ECHO REQUEST message to the Gateway GPRS Support Node (GGSN). |
| Values | Decimal (1..10) |
| Default | 5 |

### ATTRIBUTE Sgsn Gsc t3EchoResponse (t3EcResp)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the maximum wait time for a response of a ECHO REQUEST message from the Gateway GPRS Support Node (GGSN).<br>The timer must be provisioned to a value that is greater than the maximum expected round trip delay of a Protocol Data Unit (PDU). |
| Values | Decimal (5..600) |
| Units | seconds |
| Default | 60 |

### ATTRIBUTE Sgsn Gsc n3SgsnContextRequest (n3CntxtReq)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the number of times that this SGSN, while acting as the new SGSN, sends the SGSN CONTEXT REQUEST message while the Mobile Station (MS) is undergoing an Inter-SGSN Routing Area Update (IRAU). |
| Values | Decimal (1..20) |
| Default | 5 |

### ATTRIBUTE Sgsn Gsc t3SgsnContextResponse (t3CntxtResp)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attributes specifies the time that this SGSN, while acting as the new SGSN, waits for an SGSN CONTEXT RESPONSE message from the SGSN which is acting as old SGSN while the Mobile Station (MS) is undergoing an Inter-SGSN Routing Area Update (IRAU).<br><br>The timer must be provisioned to a value that is greater than the maximum expected round trip delay of a Protocol Data Unit (PDU). |
| Values | Decimal (1..20) |
| Units | seconds |
| Default | 5 |

### ATTRIBUTE Sgsn Gsc n3UpdateRequest (n3UpdateReq)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the number of times that this SGSN, while acting as the new SGSN, sends an UPDATE PDP CONTEXT REQUEST message to the Gateway GPRS Support Node (GGSN) while the Mobile Station (MS) is undergoing an Inter-SGSN Routing Area Update (IRAU). |

| | |
|---|---|
| Values | Decimal (1..20) |
| Default | 5 |

### ATTRIBUTE Sgsn Gsc t3UpdateResponse (t3UpdateResp)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attributes specifies the time that this SGSN, while acting as the new SGSN, waits for an UPDATE PDP CONTEXT REPONSE message from the Gateway GPRS Support Node (GGSN) while the Mobile Station (MS) is undergoing an Inter-SGSN Routing Area Update (IRAU).<br><br>The timer must be provisioned to a value that is greater than the maximum expected round trip delay of a Protocol Data Unit (PDU). |
| Values | Decimal (1..20) |
| Units | seconds |
| Default | 5 |

### ATTRIBUTE Sgsn Gsc gtpV0Version (gtpVer)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the version of 3GPP specification 09.60 GPRS Tunnelling Protocol (GTP) across the Gn and Gp interfaces that the Serving GPRS Support Node (SGSN) is compliant with.<br><br>This attribute is applicable only to GTP version 0, which is used if the Release 99 compliant GTP version 1 cannot be negotiated with a neighboring Gprs Support Node (GSN). This attribute is important for network operators because SGSNs that support v7.6 cannot perform Inter SGSN Routing Area Updates (IRAUs) with SGSNs that support version v7.3 due to non-backwards compatible changes present in the GTP specification.<br><br>If the value of this attribute is set to ***ver7-3,*** this SGSN supports |

version 7.3 of 09.60 and can perform IRAUs with other SGSNs supporting this same version of the specification.

If the value of this attribute is set to ***ver7-6***, this SGSN supports version 7.6 of 09.60 and can perform IRAUs with other SGSNs supporting this same version of the specification.

Values
ver7-3
ver7-6

Default
ver7-3

### GROUP Sgsn Gsc GtpPathMgmtProv (GtpPm)

Properties
Provisioned

Description
This group contains provisionable attributes to define the GPRS Tunneling Protocol (GTP) provisioning function of the Serving GPRS Support Node (SGSN). This includes the Tunnel Management and the Path Management functionalities.

### ATTRIBUTE Sgsn Gsc echoRequest (echoReq)

Access
Read: All
Write: All

Description
This attribute specifies whether the ECHO REQUEST message is to be sent out for signaling path to the Gateway GPRS Support Node (GGSN) node.

Values
disable
enable

Default
disable

### ATTRIBUTE Sgsn Gsc echoTimeInterval (echoInt)

Access
Read: All
Write: All

Description
This attribute specifies the time interval at which ECHO REQUESTS are sent on a signaling path in use from the Serving GPRS Support Node (SGSN) to the Gateway GPRS Support Node (GGSN).

| | |
|---|---|
| Values | Decimal (1..300) |
| Units | minutes |
| Default | 10 |

### ATTRIBUTE Sgsn Gsc maxGgsnPaths (maxPaths)

| | |
|---|---|
| Access | Read: All<br>Write: Debug |
| Description | This attribute specifies the maximum number of managed paths that<br>can be setup between this Serving GPRS Support Node (SGSN) and the Gateway GPRS Support Nodes (GGSNs). Each path contains one or more tunnels which may be used by, for example, PDP Contexts.<br>It is possible to have more paths than specified by the *maxGgsnPaths*, but those exceeded are not managed paths (for example, cannot do echo).<br><br>The peak number of transactions can be obtained from the attribute<br>*peakGgsnPaths* (defined in *Gsc GtpMgmt*). |
| Values | Decimal (1..65535) |
| Default | 10 |

### ATTRIBUTE Sgsn Gsc pathHistoryExpireTimeInterval (pathHistExpInt)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the time interval at which the path history is reset. When the value is set to ***disabled***, it is never reset. |
| Values | Decimal (1..300)<br>disabled |
| Units | minutes |
| Default | 10 |

### ATTRIBUTE Sgsn Gsc strictPathSupervision (stPathSup)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies whether the GPRS Tunnelling Protocol (GTP) will declare path failure if a response to any message to a GPRS Support Node (GSN) is not received, or if an echo-request goes unanswered. When a link failure is detected between the Serving GPRS Support Node (SGSN) and a GSN, the GSN is marked as unreachable.<br><br>If the value of the attribute is set to ***enabled***, failure of the remote end to respond to any GTP request will result in path failure being declared.<br><br>If the value of this attribute is set to ***disabled***, then failure of the remote end to respond to an echo request will be marked as a path failure, but all other failures will not be detected.<br><br>The number of link failures detected is indicated by the attribute *pathFailures*, in the *Gsc GtpM* component. |
| Values | disabled<br>enabled |
| Default | disabled |

### GROUP Sgsn Gsc BssapProv (Bssap)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the Base Station System Application Part + (BSSAP+) provisioning data of the Serving GPRS Support Node (SGSN). |

### ATTRIBUTE Sgsn Gsc locationUpdateTimer (tLocUpd)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the amount of time the Base Station System Application Part + (BSSAP+) allows for a response from the Visitor Location Register (VLR) when |

BSSAP+_LOCATION_UPDATE_REQUEST messages are sent to the VLR.

The timer must be provisioned to a value that is greater than the maximum expected round trip delay of a Protocol Data Unit (PDU).

| | |
|---|---|
| Values | Decimal (10..90) |
| Units | seconds |
| Default | 15 |

### ATTRIBUTE Sgsn Gsc explicitGprsDetachTimer (t8)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the amount of time the Base Station System<br>Application Part + (BSSAP+) allows for a response from the Visitor Location Register (VLR) when BSSAP+_GPRS_DETACH_INDICATION messages are sent to the VLR.<br><br>The count of timeouts can be viewed in the *t8Timeouts* attribute (defined in *Gsc Bssap*).<br><br>The timer must be provisioned to a value that is greater than the maximum expected round trip delay of a Protocol Data Unit (PDU). |
| Values | Decimal (1..30) |
| Units | seconds |
| Default | 4 |

### ATTRIBUTE Sgsn Gsc explicitGprsDetachRetries (n8)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the number of times the Serving GPRS Support Node (SGSN) can send the |

BSSAP+_GPRS_DETACH_INDICATION to the Visitor Location Register (VLR) upon no reception of the BSSAP+_GPRS_DETACH_ACK.

If the maximum number of retries is reached, BSSAP+ increments the *gprsDetachMaxAttempts* attribute (defined in *Gsc BaseStationSystemApplPart*).

Values: Decimal (0..8)

Default: 2

### ATTRIBUTE Sgsn Gsc explicitImsiDetachTimer (t9)

Access: Read: All
Write: All

Description: This attribute specifies the amount of time the Base Station System
Application Part + (BSSAP+) allows for a response from the Visitor
Location Register (VLR) when explicit BSSAP+_IMSI_DETACH_INDICATION messages are sent to the VLR.

The count of timeouts can be viewed in *t9Timeouts* attribute (defined in *Gsc Bssap*).

The timer must be provisioned to a value that is greater than the maximum expected round trip delay of a Protocol Data Unit (PDU).

Values: Decimal (1..30)

Units: seconds

Default: 4

### ATTRIBUTE Sgsn Gsc explicitImsiDetachRetries (n9)

Access: Read: All
Write: All

| | |
|---|---|
| Description | This attribute specifies the number of times the Serving GPRS Support Node (SGSN) can send the explicit BSSAP+_IMSI_DETACH_INDICATION to the Visitor Location Register (VLR) upon no reception of the BSSAP+_IMSI_DETACH_ACK.<br><br>If the maximum number of retries is reached, BSSAP+ increments the *explicitImsiDetachMaxAttempts* attribute (defined in *Gsc BaseStationSystemApplPart*). |
| Values | Decimal (0..9) |
| Default | 2 |

### ATTRIBUTE Sgsn Gsc implicitImsiDetachTimer (t10)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the amount of time the Base Station System Application Part + (BSSAP+) allows for a response from the Visitor Location Register (VLR) when implicit BSSAP+_IMSI_DETACH_INDICATION messages are sent to the VLR.<br><br>The count of timeouts can be viewed in *t10Timeouts* attribute (defined in *Gsc Bssap*).<br><br>The timer must be provisioned to a value that is greater than the maximum expected round trip delay of a Protocol Data Unit (PDU). |
| Values | Decimal (1..30) |
| Units | seconds |
| Default | 4 |

### ATTRIBUTE Sgsn Gsc implicitImsiDetachRetries (n10)

| | |
|---|---|
| Access | Read: All<br>Write: All |

| | |
|---|---|
| Description | This attribute specifies the number of times the Serving GPRS Support Node (SGSN) can send the BSSAP+_IMSI_DETACH_INDICATION to the Visitor Location Register (VLR) upon no reception of the BSSAP+_IMSI_DETACH_ACK.<br><br>If the maximum number of retries is reached, BSSAP+ increments the *implicitImsiDetachMaxAttempts* attribute (defined in *Gsc BaseStationSystemApplPart*). |
| Values | Decimal (0..10) |
| Default | 2 |

### ATTRIBUTE Sgsn Gsc sgsnResetTimer (t12)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the T12-2 Timer that is the amount of time the Base Station System Application Part + (BSSAP+) allows for a response from the Visitor Location Register (VLR) when BSSAP+_RESET_INDICATION messages are sent to the VLR. This message is sent when a *Gsc* recovers following a card failure.<br><br>The count of timeouts can be viewed in *t12Timeouts* attribute (defined in *Gsc Bssap*).<br><br>The timer must be provisioned to a value that is greater than the maximum expected round trip delay of a Protocol Data Unit (PDU). |
| Values | Decimal (1..120) |
| Units | seconds |
| Default | 4 |

### ATTRIBUTE Sgsn Gsc sgsnResetRetries (n12)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the number of times the Base Station System<br>Application Part + (BSSAP+) can send the BSSAP+_RESET_INDICATION to the Visitor Location Register (VLR) upon no reception of the BSSAP+_RESET_ACK.<br><br>If the maximum number of retries is reached, BSSAP+ increments the *sgsnResetMaxAttempts* attribute (defined in *Gsc BaseStationSystemApplPart*). |
| Values | Decimal (0..12) |
| Default | 2 |

### GROUP Sgsn Gsc SmsProv (Sms)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the Short Message Service (SMS) provisioning data of the Serving GPRS Support Node (SGSN). |

### ATTRIBUTE Sgsn Gsc cpResponseTimer (tc1n)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the TC1N timer that is the amount of time the Short Message Service (SMS) allows for a CP-ACK or CP-ERROR response from the Mobile Station (MS) when a CP-DATA message is sent to the MS. This timer is used in mobile originated and mobile terminated transactions.<br><br>When this timer expiries, the SMS re-sends the CP-DATA message up to the maximum number of *cpResponseRetries*. Once the maximum number of *cpResponseRetries* is reached, the outstanding transaction is aborted.<br><br>The value of the attribute *rpResponseTimer* cannot be less than the sum of the maximum number of *cpResponseRetries(tc1nRet)* |

multiplied by the *cpResponseTimer(tc1n)* value plus the maximum number of *pagingRetries (n3313)* multiplied by the *pagingTimer (t3313)* value.

The count of the *cpResponseTimer* expiries due to the maximum number of *cpResponseRetries* can be viewed in *cpResponseExhaust* attribute (defined in *Gsc ShortMessageService*).

The timer must be provisioned to a value that is greater than the maximum expected round trip delay of a Protocol Data Unit (PDU) but less than the *rpResponseTimer.*

| | |
|---|---|
| Values | Decimal (1..60) |
| Units | seconds |
| Default | 20 |

### ATTRIBUTE Sgsn Gsc cpResponseRetries (tc1nRet)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the number of times the Short Message Service (SMS) sends the CP-DATA message to the Mobile Station (MS) when a CP-ACK or CP-ERROR message is not received.<br><br>The value of the attribute *rpResponseTimer* cannot be less than the sum of the maximum number of *cpResponseRetries(tc1nRet)* multiplied by the *cpResponseTimer(tc1n)* value plus the maximum number of *pagingRetries (n3313)* multiplied by the *pagingTimer (t3313)* value. |
| Values | Decimal (1..3) |
| Default | 3 |

### ATTRIBUTE Sgsn Gsc rpResponseTimer (tr1n)

| | |
|---|---|
| Access | Read: All<br>Write: All |

| | |
|---|---|
| Description | This attribute specifies the amount of time the Short Message Service (SMS) allows for a RP-ACK or RP-ERROR response from the Mobile Station (MS) when a CP-DATA message is sent to the MS in a Mobile Terminated (MT) transaction. When this timer expiries, the MT transaction is aborted.<br><br>The value of this attribute cannot be less than the sum of the maximum number of *cpResponseRetries(tc1nRet)* multiplied by the *cpResponseTimer(tc1n)* value plus the maximum number of *pagingRetries (n3313)* multiplied by the *pagingTimer (t3313)* value. |
| Values | Decimal (8..333) |
| Units | seconds |
| Default | 79 |

### ATTRIBUTE Sgsn Gsc iwmscResponseTimer (tr2n)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the TR2N timer that is the amount of time the Short Message Service (SMS) allows for a MOBILE ORIGINATED (MO)-FORWARD SHORT MESSAGE ACK response from the Service Center when a MO-FORWARD SHORT MESAGE message is sent to the Mobile Station (MS) in a MO transaction. When this timer expiries, the MO transaction is aborted.<br><br>The timer must be provisioned to a value that is greater than the maximum expected round trip delay of a Protocol Data Unit (PDU). |
| Values | Decimal (33..1803) |
| Units | seconds |
| Default | 33 |

### GROUP Sgsn Gsc BssapSccpUserInfoProv (BssapSccp)

| | |
|---|---|
| Properties | Provisioned |

| | |
|---|---|
| Description | This group contains provisionable attributes that applied to all instances of the *Bssap* component. These attributes specify SCCP user information. |

### ATTRIBUTE Sgsn Gsc bssapCgpaRoutingIndicator (bssapRtInd)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies whether routing is performed using the Global Title (GT) only or Subsytem Number (SSN) and Point Code (PC). The value of this attribute must match the Routing Indicator of the VLR.<br><br>The CgPA (Calling Party Address) routing indicator values supported are:<br><br>***globalTitle-*** BSSAP subsystem sets the CgPA routing Indicator to route on Global Title and supplies Global Title information.<br><br>***pointCode -*** BSSAP subsystem sets the CgPA routing Indicator to route on Point Code and supplies the Subsystem Number and Point Code in the CgPA. |
| Values | globalTitle (gt)<br>pointCode (pc) |
| Default | globalTitle |

### ATTRIBUTE Sgsn Gsc bssapSubsystemNumber (bssapSsn)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the BSSAP client subsystem number used in SCCP message headers. This attribute can be changed if the operator wants to isolate his network. The value of this attribute must match the Subsystem Number of the VLR and MSC. |
| Values | Decimal (1..255) |
| Default | 254 |

### ATTRIBUTE Sgsn Gsc bssapNatureOfAddress (bssapNatOfAddr)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the Nature of Address for Global Titles used in the CgPA (Calling Party Address) and CdPA (Called Party Address) fields of SCCP message headers. This attribute directly maps to the Nature of Address parameter of the SCCP CgPA or CdPA described in SCCP specifications and located in ITU-T Q.713 section 3.4.2.3.1 (7-1996). It is used to qualify the type of Global Title address digits.<br><br>The values supported for the Nature of Address are:<br><br>***subscriberNumber* -** [1] corresponding to the ITU value 1.<br><br>***reserveNationalUse* -** [2] corresponding to the ITU value 2.<br><br>***nationalSpecificNumber* -** [3] corresponding to the ITU value 3.<br><br>***internationalNumber* -** [4] corresponding to the ITU value 4.<br><br>The values 5-255 are currently not defined by ITU standards but future standards may define them. |
| Values | Decimal (5..255)<br>subscriberNumber<br>reserveNationalUse<br>nationalSpecificNumber<br>internationalNumber |
| Default | internationalNumber |

### ATTRIBUTE Sgsn Gsc bssapE164TransType (bssapE164)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the Global Title translation type used for E.164 Numbering Plan global titles.<br><br>The Global Title translation types supported are: |

***ituNetwork-*** The Global Title translation type is ITU or ITU Chinese. [0] corresponding to the ITU value 0.

***ansiNetwork-*** The Global Title translation type is ANSI Network. [10] corresponding to the ANSI value 10.

The values 1-9 and 11-255 may be defined by future standards.

Values: Decimal (1..9; 11..255)
ituNetwork
ansiNetwork

Default: ituNetwork

### ATTRIBUTE Sgsn Gsc bssapReturnOption (bssapRetOp)

Access: Read: All
Write: All

Description: This attribute identifies the SCCP return option used by the BSSAP client.

The SCCP return options supported are:

***noRetUndeliverable -*** The sender is not notified if the message is undeliverable.

***retUndeliverable -***The sender is notified if the message is undeliverable.

Values: noRetUndeliverable
retUndeliverable

Default: retUndeliverable

### ATTRIBUTE Sgsn Gsc bssapHopCounter (bssapHopCntr)

Access: Read: All
Write: All

Description: This attribute is used for circular route prevention and is only supported by Whitebook/ANSI96 SCCP.

Each SS7 node decrements the hop counter by one. If the message makes more hops than is specified, the message is dropped at the node where the counter was exhausted.

Values: Decimal (1..15)

Default: 15

### ATTRIBUTE Sgsn Gsc bssapXudtOption (bssapXudt)

Access: Read: All
Write: All

Description: This attribute specifies whether or not XUDT (extended unitdata) messages can be used. The specified value is used to determine the type of message used for transmission of SCCP connectionless data.

***off-*** an SCCP XUDT (extended unitdata) message is transmitted only when the data size is such that segmentation is required, otherwise an SCCP UDT (unitdata) message is transmitted.

***on-*** an XUDT message is transmitted for all connectionless data regardless of data size.

Usually, this attribute should specify ***off*** so that XUDT is only used when needed. Because XUDT is only supported by Whitebook, an operator may desire to set this value to ***on*** so that this node supports Whitebook (ITU-T 96/ANSI-96) SCCP.

Values: on
off

Default: off

### ATTRIBUTE Sgsn Gsc bssapRegistrationRequestTimer (bssapRegTmr)

Access: Read: All
Write: All

Description: This attribute specifies the amount of time the BSSAP Client waits for the REGISTRATION_ACK message after sending a REGISTRATION_REQUEST message to the SCCP Protocol Stack. Retries of the Registration Request are infinite since the

| | |
|---|---|
| | BSSAP Client cannot send or receive BSSAP messages until it is registered successfully with the SCCP stack.<br>The *reqTimeouts* attribute indicates the number of timeouts that have occurred. |
| Values | Decimal (1..60) |
| Units | seconds |
| Default | 10 |

### GROUP Sgsn Gsc SsfGlobalProv (Ssf)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains general provisioning data for all *Ssf* components on the shelf. |

### ATTRIBUTE Sgsn Gsc tssfTimer (tssf)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the amount of time the SSF will wait for an SCP response while in the Waiting for Instructions state.<br><br>Each new CAP (CAMEL Application Part) message from an SCP stops the Tssf timer. The timer is started when the SSF enters the Waiting for Instructions state. If a response is not received in the amount of time specified by this attribute, the SSF will give up and use the Default GPRS Handling field of the related mobile's CAMEL Subscriber Info (CSI) to determine the appropriate action to take. |
| Values | Decimal (1..20) |
| Units | seconds |
| Default | 3 |

### ATTRIBUTE Sgsn Gsc ssfChargingGuardTimer (ssfCGuardTimer)

| | |
|---|---|
| Access | Read: All<br>Write: All |

| | |
|---|---|
| Description | This attribute specifies the amount of time the SSF will wait for a reply from an SCP once an ApplyChargingReportGPRS CAP message has been sent and successfully received by the SCP. Valid responses from the SCP are the ApplyCharging, ReleaseGPRS or CancelGPRS messages. If a response if not received in the amount of time specified by this attribute, the SSF will give up and used the Default GPRS Handling field of the related mobile's CAMEL Subscriber Info (CSI) to determine the appropriate action to take.<br><br>This attribute also specifies the amount of time the SSF will wait for a reply from an SCP indicating that one of the following SGSN initiated messages has been received: ApplyChargingReportGPRS, EventReportGPRS, EntityReleasedGPRS, and InitialDPGPRS.<br><br>If an acknowledgement is not received from the SCP in the amount of time specified by this attribute for any of the messages listed above, the message is sent again to the SCP. The SSF will continue to retransmit the previous CAP message after each timeout until the number of consecutive timeouts reaches the value specified by the *ssfCGuardRetryAtt* attribute. If the maximum number of timeouts is reached, the SSF will give up and use the DefaultGprsHandling field of the related mobile's CAMEL Subscriber Info (CSI) to determine the appropriate action to take. |
| Values | Decimal (1..20) |
| Units | seconds |
| Default | 3 |

### ATTRIBUTE Sgsn Gsc ssfTcapStackRegistrationTimer (ssfTcapRegTmr)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the amount of time the SSF will wait for a registration response from the TCAP Stack after sending a registration request. If the timer expires, the SSF sends another registration request. The SSF continues to send registration |

| | |
|---|---|
| | requests whenever the timer expires until registration is successful. |
| Values | Decimal (0..60) |
| Units | seconds |
| Default | 10 |

### ATTRIBUTE Sgsn Gsc ssfChargingGuardRetryAttempts (ssfCGuardRetryAtt)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the maximum number of retry attempts after the *ssfChargingGuardTimer* expires. |
| Values | Decimal (0..5) |
| Default | 0 |

### ATTRIBUTE Sgsn Gsc ssfCgpaRoutingIndicator (ssfCgpaRtInd)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the SCCP routing indicator used for SGSN Calling Party Addresses (CgPA). Two methods are supported.<br><br>***globalTitle***- CAP subsystem sets the CgPA routing Indicator to route on Global Title and supplies Global Title information.<br><br>***pointCode*** - CAP subsystem sets the CgPA routing Indicator to route on Point Code and supplies the Subsystem Number and Point Code in the CgPA. |
| Values | globalTitle (gt)<br>pointCode (pc) |
| Default | globalTitle |

### ATTRIBUTE Sgsn Gsc ssfCapSsn (ssfSsn)

| | |
|---|---|
| Access | Read: All<br>Write: All |

| | |
|---|---|
| Description | This attribute specifies the CAP (CAMEL Application Part) SGSN SubSystem Number (SSN). This SSN is used by SCCP for subsystem routing. The value of this attribute must match the value the corresponding subsystem number specified on the SS7 IP Gateway (SIG). |
| Values | Decimal (1..255) |
| Default | 146 |

### ATTRIBUTE Sgsn Gsc ssfRoamerService (ssfRoamServ)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies if CAMEL roaming subscribers are supported.<br><br>If *ssfRoamerService* is set to ***disabled*** and a CAMEL subscriber roams into an area served by this SGSN, active PDP (Packet Data Protocol) contexts are dropped and new contexts cannot be created.<br><br>If *ssfRoamerService* is set to ***enabled*** and a CAMEL subscriber roams into an area served by this SGSN, existing PDP Contexts are maintained and new contexts are created when requested.<br><br>***enabled***- enable roamer service, allowing roaming subscribers.<br><br>***disabled-*** disable roamer service, refusing roaming subscribers. |
| Values | enabled<br>disabled |
| Default | enabled |

### ATTRIBUTE Sgsn Gsc ssfSupportedCamelPhase (ssfSupportedPhase)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the highest phase of CAMEL supported by the SGSN or USGSN. |

If ***notSupported*** is specified, it indicates to all *Ssf* components that CAMEL is not supported by the network.

Values
Decimal (3)
notSupported

Default
notSupported

## GROUP Sgsn Gsc MobileSubscriberPurge (MsPurge)

Properties
Provisioned

Description
This group contains provisionable attributes for the Mobile Subscriber (MS) Purge functionality on the (UMTS) Serving GPRS Support Node (USGSN or SGSN).

## ATTRIBUTE Sgsn Gsc msPurgeFunction (msPurge)

Access
Read: All
Write: All

Description
This attribute specifies whether Mobile Subscriber Purge function is enabled or disabled. If this attribute is set to ***disabled,*** then no purge shall be sent out of the (UMTS) Serving GPRS Support Node (USGSN or SGSN).

Values
disabled
enabled

Default
disabled

## ATTRIBUTE Sgsn Gsc purgeOnExplicitDetach (purgeExplicit)

Access
Read: All
Write: All

Description
This attribute specifies whether Mobile Subscribers are purged immediately upon an explicit detach.

The *msPurgeFunction* attribute must be set to ***enabled*** for this attribute to have an effect.

Values
disabled
enabled

Default
disabled

## ATTRIBUTE Sgsn Gsc purgeMinimumInactiveMobileAge (purgeMinAge)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the minimum time that a detached Mobile Subscriber's Data is kept on the (UMTS) Serving GPRS Support Node (USGSN or SGSN). Once a Mobile Subscriber remains detached beyond the specified value, the Mobile Subscriber becomes a candidate for purge during an audit.<br><br>The *msPurgeFunction* attribute must be set to ***enabled*** for this attribute to have an effect. |
| Values | Decimal (1..744)<br>disabled |
| Units | hours |
| Default | disabled |

## COMPONENT Sgsn GprsTransportLayer (Gtl)

| | |
|---|---|
| Groups | "GROUP Sgsn Gtl NsProv"<br>"GROUP Sgsn Gtl BssgpProv (Bssgp)" |
| Scope | Application |
| Description | *Sgsn GprsTransportLayer*<br><br>This component represents the Transport Layer functionality of the<br>Gb interface of the Serving GPRS Support Node (SGSN). The Transport Layer includes protocol layers such as the Network Service (NS) and the BSS GPRS Protocol (BSSGP). |
| Common Verbs | Help<br>List<br>Display |

## GROUP Sgsn Gtl NsProv

| | |
|---|---|
| Properties | Provisioned |

| | |
|---|---|
| Description | This group contains provisionable attributes for the Network Service (NS) protocol layer of GPRS. |

### ATTRIBUTE Sgsn Gtl nsBlockTimer (tnsBlk)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the timer to guard the Network Service Virtual Connection (NS-VC) BLOCK and UNBLOCK procedures. This is the time interval between an NS-BLOCK and NS-BLOCK ACK, or between an NS-UNBLOCK and NS-UNBLOCK<br>ACK.<br><br>The timer must be provisioned to a value that is greater than the maximum expected round trip delay of a Protocol Data Unit (PDU). The default value is the value provided in the GPRS specification. |
| Values | Decimal (1..120) |
| Units | seconds |
| Default | 3 |

### ATTRIBUTE Sgsn Gtl nsBlockRetries (nBlk)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the number of times the NS-BLOCK message can be retried if NS-BLOCK ACK is not received before the *nsBlockTimer* expires. |
| Values | Decimal (0..10) |
| Default | 3 |

### ATTRIBUTE Sgsn Gtl nsUnBlockRetries (nUnBlk)

| | |
|---|---|
| Access | Read: All<br>Write: All |

| | |
|---|---|
| Description | This attribute specifies the number of times the NS-UNBLOCK message can be retried if NS-UNBLOCK ACK is not received before the *nsBlockTimer* expires. The default value is the value provided in the GPRS specification. |
| Values | Decimal (3..15) |
| Default | 3 |

### ATTRIBUTE Sgsn Gtl nsResetTimer (tnsReset)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the timer to guard the Network Service Virtual Connection (NS-VC) RESET procedure. This is the time interval between an NS-RESET and NS-RESET ACK.<br><br>The timer must be provisioned to a value that is greater than the maximum expected round trip delay of a Protocol Data Unit (PDU). The default value is the value provided in the GPRS specification. |
| Values | Decimal (1..120) |
| Units | seconds |
| Default | 3 |

### ATTRIBUTE Sgsn Gtl nsResetRetries (nReset)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the times the NS-RESET message can be retried if NS-RESET ACK is not received before the *nsResetTimer* expires. |
| Values | Decimal (3..10) |
| Default | 5 |

### ATTRIBUTE Sgsn Gtl nsTestTimer (tnsTest)

| | |
|---|---|
| Access | Read: All<br>Write: All |

| | |
|---|---|
| Description | This attribute specifies the periodicity of the Network Service Virtual Connection (NS-VC) TEST procedure which is the initiation of the NS-ALIVE Protocol Data Unit (PDU).<br>The range is the value provided in the GPRS specification. |
| Values | Decimal (1..60) |
| Units | seconds |
| Default | 30 |

### ATTRIBUTE Sgsn Gtl nsAliveTimer (tnsAlive)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the timer to guard the Network Service Virtual Connection (NS-VC) ALIVE procedure. This is the time interval between an NS-ALIVE and NS-ALIVE ACK.<br><br>The timer must be provisioned to a value that is greater than the maximum expected round trip delay of a Protocol Data Unit (PDU). The default value is the value provided in the GPRS specification. |
| Values | Decimal (1..10) |
| Units | seconds |
| Default | 3 |

### ATTRIBUTE Sgsn Gtl nsAliveRetries (nAlive)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the number of times the NS-ALIVE message can be retried if NS-ALIVE ACK is not received before the *nsAliveTimer* expires. |
| Values | Decimal (3..10) |
| Default | 10 |

## GROUP Sgsn Gtl BssgpProv (Bssgp)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisionable attributes for the BSS GPRS Protocol (BSSGP) layer of GPRS. |

## ATTRIBUTE Sgsn Gtl bvcResetTimer (tBvcReset)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the timer value to guard the BVC-RESET procedure. The Serving GPRS Support Node (SGSN) sends a BVC-RESET Protocol Data Unit (PDU) to the Packet Control Unit (PCU) and starts the *bvcResetTimer* for a BSS GPRS Virtual Connection (BVC). The SGSN stops the timer upon reception of a BVC-RESET-ACK PDU from the PCU. If the timer expires, the SGSN retries the BVC-RESET procedure.<br><br>The timer must be provisioned to a value that is greater than the maximum expected round trip delay of a Protocol Data Unit (PDU). |
| Values | Decimal (1..120) |
| Units | seconds |
| Default | 60 |

## ATTRIBUTE Sgsn Gtl bvcResetRetries (nBvcReset)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the maximum number of times the Serving GPRS Support Node (SGSN) can send the BVC-RESET Protocol Data Unit (PDU) in case a BVC-RESET-ACK is not received before the *bvcResetTimer* expiry. |
| Values | Decimal (0..6) |
| Default | 3 |

## COMPONENT Sgsn GprsSubscriberDatapath (Gsd)

| | |
|---|---|
| Groups | "GROUP Sgsn Gsd SndcpProv"<br>"GROUP Sgsn Gsd LlcCpProv" |
| Scope | Application |
| Description | *Sgsn GprsSubscriberDatapath*<br><br>This component represents the GPRS Subscriber Datapath functionality. |
| Subcomponents | "COMPONENT Sgsn Gsd SapiControl (SapiC)"<br>"COMPONENT Sgsn Gsd SapiData (SapiD)"<br>"COMPONENT Sgsn Gsd SapiShortMessageService (SapiS)" |
| Common Verbs | Help<br>List<br>Display |

## GROUP Sgsn Gsd SndcpProv

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the centralized provisionable parameters for the SubNetwork Dependent Convergence Protocol (SNDCP). |

## ATTRIBUTE Sgsn Gsd rfc1144Slots (slots)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute specifies the number of TCP state slots used for the RFC 1144 header compression. This is the value SNDCP uses to negotiate as part of the XID negotiation with the mobile. Either side can negotiate the value downward from this.<br><br>The actual negotiated value can be viewed in the component *SessionContext* attribute *slots*. |
| Values | Decimal (1..256) |
| Default | 16 |

## ATTRIBUTE Sgsn Gsd v42bisDictionary (p1)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies maximum number of V.42bis codewords the SGSN supports. A codeword is a binary number that represents a string of characters in compressed form. The V.42bis keeps a dictionary of codewords for each compression direction. During Exchange Identification (XID) negotiation of the parameter P1 (number of codewords), both sides (the SGSN to the mobile or the mobile to the SGSN) agree on the total number of codewords in the dictionaries. Changes to this attribute impacts the compression ratio for the encoder (component *Gsd Tlli SessionContext* attribute *compRatioEncoder*). Changes also impact the amount of memory used (more memory is used when increasing the attribute). The gain in performance obtained from the selection of a larger dictionary can be offset by the larger codeword size needed, and for certain types of data, better performance can be obtained by using a smaller dictionary.<br>The negotiated value can be viewed in the component *Gsd Tlli SessionContext* attribute *v42bisDictionary*. |
| Values | Decimal (512; 1024; 2048; 4096) |
| Default | 512 |

## ATTRIBUTE Sgsn Gsd v42bisMaxStringSize (p2)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the maximum number of characters allowed in a string represented by a codeword that the SGSN supports. Each codeword in a V.42bis dictionary represents a string of characters. During Exchange Identification (XID) negotiation of the parameter P2 (maximum string size), both sides (the SGSN and the Mobile Station or the SGSN and the Public Switched Telephone Network (PSTN)) agree on the maximum string length to be used in the dictionaries. Changes to this attribute impact the compression ratio for the encoder (component *Gsd Tlli SessionContext* attribute *compRatioEncoder*). |

| | |
|---|---|
| | The negotiated value can be viewed in the component *Gsd Tlli SessionContext* attribute *v42bisMaxStringSize*. |
| Values | Decimal (6..250) |
| Default | 20 |

### ATTRIBUTE Sgsn Gsd snPduTimer (snPduT)

| | |
|---|---|
| Access | Read: All<br>Write: Debug |
| Description | This attribute specifies the timing when a complete Network Protocol Data Unit (N-PDU) is received by the SubNetwork Dependent Convergence Protocol (SNDCP). This attribute is used in N-PDU reassembly from SN-UNITDATA PDUs. It specifies the maximum time SNDCP waits for additional SN-UNITDATA PDUs for a given N-PDU. If this timer expires the partially reassembled N-PDU is discarded. This timer is restarted when each segment of the original N-PDU is received. This timer is only applicable to unacknowledged Logical Link Control (LLC) mode.<br><br>The timer must be provisioned to a value that is greater than the maximum expected round trip delay of a Protocol Data Unit (PDU). |
| Values | Decimal (1..60) |
| Units | seconds |
| Default | 5 |

### GROUP Sgsn Gsd LlcCpProv

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the system wide provisionable attributes for GPRS Subscriber Datapath (GSD) capacity enhancement. |

### ATTRIBUTE Sgsn Gsd cipheringHardwareAssist (ciphHwAssist)

| | |
|---|---|
| Access | Read: All<br>Write: All |

| | |
|---|---|
| Description | This attribute specifies whether hardware assistance is to be used for Logical Link Control (LLC) layer encryption if supported by the card used by *GprsSubscriberDatapath (Gsd)*. If the value is ***disable***, hardware assistance is not used. If the value is ***autoConfigure***, hardware assistance is used if supported. |
| Values | disable<br>autoConfigure |
| Default | autoConfigure |

## COMPONENT Sgsn Gsd SapiControl (SapiC)

| | |
|---|---|
| Groups | "GROUP Sgsn Gsd SapiC Provisioned (Prov)" |
| Scope | Application |
| Description | *Sgsn Gsd SapiControl*<br><br>This component represents the Service Access Point 1 (SAP-1) of the Logical Link Control (LLC) protocol layer. |
| Common Verbs | Help<br>List<br>Display |

## GROUP Sgsn Gsd SapiC Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the Service Access Point 1 (SAP-1) specific system wide provisionable attributes. |

## ATTRIBUTE Sgsn Gsd SapiC t200RetransmitTimer (t200)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the time within which an acknowledgment of an Exchange Information (XID) frame must be received by the Service Access Point 1 (SAP-1) LLC entity. During the XID negotiation, both the Logical Link Control (LLC) entities (the Mobile Station and the SGSN) can agree to use a specific value for this timer. The Serving GPRS Support Node (SGSN) attempts |

to negotiate to the value specified by this attribute. Changes to this attribute do not trigger re-negotiation of this parameter with the Mobile Station.

The *readyTimer* value provisioned in the *Sgsn GprsSubscriberControl* component should be at least 10% greater than the *t200RetransmitTimer* value, except when *readyTimer* is set to ***forceStandby*** or ***useMsValue***.

The timer must be provisioned to a value that is greater than the expected maximum expected round trip delay of a Protocol Data Unit (PDU).

| | |
|---|---|
| Values | Decimal (0.1..409.5) |
| Units | seconds |
| Default | 5.0 |

### ATTRIBUTE Sgsn Gsd SapiC n200MaxRetransmits (n200)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the maximum number of times the Service Access Point 1 (SAPI-1) LLC entity retransmits an individual frame following the expiry of the *t200* timer. During the Exchange Information (XID) negotiation, both the Logical Link Control (LLC) entities (the Mobile Station and the SGSN) can agree to use a specific value for *n200*. The SGSN attempts to negotiate to the value specified by this attribute.<br>Changes to this attribute do not trigger re-negotiation of this parameter with the mobile. |
| Values | Decimal (1..15) |
| Default | 3 |

### ATTRIBUTE Sgsn Gsd SapiC n201MaxUinfoFieldLength (n201U)

| | |
|---|---|
| Access | Read: All<br>Write: All |

| | |
|---|---|
| Description | This attribute specifies the maximum number of octets allowed in Unnumbered (U) and Unconfirmed Information (UI) frames for the Service Access Point 1 (SAP-1). During the Exchange Information (XID) negotiation, both the Logical Link Control (LLC) entities (the Mobile Station and the SGSN) can agree to use a specific value for *n201U*. The Serving GPRS Support Node (SGSN) attempts to negotiate to the value specified by this attribute. Changes to this attribute do not trigger re-negotiation of this parameter with the Mobile Station. |
| Values | Decimal (140..1520) |
| Units | octets |
| Default | 400 |

## COMPONENT Sgsn Gsd SapiData (SapiD)

| | |
|---|---|
| Instance | Decimal (3; 5; 9; 11) |
| Groups | "GROUP Sgsn Gsd SapiD Provisioned (Prov)" |
| Scope | Application |
| Description | *Sgsn Gsd SapiData/<sapi>*<br><br>This component represents a Service Access Point (SAP) of the Logical Link Control (LLC) protocol layer, indexed by a Service Access Point Identifier (SAPI).<br><br>When an *Sgsn* is added, a *SapiData* instance is added automatically for each possible instance value. The attributes are set to default values, dependent on the SAPI value of the component instance. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Sgsn Gsd SapiD Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains system wide provisionable attributes for the Service Access Point 3, 5, 9, 11 (SAP-3, SAP-5, SAP-9 and SAP-11). |

## ATTRIBUTE Sgsn Gsd SapiD t200RetransmitTimer (t200)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the time within which an acknowledgment of a Unnumbered (U) frame must be received by the Service Access Point (SAP) LLC entity. This attribute is only applicable for Exchange Information (XID) negotiations and for Asynchronous Balanced Mode (ABM) mode. During the XID negotiation, both the Logical Link Control (LLC) entities (the Mobile Station and the SGSN) can agree to use a specific value for this timer. The Serving GPRS Support Node (SGSN) attempts to negotiate to the value specified by this attribute. Changes to this attribute do not trigger re-negotiation of this parameter with the Mobile Station.<br><br>The timer must be provisioned to a value that is greater than the maximum expected round trip delay of a Protocol Data Unit (PDU). |
| Values | Decimal (0.1..409.5) |
| Units | seconds |
| Default | No default |

## ATTRIBUTE Sgsn Gsd SapiD n200MaxRetransmits (n200)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the maximum number of times Logical Link Entity (LLE) representing that Service Access Point (SAP) retransmits an individual frame following the expiry of *t200* timer. During the Exchange Information (XID) negotiation, both |

| | |
|---|---|
| | the Logical Link Control (LLC) entities (the Mobile Station and the SGSN) can agree to use a specific value for *n200*. The SGSN attempts to negotiate to the value specified by this attribute. Changes to this attribute do not trigger re-negotiation of this parameter with the Mobile Station. |
| Values | Decimal (1..15) |
| Default | No default |

### ATTRIBUTE Sgsn Gsd SapiD n201MaxUInfoFieldLength (n201U)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the maximum number of octets allowed in Unnumbered (U) and Unconfirmed Information (UI) frames for that Service Access Point (SAP). During the Exchange Information (XID) negotiation, both the LLC entities (Mobile Station and SGSN) can agree to use a specific value for *n201U*. The SGSN attempts to negotiate to the value specified by this attribute. Changes to this attribute do not trigger re-negotiation of this parameter with the Mobile Station. |
| Values | Decimal (140..1520) |
| Default | No default |

### ATTRIBUTE Sgsn Gsd SapiD n201MaxIinfoFieldLength (n201I)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the maximum number of octets allowed in confirmed Information (I) frame for that Service Access Point (SAP). During the Exchange Information (XID) negotiation, both the Logical Link Control (LLC) entities (the Mobile Station and the SGSN)) can agree to use a specific value for *n201I*. The SGSN attempts to negotiate to the value specified by this attribute. Changes to this attribute do not trigger re-negotiation of this parameter with the Mobile Station. |
| Values | Decimal (140..1520) |
| Default | No default |

### ATTRIBUTE Sgsn Gsd SapiD kWindowSizeDownlink (kD)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the maximum number of outstanding unacknowledged sequenced Information (I) frames from the Serving GPRS Support Node (SGSN) to the mobile for that Service Access Point (SAP). During the Exchange Information (XID) negotiation, both the Logical Link Control (LLC) entities (the Mobile Station and the SGSN) can agree to use a specific value for *kD*. The SGSN attempts to negotiate to the value specified by this attribute. Changes to this attribute do not trigger re-negotiation of this parameter with the Mobile Station. |
| Values | Decimal (1..255) |
| Default | No default |

### ATTRIBUTE Sgsn Gsd SapiD kWindowSizeUplink (kU)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the maximum number of outstanding unacknowledged sequenced Information (I) frames from the mobile to the Serving GPRS Support Node (SGSN) for that Service Access Point (SAP). During the Exchange Information (XID) negotiation, both the Logical Link Control (LLC) entities (the Mobile Station and the SGSN) can agree to use a specific value for *kU*. The SGSN attempts to negotiate to the value specified by this attribute. Changes to this attribute do not trigger re-negotiation of this parameter with the Mobile Station. |
| Values | Decimal (1..255) |
| Default | No default |

### ATTRIBUTE Sgsn Gsd SapiD pduUnconfirmedInformationLifetime (pduUnInfo)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the Base Station Subsystem GPRS Protocol (BSSGP) Packet Data Unit (PDU) lifetime for Logical |

| | |
|---|---|
| | Link Control (LLC) Unconfirmed Information (UI) frames. This attribute is used by the Base Station Subsystem (BSS) to determine when to discard the PDU. |
| Values | Decimal (0.1..600.0) |
| Units | seconds |
| Default | No default |

### COMPONENT Sgsn Gsd SapiShortMessageService (SapiS)

| | |
|---|---|
| Groups | "GROUP Sgsn Gsd SapiS SapiSms (Prov)" |
| Scope | Application |
| Description | *Sgsn Gsd SapiShortMessageService*<br><br>This component represents the Service Access Point 7 (SAP-7) of the Logical Link Control (LLC) protocol layer. This SAP is the access point for Short Message Services (SMS). |
| Common Verbs | Help<br>List<br>Display |

### GROUP Sgsn Gsd SapiS SapiSms (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the Service Access Point-7 (SAP-7) specific system wide provisionable attributes. |

### ATTRIBUTE Sgsn Gsd SapiS t200RetransmitTimer (t200)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the time within which an acknowledgment of an Exchange Information (XID) frame must be received by the Service Access Point 7 (SAP-7) LLC entity. During the XID negotiation, both the Logical Link Control (LLC) entities (the Mobile Station and the SGSN) can agree to use a specific value for this timer. The Serving GPRS Support Node (SGSN) attempts |

to negotiate to the value specified by this attribute. Changes to this attribute do not trigger re-negotiation of this parameter with the Mobile Station.

The *readyTimer* value provisioned in the *Sgsn GprsSubscriberControl* component should be at least 10% greater than the *t200RetransmitTimer* value.

The timer must be provisioned to a value that is greater than the expected maximum expected round trip delay of a Protocol Data Unit (PDU).

Values: Decimal (0.1..409.5)

Units: seconds

Default: 20.0

### ATTRIBUTE Sgsn Gsd SapiS n200MaxRetransmits (n200)

Access: Read: All
Write: All

Description: This attribute specifies the maximum number of times the Service Access Point 7 (SAPI-7) LLC entity retransmits an individual frame following the expiry of the *t200* timer. During the Exchange Information (XID) negotiation, both the Logical Link Control (LLC) entities (the Mobile Station and the SGSN) can agree to use a specific value for *n200*. The SGSN attempts to negotiate to the value specified by this attribute.
Changes to this attribute do not trigger re-negotiation of this parameter with the mobile.

Values: Decimal (1..15)

Default: 3

### ATTRIBUTE Sgsn Gsd SapiS n201MaxUinfoFieldLength (n201U)

Access: Read: All
Write: All

Description: This attribute specifies the maximum number of octets allowed in Unnumbered (U) and Unconfirmed Information (UI) frames for

| | |
|---|---|
| | the Service Access Point 7 (SAP-7). During the Exchange Information (XID) negotiation, both the Logical Link Control (LLC) entities (the Mobile Station and the SGSN) can agree to use a specific value for *n201U*. The Serving GPRS Support Node (SGSN) attempts to negotiate to the value specified by this attribute. Changes to this attribute do not trigger re-negotiation of this parameter with the Mobile Station. |
| Values | Decimal (140..1520) |
| Units | octets |
| Default | 270 |

## COMPONENT Sgsn DnsAgent (DnsAg)

| | |
|---|---|
| Groups | "GROUP Sgsn DnsAg Provisioned (Prov)" |
| Scope | Application |
| Description | *Sgsn DnsAgent*<br><br>This component represents the Domain Name System (DNS) Agent. |
| Opt. Subcomp. | "COMPONENT Sgsn DnsAg StaticCacheEntry (Static)" |
| Common Verbs | Help<br>List<br>Display |

## GROUP Sgsn DnsAg Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the *DnsAgent* provisioning data of the Serving GPRS Support Node (SGSN). |

## ATTRIBUTE Sgsn DnsAg retryTimer (tRetry)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies how long the *DnsAgent* waits for a response from a Domain Name System (DNS) Server following |

| | |
|---|---|
| | the initial query. Intervals for subsequent retries if required, are computed using an algorithm based on this attribute.<br><br>The timer must be provisioned to a value that is greater than the maximum expected round trip delay of a Protocol Data Unit (PDU). |
| Values | Decimal (2..20) |
| Units | seconds |
| Default | 5 |

### ATTRIBUTE Sgsn DnsAg maxRetries (nRetry)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the maximum number of retries for a Domain Name System (DNS) query. After *maxRetries* expiry, if there is no response from the DNS Server, the *DnsAgent* sends an error indication to the application. |
| Values | Decimal (0..5) |
| Default | 2 |

### ATTRIBUTE Sgsn DnsAg refreshTime (tRefresh)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies how often a Domain Name System (DNS) cache table entries are refreshed. After the timer expires for a given entry, the next client query for that entry's Logical Name causes the DNS Name Server to be queried again to update the Logical Name information. |
| Values | Decimal (0..14400) |
| Units | minutes |
| Default | 10080 |

## ATTRIBUTE Sgsn DnsAg staleIpAddressReuse (staleIpReuse)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies whether the last stale Internet Protocol (IP) address for a given Access Point Name (APN) is reused by the *DnsAgent* component when all Domain Name System (DNS) query retries fail.<br><br>If a value of ***enabled*** is specified, the *DnsAgent* cache table is not emptied even if the *DnsAgent refreshTime* or *ttl* attribute values have expired for the cache entries. If all DNS query retries fail, the last dynamic entry in the *DnsAgent* cache table is reused. If a value of ***disabled*** is specified, the *DnsAgent* cache table behavior is unaffected. |
| Values | disabled<br>enabled |
| Default | disabled |

## COMPONENT Sgsn DnsAg StaticCacheEntry (Static)

| | |
|---|---|
| Instance | virtualRouter (vr) [String (1..8, ASCII)]<br>entryNum [Decimal (0..1000)] |
| Groups | "GROUP Sgsn DnsAg Static Provisioned (Prov)" |
| Scope | Application |
| Description | *Sgsn DnsAg StaticCacheEntry/<vr>,n*<br><br>This component represents a Logical Name-IP Address mapping entry for the Serving GPRS Support Node (SGSN) in GPRS. An instance of this component is provisioned if a static Domain Name System (DNS) mapping is required. |

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Sgsn DnsAg Static Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains a Logical Name-IP Address mapping entry for the Serving GPRS Support Node (SGSN) in GPRS. |

## ATTRIBUTE Sgsn DnsAg Static logicalName (lName)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the Logical Name for this static entry. |
| Values | String (1..253, ASCII) |
| Default | No default |

## ATTRIBUTE Sgsn DnsAg Static mappedIpAddr (ipAddr)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the IP addresses corresponding to a given Logical Name. One Logical Name can have up to ten IP addresses mapped to it. The order of the addresses is not important; successive queries of the Logical Name return the IP addresses in a round robin fashion.<br><br>This attribute must not specify the address ‘0.0.0.0’ or any address ending in ‘255’. |
| List of | IP address |
| List Size | 10 |

| | |
|---|---|
| Default | No default |

## COMPONENT Sgsn PlmnImsiRange (Pir)

| | |
|---|---|
| Instance | Decimal (1..1000) |
| Groups | "GROUP Sgsn Pir Provisioned (Prov)" |
| Scope | Application |
| Description | *Sgsn PlmnImsiRange/n*<br><br>This component represents an entry in a table of the International Mobile Subscriber Identity (IMSI) digits ranges. If a particular IMSI has a digit range that does not match any entry in the table, then it does not belong to this Public Land Mobile Network (PLMN). |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Sgsn Pir Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the Mobile Country Code (MCC), Mobile Network Code (MNC) range for this Public Land Mobile Network (PLMN). All Mobile Stations (MS) whose MCC and MNC do not belong to the current PLMN are considered roamers.<br><br>The *fromPrefix* and *toPrefix* attributes represent decimal number value ranges that fit the IMSI specification of 15 digits. All digits must be 0 through 9 inclusive. When the *fromPrefix* or the *toPrefix* value is less than 15 digits, the value in attribute *fromPrefix* is always extended with 0's, and the value in attribute *toPrefix* is always extended with 9's.<br><br>A complete range (*fromPrefix* and *toPrefix* forming a range of IMSI digits) must not overlap any previously entered range. |

### ATTRIBUTE Sgsn Pir fromPrefix (frPrefix)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the lower limit of the range of the International Mobile Subscriber Identity (IMSI) digits which are considered as home subscribers. The value in attribute *fromPrefix* is always extended with 0's. |
| Values | BCD (1..15) |
| Default | No default |

### ATTRIBUTE Sgsn Pir toPrefix

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the upper limit of the range of the International Mobile Subscriber Identity (IMSI) digits which are considered as home subscribers. The value in attribute *toPrefix* is always extended with 9's. |
| Values | BCD (1..15) |
| Default | No default |

### COMPONENT Sgsn MobileCountryCode (Mcc)

| | |
|---|---|
| Instance | BCD (3) |
| Scope | Application |
| Description | *Sgsn MobileCountryCode/<Mcc>*<br><br>This component represents a Mobile Country Code (MCC) supported by the Serving GPRS Support Node (SGSN). The instance value is the 3 digit MCC. |

| | |
|---|---|
| Opt. Subcomp. | "COMPONENT Sgsn Mcc MobileNetworkCode (Mnc)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## COMPONENT Sgsn Mcc MobileNetworkCode (Mnc)

| | |
|---|---|
| Instance | BCD (2..3) |
| Groups | "GROUP Sgsn Mcc Mnc Provisioned (Prov)" |
| Scope | Application |
| Description | *Sgsn Mcc/<Mcc> MobileNetworkCode/<Mnc>*<br><br>This component represents a Mobile Network Code (MNC) supported by the Serving GPRS Support Node (SGSN). The instance value is the 2 or 3 digit MNC. |
| Opt. Subcomp. | "COMPONENT Sgsn Mcc Mnc LocationAreaCode (Lac)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Sgsn Mcc Mnc Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the E.212 to E.214 Translation Table provisionable attributes. |

### ATTRIBUTE Sgsn Mcc Mnc countryCode (cc)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies a specific country, countries in an integrated number plan, or a specific geographic area as defined by the ITU-T international public telecommunication numbering plan. The associated MCC (Mobile Country Code) gets translated to this CC (Country Code) during a E.212 to E.214 number translation used for global title addressing for the HLR. |
| Values | BCD (1..3) |
| Default | No default |

### ATTRIBUTE Sgsn Mcc Mnc networkCode (nc)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the PLMN or HLR within the PLMN as defined by the ITU-T international public telecommunication numbering plan. The associated MNC (Mobile Network Code) gets translated to this NC (Network Code) during a E.212 to E.214 number translation used for global title addressing for the HLR. |
| Values | BCD (1..9) |
| Default | No default |

### COMPONENT Sgsn Mcc Mnc LocationAreaCode (Lac)

| | |
|---|---|
| Instance | String (4, ASCII) |
| Scope | Application |
| Description | *Sgsn Mcc/<Mcc> Mnc/<Mnc> LocationAreaCode/<Lac>*<br><br>This component represents a Location Area Code (LAC) |

supported by the Serving GPRS Support Node (SGSN). The instance value is the 4 digit LAC.

Opt. Subcomp. "COMPONENT Sgsn Mcc Mnc Lac RoutingAreaCode (Rac)"

Common Verbs
Help
List
Display
Add
DELete

## COMPONENT Sgsn Mcc Mnc Lac RoutingAreaCode (Rac)

Instance String (2, ASCII)

Groups "GROUP Sgsn Mcc Mnc Lac Rac Provisioned (Prov)"

Scope Application

Description *Sgsn Mcc/<Mcc> Mnc/<Mnc> Lac/<Lac> RoutingAreaCode/ <Rac>*

This component represents a Routing Area Code (RAC) supported by the Serving GPRS Support Node (SGSN). The instance value is
the 2 digit RAC.

Opt. Subcomp. "COMPONENT Sgsn Mcc Mnc Lac Rac CellId (Cid)"

Common Verbs
Help
List
Display
Add
DELete

## GROUP Sgsn Mcc Mnc Lac Rac Provisioned (Prov)

Properties Provisioned

Description This group contains general provisioning data for a Routing Area supported by the Serving GPRS Support Node (SGSN).

### ATTRIBUTE Sgsn Mcc Mnc Lac Rac periodicRaUpdateTimer (t3312)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the Periodic Routing Area Update Timer (T3312) for be used by the Mobile Station (MS). The MS receives this timer from the network during GPRS Attach Accept and during the Periodic Routing Area Update Accepts. When this timer expires, the MS notifies the Serving GPRS Support Node (SGSN) of the current routing area of the MS. This timer value is per Routing Area. The value ***deactivate*** means that no periodic messages are sent.<br><br>The *mobileReachableTimer* provisioned in the *Sgsn GprsSubscriberControl* component must be at least four minutes longer than the longest *periodicRaUpdateTimer.*<br><br>The timer must be provisioned to a value that is greater than the maximum expected round trip delay of a Protocol Data Unit (PDU). |
| Values | Decimal (1..31; 36; 42; 48; 54; 60; 66; 72; 78; 84; 90; 96; 102; 108; 114; 120; 126; 132; 138; 144; 150; 156; 162; 168; 174; 180; 186)<br>deactivate |
| Units | minutes |
| Default | 54 |

### ATTRIBUTE Sgsn Mcc Mnc Lac Rac ptmsiEvents

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the number, N, which indicates that at every Nth event requiring Packet-Temporary Mobile Subscriber Identity (P-TMSI) reallocation, the P-TMSI Reallocation procedure is initiated with the mobile subscriber.<br><br>For example, when this value is set to ***never***, the P-TMSI Reallocation procedure is never performed on local P-TMSIs received from the mobile subscriber. Only, the non local P-TMSIs |

| | |
|---|---|
| | undergo P-TMSI reallocation. When the value is set to ***1***, P-TMSI Reallocation procedure is performed every time an event that triggers P-TMSI reallocation occurs. This means that the P-TMSI is reallocated whether it is local, foreign or random. This parameter is not per Mobile station (MS), rather it applies to events over an entire routing area. |
| Values | Decimal (1..255)<br>never |
| Default | 10 |

### ATTRIBUTE Sgsn Mcc Mnc Lac Rac linkToVlr (lToVlr)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the Visitor Location Register (VLR) that serves this Routing Area (RA).<br>Changing this value causes the outstanding transactions to be affected. |
| Values | Link (Service, linkToRoutingAreas) |
| Default | No default |

### ATTRIBUTE Sgsn Mcc Mnc Lac Rac networkServiceEntities (nse)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the Network Service Entities (NSE) in this Routing Area (RA). Each NSE is identified by its Network Service Entity Identifier (NSEI) number. |
| List of | Decimal (1..65535) |
| Default | No default |

### COMPONENT Sgsn Mcc Mnc Lac Rac CellId (Cid)

| | |
|---|---|
| Instance | Decimal (0..65535) |
| Groups | "GROUP Sgsn Mcc Mnc Lac Rac Cid Provisioned (Prov)" |
| Scope | Application |

Description *Sgsn Mcc/<Mcc> Mnc/<Mnc> Lac/<Lac> Rac/<Rac> CellId/ <CellId>*

This component represents a Cell supported by the Serving GPRS Support Node (SGSN). The instance value is the Cell Id in decimal value.

Common Verbs
Help
List
Display
Add
DELete

## GROUP Sgsn Mcc Mnc Lac Rac Cid Provisioned (Prov)

Properties Provisioned

Description This group contains general provisioning data for a Cell supported by the Serving GPRS Support Node (SGSN).

## ATTRIBUTE Sgsn Mcc Mnc Lac Rac Cid directionLatitude (dirLat)

Access Read: All
Write: All

Description This attribute specifies the direction of the latitude coordinate of the cell position.

A value of ***north*** implies a position to the north of the Equator.

A value of ***south*** implies a position to the south of the Equator.

Values north (n)
south (s)

Default north

## ATTRIBUTE Sgsn Mcc Mnc Lac Rac Cid degreesLatitude (degLat)

Access Read: All
Write: All

Description This attribute specifies the degree of the latitude coordinate for the cell position. Zero degrees corresponds to the Equator. Angles

are either to the north or south of the Equator depending on the *directionLatitude* attribute. Approximately 5 decimal places are significant when the number is encoded in binary and sent to the Gateway Mobile Location Center (GMLC).

Values: Decimal (0.00000..90.00000)

Default: No default

### ATTRIBUTE Sgsn Mcc Mnc Lac Rac Cid directionLongitude (dirLong)

Access: Read: All
Write: All

Description: This attribute specifies the direction of the longitude coordinate of the cell position.

A value of ***east*** implies a position to the east of the Greenwich Meridian.

A value of ***west*** implies a position to the west of the Greenwich Meridian.

Values: east (e)
west (w)

Default: east

### ATTRIBUTE Sgsn Mcc Mnc Lac Rac Cid degreesLongitude (degLong)

Access: Read: All
Write: All

Description: This attribute specifies the degree of the longitude coordinate for the cell position. Zero degrees corresponds to the Greenwich Meridian. Angles are either to the east or west of the Greenwich Meridian, depending on the attribute *directionLongitude*. Approximately 5 decimal places are significant when the number is encoded in binary and sent to the Gateway Mobile Location Center (GMLC).

Values: Decimal (0.00000..180.00000)

Default: No default

### ATTRIBUTE Sgsn Mcc Mnc Lac Rac Cid cellRadius (cellRad)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the cell radius in meters. It is used to compute the uncertainty code of the latitude and longitude co-ordinates that are sent to the Gateway Mobile Location Center (GMLC). |
| Values | Decimal (0..1800000) |
| Units | metres |
| Default | 4000 |

### COMPONENT Sgsn TemporaryLogicalLinkId (Tlli)

| | |
|---|---|
| Instance | String (4, Hex) |
| Scope | Application |
| Description | *Sgsn TemporaryLogicalLinkId/<tlli>*<br><br>This component represents an instance of the Temporary Logical Link Identity (TLLI). The information includes subscription context, mobility management context, session contexts and logical<br>link context. Each instance is indexed by the TLLI of the mobile subscriber. A list of all current *Tlli* instances is not possible, but it is possible to display a specific instance of *Tlli*. |
| Dyn. Subcomp. | "COMPONENT Sgsn Tlli MobilityContext (Mc)"<br>"COMPONENT Sgsn Tlli SessionContext (Sc)"<br>"COMPONENT Sgsn Tlli HlrCacheRecord (HlrcRec)" |
| Common Verbs | Help<br>List<br>Display |

### COMPONENT Sgsn Tlli MobilityContext (Mc)

| | |
|---|---|
| Groups | "GROUP Sgsn Tlli Mc Operational (Oper)"<br>"GROUP Sgsn Tlli Mc WlcCustomCounters (WlcCustomCntr)" |

| | |
|---|---|
| Scope | Application |
| Description | *Sgsn Tlli/<tlli> MobilityContext*<br>*Sgsn Imsi/<imsi> MobilityContext*<br>*Gsc/n Tlli/<tlli> MobilityContext*<br>*Gsc/n Imsi/<imsi> MobilityContext*<br><br>This component represents the GPRS Mobility Management (GMM) context created for each mobile subscriber that is GPRS-Attached. The Mobility Context is an instance of the *InternationalMobileSubscriberId (Imsi)* and the *TemporaryLogicalLinkId (Tlli)* of the Serving GPRS Support Node (SGSN). |
| Common Verbs | Help<br>List<br>Display |

## GROUP Sgsn Tlli Mc Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the GPRS Mobility Management (GMM) information for a subscriber. |

## ATTRIBUTE Sgsn Tlli Mc temporaryLogicalLinkId (tlli)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the Temporary Logical Link Identifier (TLLI) used to identify the context of the Mobile Station (MS) within the Serving GPRS Support Node (SGSN). This is one of the main reference keys that is used to identify an MS in the SGSN. |
| Values | String (4, Hex) |
| Default | No default |

## ATTRIBUTE Sgsn Tlli Mc gmmState (gmmSt)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute indicates the GPRS Mobility Management (GMM) state for a mobile. Upon initialization, this attribute value is in ***idle*** state. The states have the following meaning:<br>***idle*** - The Mobile Station (MS) is not attached to the GPRS Mobility Management (GMM). The MS and the SGSN context hold no valid location or routing area information for the mobile.<br>***standby*** - The MS is attached to the GMM.<br>***ready*** - MS is attached and can be sending or receiving the Point To Point Protocol Data Units (PTP PDUs). |
| Values | idle<br>standby<br>ready |
| Default | No default |

### ATTRIBUTE Sgsn Tlli Mc routingAreaIdentifier (rai)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the current routing area of the Mobile Station (MS). The routing area is transmitted to the Serving GPRS Support Node (SGSN) during a Routing Area Update procedure or Attach procedure. The routing area identifier includes the Mobile Country Code (MCC as first 3 digits), the Mobile Network Code (MNC as next 2 digits), the Location Area Code (LAC as next 4 digits), and the Routing Area Code (RAC as last 2 digits). |
| Values | String (5..6, Hex) |
| Default | No default |

### ATTRIBUTE Sgsn Tlli Mc cellId

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the current cell location of the Mobile Station (MS). |
| Values | String (2, Hex) |
| Default | No default |

### ATTRIBUTE Sgsn Tlli Mc cellEntryTime (cellEntry)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates when the Mobile Station (MS) entered the cell indicated by the *cellId*. |
| Values | Time (DHMS) |
| Default | No default |

### ATTRIBUTE Sgsn Tlli Mc sgsnClassmark (sgsnCm)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the network portion of the Mobile Station (MS) classmark. The classmark contains specific information about a Mobile Station (MS). |
| Values | String (1..2, Hex) |
| Default | No default |

### ATTRIBUTE Sgsn Tlli Mc drxParameters (drxParms)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates if the Mobile Station (MS) supports discontinuous reception or not. The DRX parameter is transmitted by the MS during an Attach Request procedure and a Routing Area Update procedure. |
| Values | supported<br>unsupported |
| Default | No default |

### ATTRIBUTE Sgsn Tlli Mc readyTimer (t3314)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute indicates the negotiated value of the Ready Timer (T3314) for the GPRS Mobility Management (GMM) state transition. The Ready Timer is restarted whenever a signaling or a data Protocol Data Unit (PDU) is received from the Mobile Station (MS). In the event of the Ready Timer expiry, the attribute *gmmState* changes to ***standby***.<br><br>The negotiation of this value is based on the *readyTimer* provisioned in the *Sgsn GprsSubscriberControl* component. |
| Values | Decimal (1..11160)<br>forceStandby |
| Units | seconds |
| Default | No default |

### ATTRIBUTE Sgsn Tlli Mc pagingProceedFlag (ppf)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the paging proceed flag. The flag indicates whether paging can be initiated. |
| Values | false<br>true |
| Default | No default |

### GROUP Sgsn Tlli Mc WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Sgsn Tlli Mc customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a |

| | |
|---|---|
| | mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sgsn Tlli Mc customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sgsn Tlli Mc customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT Sgsn Tlli SessionContext (Sc)

| | |
|---|---|
| Instance | Decimal (0..15) |
| Groups | "GROUP Sgsn Tlli Sc SessionContextOp (ScOp)" |
| Scope | Application |
| Description | *Sgsn Tlli/<tlli> SessionContext/<nsapi>*<br><br>This component represents the Session Context information for a |

subscriber. The Session Contexts are created for each activated Packet Data Protocol (PDP) context of a subscriber. The instance value identifies a session for a mobile subscriber.

Dyn. Subcomp. "COMPONENT Sgsn Tlli Sc RequestedQos (ReqQos)"
"COMPONENT Sgsn Tlli Sc NegotiatedQos (NegQos)"

Common Verbs
Help
List
Display

## GROUP Sgsn Tlli Sc SessionContextOp (ScOp)

Properties Operational

Description This group contains the Session Context information for a subscriber. The Session Contexts are created for each activated Packet Data Protocol (PDP) context of a subscriber.

## ATTRIBUTE Sgsn Tlli Sc selectedApnNetworkId (selApnNwkId)

Access Read: All
Write: Illegal

Description This attribute indicates the selected Access Point Name (APN) Network Identifier.

The APN Network Identifier can be the one received from the mobile as part of the ACTIVATE PDP CONTEXT REQUEST message or it can be selected from the subscription record against which this session has been activated or it can be the *defaultApnNetworkId* (defined in *Sgsn Gsc*) for the requested PDP type provisioned on the Serving GPRS Support Node (SGSN).

Values String (1..63, ASCII)

Default No default

## ATTRIBUTE Sgsn Tlli Sc selectedApnOperatorId (selApnOpId)

Access Read: All
Write: Illegal

| | |
|---|---|
| Description | This attribute indicates the selected Access Point Name (APN) Operator Identifier.<br><br>The APN Operator Identifier can be the one received from the Mobile Station (MS) as part of the ACTIVATE PDP CONTEXT REQUEST message or it can be the one constructed from the subscriber's IMSI as mnc<3 MNC digits>.mcc<3 MCC digits>.gprs. |
| Values | String (1..37, ASCII) |
| Default | No default |

### ATTRIBUTE Sgsn Tlli Sc dataPathGgsnAddress (dGgsnAddr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the IP address of the Gateway GPRS Support Node (GGSN) for the data path that is currently used by the activated Packet Data Protocol (PDP) context. |
| Values | IP address |
| Default | No default |

### ATTRIBUTE Sgsn Tlli Sc signalingGgsnAddress (sGgsnAddr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the IP address of the Gateway GPRS Support Node (GGSN) for the signaling path that is currently used by the activated Packet Data Protocol (PDP) context. |
| Values | IP address |
| Default | No default |

### ATTRIBUTE Sgsn Tlli Sc pdpContextIdentifier (pdpCid)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the subscription record against which this session has been activated. |

| | |
|---|---|
| Values | Decimal (1..255) |
| Default | No default |

### ATTRIBUTE Sgsn TIli Sc pdpType (pdpT)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute defines the end user protocol to be used between the external packet data network and the Mobile Station (MS) such as, X.25, IP, PPP.<br>For X.25 currently defined address format is X.121, for IP protocol currently defined address formats are IPV4, IPV6, and PPP protocol has no address format. |
| Values | x25<br>ip<br>ppp |
| Default | No default |

### ATTRIBUTE Sgsn TIli Sc ipv4PdpAddress (ipv4Addr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the network layer address of the packet data network. This attribute is displayed when the Packet Data Protocol (PDP) address is IPv4. The address conforms to the standard addressing scheme of the IP version 4 address. |
| Values | IP address |
| Default | No default |

### ATTRIBUTE Sgsn TIli Sc x121PdpAddress (x121Addr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the network layer address of the packet data network. This attribute is displayed when the Packet Data Protocol (PDP) address is X.121. |
| Values | BCD (1..14) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Sgsn Tlli Sc otherPdpAddress (otherAddr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the network layer address of the packet data network. The Packet Data Protocol (PDP) protocol type for the *otherPdpAddress* can be obtained from the attribute *pdpType* and the addressing type from *pdpAddressFormat*. |
| Values | String (1..16, Hex) |
| Default | No default |

### ATTRIBUTE Sgsn Tlli Sc pdpAddressFormat (pdpTnum)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the addressing type, such as, X.121, IPv4, IPv6. |
| Values | x121<br>ipv4<br>ipv6 |
| Default | No default |

### ATTRIBUTE Sgsn Tlli Sc ggsnRemoteTeid (ggsnRemTeid)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the Tunnel End point Identifier that is associated with a tunnel leg that originates at the GPRS Serving GPRS Support Node (SGSN) and terminates at the Gateway GPRS Support Node (GGSN). |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sgsn Tlli Sc ggsnLocalTeid (ggsnLocTeid)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the Tunnel End point Identifier that is associated with a tunnel leg that originates at the Gateway GPRS Support Node (GGSN) and terminates at the GPRS Serving GPRS Support Node (SGSN). |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sgsn Tlli Sc signallingGgsnTeid (sGgsnTeid)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the Tunnel End point Identifier that is associated with a tunnel leg endpoint of the control tunnel that runs between the GPRS Serving GPRS Support Node (SGSN) and the Gateway GPRS Support Node (GGSN). |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT Sgsn Tlli Sc RequestedQos (ReqQos)

| | |
|---|---|
| Groups | "GROUP Sgsn Tlli Sc ReqQos QosProfile (Qos)" |
| Scope | Application |
| Description | *Sgsn Imsi/<imsi> SessionContext/<nsapi> RequestedQos*<br>*Gsc/n Imsi/<imsi> SessionContext/<nsapi> RequestedQos*<br><br>This component represents the Quality of Service (QoS) profile requested by a mobile subscriber for this session. |
| Common Verbs | Help<br>List<br>Display |

## GROUP Sgsn Tlli Sc ReqQos QosProfile (Qos)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the Quality of Service (QoS) profile. It contains either the requested QoS, the negotiated QoS, or the subscribed QoS based on which component contains this group. |

## ATTRIBUTE Sgsn Tlli Sc ReqQos deliveryOrder (delOrd)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates whether the Signalling Data Units' (SDUs) order of delivery is guaranteed. |
| Values | withDeliveryOrder<br>withoutDeliveryOrder |
| Default | No default |

## ATTRIBUTE Sgsn Tlli Sc ReqQos deliveryOfErroneousSdus (delErrSdus)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates how erroneous Signaling Data Units (SDUs) are handled by the network.<br><br>The erroneous SDUs can be handled in one of the following ways:<br><br>***noDetect:*** The Signalling Data Units (SDUs) are delivered without considering error detection.<br><br>***errSdusDelivered:*** The erroneous Signalling Data Units (SDUs) are delivered together with an error indication.<br><br>***errSdusNotDelivered:*** The erroneous Signalling Data Units (SDUs) are discarded. |
| Values | noDetect<br>errSdusDelivered<br>errSdusNotDelivered |

Default — No default

### ATTRIBUTE Sgsn TIli Sc ReqQos trafficClass (traffClass)

Access — Read: All
Write: Illegal

Description — This attribute indicates the type of application for which the bearer service is optimized. By including the traffic class itself as an attribute, GPRS can make assumptions about the traffic source and optimize the transport for that traffic type.

The different traffic classes are:
***conversational* -** This class includes real time conversation, characterized by low transfer delay and a strict preservation of the time relation between information entities of the stream. Examples of this class are telephony speech and video conferencing.

***streaming* -** This class consists of real time video/audio applications, characterized by a strict preservation of the time relation between the information entities of the stream, but not necessarily a low transfer delay.

***interactive* -** This class includes applications where a human or machine requests data from remote equipment, characterized by a request-response pattern of the end-user and the preservation of payload content.

***background* -** This class includes applications where the end-user, typically a computer, sends and receives data files in the background (for example: emails, SMS and database downloads). This is characterized by the destination not expecting the data within a certain time.

Values — conversational (conv)
streaming (strm)
interactive (int)
background (bkgr)

Default — No default

### ATTRIBUTE Sgsn Tlli Sc ReqQos maxSduSize (maxSduSize)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the maximum allowed size of the Signalling Data Unit (SDU). It is used for admission control and policing. |
| Values | Decimal (1..1502) |
| Units | octets |
| Default | No default |

### ATTRIBUTE Sgsn Tlli Sc ReqQos maxUplinkBitRate (maxUpBr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the maximum number of bits delivered to GPRS in the uplink direction within a period of time, divided by the duration of the period. This is the upper limit in kilobits per second allowed for a specific context. |
| Values | Decimal (0..8640) |
| Units | kbit/s |
| Default | No default |

### ATTRIBUTE Sgsn Tlli Sc ReqQos maxDownlinkBitRate (maxDnBr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the maximum number of bits delivered by GPRS in the downlink direction within a period of time, divided by the duration of the period. This is the upper limit in kilobits per second allowed for a specific context. |
| Values | Decimal (0..8640) |
| Units | kbit/s |
| Default | No default |

### ATTRIBUTE Sgsn Tlli Sc ReqQos residualBitErrorRate (resBer)

Access
Read: All
Write: Illegal

Description
This attribute indicates the undetected bit error ratio in the delivered Signalling Data Units (SDUs). If no error detection is requested, this attribute indicates the bit error ratio in the delivered SDUs.

This attribute can take up values ranging from 1 through 9, representing:

***1*** -> 5*10 -2
***2*** -> 1*10 -2
***3*** -> 5*10 -3
***4*** -> 4*10 -3
***5*** -> 1*10 -3
***6*** -> 1*10 -4
***7*** -> 1*10 -5
***8*** -> 1*10 -6
***9*** -> 6*10 -8

Values
Decimal (1..9)

Default
No default

### ATTRIBUTE Sgsn Tlli Sc ReqQos sduErrorRatio (sduErrRatio)

Access
Read: All
Write: Illegal

Description
This attribute indicates the fraction of Signalling Data Units (SDUs) lost or detected as erroneous. It is defined only for conforming traffic.

This attribute can take up values between the numbers 1 - 7 representing the following:
1 -> 1*10 -2
2 -> 7*10 -3
3 -> 1*10 -3
4 -> 1*10 -4

5 -> 1*10 -5
6 -> 1*10 -6
7 -> 1*10 -1

Values Decimal (1..7)

Default No default

### ATTRIBUTE Sgsn Tlli Sc ReqQos trafficHandlingPriority (traffHndlPr)

Access Read: All
Write: Illegal

Description This attribute indicates the traffic handling priority. The traffic handling priority attribute is used to prioritize the traffic when the *trafficClass* attribute has the value ***interactive.***

A value of ***0*** is reserved when this attribute is displayed for the negotiated Quality of Service (QoS) and the subscribed QoS. When displayed for the requested QoS, it indicates that the value in the subscribed QoS is to be used. Values of ***1***, ***2***, or ***3*** indicate the traffic priority, with ***1*** indicating the highest priority and ***3*** the lowest.

Values Decimal (0..3)

Default No default

### ATTRIBUTE Sgsn Tlli Sc ReqQos transferDelay (transfDelay)

Access Read: All
Write: Illegal

Description This attribute indicates the maximum delay for 95th percentile of the distribution of delay for all delivered Signalling Data Units (SDUs) during the lifetime of a bearer service, where delay for an SDU is defined as the time from a request to transfer data from one Service Access Point (SAP) to another SAP.

Values Decimal (10..4100)

Units msec

Default No default

### ATTRIBUTE Sgsn Tlli Sc ReqQos guaranteedUplinkBitRate (guarUpBr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the guaranteed number of bits delivered at a Service Access Point (SAP) in the uplink (Mobile Station to network) direction within a period of time, divided by the duration of the period.<br><br>The value of this attribute is ignored if the *trafficClass* attribute has one of the following values: ***interactive*** or ***background***, or if the *maxUplinkBitRate* is set to ***0*** kbits/s. |
| Values | Decimal (0..8640) |
| Default | No default |

### ATTRIBUTE Sgsn Tlli Sc ReqQos guaranteedDownlinkBitRate (guarDnBr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the guaranteed number of bits delivered at a Service Access Point (SAP) in the downlink (network to Mobile Station) direction within a period of time, divided by the duration of the period.<br><br>The value of this attribute is ignored if the *trafficClass* attribute has one of the following values: ***interactive*** or ***background***, or if the *maxDownlinkBitRate* is set to ***0*** kbits/s. |
| Values | Decimal (0..8640) |
| Default | No default |

### COMPONENT Sgsn Tlli Sc NegotiatedQos (NegQos)

| | |
|---|---|
| Groups | "GROUP Sgsn Tlli Sc NegQos QosProfile (Qos)" |
| Scope | Application |
| Description | *Sgsn Imsi/<imsi> SessionContext/<nsapi> NegotiatedQos*<br>*Gsc/n Imsi/<imsi> SessionContext/<nsapi> NegotiatedQos* |

This component represents the negotiated Quality of Service (QoS) profile received by a mobile subscriber for this session.

Common Verbs

Help
List
Display

## GROUP Sgsn Tlli Sc NegQos QosProfile (Qos)

Properties: Operational

Description: This group contains the Quality of Service (QoS) profile. It contains either the requested QoS, the negotiated QoS, or the subscribed QoS based on which component contains this group.

## ATTRIBUTE Sgsn Tlli Sc NegQos deliveryOrder (delOrd)

Access: Read: All
Write: Illegal

Description: This attribute indicates whether the Signalling Data Units' (SDUs) order of delivery is guaranteed.

Values: withDeliveryOrder
withoutDeliveryOrder

Default: No default

## ATTRIBUTE Sgsn Tlli Sc NegQos deliveryOfErroneousSdus (delErrSdus)

Access: Read: All
Write: Illegal

Description: This attribute indicates how erroneous Signaling Data Units (SDUs) are handled by the network.

The erroneous SDUs can be handled in one of the following ways:

***noDetect:*** The Signalling Data Units (SDUs) are delivered without considering error detection.

***errSdusDelivered:*** The erroneous Signalling Data Units (SDUs) are delivered together with an error indication.

***errSdusNotDelivered:*** The erroneous Signalling Data Units (SDUs) are discarded.

Values
noDetect
errSdusDelivered
errSdusNotDelivered

Default
No default

## ATTRIBUTE Sgsn Tlli Sc NegQos trafficClass (traffClass)

Access
Read: All
Write: Illegal

Description
This attribute indicates the type of application for which the bearer service is optimized. By including the traffic class itself as an attribute, GPRS can make assumptions about the traffic source and optimize the transport for that traffic type.

The different traffic classes are:
***conversational -*** This class includes real time conversation, characterized by low transfer delay and a strict preservation of the time relation between information entities of the stream. Examples of this class are telephony speech and video conferencing.

***streaming -*** This class consists of real time video/audio applications, characterized by a strict preservation of the time relation between the information entities of the stream, but not necessarily a low transfer delay.

***interactive -*** This class includes applications where a human or machine requests data from remote equipment, characterized by a request-response pattern of the end-user and the preservation of payload content.

***background -*** This class includes applications where the end-user, typically a computer, sends and receives data files in the background (for example: emails, SMS and database downloads). This is characterized by the destination not expecting the data within a certain time.

| | |
|---|---|
| Values | conversational (conv)<br>streaming (strm)<br>interactive (int)<br>background (bkgr) |
| Default | No default |

### ATTRIBUTE Sgsn Tlli Sc NegQos maxSduSize (maxSduSize)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the maximum allowed size of the Signalling Data Unit (SDU). It is used for admission control and policing. |
| Values | Decimal (1..1502) |
| Units | octets |
| Default | No default |

### ATTRIBUTE Sgsn Tlli Sc NegQos maxUplinkBitRate (maxUpBr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the maximum number of bits delivered to GPRS in the uplink direction within a period of time, divided by the duration of the period. This is the upper limit in kilobits per second allowed for a specific context. |
| Values | Decimal (0..8640) |
| Units | kbit/s |
| Default | No default |

### ATTRIBUTE Sgsn Tlli Sc NegQos maxDownlinkBitRate (maxDnBr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the maximum number of bits delivered by GPRS in the downlink direction within a period of time, divided by the duration of the period. This is the upper limit in kilobits per second allowed for a specific context. |

| | |
|---|---|
| Values | Decimal (0..8640) |
| Units | kbit/s |
| Default | No default |

### ATTRIBUTE Sgsn Tlli Sc NegQos residualBitErrorRate (resBer)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the undetected bit error ratio in the delivered Signalling Data Units (SDUs). If no error detection is requested, this attribute indicates the bit error ratio in the delivered SDUs.<br><br>This attribute can take up values ranging from 1 through 9, representing:<br><br>***1*** -> 5*10 -2<br>***2*** -> 1*10 -2<br>***3*** -> 5*10 -3<br>***4*** -> 4*10 -3<br>***5*** -> 1*10 -3<br>***6*** -> 1*10 -4<br>***7*** -> 1*10 -5<br>***8*** -> 1*10 -6<br>***9*** -> 6*10 -8 |
| Values | Decimal (1..9) |
| Default | No default |

### ATTRIBUTE Sgsn Tlli Sc NegQos sduErrorRatio (sduErrRatio)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the fraction of Signalling Data Units (SDUs) lost or detected as erroneous. It is defined only for conforming traffic.<br><br>This attribute can take up values between the numbers 1 - 7 |

representing the following:
1 -> 1*10 -2
2 -> 7*10 -3
3 -> 1*10 -3
4 -> 1*10 -4
5 -> 1*10 -5
6 -> 1*10 -6
7 -> 1*10 -1

Values: Decimal (1..7)

Default: No default

### ATTRIBUTE Sgsn Tlli Sc NegQos trafficHandlingPriority (traffHndlPr)

Access: Read: All
Write: Illegal

Description: This attribute indicates the traffic handling priority. The traffic handling priority attribute is used to prioritize the traffic when the *trafficClass* attribute has the value ***interactive.***

A value of ***0*** is reserved when this attribute is displayed for the negotiated Quality of Service (QoS) and the subscribed QoS. When displayed for the requested QoS, it indicates that the value in the subscribed QoS is to be used. Values of ***1***, ***2***, or ***3*** indicate the traffic priority, with ***1*** indicating the highest priority and ***3*** the lowest.

Values: Decimal (0..3)

Default: No default

### ATTRIBUTE Sgsn Tlli Sc NegQos transferDelay (transfDelay)

Access: Read: All
Write: Illegal

Description: This attribute indicates the maximum delay for 95th percentile of the distribution of delay for all delivered Signalling Data Units (SDUs) during the lifetime of a bearer service, where delay for an SDU is defined as the time from a request to transfer data from one Service Access Point (SAP) to another SAP.

| | |
|---|---|
| Values | Decimal (10..4100) |
| Units | msec |
| Default | No default |

### ATTRIBUTE Sgsn Tlli Sc NegQos guaranteedUplinkBitRate (guarUpBr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the guaranteed number of bits delivered at a Service Access Point (SAP) in the uplink (Mobile Station to network) direction within a period of time, divided by the duration of the period.<br><br>The value of this attribute is ignored if the *trafficClass* attribute has one of the following values: ***interactive*** or ***background***, or if the *maxUplinkBitRate* is set to ***0*** kbits/s. |
| Values | Decimal (0..8640) |
| Default | No default |

### ATTRIBUTE Sgsn Tlli Sc NegQos guaranteedDownlinkBitRate (guarDnBr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the guaranteed number of bits delivered at a Service Access Point (SAP) in the downlink (network to Mobile Station) direction within a period of time, divided by the duration of the period.<br><br>The value of this attribute is ignored if the *trafficClass* attribute has one of the following values: ***interactive*** or ***background***, or if the *maxDownlinkBitRate* is set to ***0*** kbits/s. |
| Values | Decimal (0..8640) |
| Default | No default |

## COMPONENT Sgsn Tlli HlrCacheRecord (HlrcRec)

| | |
|---|---|
| Groups | "GROUP Sgsn Tlli HlrcRec Operational (Oper)"<br>"GROUP Sgsn Tlli HlrcRec WlcCustomCounters (WlcCustomCntr)" |
| Scope | Application |
| Description | *Sgsn Tlli/<tlli> HlrCacheRecord*<br>*Sgsn Imsi/<imsi> HlrCacheRecord*<br>*Gsc/n Tlli/<tlli> HlrCacheRecord*<br>*Gsc/n Imsi/<imsi> HlrCacheRecord*<br><br>This component represents a subscription record downloaded from the Home Location Register (HLR). The *HlrCache* on the *GprsSubscriberControl (Gsc)* contains the active subscriber data. |
| Dyn. Subcomp. | "COMPONENT Sgsn Tlli HlrcRec PdpContext (PdpC)" |
| Common Verbs | Help<br>List<br>Display |

## GROUP Sgsn Tlli HlrcRec Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains subscription information downloaded from the Home Location Register (HLR). |

## ATTRIBUTE Sgsn Tlli HlrcRec internationalMobileSubscriberId (imsi)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the International Mobile Subscriber Identity (IMSI) of the Mobile Station (MS). |
| Values | BCD (5..15) |
| Default | No default |

### ATTRIBUTE Sgsn Tlli HlrcRec hlrNumber (hlrNo)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the HLR Number of the Home Location Register (HLR) to which the *HlrCache* record is currently associated. It is used to retrieve the *HlrCache* records to be restored after receipt of the RESET message from the HLR. |
| Values | String (1..17, NativeAddress) |
| Default | No default |

### ATTRIBUTE Sgsn Tlli HlrcRec msIsdnNumber (msIsdn)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the Integrated Service Digital Network (ISDN) number of the mobile subscriber. This is represented as an E.164 number in international format. |
| Values | String (1..17, NativeAddress) |
| Default | No default |

### ATTRIBUTE Sgsn Tlli HlrcRec subscriptionConfirmedByHlr (subsCByHlr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates whether the subscription information in the Serving GPRS Support Node (SGSN) is known to be in agreement with the Home Location Register (HLR) when the SGSN successfully performs an UPDATE GPRS LOCATION to the HLR. |
| Values | no<br>yes |
| Default | No default |

### ATTRIBUTE Sgsn Tlli HlrcRec locationInfoConfirmedInHlr (locCInHlr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates whether the Home Location Register (HLR) record of the Serving GPRS Support Node (SGSN) address for the Mobile Station (MS) has been confirmed by radio contact.<br><br>It is initially set to, ***no***, when the SGSN receives a ROUTING AREA UPDATE REQUEST, or an IMSI and a GPRS ATTACH-REQUEST, or if a RESET message is received from the HLR with which the MS is registered. The indicator is set to, ***yes***, when a successful UPDATE GPRS LOCATION is performed for the MS. |
| Values | no<br>yes |
| Default | No default |

### GROUP Sgsn Tlli HlrcRec WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Sgsn Tlli HlrcRec customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sgsn Tlli HlrcRec customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sgsn Tlli HlrcRec customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT Sgsn Tlli HlrcRec PdpContext (PdpC)

| | |
|---|---|
| Instance | Decimal (0..50) |
| Groups | "GROUP Sgsn Tlli HlrcRec PdpC Operational (Oper)"<br>"GROUP Sgsn Tlli HlrcRec PdpC WlcCustomCounters (WlcCustomCntr)" |
| Scope | Application |
| Description | *Sgsn Tlli/<tlli> HlrcRec PdpContext/n*<br>*Sgsn Imsi/<imsi> HlrcRec PdpContext/n*<br>*Gsc/n Tlli/<tlli> HlrcRec PdpContext/n*<br>*Gsc/n Imsi/<imsi> HlrcRec PdpContext/n*<br><br>This component represents the Packet Data Protocol (PDP) context data downloaded from the Home Location Register |

| | |
|---|---|
| | (HLR). It indicates the different PDP profiles (that is, Quality of Service) the subscriber has. |
| Dyn. Subcomp. | "COMPONENT Sgsn Tlli HlrcRec PdpC SubscribedQos (SubsQos)" |
| Common Verbs | Help<br>List<br>Display |

### GROUP Sgsn Tlli HlrcRec PdpC Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the Packet Data Protocol (PDP) subscription data downloaded from the Home Location Register (HLR). |

### ATTRIBUTE Sgsn Tlli HlrcRec PdpC pdpContextIdentifier (pdpCid)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates a Packet Data Protocol (PDP) Context in a subscription record. |
| Values | Decimal (1..255) |
| Default | No default |

### ATTRIBUTE Sgsn Tlli HlrcRec PdpC pdpType (pdpT)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute defines the end user protocol to be used between the external packet data network and the Mobile Station (MS) such as, X.25, IP, PPP.<br>For X.25 currently defined address format is X.121, for IP protocol currently defined address formats are IPV4, IPV6, and PPP protocol has no address format. |
| Values | x25<br>ip<br>ppp |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Sgsn Tlli HlrcRec PdpC ipv4PdpAddress (ipv4Addr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the network layer address of the packet data network. This attribute is displayed when the Packet Data Protocol (PDP) address is IPv4. The address conforms to the standard addressing scheme of the IP version 4 address. |
| Values | IP address |
| Default | No default |

### ATTRIBUTE Sgsn Tlli HlrcRec PdpC x121PdpAddress (x121Addr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the network layer address of the packet data network. This attribute is displayed when the Packet Data Protocol (PDP) address is X.121. |
| Values | BCD (1..14) |
| Default | No default |

### ATTRIBUTE Sgsn Tlli HlrcRec PdpC otherPdpAddress (otherAddr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the network layer address of the packet data network. The Packet Data Protocol (PDP) protocol type for the *otherPdpAddress* can be obtained from the attribute *pdpType* and the addressing type from *pdpAddressFormat*. |
| Values | String (1..16, Hex) |
| Default | No default |

### ATTRIBUTE Sgsn Tlli HlrcRec PdpC pdpAddressFormat (pdpTnum)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute indicates the addressing type, such as, X.121, IPv4, IPv6. |
| Values | x121<br>ipv4<br>ipv6 |
| Default | No default |

### ATTRIBUTE Sgsn Tlli HlrcRec PdpC apnNetworkIdentifier (apnNwkId)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates an Access Point Name (APN) Network Identifier which is the Logical Name of the access point to the external packet data network. A Logical Name is a label or a fully qualified domain name according to the Domain Name System (DNS) naming conventions. |
| Values | String (1..63, ASCII) |
| Default | No default |

### ATTRIBUTE Sgsn Tlli HlrcRec PdpC vplmnAddressAllowed (vplmnAddr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates whether the Mobile Station (MS) is allowed to use the Access Point Name (APN) in the Visiting Public Land Mobile Network (VPLMN). |
| Values | no<br>yes |
| Default | No default |

### GROUP Sgsn Tlli HlrcRec PdpC WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Sgsn Tlli HlrcRec PdpC customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sgsn Tlli HlrcRec PdpC customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sgsn Tlli HlrcRec PdpC customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT Sgsn Tlli HlrcRec PdpC SubscribedQos (SubsQos)

| | |
|---|---|
| Groups | "GROUP Sgsn Tlli HlrcRec PdpC SubsQos QosProfile (Qos)" |
| Scope | Application |

Description

*Sgsn Imsi/<imsi> HlrcRec PdpContext/n SubscribedQos Gsc/n Imsi/<imsi> HlrcRec PdpContext/n SubscribedQos*

This component represents the Quality of Service (QoS) profile of the subscriber downloaded from the Home Location Register (HLR).

Common Verbs

Help
List
Display

## GROUP Sgsn Tlli HlrcRec PdpC SubsQos QosProfile (Qos)

Properties

Operational

Description

This group contains the Quality of Service (QoS) profile. It contains either the requested QoS, the negotiated QoS, or the subscribed QoS based on which component contains this group.

## ATTRIBUTE Sgsn Tlli HlrcRec PdpC SubsQos deliveryOrder (delOrd)

Access

Read: All
Write: Illegal

Description

This attribute indicates whether the Signalling Data Units' (SDUs) order of delivery is guaranteed.

Values

withDeliveryOrder
withoutDeliveryOrder

Default

No default

## ATTRIBUTE Sgsn Tlli HlrcRec PdpC SubsQos deliveryOfErroneousSdus (delErrSdus)

Access

Read: All
Write: Illegal

Description

This attribute indicates how erroneous Signaling Data Units (SDUs) are handled by the network.

The erroneous SDUs can be handled in one of the following ways:

***noDetect:*** The Signalling Data Units (SDUs) are delivered without considering error detection.

***errSdusDelivered:*** The erroneous Signalling Data Units (SDUs) are delivered together with an error indication.

***errSdusNotDelivered:*** The erroneous Signalling Data Units (SDUs) are discarded.

Values
noDetect
errSdusDelivered
errSdusNotDelivered

Default
No default

## ATTRIBUTE Sgsn Tlli HlrcRec PdpC SubsQos trafficClass (traffClass)

Access
Read: All
Write: Illegal

Description
This attribute indicates the type of application for which the bearer service is optimized. By including the traffic class itself as an attribute, GPRS can make assumptions about the traffic source and optimize the transport for that traffic type.

The different traffic classes are:
***conversational -*** This class includes real time conversation, characterized by low transfer delay and a strict preservation of the time relation between information entities of the stream. Examples of this class are telephony speech and video conferencing.

***streaming -*** This class consists of real time video/audio applications, characterized by a strict preservation of the time relation between the information entities of the stream, but not necessarily a low transfer delay.

***interactive -*** This class includes applications where a human or machine requests data from remote equipment, characterized by a request-response pattern of the end-user and the preservation of payload content.

***background -*** This class includes applications where the end-user, typically a computer, sends and receives data files in the background (for example: emails, SMS and database downloads).

| | |
|---|---|
| | This is characterized by the destination not expecting the data within a certain time. |
| Values | conversational (conv)<br>streaming (strm)<br>interactive (int)<br>background (bkgr) |
| Default | No default |

### ATTRIBUTE Sgsn Tlli HlrcRec PdpC SubsQos maxSduSize (maxSduSize)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the maximum allowed size of the Signalling Data Unit (SDU). It is used for admission control and policing. |
| Values | Decimal (1..1502) |
| Units | octets |
| Default | No default |

### ATTRIBUTE Sgsn Tlli HlrcRec PdpC SubsQos maxUplinkBitRate (maxUpBr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the maximum number of bits delivered to GPRS in the uplink direction within a period of time, divided by the duration of the period. This is the upper limit in kilobits per second allowed for a specific context. |
| Values | Decimal (0..8640) |
| Units | kbit/s |
| Default | No default |

### ATTRIBUTE Sgsn Tlli HlrcRec PdpC SubsQos maxDownlinkBitRate (maxDnBr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute indicates the maximum number of bits delivered by GPRS in the downlink direction within a period of time, divided by the duration of the period. This is the upper limit in kilobits per second allowed for a specific context. |
| Values | Decimal (0..8640) |
| Units | kbit/s |
| Default | No default |

### ATTRIBUTE Sgsn Tlli HlrcRec PdpC SubsQos residualBitErrorRate (resBer)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the undetected bit error ratio in the delivered Signalling Data Units (SDUs). If no error detection is requested, this attribute indicates the bit error ratio in the delivered SDUs.<br><br>This attribute can take up values ranging from 1 through 9, representing:<br><br>***1*** -> 5*10 -2<br>***2*** -> 1*10 -2<br>***3*** -> 5*10 -3<br>***4*** -> 4*10 -3<br>***5*** -> 1*10 -3<br>***6*** -> 1*10 -4<br>***7*** -> 1*10 -5<br>***8*** -> 1*10 -6<br>***9*** -> 6*10 -8 |
| Values | Decimal (1..9) |
| Default | No default |

### ATTRIBUTE Sgsn Tlli HlrcRec PdpC SubsQos sduErrorRatio (sduErrRatio)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

Description

This attribute indicates the fraction of Signalling Data Units (SDUs) lost or detected as erroneous. It is defined only for conforming traffic.

This attribute can take up values between the numbers 1 - 7 representing the following:
1 -> 1*10 -2
2 -> 7*10 -3
3 -> 1*10 -3
4 -> 1*10 -4
5 -> 1*10 -5
6 -> 1*10 -6
7 -> 1*10 -1

Values

Decimal (1..7)

Default

No default

### ATTRIBUTE Sgsn Tlli HlrcRec PdpC SubsQos trafficHandlingPriority (traffHndlPr)

Access

Read: All
Write: Illegal

Description

This attribute indicates the traffic handling priority. The traffic handling priority attribute is used to prioritize the traffic when the *trafficClass* attribute has the value ***interactive.***

A value of ***0*** is reserved when this attribute is displayed for the negotiated Quality of Service (QoS) and the subscribed QoS. When displayed for the requested QoS, it indicates that the value in the subscribed QoS is to be used. Values of ***1***, ***2***, or ***3*** indicate the traffic priority, with ***1*** indicating the highest priority and ***3*** the lowest.

Values

Decimal (0..3)

Default

No default

### ATTRIBUTE Sgsn Tlli HlrcRec PdpC SubsQos transferDelay (transfDelay)

Access

Read: All
Write: Illegal

| | |
|---|---|
| Description | This attribute indicates the maximum delay for 95th percentile of the distribution of delay for all delivered Signalling Data Units (SDUs) during the lifetime of a bearer service, where delay for an SDU is defined as the time from a request to transfer data from one Service Access Point (SAP) to another SAP. |
| Values | Decimal (10..4100) |
| Units | msec |
| Default | No default |

### ATTRIBUTE Sgsn Tlli HlrcRec PdpC SubsQos guaranteedUplinkBitRate (guarUpBr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the guaranteed number of bits delivered at a Service Access Point (SAP) in the uplink (Mobile Station to network) direction within a period of time, divided by the duration of the period.<br><br>The value of this attribute is ignored if the *trafficClass* attribute has one of the following values: ***interactive*** or ***background***, or if the *maxUplinkBitRate* is set to ***0*** kbits/s. |
| Values | Decimal (0..8640) |
| Default | No default |

### ATTRIBUTE Sgsn Tlli HlrcRec PdpC SubsQos guaranteedDownlinkBitRate (guarDnBr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the guaranteed number of bits delivered at a Service Access Point (SAP) in the downlink (network to Mobile Station) direction within a period of time, divided by the duration of the period.<br><br>The value of this attribute is ignored if the *trafficClass* attribute has one of the following values: ***interactive*** or ***background***, or if the *maxDownlinkBitRate* is set to ***0*** kbits/s. |
| Values | Decimal (0..8640) |

Default No default

## COMPONENT Sgsn InternationalMobileSubscriberId (Imsi)

Instance BCD (5..15)

Scope Application

Description *Sgsn InternationalMobileSubscriberId/<imsi>*

This component represents an instance of the International Mobile Subscriber Identity (IMSI). The information includes subscription context, mobility management context, session contexts, and logical
link context. Each instance is indexed by the IMSI of the mobile subscriber. A list of all the current IMSI instances is not possible, but it is possible to display a specific instance of *Imsi*.

Dyn. Subcomp. "COMPONENT Sgsn Imsi MobilityContext (Mc)"
"COMPONENT Sgsn Imsi SessionContext (Sc)"
"COMPONENT Sgsn Imsi HlrCacheRecord (HlrcRec)"
"COMPONENT Sgsn Imsi Bssap"

Common Verbs
Help
List
Display

## VERB Clear Sgsn Imsi

Impact Service

Description *Clear InternationMobileSubscriberId/<imsi>*

This command clears the specified *Imsi* component.

If the *msPurgeFunction* provisionable attribute is enabled in SGSN GSC MsPurge, it will cause a Mobile Subscriber Purge request to be sent to the Home Location Register.

## COMPONENT Sgsn Imsi MobilityContext (Mc)

Groups "GROUP Sgsn Imsi Mc Operational (Oper)"
"GROUP Sgsn Imsi Mc WlcCustomCounters (WlcCustomCntr)"

| | |
|---|---|
| Scope | Application |
| Description | *Sgsn Tlli/<tlli> MobilityContext*<br>*Sgsn Imsi/<imsi> MobilityContext*<br>*Gsc/n Tlli/<tlli> MobilityContext*<br>*Gsc/n Imsi/<imsi> MobilityContext*<br><br>This component represents the GPRS Mobility Management (GMM) context created for each mobile subscriber that is GPRS-Attached. The Mobility Context is an instance of the *InternationalMobileSubscriberId (Imsi)* and the *TemporaryLogicalLinkId (Tlli)* of the Serving GPRS Support Node (SGSN). |
| Common Verbs | Help<br>List<br>Display |

## GROUP Sgsn Imsi Mc Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the GPRS Mobility Management (GMM) information for a subscriber. |

## ATTRIBUTE Sgsn Imsi Mc temporaryLogicalLinkId (tlli)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the Temporary Logical Link Identifier (TLLI) used to identify the context of the Mobile Station (MS) within the Serving GPRS Support Node (SGSN). This is one of the main reference keys that is used to identify an MS in the SGSN. |
| Values | String (4, Hex) |
| Default | No default |

## ATTRIBUTE Sgsn Imsi Mc gmmState (gmmSt)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute indicates the GPRS Mobility Management (GMM) state for a mobile. Upon initialization, this attribute value is in ***idle*** state. The states have the following meaning:<br>***idle*** - The Mobile Station (MS) is not attached to the GPRS Mobility Management (GMM). The MS and the SGSN context hold no valid location or routing area information for the mobile.<br>***standby*** - The MS is attached to the GMM.<br>***ready*** - MS is attached and can be sending or receiving the Point To Point Protocol Data Units (PTP PDUs). |
| Values | idle<br>standby<br>ready |
| Default | No default |

### ATTRIBUTE Sgsn Imsi Mc routingAreaIdentifier (rai)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the current routing area of the Mobile Station (MS). The routing area is transmitted to the Serving GPRS Support Node (SGSN) during a Routing Area Update procedure or Attach procedure. The routing area identifier includes the Mobile Country Code (MCC as first 3 digits), the Mobile Network Code (MNC as next 2 digits), the Location Area Code (LAC as next 4 digits), and the Routing Area Code (RAC as last 2 digits). |
| Values | String (5..6, Hex) |
| Default | No default |

### ATTRIBUTE Sgsn Imsi Mc cellId

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the current cell location of the Mobile Station (MS). |
| Values | String (2, Hex) |
| Default | No default |

### ATTRIBUTE Sgsn Imsi Mc cellEntryTime (cellEntry)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates when the Mobile Station (MS) entered the cell indicated by the *cellId*. |
| Values | Time (DHMS) |
| Default | No default |

### ATTRIBUTE Sgsn Imsi Mc sgsnClassmark (sgsnCm)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the network portion of the Mobile Station (MS) classmark. The classmark contains specific information about a Mobile Station (MS). |
| Values | String (1..2, Hex) |
| Default | No default |

### ATTRIBUTE Sgsn Imsi Mc drxParameters (drxParms)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates if the Mobile Station (MS) supports discontinuous reception or not. The DRX parameter is transmitted by the MS during an Attach Request procedure and a Routing Area Update procedure. |
| Values | supported<br>unsupported |
| Default | No default |

### ATTRIBUTE Sgsn Imsi Mc readyTimer (t3314)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute indicates the negotiated value of the Ready Timer (T3314) for the GPRS Mobility Management (GMM) state transition. The Ready Timer is restarted whenever a signaling or a data Protocol Data Unit (PDU) is received from the Mobile Station (MS). In the event of the Ready Timer expiry, the attribute *gmmState* changes to ***standby***.<br><br>The negotiation of this value is based on the *readyTimer* provisioned in the *Sgsn GprsSubscriberControl* component. |
| Values | Decimal (1..11160)<br>forceStandby |
| Units | seconds |
| Default | No default |

### ATTRIBUTE Sgsn Imsi Mc pagingProceedFlag (ppf)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the paging proceed flag. The flag indicates whether paging can be initiated. |
| Values | false<br>true |
| Default | No default |

### GROUP Sgsn Imsi Mc WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Sgsn Imsi Mc customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a |

| | |
|---|---|
| | mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sgsn Imsi Mc customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sgsn Imsi Mc customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT Sgsn Imsi SessionContext (Sc)

| | |
|---|---|
| Instance | Decimal (0..15) |
| Groups | "GROUP Sgsn Imsi Sc SessionContextOp (ScOp)" |
| Scope | Application |
| Description | *Sgsn Imsi/<imsi> SessionContext/<nsapi>*<br><br>This component represents the Session Context information for a |

subscriber. The Session Contexts are created for each activated Packet Data Protocol (PDP) context of a subscriber. The instance value identifies a session for a mobile subscriber.

Dyn. Subcomp. "COMPONENT Sgsn Imsi Sc RequestedQos (ReqQos)"
"COMPONENT Sgsn Imsi Sc NegotiatedQos (NegQos)"

Common Verbs
Help
List
Display

## GROUP Sgsn Imsi Sc SessionContextOp (ScOp)

Properties Operational

Description This group contains the Session Context information for a subscriber. The Session Contexts are created for each activated Packet Data Protocol (PDP) context of a subscriber.

## ATTRIBUTE Sgsn Imsi Sc selectedApnNetworkId (selApnNwkId)

Access Read: All
Write: Illegal

Description This attribute indicates the selected Access Point Name (APN) Network Identifier.

The APN Network Identifier can be the one received from the mobile as part of the ACTIVATE PDP CONTEXT REQUEST message or it can be selected from the subscription record against which this session has been activated or it can be the *defaultApnNetworkId* (defined in *Sgsn Gsc*) for the requested PDP type provisioned on the Serving GPRS Support Node (SGSN).

Values String (1..63, ASCII)

Default No default

## ATTRIBUTE Sgsn Imsi Sc selectedApnOperatorId (selApnOpId)

Access Read: All
Write: Illegal

| | |
|---|---|
| Description | This attribute indicates the selected Access Point Name (APN) Operator Identifier.<br><br>The APN Operator Identifier can be the one received from the Mobile Station (MS) as part of the ACTIVATE PDP CONTEXT REQUEST message or it can be the one constructed from the subscriber's IMSI as mnc<3 MNC digits>.mcc<3 MCC digits>.gprs. |
| Values | String (1..37, ASCII) |
| Default | No default |

### ATTRIBUTE Sgsn Imsi Sc dataPathGgsnAddress (dGgsnAddr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the IP address of the Gateway GPRS Support Node (GGSN) for the data path that is currently used by the activated Packet Data Protocol (PDP) context. |
| Values | IP address |
| Default | No default |

### ATTRIBUTE Sgsn Imsi Sc signalingGgsnAddress (sGgsnAddr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the IP address of the Gateway GPRS Support Node (GGSN) for the signaling path that is currently used by the activated Packet Data Protocol (PDP) context. |
| Values | IP address |
| Default | No default |

### ATTRIBUTE Sgsn Imsi Sc pdpContextIdentifier (pdpCid)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the subscription record against which this session has been activated. |

| | |
|---|---|
| Values | Decimal (1..255) |
| Default | No default |

### ATTRIBUTE Sgsn Imsi Sc pdpType (pdpT)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute defines the end user protocol to be used between the external packet data network and the Mobile Station (MS) such as, X.25, IP, PPP.<br>For X.25 currently defined address format is X.121, for IP protocol currently defined address formats are IPV4, IPV6, and PPP protocol has no address format. |
| Values | x25<br>ip<br>ppp |
| Default | No default |

### ATTRIBUTE Sgsn Imsi Sc ipv4PdpAddress (ipv4Addr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the network layer address of the packet data network. This attribute is displayed when the Packet Data Protocol (PDP) address is IPv4. The address conforms to the standard addressing scheme of the IP version 4 address. |
| Values | IP address |
| Default | No default |

### ATTRIBUTE Sgsn Imsi Sc x121PdpAddress (x121Addr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the network layer address of the packet data network. This attribute is displayed when the Packet Data Protocol (PDP) address is X.121. |
| Values | BCD (1..14) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Sgsn Imsi Sc otherPdpAddress (otherAddr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the network layer address of the packet data network. The Packet Data Protocol (PDP) protocol type for the *otherPdpAddress* can be obtained from the attribute *pdpType* and the addressing type from *pdpAddressFormat*. |
| Values | String (1..16, Hex) |
| Default | No default |

### ATTRIBUTE Sgsn Imsi Sc pdpAddressFormat (pdpTnum)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the addressing type, such as, X.121, IPv4, IPv6. |
| Values | x121<br>ipv4<br>ipv6 |
| Default | No default |

### ATTRIBUTE Sgsn Imsi Sc ggsnRemoteTeid (ggsnRemTeid)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the Tunnel End point Identifier that is associated with a tunnel leg that originates at the GPRS Serving GPRS Support Node (SGSN) and terminates at the Gateway GPRS Support Node (GGSN). |
| Values | Decimal (0..4294967295) |
| Default | No default |

## ATTRIBUTE Sgsn Imsi Sc ggsnLocalTeid (ggsnLocTeid)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the Tunnel End point Identifier that is associated with a tunnel leg that originates at the Gateway GPRS Support Node (GGSN) and terminates at the GPRS Serving GPRS Support Node (SGSN). |
| Values | Decimal (0..4294967295) |
| Default | No default |

## ATTRIBUTE Sgsn Imsi Sc signallingGgsnTeid (sGgsnTeid)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the Tunnel End point Identifier that is associated with a tunnel leg endpoint of the control tunnel that runs between the GPRS Serving GPRS Support Node (SGSN) and the Gateway GPRS Support Node (GGSN). |
| Values | Decimal (0..4294967295) |
| Default | No default |

## COMPONENT Sgsn Imsi Sc RequestedQos (ReqQos)

| | |
|---|---|
| Groups | "GROUP Sgsn Imsi Sc ReqQos QosProfile (Qos)" |
| Scope | Application |
| Description | *Sgsn Imsi/<imsi> SessionContext/<nsapi> RequestedQos*<br>*Gsc/n Imsi/<imsi> SessionContext/<nsapi> RequestedQos*<br><br>This component represents the Quality of Service (QoS) profile requested by a mobile subscriber for this session. |
| Common Verbs | Help<br>List<br>Display |

## GROUP Sgsn Imsi Sc ReqQos QosProfile (Qos)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the Quality of Service (QoS) profile. It contains either the requested QoS, the negotiated QoS, or the subscribed QoS based on which component contains this group. |

## ATTRIBUTE Sgsn Imsi Sc ReqQos deliveryOrder (delOrd)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates whether the Signalling Data Units' (SDUs) order of delivery is guaranteed. |
| Values | withDeliveryOrder<br>withoutDeliveryOrder |
| Default | No default |

## ATTRIBUTE Sgsn Imsi Sc ReqQos deliveryOfErroneousSdus (delErrSdus)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates how erroneous Signaling Data Units (SDUs) are handled by the network.<br><br>The erroneous SDUs can be handled in one of the following ways:<br><br>***noDetect:*** The Signalling Data Units (SDUs) are delivered without considering error detection.<br><br>***errSdusDelivered:*** The erroneous Signalling Data Units (SDUs) are delivered together with an error indication.<br><br>***errSdusNotDelivered:*** The erroneous Signalling Data Units (SDUs) are discarded. |
| Values | noDetect<br>errSdusDelivered<br>errSdusNotDelivered |

Default No default

### ATTRIBUTE Sgsn Imsi Sc ReqQos trafficClass (traffClass)

Access
Read: All
Write: Illegal

Description
This attribute indicates the type of application for which the bearer service is optimized. By including the traffic class itself as an attribute, GPRS can make assumptions about the traffic source and optimize the transport for that traffic type.

The different traffic classes are:
***conversational -*** This class includes real time conversation, characterized by low transfer delay and a strict preservation of the time relation between information entities of the stream. Examples of this class are telephony speech and video conferencing.

***streaming -*** This class consists of real time video/audio applications, characterized by a strict preservation of the time relation between the information entities of the stream, but not necessarily a low transfer delay.

***interactive -*** This class includes applications where a human or machine requests data from remote equipment, characterized by a request-response pattern of the end-user and the preservation of payload content.

***background -*** This class includes applications where the end-user, typically a computer, sends and receives data files in the background (for example: emails, SMS and database downloads). This is characterized by the destination not expecting the data within a certain time.

Values
conversational (conv)
streaming (strm)
interactive (int)
background (bkgr)

Default No default

### ATTRIBUTE Sgsn Imsi Sc ReqQos maxSduSize (maxSduSize)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the maximum allowed size of the Signalling Data Unit (SDU). It is used for admission control and policing. |
| Values | Decimal (1..1502) |
| Units | octets |
| Default | No default |

### ATTRIBUTE Sgsn Imsi Sc ReqQos maxUplinkBitRate (maxUpBr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the maximum number of bits delivered to GPRS in the uplink direction within a period of time, divided by the duration of the period. This is the upper limit in kilobits per second allowed for a specific context. |
| Values | Decimal (0..8640) |
| Units | kbit/s |
| Default | No default |

### ATTRIBUTE Sgsn Imsi Sc ReqQos maxDownlinkBitRate (maxDnBr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the maximum number of bits delivered by GPRS in the downlink direction within a period of time, divided by the duration of the period. This is the upper limit in kilobits per second allowed for a specific context. |
| Values | Decimal (0..8640) |
| Units | kbit/s |
| Default | No default |

### ATTRIBUTE Sgsn Imsi Sc ReqQos residualBitErrorRate (resBer)

Access
Read: All
Write: Illegal

Description
This attribute indicates the undetected bit error ratio in the delivered Signalling Data Units (SDUs). If no error detection is requested, this attribute indicates the bit error ratio in the delivered SDUs.

This attribute can take up values ranging from 1 through 9, representing:

***1*** -> 5*10 -2
***2*** -> 1*10 -2
***3*** -> 5*10 -3
***4*** -> 4*10 -3
***5*** -> 1*10 -3
***6*** -> 1*10 -4
***7*** -> 1*10 -5
***8*** -> 1*10 -6
***9*** -> 6*10 -8

Values
Decimal (1..9)

Default
No default

### ATTRIBUTE Sgsn Imsi Sc ReqQos sduErrorRatio (sduErrRatio)

Access
Read: All
Write: Illegal

Description
This attribute indicates the fraction of Signalling Data Units (SDUs) lost or detected as erroneous. It is defined only for conforming traffic.

This attribute can take up values between the numbers 1 - 7 representing the following:
1 -> 1*10 -2
2 -> 7*10 -3
3 -> 1*10 -3
4 -> 1*10 -4

5 -> 1*10 -5
6 -> 1*10 -6
7 -> 1*10 -1

Values Decimal (1..7)

Default No default

### ATTRIBUTE Sgsn Imsi Sc ReqQos trafficHandlingPriority (traffHndlPr)

Access Read: All
Write: Illegal

Description This attribute indicates the traffic handling priority. The traffic handling priority attribute is used to prioritize the traffic when the *trafficClass* attribute has the value ***interactive.***

A value of ***0*** is reserved when this attribute is displayed for the negotiated Quality of Service (QoS) and the subscribed QoS. When displayed for the requested QoS, it indicates that the value in the subscribed QoS is to be used. Values of ***1***, ***2***, or ***3*** indicate the traffic priority, with ***1*** indicating the highest priority and ***3*** the lowest.

Values Decimal (0..3)

Default No default

### ATTRIBUTE Sgsn Imsi Sc ReqQos transferDelay (transfDelay)

Access Read: All
Write: Illegal

Description This attribute indicates the maximum delay for 95th percentile of the distribution of delay for all delivered Signalling Data Units (SDUs) during the lifetime of a bearer service, where delay for an SDU is defined as the time from a request to transfer data from one Service Access Point (SAP) to another SAP.

Values Decimal (10..4100)

Units msec

Default No default

### ATTRIBUTE Sgsn Imsi Sc ReqQos guaranteedUplinkBitRate (guarUpBr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the guaranteed number of bits delivered at a Service Access Point (SAP) in the uplink (Mobile Station to network) direction within a period of time, divided by the duration of the period.<br><br>The value of this attribute is ignored if the *trafficClass* attribute has one of the following values: ***interactive*** or ***background***, or if the *maxUplinkBitRate* is set to ***0*** kbits/s. |
| Values | Decimal (0..8640) |
| Default | No default |

### ATTRIBUTE Sgsn Imsi Sc ReqQos guaranteedDownlinkBitRate (guarDnBr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the guaranteed number of bits delivered at a Service Access Point (SAP) in the downlink (network to Mobile Station) direction within a period of time, divided by the duration of the period.<br><br>The value of this attribute is ignored if the *trafficClass* attribute has one of the following values: ***interactive*** or ***background***, or if the *maxDownlinkBitRate* is set to ***0*** kbits/s. |
| Values | Decimal (0..8640) |
| Default | No default |

### COMPONENT Sgsn Imsi Sc NegotiatedQos (NegQos)

| | |
|---|---|
| Groups | "GROUP Sgsn Imsi Sc NegQos QosProfile (Qos)" |
| Scope | Application |
| Description | *Sgsn Imsi/<imsi> SessionContext/<nsapi> NegotiatedQos*<br>*Gsc/n Imsi/<imsi> SessionContext/<nsapi> NegotiatedQos* |

This component represents the negotiated Quality of Service (QoS) profile received by a mobile subscriber for this session.

Common Verbs

Help
List
Display

## GROUP Sgsn Imsi Sc NegQos QosProfile (Qos)

Properties: Operational

Description: This group contains the Quality of Service (QoS) profile. It contains either the requested QoS, the negotiated QoS, or the subscribed QoS based on which component contains this group.

## ATTRIBUTE Sgsn Imsi Sc NegQos deliveryOrder (delOrd)

Access: Read: All
Write: Illegal

Description: This attribute indicates whether the Signalling Data Units' (SDUs) order of delivery is guaranteed.

Values: withDeliveryOrder
withoutDeliveryOrder

Default: No default

## ATTRIBUTE Sgsn Imsi Sc NegQos deliveryOfErroneousSdus (delErrSdus)

Access: Read: All
Write: Illegal

Description: This attribute indicates how erroneous Signaling Data Units (SDUs) are handled by the network.

The erroneous SDUs can be handled in one of the following ways:

***noDetect:*** The Signalling Data Units (SDUs) are delivered without considering error detection.

***errSdusDelivered:*** The erroneous Signalling Data Units (SDUs) are delivered together with an error indication.

***errSdusNotDelivered:*** The erroneous Signalling Data Units (SDUs) are discarded.

Values
noDetect
errSdusDelivered
errSdusNotDelivered

Default
No default

## ATTRIBUTE Sgsn Imsi Sc NegQos trafficClass (traffClass)

Access
Read: All
Write: Illegal

Description
This attribute indicates the type of application for which the bearer service is optimized. By including the traffic class itself as an attribute, GPRS can make assumptions about the traffic source and optimize the transport for that traffic type.

The different traffic classes are:
***conversational -*** This class includes real time conversation, characterized by low transfer delay and a strict preservation of the time relation between information entities of the stream. Examples of this class are telephony speech and video conferencing.

***streaming -*** This class consists of real time video/audio applications, characterized by a strict preservation of the time relation between the information entities of the stream, but not necessarily a low transfer delay.

***interactive -*** This class includes applications where a human or machine requests data from remote equipment, characterized by a request-response pattern of the end-user and the preservation of payload content.

***background -*** This class includes applications where the end-user, typically a computer, sends and receives data files in the background (for example: emails, SMS and database downloads). This is characterized by the destination not expecting the data within a certain time.

| | |
|---|---|
| Values | conversational (conv)<br>streaming (strm)<br>interactive (int)<br>background (bkgr) |
| Default | No default |

### ATTRIBUTE Sgsn Imsi Sc NegQos maxSduSize (maxSduSize)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the maximum allowed size of the Signalling Data Unit (SDU). It is used for admission control and policing. |
| Values | Decimal (1..1502) |
| Units | octets |
| Default | No default |

### ATTRIBUTE Sgsn Imsi Sc NegQos maxUplinkBitRate (maxUpBr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the maximum number of bits delivered to GPRS in the uplink direction within a period of time, divided by the duration of the period. This is the upper limit in kilobits per second allowed for a specific context. |
| Values | Decimal (0..8640) |
| Units | kbit/s |
| Default | No default |

### ATTRIBUTE Sgsn Imsi Sc NegQos maxDownlinkBitRate (maxDnBr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the maximum number of bits delivered by GPRS in the downlink direction within a period of time, divided by the duration of the period. This is the upper limit in kilobits per second allowed for a specific context. |

| | |
|---|---|
| Values | Decimal (0..8640) |
| Units | kbit/s |
| Default | No default |

### ATTRIBUTE Sgsn Imsi Sc NegQos residualBitErrorRate (resBer)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the undetected bit error ratio in the delivered Signalling Data Units (SDUs). If no error detection is requested, this attribute indicates the bit error ratio in the delivered SDUs.<br><br>This attribute can take up values ranging from 1 through 9, representing:<br><br>***1*** -> 5*10 -2<br>***2*** -> 1*10 -2<br>***3*** -> 5*10 -3<br>***4*** -> 4*10 -3<br>***5*** -> 1*10 -3<br>***6*** -> 1*10 -4<br>***7*** -> 1*10 -5<br>***8*** -> 1*10 -6<br>***9*** -> 6*10 -8 |
| Values | Decimal (1..9) |
| Default | No default |

### ATTRIBUTE Sgsn Imsi Sc NegQos sduErrorRatio (sduErrRatio)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the fraction of Signalling Data Units (SDUs) lost or detected as erroneous. It is defined only for conforming traffic.<br><br>This attribute can take up values between the numbers 1 - 7 |

representing the following:
1 -> 1*10 -2
2 -> 7*10 -3
3 -> 1*10 -3
4 -> 1*10 -4
5 -> 1*10 -5
6 -> 1*10 -6
7 -> 1*10 -1

Values: Decimal (1..7)

Default: No default

### ATTRIBUTE Sgsn Imsi Sc NegQos trafficHandlingPriority (traffHndlPr)

Access: Read: All
Write: Illegal

Description: This attribute indicates the traffic handling priority. The traffic handling priority attribute is used to prioritize the traffic when the *trafficClass* attribute has the value ***interactive.***

A value of ***0*** is reserved when this attribute is displayed for the negotiated Quality of Service (QoS) and the subscribed QoS. When displayed for the requested QoS, it indicates that the value in the subscribed QoS is to be used. Values of ***1***, ***2***, or ***3*** indicate the traffic priority, with ***1*** indicating the highest priority and ***3*** the lowest.

Values: Decimal (0..3)

Default: No default

### ATTRIBUTE Sgsn Imsi Sc NegQos transferDelay (transfDelay)

Access: Read: All
Write: Illegal

Description: This attribute indicates the maximum delay for 95th percentile of the distribution of delay for all delivered Signalling Data Units (SDUs) during the lifetime of a bearer service, where delay for an SDU is defined as the time from a request to transfer data from one Service Access Point (SAP) to another SAP.

| | |
|---|---|
| Values | Decimal (10..4100) |
| Units | msec |
| Default | No default |

### ATTRIBUTE Sgsn Imsi Sc NegQos guaranteedUplinkBitRate (guarUpBr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the guaranteed number of bits delivered at a Service Access Point (SAP) in the uplink (Mobile Station to network) direction within a period of time, divided by the duration of the period.<br><br>The value of this attribute is ignored if the *trafficClass* attribute has one of the following values: ***interactive*** or ***background***, or if the *maxUplinkBitRate* is set to ***0*** kbits/s. |
| Values | Decimal (0..8640) |
| Default | No default |

### ATTRIBUTE Sgsn Imsi Sc NegQos guaranteedDownlinkBitRate (guarDnBr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the guaranteed number of bits delivered at a Service Access Point (SAP) in the downlink (network to Mobile Station) direction within a period of time, divided by the duration of the period.<br><br>The value of this attribute is ignored if the *trafficClass* attribute has one of the following values: ***interactive*** or ***background***, or if the *maxDownlinkBitRate* is set to ***0*** kbits/s. |
| Values | Decimal (0..8640) |
| Default | No default |

## COMPONENT Sgsn Imsi HlrCacheRecord (HlrcRec)

| | |
|---|---|
| Groups | "GROUP Sgsn Imsi HlrcRec Operational (Oper)"<br>"GROUP Sgsn Imsi HlrcRec WlcCustomCounters (WlcCustomCntr)" |
| Scope | Application |
| Description | *Sgsn Tlli/<tlli> HlrCacheRecord*<br>*Sgsn Imsi/<imsi> HlrCacheRecord*<br>*Gsc/n Tlli/<tlli> HlrCacheRecord*<br>*Gsc/n Imsi/<imsi> HlrCacheRecord*<br><br>This component represents a subscription record downloaded from the Home Location Register (HLR). The *HlrCache* on the *GprsSubscriberControl (Gsc)* contains the active subscriber data. |
| Dyn. Subcomp. | "COMPONENT Sgsn Imsi HlrcRec PdpContext (PdpC)" |
| Common Verbs | Help<br>List<br>Display |

## GROUP Sgsn Imsi HlrcRec Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains subscription information downloaded from the Home Location Register (HLR). |

## ATTRIBUTE Sgsn Imsi HlrcRec internationalMobileSubscriberId (imsi)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the International Mobile Subscriber Identity (IMSI) of the Mobile Station (MS). |
| Values | BCD (5..15) |
| Default | No default |

### ATTRIBUTE Sgsn Imsi HlrcRec hlrNumber (hlrNo)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the HLR Number of the Home Location Register (HLR) to which the *HlrCache* record is currently associated. It is used to retrieve the *HlrCache* records to be restored after receipt of the RESET message from the HLR. |
| Values | String (1..17, NativeAddress) |
| Default | No default |

### ATTRIBUTE Sgsn Imsi HlrcRec msIsdnNumber (msIsdn)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the Integrated Service Digital Network (ISDN) number of the mobile subscriber. This is represented as an E.164 number in international format. |
| Values | String (1..17, NativeAddress) |
| Default | No default |

### ATTRIBUTE Sgsn Imsi HlrcRec subscriptionConfirmedByHlr (subsCByHlr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates whether the subscription information in the Serving GPRS Support Node (SGSN) is known to be in agreement with the Home Location Register (HLR) when the SGSN successfully performs an UPDATE GPRS LOCATION to the HLR. |
| Values | no<br>yes |
| Default | No default |

### ATTRIBUTE Sgsn Imsi HlrcRec locationInfoConfirmedInHlr (locCInHlr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates whether the Home Location Register (HLR) record of the Serving GPRS Support Node (SGSN) address for the Mobile Station (MS) has been confirmed by radio contact.<br><br>It is initially set to, ***no***, when the SGSN receives a ROUTING AREA UPDATE REQUEST, or an IMSI and a GPRS ATTACH-REQUEST, or if a RESET message is received from the HLR with which the MS is registered. The indicator is set to, ***yes***, when a successful UPDATE GPRS LOCATION is performed for the MS. |
| Values | no<br>yes |
| Default | No default |

### GROUP Sgsn Imsi HlrcRec WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Sgsn Imsi HlrcRec customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sgsn Imsi HlrcRec customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sgsn Imsi HlrcRec customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT Sgsn Imsi HlrcRec PdpContext (PdpC)

| | |
|---|---|
| Instance | Decimal (0..50) |
| Groups | "GROUP Sgsn Imsi HlrcRec PdpC Operational (Oper)"<br>"GROUP Sgsn Imsi HlrcRec PdpC WlcCustomCounters (WlcCustomCntr)" |
| Scope | Application |
| Description | *Sgsn Tlli/<tlli> HlrcRec PdpContext/n*<br>*Sgsn Imsi/<imsi> HlrcRec PdpContext/n*<br>*Gsc/n Tlli/<tlli> HlrcRec PdpContext/n*<br>*Gsc/n Imsi/<imsi> HlrcRec PdpContext/n*<br><br>This component represents the Packet Data Protocol (PDP) context data downloaded from the Home Location Register |

| | |
|---|---|
| | (HLR). It indicates the different PDP profiles (that is, Quality of Service) the subscriber has. |
| Dyn. Subcomp. | "COMPONENT Sgsn Imsi HlrcRec PdpC SubscribedQos (SubsQos)" |
| Common Verbs | Help<br>List<br>Display |

### GROUP Sgsn Imsi HlrcRec PdpC Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the Packet Data Protocol (PDP) subscription data downloaded from the Home Location Register (HLR). |

### ATTRIBUTE Sgsn Imsi HlrcRec PdpC pdpContextIdentifier (pdpCid)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates a Packet Data Protocol (PDP) Context in a subscription record. |
| Values | Decimal (1..255) |
| Default | No default |

### ATTRIBUTE Sgsn Imsi HlrcRec PdpC pdpType (pdpT)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute defines the end user protocol to be used between the external packet data network and the Mobile Station (MS) such as, X.25, IP, PPP.<br>For X.25 currently defined address format is X.121, for IP protocol currently defined address formats are IPV4, IPV6, and PPP protocol has no address format. |
| Values | x25<br>ip<br>ppp |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Sgsn Imsi HlrcRec PdpC ipv4PdpAddress (ipv4Addr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the network layer address of the packet data network. This attribute is displayed when the Packet Data Protocol (PDP) address is IPv4. The address conforms to the standard addressing scheme of the IP version 4 address. |
| Values | IP address |
| Default | No default |

### ATTRIBUTE Sgsn Imsi HlrcRec PdpC x121PdpAddress (x121Addr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the network layer address of the packet data network. This attribute is displayed when the Packet Data Protocol (PDP) address is X.121. |
| Values | BCD (1..14) |
| Default | No default |

### ATTRIBUTE Sgsn Imsi HlrcRec PdpC otherPdpAddress (otherAddr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the network layer address of the packet data network. The Packet Data Protocol (PDP) protocol type for the *otherPdpAddress* can be obtained from the attribute *pdpType* and the addressing type from *pdpAddressFormat*. |
| Values | String (1..16, Hex) |
| Default | No default |

### ATTRIBUTE Sgsn Imsi HlrcRec PdpC pdpAddressFormat (pdpTnum)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute indicates the addressing type, such as, X.121, IPv4, IPv6. |
| Values | x121<br>ipv4<br>ipv6 |
| Default | No default |

### ATTRIBUTE Sgsn Imsi HlrcRec PdpC apnNetworkIdentifier (apnNwkId)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates an Access Point Name (APN) Network Identifier which is the Logical Name of the access point to the external packet data network. A Logical Name is a label or a fully qualified domain name according to the Domain Name System (DNS) naming conventions. |
| Values | String (1..63, ASCII) |
| Default | No default |

### ATTRIBUTE Sgsn Imsi HlrcRec PdpC vplmnAddressAllowed (vplmnAddr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates whether the Mobile Station (MS) is allowed to use the Access Point Name (APN) in the Visiting Public Land Mobile Network (VPLMN). |
| Values | no<br>yes |
| Default | No default |

### GROUP Sgsn Imsi HlrcRec PdpC WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Sgsn Imsi HlrcRec PdpC customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sgsn Imsi HlrcRec PdpC customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sgsn Imsi HlrcRec PdpC customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT Sgsn Imsi HlrcRec PdpC SubscribedQos (SubsQos)

| | |
|---|---|
| Groups | "GROUP Sgsn Imsi HlrcRec PdpC SubsQos QosProfile (Qos)" |
| Scope | Application |

Description

*Sgsn Imsi/<imsi> HlrcRec PdpContext/n SubscribedQos Gsc/n Imsi/<imsi> HlrcRec PdpContext/n SubscribedQos*

This component represents the Quality of Service (QoS) profile of the subscriber downloaded from the Home Location Register (HLR).

Common Verbs

Help
List
Display

## GROUP Sgsn Imsi HlrcRec PdpC SubsQos QosProfile (Qos)

Properties

Operational

Description

This group contains the Quality of Service (QoS) profile. It contains either the requested QoS, the negotiated QoS, or the subscribed QoS based on which component contains this group.

## ATTRIBUTE Sgsn Imsi HlrcRec PdpC SubsQos deliveryOrder (delOrd)

Access

Read: All
Write: Illegal

Description

This attribute indicates whether the Signalling Data Units' (SDUs) order of delivery is guaranteed.

Values

withDeliveryOrder
withoutDeliveryOrder

Default

No default

## ATTRIBUTE Sgsn Imsi HlrcRec PdpC SubsQos deliveryOfErroneousSdus (delErrSdus)

Access

Read: All
Write: Illegal

Description

This attribute indicates how erroneous Signaling Data Units (SDUs) are handled by the network.

The erroneous SDUs can be handled in one of the following ways:

***noDetect:*** The Signalling Data Units (SDUs) are delivered without considering error detection.

***errSdusDelivered:*** The erroneous Signalling Data Units (SDUs) are delivered together with an error indication.

***errSdusNotDelivered:*** The erroneous Signalling Data Units (SDUs) are discarded.

Values
noDetect
errSdusDelivered
errSdusNotDelivered

Default
No default

## ATTRIBUTE Sgsn Imsi HlrcRec PdpC SubsQos trafficClass (traffClass)

Access
Read: All
Write: Illegal

Description
This attribute indicates the type of application for which the bearer service is optimized. By including the traffic class itself as an attribute, GPRS can make assumptions about the traffic source and optimize the transport for that traffic type.

The different traffic classes are:
***conversational -*** This class includes real time conversation, characterized by low transfer delay and a strict preservation of the time relation between information entities of the stream. Examples of this class are telephony speech and video conferencing.

***streaming -*** This class consists of real time video/audio applications, characterized by a strict preservation of the time relation between the information entities of the stream, but not necessarily a low transfer delay.

***interactive -*** This class includes applications where a human or machine requests data from remote equipment, characterized by a request-response pattern of the end-user and the preservation of payload content.

***background -*** This class includes applications where the end-user, typically a computer, sends and receives data files in the background (for example: emails, SMS and database downloads).

| | |
|---|---|
| | This is characterized by the destination not expecting the data within a certain time. |
| Values | conversational (conv)<br>streaming (strm)<br>interactive (int)<br>background (bkgr) |
| Default | No default |

### ATTRIBUTE Sgsn Imsi HlrcRec PdpC SubsQos maxSduSize (maxSduSize)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the maximum allowed size of the Signalling Data Unit (SDU). It is used for admission control and policing. |
| Values | Decimal (1..1502) |
| Units | octets |
| Default | No default |

### ATTRIBUTE Sgsn Imsi HlrcRec PdpC SubsQos maxUplinkBitRate (maxUpBr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the maximum number of bits delivered to GPRS in the uplink direction within a period of time, divided by the duration of the period. This is the upper limit in kilobits per second allowed for a specific context. |
| Values | Decimal (0..8640) |
| Units | kbit/s |
| Default | No default |

### ATTRIBUTE Sgsn Imsi HlrcRec PdpC SubsQos maxDownlinkBitRate (maxDnBr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute indicates the maximum number of bits delivered by GPRS in the downlink direction within a period of time, divided by the duration of the period. This is the upper limit in kilobits per second allowed for a specific context. |
| Values | Decimal (0..8640) |
| Units | kbit/s |
| Default | No default |

### ATTRIBUTE Sgsn Imsi HlrcRec PdpC SubsQos residualBitErrorRate (resBer)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the undetected bit error ratio in the delivered Signalling Data Units (SDUs). If no error detection is requested, this attribute indicates the bit error ratio in the delivered SDUs.<br><br>This attribute can take up values ranging from 1 through 9, representing:<br><br>***1*** -> 5*10 -2<br>***2*** -> 1*10 -2<br>***3*** -> 5*10 -3<br>***4*** -> 4*10 -3<br>***5*** -> 1*10 -3<br>***6*** -> 1*10 -4<br>***7*** -> 1*10 -5<br>***8*** -> 1*10 -6<br>***9*** -> 6*10 -8 |
| Values | Decimal (1..9) |
| Default | No default |

### ATTRIBUTE Sgsn Imsi HlrcRec PdpC SubsQos sduErrorRatio (sduErrRatio)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

Description

This attribute indicates the fraction of Signalling Data Units (SDUs) lost or detected as erroneous. It is defined only for conforming traffic.

This attribute can take up values between the numbers 1 - 7 representing the following:
1 -> 1*10 -2
2 -> 7*10 -3
3 -> 1*10 -3
4 -> 1*10 -4
5 -> 1*10 -5
6 -> 1*10 -6
7 -> 1*10 -1

Values

Decimal (1..7)

Default

No default

### ATTRIBUTE Sgsn Imsi HlrcRec PdpC SubsQos trafficHandlingPriority (traffHndlPr)

Access

Read: All
Write: Illegal

Description

This attribute indicates the traffic handling priority. The traffic handling priority attribute is used to prioritize the traffic when the *trafficClass* attribute has the value ***interactive.***

A value of ***0*** is reserved when this attribute is displayed for the negotiated Quality of Service (QoS) and the subscribed QoS. When displayed for the requested QoS, it indicates that the value in the subscribed QoS is to be used. Values of ***1***, ***2***, or ***3*** indicate the traffic priority, with ***1*** indicating the highest priority and ***3*** the lowest.

Values

Decimal (0..3)

Default

No default

### ATTRIBUTE Sgsn Imsi HlrcRec PdpC SubsQos transferDelay (transfDelay)

Access

Read: All
Write: Illegal

| | |
|---|---|
| Description | This attribute indicates the maximum delay for 95th percentile of the distribution of delay for all delivered Signalling Data Units (SDUs) during the lifetime of a bearer service, where delay for an SDU is defined as the time from a request to transfer data from one Service Access Point (SAP) to another SAP. |
| Values | Decimal (10..4100) |
| Units | msec |
| Default | No default |

### ATTRIBUTE Sgsn Imsi HlrcRec PdpC SubsQos guaranteedUplinkBitRate (guarUpBr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the guaranteed number of bits delivered at a Service Access Point (SAP) in the uplink (Mobile Station to network) direction within a period of time, divided by the duration of the period.<br><br>The value of this attribute is ignored if the *trafficClass* attribute has one of the following values: ***interactive*** or ***background***, or if the *maxUplinkBitRate* is set to ***0*** kbits/s. |
| Values | Decimal (0..8640) |
| Default | No default |

### ATTRIBUTE Sgsn Imsi HlrcRec PdpC SubsQos guaranteedDownlinkBitRate (guarDnBr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the guaranteed number of bits delivered at a Service Access Point (SAP) in the downlink (network to Mobile Station) direction within a period of time, divided by the duration of the period.<br><br>The value of this attribute is ignored if the *trafficClass* attribute has one of the following values: ***interactive*** or ***background***, or if the *maxDownlinkBitRate* is set to ***0*** kbits/s. |
| Values | Decimal (0..8640) |

| | |
|---|---|
| Default | No default |

### COMPONENT Sgsn Imsi Bssap

| | |
|---|---|
| Groups | "GROUP Sgsn Imsi Bssap Operational (Oper)"<br>"GROUP Sgsn Imsi Bssap WlcCustomCounters (WlcCustomCntr)" |
| Scope | Application |
| Description | *Sgsn Imsi/<imsi> Bssap*<br>*Gsc/n Imsi/<imsi> Bssap*<br><br>This component represents the Base Station System Application Part + (BSSAP+) context information for each mobile subscriber that is IMSI attached to both GPRS and non-GPRS services.<br><br>The BSSAP+ layer is responsible for co-ordinating the location information for a mobile subscriber and conveying some Circuit Switched related procedures via the SGSN. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Sgsn Imsi Bssap Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the GPRS Base Station System Application Part+ (BSSAP+) context information. |

### ATTRIBUTE Sgsn Imsi Bssap vlrNumber (vlrNo)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the E.164 number of the VLR that the Mobile Station (MS) uses for non-GPRS services. If there is no associated VLR, the value is empty. |
| Values | BCD (0..15) |
| Default | No default |

## ATTRIBUTE Sgsn Imsi Bssap gsState

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the state of the Gs interface in the SGSN. The states have the following meaning:<br>***null*** - There is no associated VLR for the Mobile station (MS).<br>***laUpdate*** - The SGSN has sent a BSSAP+_LOCATION_UPDATE_REQUEST to the VLR.<br>***associated*** - The MS is attached to both GPRS and non-GPRS services. |
| Values | null<br>laUpdate<br>associated |
| Default | No default |

## ATTRIBUTE Sgsn Imsi Bssap vlrReliable (vlrRel)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the reset status of the VLR that provides non-GPRS services to the MS.<br><br>If the value is ***false***, upon reception of any Routing Area Update or Combined Routing and Location Update, the SGSN requests the mobile to re-attach to non-GPRS services. If the value is ***true***, the SGSN proceeds with the Routing Area Update or Combined Routing and Location Update.<br><br>This value is set to ***true*** when the SGSN receives a BSSAP+_LOCATION_UPDATE_ACCEPT from the VLR. It is set to ***false***, when the SGSN has received a reset indication from the VLR. |
| Values | false<br>true |
| Default | No default |

### ATTRIBUTE Sgsn Imsi Bssap nonGprsAlertFlag (ngaf)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the non-GPRS alert flag. If the value is ***true***, the VLR is notified of any activity on the mobile and if the value is ***false***, the VLR is not notified.<br><br>This value is set to ***true*** when the SGSN replies to a BSSAP+-ALERT-REQUEST with an ACK. It is set to ***false***, when the SGSN sends an BSSAP+-MS_ACTIVITY_INDICATION message to the VLR. |
| Values | false<br>true |
| Default | No default |

### GROUP Sgsn Imsi Bssap WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Sgsn Imsi Bssap customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sgsn Imsi Bssap customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sgsn Imsi Bssap customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT Sgsn GprsVisitorLocationRegister (GprsVlr)

| | |
|---|---|
| Instance | BCD (1..15) |
| Groups | "GROUP Sgsn GprsVlr Provisioned (Prov)" |
| Scope | Application |
| Description | *Sgsn GprsVisitorLocationRegister/<vlrNum>*<br><br>This component represents a Visitor Location Register (VLR) used by the Serving GPRS Support Node (SGSN). The instance value is the E.164 address of the VLR. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Sgsn GprsVlr Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the Visitor Location Register (VLR) provisioning data of the Serving GPRS Support Node (SGSN). |

## ATTRIBUTE Sgsn GprsVlr linkToRoutingAreas (lToRa)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies a list of Routing Areas (RAs) that are served by this Visitor Location Register (VLR). This points to the *Sgsn Mcc Mnc Lac RoutingAreaCode* component.<br><br>Changing an existing value of the link may affect outstanding transactions involving that RA. |
| List of | Link (Service, linkToVlr) |
| Default | No default |

## COMPONENT Sgsn Shelf (Sh)

| | |
|---|---|
| Groups | "GROUP Sgsn Sh Provisioned (Prov)" |
| Scope | Application |
| Description | *Sgsn Shelf*<br><br>This component represents a shelf in a Multi Shelf SGSN configuration. The *Shelf* component is the control entity for a shelf and for a network of shelves. A Nodal Manager in a Multi Shelf configuration is either a Master or a Slave shelf. Only one shelf can be provisioned as a master shelf. A master shelf is one that has at least one *ConnToSlave* component provisioned. A slave shelf is one that has the *ConnToMaster* component provisioned. |

| | |
|---|---|
| Opt. Subcomp. | "COMPONENT Sgsn Sh ConnectionToMaster (ConM)"<br>"COMPONENT Sgsn Sh ConnectionToSlave (ConS)" |
| Common Verbs | Help<br>List<br>Display |

### GROUP Sgsn Sh Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioning data of the *Shelf (Sh)* component. |

### ATTRIBUTE Sgsn Sh atmLocalEsi (atmEsi)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the End System Identifier (ESI) of the ATM NSAP address used by this shelf. The full ATM address is constructed by prepending the *nodeprefix* (taken from the *ModuleData* component) to the *atmLocalEsi*. |
| Values | String (14, ASCII) |
| Default | No default |

### COMPONENT Sgsn Sh ConnectionToMaster (ConM)

| | |
|---|---|
| Groups | "GROUP Sgsn Sh ConM Provisioned (ConM)"<br>"GROUP Sgsn Sh ConM WlcCustomCounters (WlcCustomCntr)"<br>"GROUP Sgsn Sh ConM OsiState (State)" |
| Scope | Application |
| Description | *Sgsn Sh ConnectionToMaster*<br>*Usgsn Sh ConnectionToMaster*<br><br>This component represents a Slave shelf in a Multi Shelf SGSN |

configuration. This component is provisioned with the ATM Address (NSAP) of the Master Nodal Manager.

Dyn. Subcomp. "COMPONENT Sgsn Sh ConM AtmConnection (AtmCon)"

Common Verbs

Help
List
Display
Add
DELete

## GROUP Sgsn Sh ConM Provisioned (ConM)

Properties Provisioned

Description This group contains the *Shelf (Sh)* provisioning data for the slave shelf.

## ATTRIBUTE Sgsn Sh ConM masterAddress (mAddr)

Access Read: All
Write: All

Criticality Module

Description This attribute specifies the full ATM NSAP Address of the Master shelf. It is constructed by prepending the *nodeprefix* (taken from the *ModuleData* component) to the *atmLocalEsi* (taken from the *Sgsn Shelf* component) of the Master Shelf.

Changing the value of this attribute causes a system reload on the shelf.

Values String (40, NativeAESANsapAddress)

Default No default

## GROUP Sgsn Sh ConM WlcCustomCounters (WlcCustomCntr)

Properties Operational

Description This group contains the spare counters that can be dynamically patched.

### ATTRIBUTE Sgsn Sh ConM customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sgsn Sh ConM customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sgsn Sh ConM customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Sgsn Sh ConM OsiState (State)

| | |
|---|---|
| Properties | Operational |

Description

This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

## ATTRIBUTE Sgsn Sh ConM adminState (osiAdmin)

Access

Read only

Description

This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values

locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default

unlocked

## ATTRIBUTE Sgsn Sh ConM operationalState (osiOper)

Access

Read only

| | |
|---|---|
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Sgsn Sh ConM usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

## ATTRIBUTE Sgsn Sh ConM availabilityStatus (osiAvail)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.<br><br>The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.<br><br>The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.<br><br>The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.<br><br>The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.<br><br>The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***. |

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

## ATTRIBUTE Sgsn Sh ConM proceduralStatus (osiProc)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.

The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

### ATTRIBUTE Sgsn Sh ConM controlStatus (osiCntrl)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the

attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

Set of: subjectToTest (subTst)
partOfServicesLocked (partLk)
reservedForTest (rsrvd)
suspended (suspnd)

Default: No default

## ATTRIBUTE Sgsn Sh ConM alarmStatus (osiAlarm)

Access: Read only

Description: If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are

outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE Sgsn Sh ConM standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and

containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values
hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

Default
notSet

### ATTRIBUTE Sgsn Sh ConM unknownStatus (osiUnknw)

Access
Read only

Description
This attribute indicates the OSI Unknown status of the component.

The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.

The value ***true*** indicates that the actual state of the component is not known for sure.

Values
false
true

Default
false

### COMPONENT Sgsn Sh ConM AtmConnection (AtmCon)

Groups
"GROUP Sgsn Sh ConM AtmCon Operational (Oper)"

Scope
Device

Description
An AtmConnection component is created for each ATM connection established by an application. It shows where the data traffic for this connection is directed.

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display |

## GROUP Sgsn Sh ConM AtmCon Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains the operational attributes for the *NapAtmConnection* component. |

## ATTRIBUTE Sgsn Sh ConM AtmCon nextHop

| | |
|---|---|
| Access | Read only |
| Description | This attribute shows the component name of the *AtmIf Vcc Ep* or *AtmCon* component to which this switched connection is established. |
| Values | The name of the component |
| Default | No default |

## COMPONENT Sgsn Sh ConnectionToSlave (ConS)

| | |
|---|---|
| Instance | Decimal (1..2) |
| Groups | "GROUP Sgsn Sh ConS Provisioned (ConS)"<br>"GROUP Sgsn Sh ConS WlcCustomCounters (WlcCustomCntr)"<br>"GROUP Sgsn Sh ConS OsiState (State)" |
| Scope | Application |
| Description | *Sgsn Sh ConnectionToSlave/n*<br>*Usgsn Sh ConnectionToSlave/n*<br><br>This component represents a Master shelf in a Multi Shelf SGSN configuration. This component is provisioned with the ATM Address (NSAP) of all Slave Nodal Managers. The instance value of this component is used as the Shelf Id. |

| | |
|---|---|
| Dyn. Subcomp. | "COMPONENT Sgsn Sh ConS AtmConnection (AtmCon)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Sgsn Sh ConS Provisioned (ConS)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the *Shelf (Sh)* provisioning data for the Master shelf. |

### ATTRIBUTE Sgsn Sh ConS slaveAddress (sAddr)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the ATM NSAP Address of the Nodal Manager (NM) of the Remote Slave shelf. It is constructed by prepending the *nodeprefix* (taken from the *ModuleData* component) to the *atmLocalEsi* (taken from the *Sgsn Shelf* component) of this Slave Shelf. |
| Values | String (40, NativeAESANsapAddress) |
| Default | No default |

### GROUP Sgsn Sh ConS WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Sgsn Sh ConS customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sgsn Sh ConS customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sgsn Sh ConS customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Sgsn Sh ConS OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific |

information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Sgsn Sh ConS adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Sgsn Sh ConS operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service. |

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Sgsn Sh ConS usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
idle
active (activ)
busy

Default
idle

### ATTRIBUTE Sgsn Sh ConS availabilityStatus (osiAvail)

Access
Read only

Description
If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is

defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.

The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.

The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.

The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.

The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a

rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

### ATTRIBUTE Sgsn Sh ConS proceduralStatus (osiProc)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.

The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

## ATTRIBUTE Sgsn Sh ConS controlStatus (osiCntrl)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

Set of

subjectToTest (subTst)
partOfServicesLocked (partLk)
reservedForTest (rsrvd)
suspended (suspnd)

Default

No default

## ATTRIBUTE Sgsn Sh ConS alarmStatus (osiAlarm)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms

may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

## ATTRIBUTE Sgsn Sh ConS standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values
hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

Default
notSet

## ATTRIBUTE Sgsn Sh ConS unknownStatus (osiUnknw)

Access
Read only

Description
This attribute indicates the OSI Unknown status of the component.

The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.

The value ***true*** indicates that the actual state of the component is not known for sure.

Values
false
true

Default
false

## COMPONENT Sgsn Sh ConS AtmConnection (AtmCon)

Groups
"GROUP Sgsn Sh ConS AtmCon Operational (Oper)"

Scope
Device

Description
An AtmConnection component is created for each ATM connection established by an application. It shows where the data traffic for this connection is directed.

Common Verbs
Help
List
Display

### GROUP Sgsn Sh ConS AtmCon Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains the operational attributes for the *NapAtmConnection* component. |

### ATTRIBUTE Sgsn Sh ConS AtmCon nextHop

| | |
|---|---|
| Access | Read only |
| Description | This attribute shows the component name of the *AtmIf Vcc Ep* or *AtmCon* component to which this switched connection is established. |
| Values | The name of the component |
| Default | No default |

### COMPONENT Sgsn TieredSubscription (Ts)

| | |
|---|---|
| Groups | "GROUP Sgsn Ts Provisioned (Prov)" |
| Scope | Application |
| Description | *Sgsn TieredSubscription*<br>*Usgsn TieredSubscription*<br><br>This component represents the differentiated tiers of service on the (UMTS) Serving GPRS Support Node (SGSN or USGSN) on a per Packet Data Protocol (PDP) context basis for downlink traffic. The maximum average bandwidth associated with each tier is not guaranteed at all times but indicates the upper bound on the average data rate for the service. If this component is not provisioned, the data rate for every context will be best effort. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Sgsn Ts Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |

Description

This group contains the *Tiered Subscription (Ts)* provisioning data of the (UMTS) Serving GPRS Support Node (SGSN or USGSN).

### ATTRIBUTE Sgsn Ts roamerTier

Access

Read: All
Write: All

Description

This attribute specifies the peak bit rate (tier) that can be assigned to a PDP context for mobiles that are not in their Home PLMN. Tier 0 through Tier 9 map to peak throughput classes 0 through 9. Peak throughput class 0 represents the subscribed peak throughput class for a PDP context. Peak throughput classes 1 through 9 represent peak bit rates of 8 kbit/s, 16 kbit/s, 32 kbit/s, 64 kbit/s, 128 kbit/s, 256 kbit/s, 512 kbit/s, 1024 kbit/s and 2048 kbit/s respectively. The Tiered Subscription service uses this information during a PDP context activation for a roamer to determine the maximum average throughput for the context.
If the *roamerTier* is provisioned as ***0***, then the peak throughput for the context is the lower of the peak throughput class of the mobile requested QoS and the mobile's subscribed QoS.
If the *roamerTier* is a value between ***1*** and ***9***, then the peak throughput class for the context is the peak throughput associated with that tier.

Values

0
1
2
3
4
5
6
7
8
9

Default

0

### ATTRIBUTE Sgsn Ts averagingWindow (avgWin)

Access

Read: All
Write: All

| | |
|---|---|
| Description | This attribute specifies the size of the averaging window used to compute the average bandwidth used by a PDP context.<br><br>User traffic is policed per context using the peak throughput rate. In order to police the average peak data rate per context in the down link direction, Tiered Subscription (TS) monitors the amount of data passed over a specified period of time, which is defined by the *averagingWindow*. In other words, the user data rate is throttled in terms of how many bytes are passed over the averaging Window time frame.<br>Tiered Subscription (TS) limits the data transfer to the data rate (bits/s) multiplied by the *averagingWindow* (s). The larger the *averagingWindow*, the more burst size is accommodated. |
| Values | Decimal (1..10) |
| Units | seconds |
| Default | 5 |

## COMPONENT Sgsn Accounting (Acct)

| | |
|---|---|
| Groups | "GROUP Sgsn Acct Provisioned (Prov)" |
| Scope | Application |
| Description | *Sgsn Accounting*<br>*Usgsn Accounting*<br><br>This component represents the Billing functionality of the (UMTS) Serving GPRS Support Node (SGSN or USGSN). |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Sgsn Acct Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |

Description — This group contains the Accounting (Acct) provisioning data of the Serving GPRS Support Node (SGSN).

### ATTRIBUTE Sgsn Acct cdrCapture (cdrCap)

Access — Read: All
Write: All

Description — This attribute specifies which of the following Call Detail Records (CDRs) are generated:

***scdr:*** SGSN Packet Data Protocol (PDP) CDRs
***mcdr*** Mobility CDRs
***smoCdr***: SGSN Short Message Origination CDRs
***smtCdr***: SGSN Short Message Termination CDRs

Set of — sgsn
mobility
smo
smt

Default — No default

### ATTRIBUTE Sgsn Acct locationBasedBilling (lbb)

Access — Read: All
Write: All

Description — This attribute specifies whether location based billing for the generation of partial SGSN Packet Data Protocol (PDP) Call Detail Records (S-CDRs) upon routing area changes is ***enabled*** or ***disabled***. When ***enabled***, every S-CDR will contain only the traffic data volume counts for a single routing area, allowing the operator to bill based on geographic location.

Values — disabled
enabled

Default — disabled

### ATTRIBUTE Sgsn Acct transferInterval (trInt)

Access — Read: All
Write: All

| | |
|---|---|
| Description | This attribute specifies the interval at which currently spooled closed Call Detail Records (CDRs) are to be transferred to the Charging Gateway Functionality (CGF).<br><br>When set to ***noDelay,*** closed CDRs are transferred to the CGF with minimal delay. When set to a value between 15 and 1440 (minutes), the SGSN Accounting Server (SAS) starts a timer upon startup. At every expiration of this timer, closed CDRs on the hard disk are sent to the CGF.<br><br>The values that can be set are ***noDelay*** and multiples of 15 minutes. |
| Values | Decimal (15..1440)<br>noDelay |
| Units | minutes |
| Default | 30 |

### ATTRIBUTE Sgsn Acct updateInterval (updateInt)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the interval at which Session Management (SM) is queried for traffic data volume for all open SGSN Packet Data Protocol (PDP) Call Detail Records (S-CDRs). It also specifies the interval at which GPRS Mobility Management (GMM) is queried to find out if the mobile is still attached for all open Mobility Call Detail Records (M-CDRs).<br><br>The *updateInterval* must be less than the *scdrPartialRecordInterval*.<br><br>Only values that are multiples of 15 minutes can be set for this attribute. |
| Values | Decimal (15..1440) |
| Units | minutes |
| Default | 60 |

### ATTRIBUTE Sgsn Acct scdrPartialRecordInterval (scdrInt)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the interval at which the partial SGSN Packet Data Protocol (PDP) Call Detail Records (S-CDRs) are generated.<br><br>When set to a value other than ***noPartialRecords***, S-CDRs that have been open longer than *scdrPartialRecordInterval* are closed with a partial record reason of “time (duration) limit”.<br><br>The *scdrPartialRecordInterval* must be greater than or equal to the *updateInterval*.<br><br>The values that can be set are ***noPartialRecords*** and multiples of 15 minutes. |
| Values | Decimal (15..1440)<br>noPartialRecords |
| Units | minutes |
| Default | noPartialRecords |

### ATTRIBUTE Sgsn Acct mcdrPartialRecordInterval (mcdrInt)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the interval at which the partial Mobility Call Detail Records (M-CDRs) are generated.<br><br>When set to a value other than ***noPartialRecords***, M-CDRs that have been open longer than *mcdrPartialRecordInterval* are closed with a partial record reason of “time (duration) limit”.<br><br>The *mcdrPartialRecordInterval* must be greater than or equal to the *updateInterval*.<br><br>The values that can be set are ***noPartialRecords*** and multiples of 15 minutes. |

| | |
|---|---|
| Values | Decimal (15..1440)<br>noPartialRecords |
| Units | minutes |
| Default | noPartialRecords |

### ATTRIBUTE Sgsn Acct mcdrMaxContainers (mcdrMaxC)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the maximum number of Change of Location Containers allowed in an Mobility Call Detail Record (M-CDR). Once this number of Containers is exceeded, a partial M-CDR is generated with a partial record reason of “maximum number mobility changes”. |
| Values | Decimal (1..10) |
| Default | 5 |

### ATTRIBUTE Sgsn Acct echoRequestInterval (echoReqInt)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the interval at which ECHO REQUEST messages are to be sent to the Charging Gateway Functionality (CGF). |
| Values | Decimal (1..60) |
| Units | minutes |
| Default | 5 |

### ATTRIBUTE Sgsn Acct primaryCgfIpAddress (priCgfIp)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the Primary Charging Gateway Functionality (CGF) IP address for the SGSN. This is the address used by the SGSN Accounting Server (SAS) when transferring closed Call Detail Records (CDRs) to the CGF. If the primary |

| | |
|---|---|
| | CGF is not in service, the SGSN uses the provisioned Secondary CGF IP<br>Address. |
| Values | IP address |
| Default | 0.0.0.0 |

### ATTRIBUTE Sgsn Acct secondaryCgfIpAddress (secCgfIp)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the Secondary Charging Gateway Functionality (CGF) IP address for the SGSN. In the event of failure of the primary provisioned CGF, the SGSN tries to send Call Detail Records (CDRs) to the secondary provisioned CGF. |
| Values | IP address |
| Default | 0.0.0.0 |

### ATTRIBUTE Sgsn Acct cdrTransferTime (tCdrTr)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the initial waiting time in seconds for the response message for a Call Detail Record (CDR) transfer request. The request message can contain one or more CDRs.<br><br>The timer doubles after each successive retransmission of the same CDR. |
| Values | Decimal (1..30) |
| Units | seconds |
| Default | 5 |

### ATTRIBUTE Sgsn Acct cdrRetries (nCdr)

| | |
|---|---|
| Access | Read: All<br>Write: All |

Description

This attribute specifies the number of times the SGSN tries to resend a billing record to the Charging Gateway Functionality (CGF) when the SGSN does not get the acknowledgment before the *tCdrXfer* expires.

If maximum value of *nCdrRetries* is reached and there is no secondary CGF, the CDRs will be sent to the CGF whenever the CGF is back in service. The SGSN knows that the CGF is alive either by the ECHO REQUEST message or the NODE ALIVE message.

Values

Decimal (1..3)

Default

1

### ATTRIBUTE Sgsn Acct primaryCgfAsn1Encoding (priCgfAsn1Enc)

Access

Read: All
Write: All

Description

This attribute specifies the encoding for the GPRS Tunnelling Protocol (GTP) communications between the SGSN and the primary Charging Gateway Functionality (CGF). The following are the encodings supported:
***ber***: Basic Encoding Rules
***per***: Packed Encoding Rules

The encoding selected must match the encoding used by the CGF.

Values

ber
per

Default

ber

### ATTRIBUTE Sgsn Acct secondaryCgfAsn1Encoding (secCgfAsn1Enc)

Access

Read: All
Write: All

Description

This attribute specifies the encoding for the GPRS Tunnelling Protocol (GTP) communications between the SGSN and the secondary Charging Gateway Functionality (CGF). The following are the encodings supported:
***ber***: Basic Encoding Rules

***per***: Packed Encoding Rules

The encoding selected must match the encoding used by the CGF.

Values
ber
per

Default
ber

### ATTRIBUTE Sgsn Acct timeOffset (to)

Access
Read: All
Write: All

Description
This attribute specifies the time difference between the local time and the Universal time. The time is represented as minutes.
Eg. 105 represents an offset of 1 hr 45 min.

Values
Signed (-720..900)

Units
minutes

Default
0

### ATTRIBUTE Sgsn Acct genAuditFiles (genAf)

Access
Read: All
Write: All

Description
This attribute specifies whether the generation of CDR audit files is ***enabled*** or ***disabled***. When ***enabled***, files are created which can be used to audit the closed CDRs that were generated by this SGSN and transferred to a CGF.

Values
disabled
enabled

Default
disabled

### ATTRIBUTE Sgsn Acct auditFileLife (afLife)

Access
Read: All
Write: All

Description
This attribute specifies the number of days the CDR audit file will remain on the 2pGPDsk before being deleted.

| | |
|---|---|
| Values | Decimal (1..10) |
| Units | days |
| Default | 5 |

### ATTRIBUTE Sgsn Acct roamerCapture (roamCap)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies whether CDRs should be generated for all subscribers or only Roamers.<br><br>When set to ***all***, CDRs are captured without regard to the mobiles home GGSN. When set to ***roamers***, CDRs are only captured for mobile stations that are roaming outside their home GGSN.<br><br>The values that can be set are ***all*** and ***roamers***. |
| Values | all<br>roamers |
| Default | all |

### ATTRIBUTE Sgsn Acct asn1EncoderVersion (asn1EncoderVer)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the ASN.1 Encoder Version used by all *Sas* components on the shelf.<br><br>Modifying this attribute after the component is initially activated causes the new encoder version to be used on the next set of spooled and closed Call Data Records (CDR) to be transferred to the Call Gateway Function (CGF). If a *Sas* component is processing a set of CDRs when this attribute is changed the new encoder version does not take effect until the processing of the current set of CDRs is complete.<br><br>The version of the ASN1 Encoder should be changed to 3.6 when the downstream CGF is upgraded to handle the decoding of version 3.6 encoded CDRs. |

| | |
|---|---|
| Values | 3dot2<br>3dot6 |
| Default | 3dot2 |

### ATTRIBUTE Sgsn Acct scdrMaxContainers (scdrMaxC)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the maximum number of Change of Charging Condition Containers allowed in an SGSN Packet Data Protocol Call Detail Record (S-CDR). Once this number of containers is exceeded, a partial S-CDR is generated with a partial record reason of “maximum number of charging condition changes”. |
| Values | Decimal (1..10) |
| Default | 5 |

### COMPONENT Sgsn PrepaidShortMessageService (PSms)

| | |
|---|---|
| Groups | "GROUP Sgsn PSms Provisioned (Prov)" |
| Scope | Application |
| Description | *Sgsn PrepaidShortMessageService*<br><br>This component represents the Prepaid Short Message Service (PSMS) functionality of the Serving GPRS Support Node (SGSN). |
| Opt. Subcomp. | "COMPONENT Sgsn PSms ServiceControlPoint (Scp)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Sgsn PSms Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |

| | |
|---|---|
| Description | This group contains the *PrepaidShortMessageService(PSms)* provisioning data of the Serving GPRS Support Node (SGSN). |

### ATTRIBUTE Sgsn PSms currencyType (curT)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the ISO currency type that will be sent to the external Service Control Point (SCP) in the Prepaid-CTP INCREMENT DECREMENT messages. This is a three digit letter or a three digit decimal number. |
| Values | String (3, ASCII) |
| Default | No default |

### ATTRIBUTE Sgsn PSms currencyAmount (curAmt)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the monetary amount, in the minor of the currency, that will be sent to the external Service Control Point (SCP) in the Prepaid-CTP INCREMENT DECREMENT messages. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Sgsn PSms transactionTimer (tTran)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the maximum time the SGSN waits for a Prepaid-CTP transaction to complete. If the transaction is not completed within this time period, the Prepaid Short Message Service (PSMS) message will be discarded. |
| Values | Decimal (1..44) |
| Units | seconds |
| Default | 20 |

### ATTRIBUTE Sgsn PSms nccpLoginResponseTimer (tNccpLiR)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the maximum time that the SGSN waits for a response from the external Service Control Point (SCP) to an NCCP (Network Connection Control Protocol) LOGIN REQUEST message. If the SCP fails to respond in this time period, the SGSN will consider the login attempt to have failed. If the login request for one Service Processor (SP) fails, the other SP of the SCP pair is tried.<br><br>The count of timeouts can be viewed in the *nccpLoginResponseTimeouts* attribute (defined in *Gsc PSms Scp*). |
| Values | Decimal (1..30) |
| Units | seconds |
| Default | 15 |

### ATTRIBUTE Sgsn PSms nccpLogoutResponseTimer (tNccpLoR)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the maximum time that this SGSN waits for a response from the external Service Control Point (SCP) to an NCCP (Network Connection Control Protocol) LOGOUT REQUEST message. If the SCP fails to respond in this time period, the SGSN will consider the logout attempt to have failed.<br><br>The count of expirations can be viewed in the *nccpLogoutFailures* attribute (defined in *Gsc PSms Scp*). |
| Values | Decimal (1..30) |
| Units | seconds |
| Default | 5 |

### ATTRIBUTE Sgsn PSms nccpRoundRobinTimer (tNccpRr)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the amount of time the SGSN waits between each connection attempt when it round robins between the two Service Processors (SPs) of the external Service Control Point (SCP) pair.<br><br>The count of expirations can be viewed in the *nccpRoundRobinTimeouts* attribute (defined in *Gsc PSms Scp*). |
| Values | Decimal (0..60) |
| Units | seconds |
| Default | 5 |

### ATTRIBUTE Sgsn PSms nccpReconnectTimer (tNccpRec)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the amount of time the SGSN will wait after a login attempt to an external Service Control Point (SCP) has been denied. Specifically, the SGSN will wait this amount of time after receiving a failed NCCP (Network Connection Control Protocol) LOGIN RESPONSE message from the external SCP before trying to reconnect to the SCP.<br><br>The count of expirations can be viewed in the *nccpReconnectTimeouts* attribute (defined in *Gsc PSms Scp*). |
| Values | Decimal (1..120) |
| Units | seconds |
| Default | 50 |

### COMPONENT Sgsn PSms ServiceControlPoint (Scp)

| | |
|---|---|
| Instance | Decimal (1..32) |
| Groups | "GROUP Sgsn PSms Scp Provisioned (Prov)" |

| | |
|---|---|
| Scope | Application |
| Description | *Sgsn Sms GprsServiceControlPointCp*<br><br>This component represents a Service Control Point (SCP) that the Serving GPRS Support Node (SGSN) uses to authorize subscriber SGSN Prepaid Short Message Service (PSMS) messages. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Sgsn PSms Scp Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the *ServiceControlPoint* (*Scp)* provisioning data of the Serving GPRS Support Node (SGSN). |

## ATTRIBUTE Sgsn PSms Scp accessPointName (apn)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the Access Point Name (APN), found in the HLR context, that is used to identify the mobile as a Prepaid Short Message Service (PSMS) subscriber. Furthermore, this APN uniquely identifies that this external Service Control Point (SCP) should be used to authorize the subscribers message(s). |
| Values | String (1..63, ASCII) |
| Default | No default |

## ATTRIBUTE Sgsn PSms Scp spAddress1 (spAddr1)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the IP address of the first Service Processor (SP) of this external Service Control Point (SCP). |

Since the SCP is always deployed in a duplex configuration where one SP is the active SP and the other is the stand-by SP, the SGSN will alternate its login connection attempts between the SPs until a successful attempt is made. The IP address of the other SP is provisioned in the *spAddress2* attribute.

Both of these addresses must be unique and neither can be set to 0.0.0.0.

Values: IP address

Default: No default

### ATTRIBUTE Sgsn PSms Scp spAddress2 (spAddr2)

Access: Read: All
Write: All

Description: This attribute specifies the IP address of the second Service Processor (SP) of this external Service Control Point (SCP). Since the SCP is always deployed in a duplex configuration where one SP is the active SP and the other is the stand-by SP, the SGSN will alternate its login connection attempts between the SPs until a successful attempt is made. The IP address of the other SP is provisioned in the *spAddress1* attribute.

Both of these addresses must be unique and neither can be set to 0.0.0.0.

Values: IP address

Default: No default

### ATTRIBUTE Sgsn PSms Scp tcpPort

Access: Read: All
Write: All

Description: This attribute specifies the TCP port that the SGSN will attempt to establish a connection with for this external Service Control Point (SCP).

Values: Decimal (0..65535)

Default: No default

## ATTRIBUTE Sgsn PSms Scp password (passwd)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the password that should be used when the SGSN logs into this Service Control Point (SCP). |
| Values | String (6..20, ASCII) |
| Default | No default |

## COMPONENT Sgsn EquivalentPlmn (EquivPlmn)

| | |
|---|---|
| Instance | Decimal (1..5) |
| Groups | "GROUP Sgsn EquivPlmn Provisioned (Prov)" |
| Scope | Application |
| Description | Sgsn EquivalentPlmn/n<br><br>This component collectively represents all Public Land Mobile Networks (PLMNs) that must be considered equivalent by the Mobile Station (MS) at PLMN selection, handover, cell re-selection, and so on. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Sgsn EquivPlmn Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for one of the Public Land Mobile Network (PLMN) codes that must be considered equivalent.<br><br>PLMN codes consist of a Mobile Country Code (MCC) and a Mobile Network Code (MNC). |

## ATTRIBUTE Sgsn EquivPlmn mobileCountryCode (mcc)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the three-digit Mobile Country Code (MCC) of a Public Land Mobile Network (PLMN). |
| Values | BCD (3) |
| Default | No default |

## ATTRIBUTE Sgsn EquivPlmn mobileNetworkCode (mnc)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the two- or three-digit Mobile Network Code (MNC) of a Public Land Mobile Network (PLMN). |
| Values | BCD (2..3) |
| Default | No default |

Passport 7400, 15000, 20000

# Component Sgsn

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component Sg

241-5701-060

Passport 7400, 15000, 20000

# Component Sg

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT SignallingGateway (Sg)

| | |
|---|---|
| Instance | Decimal (1..15) |
| Groups | "GROUP Sg Provisioned (Prov)"<br>"GROUP Sg OsiState (State)"<br>"GROUP Sg WlcCustomCounters (WlcCustomCntr)" |
| Scope | Application |
| Description | *SignallingGateway/n* |

This component defines the signalling interface between a Radio Network Controller (RNC) and the Core Network in 3 possible configurations:

Circuit Switched (CS) domain only - In this configuration, the Signalling Gateway provides the interface between the RNC and the Call Server.

Packet Switched (PS) domain only - In this configuration, the Signalling Gateway provides the interface between the RNC and a UMTS Serving GPRS Support Node (USGSN).

Both domains: In this configuration, the Signalling Gateway provides the interface between the RNC and a UMTS Serving GPRS Support Node (USGSN), as well as an interface between the RNC and a Call Server(CS).

The Circuit Switched(CS) domain is supported if a *Sg/n CsDomain* component is provisioned. The Packet Switched (PS)

| | |
|---|---|
| | domain is supported if a *Sg/n PsDomain* component is provisioned. |
| Subcomponents | "COMPONENT Sg RncInterface (RncIf)"<br>"COMPONENT Sg MemoryPoolManager (Mpm)" |
| Opt. Subcomp. | "COMPONENT Sg CsDomain (Cs)"<br>"COMPONENT Sg PsDomain (Ps)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Sg Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes of this component. |

### ATTRIBUTE Sg linkToLogicalProcessor (lp)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the Logical Processor that this component and its subcomponents are provisioned on. |
| Values | Link (Hardware, linkToApplications) |
| Default | No default |

### GROUP Sg OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Sg adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Sg operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |

| | |
|---|---|
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Sg usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Sg WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Sg customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Sg customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sg customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT Sg CsDomain (Cs)

| | |
|---|---|
| Groups | "GROUP Sg Cs Provisioned (Prov)"<br>"GROUP Sg Cs OsiState (State)"<br>"GROUP Sg Cs Stats"<br>"GROUP Sg Cs WlcCustomCounters (WlcCustomCntr)" |

"COLLECTED STATS SignallingGateway CsDomain"

| | |
|---|---|
| Scope | Application |
| Description | *Sg/n CsDomain*<br><br>This component represents the signalling between the RNC and a Call Server. It maintains the parameters and statistics for the reformatting of RANAP signalling in the circuit switched domain |

| | |
|---|---|
| | and connects the transport layers for communication between the RNC and the Call Server (MSC). |
| Subcomponents | "COMPONENT Sg Cs SccpConnection (SccpConn)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

### GROUP Sg Cs Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes of this component. |

### ATTRIBUTE Sg Cs linkToVirtualMediaGateway (lToVmg)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute links the Signalling Gateway to a Virtual Media Gateway that provides a pool of media gateways for bearer connections. This attribute must be set for the *CsDomain* to activate properly. |
| Values | Link (Service, linkToCsDomain) |
| Default | No default |

### GROUP Sg Cs OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Sg Cs adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Sg Cs operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |

| | |
|---|---|
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Sg Cs usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Sg Cs Stats

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes of this component. |

### ATTRIBUTE Sg Cs uplinkMsgs (ulMsgs)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the RANAP messages received from the RNC.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sg Cs downlinkMsgs (dlMsgs)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the RANAP messages sent to the RNC.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sg Cs csRanapMsgsTx (csRanapTx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the RANAP messages sent to the Call Server.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sg Cs csRanapMsgsRx (csRanapRx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the RANAP messages received from the Call Server.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sg Cs bssmapMsgsTx (bssmapTx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the BSSMAP messages sent to the Call Server.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sg Cs bssmapMsgsRx (bssmapRx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the BSSMAP messages received from the Call Server. This includes the faulty BSSMAP messages indicated by the attribute *bssmapMsgErrsRx*.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sg Cs bssmapMsgErrsRx

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the unrecognized or faulty BSSMAP messages that were received from the Call Server.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sg Cs invalidRabRequests (invRabReq)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Rab Assignment Requests from the Call Server that were rejected by the Signalling Gateway. |

The SG rejects a Rab Assignment Request from the Call Server when the request contains a CIC that is not found in the list of CICs derived from the *startingCic* attribute provisioned in the *Vmg MgIf TdmResource* component.

The counter wraps to 0 when it exceeds its maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Sg Cs invalidRelocRequests (invRelocReq)

Access: Read: All
Write: Illegal

Description: This attribute counts the number of Relocation Requests from the Call Server rejected be the Signalling Gateway (SG).

The SG rejects a Relocation Request from the Call Server when the request contains a CIC that is not found in the list of CICs derived from the *startingCic* attribute provisioned in the *Vmg MgIf TdmResource* component.

The counter wraps to 0 when it exceeds its maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Sg Cs rabAssignRequests (rabAssgnRqsts)

Access: Read: All
Write: Illegal

Description: This attribute counts the number of RAB ASSIGNMENT REQUEST messages that were sent to the RNC. The counter wraps to zero when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Sg Cs relocRequests (relocRqsts)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of RELOCATION REQUEST messages that were sent to the RNC. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sg Cs paging (paging)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of PAGING messages that were sent to the RNC. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sg Cs iuReleaseCmds (iuRelCmds)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of IU RELEASE COMMAND messages that were sent to the RNC. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sg Cs relocCmds (relocCmds)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the number of RELOCATION COMMAND messages that were sent to the RNC. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sg Cs relocPrepFailures (relocPrepFail)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of RELOCATION PREPARATION FAILURE messages that were sent to the RNC. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sg Cs relocCancelAcks (relocCancAcks)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of RELOCATION CANCEL ACKNOWLEDGE messages that were sent to the RNC. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sg Cs commonIds (commIds)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of COMMON ID messages that were sent to the RNC. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sg Cs cnInvokeTraces

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of CN INVOKE TRACE messages that were sent to the RNC. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sg Cs securityModeCmds (secModeCmds)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of SECURITY MODE COMMAND messages that were sent to the RNC. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sg Cs directTransfers (dirTransf)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of DIRECT TRANSFER messages between the RNC and the Core Network in either direction.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sg Cs resets

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the total number of RESET messages between the RNC and the Core Network in either direction. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sg Cs resetAcks (resetAcks)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of RESET ACKNOWLDEGE messages between the RNC and the Core Network in either direction. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sg Cs errorIndications (errorInd)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of ERROR INDICATION messages between the RNC and the Core Network in either direction. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sg Cs initialUeMessages (inUeMsgs)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of INITIAL UE messages that were received from the RNC. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Sg Cs rabAssignResponses (rabAssignResps)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of RAB ASSIGNMENT RESPONSE messages that were received from the RNC. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sg Cs rabReleaseRequests (rabRelRqsts)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of RAB RELEASE REQUEST messages that were received from the RNC. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sg Cs iuReleaseRequests (iuRelRqsts)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of Iu RELEASE REQUEST messages that were received from the RNC. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sg Cs iuReleaseCompletes (iuRelComps)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the number of Iu RELEASE COMPLETE messages that were received from the RNC. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sg Cs relocRqds (relocRqds)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of RELOCATION REQUIRED messages that were received from the RNC. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sg Cs relocRequestAcks (relocRqstAcks)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of RELOCATION REQUEST ACKNOWLEDGE messages that were received from the RNC. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sg Cs relocDetects (relocDet)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of RELOCATION DETECT messages that were received from the RNC. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sg Cs relocCompletes (relocComps)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of RELOCATION COMPLETE messages that were received from the RNC. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sg Cs relocFailures (relocFail)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of RELOCATION FAILURE messages that were received from the RNC. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sg Cs relocCancels (relocCancels)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of RELOCATION CANCEL messages that were received from the RNC. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sg Cs securityModeComps (securityModeComps)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the number of SECURITY MODE COMPLETE messages that were received from the RNC. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sg Cs resetCircuits (resetCkts)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of RESET CIRCUIT messages between the Core Network and the DMS Call Server. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sg Cs unequipCircuits (unequipCkts)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of UNEQUIPPED CIRCUIT messages received from the DMS Call Server. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sg Cs blocks

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of BLOCK messages that were sent to the DMS Call Server. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sg Cs unblocks

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of UNBLOCK messages that were sent to the DMS Call Server. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sg Cs circuitGrpBlocks (cktGrpBl)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of CIRCUIT GROUP BLOCK messages that were sent to the DMS Call Server. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sg Cs circuitGrpUnblocks (cktGrpUnbl)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of CIRCUIT GROUP UNBLOCK messages that were sent to the DMS Call Server. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sg Cs securityModeRjcts (secModeRjcts)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the number of SECURITY MODE REJECT messages that were received from the RNC. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Sg Cs WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Sg Cs customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sg Cs customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sg Cs customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## COLLECTED STATS SignallingGateway CsDomain

| | |
|---|---|
| Description | The statistics record generated by the SignallingGateway CsDomain component. |

### ATTRIBUTE Sg Cs rabAssignRequests

| | |
|---|---|
| Description | This attribute indicates the number of RAB ASSIGNMENT REQUEST messages that were sent to the RNC over the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Sg Cs relocRequests

| | |
|---|---|
| Description | This attribute indicates the number of RELOCATION REQUEST messages that were sent to the RNC over the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Sg Cs paging

| | |
|---|---|
| Description | This attribute indicates the number of PAGING messages that were sent to the RNC over the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Sg Cs iuReleaseCmds

| | |
|---|---|
| Description | This attribute indicates the number of IU RELEASE COMMAND messages that were sent to the RNC over the collection interval. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Sg Cs relocCmds

| | |
|---|---|
| Description | This attribute indicates the number of RELOCATION COMMAND messages that were sent to the RNC over the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Sg Cs relocPrepFailures

| | |
|---|---|
| Description | This attribute indicates the number of RELOCATION PREPARATION FAILURE messages that were sent to the RNC over the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Sg Cs relocCancelAcks

| | |
|---|---|
| Description | This attribute indicates the number of RELOCATION CANCEL ACKNOWLEDGE messages that were sent to the RNC over the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Sg Cs commonIds

| | |
|---|---|
| Description | This attribute indicates the number of COMMON ID messages that were sent to the RNC over the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Sg Cs cnInvokeTraces

| | |
|---|---|
| Description | This attribute indicates the number of CN INVOKE TRACE messages that were sent to the RNC over the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Sg Cs securityModeCmds

| | |
|---|---|
| Description | This attribute indicates the number of SECURITY MODE COMMAND messages that were sent to the RNC over the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Sg Cs directTransfers

| | |
|---|---|
| Description | This attribute indicates the total number of DIRECT TRANSFER messages exchanged between the RNC and the Core Network in either direction over the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Sg Cs resets

| | |
|---|---|
| Description | This attribute indicates the total number of RESET messages between the RNC and the Core Network in either direction over the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Sg Cs resetAcks

| | |
|---|---|
| Description | This attribute indicates the total number of RESET ACKNOWLDEGE messages between the RNC and the Core Network in either direction over the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Sg Cs errorIndications

| | |
|---|---|
| Description | This attribute indicates the total number of ERROR INDICATION messages between the RNC and the Core Network in either direction over the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Sg Cs initialUeMessages

| | |
|---|---|
| Description | This attribute indicates the number of INITIAL UE messages that were received from the RNC over the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Sg Cs rabAssignResponses

| | |
|---|---|
| Description | This attribute indicates the number of RAB ASSIGNMENT RESPONSE messages that were received from the RNC over the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Sg Cs rabReleaseRequests

Description This attribute indicates the number of RAB RELEASE REQUEST messages that were received from the RNC over the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Sg Cs iuReleaseRequests

Description This attribute indicates the number of Iu RELEASE REQUEST messages that were received from the RNC over the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Sg Cs iuReleaseComps

Description This attribute indicates the number of Iu RELEASE COMPLETE messages that were received from the RNC over the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Sg Cs relocRqds

Description This attribute indicates the number of RELOCATION REQUIRED messages that were received from the RNC over the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Sg Cs relocRequestAcks

Description This attribute indicates the number of RELOCATION REQUEST ACKNOWLEDGE messages that were received from the RNC over the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Sg Cs relocDetects

Description This attribute indicates the number of RELOCATION DETECT messages that were received from the RNC over the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Sg Cs relocComps

Description This attribute indicates the number of RELOCATION COMPLETE messages that were received from the RNC over the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Sg Cs relocFailures

Description This attribute indicates the number of RELOCATION FAILURE messages that were received from the RNC over the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Sg Cs relocCancels

Description This attribute indicates the number of RELOCATION CANCEL messages that were received from the RNC over the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Sg Cs securityModeComps

Description This attribute indicates the number of SECURITY MODE COMPLETE messages that were received from the RNC over the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Sg Cs resetCircuits

Description This attribute indicates the number of RESET CIRCUIT messages between the Core Network and the DMS Call Server over the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Sg Cs unequipCircuits

| | |
|---|---|
| Description | This attribute indicates the number of UNEQUIPPED CIRCUIT messages received from the DMS Call Server over the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Sg Cs blocks

| | |
|---|---|
| Description | This attribute indicates the number of BLOCK messages that were sent to the DMS Call Server over the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Sg Cs unblocks

| | |
|---|---|
| Description | This attribute indicates the number of UNBLOCK messages that were sent to the DMS Call Server over the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Sg Cs circuitGrpBlocks

| | |
|---|---|
| Description | This attribute indicates the number of CIRCUIT GROUP BLOCK messages that were sent to the DMS Call Server over the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Sg Cs circuitGrpUnblocks

| | |
|---|---|
| Description | This attribute indicates the number of CIRCUIT GROUP UNBLOCK messages that were sent to m the DMS Call Server over the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Sg Cs securityModeRjcts

| | |
|---|---|
| Description | This attribute indicates the number of SECURITY MODE REJECT messages that were received from the RNC over the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Sg Cs rabSetups

| | |
|---|---|
| Description | This attribute indicates the number of RAB SETUP messages that were received from the Virtual Media Gateway over the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Sg Cs rabSetupResps

| | |
|---|---|
| Description | This attribute indicates the number of RAB SETUP RESPONSE messages that were received from the RNC over the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Sg Cs releases

| | |
|---|---|
| Description | This attribute indicates the number of RELEASE messages between RANAP-CS and the Virtual Media Gateway over the collection interval. |
| Values | Decimal (0..4294967295) |

### COMPONENT Sg Cs SccpConnection (SccpConn)

| | |
|---|---|
| Groups | "GROUP Sg Cs SccpConn Provisioned (Prov)"<br>"GROUP Sg Cs SccpConn WlcCustomCounters (WlcCustomCntr)" |
| Scope | Application |
| Description | *Sg/n CsDomain SccpConnection*<br>*Sg/n RncIf SccpConnection*<br><br>This component represents the connection to an SCCP layer used for signalling services between an RNC and a Signalling Gateway |
| Common Verbs | Help<br>List<br>Display |

### GROUP Sg Cs SccpConn Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioned attributes of the *sccpConnection* component. |

### ATTRIBUTE Sg Cs SccpConn linkToLocalSubsystem (lToLocalSub)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies a link to an *Sccp/n LocalSubsystem/n* component for SCCP services. |
| Values | Link (Service, linkToSccpConnection) |
| Default | No default |

### GROUP Sg Cs SccpConn WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Sg Cs SccpConn customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sg Cs SccpConn customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a |

| | |
|---|---|
| | mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sg Cs SccpConn customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT Sg RncInterface (RncIf)

| | |
|---|---|
| Groups | "GROUP Sg RncIf Provisioned (Prov)"<br>"GROUP Sg RncIf OsiState (State)"<br>"GROUP Sg RncIf Stats"<br>"GROUP Sg RncIf WlcCustomCounters (WlcCustomCntr)" |
| Scope | Application |
| Description | *Sg/n RncInterface*<br><br>This component represents the signalling connection between an RNC and a Signalling Gateway. |
| Subcomponents | "COMPONENT Sg RncIf SccpConnection (SccpConn)" |
| Common Verbs | Help<br>List<br>Display<br>LOCK<br>Unlock |

### GROUP Sg RncIf Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes of this component. |

### ATTRIBUTE Sg RncIf rncId

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the RNC ID of the Radio Network Controller (RNC) attached to the RNC Interface represented by this component.The *rncId* is a field of RNC-ID defined in 3G TS 25.413, that uniquely identifies an RNC in a network.<br><br>If the packet domain is supported, this RNC Id must also be included in the list of RNC Ids corresponding to a routing area, provisioned in the *rncIds* attribute of the *Usgsn Mcc Mnc Rac*(corresponding to the routing area) component. |
| Values | Decimal (0..4095) |
| Default | No default |

### ATTRIBUTE Sg RncIf rncAtmAddress (rncAtmAddr)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the ATM Address of the RNC attached to the RNC interface represented by this component. |
| Values | String (1..44, AESANsapAddress) |
| Default | No default |

### GROUP Sg RncIf OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component |

which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Sg RncIf adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Sg RncIf operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the |

component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Sg RncIf usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Sg RncIf Stats

Properties
Operational

Description
This group contains the statistical attributes of this component.

### ATTRIBUTE Sg RncIf uplinkMsgs (ulMsgs)

Access
Read: All
Write: Illegal

Description
This attribute counts the RANAP messages received from the RNC. This includes the invalid messages.

The counter wraps to 0 when it exceeds its maximum value.

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sg RncIf invalidUplinkMsgs (invUlMsgs)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the invalid RANAP messages received from the RNC.<br><br>This includes messages with errors such as syntax errors, decoding errors, contents not validated, unrecognized messages, etc. that have occurred.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Sg RncIf WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Sg RncIf customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sg RncIf customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sg RncIf customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT Sg RncIf SccpConnection (SccpConn)

| | |
|---|---|
| Groups | "GROUP Sg RncIf SccpConn Provisioned (Prov)"<br>"GROUP Sg RncIf SccpConn WlcCustomCounters (WlcCustomCntr)" |
| Scope | Application |
| Description | *Sg/n CsDomain SccpConnection*<br>*Sg/n RncIf SccpConnection*<br><br>This component represents the connection to an SCCP layer used for signalling services between an RNC and a Signalling Gateway. |

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display |

### GROUP Sg RncIf SccpConn Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioned attributes of the *sccpConnection* component. |

### ATTRIBUTE Sg RncIf SccpConn linkToLocalSubsystem (lToLocalSub)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies a link to an *Sccp/n LocalSubsystem/n* component for SCCP services. |
| Values | Link (Service, linkToSccpConnection) |
| Default | No default |

### GROUP Sg RncIf SccpConn WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Sg RncIf SccpConn customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Sg RncIf SccpConn customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sg RncIf SccpConn customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT Sg PsDomain (Ps)

| | |
|---|---|
| Groups | "GROUP Sg Ps Provisioned (Prov)"<br>"GROUP Sg Ps Operational (Oper)"<br>"GROUP Sg Ps WlcCustomCounters (WlcCustomCntr)" |
| Scope | Application |
| Description | *Sg/n PsDomain*<br><br>This component represents the signalling between the RNC and a packet server. It maintains the parameters and statistics for the termination of RANAP signalling in the PS domain and connects |

| | |
|---|---|
| | the transport layers for communication between the RNC and the UMTS Serving GPRS Support Node (USGSN). |
| Dyn. Subcomp. | "COMPONENT Sg Ps RemoteApplicationConnection (RaConn)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Sg Ps Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for this component. |

### ATTRIBUTE Sg Ps maxSigConn

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the maximum number of simultaneous two-leg signalling connections from the Radio Network Controller. One signalling connection is established per user. Memory resources are reserved for signalling connections based on the value of this attribute.<br><br>The current number of active signalling connections used are displayed by the attribute *activeSigConnections.* |
| Values | Decimal (1..150000) |
| Default | 500 |

### ATTRIBUTE Sg Ps resetAckTimer (tRatR)

| | |
|---|---|
| Access | Read: All<br>Write: All |

| | |
|---|---|
| Description | This attribute specifies the value of the TRatR timer defined in 3G TS 25.413. *tRatR* specifies a guard period in the Core Network prior to the transmission of a reset acknowledge message.<br><br>This timer is started when a RESET message is received by the Signalling Gateway from the RNC.<br><br>This timer is stopped when a response from all the USCs is received by the Signalling Gateway.<br><br>Upon timer expiration, the reset procedure is terminated in the Signalling Gateway.<br><br>The value of this attribute can be increased when timeouts are seen, as indicated by the attribute *tRatRTimeouts*. |
| Values | Decimal (60..120) |
| Units | seconds |
| Default | 60 |

### GROUP Sg Ps Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes of this component. |

### ATTRIBUTE Sg Ps activeSigConnections (actSigConn)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of active signalling connections established between the Radio Network Controller (RNC) and the UMTS Subscriber Control (USC).<br><br>The maximum number of signalling connections is provisioned in the attribute *maxSigConnections*. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sg Ps maxSigConnectionsExhausted (maxSigConnExh)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of times a connection was refused because the maximum number of signalling connections, specified by the attribute *maxSigConnections*, was reached.<br><br>The current number of signalling connections is indicated by the attribute *activeSigConnections*. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sg Ps rejectedConnections (rejConn)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of times a USC rejects signalling connection requests from the RNC.<br><br>For all the USCs that the SG talks to, the *currentlyAttached* attribute of the *Usc/n Gmm* component can be checked against the *maxAttachedSubscribers* attribute of the parent *Usc/n* component to check if this failure is caused because all the allocated contexts have been used up.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sg Ps ranapMsgsRx

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the RANAP messages received from the RNC.<br><br>The counter wraps to 0 when it exceeds its maximum value. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sg Ps uscConnectFailures (uscConnFail)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of times a connection request to the USC failed.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sg Ps rncConnectFailures (rncConnFail)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of times a connection request to the RNC failed.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sg Ps resetAckTimeouts (tRatRTm)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of times the *resetAckTimer* expired. If the value of this attribute increases consistently, the value of the *resetAckTimer* can be increased.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Sg Ps WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Sg Ps customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sg Ps customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sg Ps customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

## COMPONENT Sg Ps RemoteApplicationConnection (RaConn)

| | |
|---|---|
| Instance | appType [String (1..8, ASCII)]<br>shelfId [Decimal (0..15)]<br>n [Decimal (1..15)] |
| Groups | "GROUP Sg Ps RaConn OsiState (State)"<br>"GROUP Sg Ps RaConn WlcCustomCounters (WlcCustomCntr)" |
| Scope | Application |
| Description | ... *RemoteApplicationConnection/<appType, shelfId, n>*<br><br>This component represents the Remote Application Connection information of an application that talks to applications on other shelves. For each application that it can communicate with, one of these connection components is created and is instantiated with the name of the remote application, the Id of the shelf on which the application runs, and the instance number of the application. ShelfId ***0*** represents the Master shelf. |
| Dyn. Subcomp. | "COMPONENT Sg Ps RaConn AtmConnection (AtmCon)" |
| Common Verbs | Help<br>List<br>Display |

## GROUP Sg Ps RaConn OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

## ATTRIBUTE Sg Ps RaConn adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Sg Ps RaConn operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Sg Ps RaConn usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Sg Ps RaConn WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Sg Ps RaConn customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sg Ps RaConn customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Sg Ps RaConn customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT Sg Ps RaConn AtmConnection (AtmCon)

| | |
|---|---|
| Groups | "GROUP Sg Ps RaConn AtmCon Operational (Oper)" |
| Scope | Device |
| Description | An AtmConnection component is created for each ATM connection established by an application. It shows where the data traffic for this connection is directed. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Sg Ps RaConn AtmCon Operational (Oper)

| | |
|---|---|
| Properties | Operational |

| | |
|---|---|
| Description | This attribute group contains the operational attributes for the *NapAtmConnection* component. |

### ATTRIBUTE Sg Ps RaConn AtmCon nextHop

| | |
|---|---|
| Access | Read only |
| Description | This attribute shows the component name of the *AtmIf Vcc Ep* or *AtmCon* component to which this switched connection is established. |
| Values | The name of the component |
| Default | No default |

### COMPONENT Sg MemoryPoolManager (Mpm)

| | |
|---|---|
| Scope | Application |
| Description | *Gsc/n MemoryPoolManager*<br>*Gsd/n MemoryPoolManager*<br>*Gtl/n MemoryPoolManager*<br>*DnsAgent/<vr>,n MemoryPoolManager*<br><br>This component represents the memory resources of a given GPRS application that are managed as pools of objects. |
| Dyn. Subcomp. | "COMPONENT Sg Mpm MemoryPoolClient (Mpc)" |
| Common Verbs | Help<br>List<br>Display |

### COMPONENT Sg Mpm MemoryPoolClient (Mpc)

| | |
|---|---|
| Instance | String (1..30, ASCII) |
| Scope | Application |
| Description | *Gsc/n Mpm MemoryPoolClient/<name>*<br>*Gsd/n Mpm MemoryPoolClient/<name>*<br>*SgGtl/n Mpm MemoryPoolClient/<name>*<br>*DnsAgent/<vr>,n Mpm MemoryPoolClient/<name>*<br><br>This component represents a pool of objects of a particular class |

that a GPRS application currently owns as well as all the objects that could be owned by that application. All the objects in the pool are of the same class. The instance value of this component is a string which is the class name of the objects in the pool.

Common Verbs

Help
List
Display

Passport 7400, 15000, 20000

# Component Sg

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component Shelf

241-5701-060

Passport 7400, 15000, 20000

# Component Shelf

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT Shelf

| | |
|---|---|
| Groups | "GROUP Shelf Provisioned (Prov)"<br>"GROUP Shelf Operational (Oper)" |
| Scope | Device |
| Description | *Shelf*<br>There is one *Shelf* component per module. It is the parent component of the hardware components (which include *Card* and *Bus* components). |
| Subcomponents | "COMPONENT Shelf Test" |
| Opt. Subcomp. | "COMPONENT Shelf Card" |
| Dyn. Subcomp. | "COMPONENT Shelf Bus"<br>"COMPONENT Shelf FabricCard" |
| Common Verbs | Help<br>List<br>Display |

## VERB RESET Shelf

| | |
|---|---|
| Impact | Service |
| Description | This command is used to simultaneously reset all processor cards on the shelf. The system behaves as if the shelf had just been powered on. |

## VERB RESTART Shelf

| | |
|---|---|
| Impact | Service |
| Description | This command restarts all processor cards on the shelf. A processor card restart reinitializes the software, making the card behave as if it has just been reloaded. |

## GROUP Shelf Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the *Shelf* component. |

## ATTRIBUTE Shelf commentText (text)

| | |
|---|---|
| Access | Read and write |
| Description | This is an arbitrary string that can be used to specify the location of the module. It is not used by the system. |
| Values | String (0..80, ASCII) |
| Default | "" |

## ATTRIBUTE Shelf cpEquipmentProtection

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the type of Equipment Protection support provided by a spared CP configuration. The valid values are:<br>***hot***, enables delivery of provisioning data to standby CP and on CPSO allows switching to the current view.<br>***cold***, the default value which supports switchover to the committed view.<br><br>When the attribute is set to ***hot***, applications which provide hot or warm CP based services, receive the provisioning data during *activate prov*. The cold CP based services receive the provisioning data during CP switchover, when the standby CP is taking over as active. On CPSO, hot and warm services are activated first followed by the cold services. Hence the activation time of cold services is potentially extended which will increase the service outage, compared to when this attribute is set to ***cold***. |

It is important to note that this attribute does not make any service warm or hot; instead, CP based services are provided the ability to reduce or eliminate call-setup outage due to a CPSO and to ensure stable calls are unaffected by a CPSO.

The standby CP will be reset when the value of this attribute is changed. To set this attribute to ***hot***, the *maxNumberJournalFiles* attribute under the *ProvisioningSystem* component must be set to a value other than ***none***.

Values: cold
hot

Default: cold

### GROUP Shelf Operational (Oper)

Properties: Operational

Description: This group contains the operational attributes for the *Shelf* component.

### ATTRIBUTE Shelf hardwareFailures (hwFailures)

Access: Read only

Description: This attribute indicates which type of components have failed.The hardware's fault detection system can report the following kinds of component failures: card, power converter, cooling unit, terminator card, fan, input power feed or fabric card failures.
***card*** - The passport card has failed.
***powerConverter*** - The power converter has failed.
***coolingUnit*** - The cooling unit has failed.
***terminatorCard*** - The terminator card has failed.
The following types only apply to fabric-based shelf:
***fan*** - The fan has failed.
***inputPowerFeed*** - The input power feed has failed.
***fabricCard*** - The fabric card has failed.

macAddressCard - Mac address card has failed.
alarmBitsCard - Alarm bit card has failed.

Set of
card
powerConverter
coolingUnit
terminatorCard
fan
powerSupply
fabricCard
macAddressCard
alarmBitsCard

Default No default

### ATTRIBUTE Shelf numberOfSlots (slots)

Access Read only

Description This attribute specifies the number of slots for this shelf.

Values Decimal (1..16)

Default No default

### ATTRIBUTE Shelf shelfType

Access Read only

Description This attribute displays the shelf type:
***busBasedShelf***- bus-based backplane shelf.
***fabricBasedShelf***- fabric based backplane shelf.
***fabricBasedV2Shelf***- dual-speed configurable fabric-based backplane shelf.

Values
busBasedShelf
fabricBasedShelf
fabricBasedV2Shelf

Default No default

### ATTRIBUTE Shelf backplaneOperatingMode (backplaneMode)

Access Read only

Description

This attribute indicates the current backplane operating mode. On the fabric-based shelf:
***noFabric*** - No fabric is in service now.
***singleFabricX*** - The shelf is running on fabric X only.
***singleFabricY*** - The shelf is running on fabric Y only.
***dualFabric*** - The shelf is running on fabric X and fabric Y.
***dualFabricDegraded*** - The shelf is running on fabric X and fabric Y with some fabric Ports disabled.
On the bus-based shelf:
***noBus*** - No bus is in service now.
***singleBusX*** - The shelf is running on bus X only.
***singleBusY*** - The shelf is running on bus Y only.
***dualBus*** - The shelf is running on bus X and bus Y

Values

noBus
singleBusX
singleBusY
dualBus
noFabric
singleFabricX
singleFabricY
dualFabric
dualFabricDegraded

Default

No default

### ATTRIBUTE Shelf slotConfiguration (sConf)

Access

Read only

Description

This attribute indicates the slot configuration of the shelf with its associated fabric cards. A value of ***40G*** indicates a configuration in which all slots can accommodate 2.5 Gbit/s cards. A value of ***70G*** indicates a configuration in which all slots can accommodate 2.5 Gbit/s cards, and where slots 6, 7, 14, and 15 can accommodate 10 Gbit/s cards. A value of ***mismatched*** indicates a shelf where the two fabric cards support different configurations. The mismatched configuration should only occur during in-service upgrades. This attribute is not displayed when the attribute shelfType is of type ***busBasedShelf***.

| | |
|---|---|
| Values | mismatched<br>40G<br>70G |
| Default | No default |

## COMPONENT Shelf Card

| | |
|---|---|
| Instance | Decimal (0..15) |
| Groups | "GROUP Shelf Card Provisioned (Prov)"<br>"GROUP Shelf Card OsiState (State)"<br>"GROUP Shelf Card Operational (Oper)"<br>"GROUP Shelf Card Properties (Prop)"<br>"GROUP Shelf Card Utilization (Util)"<br>"GROUP Shelf Card Capacity (Cap)" |
| Scope | Device |
| Description | *Shelf Card/n*<br>The *Card* component is a subcomponent of the *Shelf* component. There are a maximum of 16 *Card* components defined, one corresponding to each physical card slot. This is necessary in order to be able to reflect which processor card is present in each slot at any time.<br>For a Passport Shelf that does not contain 16 slots, the Card components only need to be defined for each of their physical card slots. This can be accomplished via the StartUp initial provisioning system. It is possible to add a Card component since it may be desirable to move a CP to a Passport Shelf that contains more physical card slots. This CP move would result in adding the provisioning information associated with the other processor cards instead of starting over.<br>It is not possible to delete a Card component, but its type can be changed to "None". |

| | |
|---|---|
| Subcomponents | "COMPONENT Shelf Card Diagnostics (Diag)" |
| Dyn. Subcomp. | "COMPONENT Shelf Card BusTap"<br>"COMPONENT Shelf Card Test"<br>"COMPONENT Shelf Card FabricPort"<br>"COMPONENT Shelf Card SparedServices (SpServ)"<br>"COMPONENT Shelf Card DaughterCard (Dcard)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>LOCK<br>Unlock |

## VERB RESET Shelf Card

| | |
|---|---|
| Impact | Service |
| Description | *Reset Shelf Card/n*<br>*Reset -force Shelf Card/n*<br>This command is used to reset a processor card. Resetting a processor card implies: (1) resetting the hardware (as if the card had just been powered on), (2) performing the card's self-tests, and (3) reloading the software (assuming an LP is configured to run on the card).<br><br>A *Reset* command issued against the CP causes it to reload from the committed provisioning data file.<br><br>A *Reset* command issued against an FP causes it to reload the same software it was already running. This is the software load that is derived from the provisioning data in the CP's current view |

(this may or may not be the committed view).

**Options:**
*-force*
If the card number of the active CP is specified, this option causes the reset to occur against the active cp even if the current or edit view differs from the committed view, or if the standby OAM Ethernet port is not available, or if the standby CP is currently loading the committed provisioning data file. Use of this option would cause the loss of data in any unsaved view, and any FPs running uncommitted data would restart. On any card other than the active CP, -force has no meaning.

### VERB RESTART Shelf Card

Impact: Service

Description:
*Restart Shelf Card/n*
*Restart -force Shelf Card/n*
This command is used to restart a processor card. Restarting a processor card causes the software to reinitialize itself and behave as if it had just been reloaded. A *Restart* command issued against a CP causes it to restart using the committed provisioning data.

**Options:**
*-force*
If the card number of the active CP is specified, this option causes the restart to occur against the active CP even if the current or edit view differs from the committed view, or if the standby OAM Ethernet port is not available, or if the standby CP is currently loading the committed provisioning data file. Use of this option would cause the loss of data in any unsaved view, and any FPs running uncommitted data would restart. On any card other than the active CP, -force has no meaning.

### GROUP Shelf Card Provisioned (Prov)

Properties: Provisioned

Description:
This group contains the provisionable attributes for the Card component.

## ATTRIBUTE Shelf Card cardType (card)

| | |
|---|---|
| Access | Read and write |
| Description | This is the type of card expected in this slot. Specifying a card type here has the effect of configuring a card to run in this slot. A value of ***none*** means that no card is configured to run in this slot. |
| Values | CP<br>V11<br>V35<br>DS1<br>DS1V<br>DS3<br>E1<br>E1V<br>E3<br>none<br>1pFddiMultiMode (FDDI)<br>4pTokenRing (TokenRing)<br>6pEth10BaseT (Ethernet)<br>DS1C<br>E1C<br>3pE3Atm (E3A)<br>3pDS3Atm (DS3A)<br>3pOC3MmAtm (OC3M)<br>3pOC3SmAtm (OC3S)<br>3pE1Atm<br>3pDS1Atm<br>J2MV<br>4pEthAui<br>1pFddiSingleMode<br>1pDS1V<br>1pE1V<br>2pJ6MAtm<br>HSSI<br>8pDS1<br>CFP1<br>DEV1<br>CFP2<br>DEV2<br>4pDS1Aal1 |

4pE1Aal1
1pDS3C
IlsForwarder
8pDS1Atm
8pE1Atm
1pE1Mvp
1pDS1Mvp
1pTTC2mMvp
1pDS3cAal
2pDS3cAal
12mVspAal
2pEth100BaseT (Eth100BaseT)
2pOC3MmAtm2
2pOC3SmAtm2
3pDS3Atm2
3pE3Atm2
CPeD
CPeE
4pOC3SmIrAtm
4pOC3MmAtm
12pDS3Atm
12pE3Atm
1pOC12SmLrAtm
1pE1Mvpe
1pDS1Mvpe
1pTTC2mMvpe
32pDS1Msa
32pDS1MsaMt
32pDS1MsaMtp
32pDS1MsaSt
32pDS1MsaStp
32pE1Aal
1pOC48SmSrAtm
4pDS3Ch
4pDS3ChAtm
1pSTM1ChSmIr
1pSTM1ChSmIrAtm
4pOC12SmIrAtm
4pOC12SmLrAtm
12mPcusp
32pE1Msa

32pE1MsaMt
32pE1MsaMtp
32pE1MsaSt
32pE1MsaStp
1pOC48ChSmIrAtm
16pOC3SmIrAtm
1pOC48SmIrAtm
4pDS3ChAal1
Vsp2
VpnAccelerator
24pBCNW
6mPktServSP
2pGPDsk
WPDS
11pMSW
1pOC48SmSrPos
1pOC48SmIrPos
2mPktServSP
1pOC48Pos
4pOC12Pos
16pOC3PosAtm
4pDS1Mvpe
4pE1Mvpe
4pOC3ChSmIr
1pOC12SmSrPos
1pOC12SmIrPos
4pOC3SmSrPos
4pOC3SmIrPos
2pSTM1eAtm
VpnXc
2pGeMmSrVsp3
4pGe
2pSTM1eCh
2pOC3ChSmIrVsp3
Vsp2W
34pGeLxTdmVsp
3pGeLxOC3SmIrVsp
6mAppServ
2pVS
2pOC3ChSmIrVsp4

| | |
|---|---|
| Default | none |

### ATTRIBUTE Shelf Card sparingConnection (sc)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute contains the identification of the 1 for N sparing panel group of connectors to which the card is connected. This identification should coincide with the label located on the sparing panel. |
| Values | notApplicable<br>mainA<br>mainB<br>mainC<br>mainD<br>mainE<br>mainF<br>mainG<br>mainH<br>mainI<br>mainJ<br>mainK<br>mainL<br>mainM<br>spare |
| Default | notApplicable |

### ATTRIBUTE Shelf Card commentText (text)

| | |
|---|---|
| Access | Read and write |
| Description | This is an arbitrary string that can be used to specify the location of the sparing panel. |
| Values | String (0..80, ASCII) |
| Default | "" |

### ATTRIBUTE Shelf Card configuredLPs

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This is a read-only attribute that shows which LPs are currently configured to run on this card (it is the opposite side of the LP component's *mainCard* and *spareCard* link attributes). Note that there is only one case where more than one LP can be configured to run on a card. This is when the card is configured as an N+1 spare. If this is not the case, the card is configured as a main card or as a 1for1 spare, only one LP can appear in this list. |
| List of | Link |
| List Size | 16 |
| Default | No default |

### GROUP Shelf Card OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Shelf Card adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is |

administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Shelf Card operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Shelf Card usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
idle
active (activ)
busy

Default
idle

### ATTRIBUTE Shelf Card availabilityStatus (osiAvail)

Access
Read only

Description
If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.

The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.

The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is

unavailable. The *operationalState* is ***disabled***.

The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.

The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

| | |
|---|---|
| Set of | inTest<br>failed<br>dependency (depend)<br>powerOff (pwrOff)<br>offLine<br>offDuty<br>degraded (degrad)<br>notInstalled (notIn)<br>logFull<br>migrating |
| Default | No default |

### ATTRIBUTE Shelf Card proceduralStatus (osiProc)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.<br><br>The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.<br><br>The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***. |

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

### ATTRIBUTE Shelf Card controlStatus (osiCntrl)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

| | |
|---|---|
| | The value ***suspended*** indicates that the service has been administratively suspended. |
| Set of | subjectToTest (subTst)<br>partOfServicesLocked (partLk)<br>reservedForTest (rsrvd)<br>suspended (suspnd) |
| Default | No default |

### ATTRIBUTE Shelf Card alarmStatus (osiAlarm)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.<br><br>The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.<br><br>The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.<br><br>The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***. |

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE Shelf Card standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values

hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

| | |
|---|---|
| Default | notSet |

### ATTRIBUTE Shelf Card unknownStatus (osiUnknw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Unknown status of the component.<br><br>The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.<br><br>The value ***true*** indicates that the actual state of the component is not known for sure. |
| Values | false<br>true |
| Default | false |

### GROUP Shelf Card Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes that reflect the current status of the card. |

### ATTRIBUTE Shelf Card failureCause

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates why the card has failed. This attribute is meaningful when the OSI *AvailabilityStatus* attribute is set to ***failed***.<br>***none*** - The card is operational.<br>***wrongCardType*** - The wrong card type has been inserted.<br>***notConfigured*** - The card is not configured.<br>***cannotLoadSoftware*** - The card can not load software.<br>***failedSelfTests*** - The card failed itself test.<br>***notResponding*** - The card is not responding.<br>***backplaneConnectivityProblem*** - The card is not properly connected to the backplane.<br>***unsupportedPecCode*** - The card with unsupported PEC code is inserted. |

| | |
|---|---|
| Values | none<br>wrongCardType<br>notConfigured<br>cannotLoadSoftware<br>failedSelfTests<br>notResponding<br>backplaneConnectivityProblem<br>unsupportedPecCode |
| Default | No default |

### ATTRIBUTE Shelf Card selfTestFault

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the result of the processor card's self-tests that were performed when it initially came up. |
| Values | none |
| Default | No default |

### ATTRIBUTE Shelf Card sparingConnectionStatus (scstat)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates if the control signal received from a 1forN sparing panel or a 1for1 sparing panel is properly terminated.<br>***notApplicable*** - The card is not provisioned as part of a sparing configuration, and is not connected to any sparing panel.<br>***1for1Ok*** -The card is provisioned correctly for 1for1 sparing and is connected to the active relay of a 1for1 sparing panel.<br>***1forNOk*** -The card is provisioned correctly for either 1for1 or 1forN sparing and is connected to either the standby or active relay of a 1forN sparing panel.<br>***unconfirmed*** -The card is provisioned as part of a sparing configuration, but its connection status cannot be determined. This is expected for the standby card in a 1for1 sparing configuration.<br>To determine if the card is connected to a sparing panel, perform a switchover of the LP to see if the card will grab a relay when it is active. If the card has grabbed the relay, the sparing connection status should change from, ***unconfirmed***, to ***1for1Ok*** and the LED on the sparing panel corresponding to that relay should be |

illuminated.
Please note: Performing the switchover will disrupt traffic on the other card and this test should be conducted when no traffic is running on the active card.
***notConnected*** - The card is provisioned as part of a sparing configuration, but is not connected to a sparing panel.
Remedial Action: Check the cable connectivity between the card and the sparing panel.
***incorrectlyConnected*** - The card is provisioned as part of a sparing configuration, but is connected to the wrong port on a 1forN panel, or is connected to a 1for1 sparing panel while configured for 1forN.
Remedial Action: Connect the cable to the port that was specified by the *sparingConnection* attribute.
***inconsistentlyConnected*** - The card is provisioned as part of a 1forN sparing configuration, but is connected to a sparing panel which is not the same as the other cards sharing the same spare card.
Remedial Action: Ensure all cards that share the same spare card are connected to the same sparing panel.
This value is also used to indicate that two sparing panels with the same sparing panel IDs are being used by cards on the same shelf.
Remedial Action: Replace one of the sparing panels with another panel that has a different sparing panel ID. Sparing panel IDs are assigned at the time of manufacture and cannot be changed by the user.

Values
notApplicable
1for1Ok
1forNOk
unconfirmed
notConnected
incorrectlyConnected
inconsistentlyConnected

Default
No default

### ATTRIBUTE Shelf Card hardwareAlarm (hwAlarm)

Access
Read only

| | |
|---|---|
| Description | This attribute indicates whether and why the card is generating a hardware alarm. |
| Values | none<br>batteryFeedFailure |
| Default | No default |

### ATTRIBUTE Shelf Card currentLP

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates which LPs are currently associated with this card. A card configured as a 1forN spare may be associated with more than one LP. |
| List of | The name of the component |
| List Size | 16 |
| Default | No default |

### GROUP Shelf Card Properties (Prop)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes that specify the fixed characteristics of the card. |

### ATTRIBUTE Shelf Card insertedCardType

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the type of card that is currently inserted in this slot. A value of ***none*** means that no card is configured to run in this slot. A value of ***unsupported*** means that the card type of the inserted card was not recognized and that this type of card is therefore not supported with the current release of software. |
| Values | CP<br>V11<br>V35<br>DS1<br>DS1V<br>DS3<br>E1 |

E1V
E3
none
1pFddiMultiMode (FDDI)
4pTokenRing (TokenRing)
6pEth10BaseT (Ethernet)
DS1C
E1C
3pE3Atm (E3A)
3pDS3Atm (DS3A)
3pOC3MmAtm (OC3M)
1pOC3MmAtm (OC3P)
3pOC3SmAtm (OC3S)
3pE1Atm
3pDS1Atm
J2MV
4pEthAui
1pFddiSingleMode
1pDS1V
1pE1V
2pJ6MAtm
HSSI
8pDS1
CFP1
DEV1
CFP2
DEV2
4pDS1Aal1
4pE1Aal1
1pDS3C
IlsForwarder
8pDS1Atm
8pE1Atm
1pE1Mvp
1pDS1Mvp
1pTTC2mMvp
1pDS3cAal
2pDS3cAal
12mVspAal
2pEth100BaseT (Eth100BaseT)
2pOC3MmAtm2

2pOC3SmAtm2
3pDS3Atm2
3pE3Atm2
CPeD
CPeE
4pOC3SmIrAtm
4pOC3MmAtm
12pDS3Atm
12pE3Atm
1pOC12SmLrAtm
1pE1Mvpe
1pDS1Mvpe
1pTTC2mMvpe
32pDS1Msa
32pDS1MsaMt
32pDS1MsaMtp
32pDS1MsaSt
32pDS1MsaStp
32pE1Aal
1pOC48SmSrAtm
4pDS3Ch
4pDS3ChAtm
1pSTM1ChSmIr
1pSTM1ChSmIrAtm
4pOC12SmIrAtm
4pOC12SmLrAtm
12mPcusp
32pE1Msa
32pE1MsaMt
32pE1MsaMtp
32pE1MsaSt
32pE1MsaStp
1pOC48ChSmIrAtm
16pOC3SmIrAtm
1pOC48SmIrAtm
4pDS3ChAal1
Vsp2
VpnAccelerator
24pBCNW
6mPktServSP
2pGPDsk

| | |
|---|---|
| | WPDS<br>11pMSW<br>unsupported<br>1pOC48SmSrPos<br>1pOC48SmIrPos<br>2mPktServSP<br>1pOC48Pos<br>4pOC12Pos<br>16pOC3PosAtm<br>4pDS1Mvpe<br>4pE1Mvpe<br>4pOC3ChSmIr<br>1pOC12SmSrPos<br>1pOC12SmIrPos<br>4pOC3SmSrPos<br>4pOC3SmIrPos<br>2pSTM1eAtm<br>VpnXc<br>2pGeMmSrVsp3<br>4pGe<br>2pSTM1eCh<br>2pOC3ChSmIrVsp3<br>Vsp2W<br>34pGeLxTdmVsp<br>3pGeLxOC3SmIrVsp<br>6mAppServ<br>2pVS<br>2pOC3ChSmIrVsp4 |
| Default | No default |

### ATTRIBUTE Shelf Card pmRevisionCode

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the hardware revision level of the Processor Module (PM). |
| Values | String (0..16, ASCII) |
| Default | No default |

### ATTRIBUTE Shelf Card imRevisionCode

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the hardware revision level of the Interface Module (IM). |
| Values | String (0..16, ASCII) |
| Default | No default |

### ATTRIBUTE Shelf Card serialNumber

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the processor card's serial number. |
| Values | String (0..16, ASCII) |
| Default | No default |

### ATTRIBUTE Shelf Card activeFirmwareVersion

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the firmware version of the currently active flash memory bank. |
| Values | String (0..16, ASCII) |
| Default | No default |

### ATTRIBUTE Shelf Card inactiveFirmwareVersion

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the firmware version of the currently inactive flash memory bank. |
| Values | String (0..16, ASCII) |
| Default | No default |

### ATTRIBUTE Shelf Card productCode (prc)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the product ordering code and release of the card. |
| Values | String (0..12, ASCII) |
| Default | No default |

### GROUP Shelf Card Utilization (Util)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes that specify the processor's utilization levels. When this group exists for an LP component, the attributes are representative of the active card. |

### ATTRIBUTE Shelf Card timeInterval

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the time period (in minutes) for which the average, minimum and maximum utilization values are calculated. This attribute is reset to 0 every 15 minutes. |
| Values | Decimal (0..15) |
| Units | minutes |
| Default | No default |

### ATTRIBUTE Shelf Card cpuUtil

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates an approximation of the current processor utilization level (expressed as a percentage). |
| Values | Decimal (0..100) |
| Units | % |
| Default | No default |

### ATTRIBUTE Shelf Card cpuUtilAvg

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates an average processor utilization level over the specified time period, *timeInterval*. This average is calculated based on one minute CPU utilization averages. |
| Values | Decimal (0..100) |
| Units | % |
| Default | No default |

### ATTRIBUTE Shelf Card cpuUtilAvgMin

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the minimum processor utilization level over a specified time period, *timeInterval*. This is based on one minute CPU utilization averages. |
| Values | Decimal (0..100) |
| Units | % |
| Default | No default |

### ATTRIBUTE Shelf Card cpuUtilAvgMax

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the maximum processor utilization level over a specified time period, *timeInterval*. This is based on one minute CPU utilization averages. |
| Values | Decimal (0..100) |
| Units | % |
| Default | No default |

### ATTRIBUTE Shelf Card sharedMsgBlockUsage

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the processor's current shared message block memory utilization. |
| Values | Decimal (0..2147483647) |

| | |
|---|---|
| Units | kbyte |
| Default | No default |

### ATTRIBUTE Shelf Card sharedMsgBlockUsageAvg

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the processor's average memory utilization of shared message blocks, calculated over a specified time period, *timeInterval*. This utilization value is calculated using 15 second samples. At the start of each *timeInterval*, this average memory utilization is reset to the current usage, *sharedMsgBlockUsage*. |
| Values | Decimal (0..2147483647) |
| Units | kbyte |
| Default | No default |

### ATTRIBUTE Shelf Card sharedMsgBlockUsageAvgMin

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the processor's minimum memory utilization of shared message blocks, calculated over a specified time period, *timeInterval*. This utilization value is calculated using 15 second samples. At the start of each *timeInterval*, this minimum memory utilization is reset to the current usage, *sharedMsgBlockUsage*. |
| Values | Decimal (0..2147483647) |
| Units | kbyte |
| Default | No default |

### ATTRIBUTE Shelf Card sharedMsgBlockUsageAvgMax

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the processor's maximum memory utilization of shared message blocks, calculated over a specified time period, *timeInterval*. This utilization value is calculated using 15 second samples. At the start of each *timeInterval*, this |

| | |
|---|---|
| | maximum memory utilization is reset to the current usage, *sharedMsgBlockUsage*. |
| Values | Decimal (0..2147483647) |
| Units | kbyte |
| Default | No default |

### ATTRIBUTE Shelf Card localMsgBlockUsage

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the processor's current memory utilization of message blocks which are used for local messaging on the card. |
| Values | Decimal (0..2147483647) |
| Units | kbyte |
| Default | No default |

### ATTRIBUTE Shelf Card localMsgBlockUsageAvg

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the processor's average memory utilization of message blocks used for local messaging on the card, calculated over a specified time period, *timeInterval*. This utilization value is calculated using 15 second samples. At the start of each *timeInterval*, this average memory utilization is reset to the current usage, *localMsgBlockUsage.* |
| Values | Decimal (0..2147483647) |
| Units | kbyte |
| Default | No default |

### ATTRIBUTE Shelf Card localMsgBlockUsageMin

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the processor's minimum memory utilization of message blocks used for local messaging on the card, calculated over a specified time period, *timeInterval*. This |

| | |
|---|---|
| | utilization value is updated at 15 second intervals. At the start of each *timeInterval*, this minimum memory utilization is reset to the current usage, *localMsgBlockUsage*. |
| Values | Decimal (0..2147483647) |
| Units | kbyte |
| Default | No default |

### ATTRIBUTE Shelf Card localMsgBlockUsageMax

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the processor's maximum memory utilization of message blocks used for local messaging on the card, calculated over a specified time period, *timeInterval*. This utilization value is updated at 15 second intervals. At the start of each *timeInterval*, this maximum memory utilization is reset to the current usage, *localMsgBlockUsage*. |
| Values | Decimal (0..2147483647) |
| Units | kbyte |
| Default | No default |

### ATTRIBUTE Shelf Card memoryUsage

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the processor's current memory utilization for each type of memory. |
| Vector of | Decimal (0..2147483647) |
| Units | kbyte |
| Index | fastRam<br>normalRam<br>sharedRam |
| Default | No default |

### ATTRIBUTE Shelf Card memoryUsageAvg

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the processor's average memory utilization for each type of memory in the specified time period, *timeInterval*. This value is calculated using 15 second samples. |
| Vector of | Decimal (0..2147483647) |
| Units | kbyte |
| Index | fastRam<br>normalRam<br>sharedRam |
| Default | No default |

### ATTRIBUTE Shelf Card memoryUsageAvgMin

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the processor's minimum memory utilization for each type of memory in the specified time period, *timeInterval*. This value is calculated using 15 second samples. |
| Vector of | Decimal (0..2147483647) |
| Units | kbyte |
| Index | fastRam<br>normalRam<br>sharedRam |
| Default | No default |

### ATTRIBUTE Shelf Card memoryUsageAvgMax

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the processor's maximum memory utilization for each type of memory in the specified time period, *timeInterval*. This value is calculated using 15 second samples. |
| Vector of | Decimal (0..2147483647) |

| | |
|---|---|
| Units | kbyte |
| Index | fastRam<br>normalRam<br>sharedRam |
| Default | No default |

### GROUP Shelf Card Capacity (Cap)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes that specify the processor's capacity levels. When this group exists for an *LP* component, the attributes are representative of the active *Card*. |

### ATTRIBUTE Shelf Card sharedMsgBlockCapacity

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the processor card's shared message block memory capacity. |
| Values | Decimal (0..2147483647) |
| Units | kbyte |
| Default | No default |

### ATTRIBUTE Shelf Card localMsgBlockCapacity

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the processor card's local message block memory capacity. These message blocks are used for local messaging on the card. |
| Values | Decimal (0..2147483647) |
| Units | kbyte |
| Default | No default |

### ATTRIBUTE Shelf Card memoryCapacity

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the processor card's memory capacity for each type of memory. |
| Vector of | Decimal (0..2147483647) |
| Units | kbyte |
| Index | fastRam<br>normalRam<br>sharedRam |
| Default | No default |

## COMPONENT Shelf Card BusTap

| | |
|---|---|
| Instance | x<br>y |
| Groups | "GROUP Shelf Card BusTap OsiState (State)"<br>"GROUP Shelf Card BusTap Operational (Oper)"<br>"GROUP Shelf Card BusTap Errors" |
| Scope | Device |
| Description | *Shelf Card/n BusTap/b*<br>A *BusTap* component represents a physical bus tap on a card. A bus tap is a card's interface to a bus; it provides a pathway for the card to send cells over the bus to the other cards in the module, and to receive cells sent to it over the bus by the other cards in the module.<br>A card's *BusTap* components are created automatically whenever the card begins acting as an active or standby LP, and remain in existence as long as the card remains operational; *BusTap* components cannot be added or deleted. |
| Common Verbs | Help<br>List<br>Display |

## GROUP Shelf Card BusTap OsiState (State)

| | |
|---|---|
| Properties | Operational |

Description

This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

## ATTRIBUTE Shelf Card BusTap adminState (osiAdmin)

Access

Read only

Description

This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values

locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default

unlocked

## ATTRIBUTE Shelf Card BusTap operationalState (osiOper)

Access

Read only

| | |
|---|---|
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Shelf Card BusTap usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

## ATTRIBUTE Shelf Card BusTap availabilityStatus (osiAvail)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.<br><br>The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.<br><br>The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.<br><br>The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.<br><br>The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.<br><br>The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***. |

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

## ATTRIBUTE Shelf Card BusTap proceduralStatus (osiProc)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.

The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

### ATTRIBUTE Shelf Card BusTap controlStatus (osiCntrl)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the

attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

Set of

subjectToTest (subTst)
partOfServicesLocked (partLk)
reservedForTest (rsrvd)
suspended (suspnd)

Default

No default

## ATTRIBUTE Shelf Card BusTap alarmStatus (osiAlarm)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are

outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE Shelf Card BusTap standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and

containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values
hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

Default
notSet

### ATTRIBUTE Shelf Card BusTap unknownStatus (osiUnknw)

Access
Read only

Description
This attribute indicates the OSI Unknown status of the component.

The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.

The value ***true*** indicates that the actual state of the component is not known for sure.

Values
false
true

Default
false

### GROUP Shelf Card BusTap Operational (Oper)

Properties
Operational

Description
This attribute group contains operational attributes of a bus tap. This information outlines what the bus tap is doing and why it is doing it, and is primarily intended for use in diagnosing the cause of a bus-related problem reported by the module.

### ATTRIBUTE Shelf Card BusTap failuresInEffect

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the hardware problems that prevent the bus tap from using the associated bus. It may contain any combination of the following values.<br>***selfTest***: the bus tap has failed its self-test<br>***clockSignal***: the bus tap is not receiving clock signals from the bus<br>***parityError***: the bus tap has detected too many parity errors on the bus |
| Set of | selfTest<br>clockSignal<br>parityError |
| Default | No default |

### ATTRIBUTE Shelf Card BusTap dependenciesInEffect

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the non-hardware problems that prevent the bus tap from using the associated bus. It may contain any combination of the following values.<br>***busLocked***: the bus is locked<br>***busDisabled***: the bus is disabled |
| Set of | busLocked<br>busDisabled |
| Default | No default |

### ATTRIBUTE Shelf Card BusTap cardsAvailable

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the slot numbers of the cards that the bus tap considers available on the bus—that is, the cards that have an operational bus tap connected to the bus. The value of this attribute is determined automatically by the bus tap by monitoring signals generated by each bus tap on the bus; it cannot be changed by the operator. Normally, every card in the module signals its availability on both buses; if a card does not signal its |

availability on a bus this indicates that the card is not present or that its bus tap has failed. By examining this attribute for both of a card's *BusTap* components, it is possible to determine which cards are present in the module and which buses each can use. Note: If *failuresInEffect* contains either ***selfTest*** or ***clockSignal*** the bus tap is unable to monitor the availability of the bus taps on the bus; *cardsAvailable* will indicate that no bus taps are available on the bus.

Set of: Decimal (0..15)

Default: No default

### ATTRIBUTE Shelf Card BusTap cardsTxTo

Access: Read only

Description: This attribute records the slot numbers of the cards which the bus tap is currently configured to transmit cells to. This configuration is managed automatically, and cannot be changed by the operator. By examining this attribute for both of a card's *BusTap* components, it is possible to determine which bus (if any) the card uses when it needs to transmits cells to a specific card in the module.

Set of: Decimal (0..15)

Default: No default

### GROUP Shelf Card BusTap Errors

Properties: Operational

Description: This attribute group records errors that the bus tap has detected since the card was last rebooted. This information is intended for use in detecting and diagnosing bus-related problems within a module.

### ATTRIBUTE Shelf Card BusTap selfTestErrorCode

Access: Read only

Description: This attribute records the error code generated by the most recent self-test of the bus tap. The value zero indicates that the self-test was successful. A non-zero value indicates that the self-test

failed, and is used by the service technician when a defective card is returned for repair.

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Shelf Card BusTap clockErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the number of times that the bus tap has detected a loss of the fundamental clock signal used by the bus. Each occurrence may result in the loss of one or more cells or frames. This type of event may occur during normal operation of the module, for example when switching from one of the bus's clock sources to the other; it may also be caused by a hardware fault.<br>The attribute's value wraps around to zero when it exceeds the maximum permitted value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Shelf Card BusTap endOfCellErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the number of times that the bus tap has detected a loss of the end-of-cell timing signal used by the bus. Each occurrence may result in the loss of one or more cells or frames. This type of event may occur during normal operation of the module, for example switching the bus's clock source from one card to another; it may also be caused by a hardware fault. The attribute's value wraps around to zero when it exceeds the maximum permitted value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Shelf Card BusTap parityErrors

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute records the number of times that the bus tap has detected a cell with invalid parity on the bus. Each occurrence may result in the loss of one or more cells or frames. This type of event may occur during normal operation of the module, for example when a card is inserted, removed, or reboots; it may also be caused by a hardware fault.<br>The attribute's value wraps around to zero when it exceeds the maximum permitted value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Shelf Card BusTap frmCongestionErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the number of times that the bus tap was unable to receive a frame from the bus because all of its bus receive channels were in use. Each occurrence results in the loss of the frame. This type of event may occur during normal operation of the module, for example when the module is operating in single bus mode; it may also be caused by a hardware fault.<br>The attribute's value wraps around to zero when it exceeds the maximum permitted value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Shelf Card BusTap frmCollisionErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the number of times that the bus tap was unable to receive a frame from the bus because it did not receive the last cell of the frame before the first cell of the following frame from the same source. Each occurrence results in the loss of both frames. This type of event may occur during normal operation of the module, for example when a card reboots; it may also be caused by a hardware fault.<br>The attribute's value wraps around to zero when it exceeds the maximum permitted value. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Shelf Card BusTap frmTimeoutErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the number of times that the bus tap was unable to receive a frame from the bus because the delay between two successive cells in that frame exceeded the maximum allowable duration. Each occurrence results in the loss of the frame. This type of event may occur during normal operation of the module, for example when the module changes bus mode; it may also be caused by a hardware fault.<br>The attribute's value wraps around to zero when it exceeds the maximum permitted value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Shelf Card BusTap frmDeliveryErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the number of times that the bus tap was unable to receive a frame from the bus because it was destined for a bus transmit queue; that is, the frame would have been immediately retransmitted over a bus. Each occurrence results in the loss of the frame. This type of event should never occur during normal operation of the module and indicates the occurrence of a hardware or software fault.<br>The attribute's value wraps around to zero when it exceeds the maximum permitted value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Shelf Card BusTap frmSizeErrors

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute records the number of times that the bus tap was unable to receive a frame from the bus because it required more than 255 blocks of shared memory. Each occurrence results in the loss of the frame. This type of event should never occur during normal operation of the module and indicates improper configuration of the card or the occurrence of a hardware or software fault.<br>The attribute's value wraps around to zero when it exceeds the maximum permitted value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## COMPONENT Shelf Card Test

| | |
|---|---|
| Groups | "GROUP Shelf Card Test OsiState (State)"<br>"GROUP Shelf Card Test Setup"<br>"GROUP Shelf Card Test Results" |
| Scope | Device |
| Description | *Shelf Card/n Test*<br>This component is used to verify the operation of a module's cards. A card test may be run when new hardware or services are commissioned, as part of a routine maintenance program, or to diagnose the cause of card- or bus-related problems. The *Test* component is created automatically for each card that is running as an active or standby LP; *Test* components cannot be added or deleted.<br><br>A card test allows the operator to stress test new or existing cards under controlled conditions. The test circulates frames over the Passport bus between the card under test and a distinct "target card", thereby exercising both cards and consuming bus bandwidth. The test frames follow the same route to their destination as normal frames. If the Passport node is in dual bus mode, each card test that is activated consumes bandwidth from both backplane buses in equal amounts; if the module is in single bus mode, only the bus in service is utilized.<br><br>The test frames generated by the card under test are grouped into two independent streams. |

1) The loading frame stream circulates a set of “loading frames” between the card under test and the target card as rapidly as possible. The intent of this stream is to verify the operation of the cards and the backplane buses under a controlled load.
2) The verification stream transmits a series of “verification frames” from the card under test to the target card; as each frame is returned, its contents are verified and the next verification frame in the series is transmitted. The intent of this stream is to verify that frames are not being corrupted during transfer from card to card.
The card test can be configured to send frames from either or both streams. The priority, size, and content of the test frames can also be controlled.

Each card in Passport can run the card test independently. The operator can run the card test on any subset of the cards simultaneously and can specify different test frame configurations for each test. It is also possible for a card to act as the target card for more than one card under test, and for a card to act as a target card while it is itself under test. The flexibility provided by the card test allows the operator to tailor a set of card tests according to the testing to be performed.

Common Verbs

Help
List
Display

## VERB START Shelf Card Test

Impact

Service

Description

*Start Shelf Card/n Test*
This verb initiates the card test. If the card test is already running, the command has no effect and the test continues. The *Test* component on the target card must exist before the test can be run.

### VERB STOP Shelf Card Test

| | |
|---|---|
| Impact | Service |
| Description | *STOP Shelf Card/n Test*<br>This verb terminates the card test. If the card test is not running, the command has no effect. |

### GROUP Shelf Card Test OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Shelf Card Test adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |

| | |
|---|---|
| Default | unlocked |

### ATTRIBUTE Shelf Card Test operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Shelf Card Test usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Shelf Card Test Setup

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains the attributes that govern the operation of a card test. These attributes cannot be changed while a card test is running. |

### ATTRIBUTE Shelf Card Test targetCard (card)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the slot number of the card to which frames are sent during the card test. There is no single default value for this attribute—it defaults to the slot number of the *Test* component's own card and must be changed to a different value before the test can be started. |
| Values | Decimal (0..15) |
| Default | No default |

### ATTRIBUTE Shelf Card Test frmTypes (types)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the types of frames that are sent during the card test. It must contain at least one of the following values.<br>***loading***: A set of "loading frames" is circulated between the *Test* component and the *Test* component on the target card as rapidly as possible. This frame type should be selected when the test is intended to verify the operation of the cards and the backplane buses under a specified load.<br>***verification***: A single "verification frame" is transmitted to the *Test* component on the target card; when the frame is returned, its contents are verified and the next verification frame in the series is transmitted. This frame type should be selected when the test is intended to verify that frames are not being corrupted as they pass from card to card. |
| Set of | loading<br>verification |
| Default | (loading, verification) |

### ATTRIBUTE Shelf Card Test frmPriorities (priorities)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the priorities of the frames that are sent during the card test. It must contain at least one of the following values.<br>***lowPriority***: Low priority frames are sent.<br>***highPriority***: High priority frames are sent. |
| Set of | lowPriority<br>highPriority |
| Default | (lowPriority) |

### ATTRIBUTE Shelf Card Test frmPatternType (fpt)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the bit sequence to fill the frames used in the card test. It must contain one of the following values.<br>***ccitt32kBitPattern***: a pseudo-random sequence of 32 Kbit is used<br>***ccitt8MBitPattern***: a pseudo-random sequence of 8 Mbit is used<br>***customizedPattern***: the pattern defined by the *customizedPattern* attribute is used |
| Values | ccitt32kBitPattern<br>ccitt8MBitPattern<br>customizedPattern |
| Default | ccitt32kBitPattern |

### ATTRIBUTE Shelf Card Test customizedPattern (cp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies a 32 bit sequence used to fill frames when the *framePatternType* attribute has a value of ***customizedPattern***. The default value gives a pattern of alternating 0 and 1 bits. |
| Values | Hex (H.0..H.ffffffff) |
| Units | Hex |
| Default | H.55555555 |

### ATTRIBUTE Shelf Card Test duration

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum length of time that the card test is allowed to run. The value is expressed in minutes. The maximum allowed value permits the card test to be run for up to 30 days. |
| Values | Decimal (1..43200) |
| Units | minutes |
| Default | 60 |

### ATTRIBUTE Shelf Card Test frmSize (size)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies for each priority level the number of data bytes in each frame sent during the card test. (The value specified does not include the 4-byte header that is automatically added to a frame when it is transmitted over the backplane.) |
| Vector of | Decimal (16..16000) |
| Units | bytes |
| Index | lowPriority<br>highPriority |
| Default | (lowPriority: 1024, highPriority: 56) |

### GROUP Shelf Card Test Results

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains the results of the card test that is currently running; if no test is running, the attribute group contains the results of the most recently completed card test. The attributes of the *Results* group are reset to their initial values whenever a card test is started or any attribute of the *Setup* group is set. |

### ATTRIBUTE Shelf Card Test elapsedTime

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the length of time that the card test has been running. |
| Values | Decimal (0..43200) |
| Units | minutes |
| Default | No default |

### ATTRIBUTE Shelf Card Test timeRemaining

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the maximum length of time that the card test will continue to run before stopping. |
| Values | Decimal (0..43200) |
| Units | minutes |
| Default | No default |

### ATTRIBUTE Shelf Card Test causeOfTermination

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the reason the card test ended. It contains one of the following values:<br>***neverStarted***: the card test has not been started.<br>***testRunning***: the card test is currently running.<br>***testTimeExpired***: the card test ran for the specified duration.<br>***stoppedByOperator***: a *Stop* command was issued.<br>***targetFailed***: the target card became non-operational.<br>***becameActive***: the source card became the active card for some LP. |
| Values | neverStarted<br>testRunning<br>testTimeExpired<br>stoppedByOperator<br>targetFailed<br>becameActive |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Shelf Card Test loadingFrmData

| | |
|---|---|
| Access | Read only |
| Description | This attribute records information about the loading frames that have been transmitted to the *Test* component on the target card. The following data is shown for each priority level:<br>— the number of frames that have been transmitted,<br>— the number of frames that were not returned successfully.<br>The attribute's value wraps to zero when they exceed the maximum permitted value.<br><br>Note: A loading frame is considered to have been successfully returned even if it contains bit errors. Frame error statistics are recorded in the *verificationFrmData* attribute. |
| Array of | Decimal (0..4294967295) |
| Row | results [framesSent framesLost] |
| Column | priority [low high] |
| Default | No default |

### ATTRIBUTE Shelf Card Test verificationFrmData

| | |
|---|---|
| Access | Read only |
| Description | This attribute records information about the verification frames that have been transmitted to the *Test* component on the target card. The following data is shown for each priority level:<br>— the number of frames that have been tested,<br>— the number of frames that had incorrect bits when returned.<br>The attribute's values wrap around to zero when they exceed the maximum permitted value.<br><br>Note: Verification frames that are not returned at all, or are returned too late, are considered "lost" and are not counted in either of the above values. Frame loss statistics are recorded in the *loadingFrmData* attribute. |

| | | |
|---|---|---|
| Array of | Decimal (0..4294967295) | |
| Row | results [framesTested framesBad] | |
| Column | priority [low high] | |
| Default | No default | |

## COMPONENT Shelf Card Diagnostics (Diag)

| | |
|---|---|
| Scope | Device |
| Description | Shelf Card/n Diagnostics<br>This component manages all diagnostic information for a specific Card. The diagnostic information under this component are intended to be used by Nortel technical support. |
| Subcomponents | "COMPONENT Shelf Card Diag TrapData"<br>"COMPONENT Shelf Card Diag RecoverableError (RecErr)" |
| Common Verbs | Help<br>List<br>Display |

## COMPONENT Shelf Card Diag TrapData

| | |
|---|---|
| Scope | Device |
| Description | Shelf Card/n Diag TrapData<br>On Passport control and function processors, hardware or software detected critical faults are preserved on the card until the power is lost. These critical faults lead to the reboot of the card and the captured trap data survives the rebooting of the card. This component manages trap data stored in the persistent |

memory on the card. The trap data can be retrieved from the card to determine the cause of the fault.

| | |
|---|---|
| Dyn. Subcomp. | "COMPONENT Shelf Card Diag TrapData Line" |
| Common Verbs | Help<br>List<br>Display |

### COMPONENT Shelf Card Diag TrapData Line

| | |
|---|---|
| Instance | Decimal (1..500) |
| Groups | "GROUP Shelf Card Diag TrapData Line Operational (Oper)" |
| Scope | Device |
| Description | *Shelf Card/m Diag TrapData Line/n*<br>This component represents one line of trap data report. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Shelf Card Diag TrapData Line Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains operational attributes for one line of trap data or recoverable error report. |

### ATTRIBUTE Shelf Card Diag TrapData Line data

| | |
|---|---|
| Access | Read only |
| Description | This attribute contains one line of trap data or recoverable error report. |
| Values | String (0..512, Extended ASCII) |
| Default | No default |

### COMPONENT Shelf Card Diag RecoverableError (RecErr)

| | |
|---|---|
| Scope | Device |

| | |
|---|---|
| Description | Shelf Card/n Diag RecoverableError<br>This component manages recoverable errors stored in the persistent memory which are preserved on the card until the power is lost.<br>Recoverable errors do not cause the reboot of a card. Information about the errors can be retrieved from the card to determine the cause of the fault. |
| Dyn. Subcomp. | "COMPONENT Shelf Card Diag RecErr Line" |
| Common Verbs | Help<br>List<br>Display |

## COMPONENT Shelf Card Diag RecErr Line

| | |
|---|---|
| Instance | Decimal (1..500) |
| Groups | "GROUP Shelf Card Diag RecErr Line Operational (Oper)" |
| Scope | Device |
| Description | *Shelf Card/m Diag RecErr Line/n*<br>This component represents one line of recoverable error report. |
| Common Verbs | Help<br>List<br>Display |

## GROUP Shelf Card Diag RecErr Line Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains operational attributes for one line of trap data or recoverable error report. |

## ATTRIBUTE Shelf Card Diag RecErr Line data

| | |
|---|---|
| Access | Read only |
| Description | This attribute contains one line of trap data or recoverable error report. |
| Values | String (0..512, Extended ASCII) |

| | |
|---|---|
| Default | No default |

## COMPONENT Shelf Card FabricPort

| | |
|---|---|
| Instance | x<br>y |
| Groups | "GROUP Shelf Card FabricPort OsiState (State)"<br>"GROUP Shelf Card FabricPort Operational (Oper)"<br>"GROUP Shelf Card FabricPort Errors" |
| Scope | Device |
| Description | *Shelf Card/n FabricPort/f*<br>This component represents a physical fabric port on a card. A fabric port is a card's interface to a fabric card; it provides a pathway for the card to send cells over the fabric card to the other cards in the module, and to receive cells sent to it over the fabric card by the other cards in the module.<br><br>A card's *FabricPort* components are created automatically whenever the card begins acting as an active or standby LP. They remain in existence as long as the card remains operational. *FabricPort* components cannot be added or deleted. |
| Dyn. Subcomp. | "COMPONENT Shelf Card FabricPort Test" |
| Common Verbs | Help<br>List<br>Display<br>LOCK<br>Unlock |

## GROUP Shelf Card FabricPort OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific |

information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Shelf Card FabricPort adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Shelf Card FabricPort operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service. |

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Shelf Card FabricPort usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
idle
active (activ)
busy

Default
idle

### ATTRIBUTE Shelf Card FabricPort availabilityStatus (osiAvail)

Access
Read only

Description
If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is

defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.

The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.

The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.

The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.

The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a

rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

### ATTRIBUTE Shelf Card FabricPort proceduralStatus (osiProc)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.

The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

### ATTRIBUTE Shelf Card FabricPort controlStatus (osiCntrl)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

Set of

subjectToTest (subTst)
partOfServicesLocked (partLk)
reservedForTest (rsrvd)
suspended (suspnd)

Default

No default

## ATTRIBUTE Shelf Card FabricPort alarmStatus (osiAlarm)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms

may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE Shelf Card FabricPort standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values
hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

Default
notSet

### ATTRIBUTE Shelf Card FabricPort unknownStatus (osiUnknw)

Access
Read only

Description
This attribute indicates the OSI Unknown status of the component.

The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.

The value ***true*** indicates that the actual state of the component is not known for sure.

Values
false
true

Default
false

### GROUP Shelf Card FabricPort Operational (Oper)

Properties
Operational

Description
This attribute group contains operational attributes of a fabric port. This information outlines what the fabric port is doing and why it is doing it. It is primarily intended for use in diagnosing the cause of a fabric-related problem reported by the module.

### ATTRIBUTE Shelf Card FabricPort failuresInEffect

Access
Read only

Description
This attribute indicates the failures that prevent the fabric port from using the associated fabric. It may contain any combination of the following values:

***selfTest***: The port has failed its self-test.
***hardwareError***: An unrecoverable critical error has occurred on the hardware of the processor card which exchanges cells with fabric card.
***portProtocolError:*** Errors have occurred which violate the protocol between components of the fabric port in datapath.
***switchClockError***: The fabric card clock is no longer detected by the processor card.
***livelinessError***: A non-fatal hardware error has occurred on the component which exchanges cells with the fabric card. Excessive numbers of these errors on the fabric port may be indicating a serious hardware problem.
***dataCorruptionError:*** Cell payloads or headers are detected as being corrupted at the fabric port level.
***linkLivelinessError:*** The link between the fabric port and the fabric card is not indicating liveliness.

**Operator action**: Run the fabric test to clear these errors.

Set of

selfTest
hardwareError
portProtocolError
switchClockError
livelinessError
dataCorruptionError
linkLivelinessError

Default

No default

## ATTRIBUTE Shelf Card FabricPort dependenciesInEffect

Access

Read only

Description

This attribute indicates the non-hardware problems that prevent the fabric port from using the associated fabric. It may be a combination of the following values:
***fabricLocked***: The fabric card is locked.
***fabricDisabled***: The fabric card is disabled.
***portDisabled***: The corresponding card port on the fabric is disabled.

| | |
|---|---|
| Set of | fabricLocked<br>fabricDisabled<br>portDisabled |
| Default | No default |

### ATTRIBUTE Shelf Card FabricPort cardsAvailable

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the slot numbers of the cards that the fabric port considers available through the fabric; that is, the cards that have an operational port connected to the fabric. The value of this attribute is determined automatically by the fabric port by monitoring signals generated by each fabric port connected to the fabric card. Normally, every card in the module signals its availability on both fabrics. If a card does not signal its availability on a fabric, then the card is not present or its fabric port has failed. By examining this attribute for both of a card's *FabricPort* components, it is possible to determine which cards are present in the module and which fabric each can use.<br><br>Note: If *failuresInEffect* has a value of ***selfTest***, ***signalLoss***, ***synchronizationLoss***, or ***protocolError***, the fabric port is unable to monitor the availability of the fabric ports on the fabric. In such cases, *cardsAvailable* indicates that no fabric port is available on the fabric. |
| Set of | Decimal (0..15) |
| Default | No default |

### ATTRIBUTE Shelf Card FabricPort cardsTxTo

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the slot number of the cards to which the fabric port is currently configured to transmit cells. This configuration is managed automatically, and cannot be changed by the operator. By examining this attribute for both of a card's *FabricPort* components, it is possible to determine which fabric |

(if any) the card uses when it needs to transmits cells to a specific card in the module.

Set of: Decimal (0..15)

Default: No default

### GROUP Shelf Card FabricPort Errors

Properties: Operational

Description: This attribute group indicates errors that the fabric port has detected since the card was last rebooted. This information is intended for use in detecting and diagnosing fabric-related problems within a module.

### ATTRIBUTE Shelf Card FabricPort selfTestErrorCode

Access: Read only

Description: This attribute indicates the error code generated by the most recent self-test of the port. Zero indicates that the self-test was successful. A non-zero value indicates that the self-test failed. This information is used by the service technician when a defective card is returned for repair.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Shelf Card FabricPort livelinessErrors

Access: Read only

Description: This attribute counts the liveliness errors detected on the port. Liveliness errors are failures to receive yellow cells within a certain period of time. The value wraps to zero when it exceeds the maximum value.

*Note*: **Yellow cells** are special types of packets which are generated by the fabric port and detected by the fabric card and the fabric port in order to check the link liveness with the fabric card.

Values: Decimal (0..4294967295)

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Shelf Card FabricPort switchClockErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the clock errors which have occurred on this port. The value wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Shelf Card FabricPort portHardwareErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the errors which have occurred on the hardware which exchanges cells with the fabric card. The value wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Shelf Card FabricPort portProtocolErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of errors which affect the protocol between components of the fabric port datapath. The value wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Shelf Card FabricPort dataCorruptionErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the errors which have occurred on the corrupted cell payloads or headers at fabric port level. The value wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Shelf Card FabricPort linkLivelinessErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the errors which occurred on the link between the fabric port and the fabric card. The value wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT Shelf Card FabricPort Test

| | |
|---|---|
| Groups | "GROUP Shelf Card FabricPort Test OsiState (State)"<br>"GROUP Shelf Card FabricPort Test Setup"<br>"GROUP Shelf Card FabricPort Test Results" |
| Scope | Device |
| Description | *Shelf Card/n Fabric/f Test*<br>This component is used to verify the operation of a fabric port. A fabric port test may be run as part of a regular maintenance program or to diagnose the cause of a *FabricPort*-related problem. The *Test* component is created automatically, and cannot be added or deleted.<br><br>The fabric port test ensures that the fabric port on a specific card is functioning properly at minimal utilization rates. The fabric port to be tested must be locked while testing is in progress. The test only involves the fabric port on the specified card. The results of the test can help to determine which portions of the fabric port system are faulty, if any.<br><br>A fabric port test comprises several different tests. The tests are performed in the following order:<br><br>**port test:** The fabric port selfTest<br><br>**broadcast test:** The fabric port ensures that it can receive a broadcast frame over the fabric card from every operational card (including itself). |

**ping test:** The fabric port ensures that it can receive a low priority non-broadcast frame over the backplane from every operational card (including itself).

Once all of the tests have been performed, the ping test is repeated continuously until the fabric port test is terminated; this repetition helps to detect transient fabric card and fabric port faults. The fabric port test stops automatically after a specified time interval, or if it detects a port test failure, or a broadcast test failure.

Common Verbs

Help
List
Display

### VERB START Shelf Card FabricPort Test

Impact: Service

Description: *Start Shelf Card/n Fabric/f Test*
This verb initiates the fabric port test. If the fabric port test is already running, the command has no effect and the test continues. The fabric port must be locked before the test can be run.

### VERB STOP Shelf Card FabricPort Test

Impact: Service

Description: *Stop Shelf Card/n Fabric/f Test*
This verb terminates the fabric port test. If the fabric port test is not running, the command has no effect.

### GROUP Shelf Card FabricPort Test OsiState (State)

Properties: Operational

Description: This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component

which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Shelf Card FabricPort Test adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Shelf Card FabricPort Test operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the |

component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Shelf Card FabricPort Test usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Shelf Card FabricPort Test Setup

Properties
Operational

Description
This attribute group contains the attributes that govern the operation of a fabric card or fabric port test. These attributes cannot be changed while the fabric card or fabric port test is running.

### ATTRIBUTE Shelf Card FabricPort Test duration

Access
Read and write

Description
This attribute specifies the maximum length of time that the fabric card test is allowed to run. The maximum allowed value permits the fabric card test to be run for up to 30 days.

| | |
|---|---|
| Values | Decimal (1..43200) |
| Units | minutes |
| Default | 2 |

### ATTRIBUTE Shelf Card FabricPort Test type

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the type of the test to be run.<br><br>When this attribute is set to ***main***, a subsequent fabric card test verifies that the fabric ports on this card and the corresponding cards ports are functioning properly.<br><br>When this attribute is set to ***scbPoll***, a subsequent fabric card test exercises all the secondary control bus (SCB) bus taps in the system corresponding to the fabric card under test. |
| Values | main<br>scbPoll |
| Default | main |

### GROUP Shelf Card FabricPort Test Results

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains the results of the fabric port test that is currently running; if no fabric port test is running, the attribute group contains the results of the most recently completed fabric port test. The attributes of the *Results* group are reset to their initial values, whenever a fabric card test is started or any attribute in the *Setup* group is set |

### ATTRIBUTE Shelf Card FabricPort Test elapsedTime

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the length of time that the fabric port test has been running. |
| Values | Decimal (0..43200) |
| Units | minutes |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Shelf Card FabricPort Test timeRemaining

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the maximum length of time that the fabric port test runs before stopping. |
| Values | Decimal (0..43200) |
| Units | minutes |
| Default | No default |

### ATTRIBUTE Shelf Card FabricPort Test causeOfTermination

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the reason the fabric port test ended. It contains one of the following values:<br>***neverStarted***: The fabric port test has not been started.<br>***testRunning***: The fabric port test is currently running.<br>***testTimeExpired***: The fabric port test ran for the specified duration.<br>***stoppedByOperator*:** A *Stop* command was issued.<br>***portTestFailure***: A failure was detected during the port test.<br>***fabricSelfTestFailure*:** A failure was detected during the fabric self test.<br>***broadcastFailure***: A failure was detected during the broadcast test. |
| Values | neverStarted<br>testRunning<br>testTimeExpired<br>stoppedByOperator<br>portTestFailure<br>fabricSelfTestFailure<br>broadcastFailure |
| Default | No default |

### ATTRIBUTE Shelf Card FabricPort Test testsDone

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the tests that have been performed during the fabric port test. It contains zero or more of the following values:<br>***portTest***: The port test has been performed.<br>***broadcastTest***: The broadcast test has been performed.<br>***pingTest***: At least one ping test has been performed. |
| Set of | portTest<br>broadcastTest<br>pingTest |
| Default | No default |

### ATTRIBUTE Shelf Card FabricPort Test portTestResults

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the results of the fabric port tested. The entry contains one of the following values.<br>**+**: the port passed its test<br>***X***: the port failed its test<br>**.**: the port was not tested<br>The fabric port test terminates automatically if a failure is detected. |
| Values | + (pass)<br>X (fail)<br>. (noTest) |
| Default | No default |

### ATTRIBUTE Shelf Card FabricPort Test broadcastPortTestResults

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the results of the broadcast test of this fabric port. This test verifies that the fabric port can send a broadcast message to other operational cards in the shelf. The entry contains one of the following values.<br>**+**: a broadcast message was successfully sent from the transmitting fabric port to the receiving fabric port<br>***X***: a broadcast message was not successfully sent from the transmitting fabric port to the receiving fabric port<br>**.**: the associated pair of fabric ports was not tested |

| | |
|---|---|
| | The fabric port test terminates automatically if a failure is detected. |
| Vector of | + (pass)<br>X (fail)<br>. (noTest) |
| Index | Decimal (0..15) |
| Default | No default |

### ATTRIBUTE Shelf Card FabricPort Test pingTests

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of ping tests performed. Each test attempts to transmit a single low-priority frame from this fabric port to the fabric ports of other operational cards in the shelf. |
| Vector of | Decimal (0..4294967295) |
| Index | Decimal (0..15) |
| Default | No default |

### ATTRIBUTE Shelf Card FabricPort Test pingTestFailures (pingFailures)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of ping test failures detected. Each failure represents a single low-priority frame that was not successfully transmitted from the fabric port to the fabric ports of other operational cards in the shelf. The fabric port test does *not* terminate automatically if a failure is detected. |
| Vector of | Decimal (0..4294967295) |
| Index | Decimal (0..15) |
| Default | No default |

### COMPONENT Shelf Card SparedServices (SpServ)

| | |
|---|---|
| Groups | "GROUP Shelf Card SpServ OsiState (State)" |
| Scope | Application |

Description

*Shelf Card/n SparedServices*
This component represents the rolled-up view of spared services which exist on the parent *Card*. The existence of this component is dependent on whether the parent *Card* has a mate *Card*, either in a single LP or multi-LP sparing configuration.

The spared services themselves may be providing service or they may be operating in a standby mode. For an FP, the standby mode (cold or hot) is dependent on the applications present on the *Lp* component linked to the parent *Card* component. For an CP, the standby mode (cold or hot) is dependent on the provisioning of the *cpEquipmentProtection* attribute in the *Shelf* component. If *cpEquipmentProtection* is provisioned as ***hot/cold***, then the standby mode of the spared services for the standby CP is hot/cold respectively.

The *SparedServices* component itself reflects the overall sparing status via its OSI *operationalState*, *availabilityStatus*, and *standbyStatus* attributes.

An *operationalState* of ***enabled*** on a card with active service instances, indicates that the spared services are configured and running. On a card with standby service instances, ***enabled*** indicates that they are able to take over from the active instances if the corresponding card fails.

An *operationalState* of ***disabled*** indicates that spared services are configured but are not yet running on this card. Also, on the card with standby instances of spared services, this state is entered while an activation is in progress for any components (spared service instances or any other components, for that matter) on the card. For the standby CP, this state can also be entered if the *journaling* attribute in the *ProvisioningSystem* component becomes operationally ***disabled***. If Switchover occurs in this ***disabled*** state, then the *standby card* will reset before taking over for the *active card*. If *CP Switchover* occurs in this ***disabled*** state when the *standbyStatus* is ***hotStandby***, then the whole shelf will be reset.

An empty value for the *availabilityStatus* indicates that all instances of spared services are either providing service or are

ready to take over with their normal level of switchover support, as indicated by the *standbyStatus* attribute.

An *availabilityStatus* of ***degraded*** indicates that at least one standby service instance is not ready to take over with its normal level of switchover support. This value is valid only when the *standbyStatus* attribute has a value of ***hotStandby***. Refer to alarms from the *Shelf Card SparedServices* component to determine specific applications and their problems. For the standby CP, the value of *availailityStatus* attribute can be ***degraded*** when the file systems are out of synchronization, or when the *Provisioning* system has not finished synchronizing the active CP's configuration data. Note that ***degraded*** can appear even when the value of the *operationalState* attribute is ***disabled*** due to an activation.

A *standbyStatus* of ***providingService*** indicates that all spared service instances are active.

A *standbyStatus* of ***coldStandby*** indicates that all spared service instances are standby, and the normal or expected level of switchover support for the current combination of services on this card is cold. That is, there can be extended service outage on a switchover.

A *standbyStatus* of ***hotStandby*** indicates that all spared service instances are standby, and the normal or expected level of switchover support on an FP is either warm or hot, depending on the applications involved. That is, there is no service outage on switchover for the applications that are hot, and minimal service outage for the applications which are warm. The normal or expected level of switchover support on an CP is application dependent. Some applications can have warm or hot switchover support, other applications can have cold switchover support.

Common Verbs

Help
List
Display

## GROUP Shelf Card SpServ OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

## ATTRIBUTE Shelf Card SpServ adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Shelf Card SpServ operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Shelf Card SpServ usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |

| | |
|---|---|
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### ATTRIBUTE Shelf Card SpServ availabilityStatus (osiAvail)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.<br><br>The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.<br><br>The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.<br><br>The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.<br><br>The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***. |

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

### ATTRIBUTE Shelf Card SpServ proceduralStatus (osiProc)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the

user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.

The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

### ATTRIBUTE Shelf Card SpServ controlStatus (osiCntrl)

Access

Read only

| | |
|---|---|
| Description | If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.<br><br>The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.<br><br>The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.<br><br>The value ***suspended*** indicates that the service has been administratively suspended. |
| Set of | subjectToTest (subTst)<br>partOfServicesLocked (partLk)<br>reservedForTest (rsrvd)<br>suspended (suspnd) |
| Default | No default |

### ATTRIBUTE Shelf Card SpServ alarmStatus (osiAlarm)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions |

described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE Shelf Card SpServ standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and

thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values
hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

Default
notSet

### ATTRIBUTE Shelf Card SpServ unknownStatus (osiUnknw)

Access
Read only

Description
This attribute indicates the OSI Unknown status of the component.

The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.

The value ***true*** indicates that the actual state of the component is not known for sure.

Values
false
true

Default
false

### COMPONENT Shelf Card DaughterCard (Dcard)

Instance
Decimal (1..15)

| | |
|---|---|
| Groups | "GROUP Shelf Card Dcard DcardOper" |
| Scope | Device |
| Description | *DaughterCard/n*<br>The *DaughterCard* component contains the information of a daughter card located on a card. The instance value of the *daughterCard* indicates the physical location of its socket on the card. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Shelf Card Dcard DcardOper

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes of the *DaughterCard* component. |

### ATTRIBUTE Shelf Card Dcard type

| | |
|---|---|
| Access | Read only |
| Description | This attributes indicates the type of a daughter card. |
| Values | unknown<br>ram<br>aqm<br>pqc<br>aqmpqc<br>processor |
| Default | No default |

### ATTRIBUTE Shelf Card Dcard memorySize

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the memory size in megabytes of the daughter card. |
| Values | Decimal (0..2147483647) |

| | |
|---|---|
| Units | Mbyte |
| Default | No default |

### ATTRIBUTE Shelf Card Dcard productCode

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the product equipment code of the daughter card. |
| Values | String (0..12, ASCII) |
| Default | No default |

### COMPONENT Shelf Bus

| | |
|---|---|
| Instance | x<br>y |
| Groups | "GROUP Shelf Bus OsiState (State)"<br>"GROUP Shelf Bus Operational (Oper)" |
| Scope | Device |
| Description | *Shelf Bus/b*<br>A *Bus* component represents a hardware resource within a module that card*s* can use to communicate with each other. Each frame (or other data) to be transferred between cards is broken up into one or more cells by the sending card, placed on the bus, and reassembled by the receiving card(s).<br>A module's *Bus* components are created automatically, and cannot be added or deleted. |
| Dyn. Subcomp. | "COMPONENT Shelf Bus Test" |
| Common Verbs | Help<br>List<br>Display<br>LOCK<br>Unlock |

### GROUP Shelf Bus OsiState (State)

| | |
|---|---|
| Properties | Operational |

Description

This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Shelf Bus adminState (osiAdmin)

Access

Read only

Description

This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values

locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default

unlocked

### ATTRIBUTE Shelf Bus operationalState (osiOper)

Access

Read only

| | |
|---|---|
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Shelf Bus usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

## ATTRIBUTE Shelf Bus availabilityStatus (osiAvail)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.<br><br>The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.<br><br>The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.<br><br>The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.<br><br>The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.<br><br>The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***. |

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

### ATTRIBUTE Shelf Bus proceduralStatus (osiProc)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.

The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

### ATTRIBUTE Shelf Bus controlStatus (osiCntrl)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the

attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

Set of

subjectToTest (subTst)
partOfServicesLocked (partLk)
reservedForTest (rsrvd)
suspended (suspnd)

Default

No default

### ATTRIBUTE Shelf Bus alarmStatus (osiAlarm)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are

outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE Shelf Bus standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and

containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values
hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

Default
notSet

### ATTRIBUTE Shelf Bus unknownStatus (osiUnknw)

Access
Read only

Description
This attribute indicates the OSI Unknown status of the component.

The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.

The value ***true*** indicates that the actual state of the component is not known for sure.

Values
false
true

Default
false

### GROUP Shelf Bus Operational (Oper)

Properties
Operational

Description
This attribute group contains operational attributes of a bus.

### ATTRIBUTE Shelf Bus clockSource

Access
Read only

| | |
|---|---|
| Description | This attribute records the source of the fundamental clock signal and end-of-cell synchronization signal used by the bus. It contains one of the following values.<br>***activeCP***: the card which is the active control processor (CP) is providing clock signals<br>***alternate***: the card at the opposite end of the module from the active CP is providing clock signals |
| Values | activeCP<br>alternate |
| Default | No default |

### ATTRIBUTE Shelf Bus utilization

| | |
|---|---|
| Access | Read only |
| Description | This attribute records how much of the available bus bandwidth was actually used during the most recently sampled 1 second interval. The value is expressed as a percentage. |
| Values | Decimal (0..100) |
| Units | % |
| Default | No default |

### ATTRIBUTE Shelf Bus busTapStatus

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the operability of each bus tap on the bus, as reported by the associated *BusTap* component; the entries are indexed by slot number of the card. Each entry contains one of the following values.<br>***ok***: the bus tap is operational<br>***failed***: the bus tap has failed<br>***none***: the bus tap status is not available—the associated *BusTap* component does not currently exist |
| Vector of | ok<br>failed<br>none |
| Index | Decimal (0..15) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Shelf Bus clockSourceStatus

| | |
|---|---|
| Access | Read only |
| Description | This vector attribute, indexed with ***activeCP*** or ***alternate***, represents the state of the bus clock sources. It can be set to one of the following values:<br>***ok***: all operational cards can receive signals from the clock source.<br>***failed***: at least one operational card is unable to receive signals from the clock source.<br>***unknown***: status of a clock source is unknown. To determine the status of the clock source, a test must be run.<br>***testInProgress***: the clock source is currently being tested.<br>***notApplicable***: the LP state of the clock source's card is down or not provisioned. |
| Vector of | ok<br>failed<br>unknown<br>testInProgress<br>notApplicable |
| Index | activeCP<br>alternate |
| Default | No default |

### COMPONENT Shelf Bus Test

| | |
|---|---|
| Groups | "GROUP Shelf Bus Test OsiState (State)"<br>"GROUP Shelf Bus Test Setup"<br>"GROUP Shelf Bus Test Results" |
| Scope | Device |
| Description | *Shelf Bus/b Test*<br>The *Test* component is used to verify the operation of a bus. A bus test may be run as part of a regular maintenance program, or to diagnose the cause of a bus-related problem. The *Test* component is created automatically, and cannot be added or deleted. |

The bus test ensures that the bus taps on a specific bus are functioning properly at minimal utilization rates. The bus to be tested must be locked while testing is in progress. The test only involves bus taps on operational cards (active and standby LPs). If an operational card becomes non-operational or fails to respond during the test, it is dropped from the test and is not allowed to rejoin; however, the results of any tests on its bus tap up to that point are preserved. The results of the test can help to determine which portions of the bus system are faulty, if any.

A bus test is composed of several different tests. The tests are performed in the following order.
1) Bus tap self-test: Each bus tap executes its self-test.
2) Clock source test: Each bus tap ensures that it can receive clock signals from the active control processor clock source and the alternate clock source (if present).
3) Broadcast test: Each bus tap ensures that it can receive a broadcast frame over the backplane from every operational card (including itself).
4) Ping test: Each bus tap ensures that it can receive a low priority non-broadcast frame over the backplane from every operational card (including itself).
Once all of the tests have been performed, the ping test is repeated continuously until the bus test is terminated; this repetition helps to detect transient bus faults. The bus test stops automatically after a specified time interval, or if it detects a bus tap self-test failure, an active control processor clock source test failure, or a broadcast test failure.

Common Verbs

Help
List
Display

### VERB START Shelf Bus Test

| | |
|---|---|
| Impact | Service |
| Description | *START Shelf Bus/b Test*<br>This verb initiates the bus test. If the bus test is already running, the command has no effect and the test continues. The bus must be locked before the test can be run. |

### VERB STOP Shelf Bus Test

| | |
|---|---|
| Impact | Service |
| Description | *STOP Shelf Bus/b Test*<br>This verb terminates the bus test. If the bus test is not running, the command has no effect. |

### GROUP Shelf Bus Test OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Shelf Bus Test adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down. |

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Shelf Bus Test operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Shelf Bus Test usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Shelf Bus Test Setup

Properties
Operational

Description
This attribute group contains the attributes that govern the operation of a bus test. These attributes cannot be changed while the bus test is running.

### ATTRIBUTE Shelf Bus Test duration

Access
Read and write

Description
This attribute specifies the maximum length of time that the bus test is allowed to run. The value is expressed in minutes. The maximum allowed value permits the bus test to be run for up to 30 days.

Values
Decimal (1..43200)

Units
minutes

Default
1

### GROUP Shelf Bus Test Results

Properties
Operational

Description
This attribute group contains the results of the bus test that is currently running; if no bus test is running, the attribute group contains the results of the most recently completed bus test. The attributes of the *Results* group are reset to their initial values whenever a bus test is started or any attribute in the *Setup* group is set.

### ATTRIBUTE Shelf Bus Test elapsedTime

Access
Read only

| | |
|---|---|
| Description | This attribute records the length of time (in minutes) that the bus test has been running. |
| Values | Decimal (0..43200) |
| Units | minutes |
| Default | No default |

### ATTRIBUTE Shelf Bus Test timeRemaining

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the maximum length of time (in minutes) that the bus test will continue to run before stopping. |
| Values | Decimal (0..43200) |
| Units | minutes |
| Default | No default |

### ATTRIBUTE Shelf Bus Test causeOfTermination

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the reason the bus test ended. It contains one of the following values.<br>***neverStarted***: the bus test has not been started<br>***testRunning***: the bus test is currently running<br>***testTimeExpired***: the bus test ran for the specified duration<br>***stoppedByOperator***: a *STOP* command was issued<br>***selfTestFailure***: a failure was detected during the bus tap self-test<br>***clockSourceFailure***: a failure was detected during the test of the active control processor (CP) clock source<br>***broadcastFailure***: a failure was detected during the broadcast test |
| Values | neverStarted<br>testRunning<br>testTimeExpired<br>stoppedByOperator<br>selfTestFailure<br>clockSourceFailure<br>broadcastFailure |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Shelf Bus Test testsDone

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the tests that have been performed during the bus test. It may contain zero or more of the following values.<br>***selfTest***: the bus tap self-test has been performed<br>***clockSourceTest***: the clock source test has been performed<br>***broadcastTest***: the broadcast test has been performed<br>***pingTest***: at least one ping test has been performed |
| Set of | selfTest<br>clockSourceTest<br>broadcastTest<br>pingTest |
| Default | No default |

### ATTRIBUTE Shelf Bus Test selfTestResults

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the results of the bus tap self-test, indexed by the slot number of the card containing the bus tap tested. Each entry contains one of the following values.<br>+: the bus tap passed its self-test<br>X: the bus tap failed its self-test<br>.: the bus tap was not tested<br>The bus test terminates automatically if a failure is detected. |
| Vector of | + (pass)<br>X (fail)<br>. (noTest) |
| Index | Decimal (0..15) |
| Default | No default |

### ATTRIBUTE Shelf Bus Test clockSourceTestResults

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute records the results of the clock source test, indexed by the clock source and the slot number of the card containing the bus tap tested. Each entry contains one of the following values.<br>+: the bus tap was able to receive clock signals from the clock source<br>X: the bus tap was unable to receive clock signals from the clock source<br>.: the bus tap was not tested against the clock source<br>The bus test terminates automatically if a failure is detected involving the active control processor (CP) clock source. |
| Array of | + (pass)<br>X (fail)<br>. (noTest) |
| Row | source [activeCP alternate] |
| Column | card [Decimal (0..15)] |
| Default | No default |

### ATTRIBUTE Shelf Bus Test broadcastTestResults

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the results of the broadcast test, indexed by the slot numbers of the cards containing the bus taps tested. Each entry contains one of the following values.<br>+: a broadcast message was successfully sent from the transmitting bus tap to the receiving bus tap<br>X: a broadcast message was not successfully sent from the transmitting bus tap to the receiving bus tap<br>.: the associated pair of bus taps was not tested<br>The bus test terminates automatically if a failure is detected. |
| Array of | + (pass)<br>X (fail)<br>. (noTest) |
| Row | txCard [Decimal (0..15)] |
| Column | rxCard [Decimal (0..15)] |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Shelf Bus Test pingTests

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the number of ping tests performed, indexed by the slot numbers of the cards containing the bus taps involved. Each test attempts to transmit a single low-priority frame from the transmitting bus tap to the receiving bus tap. |
| Array of | Decimal (0..4294967295) |
| Row | txCard [Decimal (0..15)] |
| Column | rxCard [Decimal (0..15)] |
| Default | No default |

### ATTRIBUTE Shelf Bus Test pingTestFailures (pingFailures)

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the number of ping test failures detected, indexed by the slot numbers of the cards containing the bus taps involved. Each failure represents a single low-priority frame that was not successfully transmitted from the transmitting bus tap to the receiving bus tap. The bus test does *not* terminate automatically if a failure is detected. |
| Array of | Decimal (0..4294967295) |
| Row | txCard [Decimal (0..15)] |
| Column | rxCard [Decimal (0..15)] |
| Default | No default |

### COMPONENT Shelf Test

| | |
|---|---|
| Groups | "GROUP Shelf Test Provisioned (Prov)"<br>"GROUP Shelf Test Setup"<br>"GROUP Shelf Test Results" |
| Scope | Device |

| | |
|---|---|
| Description | *PcsTest*<br>The *PcsTest* component allows automated tests of the *Shelf* to be controlled for regular execution. |
| Common Verbs | Help<br>List<br>Display |

### VERB RUN Shelf Test

| | |
|---|---|
| Impact | Service |
| Description | *RUN Shelf Test*<br>This verb initiates the shelf test. It executes the test specified by *type* attribute. |

### GROUP Shelf Test Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisionable attributes of the *Test* component. |

### ATTRIBUTE Shelf Test automaticBusClockTest (clockTest)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether or not a bus clock source test is automatically executed after a clock source's LP state changes, and after failure or recovery of the active CP bus clock source. Since tests of an alternate bus clock source may cause a minor loss of traffic, the attribute is set to ***disabled*** by default.<br>If set to ***enabled,*** a bus clock source test is automatically executed. If the status of the corresponding *Shelf Bus clockSourceStatus* is changed after the test, an alarm is issued if the status is one of the following: ***ok, failed***, or ***unknown***.<br>If set to ***disabled***, no bus clock source test is automatically executed. However, a test can be executed by the *RUN* command. If the status is changed after the test, an alarm is issued if the status is one of the following: ***ok***, or ***failed***. |
| Values | enabled<br>disabled |

| | |
|---|---|
| Default | disabled |

### GROUP Shelf Test Setup

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains the attributes that govern the operation of a shelf test. |

### ATTRIBUTE Shelf Test type

| | |
|---|---|
| Access | Read and write |
| Description | type<br>The attribute determines the test to be executed when the *RUN* command is applied to the component. Note that running a ***busClock*** test may cause a minor loss of traffic. |
| Values | busClock |
| Default | busClock |

### GROUP Shelf Test Results

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains the results of the *Shelf Test* that is currently running; if no test is running, the attribute group contains the results of the most recently completed *Shelf Test*. The attributes of the *Results* group are reset to their initial values whenever a corresponding *Shelf Test* is run or the corresponding attribute of the *Setup* group is set. |

### ATTRIBUTE Shelf Test busClockTestResult (busClock)

| | |
|---|---|
| Access | Read only |
| Description | busClockTestResult<br>This attribute records the result of the bus clock manual test. The result can be one of the following values.<br>***pass*** : the test passed<br>***fail*** : the test failed<br>***noTest*** : the test was not executed when *RUN* command is issued, because the shelf was in single bus mode. |

| | |
|---|---|
| Values | pass<br>fail<br>noTest |
| Default | No default |

## COMPONENT Shelf FabricCard

| | |
|---|---|
| Instance | x<br>y |
| Groups | "GROUP Shelf FabricCard OsiState (State)"<br>"GROUP Shelf FabricCard Property (Prop)"<br>"GROUP Shelf FabricCard Operational (Oper)"<br>"GROUP Shelf FabricCard Errors"<br>"GROUP Shelf FabricCard Banks" |
| Scope | Device |
| Description | *Shelf FabricCard/f*<br>This component represents a hardware resource within a module that cards can use to communicate with each other. Data to be transferred between cards is broken up into one or more cells by the sending card, and reassembled by the receiving card.<br><br>A module's *FabricCard* components are created automatically, and cannot be added or deleted. |
| Dyn. Subcomp. | "COMPONENT Shelf FabricCard Test"<br>"COMPONENT Shelf FabricCard CardPort" |
| Common Verbs | Help<br>List<br>Display<br>LOCK<br>Unlock |

## VERB INSTALL Shelf FabricCard

Impact: Service

Description: *Install* -file(***s***) *Shelf FabricCard*/***n***

This verb initiates loading new software in to the writable bank of the fabric card. If the fabric card is already loading, the command has no effect and the loading continues. The fabric card must be locked and the fixed bank must be active before the loading of the writable bank can be started. Loading should only take a few seconds.

The software to be loaded must first be downloaded from the SDS site using *Sw Dld*.

Software loading of the fabric card is rare and does not need to be done on every upgrade. All software running on Passport will be compatible with any software running in the fabric card. However later releases of the fabric card software contain enhancements, robustness features, and new functionality. An alarm is raised whenever a newer version of the fabric card software is available than that which is active in the fabric card. The alarm indicates which software should be loaded onto the fabric card. Again, it is not necessary to upgrade the software on the fabric card, but the switch will run more efficiently if it is.

Any failures in loading the software either indicates corrupt software, bad hardware on the fabric card, or a malfunctioning secondary control bus (SCB). On failure repeat the *Install* and look for errors and alarms indicating faulty hardware. As a general rule, it is best to perform fabric card software loading when the switch is most idle.

Both fabric cards should always be running the same software. If one fabric card is loaded with new software then the other fabric card should also be loaded with this new software. An alarm is raised when there is a mismatch in the software running on the two fabric cards.

## GROUP Shelf FabricCard OsiState (State)

Properties: Operational

Description

This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Shelf FabricCard adminState (osiAdmin)

Access

Read only

Description

This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values

locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default

unlocked

### ATTRIBUTE Shelf FabricCard operationalState (osiOper)

Access

Read only

| | |
|---|---|
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Shelf FabricCard usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

## ATTRIBUTE Shelf FabricCard availabilityStatus (osiAvail)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.<br><br>The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.<br><br>The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.<br><br>The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.<br><br>The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.<br><br>The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***. |

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

## ATTRIBUTE Shelf FabricCard proceduralStatus (osiProc)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.

The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

## ATTRIBUTE Shelf FabricCard controlStatus (osiCntrl)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the

attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

Set of: subjectToTest (subTst)
partOfServicesLocked (partLk)
reservedForTest (rsrvd)
suspended (suspnd)

Default: No default

### ATTRIBUTE Shelf FabricCard alarmStatus (osiAlarm)

Access: Read only

Description: If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are

outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE Shelf FabricCard standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and

containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values
hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

Default
notSet

### ATTRIBUTE Shelf FabricCard unknownStatus (osiUnknw)

Access
Read only

Description
This attribute indicates the OSI Unknown status of the component.

The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.

The value ***true*** indicates that the actual state of the component is not known for sure.

Values
false
true

Default
false

### GROUP Shelf FabricCard Property (Prop)

Properties
Operational

Description
This attribute group indicates property attributes of a fabric card.

### ATTRIBUTE Shelf FabricCard productCode

Access
Read only

| | |
|---|---|
| Description | This attribute indicates the product code (that is the PEC and revision codes) of the fabric card. |
| Values | String (0..12, ASCII) |
| Default | No default |

### ATTRIBUTE Shelf FabricCard serialNumber

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the serial number of the fabric card. |
| Values | String (0..16, ASCII) |
| Default | No default |

### GROUP Shelf FabricCard Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains operational attributes of a *FabricCard* component. |

### ATTRIBUTE Shelf FabricCard failureCause

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates why the fabric card has failed. This attribute is meaningful when the OSI *availabilityStatus* attribute is set to ***failed***. Possible values are:<br>***queueFull***: The fabric card buffers are full.<br>***notInserted***: The fabric card is not inserted.<br>***failedSelfTest***: The fabric card has failed its self test.<br>***internalFailure***: The fabric card has internal ASIC failure.<br>***notResponding***: The fabric card is not responding.<br>***highTemperature***: The fabric card is running at high temperature.<br>***powerProblem***: The fabric card has a power problem.<br>***fabricStateUnknown***: The fabric card is inserted, but it is in an unknown state. |

| | |
|---|---|
| Set of | queueFull<br>notInserted<br>failedSelfTest<br>internalFailure<br>notResponding<br>highTemperature<br>powerProblem<br>fabricStateUnknown |
| Default | No default |

### ATTRIBUTE Shelf FabricCard utilization

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates an approximation of the current fabric utilization. |
| Values | Decimal (0..100) |
| Units | % |
| Default | No default |

### ATTRIBUTE Shelf FabricCard operatingTemperature

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current fabric operating temperature. When the temperature reaches the value specified by the *temperatureThreshold* attribute, the fabric card generates an alarm. |
| Values | Decimal (0.1..64.0)<br>zeroOrLessDegreeC |
| Units | degreeC |
| Default | No default |

### ATTRIBUTE Shelf FabricCard secondaryControlBusStatus

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the state of the fabric's secondary control bus (SCB). It may contain any combination of the following values:<br>***operational*** - The SCB is operational.<br>***locked*** - The SCB is being manually prevented from operating.<br>***noBus*** - The bus is down.<br>***failed*** - The SCB is disabled due to fault.<br>***bestEffort*** - The SCB is ignoring faults to allow a single channel to be operational.<br>***hardwareFailure*** - The bus failed due to an HSCX hardware error.<br>***parityOrCrcError*** - The bus failed due to a CRC error or a parity error.<br>***timeOutError*** - The bus failed due to an SSC message time-out.<br>***txOrRxError*** - The bus failed due to Tx or Rx problems.<br>***pollError*** - The bus failed an SCB poll.<br>***testMessageError*** - The bus failed a fabric card test. |
| Set of | operational<br>locked<br>noBus<br>failed<br>bestEffort<br>hardwareFailure<br>parityOrCrcError<br>timeOutError<br>txOrRxError<br>pollError<br>testMessageError |
| Default | No default |

### ATTRIBUTE Shelf FabricCard selfTestResults

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the result of the most recent execution of the fabric card's self-tests, performed either when it initially came up, or during operation. A value of 0 indicates success, and a non-zero value indicates a failure or and absent fabric card. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Shelf FabricCard dependencyInEffect

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates why the fabric card has failed. This attribute is meaningful when the OSI *availabilityStatus* attribute is set to ***depend***. Possible values are:<br>***portDisabled***: Card port or fabric port is disabled.<br>***fabricCardLocked***: The fabric card is locked. |
| Set of | portDisabled<br>fabricCardLocked |
| Default | No default |

### ATTRIBUTE Shelf FabricCard voltageAFeedDetected

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates if the fabric card is detecting current on power feed A. If it is not, check that the breaker is not turned off. |
| Values | yes<br>no |
| Default | No default |

### ATTRIBUTE Shelf FabricCard voltageBFeedDetected

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates if the fabric card is detecting current on power feed B. If it is not, check that the breaker is not turned off. |
| Values | yes<br>no |
| Default | No default |

### ATTRIBUTE Shelf FabricCard temperatureThreshold

| | |
|---|---|
| Access | Read only |
| Description | This attributes indicates at which temperature the fabric card generates a temperature alarm. |

| | |
|---|---|
| Values | Decimal (0.1..100.0) |
| Units | degreeC |
| Default | No default |

### ATTRIBUTE Shelf FabricCard secondaryControlBusCardBustaps

| | |
|---|---|
| Access | Read only |
| Description | Each processor card has a bus tap on both of the system's secondary control buses. This indicates the state of each processor card's bus tap onto the secondary control bus for which clocking is supplied by this fabric card. Possible values are:<br>***ok*** - The SCB is operational.<br>***hardwareFailure*** - The bus failed due to an HSCX hardware error.<br>***parityOrCrcErrors*** - The bus failed due to a CRC error or a parity error.<br>***timeOutError*** - The bus failed due to an SSC message time-out.<br>***txOrRxError*** - The bus failed due to Tx or Rx problems.<br>***pollError*** - The bus failed an SCB poll.<br>***none*** - The processor card is not available. |
| Vector of | ok<br>hardwareFailure<br>parityOrCrcErrors<br>timeOutError<br>txOrRxError<br>pollError<br>none |
| Index | Decimal (0..15) |
| Default | No default |

### ATTRIBUTE Shelf FabricCard secondaryControlBusFabricBustaps

| | |
|---|---|
| Access | Read only |
| Description | Each fabric card has a bus tap on both of the system's secondary control buses. This indicates the state of each fabric card's bus tap onto the secondary control bus for which clocking is supplied by this fabric card. The enumerated values describe the state of the |

each bus tap.
Possible values are:
***ok*** - The SCB is operational.
***txOrRxError*** - The bus failed due to Tx or Rx problems.
***pollError*** - The bus failed an SCB poll.
***testMessageError*** - The bus failed a fabric card test.
***none*** - The processor card is not available.
***unknown*** - The state cannot be determined due to faulty bustap on CP.

Vector of
ok
txOrRxError
pollError
testMessageError
none
unknown

Index
x
y

Default
No default

### GROUP Shelf FabricCard Errors

Properties
Operational

Description
This attribute group indicates errors that the fabric card has detected since the card was last rebooted. This information is intended for use in detecting and diagnosing the fabric-related problems within a module.

### ATTRIBUTE Shelf FabricCard voltageErrors

Access
Read only

Description
This attribute counts the voltage errors detected on the fabric. The value wraps to zero when it exceeds the maximum value.

Values
Decimal (0..4294967295)

Default
No default

### ATTRIBUTE Shelf FabricCard temperatureErrors

Access
Read only

| | |
|---|---|
| Description | This attribute counts the temperature errors encountered on the fabric card. The value wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Shelf FabricCard fabricInternalErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the internal errors encountered on the fabric card. The value wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Shelf FabricCard fabricInterfaceCrcErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the CRC errors detected by the fabric card when receiving data from other cards. The value wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Shelf FabricCard Banks

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the attributes that govern the operation of a fabric card banks. These attributes cannot be changed while the fabric card writable bank is loading. |

### ATTRIBUTE Shelf FabricCard fixedBankVersion

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates what the fabric card software version in the fixed bank is. It is zero during start-up. After start-up it is queried from the fabric card. |

| | |
|---|---|
| Values | Decimal (0.0..99.9) |
| Default | No default |

### ATTRIBUTE Shelf FabricCard writableBankVersion

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the software version that is loaded on the writable bank. It is zero if there is no version loaded. |
| Values | Decimal (0.0..99.9) |
| Default | No default |

### ATTRIBUTE Shelf FabricCard recommendedVersionToInstall

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the recommended fabric application version to install using the *Install* command. If the current active software is up-to-date, it indicates no version is needed to install. |
| Values | String (0..49, ASCII) |
| Default | No default |

### ATTRIBUTE Shelf FabricCard activeBank

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates which bank is the currently running. The writable bank can only be made active if it has been installed using the *Install* command at least once.<br><br>***writable***: Indicates the writable bank is the active bank.<br>***fixed***: Indicates the fixed bank is the active bank.<br>***unknown***: The software has not yet determined which is the active bank. This normally takes a few seconds when the software is first activated. |
| Values | fixed<br>writable<br>unknown |
| Default | No default |

### ATTRIBUTE Shelf FabricCard bankOnShelfRestart

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates which bank will be running when the shelf is reset or powered-down and then powered-up.<br><br>***writable***: Indicates the writable bank will be the bank on the next power up or reset.<br>***fixed***: Indicates the fixed bank will be the bank on the next power up or reset.<br>***unknown***: The software has not yet determined which is the bank on shelf restart. This normally takes a few seconds when the software is first activated. |
| Values | fixed<br>writable<br>unknown |
| Default | No default |

### ATTRIBUTE Shelf FabricCard writableBankStatus

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the current status of the writable bank. It is set to ***unknown*** until the status is determined by the software. It takes a few seconds at software activation time to determine the status of the writable bank.<br><br>***unknown***: The switch has not yet determined the state of the writable bank. This happens only within the first few seconds the software is activated.<br>***empty***: No (valid) software is loaded in the writable bank.<br>***loading***: Software is currently loading into the writable bank.<br>***loaded***: The software has successfully loaded.<br><br>An example of a transition sequence for the writable bank status is:<br>***unknown*** -> ***empty***-> ***loading*** -> ***loaded***-> ***loading***.<br><br>On a failure, the status reverts to the previous status that was |

successful. For example if the ***loading*** fails, the status returns to ***empty***.

Values
unknown
empty
loading
loaded

Default
No default

### ATTRIBUTE Shelf FabricCard downloadProgressPercent

Access
Read only

Description
This attribute indicates relative progress of a fabric software download as a percentage. When ***writableBankStatus*** is loading the value is between 0 and 100 inclusive. When ***writableBankStatus*** is ***empty*** or ***unknown*** the value is 0. When ***writableBankStatus*** is loaded it is 100.

Values
Decimal (0..100)

Units
%

Default
No default

### COMPONENT Shelf FabricCard Test

Groups
"GROUP Shelf FabricCard Test OsiState (State)"
"GROUP Shelf FabricCard Test Setup"
"GROUP Shelf FabricCard Test Results"

Scope
Device

Description
*Shelf FabricCard/b Test*
This component is used to verify the operation of a fabric card. A fabric card test may be run as part of a regular maintenance program, or to diagnose the cause of a fabric-related problem. The *Test* component is created automatically, and cannot be added or deleted.

When the *type* attribute is set to ***main***, the fabric card test ensures that the fabric ports on a specific fabric card are functioning properly at minimal utilization rates. The fabric card to be tested

must be locked while testing is in progress. The test only involves fabric ports on operational cards (active and standby LPs). If an operational card becomes non-operational or fails to respond during the test, it is dropped from the test and is not allowed to rejoin; however, the results of any tests on its fabric port up to that point are preserved. The results of the test can help to determine which portions of the fabric card system are faulty, if any.

A ***main*** type of fabric card test comprises several different tests. The tests are performed in the following order:
**self test**: The fabric card performs its self-test.
**port test**: The fabric port
**broadcast test**: Each fabric port ensures that it can receive a broadcast frame over the fabric card from every operational card (including itself).
**ping test**: Each fabric port ensures that it can receive a low priority non-broadcast frame over the backplane from every operational card (including itself).

Once all of the tests have been performed, the ping test is repeated continuously until the fabric card test is terminated; this repetition helps to detect transient fabric faults.

When the *type* attribute is set to ***scbPoll,*** the fabric card test ensures that the X and Y fabric bus taps and the function processor bus taps on a corresponding secondary control bus (SCB) are functioning properly. The test can be run without locking the fabric card. This test only involves SCB bus taps on operational cards (active and standby LPs) and the SCB bus taps on the fabric cards. If an operational card becomes non-operational or fails to respond during the test, it is removed from the test. The results of the test can help to determine which portions of the SCB are faulty, if any.

A ***scbPoll*** type of fabric card test comprises several SCB poll queries which run continuously for the duration of the test. At the reception of a poll query, each SCB bus tap ensures that it can receive a frame over the SCB from every operational card, including itself and the fabrics.

The fabric test stops automatically after a specified time interval, or if it detects a self-test failure, a port test failure, or a broadcast test failure.

Common Verbs

Help
List
Display

### VERB START Shelf FabricCard Test

Impact: Service

Description: *start Shelf FabricCard/f Test*
This verb initiates the fabric card test. If the fabric card test is already running, the command has no effect and the test continues. The fabric card must be locked before the test can be run.

### VERB STOP Shelf FabricCard Test

Impact: Service

Description: *stop Shelf FabricCard/b Test*
This verb terminates the fabric card test. If the fabric card test is not running, the command has no effect.

### GROUP Shelf FabricCard Test OsiState (State)

Properties: Operational

Description: This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Shelf FabricCard Test adminState (osiAdmin)

Access: Read only

Description: This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Shelf FabricCard Test operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Shelf FabricCard Test usageState (osiUsage)

Access
Read only

| | |
|---|---|
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Shelf FabricCard Test Setup

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains the attributes that govern the operation of a fabric card or fabric port test. These attributes cannot be changed while the fabric card or fabric port test is running. |

### ATTRIBUTE Shelf FabricCard Test duration

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum length of time that the fabric card test is allowed to run. The maximum allowed value permits the fabric card test to be run for up to 30 days. |
| Values | Decimal (1..43200) |
| Units | minutes |
| Default | 2 |

### ATTRIBUTE Shelf FabricCard Test type

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute specifies the type of the test to be run.<br><br>When this attribute is set to ***main***, a subsequent fabric card test verifies that the fabric ports on this card and the corresponding cards ports are functioning properly.<br><br>When this attribute is set to ***scbPoll***, a subsequent fabric card test exercises all the secondary control bus (SCB) bus taps in the system corresponding to the fabric card under test. |
| Values | main<br>scbPoll |
| Default | main |

### GROUP Shelf FabricCard Test Results

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains the results of the fabric card test that is currently running; if no fabric card test is running, the attribute group contains the results of the most recently completed fabric card test. The attributes of the *Results* group are reset to their initial values whenever a fabric card test is started or any attribute in the *Setup* group is set. |

### ATTRIBUTE Shelf FabricCard Test elapsedTime

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the length of time that the fabric card test has been running. |
| Values | Decimal (0..43200) |
| Units | minutes |
| Default | No default |

### ATTRIBUTE Shelf FabricCard Test timeRemaining

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the maximum length of time that the fabric card test runs before stopping. |

| | |
|---|---|
| Values | Decimal (0..43200) |
| Units | minutes |
| Default | No default |

### ATTRIBUTE Shelf FabricCard Test causeOfTermination

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the reason the fabric card test ended. It contains one of the following values:<br>***neverStarted***: The fabric card test has not been started.<br>***testRunning***: The fabric card test is currently running.<br>***testTimeExpired***: The fabric card test ran for the specified duration.<br>***stoppedByOperator***: A stop command was issued.<br>***portTestFailure***: A failure was detected during the port test.<br>***fabricSelfTestFailure***: A failure was detected during the fabric card self-test.<br>***broadcastFailure***: A failure was detected during the broadcast test. |
| Values | neverStarted<br>testRunning<br>testTimeExpired<br>stoppedByOperator<br>portTestFailure<br>fabricSelfTestFailure<br>broadcastFailure |
| Default | No default |

### ATTRIBUTE Shelf FabricCard Test testsDone

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the tests that have been performed during the fabric card test. It contains zero or more of the following values:<br>***selfTest***: The fabric card self-test has been performed.<br>***portTest***: The port test has been performed.<br>***broadcastTest***: The broadcast test has been performed.<br>***pingTest***: At least one ping test has been performed. |

| | |
|---|---|
| | This attribute is displayed only when the *type* attribute is set to ***main*** |
| Set of | selfTest<br>portTest<br>broadcastTest<br>pingTest |
| Default | No default |

### ATTRIBUTE Shelf FabricCard Test fabricSelfTestResults

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the results of the fabric's self test. The fabric test terminates automatically if a failure is detected.<br>***ok***: The fabric self test is passed.<br>***failed***: The fabric self test is failed.<br>***noTest***: The default value indicates no self test is performed.<br><br>This attribute is displayed only when the *type* attribute is set to ***main*** |
| Values | ok<br>failed<br>noTest |
| Default | No default |

### ATTRIBUTE Shelf FabricCard Test numberOfScbPolls

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of times the secondary control bus bus taps are polled since the start of the fabric card test.<br><br>This attribute is displayed only when the *type* attribute is set to ***scbPoll*** |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Shelf FabricCard Test portTestResults

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the results of the fabric port, indexed by the slot number of the card containing the fabric port tested. Each entry contains one of the following values.<br>**+**: the port passed its test<br>***X***: the port failed its test<br>**.**: the port was not tested<br>The fabric card test terminates automatically if a failure is detected.<br><br>This attribute is displayed only when the *type* attribute is set to ***main*** |
| Vector of | + (pass)<br>X (fail)<br>. (noTest) |
| Index | Decimal (0..15) |
| Default | No default |

### ATTRIBUTE Shelf FabricCard Test broadcastTestResults

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the results of the broadcast test, indexed by the slot numbers of the cards containing the fabric port tested. Each entry contains one of the following values.<br>**+**: a broadcast message was successfully sent from the transmitting fabric port to the receiving fabric port<br>***X***: a broadcast message was not successfully sent from the transmitting fabric port to the receiving fabric port<br>**.**: the associated pair of fabric ports was not tested<br>The fabric card test terminates automatically if a failure is detected.<br><br>This attribute is displayed only when the *type* attribute is set to ***main*** |

| | |
|---|---|
| Array of | + (pass)<br>X (fail)<br>. (noTest) |
| Row | txCard [Decimal (0..15)] |
| Column | rxCard [Decimal (0..15)] |
| Default | No default |

### ATTRIBUTE Shelf FabricCard Test pingTests

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of ping tests performed, indexed by the slot numbers of the cards containing the fabric ports involved. Each test attempts to transmit a single low-priority frame from the transmitting fabric port to the receiving fabric port.<br><br>This attribute is displayed only when the *type* attribute is set to ***main*** |
| Array of | Decimal (0..4294967295) |
| Row | txCard [Decimal (0..15)] |
| Column | rxCard [Decimal (0..15)] |
| Default | No default |

### ATTRIBUTE Shelf FabricCard Test pingTestFailures (pingFailures)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of ping test failures detected, indexed by the slot numbers of the cards containing the fabric ports involved. Each failure represents a single low-priority frame that was not successfully transmitted from the transmitting fabric port to the receiving fabric port. The fabric card test does *not* terminate automatically if a failure is detected. |

| | |
|---|---|
| | This attribute is displayed only when the *type* attribute is set to ***main*** |
| Array of | Decimal (0..4294967295) |
| Row | txCard [Decimal (0..15)] |
| Column | rxCard [Decimal (0..15)] |
| Default | No default |

### ATTRIBUTE Shelf FabricCard Test scbCardBustapsFailures (scbFailures)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of secondary control bus (SCB) card bus tap failures, indexed by the slot numbers of the cards containing the bus tap involved. The SCB test does not terminate automatically if a failure is detected.<br><br>This attribute is displayed only when the *type* attribute is set to ***scbPoll*** |
| Vector of | Decimal (0..4294967295) |
| Index | 0<br>1<br>2<br>3<br>4<br>5<br>6<br>7<br>8<br>9<br>10<br>11<br>12<br>13<br>14<br>15 |
| Default | No default |

## ATTRIBUTE Shelf FabricCard Test scbFabricBustapsFailures

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of times the secondary control bus (SCB) fabric bus tap failures of the corresponding fabric card. The SCB test does not terminate automatically if a failure is detected<br><br>This attribute is displayed only when the *type* attribute is set to ***scbPoll*** |
| Vector of | Decimal (0..4294967295) |
| Index | x<br>y |
| Default | No default |

## COMPONENT Shelf FabricCard CardPort

| | |
|---|---|
| Instance | Decimal (0..15) |
| Groups | "GROUP Shelf FabricCard CardPort OsiState (State)"<br>"GROUP Shelf FabricCard CardPort Operational (Oper)"<br>"GROUP Shelf FabricCard CardPort CardPortErrors" |
| Scope | Device |
| Description | *Shelf FabricCard/f cardPort/n*<br>This component represents a physical port on a fabric card. A card port is the interface to the cards; it provides a pathway for the fabric card to send cells to the processor cards in the module and to receive cells sent to it from the processor cards.<br><br>A fabric card's *CardPort* components are created automatically, can not be added or deleted. |
| Common Verbs | Help<br>List<br>Display |

## GROUP Shelf FabricCard CardPort OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

## ATTRIBUTE Shelf FabricCard CardPort adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Shelf FabricCard CardPort operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Shelf FabricCard CardPort usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |

| | |
|---|---|
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### ATTRIBUTE Shelf FabricCard CardPort availabilityStatus (osiAvail)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.<br><br>The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.<br><br>The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.<br><br>The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.<br><br>The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***. |

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

### ATTRIBUTE Shelf FabricCard CardPort proceduralStatus (osiProc)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the

user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.

The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

### ATTRIBUTE Shelf FabricCard CardPort controlStatus (osiCntrl)

Access

Read only

| | |
|---|---|
| Description | If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.<br><br>The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.<br><br>The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.<br><br>The value ***suspended*** indicates that the service has been administratively suspended. |
| Set of | subjectToTest (subTst)<br>partOfServicesLocked (partLk)<br>reservedForTest (rsrvd)<br>suspended (suspnd) |
| Default | No default |

### ATTRIBUTE Shelf FabricCard CardPort alarmStatus (osiAlarm)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions |

described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE Shelf FabricCard CardPort standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and

thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values
hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

Default
notSet

### ATTRIBUTE Shelf FabricCard CardPort unknownStatus (osiUnknw)

Access
Read only

Description
This attribute indicates the OSI Unknown status of the component.

The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.

The value ***true*** indicates that the actual state of the component is not known for sure.

Values
false
true

Default
false

## GROUP Shelf FabricCard CardPort Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains operational attributes of a card port. This information outlines what the card port is doing and why it is doing it and is primarily intended for use in diagnosing the cause of a port-related problem reported by the module. |

## ATTRIBUTE Shelf FabricCard CardPort failuresInEffect

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the hardware problems that prevent the *CardPort* from using the fabric. It may contain any combination of the following values.<br>***selfTest***: The port has failed its self-test.<br>***crcError***: The port has detected too many CRC errors.<br>***signalLoss***: The serial link receiver is not receiving a signal. That is, the electrical connection to the far end transmitter is not valid.<br>***flowControlViolation***: An unacceptable number of flow control violation errors have occurred.<br>***synchronizationLoss***: The serial link's phase or alignment is lost. Therefore, the port's synchronization is lost.<br>***queueFull***: The output queue is full.<br>***syncLoss***: The card port has lost synchronization with the fabric port. |
| Set of | selfTest<br>crcError<br>signalLoss<br>flowControlViolation<br>synchronizationLoss<br>queueFull<br>syncLoss |
| Default | No default |

## ATTRIBUTE Shelf FabricCard CardPort dependenciesInEffect

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the non-hardware problems that prevent the port from using the associated fabric. It may contain the following values:<br>***fabricLocked*** - The fabric card is locked.<br>***fabricDisabled*** - The fabric card is disabled.<br>***portDisabled*** - The corresponding fabric port is disabled.<br>***cardNotInserted*** - The corresponding processor card is not inserted. |
| Set of | fabricLocked<br>fabricDisabled<br>portDisabled<br>cardNotInserted |
| Default | No default |

### GROUP Shelf FabricCard CardPort CardPortErrors

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group indicates errors that the card port has detected since the fabric card was last rebooted. This information is intended for use in detecting and diagnosing port-related problems within a module. |

### ATTRIBUTE Shelf FabricCard CardPort selfTestErrorCode

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the error code generated by the most recent self-test of the port. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Shelf FabricCard CardPort dataOrAddressCrcErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the packet data or address CRC errors encountered on the port. The value wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Shelf FabricCard CardPort flowControlViolationErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the flow control violations (that is “threshold exceeded errors”) detected on the port. The value wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Shelf FabricCard CardPort livelinessErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the liveliness errors detected on the card port. Liveliness errors are failures to receive yellow cells within a certain period of time. The value wraps to zero when it exceeds the maximum value.<br><br>*Note*: **Yellow cells** are special types of packets which are generated<br>by the fabric port and detected by the fabric card and the fabric port<br>in order to check the link liveness with the fabric card. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Shelf FabricCard CardPort lossOfSignalOrSyncErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the loss of signal or loss of synchronization errors on the port that caused the port to fail. The value wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

Passport 7400, 15000, 20000

# Component Shelf

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component SigChan

241-5701-060

Passport 7400, 15000, 20000

# Component SigChan

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT SignallingChannel (SigChan)

| | |
|---|---|
| Instance | Decimal (1..153) |
| Groups | "GROUP SigChan CustomerIdentifierData (CidData)"<br>"GROUP SigChan IfEntryProv (IfEntry)"<br>"GROUP SigChan OperationalStatus (OperStatus)"<br>"GROUP SigChan OsiState (State)"<br>"GROUP SigChan Provisioned (Prov)"<br>"GROUP SigChan Operational (Oper)" |
| Scope | Application |
| Description | *SigChan/n*<br>The *SigChan* component defines the signalling characteristics of the connection to the external equipment. |

| | |
|---|---|
| Opt. Subcomp. | "COMPONENT SigChan E1Cas"<br>"COMPONENT SigChan Ds1Cas"<br>"COMPONENT SigChan J2Cas (J2)"<br>"COMPONENT SigChan EtsiQsig (EQsig)"<br>"COMPONENT SigChan NisSig (Nis)"<br>"COMPONENT SigChan EuroIsdn (EIsdn)"<br>"COMPONENT SigChan McdnSig (Mcdn)"<br>"COMPONENT SigChan InternalCauseMap (ICmap)" |
| Dyn. Subcomp. | "COMPONENT SigChan Bchannel (Bch)"<br>"COMPONENT SigChan Gateway (Gw)"<br>"COMPONENT SigChan NcaSession (Ncas)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP SigChan CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

## ATTRIBUTE SigChan customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0. |

Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.

An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to "basic CIDs" in DPN) may be assigned to specific customers.

| | |
|---|---|
| Values | Decimal (0; 1..8191) |
| Default | 0 |

### GROUP SigChan IfEntryProv (IfEntry)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the ifEntry. |

### ATTRIBUTE SigChan ifAdminStatus (ifState)

| | |
|---|---|
| Access | Read and write |
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE SigChan ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |

| | |
|---|---|
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP SigChan OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

### ATTRIBUTE SigChan snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### GROUP SigChan OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE SigChan adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively |

prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE SigChan operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE SigChan usageState (osiUsage)

Access
Read only

| | |
|---|---|
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP SigChan Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group represents the provisionable attributes of a *SigChan*. |

### ATTRIBUTE SigChan commentText

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | Use of this attribute is at the discretion of the system administrator. Typically, this attribute specifies the name of the customer that is using this *SigChan*. |
| Values | String (0..40, ASCII) |
| Default | No default |

### ATTRIBUTE SigChan octothorpeEod (eod)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies whether the octothorpe should be used as an end of dialling indication. When this character is received, |

only the digits that have been received to that point will be used for address resolution. All subsequent digits will be forwarded to the far-end, but they will not be used.
The octothorpe will not be sent to the far-end.

Values
yes
no

Default
no

### ATTRIBUTE SigChan forceNpiTon (fnt)

Access
Read: All
Write: All

Description
This attribute, together with the *defaultNpiTon* attribute, controls Numbering Plan Identifier (NPI) and Type Of Number (TON) values to be used by the *SigChan* component for egress calls (if applicable).
If set to ***yes***, NPI and TON values defined by the *defaultNpiTon* attribute unconditionally overwrite values received in the call setup message from the subnet.

Values
yes
no

Default
no

### ATTRIBUTE SigChan defaultNpiTon (dnt)

Access
Read: All
Write: All

Description
This attribute, together with the *forceNpiTon* attribute, controls Numbering Plan Identifier (NPI) and Type Of Number (TON) values to be used by the *SigChan* component for egress calls (if applicable).
The combination of NPI and TON values defined by the *defaultNpiTon* attribute is used for an egress call whenever:
- the call setup message received from subnet indicates that NPI or TON information is not supplied or doesn't make sense, or
- attribute *forceNpiTon* is set to ***yes***
Mapping between values of the *defaultNpiTon* attribute and associated combinations of NPI and TON values follows:

***casUnknown***: NPI=unknown (0) TON=unknown (0)
***unknown***: NPI=E.164 (1) TON=unknown (0)
***international***: NPI=E.164 (1) TON=international (1)
***national***: NPI=E.164 (1) TON=national (2)
***subscriber***: NPI=E.164 (1) TON=subscriber (4)
***p0***: NPI=private(9) TON=0
***p1***: NPI=private(9) TON=1
***p2***: NPI=private(9) TON=2
***p3***: NPI=private(9) TON=3
***p4***: NPI=private(9) TON=4
***p5***: NPI=private(9) TON=5
***p6***: NPI=private(9) TON=6
***p7***: NPI=private(9) TON=7

Values
unknown
international
national
subscriber
p0
p1
p2
p3
p4
p5
p6
p7
casUnknown

Default casUnknown

## ATTRIBUTE SigChan subroutes

Access
Read: All
Write: All

Description
This attribute identifies all of the *VoiceSubroute*s which are associated with this signalling channel.

List of Link (Service, signallingChannel)

List Size 4

Default No default

## GROUP SigChan Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group provides the operational components for the *SigChan* component. |

## ATTRIBUTE SigChan degradedSubroutes

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute lists all of the *VoiceSubroute* components that do not have all of their *SwitchedVoiceService* subcomponents available for use. |
| List of | The name of the component |
| List Size | 4 |
| Default | No default |

## COMPONENT SigChan E1Cas

| | |
|---|---|
| Groups | "GROUP SigChan E1Cas Provisioned (Prov)"<br>"GROUP SigChan E1Cas AbcdProv"<br>"GROUP SigChan E1Cas TimerProv"<br>"GROUP SigChan E1Cas LinkCallStatistics" |

"COLLECTED STATS SignallingChannel E1Cas"

| | |
|---|---|
| Scope | Application |
| Description | *SigChan/n E1Cas*<br>This component defines the A,AB or ABCD bits, Digit reception and transmission and tone generation for a E1 Cas link. |

| | |
|---|---|
| Subcomponents | "COMPONENT SigChan E1Cas Framer (Framer)" |
| Opt. Subcomp. | "COMPONENT SigChan E1Cas Dtmf" |
| Dyn. Subcomp. | "COMPONENT SigChan E1Cas TimeSlotStatus (Tslot)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP SigChan E1Cas Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group conatins attirbutes that defines various settings that do not fall under any other group. |

### ATTRIBUTE SigChan E1Cas toneTableSelection

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies which tone table to select when a call is to receive a given tone.<br>0 for North America<br>1 for Japan<br>2 for United Kingdom<br>3 for Germany<br>4 for France<br>5 for Central America (Brazil, Mexico)<br>6 for Chile<br>7 for Autralia |
| Values | Decimal (0..7) |
| Default | 2 |

## GROUP SigChan E1Cas AbcdProv

| | |
|---|---|
| Properties | Provisioned |
| Description | This group specifies the attributes that define what the A,AB or ABCD pattern for a particular signal should be.The input is a 1 or 2 or 4 bit (0 or 1) format of ABCD. Depending on the framing format of the E1, some bits may be ignored. |

## ATTRIBUTE SigChan E1Cas signallingBits

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies which bits are to be used for interpretation.<br>(A,AB or ABCD). |
| Values | A<br>AB<br>ABCD |
| Default | ABCD |

## ATTRIBUTE SigChan E1Cas idleTx

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies what the value is, in ABCD terms, of the idle signal is when transmitted. This signal must be different from the *connectTx* signal. |
| Values | 0<br>1<br>00<br>01<br>10<br>11<br>0000<br>0001 |

0010
0011
0100
0101
0110
0111
1000
1001
1010
1011
1100
1101
1110
1111

Default 1001

### ATTRIBUTE SigChan E1Cas idleRx

Access
Read: All
Write: All

Criticality
Process

Description
This attribute specifies what the value is, in ABCD terms, of the idle signal when received. This signal must be different from the *connectRx* signal.

Values
0
1
00
01
10
11
0000
0001
0010
0011
0100
0101
0110
0111
1000

1001
1010
1011
1100
1101
1110
1111

Default 1001

### ATTRIBUTE SigChan E1Cas faultTx

Access
Read: All
Write: All

Criticality
Process

Description
This attribute specifies what the value is, in ABCD terms, of the fault signal when transmitted. It is transmitted when the timeslot is undefined or locked. This signal must be different from the *idleTx* signal.

Values
0
1
00
01
10
11
0000
0001
0010
0011
0100
0101
0110
0111
1000
1001
1010
1011
1100
1101

| | |
|---|---|
| | 1110<br>1111 |
| Default | 1101 |

### ATTRIBUTE SigChan E1Cas faultRx

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies what the value is, in ABCD terms, of the fault signal when received. When received, the channel status for the timeslot goes to a lockout state. This signal must be different from the *idleRx* signal. |
| Values | 0<br>1<br>00<br>01<br>10<br>11<br>0000<br>0001<br>0010<br>0011<br>0100<br>0101<br>0110<br>0111<br>1000<br>1001<br>1010<br>1011<br>1100<br>1101<br>1110<br>1111 |
| Default | 1101 |

## ATTRIBUTE SigChan E1Cas seizeTx

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies what the value is, in ABCD terms, of the seize signal when transmitted. There is no Voice or Data call distinction unless it is provided by a leading *Discrimination* digit. This signal can not be defined if the *seizeVoiceTx* or *seizeVoiceRx* or *seizeDataTx* or *seizeDataRx* signals are defined. The *seizeRx* must also be defined along with this signal. If defined, the signal must be different from the *idleTx* signal. |
| Values | 0<br>1<br>00<br>01<br>10<br>11<br>0000<br>0001<br>0010<br>0011<br>0100<br>0101<br>0110<br>0111<br>1000<br>1001<br>1010<br>1011<br>1100<br>1101<br>1110<br>1111<br>unused |
| Default | 0001 |

## ATTRIBUTE SigChan E1Cas seizeRx

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies what the value is, in ABCD terms, of the seize signal when received. There is no Voice or Data call distinction unless it is provided by a leading *Discrimination* digit. This signal can not be defined if the *seizeVoiceTx* or *seizeVoiceRx* or *seizeDataTx* or *seizeDataRx* signals are defined. The *seizeTx* must also be defined along with this signal. If defined, the signal must be different from the *idleRx* signal. |
| Values | 0<br>1<br>00<br>01<br>10<br>11<br>0000<br>0001<br>0010<br>0011<br>0100<br>0101<br>0110<br>0111<br>1000<br>1001<br>1010<br>1011<br>1100<br>1101<br>1110<br>1111<br>unused |
| Default | 0001 |

## ATTRIBUTE SigChan E1Cas seizeVoiceTx

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies what the value is, in ABCD terms, of the seize Voice signal when transmitted. This signal when transmitted identifies the call as a voice call. This signal can not be defined if the *seizeTx* or *seizeRx* are defined. The *seizeVoiceRx*, *seizeDataRx* and *seizeDataTx* must also be defined along with this signal. If defined, the value of the signal must be different from the *seizeDataTx* and *idleTx* signals. |
| Values | 0<br>1<br>00<br>01<br>10<br>11<br>0000<br>0001<br>0010<br>0011<br>0100<br>0101<br>0110<br>0111<br>1000<br>1001<br>1010<br>1011<br>1100<br>1101<br>1110<br>1111<br>unused |
| Default | unused |

## ATTRIBUTE SigChan E1Cas seizeVoiceRx

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies what the value is, in ABCD terms, of the seize Voice signal when received. This signal when received identifies the call as a voice call. This signal can not be defined if the *seizeTx* or *seizeRx* are defined. The *seizeVoiceTx*, *seizeDataRx* and *seizeDataTx* must also be defined along with this signal. If defined, the value of the signal must be different from the *seizeDataRx* and *idleRx* signals. |
| Values | 0<br>1<br>00<br>01<br>10<br>11<br>0000<br>0001<br>0010<br>0011<br>0100<br>0101<br>0110<br>0111<br>1000<br>1001<br>1010<br>1011<br>1100<br>1101<br>1110<br>1111<br>unused |
| Default | unused |

## ATTRIBUTE SigChan E1Cas seizeDataTx

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies what the value is, in ABCD terms, of the seize Data signal when transmitted. This signal when transmitted identifies the call as a data call. This signal can not be defined if the *seizeTx* or *seizeRx* are defined. The *seizeDataRx*, *seizeVoiceRx* and *seizeVoiceTx* must also be defined along with this signal. If defined, the value of the signal must be different from the *seizeVoiceTx* and *idleTx* signals. |
| Values | 0<br>1<br>00<br>01<br>10<br>11<br>0000<br>0001<br>0010<br>0011<br>0100<br>0101<br>0110<br>0111<br>1000<br>1001<br>1010<br>1011<br>1100<br>1101<br>1110<br>1111<br>unused |
| Default | unused |

## ATTRIBUTE SigChan E1Cas seizeDataRx

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies what the value is, in ABCD terms, of the seize Data signal when received. This signal when received identifies the call as a data call. This signal can not be defined if the *seizeTx* or *seizeRx* are defined. The *seizeDataTx*, *seizeVoiceRx* and *seizeVoiceTx* must also be defined along with this signal. If defined, the value of the signal must be different from the *seizeVoiceRx* and *idleRx* signals. |
| Values | 0<br>1<br>00<br>01<br>10<br>11<br>0000<br>0001<br>0010<br>0011<br>0100<br>0101<br>0110<br>0111<br>1000<br>1001<br>1010<br>1011<br>1100<br>1101<br>1110<br>1111<br>unused |
| Default | unused |

## ATTRIBUTE SigChan E1Cas seizeAckTx

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies what the value is, in ABCD terms, of the seizure acknowledgment signal when transmitted. If defined, the value of the signal must be different from the *idleTx* and the *connectTx* signals. |
| Values | 0<br>1<br>00<br>01<br>10<br>11<br>0000<br>0001<br>0010<br>0011<br>0100<br>0101<br>0110<br>0111<br>1000<br>1001<br>1010<br>1011<br>1100<br>1101<br>1110<br>1111<br>unused |
| Default | 1101 |

## ATTRIBUTE SigChan E1Cas seizeAckRx

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies what the value is, in ABCD terms, of the seizure acknowledgment when received. If defined, the value of the signal must be different from the *idleRx* and the *connectRx* signals. |
| Values | 0<br>1<br>00<br>01<br>10<br>11<br>0000<br>0001<br>0010<br>0011<br>0100<br>0101<br>0110<br>0111<br>1000<br>1001<br>1010<br>1011<br>1100<br>1101<br>1110<br>1111<br>unused |
| Default | 1101 |

### ATTRIBUTE SigChan E1Cas winkTx

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies what the value is, in ABCD terms, of the wink signal when transmitted. This is a pulsed signal of *winkTime* duration. Where ***P*** specifies which bit is toggled. A pulse signal returns to the original A, AB or ABCD pattern before the start of transmission. |
| Values | P<br>PX<br>XP<br>PXXX<br>XPXX<br>XXPX<br>XXXP<br>unused<br>PP<br>PPXX<br>PXPX<br>PXXP<br>XPPX<br>XPXP<br>XXPP<br>PPPX<br>PPXP<br>PXPP<br>XPPP<br>PPPP |
| Default | unused |

### ATTRIBUTE SigChan E1Cas winkRx

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |

| | |
|---|---|
| Description | This attribute specifies what the value is, in ABCD terms, of the wink signal when received. This pulsed signal must be within the *winkMinTime* and *winkMaxTime* before it is considered as valid. Where ***P*** specifies which bit is toggled. A pulse signal returns to the original A, AB or ABCD pattern before the start of reception. |
| Values | P<br>PX<br>XP<br>PXXX<br>XPXX<br>XXPX<br>XXXP<br>unused<br>PP<br>PPXX<br>PXPX<br>PXXP<br>XPPX<br>XPXP<br>XXPP<br>PPPX<br>PPXP<br>PXPP<br>XPPP<br>PPPP |
| Default | unused |

### ATTRIBUTE SigChan E1Cas connectTx

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies what the value is, in ABCD terms, of the connect or answer signal when transmitted. The value of the signal must be different from the *idleTx* signal. |
| Values | 0<br>1 |

00
01
10
11
0000
0001
0010
0011
0100
0101
0110
0111
1000
1001
1010
1011
1100
1101
1110
1111

Default 0101

### ATTRIBUTE SigChan E1Cas connectRx

Access
Read: All
Write: All

Criticality Process

Description This attribute specifies what the value is, in ABCD terms, of the connect or answer signal when received. The value of the signal must be different from the *idleRx* signal.

Values
0
1
00
01
10
11
0000
0001
0010

0011
0100
0101
0110
0111
1000
1001
1010
1011
1100
1101
1110
1111

Default 0101

### ATTRIBUTE SigChan E1Cas clearBackTx

Access
Read: All
Write: All

Criticality
Process

Description
This attribute specifies what the value is, in ABCD terms, of the clear back signal when transmitted. This signal is sent, if defined, on an incoming call from the link when the network side first initiates the disconnect sequence. This value, if used, must be different from the *idleTx* and *connectTx* signals.

Values
0
1
00
01
10
11
0000
0001
0010
0011
0100
0101
0110
0111

1000
1001
1010
1011
1100
1101
1110
1111
unused

Default 1101

### ATTRIBUTE SigChan E1Cas clearBackRx

Access
Read: All
Write: All

Criticality Process

Description This attribute specifies what the value is, in ABCD terms, of the clear back signal when received. This signal is received, if defined, on an outgoing call to the link when the link side first initiates the disconnect sequence. This value, if used, must be different from the *idleRx* and *connectRx* signal.

Values
0
1
00
01
10
11
0000
0001
0010
0011
0100
0101
0110
0111
1000
1001
1010
1011

1100
1101
1110
1111
unused

Default 1101

### ATTRIBUTE SigChan E1Cas clearFwdTx

Access
Read: All
Write: All

Criticality Process

Description
This attribute specifies what the value is, in ABCD terms, of the clear forward signal when transmitted. This signal is sent, if defined, on an outgoing call to the link when the network side first initiates the disconnect sequence. This value, if used, must be different from the *idleTx* signal and any transmitted seize signal defined.

Values
0
1
00
01
10
11
0000
0001
0010
0011
0100
0101
0110
0111
1000
1001
1010
1011
1100
1101
1110

| | |
|---|---|
| | 1111<br>unused |
| Default | unused |

### ATTRIBUTE SigChan E1Cas clearFwdRx

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies what the value is, in ABCD terms, of the clear forward signal when received. This signal is received, if defined, on an incoming call from the link when the network side first initiates the disconnect sequence. This value, if used, must be different from *idleRx* signal and any transmitted seize signal defined. |
| Values | 0<br>1<br>00<br>01<br>10<br>11<br>0000<br>0001<br>0010<br>0011<br>0100<br>0101<br>0110<br>0111<br>1000<br>1001<br>1010<br>1011<br>1100<br>1101<br>1110<br>1111<br>unused |

| | |
|---|---|
| Default | unused |

### GROUP SigChan E1Cas TimerProv

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the various timers used by *Ds1Cas* component to handle a particular timing events. |

### ATTRIBUTE SigChan E1Cas guardTime

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the amount of time needed after a channel is idled before it is made available for the next outgoing call to the link. |
| Values | Decimal (50..30000) |
| Units | msec |
| Default | 1000 |

### ATTRIBUTE SigChan E1Cas winkTime

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the length of time that a *winkTx* signal is transmitted. This attribute is only referenced if the *winkTx* signal is defined |
| Values | Decimal (100..1000) |
| Units | msec |
| Default | 220 |

### ATTRIBUTE SigChan E1Cas winkMinTime

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the minimum time that a *winkRx* signal, when received, must persist before being considered as a valid wink. Anything less is ignored. This value must be less than *winkMaxTime*. This attribute is only referenced if the *winkRx* Signal is defined |
| Values | Decimal (100..1000) |
| Units | msec |
| Default | 130 |

### ATTRIBUTE SigChan E1Cas winkMaxTime

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the maximum time that a *winkRx* signal, when received, may persist before it is interpreted as a GLARE condition. This value must be larger than the *winkMinTime*. This attribute is only referenced if the *winkRx* Signal is defined |
| Values | Decimal (100..1000) |
| Units | msec |
| Default | 300 |

### ATTRIBUTE SigChan E1Cas seizeAckDelayTime

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |

| | |
|---|---|
| Description | This attribute specifies the delay, after receiving any particular seize signal, before responding with a *seizeAckTx* or *winkTx* signal |
| Values | Decimal (30..3000) |
| Units | msec |
| Default | 180 |

### ATTRIBUTE SigChan E1Cas seizeAckSupvTime

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the amount of time, on an outgoing call to the link, the network will wait to receive a *seizeAckRx* or a *winkRx* signal. Should this timer time-out, the call is considered as a seize failure. This timer is not started unless either the *seizeAckRx* or a *winkRx* signals are defined. |
| Values | Decimal (1000..15000) |
| Units | msec |
| Default | 4000 |

### ATTRIBUTE SigChan E1Cas outpulseDelayTime

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the amount of delay, after transmitting any seize signal, before digit transmission begins.<br>If the *seizeAckRx* or *winkRx* signal is defined, the timer is started upon complete reception of the signal.<br>If the *seizeAckRx* or *winkRx* signal are not defined, the timer is started immediately after sending any particular seize signal. |
| Values | Decimal (100..30000) |
| Units | msec |

| | |
|---|---|
| Default | 400 |

### ATTRIBUTE SigChan E1Cas endOfDialTime

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the amount of time allowed between digits after which any more digits are to be ignored. |
| Values | Decimal (1000..30000) |
| Units | msec |
| Default | 9000 |

### ATTRIBUTE SigChan E1Cas disconnectTime

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the amount of time that a disconnect signal (*idleRx*, *clearBackRx* or *clearFwdRx*) must persist before it is interpreted as a valid disconnect signal. |
| Values | Decimal (10..30000) |
| Units | msec |
| Default | 100 |

### ATTRIBUTE SigChan E1Cas disconnectSupvTime

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the amount of time allowed for the link to respond with a disconnect signal (*idleRx*, *clearBackRx* or *clearFwdRx*) once the network has already started the disconnect sequence. |

| | |
|---|---|
| Values | Decimal (1000..60000) |
| Units | msec |
| Default | 35000 |

### GROUP SigChan E1Cas LinkCallStatistics

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational statistics on various call events on the link. |

### ATTRIBUTE SigChan E1Cas totalCallsOutgoing

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of outgoing node call attempts made to this link. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE SigChan E1Cas totalCallsIncoming

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of incoming link call attempts made to this node. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE SigChan E1Cas outgoingAnsweredCalls

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of outgoing node calls to this link that were answered by the link |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE SigChan E1Cas incomingAnsweredCalls

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of incoming link calls that were answered by this node. That is a connect signal was transmitted by this node out to the link. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE SigChan E1Cas seizeFailures

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of outgoing node call attempts to this link for which the link failed to respond correctly upon receiving a seize signal. That is, no seizure acknowledgment or wink was returned from link. This attribute does not count calls that<br>encountered glare. Glare situations are counted via the glareCalls attribute. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE SigChan E1Cas releaseFailures

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times that the link failed to respond correctly during the disconnect sequence of a call. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE SigChan E1Cas activeChannels

| | |
|---|---|
| Access | Read only |
| Description | This attribute tracks the current number of active channels. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE SigChan E1Cas peakActiveChannels

| | |
|---|---|
| Access | Read only |
| Description | This attribute tracks the peak number of active channels. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE SigChan E1Cas glareCalls

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of outgoing node call attempts to the link that encountered glare. Glare occurs when an outgoing node call attempt and an incoming link call attempt occur on the same channel simultaneously. Priority is given to the incoming call and the outgoing call is reattempted on another channel. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## COLLECTED STATS SignallingChannel E1Cas

| | |
|---|---|
| Description | The statistics record generated by the SignallingChannel E1Cas component. |

### ATTRIBUTE SigChan E1Cas totalCallsOutgoing

| | |
|---|---|
| Description | This spooled statistic counts the number of outgoing node call attempts made to this link in the last statistics collection interval. |
| Values | Decimal (0..65535) |

### ATTRIBUTE SigChan E1Cas totalCallsIncoming

| | |
|---|---|
| Description | This attribute counts the number of incoming link call attempts made to this node in the last statistics collection interval. |
| Values | Decimal (0..65535) |

### ATTRIBUTE SigChan E1Cas seizeFailures

Description This spooled statistic counts the number of outgoing node call attempts to this link for which the link failed to respond correctly upon receiving a seize signal in the last statistics collection interval. That is no seizure acknowledgment or wink was returned from link.

Values Decimal (0..65535)

### ATTRIBUTE SigChan E1Cas releaseFailures

Description This spooled statistic counts the number of times that the link failed to respond correctly during the disconnect sequence of a call in the last statistics collection interval.

Values Decimal (0..65535)

### ATTRIBUTE SigChan E1Cas outgoingAnsweredCalls

Description This spooled statistic counts the number of outgoing node calls to this link that were answered by the link in the last statistics collection interval.

Values Decimal (0..65535)

### ATTRIBUTE SigChan E1Cas incomingAnsweredCalls

Description This spooled statistic counts the number of incoming link calls that were answered by this node, connect signals transmitted by this node out to the link in the last statistics collection interval.

Values Decimal (0..65535)

### ATTRIBUTE SigChan E1Cas peakActiveChannels

Description This spooled statistic counts the maximum number of channels that have been simultaneously active on this signalling channel during the last statistics collection interval.

Values Decimal (0..30)

### COMPONENT SigChan E1Cas Framer (Framer)

Groups "GROUP SigChan E1Cas Framer Provisioned (Prov)"
"GROUP SigChan E1Cas Framer OsiState (State)"

| | |
|---|---|
| Scope | Application |
| Description | *SigChan/n Ds1Cas Framer*<br>*SigChan/n E1Cas Framer*<br>*SigChan/n J2Cas Framer*<br>The *Framer* component controls link layer framing for application components sending and receiving data on a link interface. It is also through *Framer*, that an application component is associated with a specific hardware link interface.<br><br>The *Framer* component provides provisionable attributes related to datapath aspects of the hardware interface (such as crc and frame length). The *Framer* component also provides a provisionable attribute which binds the application component to a specific hardware component.<br><br>The *Framer* component contains operational attributes for link interface datapath statistics (such as frame counts and aborts). |
| Common Verbs | Help<br>List<br>Display |

### GROUP SigChan E1Cas Framer Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the base provisioning data for the *Framer* component. Application or hardware interface specific provisioning data is contained in other provisionable *Framer* groups. |

### ATTRIBUTE SigChan E1Cas Framer interfaceName

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute contains a hardware component name.<br><br>The attribute associates the application with a specific link. This |

| | |
|---|---|
| | defines the module processor on which *Framer*'s parent component (as well as *Framer* itself) will run. |
| Values | Link (Hardware, applicationFramerName) |
| Default | No default |

### GROUP SigChan E1Cas Framer OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE SigChan E1Cas Framer adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE SigChan E1Cas Framer operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE SigChan E1Cas Framer usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

## COMPONENT SigChan E1Cas Dtmf

| | |
|---|---|
| Groups | "GROUP SigChan E1Cas Dtmf Provisioned (Prov)" |
| Scope | Application |
| Description | *SigChan/n Ds1Cas Dtmf*<br>*SigChan/n E1Cas Dtmf*<br>*SigChan/n J2Cas Dtmf*<br>This component defines attributes that defines what settings are need to recognize and transmit DTMF tones. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP SigChan E1Cas Dtmf Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains attributes that defines what settings are needed to transmit and recognize DTMF tones. |

## ATTRIBUTE SigChan E1Cas Dtmf burstTime

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the length of time a tone persists for digit transmission.<br>When a 50 msecs burst is selected, the interdigit time is 50 msecs.<br>When a 60 msecs burst is selected, the interdigit time is 90 msecs.<br>When a 70 msecs burst is selected , the interdigit time is 80 msecs.<br>When a 100 msecs burst is selected , the interdigit time is 100 msecs. |
| Values | Decimal (50; 60; 70; 100) |

| | |
|---|---|
| Units | msec |
| Default | 100 |

### COMPONENT SigChan E1Cas TimeSlotStatus (Tslot)

| | |
|---|---|
| Instance | Decimal (1..31) |
| Groups | "GROUP SigChan E1Cas Tslot Channels" |
| Scope | Application |
| Description | *SigChan/n Ds1Cas Tslot/n*<br>*SigChan/n E1Cas Tslot/n*<br>*SigChan/n J2Cas Tslot/n*<br>This component contains replicated attribute which displays operational attributes of individual timeslots. \ |
| Common Verbs | Help<br>List<br>Display |

### GROUP SigChan E1Cas Tslot Channels

| | |
|---|---|
| Properties | Operational |
| Description | This group contains various operational attributes of every channel which is serviced by a CAS Signalling Channel. |

### ATTRIBUTE SigChan E1Cas Tslot maintenanceStatus

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies what the internal current channel status is.<br>The attribute “Status” may have the following values:<br>UnDefined, timeslot has not yet been configured<br>Locked, timeslot has been locked by the operator<br>LockOut, timeslot is busied out due to some protocol failure<br>Incoming, timeslot is currently being used for a call incoming to the Passport<br>Outgoing, timeslot is currently being used for a call outgoing from the network<br>Idle, timeslot is currently available for use. |

| | |
|---|---|
| Values | IDLE<br>BUSY<br>LCKO<br>MBUSY<br>DSBL<br>UNEQ<br>UNKNOWN<br>INVALID |
| Default | No default |

### ATTRIBUTE SigChan E1Cas Tslot receivedBits

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies what are the raw A, AB or ABCD bits being received. |
| Values | 0<br>1<br>00<br>01<br>10<br>11<br>0000<br>0001<br>0010<br>0011<br>0100<br>0101<br>0110<br>0111<br>1000<br>1001<br>1010<br>1011<br>1100<br>1101<br>1110<br>1111 |
| Default | No default |

## ATTRIBUTE SigChan E1Cas Tslot receivedSignal

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies what signal the *rxBits* are being interpreted as. |
| Values | IDLE<br>FAULT<br>SEIZE<br>SEIZEV<br>SEIZED<br>SEZACK<br>WINK<br>CONN<br>CLRBCK<br>CLRFWD<br>BUSY<br>UNKNOWN<br>INVALID |
| Default | No default |

## ATTRIBUTE SigChan E1Cas Tslot transmitedBits

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies what are the raw A, AB or ABCD bits being transmitted. |
| Values | 0<br>1<br>00<br>01<br>10<br>11<br>0000<br>0001<br>0010<br>0011<br>0100<br>0101<br>0110 |

| | |
|---|---|
| | 0111<br>1000<br>1001<br>1010<br>1011<br>1100<br>1101<br>1110<br>1111 |
| Default | No default |

### ATTRIBUTE SigChan E1Cas Tslot transmitedSignal

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies what signal the *txBits* are being interpreted as. |
| Values | IDLE<br>FAULT<br>SEIZE<br>SEIZEV<br>SEIZED<br>SEZACK<br>WINK<br>CONN<br>CLRBCK<br>CLRFWD<br>BUSY<br>UNKNOWN<br>INVALID |
| Default | No default |

### COMPONENT SigChan Ds1Cas

| | |
|---|---|
| Groups | "GROUP SigChan Ds1Cas Provisioned (Prov)"<br>"GROUP SigChan Ds1Cas AbcdProv"<br>"GROUP SigChan Ds1Cas TimerProv" |

| | |
|---|---|
| | "GROUP SigChan Ds1Cas LinkCallStatistics"<br>"GROUP SigChan Ds1Cas Discrimination (Discr)" |
| | "COLLECTED STATS SignallingChannel Ds1Cas" |
| Scope | Application |
| Description | *SigChan/n Ds1Cas*<br>This component defines the A,AB or ABCD bits, Digit reception and transmission and tone generation for a Ds1 Cas link. |
| Subcomponents | "COMPONENT SigChan Ds1Cas Framer (Framer)" |
| Opt. Subcomp. | "COMPONENT SigChan Ds1Cas Dtmf" |
| Dyn. Subcomp. | "COMPONENT SigChan Ds1Cas TimeSlotStatus (Tslot)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP SigChan Ds1Cas Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group conatins attirbutes that defines various settings that do not fall under any other group. |

## ATTRIBUTE SigChan Ds1Cas toneTableSelection

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies which tone table to select when a call is to receive a given tone.<br>0 for North America<br>1 for Japan<br>2 for United Kingdom<br>3 for Germany |

| | |
|---|---|
| | 4 for France<br>5 for Central America (Brazil, Mexico)<br>6 for Chile<br>7 for Autralia |
| Values | Decimal (0..7) |
| Default | 0 |

### GROUP SigChan Ds1Cas AbcdProv

| | |
|---|---|
| Properties | Provisioned |
| Description | This group specifies the attributes that define what the A,AB or ABCD pattern for a particular signal should be.The input is a 1 or 2 or 4 bit (0 or 1) format of ABCD. Depending on the framing format of the DS1 some bits may be ignored. |

### ATTRIBUTE SigChan Ds1Cas signallingBits

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies which bits are to be used for interpretation.<br>(A,AB or ABCD). |
| Values | A<br>AB<br>ABCD |
| Default | AB |

### ATTRIBUTE SigChan Ds1Cas idleTx

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies what the value is, in ABCD terms, of the idle signal is when transmitted. This signal must be different from the *connectTx* signal. |

| | |
|---|---|
| Values | 0<br>1<br>00<br>01<br>10<br>11<br>0000<br>0001<br>0010<br>0011<br>0100<br>0101<br>0110<br>0111<br>1000<br>1001<br>1010<br>1011<br>1100<br>1101<br>1110<br>1111 |
| Default | 00 |

### ATTRIBUTE SigChan Ds1Cas idleRx

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies what the value is, in ABCD terms, of the idle signal when received. This signal must be different from the *connectRx* signal. |
| Values | 0<br>1<br>00<br>01<br>10<br>11<br>0000 |

0001
0010
0011
0100
0101
0110
0111
1000
1001
1010
1011
1100
1101
1110
1111

Default 00

### ATTRIBUTE SigChan Ds1Cas faultTx

Access Read: All
Write: All

Criticality Process

Description This attribute specifies what the value is, in ABCD terms, of the fault signal when transmitted. It is transmitted when the timeslot is undefined or locked. This signal must be different from the *idleTx* signal.

Values 0
1
00
01
10
11
0000
0001
0010
0011
0100
0101
0110

0111
1000
1001
1010
1011
1100
1101
1110
1111

Default 11

### ATTRIBUTE SigChan Ds1Cas faultRx

Access Read: All
Write: All

Criticality Process

Description This attribute specifies what the value is, in ABCD terms, of the fault signal when received. When received, the channel status for the timeslot goes to a lockout state. This signal must be different from the *idleRx* signal.

Values
0
1
00
01
10
11
0000
0001
0010
0011
0100
0101
0110
0111
1000
1001
1010
1011
1100

1101
1110
1111

Default 11

### ATTRIBUTE SigChan Ds1Cas seizeTx

Access Read: All
Write: All

Criticality Process

Description This attribute specifies what the value is, in ABCD terms, of the seize signal when transmitted. There is no Voice or Data call distinction unless it is provided by a leading *Discrimination* digit. This signal can not be defined if the *seizeVoiceTx* or *seizeVoiceRx* or *seizeDataTx* or *seizeDataRx* signals are defined. The *seizeRx* must also be defined along with this signal. If defined, the signal must be different from the *idleTx* signal.

Values
0
1
00
01
10
11
0000
0001
0010
0011
0100
0101
0110
0111
1000
1001
1010
1011
1100
1101
1110

| | |
|---|---|
| | 1111<br>unused |
| Default | 11 |

### ATTRIBUTE SigChan Ds1Cas seizeRx

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies what the value is, in ABCD terms, of the seize signal when received. There is no Voice or Data call distinction unless it is provided by a leading *Discrimination* digit. This signal can not be defined if the *seizeVoiceTx* or *seizeVoiceRx* or *seizeDataTx* or *seizeDataRx* signals are defined. The *seizeTx* must also be defined along with this signal. If defined, the signal must be different from the *idleRx* signal. |
| Values | 0<br>1<br>00<br>01<br>10<br>11<br>0000<br>0001<br>0010<br>0011<br>0100<br>0101<br>0110<br>0111<br>1000<br>1001<br>1010<br>1011<br>1100<br>1101<br>1110<br>1111<br>unused |

| | |
|---|---|
| Default | 11 |

### ATTRIBUTE SigChan Ds1Cas seizeVoiceTx

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies what the value is, in ABCD terms, of the seize Voice signal when transmitted. This signal when transmitted identifies the call as a voice call. This signal can not be defined if the *seizeTx* or *seizeRx* are defined. The *seizeVoiceRx*, *seizeDataRx* and *seizeDataTx* must also be defined along with this signal. If defined, the value of the signal must be different from the *seizeDataTx* and *idleTx* signals. |
| Values | 0<br>1<br>00<br>01<br>10<br>11<br>0000<br>0001<br>0010<br>0011<br>0100<br>0101<br>0110<br>0111<br>1000<br>1001<br>1010<br>1011<br>1100<br>1101<br>1110<br>1111<br>unused |
| Default | unused |

## ATTRIBUTE SigChan Ds1Cas seizeVoiceRx

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies what the value is, in ABCD terms, of the seize Voice signal when received. This signal when received identifies the call as a voice call. This signal can not be defined if the *seizeTx* or *seizeRx* are defined. The *seizeVoiceTx*, *seizeDataRx* and *seizeDataTx* must also be defined along with this signal. If defined, the value of the signal must be different from the *seizeDataRx* and *idleRx* signals. |
| Values | 0<br>1<br>00<br>01<br>10<br>11<br>0000<br>0001<br>0010<br>0011<br>0100<br>0101<br>0110<br>0111<br>1000<br>1001<br>1010<br>1011<br>1100<br>1101<br>1110<br>1111<br>unused |
| Default | unused |

## ATTRIBUTE SigChan Ds1Cas seizeDataTx

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies what the value is, in ABCD terms, of the seize Data signal when transmitted. This signal when transmitted identifies the call as a data call. This signal can not be defined if the *seizeTx* or *seizeRx* are defined. The *seizeDataRx*, *seizeVoiceRx* and *seizeVoiceTx* must also be defined along with this signal. If defined, the value of the signal must be different from the *seizeVoiceTx* and *idleTx* signals. |
| Values | 0<br>1<br>00<br>01<br>10<br>11<br>0000<br>0001<br>0010<br>0011<br>0100<br>0101<br>0110<br>0111<br>1000<br>1001<br>1010<br>1011<br>1100<br>1101<br>1110<br>1111<br>unused |
| Default | unused |

## ATTRIBUTE SigChan Ds1Cas seizeDataRx

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies what the value is, in ABCD terms, of the seize Data signal when received. This signal when received identifies the call as a data call. This signal can not be defined if the *seizeTx* or *seizeRx* are defined. The *seizeDataTx*, *seizeVoiceRx* and *seizeVoiceTx* must also be defined along with this signal. If defined, the value of the signal must be different from the *seizeVoiceRx* and *idleRx* signals. |
| Values | 0<br>1<br>00<br>01<br>10<br>11<br>0000<br>0001<br>0010<br>0011<br>0100<br>0101<br>0110<br>0111<br>1000<br>1001<br>1010<br>1011<br>1100<br>1101<br>1110<br>1111<br>unused |
| Default | unused |

## ATTRIBUTE SigChan Ds1Cas seizeAckTx

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies what the value is, in ABCD terms, of the seizure acknowledgment signal when transmitted. If defined, the value of the signal must be different from the *idleTx* and the *connectTx* signals. |
| Values | 0<br>1<br>00<br>01<br>10<br>11<br>0000<br>0001<br>0010<br>0011<br>0100<br>0101<br>0110<br>0111<br>1000<br>1001<br>1010<br>1011<br>1100<br>1101<br>1110<br>1111<br>unused |
| Default | unused |

## ATTRIBUTE SigChan Ds1Cas seizeAckRx

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies what the value is, in ABCD terms, of the seizure acknowledgment when received. If defined, the value of the signal must be different from the *idleRx* and the *connectRx* signals. |
| Values | 0<br>1<br>00<br>01<br>10<br>11<br>0000<br>0001<br>0010<br>0011<br>0100<br>0101<br>0110<br>0111<br>1000<br>1001<br>1010<br>1011<br>1100<br>1101<br>1110<br>1111<br>unused |
| Default | unused |

### ATTRIBUTE SigChan Ds1Cas winkTx

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies what the value is, in ABCD terms, of the wink signal when transmitted. This is a pulsed signal of *winkTime* duration. Where ***P*** specifies which bit is toggled. A pulse signal returns to the original A, AB or ABCD pattern before the start of transmission. |
| Values | P<br>PX<br>XP<br>PXXX<br>XPXX<br>XXPX<br>XXXP<br>unused<br>PP<br>PPXX<br>PXPX<br>PXXP<br>XPPX<br>XPXP<br>XXPP<br>PPPX<br>PPXP<br>PXPP<br>XPPP<br>PPPP |
| Default | unused |

### ATTRIBUTE SigChan Ds1Cas winkRx

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |

Description

This attribute specifies what the value is, in ABCD terms, of the wink signal when received. This pulsed signal must be within the *winkMinTime* and *winkMaxTime* before it is considered as valid. Where ***P*** specifies which bit is toggled. A pulse signal returns to the original A, AB or ABCD pattern before the start of reception.

Values

P
PX
XP
PXXX
XPXX
XXPX
XXXP
unused
PP
PPXX
PXPX
PXXP
XPPX
XPXP
XXPP
PPPX
PPXP
PXPP
XPPP
PPPP

Default

unused

## ATTRIBUTE SigChan Ds1Cas connectTx

Access

Read: All
Write: All

Criticality

Process

Description

This attribute specifies what the value is, in ABCD terms, of the connect or answer signal when transmitted. The value of the signal must be different from the *idleTx* signal.

Values

0
1

00
01
10
11
0000
0001
0010
0011
0100
0101
0110
0111
1000
1001
1010
1011
1100
1101
1110
1111

Default 11

### ATTRIBUTE SigChan Ds1Cas connectRx

Access
Read: All
Write: All

Criticality
Process

Description
This attribute specifies what the value is, in ABCD terms, of the connect or answer signal when received. The value of the signal must be different from the *idleRx* signal.

Values
0
1
00
01
10
11
0000
0001
0010

0011
0100
0101
0110
0111
1000
1001
1010
1011
1100
1101
1110
1111

Default 11

### ATTRIBUTE SigChan Ds1Cas clearBackTx

Access
Read: All
Write: All

Criticality
Process

Description
This attribute specifies what the value is, in ABCD terms, of the clear back signal when transmitted. This signal is sent, if defined, on an incoming call from the link when the network side first initiates the disconnect sequence. This value, if used, must be different from the *idleTx* and *connectTx* signals.

Values
0
1
00
01
10
11
0000
0001
0010
0011
0100
0101
0110
0111

1000
1001
1010
1011
1100
1101
1110
1111
unused

Default unused

### ATTRIBUTE SigChan Ds1Cas clearBackRx

Access Read: All
Write: All

Criticality Process

Description This attribute specifies what the value is, in ABCD terms, of the clear back signal when received. This signal is received, if defined, on an outgoing call to the link when the link side first initiates the disconnect sequence. This value, if used, must be different from the *idleRx* and *connectRx* signal.

Values
0
1
00
01
10
11
0000
0001
0010
0011
0100
0101
0110
0111
1000
1001
1010
1011

1100
1101
1110
1111
unused

Default unused

### ATTRIBUTE SigChan Ds1Cas clearFwdTx

Access
Read: All
Write: All

Criticality Process

Description This attribute specifies what the value is, in ABCD terms, of the clear forward signal when transmitted. This signal is sent, if defined, on an outgoing call to the link when the network side first initiates the disconnect sequence. This value, if used, must be different from the *idleTx* signal and any transmitted seize signal defined.

Values
0
1
00
01
10
11
0000
0001
0010
0011
0100
0101
0110
0111
1000
1001
1010
1011
1100
1101
1110

1111
unused

Default unused

### ATTRIBUTE SigChan Ds1Cas clearFwdRx

Access Read: All
Write: All

Criticality Process

Description This attribute specifies what the value is, in ABCD terms, of the clear forward signal when received. This signal is received, if defined, on an incoming call from the link when the network side first initiates the disconnect sequence. This value, if used, must be different from *idleRx* signal and any transmitted seize signal defined.

Values
0
1
00
01
10
11
0000
0001
0010
0011
0100
0101
0110
0111
1000
1001
1010
1011
1100
1101
1110
1111
unused

| | |
|---|---|
| Default | unused |

### GROUP SigChan Ds1Cas TimerProv

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the various timers used by *Ds1Cas* component to handle a particular timing events. |

### ATTRIBUTE SigChan Ds1Cas guardTime

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the amount of time needed after a channel is idled before it is made available for the next outgoing call to the link. |
| Values | Decimal (50..30000) |
| Units | msec |
| Default | 1000 |

### ATTRIBUTE SigChan Ds1Cas winkTime

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the length of time that a *winkTx* signal is transmitted. This attribute is only referenced if the *winkTx* signal is defined |
| Values | Decimal (100..1000) |
| Units | msec |
| Default | 220 |

### ATTRIBUTE SigChan Ds1Cas winkMinTime

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the minimum time that a *winkRx* signal, when received, must persist before being considered as a valid wink. Anything less is ignored. This value must be less than *winkMaxTime*. This attribute is only referenced if the *winkRx* Signal is defined |
| Values | Decimal (100..1000) |
| Units | msec |
| Default | 130 |

### ATTRIBUTE SigChan Ds1Cas winkMaxTime

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the maximum time that a *winkRx* signal, when received, may persist before it is interpreted as a GLARE condition. This value must be larger than the *winkMinTime*. This attribute is only referenced if the *winkRx* Signal is defined |
| Values | Decimal (100..1000) |
| Units | msec |
| Default | 300 |

### ATTRIBUTE SigChan Ds1Cas seizeAckDelayTime

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |

| | |
|---|---|
| Description | This attribute specifies the delay, after receiving any particular seize signal, before responding with a *seizeAckTx* or *winkTx* signal |
| Values | Decimal (30..3000) |
| Units | msec |
| Default | 1000 |

### ATTRIBUTE SigChan Ds1Cas seizeAckSupvTime

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the amount of time, on an outgoing call to the link, the network will wait to receive a *seizeAckRx* or a *winkRx* signal. Should this timer time-out, the call is considered as a seize failure. This timer is not started unless either the *seizeAckRx* or a *winkRx* signals are defined. |
| Values | Decimal (1000..15000) |
| Units | msec |
| Default | 4000 |

### ATTRIBUTE SigChan Ds1Cas outpulseDelayTime

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the amount of delay, after transmitting any seize signal, before digit transmission begins.<br>If the *seizeAckRx* or *winkRx* signal is defined, the timer is started upon complete reception of the signal.<br>If the *seizeAckRx* or *winkRx* signal are not defined, the timer is started immediately after sending any particular seize signal. |
| Values | Decimal (100..30000) |
| Units | msec |

| | |
|---|---|
| Default | 400 |

### ATTRIBUTE SigChan Ds1Cas endOfDialTime

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the amount of time allowed between digits after which any more digits are to be ignored. |
| Values | Decimal (1000..30000) |
| Units | msec |
| Default | 9000 |

### ATTRIBUTE SigChan Ds1Cas disconnectTime

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the amount of time that a disconnect signal (*idleRx*, *clearBackRx* or *clearFwdRx*) must persist before it is interpreted as a valid disconnect signal. |
| Values | Decimal (10..30000) |
| Units | msec |
| Default | 100 |

### ATTRIBUTE SigChan Ds1Cas disconnectSupvTime

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the amount of time allowed for the link to respond with a disconnect signal (*idleRx*, *clearBackRx* or *clearFwdRx*) once the network has already started the disconnect sequence. |

| | |
|---|---|
| Values | Decimal (1000..60000) |
| Units | msec |
| Default | 35000 |

### GROUP SigChan Ds1Cas LinkCallStatistics

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational statistics on various call events on the link. |

### ATTRIBUTE SigChan Ds1Cas totalCallsOutgoing

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of outgoing node call attempts made to this link. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE SigChan Ds1Cas totalCallsIncoming

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of incoming link call attempts made to this node. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE SigChan Ds1Cas outgoingAnsweredCalls

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of outgoing node calls to this link that were answered by the link |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE SigChan Ds1Cas incomingAnsweredCalls

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of incoming link calls that were answered by this node. That is a connect signal was transmitted by this node out to the link. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE SigChan Ds1Cas seizeFailures

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of outgoing node call attempts to this link for which the link failed to respond correctly upon receiving a seize signal. That is, no seizure acknowledgment or wink was returned from link. This attribute does not count calls that<br>encountered glare. Glare situations are counted via the glareCalls attribute. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE SigChan Ds1Cas releaseFailures

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times that the link failed to respond correctly during the disconnect sequence of a call. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE SigChan Ds1Cas activeChannels

| | |
|---|---|
| Access | Read only |
| Description | This attribute tracks the current number of active channels. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE SigChan Ds1Cas peakActiveChannels

| | |
|---|---|
| Access | Read only |
| Description | This attribute tracks the peak number of active channels. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE SigChan Ds1Cas glareCalls

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of outgoing node call attempts to the link that encountered glare. Glare occurs when an outgoing node call attempt and an incoming link call attempt occur on the same channel simultaneously. Priority is given to the incoming call and the outgoing call is reattempted on another channel. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### GROUP SigChan Ds1Cas Discrimination (Discr)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group provides the attributes necessary to implement voice and data call discrimination via the first received or transmitted digit of a call. |

### ATTRIBUTE SigChan Ds1Cas voiceDataDiscr

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies whether or not voice and data calls are to be identified via the *voiceCallDigit* or *dataCallDigit*. |
| Values | off<br>on |

| | |
|---|---|
| Default | off |

### ATTRIBUTE SigChan Ds1Cas voiceCallDigit

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the digit that will identify a call to be a voice call via the first digit. This value must be different than *dataCallDigit*. |
| Values | Decimal (0..9) |
| Default | 1 |

### ATTRIBUTE SigChan Ds1Cas dataCallDigit

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute contains the digit that will identify a call to be a data call via the first digit. This value must be different than *voiceCallDigit*. |
| Values | Decimal (0..9) |
| Default | 2 |

## COLLECTED STATS SignallingChannel Ds1Cas

| | |
|---|---|
| Description | The statistics record generated by the SignallingChannel Ds1Cas component. |

### ATTRIBUTE SigChan Ds1Cas totalCallsOutgoing

| | |
|---|---|
| Description | This spooled statistic counts the number of outgoing node call attempts made to this link in the last statistics collection interval. |
| Values | Decimal (0..65535) |

### ATTRIBUTE SigChan Ds1Cas totalCallsIncoming

Description: This attribute counts the number of incoming link call attempts made to this node in the last statistics collection interval.

Values: Decimal (0..65535)

### ATTRIBUTE SigChan Ds1Cas seizeFailures

Description: This spooled statistic counts the number of outgoing node call attempts to this link for which the link failed to respond correctly upon receiving a seize signal in the last statistics collection interval. That is no seizure acknowledgment or wink was returned from link.

Values: Decimal (0..65535)

### ATTRIBUTE SigChan Ds1Cas releaseFailures

Description: This spooled statistic counts the number of times that the link failed to respond correctly during the disconnect sequence of a call in the last statistics collection interval.

Values: Decimal (0..65535)

### ATTRIBUTE SigChan Ds1Cas outgoingAnsweredCalls

Description: This spooled statistic counts the number of outgoing node calls to this link that were answered by the link in the last statistics collection interval.

Values: Decimal (0..65535)

### ATTRIBUTE SigChan Ds1Cas incomingAnsweredCalls

Description: This spooled statistic counts the number of incoming link calls that were answered by this node, connect signals transmitted by this node out to the link in the last statistics collection interval.

Values: Decimal (0..65535)

### ATTRIBUTE SigChan Ds1Cas peakActiveChannels

Description: This spooled statistic counts the maximum number of channels that have been simultaneously active on this signalling channel during the last statistics collection interval.

| | |
|---|---|
| Values | Decimal (0..30) |

## COMPONENT SigChan Ds1Cas Framer (Framer)

| | |
|---|---|
| Groups | "GROUP SigChan Ds1Cas Framer Provisioned (Prov)"<br>"GROUP SigChan Ds1Cas Framer OsiState (State)" |
| Scope | Application |
| Description | *SigChan/n Ds1Cas Framer*<br>*SigChan/n E1Cas Framer*<br>*SigChan/n J2Cas Framer*<br>The *Framer* component controls link layer framing for application components sending and receiving data on a link interface. It is also through *Framer*, that an application component is associated with a specific hardware link interface.<br><br>The *Framer* component provides provisionable attributes related to datapath aspects of the hardware interface (such as crc and frame length). The *Framer* component also provides a provisionable attribute which binds the application component to a specific hardware component.<br><br>The *Framer* component contains operational attributes for link interface datapath statistics (such as frame counts and aborts). |
| Common Verbs | Help<br>List<br>Display |

## GROUP SigChan Ds1Cas Framer Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the base provisioning data for the *Framer* component. Application or hardware interface specific provisioning data is contained in other provisionable *Framer* groups. |

### ATTRIBUTE SigChan Ds1Cas Framer interfaceName

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute contains a hardware component name.<br><br>The attribute associates the application with a specific link. This defines the module processor on which *Framer*'s parent component (as well as *Framer* itself) will run. |
| Values | Link (Hardware, applicationFramerName) |
| Default | No default |

### GROUP SigChan Ds1Cas Framer OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE SigChan Ds1Cas Framer adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down. |

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE SigChan Ds1Cas Framer operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE SigChan Ds1Cas Framer usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

## COMPONENT SigChan Ds1Cas Dtmf

Groups
"GROUP SigChan Ds1Cas Dtmf Provisioned (Prov)"

Scope
Application

Description
*SigChan/n Ds1Cas Dtmf*
*SigChan/n E1Cas Dtmf*
*SigChan/n J2Cas Dtmf*
This component defines attributes that defines what settings are need to recognize and transmit DTMF tones.

Common Verbs
Help
List
Display
Add
DELete

## GROUP SigChan Ds1Cas Dtmf Provisioned (Prov)

Properties
Provisioned

Description
This group contains attributes that defines what settings are needed to transmit and recognize DTMF tones.

## ATTRIBUTE SigChan Ds1Cas Dtmf burstTime

Access
Read: All
Write: All

Criticality
Process

Description
This attribute specifies the length of time a tone persists for digit transmission.
When a 50 msecs burst is selected, the interdigit time is 50

msecs.
When a 60 msecs burst is selected, the interdigit time is 90 msecs.
When a 70 msecs burst is selected , the interdigit time is 80 msecs.
When a 100 msecs burst is selected , the interdigit time is 100 msecs.

Values: Decimal (50; 60; 70; 100)

Units: msec

Default: 100

## COMPONENT SigChan Ds1Cas TimeSlotStatus (Tslot)

Instance: Decimal (1..24)

Groups: "GROUP SigChan Ds1Cas Tslot Channels"

Scope: Application

Description: *SigChan/n Ds1Cas Tslot/n*
*SigChan/n E1Cas Tslot/n*
*SigChan/n J2Cas Tslot/n*
This component contains replicated attribute which displays operational attributes of individual timeslots. \

Common Verbs:
Help
List
Display

## GROUP SigChan Ds1Cas Tslot Channels

Properties: Operational

Description: This group contains various operational attributes of every channel which is serviced by a CAS Signalling Channel.

## ATTRIBUTE SigChan Ds1Cas Tslot maintenanceStatus

Access: Read only

Description: This attribute specifies what the internal current channel status is. The attribute “Status” may have the following values:

UnDefined, timeslot has not yet been configured
Locked, timeslot has been locked by the operator
LockOut, timeslot is busied out due to some protocol failure
Incoming, timeslot is currently being used for a call incoming to the Passport
Outgoing, timeslot is currently being used for a call outgoing from the network
Idle, timeslot is currently available for use.

Values

IDLE
BUSY
LCKO
MBUSY
DSBL
UNEQ
UNKNOWN
INVALID

Default

No default

### ATTRIBUTE SigChan Ds1Cas Tslot receivedBits

Access

Read only

Description

This attribute specifies what are the raw A, AB or ABCD bits being received.

Values

0
1
00
01
10
11
0000
0001
0010
0011
0100
0101
0110
0111
1000
1001

1010
1011
1100
1101
1110
1111

Default: No default

### ATTRIBUTE SigChan Ds1Cas Tslot receivedSignal

Access: Read only

Description: This attribute specifies what signal the *rxBits* are being interpreted as.

Values:
IDLE
FAULT
SEIZE
SEIZEV
SEIZED
SEZACK
WINK
CONN
CLRBCK
CLRFWD
BUSY
UNKNOWN
INVALID

Default: No default

### ATTRIBUTE SigChan Ds1Cas Tslot transmitedBits

Access: Read only

Description: This attribute specifies what are the raw A, AB or ABCD bits being transmitted.

Values:
0
1
00
01
10

| | |
|---|---|
| | 11<br>0000<br>0001<br>0010<br>0011<br>0100<br>0101<br>0110<br>0111<br>1000<br>1001<br>1010<br>1011<br>1100<br>1101<br>1110<br>1111 |
| Default | No default |

### ATTRIBUTE SigChan Ds1Cas Tslot transmitedSignal

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies what signal the *txBits* are being interpreted as. |
| Values | IDLE<br>FAULT<br>SEIZE<br>SEIZEV<br>SEIZED<br>SEZACK<br>WINK<br>CONN<br>CLRBCK<br>CLRFWD<br>BUSY<br>UNKNOWN<br>INVALID |
| Default | No default |

## COMPONENT SigChan J2Cas (J2)

| | |
|---|---|
| Groups | "GROUP SigChan J2 Provisioned (Prov)"<br>"GROUP SigChan J2 AbcdProv"<br>"GROUP SigChan J2 TimerProv"<br>"GROUP SigChan J2 LinkCallStatistics" |

"COLLECTED STATS SignallingChannel J2Cas"

| | |
|---|---|
| Scope | Application |
| Description | *SigChan/n J2Cas*<br>This component defines the A,AB or ABCD bits, Digit reception and transmission and tone generation for a J2 Cas link. |
| Subcomponents | "COMPONENT SigChan J2 Framer (Framer)" |
| Opt. Subcomp. | "COMPONENT SigChan J2 Dtmf" |
| Dyn. Subcomp. | "COMPONENT SigChan J2 TimeSlotStatus (Tslot)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP SigChan J2 Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group conatins attirbutes that defines various settings that do not fall under any other group. |

## ATTRIBUTE SigChan J2 toneTableSelection

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies which tone table to select when a call is to receive a given tone.<br>0 for North America<br>1 for Japan |

| | |
|---|---|
| | 2 for United Kingdom<br>3 for Germany<br>4 for France<br>5 for Central America (Brazil, Mexico)<br>6 for Chile<br>7 for Autralia |
| Values | Decimal (0..7) |
| Default | 1 |

### GROUP SigChan J2 AbcdProv

| | |
|---|---|
| Properties | Provisioned |
| Description | This group specifies the attributes that define what the A bit pattern for a particular signal should be. The input is a 1 bit (0 or 1) format. |

### ATTRIBUTE SigChan J2 signallingBits

| | |
|---|---|
| Access | Read only |
| Criticality | Process |
| Description | This attribute specifies which bits are to be used for interpretation.<br>(A,AB or ABCD). |
| Values | A<br>AB<br>ABCD |
| Default | A |

### ATTRIBUTE SigChan J2 idleTx

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies what the value is, in A bit terms, of the idle signal is when transmitted. This signal must be different from the *connectTx* signal. |

| | |
|---|---|
| Values | 0<br>1 |
| Default | 1 |

### ATTRIBUTE SigChan J2 idleRx

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies what the value is, in A bit terms, of the idle signal when received. This signal must be different from the *connectRx* signal. |
| Values | 0<br>1 |
| Default | 1 |

### ATTRIBUTE SigChan J2 faultTx

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies what the value is, in ABCD terms, of the fault signal when transmitted. It is transmitted when the timeslot is undefined or locked. This signal must be different from the *idleTx* signal. |
| Values | 0<br>1 |
| Default | 0 |

### ATTRIBUTE SigChan J2 faultRx

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |

| | |
|---|---|
| Description | This attribute specifies what the value is, in ABCD terms, of the fault signal when received. When received, the channel status for the timeslot goes to a lockout state. This signal must be different from the *idleRx* signal. |
| Values | 0<br>1 |
| Default | 0 |

### ATTRIBUTE SigChan J2 seizeTx

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies what the value is, in A bit terms, of the seize signal when transmitted. This signal must be different from the *idleTx* signal. |
| Values | 0<br>1 |
| Default | 0 |

### ATTRIBUTE SigChan J2 seizeRx

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies what the value is, in A bit terms, of the seize signal when received. This signal must be different from the *idleRx* signal. |
| Values | 0<br>1 |
| Default | 0 |

### ATTRIBUTE SigChan J2 seizeVoiceTx

| | |
|---|---|
| Access | Read only |
| Criticality | Process |
| Description | This attribute specifies what the value is, in ABCD terms, of the seize Voice signal when transmitted. This signal when transmitted identifies the call as a voice call. This signal can not be defined if the *seizeTx* or *seizeRx* are defined. The *seizeVoiceRx*, *seizeDataRx* and *seizeDataTx* must also be defined along with this signal. If defined, the value of the signal must be different from the *seizeDataTx* and *idleTx* signals. |
| Values | unused |
| Default | unused |

### ATTRIBUTE SigChan J2 seizeVoiceRx

| | |
|---|---|
| Access | Read only |
| Criticality | Process |
| Description | This attribute specifies what the value is, in ABCD terms, of the seize Voice signal when received. This signal when received identifies the call as a voice call. This signal can not be defined if the *seizeTx* or *seizeRx* are defined. The *seizeVoiceTx*, *seizeDataRx* and *seizeDataTx* must also be defined along with this signal. If defined, the value of the signal must be different from the *seizeDataRx* and *idleRx* signals. |
| Values | unused |
| Default | unused |

### ATTRIBUTE SigChan J2 seizeDataTx

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies what the value is, in ABCD terms, of the seize Data signal when transmitted. This signal when transmitted identifies the call as a data call. This signal can not be |

| | |
|---|---|
| | defined if the *seizeTx* or *seizeRx* are defined. The *seizeDataRx*, *seizeVoiceRx* and *seizeVoiceTx* must also be defined along with this signal. If defined, the value of the signal must be different from the *seizeVoiceTx* and *idleTx* signals. |
| Values | unused |
| Default | unused |

### ATTRIBUTE SigChan J2 seizeDataRx

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies what the value is, in ABCD terms, of the seize Data signal when received. This signal when received identifies the call as a data call. This signal can not be defined if the *seizeTx* or *seizeRx* are defined. The *seizeDataTx*, *seizeVoiceRx* and *seizeVoiceTx* must also be defined along with this signal. If defined, the value of the signal must be different from the *seizeVoiceRx* and *idleRx* signals. |
| Values | unused |
| Default | unused |

### ATTRIBUTE SigChan J2 seizeAckTx

| | |
|---|---|
| Access | Read only |
| Criticality | Process |
| Description | This attribute specifies what the value is, in ABCD terms, of the seizure acknowledgment signal when transmitted. If defined, the value of the signal must be different from the *idleTx* and the *connectTx* signals. |
| Values | unused |
| Default | unused |

### ATTRIBUTE SigChan J2 seizeAckRx

| | |
|---|---|
| Access | Read only |
| Criticality | Process |
| Description | This attribute specifies what the value is, in ABCD terms, of the seizure acknowledgment when received. If defined, the value of the signal must be different from the *idleRx* and the *connectRx* signals. |
| Values | unused |
| Default | unused |

### ATTRIBUTE SigChan J2 winkTx

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies what the value is, in A bit terms, of the wink signal when transmitted. This is a pulsed signal of *winkTime* duration. Where ***P*** specifies which bit is toggled. A pulse signal returns to the original A bit pattern before the start of transmission. |
| Values | P<br>unused |
| Default | P |

### ATTRIBUTE SigChan J2 winkRx

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies what the value is, in A bit terms, of the wink signal when received. This pulsed signal must be within the *winkMinTime* and *winkMaxTime* before it is considered as valid. Where ***P*** specifies which bit is toggled. A pulse signal returns to the original A bit pattern before the start of reception. |

| | |
|---|---|
| Values | P<br>unused |
| Default | P |

### ATTRIBUTE SigChan J2 connectTx

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies what the value is, in ABCD terms, of the connect or answer signal when transmitted. The value of the signal must be different from the *idleTx* signal. |
| Values | 0<br>1 |
| Default | 0 |

### ATTRIBUTE SigChan J2 connectRx

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies what the value is, in ABCD terms, of the connect or answer signal when received. The value of the signal must be different from the *idleRx* signal. |
| Values | 0<br>1 |
| Default | 0 |

### ATTRIBUTE SigChan J2 clearBackTx

| | |
|---|---|
| Access | Read only |
| Criticality | Process |
| Description | This attribute specifies what the value is, in ABCD terms, of the clear back signal when transmitted. This signal is sent, if defined, on an incoming call from the link when the network side |

first initiates the disconnect sequence. This value, if used, must be different from the *idleTx* and *connectTx* signals.

Values unused

Default unused

### ATTRIBUTE SigChan J2 clearBackRx

Access Read only

Criticality Process

Description This attribute specifies what the value is, in ABCD terms, of the clear back signal when received. This signal is received, if defined, on an outgoing call to the link when the link side first initiates the disconnect sequence. This value, if used, must be different from the *idleRx* and *connectRx* signal.

Values unused

Default unused

### ATTRIBUTE SigChan J2 clearFwdTx

Access Read only

Criticality Process

Description This attribute specifies what the value is, in ABCD terms, of the clear forward signal when transmitted. This signal is sent, if defined, on an outgoing call to the link when the network side first initiates the disconnect sequence. This value, if used, must be different from the *idleTx* signal and any transmitted seize signal defined.

Values unused

Default unused

### ATTRIBUTE SigChan J2 clearFwdRx

Access Read only

Criticality Process

| | |
|---|---|
| Description | This attribute specifies what the value is, in ABCD terms, of the clear forward signal when received. This signal is received, if defined, on an incoming call from the link when the network side first initiates the disconnect sequence. This value, if used, must be different from *idleRx* signal and any transmitted seize signal defined. |
| Values | unused |
| Default | unused |

### GROUP SigChan J2 TimerProv

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the various timers used by *Ds1Cas* component to handle a particular timing events. |

### ATTRIBUTE SigChan J2 guardTime

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the amount of time needed after a channel is idled before it is made available for the next outgoing call to the link. |
| Values | Decimal (0..30000) |
| Units | msec |
| Default | 1000 |

### ATTRIBUTE SigChan J2 winkTime

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the length of time that a *winkTx* signal is transmitted. This attribute is only referenced if the *winkTx* signal is defined |

| | |
|---|---|
| Values | Decimal (100..1000) |
| Units | msec |
| Default | 220 |

### ATTRIBUTE SigChan J2 winkMinTime

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the minimum time that a *winkRx* signal, when received, must persist before being considered as a valid wink. Anything less is ignored. This value must be less than *winkMaxTime*. This attribute is only referenced if the *winkRx* Signal is defined |
| Values | Decimal (100..1000) |
| Units | msec |
| Default | 130 |

### ATTRIBUTE SigChan J2 winkMaxTime

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the maximum time that a *winkRx* signal, when received, may persist before it is interpreted as a GLARE condition. This value must be larger than the *winkMinTime*. This attribute is only referenced if the *winkRx* Signal is defined |
| Values | Decimal (100..1000) |
| Units | msec |
| Default | 300 |

### ATTRIBUTE SigChan J2 seizeAckDelayTime

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the delay, after receiving any particular seize signal, before responding with a *seizeAckTx* or *winkTx* signal |
| Values | Decimal (30..30000) |
| Units | msec |
| Default | 180 |

### ATTRIBUTE SigChan J2 seizeAckSupvTime

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the amount of time, on an outgoing call to the link, the network will wait to receive a *seizeAckRx* or a *winkRx* signal. Should this timer time-out, the call is considered as a seize failure. This timer is not started unless either the *seizeAckRx* or a *winkRx* signals are defined. |
| Values | Decimal (1000..15000) |
| Units | msec |
| Default | 4000 |

### ATTRIBUTE SigChan J2 outpulseDelayTime

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the amount of delay, after transmitting any seize signal, before digit transmission begins.<br>If the *seizeAckRx* or *winkRx* signal is defined, the timer is started |

| | |
|---|---|
| | upon complete reception of the signal.<br>If the *seizeAckRx* or *winkRx* signal are not defined, the timer is started immediately after sending any particular seize signal. |
| Values | Decimal (100..30000) |
| Units | msec |
| Default | 1000 |

### ATTRIBUTE SigChan J2 endOfDialTime

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the amount of time allowed between digits after which any more digits are to be ignored. |
| Values | Decimal (1000..30000) |
| Units | msec |
| Default | 9000 |

### ATTRIBUTE SigChan J2 disconnectTime

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the amount of time that a disconnect signal (*idleRx*, *clearBackRx* or *clearFwdRx*) must persist before it is interpreted as a valid disconnect signal. |
| Values | Decimal (10..30000) |
| Units | msec |
| Default | 100 |

### ATTRIBUTE SigChan J2 disconnectSupvTime

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the amount of time allowed for the link to respond with a disconnect signal (*idleRx*, *clearBackRx* or *clearFwdRx*) once the network has already started the disconnect sequence. |
| Values | Decimal (1000..60000) |
| Units | msec |
| Default | 35000 |

### GROUP SigChan J2 LinkCallStatistics

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational statistics on various call events on the link. |

### ATTRIBUTE SigChan J2 totalCallsOutgoing

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of outgoing node call attempts made to this link. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE SigChan J2 totalCallsIncoming

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of incoming link call attempts made to this node. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE SigChan J2 outgoingAnsweredCalls

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of outgoing node calls to this link that were answered by the link |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE SigChan J2 incomingAnsweredCalls

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of incoming link calls that were answered by this node. That is a connect signal was transmitted by this node out to the link. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE SigChan J2 seizeFailures

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of outgoing node call attempts to this link for which the link failed to respond correctly upon receiving a seize signal. That is, no seizure acknowledgment or wink was returned from link. This attribute does not count calls that<br>encountered glare. Glare situations are counted via the glareCalls attribute. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE SigChan J2 releaseFailures

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times that the link failed to respond correctly during the disconnect sequence of a call. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE SigChan J2 activeChannels

| | |
|---|---|
| Access | Read only |
| Description | This attribute tracks the current number of active channels. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE SigChan J2 peakActiveChannels

| | |
|---|---|
| Access | Read only |
| Description | This attribute tracks the peak number of active channels. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE SigChan J2 glareCalls

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of outgoing node call attempts to the link that encountered glare. Glare occurs when an outgoing node call attempt and an incoming link call attempt occur on the same channel simultaneously. Priority is given to the incoming call and the outgoing call is reattempted on another channel. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## COLLECTED STATS SignallingChannel J2Cas

| | |
|---|---|
| Description | The statistics record generated by the SignallingChannel J2Cas component. |

### ATTRIBUTE SigChan J2 totalCallsOutgoing

| | |
|---|---|
| Description | This spooled statistic counts the number of outgoing node call attempts made to this link in the last statistics collection interval. |
| Values | Decimal (0..65535) |

### ATTRIBUTE SigChan J2 totalCallsIncoming

| | |
|---|---|
| Description | This attribute counts the number of incoming link call attempts made to this node in the last statistics collection interval. |
| Values | Decimal (0..65535) |

### ATTRIBUTE SigChan J2 seizeFailures

| | |
|---|---|
| Description | This spooled statistic counts the number of outgoing node call attempts to this link for which the link failed to respond correctly upon receiving a seize signal in the last statistics collection interval. That is no seizure acknowledgment or wink was returned from link. |
| Values | Decimal (0..65535) |

### ATTRIBUTE SigChan J2 releaseFailures

| | |
|---|---|
| Description | This spooled statistic counts the number of times that the link failed to respond correctly during the disconnect sequence of a call in the last statistics collection interval. |
| Values | Decimal (0..65535) |

### ATTRIBUTE SigChan J2 outgoingAnsweredCalls

| | |
|---|---|
| Description | This spooled statistic counts the number of outgoing node calls to this link that were answered by the link in the last statistics collection interval. |
| Values | Decimal (0..65535) |

### ATTRIBUTE SigChan J2 incomingAnsweredCalls

| | |
|---|---|
| Description | This spooled statistic counts the number of incoming link calls that were answered by this node, connect signals transmitted by this node out to the link in the last statistics collection interval. |
| Values | Decimal (0..65535) |

### ATTRIBUTE SigChan J2 peakActiveChannels

| | |
|---|---|
| Description | This spooled statistic counts the maximum number of channels that have been simultaneously active on this signalling channel during the last statistics collection interval. |

Values Decimal (0..30)

## COMPONENT SigChan J2 Framer (Framer)

Groups "GROUP SigChan J2 Framer Provisioned (Prov)"
"GROUP SigChan J2 Framer OsiState (State)"

Scope Application

Description *SigChan/n Ds1Cas Framer*
*SigChan/n E1Cas Framer*
*SigChan/n J2Cas Framer*
The *Framer* component controls link layer framing for application components sending and receiving data on a link interface. It is also through *Framer*, that an application component is associated with a specific hardware link interface.

The *Framer* component provides provisionable attributes related to datapath aspects of the hardware interface (such as crc and frame length). The *Framer* component also provides a provisionable attribute which binds the application component to a specific hardware component.

The *Framer* component contains operational attributes for link interface datapath statistics (such as frame counts and aborts).

Common Verbs
Help
List
Display

## GROUP SigChan J2 Framer Provisioned (Prov)

Properties Provisioned

Description

This group contains the base provisioning data for the *Framer* component. Application or hardware interface specific provisioning data is contained in other provisionable *Framer* groups.

### ATTRIBUTE SigChan J2 Framer interfaceName

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute contains a hardware component name.<br><br>The attribute associates the application with a specific link. This defines the module processor on which *Framer*'s parent component (as well as *Framer* itself) will run. |
| Values | Link (Hardware, applicationFramerName) |
| Default | No default |

### GROUP SigChan J2 Framer OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE SigChan J2 Framer adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down. |

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE SigChan J2 Framer operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE SigChan J2 Framer usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

## COMPONENT SigChan J2 Dtmf

Groups
"GROUP SigChan J2 Dtmf Provisioned (Prov)"

Scope
Application

Description
*SigChan/n Ds1Cas Dtmf*
*SigChan/n E1Cas Dtmf*
*SigChan/n J2Cas Dtmf*
This component defines attributes that defines what settings are need to recognize and transmit DTMF tones.

Common Verbs
Help
List
Display
Add
DELete

## GROUP SigChan J2 Dtmf Provisioned (Prov)

Properties
Provisioned

Description
This group contains attributes that defines what settings are needed to transmit and recognize DTMF tones.

## ATTRIBUTE SigChan J2 Dtmf burstTime

Access
Read: All
Write: All

Criticality
Process

Description
This attribute specifies the length of time a tone persists for digit transmission.
When a 50 msecs burst is selected, the interdigit time is 50

| | |
|---|---|
| | msecs.<br>When a 60 msecs burst is selected, the interdigit time is 90 msecs.<br>When a 70 msecs burst is selected , the interdigit time is 80 msecs.<br>When a 100 msecs burst is selected , the interdigit time is 100 msecs. |
| Values | Decimal (50; 60; 70; 100) |
| Units | msec |
| Default | 100 |

### COMPONENT SigChan J2 TimeSlotStatus (Tslot)

| | |
|---|---|
| Instance | Decimal (1..31) |
| Groups | "GROUP SigChan J2 Tslot Channels" |
| Scope | Application |
| Description | *SigChan/n Ds1Cas Tslot/n*<br>*SigChan/n E1Cas Tslot/n*<br>*SigChan/n J2Cas Tslot/n*<br>This component contains replicated attribute which displays operational attributes of individual timeslots. \ |
| Common Verbs | Help<br>List<br>Display |

### GROUP SigChan J2 Tslot Channels

| | |
|---|---|
| Properties | Operational |
| Description | This group contains various operational attributes of every channel which is serviced by a CAS Signalling Channel. |

### ATTRIBUTE SigChan J2 Tslot maintenanceStatus

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies what the internal current channel status is. The attribute “Status” may have the following values: |

UnDefined, timeslot has not yet been configured
Locked, timeslot has been locked by the operator
LockOut, timeslot is busied out due to some protocol failure
Incoming, timeslot is currently being used for a call incoming to the Passport
Outgoing, timeslot is currently being used for a call outgoing from the network
Idle, timeslot is currently available for use.

Values

IDLE
BUSY
LCKO
MBUSY
DSBL
UNEQ
UNKNOWN
INVALID

Default

No default

### ATTRIBUTE SigChan J2 Tslot receivedBits

Access

Read only

Description

This attribute specifies what are the raw A, AB or ABCD bits being received.

Values

0
1
00
01
10
11
0000
0001
0010
0011
0100
0101
0110
0111
1000
1001

| | |
|---|---|
| | 1010<br>1011<br>1100<br>1101<br>1110<br>1111 |
| Default | No default |

### ATTRIBUTE SigChan J2 Tslot receivedSignal

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies what signal the *rxBits* are being interpreted as. |
| Values | IDLE<br>FAULT<br>SEIZE<br>SEIZEV<br>SEIZED<br>SEZACK<br>WINK<br>CONN<br>CLRBCK<br>CLRFWD<br>BUSY<br>UNKNOWN<br>INVALID |
| Default | No default |

### ATTRIBUTE SigChan J2 Tslot transmitedBits

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies what are the raw A, AB or ABCD bits being transmitted. |
| Values | 0<br>1<br>00<br>01<br>10 |

11
0000
0001
0010
0011
0100
0101
0110
0111
1000
1001
1010
1011
1100
1101
1110
1111

Default: No default

### ATTRIBUTE SigChan J2 Tslot transmitedSignal

Access: Read only

Description: This attribute specifies what signal the *txBits* are being interpreted as.

Values:
IDLE
FAULT
SEIZE
SEIZEV
SEIZED
SEZACK
WINK
CONN
CLRBCK
CLRFWD
BUSY
UNKNOWN
INVALID

Default: No default

## COMPONENT SigChan EtsiQsig (EQsig)

| | |
|---|---|
| Groups | "GROUP SigChan EQsig Layer2Options (L2)"<br>"GROUP SigChan EQsig Layer3Options (L3)"<br>"GROUP SigChan EQsig Provisioned (Prov)"<br>"GROUP SigChan EQsig OsiState (State)"<br>"GROUP SigChan EQsig Statistics (Stats)"<br>"GROUP SigChan EQsig Operational (Oper)"<br>"GROUP SigChan EQsig Tools"<br>"GROUP SigChan EQsig EQsigSpecificProv"<br>"GROUP SigChan EQsig EQsigSpecificOp" |

"COLLECTED STATS SignallingChannel EtsiQsig"

| | |
|---|---|
| Scope | Device |
| Description | *SigChan/n EtsiQsig*<br>The *EtsiQsig* component defines the operational characteristics of the signalling channel's connection to the external equipment. |
| Subcomponents | "COMPONENT SigChan EQsig Framer (Framer)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP SigChan EQsig Layer2Options (L2)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group specifies the provisionable layer 2 attributes of the Q.931 ITU-T protocol. |

## ATTRIBUTE SigChan EQsig t23

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the layer 2 enable request timer. |

| | |
|---|---|
| Values | Decimal (1..15) |
| Units | seconds |
| Default | 10 |

### ATTRIBUTE SigChan EQsig t200

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the maximum time between a layer 2 frame and its acknowledgment. |
| Values | Decimal (1..20) |
| Units | seconds |
| Default | 1 |

### ATTRIBUTE SigChan EQsig n200

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the maximum number of re-transmissions of a layer 2 frame. |
| Values | Decimal (1..8) |
| Default | 3 |

### ATTRIBUTE SigChan EQsig t203

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the maximum time for which layer 2 frames may be absent. Expiry triggers a check on whether the far end is alive. |

| | |
|---|---|
| Values | Decimal (2..40) |
| Units | seconds |
| Default | 10 |

### ATTRIBUTE SigChan EQsig circuitSwitchedK

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the maximum number of sequentially numbered I frames (that is, window size (k)) that may be unacknowledged at any given time for a SAP supporting primary rate (64kbit/sec) signalling. |
| Values | Decimal (1..127) |
| Default | 7 |

### GROUP SigChan EQsig Layer3Options (L3)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group represents the provisionable Layer 3 timer attributes of the ETSI Qsig protocol. |

### ATTRIBUTE SigChan EQsig t309

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the data link failure timer; used to ride out temporary failures. |
| Values | Decimal (15..120) |
| Units | seconds |
| Default | 90 |

### ATTRIBUTE SigChan EQsig t310

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the call proceeding state timer. |
| Values | Decimal (10..120) |
| Units | seconds |
| Default | 30 |

### GROUP SigChan EQsig Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group defines the general options of the D-channel signalling link. |

### ATTRIBUTE SigChan EQsig side

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies whether the interface is the network or user side of the connection. The parameter applies to both the layer 2 and layer 3 of the interface. If this attribute is set to ***network***, then the interface is master during channel negotiation. If this attribute is set to ***user***, then the interface is slave during channel negotiation. |
| Values | network<br>user |
| Default | network |

### ATTRIBUTE SigChan EQsig maxNonCallConcurrent (nonCall)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |

| | |
|---|---|
| Description | This attribute specifies the maximum number of simultaneous active non-call messages that are allowed. |
| Values | Decimal (1..30) |
| Default | 30 |

### ATTRIBUTE SigChan EQsig overlapSendingEnabled (ose)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies whether overlap sending to the PBX is enabled. |
| Values | enabled<br>disabled |
| Default | enabled |

### ATTRIBUTE SigChan EQsig overlapReceivingEnabled (ore)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies whether overlap receiving from the PBX is enabled. |
| Values | enabled<br>disabled |
| Default | enabled |

### GROUP SigChan EQsig OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component |

which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE SigChan EQsig adminState (osiAdmin)

Access: Read only

Description: This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values:
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default: unlocked

### ATTRIBUTE SigChan EQsig operationalState (osiOper)

Access: Read only

Description: This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the

component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE SigChan EQsig usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP SigChan EQsig Statistics (Stats)

Properties
Operational

Description
This group provides the operational components for the *EtsiQsig* component.

### ATTRIBUTE SigChan EQsig totalCallsToIf

Access
Read: All
Write: Illegal

Description
This attribute counts the total number of calls that have been made to the interface. The value wraps when it reaches its maximum.

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE SigChan EQsig totalCallsFromIf

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of calls from the interface. The value wraps when it reaches its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE SigChan EQsig nonCallAssocSessionsToIf

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of non-call associated sessions to the interface. The value wraps when it reaches its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE SigChan EQsig nonCallAssocSessionsFromIf

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of non-call associated sessions from the interface. The value wraps when it reaches its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### GROUP SigChan EQsig Operational (Oper)

| | |
|---|---|
| Properties | Operational |

| | |
|---|---|
| Description | This group provides the operational attributes for the EtsiQsig protocol. |

### ATTRIBUTE SigChan EQsig activeChannels

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of currently active channels. This includes data and voice channels. |
| Values | Decimal (0..128) |
| Default | 0 |

### ATTRIBUTE SigChan EQsig activeVoiceChannels

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of channels that are currently carrying voice. |
| Values | Decimal (0..128) |
| Default | 0 |

### ATTRIBUTE SigChan EQsig activeDataChannels

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of channels that are currently carrying data. This does not include modem data. |
| Values | Decimal (0..128) |
| Default | 0 |

### ATTRIBUTE SigChan EQsig peakActiveChannels

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the maximum number of channels that have been active on this signalling channel during the last polling period. |

| | |
|---|---|
| Values | Decimal (0..128) |
| Default | 0 |

### ATTRIBUTE SigChan EQsig peakActiveVoiceChannels

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the maximum number of voice channels that have been active on this signalling channel during the last polling period. |
| Values | Decimal (0..128) |
| Default | 0 |

### ATTRIBUTE SigChan EQsig peakActiveDataChannels

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the maximum number of data channels that have been active on this signalling channel during the last polling period. |
| Values | Decimal (0..128) |
| Default | 0 |

### ATTRIBUTE SigChan EQsig dChanStatus (dCh)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the state of the D-channel.<br>***outOfService*** means that there is no layer 2 or layer 3 connectivity to the PBX.<br>***establishing*** means that the signalling channel is attempting to stage the layer 2.<br>***established*** means that the layer 2 is enabled. If the signalling channel stays in the ***established*** state, then it is waiting for a restart from the PBX.<br>***enabling*** means that the resources for processing calls are being initialized. If the signalling channel stays in the ***enabling*** state |

then it is waiting for a restart acknowledgement from the PBX.
***inService*** means that the resources for processing calls are available.
***restarting*** means that the resources for call processing are being rei-initialized.

Values
outOfService
establishing
established
enabling
inService
restarting

Default
No default

## GROUP SigChan EQsig Tools

Properties
Operational

Description
This contains a series of operational attributes which turn on and off several kinds of tracing.

## ATTRIBUTE SigChan EQsig tracing

Access
Read: All
Write: All

Description
This attribute defines which types of tracing are active for this signalling channel. The tracing messages are sent to the debug stream. To see the messages the *agentQueue* attribute in *Col/debug* must be greater than 0 and a Telnet NMIS session must list the debug stream in in its data streams (ex. *set nmis telnet session/1 dataStreams debug*). Different types of tracing can be enabled simultaneously.
Note that tracing consumes additional CPU resources and will slow down call processing on a heavily loaded card. If there is message block exhaustion tracing will be suspended for a period and then automatically reenabled. An alarm is generated on tracing suspension and resumption. This mechanism protects the function processor against excessive numbers of tracing messages.

Types of tracing include:

***protocolErrors*** - get details of any protocol errors which are occuring. Protocol errors are also reported in summary form as alarms.
***q931Summary*** - Summary of the Q.931 messages on the signalling link, including certain call details (calling number, called number, release codes).
***q931Hex*** - Q.931 messages displayed in hex format. Useful to determine protocol compliance in case of errors reported on local or remote ends.
***q931Symbolic*** - Q.931 messages parsed to give maximum detail. Useful for understanding content of messages flowing on the link.
***portHex*** - Messages in hex format being sent and received on the link.

| | |
|---|---|
| Set of | protocolErrors<br>q931Summary<br>q931Hex<br>q931Symbolic<br>portHex |
| Default | No default |

## GROUP SigChan EQsig EQsigSpecificProv

| | |
|---|---|
| Properties | Provisioned |
| Description | This group provides EtsiQsig protocol specific provisioning. |

## ATTRIBUTE SigChan EQsig msgSegmentation

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute allows users to enable/disable the EtsiQsig message segmentation service. |
| Values | enabled<br>disabled |
| Default | disabled |

## ATTRIBUTE SigChan EQsig e1ChannelNumbers

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute is applicable to E1 interfaces only. It specifies the mapping scheme between channel numbers (identified in Layer 3 messages) and timeslot numbers on the E1 link.<br>When the attribute value is ***skip16***, channel numbers map directly to actual E1 timeslots; therefore only channel numbers 1 - 15 and 17 - 31 are expected.<br>When the value is ***contiguous***, channel numbers from 1 - 30 are expected, and the following mapping is used: channels 1 - 15 are mapped to timeslots 1 - 15, and channels 16 - 30 are mapped to timeslots 17 - 31.<br>On T1 interfaces, channel numbers are always expected in the range 1 - 23. |
| Values | skip16<br>contiguous |
| Default | skip16 |

## GROUP SigChan EQsig EQsigSpecificOp

| | |
|---|---|
| Properties | Operational |
| Description | This group provides specific operational attributes for the Etsi Qsig protocol. |

## ATTRIBUTE SigChan EQsig segmentationAccepted

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of times a long Etsi Qsig message has been received from a PBX and forwarded to a Passport subnet. The value wraps when it reaches its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE SigChan EQsig segmentationFailed

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of times a long Etsi Qsig message has been received from a PBX and could not be forwarded as is to a Passport subnet due to end-to-end incompatibility. The value wraps when it reaches its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## COLLECTED STATS SignallingChannel EtsiQsig

| | |
|---|---|
| Description | The statistics record generated by the SignallingChannel EtsiQsig component. |

### ATTRIBUTE SigChan EQsig peakActiveChannels

| | |
|---|---|
| Description | This collected statistic counts the maximum number of channels that have been active on this signalling channel in the last statistics collection interval. |
| Values | Decimal (0..30) |

### ATTRIBUTE SigChan EQsig peakActiveVoiceChannels

| | |
|---|---|
| Description | This collected statistic counts the maximum number of voice channels that have been active on this signalling channel in the last statistics collection interval. |
| Values | Decimal (0..30) |

### ATTRIBUTE SigChan EQsig peakActiveDataChannels

| | |
|---|---|
| Description | This collected statistic counts the maximum number of data channels that have been active on this signalling channel in the last statistics collection interval. |
| Values | Decimal (0..30) |

### ATTRIBUTE SigChan EQsig totalCallsToIf

Description This collected statistic counts the total number of calls that have been made to the interface in the last statistics collection interval.

Values Decimal (0..65535)

### ATTRIBUTE SigChan EQsig totalCallsFromIf

Description This collected statistic counts the number of calls from the interface in the last statistics collection interval.

Values Decimal (0..65535)

### ATTRIBUTE SigChan EQsig nonCallAssocSessionsToIf

Description This collected statistic counts the number of non-call associated sessions to the interface in the last statistics collection interval.

Values Decimal (0..65535)

### ATTRIBUTE SigChan EQsig nonCallAssocSessionsFromIf

Description This collected statistic counts the number of non-call associated sessions from the interface in the last statistics collection interval.

Values Decimal (0..65535)

### ATTRIBUTE SigChan EQsig frmToIf

Description This collected statistic counts the number of frames transmitted to the link interface by *Framer* in the last statistics collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE SigChan EQsig frmFromIf

Description

This collected statistic counts the number of frames received from the link interface by *Framer* in the last statistics collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE SigChan EQsig octetFromIf

Description — The number of bytes received from the link interface by *Framer* in the last statistics collection interval.

Values — Decimal (0..4294967295)

### ATTRIBUTE SigChan EQsig octetToIf

Description — The number of bytes sent to the link interface by *Framer* in the last statistics collection interval.

Values — Decimal (0..4294967295)

### COMPONENT SigChan EQsig Framer (Framer)

Groups — "GROUP SigChan EQsig Framer Provisioned (Prov)"
"GROUP SigChan EQsig Framer OsiState (State)"
"GROUP SigChan EQsig Framer Statistics (Stats)"

Scope — Application

Description — *SigChan/n EQsig Framer*

The *Framer* component controls link layer framing for application components sending and receiving data on a link interface. It is also through *Framer*, that an application component is associated with a specific hardware link interface.

The *Framer* component provides provisionable attributes related to data path aspects of the hardware interface (such as crc and frame length). The *Framer* component also provides a provisionable attribute which binds the application component to a specific hardware component.

The *Framer* component contains operational attributes for link interface data path statistics (such as frame counts and aborts).

Common Verbs — Help
List
Display

### GROUP SigChan EQsig Framer Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the base provisioning data for the *Framer* component. Application or hardware interface specific provisioning data is contained in other provisionable *Framer* groups. |

### ATTRIBUTE SigChan EQsig Framer interfaceName

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute contains a hardware component name.<br><br>The attribute associates the application with a specific link. This defines the module processor on which *Framer*'s parent component (as well as *Framer* itself) will run. |
| Values | Link (Hardware, applicationFramerName) |
| Default | No default |

### GROUP SigChan EQsig Framer OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE SigChan EQsig Framer adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component. |

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values: locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default: unlocked

### ATTRIBUTE SigChan EQsig Framer operationalState (osiOper)

Access: Read only

Description: This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values: enabled (ena)
disabled (dis)

Default: disabled

### ATTRIBUTE SigChan EQsig Framer usageState (osiUsage)

Access: Read only

| | |
|---|---|
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP SigChan EQsig Framer Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational statistics data for a *Framer* component. |

### ATTRIBUTE SigChan EQsig Framer frmToIf

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames transmitted to the link interface by *Framer.*<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE SigChan EQsig Framer frmFromIf

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames received from the link interface by *Framer.*<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE SigChan EQsig Framer octetFromIf

| | |
|---|---|
| Access | Read only |
| Description | The number of bytes received from the link interface by *Framer.* |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE SigChan EQsig Framer aborts

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of aborts received.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE SigChan EQsig Framer crcErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames with CRC errors.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE SigChan EQsig Framer lrcErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames with LRC errors.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE SigChan EQsig Framer nonOctetErrors

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the total number of frames that were non octet aligned.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE SigChan EQsig Framer overruns

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames received from the link for which overruns occurred.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE SigChan EQsig Framer underruns

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames transmitted to the link for which underruns occurred.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE SigChan EQsig Framer largeFrmErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames received which were too large (longer than 500 bytes).<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## COMPONENT SigChan Bchannel (Bch)

| | |
|---|---|
| Instance | Decimal (1..331) |

| | |
|---|---|
| Groups | "GROUP SigChan Bch Operational (Oper)" |
| Scope | Application |
| Description | *SigChan/n Bchannel/n*<br>This component contains operational attributes of an individual B-channel serviced by the *SigChan* component. The *Bchannel* component instance value reflects the external (protocol specific) channel number. In nB+D configurations, channel number also reflects the related interface:<br>*Bchannel/1-xx* - primary interface,<br>*Bchannel/101-1xx* - secondary interface,<br>*Bchannel/201-2xx* - tertiary interface,<br>*Bchannel/301-3xx* - quaternary interface |
| Common Verbs | Help<br>List<br>Display |

## GROUP SigChan Bch Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains various operational attributes of a B-channel serviced by a Signalling Channel. |

## ATTRIBUTE SigChan Bch status

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates what is current internal B-channel state. The attribute may have the following values for any supported access signalling protocol on Passport:<br>***unknown***, the B-channel has not registered yet for *SigChan* services<br>***maintB***, the B-channel is undergoing a maintenance action<br>***idle***, the B-channel is available for ingress/egress calls<br>***busy***, the B-channel is currently being used for an ingress or egress call<br>***ingress***, the B-channel is currently being used for an ingress call (from the external network to the subnet)<br>***egress***, the B-channel is currently being used for an egress call (from the subnet to the external network) |

In addition, CCS protocols supporting SERVICE messaging may also use the following values:
***idleMaintenance***, the B-channel received a SERVICE message placing the channel in maintenance, and no calls are active on the channel
***ingressMaintenance***, the B-channel received a SERVICE message placing the channel in maintenance, and an incoming call is active on the channel
***egressMaintenance***, the B-channel received a SERVICE message placing the channel in maintenance, and an outgoing call is active on the channel
***outOfService***, a SERVICE message to or from the PBX has placed the channel out of service

Values
unknown
maintB
idle
busy
ingress
egress
idleMaintenance
ingressMaintenance
egressMaintenance
outOfService

Default
unknown

### ATTRIBUTE SigChan Bch timeSlot

Access
Read only

Description
This attribute indicates which timeslot the B-channel uses.

Values
Decimal (0..100)

Default
0

### ATTRIBUTE SigChan Bch vsrInstance

Access
Read only

Description
This attribute indicates the component instance of the *VoiceSubroute* to which the B-channel belongs.

| | |
|---|---|
| Values | Decimal (0..255) |
| Default | 0 |

### ATTRIBUTE SigChan Bch calledDirectoryNumber (calledDn)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the dialled number for the currently active call on this B-channel. |
| Values | BCD (1..32) |
| Default | No default |

### COMPONENT SigChan NisSig (Nis)

| | |
|---|---|
| Groups | "GROUP SigChan Nis Layer2Options (L2)"<br>"GROUP SigChan Nis Layer3Options (L3)"<br>"GROUP SigChan Nis Provisioned (Prov)"<br>"GROUP SigChan Nis OsiState (State)"<br>"GROUP SigChan Nis Statistics (Stats)"<br>"GROUP SigChan Nis Operational (Oper)"<br>"GROUP SigChan Nis Tools"<br>"GROUP SigChan Nis NisSpecificProv" |

"COLLECTED STATS SignallingChannel NisSig"

| | |
|---|---|
| Scope | Device |
| Description | *SigChan/n NisSig*<br>The *NisSig* component defines the operational characteristics of the signalling channel's connection to the external equipment. |
| Subcomponents | "COMPONENT SigChan Nis Framer (Framer)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP SigChan Nis Layer2Options (L2)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group specifies the provisionable layer 2 attributes of the Q.931 ITU-T protocol. |

## ATTRIBUTE SigChan Nis t23

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the layer 2 enable request timer. |
| Values | Decimal (1..15) |
| Units | seconds |
| Default | 10 |

## ATTRIBUTE SigChan Nis t200

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the maximum time between a layer 2 frame and its acknowledgment. |
| Values | Decimal (1..20) |
| Units | seconds |
| Default | 1 |

## ATTRIBUTE SigChan Nis n200

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the maximum number of re-transmissions of a layer 2 frame. |

| | |
|---|---|
| Values | Decimal (1..8) |
| Default | 3 |

### ATTRIBUTE SigChan Nis t203

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the maximum time for which layer 2 frames may be absent. Expiry triggers a check on whether the far end is alive. |
| Values | Decimal (2..40) |
| Units | seconds |
| Default | 10 |

### ATTRIBUTE SigChan Nis circuitSwitchedK

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the maximum number of sequentially numbered I frames (that is, window size (k)) that may be unacknowledged at any given time for a SAP supporting primary rate (64kbit/sec) signalling. |
| Values | Decimal (1..127) |
| Default | 7 |

### GROUP SigChan Nis Layer3Options (L3)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group represents the provisionable Layer 3 timer attributes of a the Nis signalling protocol. |

### ATTRIBUTE SigChan Nis t309

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the data link failure timer; used to ride out temporary failures. |
| Values | Decimal (15..120) |
| Units | seconds |
| Default | 90 |

### ATTRIBUTE SigChan Nis t310

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the call proceeding state timer. |
| Values | Decimal (10..120) |
| Units | seconds |
| Default | 10 |

### GROUP SigChan Nis Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group defines the general options of the D-channel signalling link. |

### ATTRIBUTE SigChan Nis side

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies whether the interface is the network or user side of the connection. The parameter applies to both the |

layer 2 and layer 3 of the interface. If this attribute is set to ***network***, then the interface is master during channel negotiation. If this attribute is set to ***user***, then the interface is slave during channel negotiation.

Values: network
user

Default: network

### ATTRIBUTE SigChan Nis maxNonCallConcurrent (nonCall)

Access: Read: All
Write: All

Criticality: Process

Description: This attribute specifies the maximum number of simultaneous active non-call messages that are allowed.

Values: Decimal (1..30)

Default: 30

### GROUP SigChan Nis OsiState (State)

Properties: Operational

Description: This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE SigChan Nis adminState (osiAdmin)

Access: Read only

Description: This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component.

When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE SigChan Nis operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE SigChan Nis usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

## GROUP SigChan Nis Statistics (Stats)

Properties
Operational

Description
This group provides the operational components for the *NisSig* component.

## ATTRIBUTE SigChan Nis totalCallsToIf

Access
Read: All
Write: Illegal

Description
This attribute counts the total number of calls that have been made to the interface. The value wraps when it reaches its maximum.

Values
Decimal (0..4294967295)

Default
0

## ATTRIBUTE SigChan Nis totalCallsFromIf

Access
Read: All
Write: Illegal

Description
This attribute counts the total number of calls from the interface. The value wraps when it reaches its maximum.

Values
Decimal (0..4294967295)

Default
0

### ATTRIBUTE SigChan Nis nonCallAssocSessionsToIf

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of non-call associated sessions to the interface. The value wraps when it reaches its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE SigChan Nis nonCallAssocSessionsFromIf

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of non-call associated sessions from the interface. The value wraps when it reaches its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### GROUP SigChan Nis Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group provides the operational attributes for the NisSig protocol. |

### ATTRIBUTE SigChan Nis activeChannels

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of currently active channels. This includes data and voice channels. |
| Values | Decimal (0..128) |
| Default | 0 |

### ATTRIBUTE SigChan Nis activeVoiceChannels

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of channels that are currently carrying voice. |
| Values | Decimal (0..128) |
| Default | 0 |

### ATTRIBUTE SigChan Nis activeDataChannels

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of channels that are currently carrying data. This does not include modem data. |
| Values | Decimal (0..128) |
| Default | 0 |

### ATTRIBUTE SigChan Nis peakActiveChannels

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the maximum number of channels that have been active on this signalling channel during the last polling period. |
| Values | Decimal (0..128) |
| Default | 0 |

### ATTRIBUTE SigChan Nis peakActiveVoiceChannels

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the maximum number of voice channels that have been active on this signalling channel during the last polling period. |
| Values | Decimal (0..128) |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE SigChan Nis peakActiveDataChannels

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the maximum number of data channels that have been active on this signalling channel during the last polling period. |
| Values | Decimal (0..128) |
| Default | 0 |

### ATTRIBUTE SigChan Nis dChanStatus (dCh)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the state of the D-channel.<br>***outOfService*** means that there is no layer 2 or layer 3 connectivity to the PBX.<br>***establishing*** means that the signalling channel is attempting to stage the layer 2.<br>***established*** means that the layer 2 is enabled. If the signalling channel stays in the ***established*** state, then it is waiting for a restart from the PBX.<br>***enabling*** means that the resources for processing calls are being initialized. If the signalling channel stays in the ***enabling*** state then it is waiting for a restart acknowledgement from the PBX.<br>***inService*** means that the resources for processing calls are available.<br>***restarting*** means that the resources for call processing are being rei-initialized. |
| Values | outOfService<br>establishing<br>established<br>enabling<br>inService<br>restarting |
| Default | No default |

## GROUP SigChan Nis Tools

| | |
|---|---|
| Properties | Operational |
| Description | This contains a series of operational attributes which turn on and off several kinds of tracing. |

## ATTRIBUTE SigChan Nis tracing

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute defines which types of tracing are active for this signalling channel. The tracing messages are sent to the debug stream. To see the messages the *agentQueue* attribute in *Col/debug* must be greater than 0 and a Telnet NMIS session must list the debug stream in in its data streams (ex. *set nmis telnet session/1 dataStreams debug*). Different types of tracing can be enabled simultaneously.<br>Note that tracing consumes additional CPU resources and will slow down call processing on a heavily loaded card. If there is message block exhaustion tracing will be suspended for a period and then automatically reenabled. An alarm is generated on tracing suspension and resumption. This mechanism protects the function processor against excessive numbers of tracing messages.<br><br>Types of tracing include:<br>***protocolErrors*** - get details of any protocol errors which are occuring. Protocol errors are also reported in summary form as alarms.<br>***q931Summary*** - Summary of the Q.931 messages on the signalling link, including certain call details (calling number, called number, release codes).<br>***q931Hex*** - Q.931 messages displayed in hex format. Useful to determine protocol compliance in case of errors reported on local or remote ends.<br>***q931Symbolic*** - Q.931 messages parsed to give maximum detail. Useful for understanding content of messages flowing on the link. |

***portHex*** - Messages in hex format being sent and received on the link.

Set of
protocolErrors
q931Summary
q931Hex
q931Symbolic
portHex

Default
No default

## GROUP SigChan Nis NisSpecificProv

Properties
Provisioned

Description
This group provides NIS protocol specific provisioning.

## ATTRIBUTE SigChan Nis chanMaintenanceHandling (cmh)

Access
Read: All
Write: All

Criticality
Process

Description
This attribute specifies how channel maintenance events should be handled upon startup. Channel maintenance events include locking and unlocking a channel or channel registration. The decision is either to send individual channel RESTART messages, SERVICE messages, or nothing. Note that channel registration only occurs after the global interface restart at startup.

Setting this attribute to enable SERVICE messages ensures that SERVICE messages occur at startup and whenever a channel goes into or out of service. If this attribute is not set to enable SERVICE messaging, a RESTART is always sent on unlocking a channel.

***globalOnStartup*** provides the minimum required functionality at startup, without any individual channel confirmation. Note that when this is set, channel RESTART is still used for channel unlock. ***globalOnStartup*** applies to *SigChan* startup only.

***serviceMessage*** enables sending and receiving SERVICE messages. If this attribute is set to ***serviceMessage***, SERVICE

messages are used for channel maintenance on channel lock, channel unlock, and startup.

***restartMessage*** specifies that individual channel RESTARTs when the SigChan starts up. If this attribute is set to ***restartMessage***, a RESTART message is used to send at startup and channel unlock.

Values: globalOnStartup (gbl)
serviceMessage (svc)
restartMessage (rest)

Default: restartMessage

## COLLECTED STATS SignallingChannel NisSig

Description: The statistics record generated by the SignallingChannel NisSig component.

### ATTRIBUTE SigChan Nis peakActiveChannels

Description: This collected statistic counts the maximum number of channels that have been active on this signalling channel in the last statistics collection interval.

Values: Decimal (0..30)

### ATTRIBUTE SigChan Nis peakActiveVoiceChannels

Description: This collected statistic counts the maximum number of voice channels that have been active on this signalling channel in the last statistics collection interval.

Values: Decimal (0..30)

### ATTRIBUTE SigChan Nis peakActiveDataChannels

Description: This collected statistic counts the maximum number of data channels that have been active on this signalling channel in the last statistics collection interval.

Values: Decimal (0..30)

### ATTRIBUTE SigChan Nis totalCallsToIf

Description This collected statistic counts the total number of calls that have been made to the interface in the last statistics collection interval.

Values Decimal (0..65535)

### ATTRIBUTE SigChan Nis totalCallsFromIf

Description This collected statistic counts the number of calls from the interface in the last statistics collection interval.

Values Decimal (0..65535)

### ATTRIBUTE SigChan Nis nonCallAssocSessionsToIf

Description This collected statistic counts the number of non-call associated sessions to the interface in the last statistics collection interval.

Values Decimal (0..65535)

### ATTRIBUTE SigChan Nis nonCallAssocSessionsFromIf

Description This collected statistic counts the number of non-call associated sessions from the interface in the last statistics collection interval.

Values Decimal (0..65535)

### ATTRIBUTE SigChan Nis frmToIf

Description This collected statistic counts the number of frames transmitted to the link interface by *Framer* in the last statistics collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE SigChan Nis frmFromIf

Description

This collected statistic counts the number of frames received from the link interface by *Framer* in the last statistics collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE SigChan Nis octetFromIf

Description — The number of bytes received from the link interface by *Framer* in the last statistics collection interval.

Values — Decimal (0..4294967295)

### ATTRIBUTE SigChan Nis octetToIf

Description — The number of bytes sent to the link interface by *Framer* in the last statistics collection interval.

Values — Decimal (0..4294967295)

### COMPONENT SigChan Nis Framer (Framer)

Groups — "GROUP SigChan Nis Framer Provisioned (Prov)"
"GROUP SigChan Nis Framer OsiState (State)"
"GROUP SigChan Nis Framer Statistics (Stats)"

Scope — Application

Description — *SigChan/n Nis Framer*

The *Framer* component controls link layer framing for application components sending and receiving data on a link interface. It is also through *Framer*, that an application component is associated with a specific hardware link interface.

The *Framer* component provides provisionable attributes related to data path aspects of the hardware interface (such as crc and frame length). The *Framer* component also provides a provisionable attribute which binds the application component to a specific hardware component.

The *Framer* component contains operational attributes for link interface data path statistics (such as frame counts and aborts).

Common Verbs — Help
List
Display

### GROUP SigChan Nis Framer Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the base provisioning data for the *Framer* component. Application or hardware interface specific provisioning data is contained in other provisionable *Framer* groups. |

### ATTRIBUTE SigChan Nis Framer interfaceName

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute contains a hardware component name.<br><br>The attribute associates the application with a specific link. This defines the module processor on which *Framer*'s parent component (as well as *Framer* itself) will run. |
| Values | Link (Hardware, applicationFramerName) |
| Default | No default |

### GROUP SigChan Nis Framer OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE SigChan Nis Framer adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or |

*Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE SigChan Nis Framer operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE SigChan Nis Framer usageState (osiUsage)

Access
Read only

| | |
|---|---|
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP SigChan Nis Framer Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational statistics data for a *Framer* component. |

### ATTRIBUTE SigChan Nis Framer frmToIf

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames transmitted to the link interface by *Framer.*<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE SigChan Nis Framer frmFromIf

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames received from the link interface by *Framer.*<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE SigChan Nis Framer octetFromIf

| | |
|---|---|
| Access | Read only |
| Description | The number of bytes received from the link interface by *Framer*. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE SigChan Nis Framer aborts

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of aborts received.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE SigChan Nis Framer crcErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames with CRC errors.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE SigChan Nis Framer lrcErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames with LRC errors.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE SigChan Nis Framer nonOctetErrors

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the total number of frames that were non octet aligned.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE SigChan Nis Framer overruns

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames received from the link for which overruns occurred.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE SigChan Nis Framer underruns

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames transmitted to the link for which underruns occurred.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE SigChan Nis Framer largeFrmErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames received which were too large (longer than 500 bytes).<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## COMPONENT SigChan EuroIsdn (EIsdn)

| | |
|---|---|
| Groups | "GROUP SigChan EIsdn Layer2Options (L2)"<br>"GROUP SigChan EIsdn Layer3Options (L3)"<br>"GROUP SigChan EIsdn Provisioned (Prov)"<br>"GROUP SigChan EIsdn OsiState (State)"<br>"GROUP SigChan EIsdn Statistics (Stats)"<br>"GROUP SigChan EIsdn Operational (Oper)"<br>"GROUP SigChan EIsdn Tools"<br>"GROUP SigChan EIsdn Options (Opt)"<br>"GROUP SigChan EIsdn EuroSpecificProv" |

"COLLECTED STATS SignallingChannel EuroIsdn"

| | |
|---|---|
| Scope | Device |
| Description | *SigChan/n EuroIsdn*<br>The *EuroIsdn* component defines the characteristics of the signalling channel's connection to the external equipment on the Euro ISDN UNI (ETSI-T Interface). |
| Subcomponents | "COMPONENT SigChan EIsdn Framer (Framer)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP SigChan EIsdn Layer2Options (L2)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group specifies the provisionable layer 2 attributes of the Euro ISDN (ETSI-T) protocol. |

## ATTRIBUTE SigChan EIsdn t23

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |

| | |
|---|---|
| Description | This attribute specifies duration of the layer 2 enable request timer. |
| Values | Decimal (1..15) |
| Units | seconds |
| Default | 10 |

### ATTRIBUTE SigChan Elsdn t200

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the maximum elapsed time between a layer 2 frame and its acknowledgment. |
| Values | Decimal (1..20) |
| Units | seconds |
| Default | 1 |

### ATTRIBUTE SigChan Elsdn n200

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the maximum number of re-transmissions of a layer 2 frame. |
| Values | Decimal (1..8) |
| Default | 3 |

### ATTRIBUTE SigChan Elsdn t203

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |

| | |
|---|---|
| Description | This attribute specifies the maximum time during which layer 2 frames may be absent. Expiry triggers a check on whether the far end is alive. |
| Values | Decimal (2..40) |
| Units | seconds |
| Default | 10 |

### ATTRIBUTE SigChan Elsdn circuitSwitchedK

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the maximum number of sequentially numbered I frames (that is, window size (k)) that may be unacknowledged at any given time for a SAP supporting primary rate (64kbit/sec) signalling. |
| Values | Decimal (1..127) |
| Default | 7 |

### GROUP SigChan Elsdn Layer3Options (L3)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group represents the provisionable Layer 3 timer attributes of a the Euro ISDN (ETSI-T) protocol. |

### ATTRIBUTE SigChan Elsdn t310

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies duration of the call proceeding state timer. |
| Values | Decimal (10..120) |
| Units | seconds |
| Default | 30 |

## GROUP SigChan Elsdn Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group defines the general options of the D-channel signalling link. |

## ATTRIBUTE SigChan Elsdn side

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies whether the interface is the network or user side of the connection. The parameter applies to both the layer 2 and layer 3 of the interface. In addition, if this attribute is set to ***network***, then the interface is master during channel negotiation. If this attribute is set to ***user***, then the interface is slave during channel negotiation. |
| Values | network<br>user |
| Default | network |

## ATTRIBUTE SigChan Elsdn maxNonCallConcurrent (nonCall)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the maximum number of simultaneous active non call-associated sessions that are allowed. Reduction of the value does not impact NCAS sessions already in progress. |
| Values | Decimal (0..30) |
| Default | 30 |

## ATTRIBUTE SigChan Elsdn overlapSending (ovls)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |

| | |
|---|---|
| Description | This attribute specifies whether overlap sending to the PBX is enabled. |
| Values | enabled<br>disabled |
| Default | enabled |

### ATTRIBUTE SigChan Elsdn overlapReceiving (ovlr)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies whether overlap receiving from the PBX is enabled. |
| Values | enabled<br>disabled |
| Default | enabled |

### GROUP SigChan Elsdn OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE SigChan Elsdn adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***. |

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE SigChan EIsdn operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE SigChan EIsdn usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in

use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

## GROUP SigChan EIsdn Statistics (Stats)

Properties
Operational

Description
This group provides the statistical attributes for the *SigChan/x EuroIsdn* component.

## ATTRIBUTE SigChan EIsdn totalCallsToIf

Access
Read: All
Write: Illegal

Description
This attribute counts the total number of calls that have been made to the interface. The value wraps to zero when it exceeds its maximum.

Values
Decimal (0..4294967295)

Default
0

## ATTRIBUTE SigChan EIsdn totalCallsFromIf

Access
Read: All
Write: Illegal

Description
This attribute counts the total number of calls that have been made from the interface. The value wraps to zero when it exceeds its maximum.

Values
Decimal (0..4294967295)

Default
0

### ATTRIBUTE SigChan EIsdn nonCallAssocSessionsToIf

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of non call-associated sessions that have been made to the interface. The value wraps to zero when it exceeds its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE SigChan EIsdn nonCallAssocSessionsFromIf

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of non call-associated sessions that have been made from the interface. The value wraps to zero when it exceeds its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### GROUP SigChan EIsdn Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group provides the operational attributes for the *SigChan/x EuroIsdn* component. |

### ATTRIBUTE SigChan EIsdn activeChannels

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of currently active channels. This includes channels used by both, data and voice calls. |
| Values | Decimal (0..128) |
| Default | 0 |

### ATTRIBUTE SigChan Elsdn activeVoiceChannels

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of channels that are currently used by voice calls. This includes modem calls. |
| Values | Decimal (0..128) |
| Default | 0 |

### ATTRIBUTE SigChan Elsdn activeDataChannels

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of channels that are currently used by data calls. This does not include modem data. |
| Values | Decimal (0..128) |
| Default | 0 |

### ATTRIBUTE SigChan Elsdn peakActiveChannels

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the maximum value of the *activeChannels* attribute during the last polling period. |
| Values | Decimal (0..128) |
| Default | 0 |

### ATTRIBUTE SigChan Elsdn peakActiveVoiceChannels

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the maximum value of the *activeVoiceChannels* attribute during the last polling period. |
| Values | Decimal (0..128) |
| Default | 0 |

## ATTRIBUTE SigChan Elsdn peakActiveDataChannels

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the maximum value of the *activeDataChannels* attribute during the last polling period. |
| Values | Decimal (0..128) |
| Default | 0 |

## ATTRIBUTE SigChan Elsdn dChanStatus (dCh)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the state of the D-channel.<br>***outOfService*** means that there is no layer 2 or layer 3 connectivity to the PBX.<br>***establishing*** means that the signalling channel is attempting to stage the layer 2.<br>***established*** means that the layer 2 is enabled. If the signalling channel stays in the ***established*** state, then it is waiting for a restart from the PBX.<br>***enabling*** means that the resources for processing calls are being initialized. If the signalling channel stays in the ***enabling*** state then it is waiting for a restart acknowledgment from the PBX.<br>***inService*** means that the resources for processing calls are available.<br>***restarting*** means that the resources for call processing are being initialized. |
| Values | outOfService<br>establishing<br>established<br>enabling<br>inService<br>restarting |
| Default | No default |

## GROUP SigChan Elsdn Tools

| | |
|---|---|
| Properties | Operational |
| Description | This contains a series of operational attributes which turn on and off several kinds of tracing. |

## ATTRIBUTE SigChan Elsdn tracing

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute defines which types of tracing are active on the signalling channel. The tracing messages are sent to the debug stream. To see the messages the *agentQueueSize* attribute of the *Lp/x Eng Ds/debug* component must be greater than 0 and the operator's NMIS session must have the debug stream included in its data stream list (for example: *set Nmis Telnet Session/1 dataStreams deb*). Several types of tracing can be enabled simultaneously.<br>Note that tracing consumes additional CPU resources and slows down call processing on a heavily loaded card. If there is message block exhaustion tracing is suspended for a period of time and then automatically re-enabled. An alarm is generated on tracing suspension and resumption. This mechanism protects the function processor against excessive numbers of tracing messages.<br>Types of tracing include:<br>***protocolErrors*** - get details of any protocol errors which are occurring. Protocol errors are also reported in summary form as alarms.<br>***q931Summary*** - summary of the Q.931 messages on the signalling link.<br>***q931Hex*** - Q.931 messages displayed in hex format. Useful to determine protocol compliance in case of errors reported on local or remote ends.<br>***q931Symbolic*** - Q.931 messages parsed to give maximum detail. Useful for understanding content of messages flowing on the link. |

| | |
|---|---|
| | ***portHex*** - Q.921 messages in hex format being sent and received on the link. |
| Set of | protocolErrors<br>q931Summary<br>q931Hex<br>q931Symbolic<br>portHex |
| Default | No default |

### GROUP SigChan Elsdn Options (Opt)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group specifies the provisionable attributes specific to the Euro ISDN (ETSI-T) protocol. |

### ATTRIBUTE SigChan Elsdn variant

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the specific variant of the Euro ISDN (ETSI-T) protocol. Supported variants are:<br>***etsiGeneric*** - provides generic ETSI-T protocol. Only proxy of the NETWORK side of the protocol is implemented,<br>***austria*** - provides ETSI-T protocol variant as per the Austrian national specification. Only the USER side of the protocol is implemented,<br>***germany*** - provides ETSI-T protocol variant as per the German national specification. Only the USER side of the protocol is implemented. |
| Values | etsiGeneric<br>austria<br>germany |
| Default | etsiGeneric |

### ATTRIBUTE SigChan Elsdn connectServiceTimer (cst)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies duration of the “await connection” supervisory timer which applies to non call-associated sessions providing bearer-independent connection-oriented transport for supplementary services. The timer is started at the ingress Passport when a REGISTER message is received from the source PBX and stopped when a virtual circuit with the egress Passport is established. If the timer expires, the non call-associated session is cleared.<br>The “await connection” timer (attribute *connectServiceTimer*) together with “await response” timer (attribute *responseServiceTimer*) provide equivalent of the T-ACTIVATE timer described in the relevant supplementary service specifications.<br>A change of the timer value does not apply to timers already running. |
| Values | Decimal (1..10) |
| Units | seconds |
| Default | 8 |

### ATTRIBUTE SigChan Elsdn responseServiceTimer (rst)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies duration of the “await response” supervisory timer which applies to non call-associated sessions providing bearer-independent connection-oriented transport for supplementary services. The timer is started at the ingress Passport when creation of a virtual circuit with the egress Passport is confirmed and stopped when the first message from the destination PBX is received. If the timer expires, the non call-associated session is cleared.<br>The “await connection” timer (attribute *connectServiceTimer*) together with “await response” timer (attribute *responseServiceTimer*) provide equivalent of the T-ACTIVATE |

| | |
|---|---|
| | timer described in the relevant supplementary service specifications.<br>A change of the timer value does not apply to timers already running. |
| Values | Decimal (1..10) |
| Units | seconds |
| Default | 8 |

### ATTRIBUTE SigChan Elsdn lifetimeServiceTimer (lst)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies duration of the service lifetime supervisory timer which applies to non call-associated sessions providing bearer-independent connection-oriented transport for supplementary services. The timer limits the duration of a virtual call. It is started at the ingress Passport at the moment the first response message from the destination PBX has been received and stopped when the non call-associated session is released. If the timer expires, the non call-associated session is cleared.<br>This timer is equivalent to the T-CCBS6 timer described in the relevant supplementary service specifications.<br>A change of the timer value does not apply to timers already running. |
| Values | Decimal (1..200) |
| Units | minutes |
| Default | 60 |

### GROUP SigChan Elsdn EuroSpecificProv

| | |
|---|---|
| Properties | Provisioned |
| Description | This group provides Euro ISDN protocol specific provisioning. |

### ATTRIBUTE SigChan EIsdn chanMaintenanceHandling (cmh)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies how channel maintenance events should be handled upon startup. Channel maintenance events include locking and unlocking a channel or channel registration. The decision is either to send individual channel RESTART message,or global interface restart at at startup.<br><br>A RESTART is always sent on unlocking a channel.<br><br>***globalOnStartup*** provides the minimum required functionality at startup, without any individual channel confirmation. Note that when this is set, channel RESTART is still used for channel unlock. ***globalOnStartup*** applies to *SigChan* startup only.<br><br>***restartMessage*** specifies that individual channel RESTARTs when the SigChan starts up. If this attribute is set to ***restartMessage***, a RESTART message is used to send at startup and channel unlock, Global Restart is implemented first for in this choice.<br><br>***restartOnlyMessage*** specifies that individual channel RESTARTs when the SigChan starts up. If this attribute is set to ***restartOnlyMessage***, a RESTART message is used to send at startup and channel unlock, Global Restart is not implemented for this choice. |
| Values | globalOnStartup (gbl)<br>restartMessage (rest)<br>restartOnlyMessage (reso) |
| Default | globalOnStartup |

## COLLECTED STATS SignallingChannel EuroIsdn

| | |
|---|---|
| Description | The statistics record generated by the SignallingChannel EuroIsdn component. |

### ATTRIBUTE SigChan Elsdn peakActiveChannels

| | |
|---|---|
| Description | This collected statistic counts the maximum number of channels that have been active on this signalling channel in the last statistics collection interval. |
| Values | Decimal (0..30) |

### ATTRIBUTE SigChan Elsdn peakActiveVoiceChannels

| | |
|---|---|
| Description | This collected statistic counts the maximum number of voice channels that have been active on this signalling channel in the last statistics collection interval. |
| Values | Decimal (0..30) |

### ATTRIBUTE SigChan Elsdn peakActiveDataChannels

| | |
|---|---|
| Description | This collected statistic counts the maximum number of data channels that have been active on this signalling channel in the last statistics collection interval. |
| Values | Decimal (0..30) |

### ATTRIBUTE SigChan Elsdn totalCallsToIf

| | |
|---|---|
| Description | This collected statistic counts the total number of calls that have been made to the interface in the last statistics collection interval. |
| Values | Decimal (0..65535) |

### ATTRIBUTE SigChan Elsdn totalCallsFromIf

| | |
|---|---|
| Description | This collected statistic counts the number of calls from the interface in the last statistics collection interval. |
| Values | Decimal (0..65535) |

### ATTRIBUTE SigChan Elsdn nonCallAssocSessionsToIf

| | |
|---|---|
| Description | This collected statistic counts the number of non-call associated sessions to the interface in the last statistics collection interval. |
| Values | Decimal (0..65535) |

### ATTRIBUTE SigChan EIsdn nonCallAssocSessionsFromIf

Description: This collected statistic counts the number of non-call associated sessions from the interface in the last statistics collection interval.

Values: Decimal (0..65535)

### ATTRIBUTE SigChan EIsdn frmToIf

Description: This collected statistic counts the number of frames transmitted to the link interface by *Framer* in the last statistics collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE SigChan EIsdn frmFromIf

Description: This collected statistic counts the number of frames received from the link interface by *Framer* in the last statistics collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE SigChan EIsdn octetFromIf

Description: The number of bytes received from the link interface by *Framer* in the last statistics collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE SigChan EIsdn octetToIf

Description: The number of bytes sent to the link interface by *Framer* in the last statistics collection interval.

Values: Decimal (0..4294967295)

### COMPONENT SigChan EIsdn Framer (Framer)

Groups: "GROUP SigChan EIsdn Framer Provisioned (Prov)"
"GROUP SigChan EIsdn Framer OsiState (State)"
"GROUP SigChan EIsdn Framer Statistics (Stats)"

Scope: Application

Description *SigChan/n EuroIsdn Framer*

The *Framer* component controls link layer framing for application components sending and receiving data on a link interface. It is also through *Framer*, that an application component is associated with a specific hardware link interface.

The *Framer* component provides provisionable attributes related to data path aspects of the hardware interface (such as CRC and frame length). The *Framer* component also provides a provisionable attribute which binds the application component to a specific hardware component.

The *Framer* component contains operational attributes for link interface data path statistics (such as frame counts and aborts).

Common Verbs
Help
List
Display

## GROUP SigChan EIsdn Framer Provisioned (Prov)

Properties Provisioned

Description This group contains the base provisioning data for the *Framer* component. Application or hardware interface specific provisioning data is contained in other provisionable *Framer* groups.

## ATTRIBUTE SigChan EIsdn Framer interfaceName

Access Read and write

Criticality Process

Description This attribute contains a hardware component name.

The attribute associates the application with a specific link. This defines the module processor on which *Framer*'s parent component (as well as *Framer* itself) will run.

Values Link (Hardware, applicationFramerName)

Default — No default

### GROUP SigChan Elsdn Framer OsiState (State)

Properties — Operational

Description — This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE SigChan Elsdn Framer adminState (osiAdmin)

Access — Read only

Description — This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values — locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default — unlocked

### ATTRIBUTE SigChan Elsdn Framer operationalState (osiOper)

Access — Read only

| | |
|---|---|
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE SigChan Elsdn Framer usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP SigChan Elsdn Framer Statistics (Stats)

| | |
|---|---|
| Properties | Operational |

Description

This group contains the operational statistics data for a *Framer* component.

### ATTRIBUTE SigChan Elsdn Framer frmToIf

Access: Read only

Description: This attribute counts the number of frames transmitted to the link interface by the *Framer.*
This count wraps to zero after exceeding its maximum value.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE SigChan Elsdn Framer frmFromIf

Access: Read only

Description

This attribute counts the number of frames received from the link interface by the *Framer.*
This count wraps to zero after exceeding its maximum value.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE SigChan Elsdn Framer octetFromIf

Access: Read only

Description: This attribute counts the number of bytes received from the link interface by the *Framer.*
This count wraps to zero after exceeding its maximum value.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE SigChan Elsdn Framer aborts

Access: Read only

Description

This attribute counts the total number of aborts received.
This count wraps to zero after exceeding its maximum value.

Values Decimal (0..4294967295)

Default 0

### ATTRIBUTE SigChan Elsdn Framer crcErrors

Access Read only

Description

This attribute counts the total number of frames with CRC errors.
This count wraps to zero after exceeding its maximum value.

Values Decimal (0..4294967295)

Default 0

### ATTRIBUTE SigChan Elsdn Framer lrcErrors

Access Read only

Description

This attribute counts the total number of frames with LRC errors.
This count wraps to zero after exceeding its maximum value.

Values Decimal (0..4294967295)

Default 0

### ATTRIBUTE SigChan Elsdn Framer nonOctetErrors

Access Read only

Description

This attribute counts the total number of frames that were non octet aligned.
This count wraps to zero after exceeding its maximum value.

Values Decimal (0..4294967295)

Default 0

### ATTRIBUTE SigChan Elsdn Framer overruns

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames received from the link for which overruns occurred.<br>This count wraps to zero after exceeding its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE SigChan Elsdn Framer underruns

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames transmitted to the link for which underruns occurred.<br>This count wraps to zero after exceeding its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE SigChan Elsdn Framer largeFrmErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames received which were too large (longer than 500 bytes).<br>This count wraps to zero after exceeding its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT SigChan Gateway (Gw)

| | |
|---|---|
| Groups | "GROUP SigChan Gw Operational (Oper)"<br>"GROUP SigChan Gw Statistics (Stats)" |
| Scope | Application |
| Description | *SigChan/n Gateway*<br>This component contains operational attributes which describe gateway capabilities of the *SigChan* component as well as the basic statistics related to calls requiring signalling protocol conversion. |

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display |

## GROUP SigChan Gw Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains an operational attribute which indicates signalling protocol conversion capabilities of the *SigChan* component. |

## ATTRIBUTE SigChan Gw gatewayCapability (gwc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the *SigChan* component's capability to convert from one access signalling type to another. Access signalling protocols (protocols between a Passport and external switching equipment, for example a PBX) are grouped into protocol groups. Protocols within the same protocol group are considered completely compatible. This means that no extra processing is needed when a call originates from an ingress link using protocol A and terminates on an egress link using protocol B if protocols A and B belong to the same protocol group. The following protocol groups are defined:<br>***etsiQsigPG*** - ETSI QSIG protocol group containing ETSI QSIG protocol,<br>***mcdnFamilyPG*** - MCDN Family protocol group containing NIS, Meridian Customer Defined Network (MCDN) peer to peer, and MCDN User to Network (UNI) protocols,<br>***analogAndCasPG*** - Analog and CAS protocol group containing most of the analog and channel associated signalling protocols with steady state line signalling and DTMF register signalling,<br>***euroIsdnPG*** - EURO ISDN protocol group containing most of the European national ISDN protocols based on ETSI ISDN (ETSI-T) standard.<br><br>For every of the protocols group this attribute indicates what is |

the level of protocol conversion support available on the *SigChan* component:
***noGw*** - no protocol conversion available for the protocol group,
***singleEndedGw*** - only full protocol conversion available for the protocol group (that is the *SigChan* component on the other side of the subnet does not have to get involved in the gateway processing),
***doubleEndedGw*** - only partial protocol conversion available for the protocol group (that is both *SigChan* components, ingress and egress, have to get involved in signalling conversion),
***singleOrDoubleEndedGw*** - both, full and partial protocol conversions available for the protocol group,
***nativePG*** - the protocol group is the native protocol group for the *SigChan* component.

Vector of
noGw
singleEndedGw
doubleEndedGw
singleOrDoubleEndedGw
nativePG

Index
etsiQsigPG
mcdnPG
analogAndCasPG
euroIsdnPG

Default
No default

## GROUP SigChan Gw Statistics (Stats)

Properties
Operational

Description
This group provides signalling gateway related statistical attributes for the *SigChan* component.

## ATTRIBUTE SigChan Gw requiredConversions (rc)

Access
Read: All
Write: Illegal

Description
This attribute counts the total number of calls that have been made from the subnet to the interface (that is external equipment, for example a PBX) which needed signalling protocol conversion.

The value wraps to zero when it exceeds its maximum. The count includes both, supported and unsupported conversions.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE SigChan Gw unsupportedConversions (uc)

Access: Read: All
Write: Illegal

Description: This attribute counts the total number of calls that have been made from the subnet to the interface (that is external equipment, for example a PBX) which needed signalling protocol conversion but were rejected since the requested conversion was not supported. The value wraps to zero when it exceeds its maximum.

Values: Decimal (0..4294967295)

Default: 0

### COMPONENT SigChan NcaSession (Ncas)

Instance: Hex (H.0..H.ffff)

Groups: "GROUP SigChan Ncas Operational (Oper)"

Scope: Application

Description: *SigChan/n NcaSession/n*
This component represents a single Non Call-Associated signalling Session (NCAS) serviced by the *SigChan* component. Non call-associated signalling sessions are only supported on some Common Channel Signalling (CCS) protocols (for example ETSI QSIG, ETSI UNI ISDN). The instance value of a *NcaSession* component is an arbitrary number which does not change during an individual NCAS session.

Common Verbs:
Help
List
Display

## GROUP SigChan Ncas Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains various operational attributes of a non call-associated signalling session serviced by a *SigChan* component. |

## ATTRIBUTE SigChan Ncas direction

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates what is the direction of the non call-associated signalling session. The attribute may have the following values:<br>***ingress***, the NCAS session is originated by the external equipment into the subnet<br>***egress***, the NCAS session is originated by the subnet into the external equipment |
| Values | ingress<br>egress |
| Default | No default |

## ATTRIBUTE SigChan Ncas callReference

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates which call reference the NCAS session uses. |
| Values | Hex (H.0..H.ffff) |
| Default | No default |

## ATTRIBUTE SigChan Ncas calledDirectoryNumber (calledDn)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the dialled number for the NCAS session. |
| Values | BCD (1..32) |
| Default | No default |

## ATTRIBUTE SigChan Ncas duration

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates duration of the NCAS session since its establishment. |
| Values | Decimal (0..4294967295) |
| Units | minutes |
| Default | 0 |

## COMPONENT SigChan McdnSig (Mcdn)

| | |
|---|---|
| Groups | "GROUP SigChan Mcdn Layer2Options (L2)"<br>"GROUP SigChan Mcdn Layer3Options (L3)"<br>"GROUP SigChan Mcdn Provisioned (Prov)"<br>"GROUP SigChan Mcdn OsiState (State)"<br>"GROUP SigChan Mcdn Statistics (Stats)"<br>"GROUP SigChan Mcdn Operational (Oper)"<br>"GROUP SigChan Mcdn Tools"<br>"GROUP SigChan Mcdn ConnectionlessFeatures (Cls)"<br>"GROUP SigChan Mcdn ConnectionOrientedFeatures (Co)" |

"COLLECTED STATS SignallingChannel McdnSig"

| | |
|---|---|
| Scope | Device |
| Description | *SigChan/n McdnSig*<br>The *McdnSig* component defines the operational characteristics of the signalling channel's connection to the external equipment. This is the proprietary MCDN protocol as based on Nortel specification TR-88-5003. |
| Subcomponents | "COMPONENT SigChan Mcdn Framer (Framer)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP SigChan Mcdn Layer2Options (L2)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group specifies the provisionable layer 2 attributes of the Q.931 ITU-T protocol. |

## ATTRIBUTE SigChan Mcdn t23

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the layer 2 enable request timer. |
| Values | Decimal (1..15) |
| Units | seconds |
| Default | 10 |

## ATTRIBUTE SigChan Mcdn t200

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the maximum time between a layer 2 frame and its acknowledgment. |
| Values | Decimal (1..20) |
| Units | seconds |
| Default | 1 |

## ATTRIBUTE SigChan Mcdn n200

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the maximum number of re-transmissions of a layer 2 frame. |

| | |
|---|---|
| Values | Decimal (1..8) |
| Default | 3 |

### ATTRIBUTE SigChan Mcdn t203

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the maximum time for which layer 2 frames may be absent. Expiry triggers a check on whether the far end is alive. |
| Values | Decimal (2..40) |
| Units | seconds |
| Default | 10 |

### ATTRIBUTE SigChan Mcdn circuitSwitchedK

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the maximum number of sequentially numbered I frames (that is, window size (k)) that may be unacknowledged at any given time for a SAP supporting primary rate (64kbit/sec) signalling. |
| Values | Decimal (1..127) |
| Default | 7 |

### GROUP SigChan Mcdn Layer3Options (L3)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group represents the provisionable Layer 3 timer attributes of the MCDN signalling protocol. |

### ATTRIBUTE SigChan Mcdn t302

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the overlap receiving timer; in a UNI, this is network to user, but for Peer to Peer it is all incoming calls. This attribute is ignored if overlap signalling is disabled. |
| Values | Decimal (10..30) |
| Units | seconds |
| Default | 15 |

### ATTRIBUTE SigChan Mcdn t304

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the overlap sending timer; in a UNI, this is user to network, but for Peer to Peer it is all outgoing calls. This attribute is ignored if overlap signalling is disabled. |
| Values | Decimal (10..30) |
| Units | seconds |
| Default | 10 |

### ATTRIBUTE SigChan Mcdn t309

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the data link disconnect timer; used to ride out temporary failures. |
| Values | Decimal (15..120) |
| Units | seconds |

| | |
|---|---|
| Default | 90 |

### ATTRIBUTE SigChan Mcdn t310

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the call proceeding state timer. |
| Values | Decimal (10..120) |
| Units | seconds |
| Default | 10 |

### ATTRIBUTE SigChan Mcdn t316

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the restart request response timer.<br>It must be set greater than *t317*. |
| Values | Decimal (31..180) |
| Units | seconds |
| Default | 120 |

### ATTRIBUTE SigChan Mcdn t317

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Criticality | Process |
| Description | This attribute specifies the restart operation timer, used when a RESTART was received. |
| Values | Decimal (30..179) |
| Units | seconds |
| Default | 30 |

## GROUP SigChan Mcdn Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group defines the general options of the D-channel signalling link. |

## ATTRIBUTE SigChan Mcdn side

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies whether the interface provides layer 2 and 3 services equivalent to the ITU-T network or user side of the connection. If this attribute is set to ***network***, then the interface is master during channel negotiation, and uses network side layer 2 command/response bits. If this attribute is set to ***user***, then the interface is slave during channel negotiation, and uses user side layer 2 command/response bits.<br>Note that although a peer to peer protocol has no true network or user side, for channel negotiation and layer 2 handling the peer to peer and UNI protocols have identical function. A true UNI may also have uni-directional messages and/or message elements; the peer to peer has all elements bidirectional. |
| Values | network<br>user |
| Default | network |

## ATTRIBUTE SigChan Mcdn maxNonCallConcurrent (nonCall)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the maximum number of simultaneous active non-call transactions that are allowed. |
| Values | Decimal (1..30) |
| Default | 30 |

### ATTRIBUTE SigChan Mcdn overlapSending (ovls)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies whether overlap sending to the PBX is enabled. |
| Values | enabled<br>disabled |
| Default | enabled |

### ATTRIBUTE SigChan Mcdn overlapReceiving (ovlr)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies whether overlap receiving from the PBX is enabled. |
| Values | enabled<br>disabled |
| Default | enabled |

### ATTRIBUTE SigChan Mcdn chanMaintenanceHandling (cmh)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies handling of channel maintenance events such as locking and unlocking a channel or channel registration on start-up. The decision here is whether to send individual channel RESTART messages, SERVICE messages, or nothing. Note that channel registration only occurs after the global interface restart at startup.<br><br>The attribute controls start-up handling absolutely, and channel lock and unlock conditionally. That is, setting this to enable |

SERVICE messages ensures SERVICE messages at start-up and whenever a channel goes into or out of service. However, if this is not set to enable SERVICE messaging, a RESTART is always sent on unlocking a channel.

***globalOnStartup*** provides the minimum required function at start-up, without any individual channel confirmation. Note that when this is set, channel RESTART is still used for channel unlock. ***globalOnStartup*** applies to *SigChan* start-up only.

***serviceMessage*** enables sending and receiving SERVICE messages. If enabled, SERVICE messages are always used for channel maintenance on channel lock, channel unlock and start-up.

***restartMessage*** provides individual channel RESTARTs when a *SigChan* starts up. If enabled, the RESTART is used at start-up and channel unlock. However, if both SERVICE and RESTART messages are disabled, the RESTART will still be used when a channel unlocks.

Values: globalOnStartup (gbl)
serviceMessage (svc)
restartMessage (rest)

Default: restartMessage

## GROUP SigChan Mcdn OsiState (State)

Properties: Operational

Description: This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

## ATTRIBUTE SigChan Mcdn adminState (osiAdmin)

Access: Read only

Description

This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values

locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default

unlocked

### ATTRIBUTE SigChan Mcdn operationalState (osiOper)

Access

Read only

Description

This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values

enabled (ena)
disabled (dis)

Default

disabled

### ATTRIBUTE SigChan Mcdn usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP SigChan Mcdn Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group provides the operational components for the *McdnSig* component. |

### ATTRIBUTE SigChan Mcdn totalCallsToIf

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of calls that have been made to the interface. The value wraps when it reaches its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE SigChan Mcdn totalCallsFromIf

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the total number of calls from the interface. The value wraps when it reaches its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE SigChan Mcdn nonCallAssocSessionsToIf

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of non-call associated sessions to the interface. The value wraps when it reaches its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE SigChan Mcdn nonCallAssocSessionsFromIf

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of non-call associated sessions from the interface. The value wraps when it reaches its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### GROUP SigChan Mcdn Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group provides the operational attributes for the MCDN signalling. |

### ATTRIBUTE SigChan Mcdn activeChannels

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of currently active channels. This includes data and voice channels. |

| | |
|---|---|
| Values | Decimal (0..128) |
| Default | 0 |

### ATTRIBUTE SigChan Mcdn activeVoiceChannels

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of channels that are currently carrying voice. |
| Values | Decimal (0..128) |
| Default | 0 |

### ATTRIBUTE SigChan Mcdn activeDataChannels

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of channels that are currently carrying data. This does not include modem data. |
| Values | Decimal (0..128) |
| Default | 0 |

### ATTRIBUTE SigChan Mcdn peakActiveChannels

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the maximum number of channels that have been active on this signalling channel during the last polling period. |
| Values | Decimal (0..128) |
| Default | 0 |

### ATTRIBUTE SigChan Mcdn peakActiveVoiceChannels

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute indicates the maximum number of voice channels that have been active on this signalling channel during the last polling period. |
| Values | Decimal (0..128) |
| Default | 0 |

### ATTRIBUTE SigChan Mcdn peakActiveDataChannels

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the maximum number of data channels that have been active on this signalling channel during the last polling period. |
| Values | Decimal (0..128) |
| Default | 0 |

### ATTRIBUTE SigChan Mcdn dChanStatus (dCh)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the state of the D-channel.<br>***outOfService*** means that there is no layer 2 or layer 3 connectivity to the PBX.<br>***establishing*** means that the signalling channel is attempting to stage the layer 2.<br>***established*** means that the layer 2 is enabled. If the signalling channel stays in the ***established*** state, then it is waiting for a restart from the PBX.<br>***enabling*** means that the resources for processing calls are being initialized. If the signalling channel stays in the ***enabling*** state then it is waiting for a restart acknowledgement from the PBX.<br>***inService*** means that the resources for processing calls are available.<br>***restarting*** means that the resources for call processing are being rei-initialized. |
| Values | outOfService<br>establishing |

established
enabling
inService
restarting

Default: No default

## GROUP SigChan Mcdn Tools

Properties: Operational

Description: This contains a series of operational attributes which turn on and off several kinds of tracing.

## ATTRIBUTE SigChan Mcdn tracing

Access: Read: All
Write: All

Description: This attribute defines which types of tracing are active for this signalling channel. The tracing messages are sent to the debug stream. To see the messages the *agentQueue* attribute in *Col/debug* must be greater than 0 and a Telnet NMIS session must list the debug stream in in its data streams (ex. *set nmis telnet session/1 dataStreams debug*). Different types of tracing can be enabled simultaneously.
Note that tracing consumes additional CPU resources and will slow down call processing on a heavily loaded card. If there is message block exhaustion tracing will be suspended for a period and then automatically reenabled. An alarm is generated on tracing suspension and resumption. This mechanism protects the function processor against excessive numbers of tracing messages.

Types of tracing include:
***protocolErrors*** - get details of any protocol errors which are occuring. Protocol errors are also reported in summary form as alarms.
***q931Summary*** - Summary of the Q.931 messages on the signalling link, including certain call details (calling number, called number, release codes).
***q931Hex*** - Q.931 messages displayed in hex format. Useful to determine protocol compliance in case of errors reported on local

| | |
|---|---|
| | or remote ends.<br>***q931Symbolic*** - Q.931 messages parsed to give maximum detail. Useful for understanding content of messages flowing on the link.<br>***portHex*** - Messages in hex format being sent and received on the link. |
| Set of | protocolErrors<br>q931Summary<br>q931Hex<br>q931Symbolic<br>portHex |
| Default | No default |

### ATTRIBUTE SigChan Mcdn messageTraced (msgtrc)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the type of ISDN messages that are to be traced. |
| Set of | alerting<br>callProceeding (callProc)<br>connectionlessFacility (clsFac)<br>congestionControl (contCtrl)<br>connect<br>connectAcknowledge (connectAck)<br>disconnect<br>facility (fac)<br>facilityAcknowledge (facAck)<br>facilityReject (facRej)<br>information (info)<br>notify<br>progress<br>register |

| | |
|---|---|
| | releaseComp (relComp)<br>release<br>restart<br>restartAcknowledge (restartAck)<br>service<br>serviceAcknowledge (serviceAck)<br>setup<br>setupAcknowledge (setupAck)<br>status<br>statusEnquiry<br>userInformation (userInfo)<br>all |
| Default | (alerting, callProceeding, connectionlessFacility, congestionControl, connect, connectAcknowledge, disconnect, facility, facilityAcknowledge, facilityReject, information, notify, progress, register, releaseComp, release, restart, restartAcknowledge, service, serviceAcknowledge, setup, setupAcknowledge, status, statusEnquiry, userInformation) |

### ATTRIBUTE SigChan Mcdn directionTraced (dirt)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute indicates whether the incoming (from PBX), outgoing (to PBX), or both incoming and outgoing messages are traced. |
| Set of | incoming<br>outgoing |
| Default | (incoming, outgoing) |

### GROUP SigChan Mcdn ConnectionlessFeatures (Cls)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group enables and disables the support of the MCDN proprietary signalling for connectionless features on the local signalling channel. |

## ATTRIBUTE SigChan Mcdn clsFeaturesSupported (clsfsup)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the features to be supported by MCDN "TCAP" connectionless messaging. Note that some features such as Network ACD combine connectionless and connection oriented. In the NACD case, the connectionless messaging enables the source and target PBXs to establish the networked relationship, and calls sent across the network (connection oriented) will contain basic information relating the call to the feature.<br><br>Feature Definitions:<br>***networkAcd***: transfer of a call from a pool of agents to a second pool of agents across the network.<br>***networkMessageService***: message waiting capability (for example, lamps on sets). Also includes signalling for voice mail, but is not limited to voice mail.<br>***networkVoiceMail***: a specific subset of Network Message Service, separated functionally as it always terminates on an interactive voice response mailbox application.<br>***networkRingAgain***: ring again to remote sets.<br>***electronicLock***: change of set capabilities by a remote user dialling the applicable code and password.<br>***remoteCallForward***: call forwarding a phone via applicable code and password.<br>***callPickupNetworkWide*** (call pickup world wide): scan for a ringing call on another node, to enable the scanning set to pick up the call.<br>***networkPackage1***: a collection of other features including but not limited to network clock synchronization. Note that on the Meridian 1, this is a general purpose group used for very small features not requiring a new ISDN Facility feature type.<br>***isdnApplicationInterface***: network wide support of a number of Meridian 1 Application Module Link features.<br>***mobilityMultisiteNetworking***: the capability to use a wireless phone in multiple sites, by having the phone register on arrival at the new site, and having the PBX at the new site negotiate the set |

| | |
|---|---|
| | "relocation" with the base PBX.<br>***miscellaneous***: Any feature that is not listed above. |
| Set of | networkAcd (nacd)<br>networkMessageService (nms)<br>networkRingAgain (nrag)<br>networkVoiceMail (nvm)<br>electronicLock (elck)<br>remoteCallForward (rcf)<br>callPickupWorldWide (cpww)<br>networkPackage1 (net1)<br>isdnApplicationInterface (isdnapi)<br>mobilityMultisiteNetworking (mmn)<br>miscellaneous (misc) |
| Default | (networkAcd, networkMessageService, networkRingAgain, networkVoiceMail, electronicLock, remoteCallForward, callPickupWorldWide, networkPackage1, isdnApplicationInterface, mobilityMultisiteNetworking, miscellaneous) |

### GROUP SigChan Mcdn ConnectionOrientedFeatures (Co)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group enables and disables the support of the MCDN proprietary signalling for the listed features on the local signalling channel. |

### ATTRIBUTE SigChan Mcdn dropBackCongestion (dbb)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies if the Meridian 1 Drop Back Congestion Handling for trunks is enabled, and what type is being supported. |
| Values | noDropBackAllowed (ndbb)<br>dropBackToOriginator (dborig)<br>dropBackToPriorNode (dbnode) |
| Default | dropBackToOriginator |

### ATTRIBUTE SigChan Mcdn networkNameDisplay (name)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies what Name Display is supported.<br><br>***nd1*** corresponds to the Meridian 1 RCAP (Remote CAPability) ***nd1***. This translates as caller provides name info in SETUP, ringing party name in ALERTING, redirection name in NOTIFY, and answering party name in CONNECT (as applicable, and if the name changes).<br><br>***nd2*** corresponds to the Meridian 1 RCAP (Remote CAPability) ***nd2***. This translates as caller provides name info in SETUP, answering party provides name in NOTIFY on answer.<br><br>***nd3*** corresponds to the Meridian 1 RCAP (Remote CAPability) ***nd3***, which is ***nd1*** plus name information in call clearing messages (busy user, etc.) where a specific user was found but either could not answer or cleared the call. This corresponds to the QSIG name display. |
| Set of | nameDisplay1 (nd1)<br>nameDisplay2 (nd2)<br>nameDisplay3 (nd3) |
| Default | No default |

### ATTRIBUTE SigChan Mcdn multisiteBusinessGroup (mbg)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies whether to enable transport for the Meridian 1 Multisite Business Group IE. The Meridian 1 allows multiple "Tenants" to exist on a single PBX. These Tenants have limited access to each other and to system resources. That is, users associated with “Tenant group one” cannot use trunks, attendants, and features from another group, and so forth. The |

Multi-Site Business Group is a single Tenant existing on more than one PBX. As an example, “tenant one” on a PBX may "own" resources belonging to “tenant one” on another PBX. The Multi-Site Business Group IE as used in the Meridian 1 Network Tenant Services feature enables linking the two tenants together.

Values
transport
discard

Default
transport

### ATTRIBUTE SigChan Mcdn conOrFeaturesSupported (confsup)

Access
Read: All
Write: All

Criticality
Process

Description
This attribute indicates the features to be supported by MCDN “ROSE” connection oriented messaging.

Feature Definitions:
***networkAttendantService***: network wide support of Attendant (“operator”) services.
***classOfServiceTransport***: this is not a ROSE feature. Class of Service transport takes place in the called party number when provisioned on the Meridian 1 to use an ESN signalling type.
***trunkRouteOptimization***: dropping of redundant links in a call, when a set call forwards a call prior to answer.
***remoteVirtualQueuing***: queuing at a remote node without requiring a B channel to be kept up.
***offHookQueuing***: Queuing by maintaining the speech path to the queuing node.
***networkCallTrace***: call progress tracing across a network (that is, call reached node a, node b, terminated at c,...).
***networkIntercom***: network wide access to an intercom system onm a Meridian 1.
***callPickupNetworkWide***: connection oriented messages associated with the TCAP call pickup scan operation. The messages that actually pick up the ringing call.
***radioPaging***: access to a radio paging system network wide, allowing single radio paging facilities in a relatively dense local PBX network.

***networkAccess***: information to enable access to PBX features from outside the network. Additional data is provided to identify access capabilities for a spoecific call. (Similar to transmittiong authorization code capabilities network wide.)
***antiTromboning***: actually includes two capabilities - NAS (Network Attendant Setvice) and Trunk Anti-Tromboning. Calls that exit the subnet to a PBX and are transferred back to a network number via the same D channel can be optimized. If PBX A (Passport A) calls across the subnet to Passport B, D channel Z, to PBX B, and PBX B transfers across D channel Z to Passport B and therefore to PBX C/Passport C, this allows tha call to simplify to PBX/Passport A to PBX/Passport C.
***miscellaneous***: Any feature that is not listed above.

Set of

networkAttendantService (nas)
classOfServiceTransport (cos)
trunkRouteOptimization (tro)
remoteVirtualQueuing (rvq)
networkCallId (nci)
offHookQueuing (ohq)
networkCallTrace (nctrc)
networkIntercom (nint)
callPickupNetworkWide (cpnw)
radioPaging (radpag)
networkAccess (netacc)
antiTromboning (at)
miscellaneous (misc)

Default

(networkAttendantService, classOfServiceTransport, trunkRouteOptimization, remoteVirtualQueuing, networkCallId, offHookQueuing, networkCallTrace, networkIntercom, callPickupNetworkWide, radioPaging, networkAccess, antiTromboning, miscellaneous)

## COLLECTED STATS SignallingChannel McdnSig

Description

The statistics record generated by the SignallingChannel McdnSig component.

### ATTRIBUTE SigChan Mcdn peakActiveChannels

| | |
|---|---|
| Description | This collected statistic counts the maximum number of channels that have been active on this signalling channel in the last statistics collection interval. |
| Values | Decimal (0..30) |

### ATTRIBUTE SigChan Mcdn peakActiveVoiceChannels

| | |
|---|---|
| Description | This collected statistic counts the maximum number of voice channels that have been active on this signalling channel in the last statistics collection interval. |
| Values | Decimal (0..30) |

### ATTRIBUTE SigChan Mcdn peakActiveDataChannels

| | |
|---|---|
| Description | This collected statistic counts the maximum number of data channels that have been active on this signalling channel in the last statistics collection interval. |
| Values | Decimal (0..30) |

### ATTRIBUTE SigChan Mcdn totalCallsToIf

| | |
|---|---|
| Description | This collected statistic counts the total number of calls that have been made to the interface in the last statistics collection interval. |
| Values | Decimal (0..65535) |

### ATTRIBUTE SigChan Mcdn totalCallsFromIf

| | |
|---|---|
| Description | This collected statistic counts the number of calls from the interface in the last statistics collection interval. |
| Values | Decimal (0..65535) |

### ATTRIBUTE SigChan Mcdn nonCallAssocSessionsToIf

| | |
|---|---|
| Description | This collected statistic counts the number of non-call associated sessions to the interface in the last statistics collection interval. |
| Values | Decimal (0..65535) |

### ATTRIBUTE SigChan Mcdn nonCallAssocSessionsFromIf

Description: This collected statistic counts the number of non-call associated sessions from the interface in the last statistics collection interval.

Values: Decimal (0..65535)

### ATTRIBUTE SigChan Mcdn frmToIf

Description: This collected statistic counts the number of frames transmitted to the link interface by *Framer* in the last statistics collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE SigChan Mcdn frmFromIf

Description: This collected statistic counts the number of frames received from the link interface by *Framer* in the last statistics collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE SigChan Mcdn octetFromIf

Description: The number of bytes received from the link interface by *Framer* in the last statistics collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE SigChan Mcdn octetToIf

Description: The number of bytes sent to the link interface by *Framer* in the last statistics collection interval.

Values: Decimal (0..4294967295)

### COMPONENT SigChan Mcdn Framer (Framer)

Groups: "GROUP SigChan Mcdn Framer Provisioned (Prov)"
"GROUP SigChan Mcdn Framer OsiState (State)"
"GROUP SigChan Mcdn Framer Statistics (Stats)"

Scope: Application

Description *SigChan/n Mcdn Framer*

The *Framer* component controls link layer framing for application components sending and receiving data on a link interface. It is also through *Framer*, that an application component is associated with a specific hardware link interface.

The *Framer* component provides provisionable attributes related to data path aspects of the hardware interface (such as crc and frame length). The *Framer* component also provides a provisionable attribute which binds the application component to a specific hardware component.

The *Framer* component contains operational attributes for link interface data path statistics (such as frame counts and aborts).

Common Verbs
Help
List
Display

## GROUP SigChan Mcdn Framer Provisioned (Prov)

Properties Provisioned

Description This group contains the base provisioning data for the *Framer* component. Application or hardware interface specific provisioning data is contained in other provisionable *Framer* groups.

## ATTRIBUTE SigChan Mcdn Framer interfaceName

Access Read and write

Criticality Process

Description This attribute contains a hardware component name.

The attribute associates the application with a specific link. This defines the module processor on which *Framer*'s parent component (as well as *Framer* itself) will run.

Values Link (Hardware, applicationFramerName)

Default No default

### GROUP SigChan Mcdn Framer OsiState (State)

Properties Operational

Description This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE SigChan Mcdn Framer adminState (osiAdmin)

Access Read only

Description This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default unlocked

### ATTRIBUTE SigChan Mcdn Framer operationalState (osiOper)

Access Read only

| | |
|---|---|
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE SigChan Mcdn Framer usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP SigChan Mcdn Framer Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational statistics data for a *Framer* component. |

### ATTRIBUTE SigChan Mcdn Framer frmToIf

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames transmitted to the link interface by *Framer.*<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE SigChan Mcdn Framer frmFromIf

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames received from the link interface by *Framer.*<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE SigChan Mcdn Framer octetFromIf

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of bytes received from the link interface by *Framer.* This count wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE SigChan Mcdn Framer aborts

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of aborts received.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE SigChan Mcdn Framer crcErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames with CRC errors. This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE SigChan Mcdn Framer lrcErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames with LRC errors. This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE SigChan Mcdn Framer nonOctetErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames that were non octet aligned.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE SigChan Mcdn Framer overruns

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames received from the link for which overruns occurred.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE SigChan Mcdn Framer underruns

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames transmitted to the link for which underruns occurred.<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE SigChan Mcdn Framer largeFrmErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames received which were too large (longer than 500 bytes).<br>This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT SigChan InternalCauseMap (ICmap)

| | |
|---|---|
| Groups | "GROUP SigChan ICmap InternalCauseCode (IntCause)" |
| Scope | Application |
| Description | *SigChan/n VnetInternalCauseManipulation*<br>This component represents the provisionable attributes for the internal, Passport and subnet generated cause codes of an establishing call. This component can be added for most of the ISDN (common channel signalling) protocols (*EtsiQsig*, *NisSig*, *EuroIsdn*) and cannot be added for a channel associated signalling protocol. This component is useful in a network where the originating PBX has restricted conditions to initiating alternate rerouting (rerouting on just one, specific, clearing cause code). |

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP SigChan ICmap InternalCauseCode (IntCause)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable, Passport generated clearing reasons of an establishing call. |

### ATTRIBUTE SigChan ICmap egressLinkOutOfServCause

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the cause code sent to the originating PBX when the data link to the remote PBX is down or when remote channels are in maintenance.<br>If the component is not added or if the default value ***autoConfigure*** is provisioned for the attribute the cause code sent to the originating PBX is not manipulated and the clearing process is not influenced. For this case, a typical cause code value sent back to the originating PBX is 27. |
| Values | Decimal (0..127)<br>autoConfigure (auto) |
| Default | autoConfigure |

### ATTRIBUTE SigChan ICmap chanOrCircNotAvailCause

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the cause code sent to the originating PBX if no timeslot is available for an incoming call.<br>If the component is not added or if the default value ***autoConfigure*** is provisioned for the attribute the cause code sent |

to the originating PBX is not manipulated and the clearing process is not influenced. For this case, a typical cause code value sent back to the originating PBX is 34.

Values
Decimal (0..127)
autoConfigure (auto)

Default
autoConfigure

### ATTRIBUTE SigChan ICmap tempFailureCause

Access
Read: All
Write: All

Description
This attribute specifies the cause code sent to the originating PBX when PORS fails to establish a call due to congestion or a disabled trunk. It is also generated when the calling side fails to decode payload capabilities sent by the called side.
If the component is not added or if the default value ***autoConfigure*** is provisioned for the attribute the cause code sent to the originating PBX is not manipulated and the clearing process is not influenced. For this case, a typical cause code value sent back to the originating PBX is 41.

Values
Decimal (0..127)
autoConfigure (auto)

Default
autoConfigure

### ATTRIBUTE SigChan ICmap switchCongestCause

Access
Read: All
Write: All

Description
This attribute specifies the cause code sent to the originating PBX when the allocation of internal resources for an incoming call fails. If the component is not added or if the default value ***autoConfigure*** is provisioned for the attribute the cause code sent to the originating PBX is not manipulated and the clearing process is not influenced. For this case, typical cause code values sent back to the originating PBX are 42 for NIS and 41 for ETSI.

Values
Decimal (0..127)
autoConfigure (auto)

Default autoConfigure

### ATTRIBUTE SigChan ICmap reqChanOrCircNotAvailCause

Access Read: All
Write: All

Description This attribute specifies the cause code sent to the originating PBX when an exclusively requested channel is not in service or a channel request is unsuccessful.
If the component is not added or if the default value ***autoConfigure*** is provisioned for the attribute the cause code sent to the originating PBX is not manipulated and the clearing process is not influenced. For this case, a typical cause code value sent back to the originating PBX is 44.

Values Decimal (0..127)
autoConfigure (auto)

Default autoConfigure

### ATTRIBUTE SigChan ICmap resourceUnavailCause

Access Read: All
Write: All

Description This attribute specifies the cause code sent to the originating PBX when the path establishing timer expires, when the switched voice service associated to a call is locked by CAS or when an H-channel is requested.
If the component is not added or if the default value ***autoConfigure*** is provisioned for the attribute the cause code sent to the originating PBX is not manipulated and the clearing process is not influenced. For this case, typical cause code values sent back to the originating PBX are 47 for NIS and 44 for ETSI.

Values Decimal (0..127)
autoConfigure (auto)

Default autoConfigure

### ATTRIBUTE SigChan ICmap servNotAllowedCause

Access Read: All
Write: All

| | |
|---|---|
| Description | This attribute specifies the cause code sent to the originating PBX when the requested call type (voice or data) is not compatible with *Vroute typeOfRoute* at the calling side.<br>If the component is not added or if the default value ***autoConfigure*** is provisioned for the attribute the cause code sent to the originating PBX is not manipulated and the clearing process is not influenced. For this case, a typical cause code value sent back to the originating PBX is 63. |
| Values | Decimal (0..127)<br>autoConfigure (auto) |
| Default | autoConfigure |

### ATTRIBUTE SigChan ICmap noSuchChannelCause

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the cause code sent to the originating PBX when a requested channel does not exist.<br>If the component is not added or if the default value ***autoConfigure*** is provisioned for the attribute the cause code sent to the originating PBX is not manipulated and the clearing process is not influenced. For this case, a typical cause code value sent back to the originating PBX is 82. |
| Values | Decimal (0..127)<br>autoConfigure (auto) |
| Default | autoConfigure |

### ATTRIBUTE SigChan ICmap incompatDestCause

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the cause code sent to the originating PBX when the calling and called side capabilities do not match.<br>If the component is not added or if the default value ***autoConfigure*** is provisioned for the attribute the cause code sent to the originating PBX is not manipulated and the clearing process is not influenced. For this case, a typical cause code value sent back to the originating PBX is 88. |

| | |
|---|---|
| Values | Decimal (0..127)<br>autoConfigure (auto) |
| Default | autoConfigure |

Passport 7400, 15000, 20000

# Component SigChan

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component SrvTrace

241-5701-060

Passport 7400, 15000, 20000

# Component SrvTrace

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT ServiceTrace (SrvTrace)

| | |
|---|---|
| Scope | Application |
| Description | *ServiceTrace*<br>This component provides the ability to perform and monitor active service traces on a Passport module.<br><br>A semantic check that ensures that at least one receiver element exists and has been correctly provisioned. |
| Opt. Subcomp. | "COMPONENT SrvTrace Receiver (Rcvr)" |
| Dyn. Subcomp. | "COMPONENT SrvTrace Session" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## COMPONENT SrvTrace Receiver (Rcvr)

| | |
|---|---|
| Instance | String (1..8, ASCII) |
| Scope | Application |
| Description | *SrvTrace Receiver/<string>*<br>This component identifies a remote receiver for traced data. The instance identification of the *Receiver* component is used to uniquely identify each receiver. |

A semantic check that ensures that the receiver interface type has been added before activating the Service Trace feature.

Opt. Subcomp.
"COMPONENT SrvTrace Rcvr X25"
"COMPONENT SrvTrace Rcvr FrameRelay (Fr)"
"COMPONENT SrvTrace Rcvr FrAtm"
"COMPONENT SrvTrace Rcvr Atm"

Common Verbs
Help
List
Display
Add
DELete

## COMPONENT SrvTrace Rcvr X25

Scope
Application

Description
*SrvTrace Rcvr/<string> X25*
This component identifies the access method used by the receiver of the trace data as X.25.

Subcomponents
"COMPONENT SrvTrace Rcvr X25 DataNetworkAddress (Dna)"
"COMPONENT SrvTrace Rcvr X25 DirectCall (Dc)"

Common Verbs
Help
List
Display
Add
DELete

## COMPONENT SrvTrace Rcvr X25 DataNetworkAddress (Dna)

Groups
"GROUP SrvTrace Rcvr X25 Dna Address"
"GROUP SrvTrace Rcvr X25 Dna OutgoingOptions"
"GROUP SrvTrace Rcvr X25 Dna IncomingOptions"
"GROUP SrvTrace Rcvr X25 Dna CallOptions"

Scope
Application

| | |
|---|---|
| Description | *SrvTrace Rcvr/<string> X25 DataNetworkAddress*<br>This component defines the calling end of the trace connection. It includes the set of attributes that apply to a VC connection to an X.25 trace receiver. |
| Opt. Subcomp. | "COMPONENT SrvTrace Rcvr X25 Dna ClosedUserGroup (Cug)" |
| Common Verbs | Help<br>List<br>Display |

## GROUP SrvTrace Rcvr X25 Dna Address

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains attributes common to all *Dna*s. This group is composed of two attributes that define a DNA. These attributes are used to interpret the format of the address digits. |

## ATTRIBUTE SrvTrace Rcvr X25 Dna numberingPlanIndicator (npi)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates the Numbering Plan Indicator (NPI) of the DNA that is entered. The address may belong to an E.164 or X.121 plan. |
| Values | x121<br>e164 |
| Default | x121 |

## ATTRIBUTE SrvTrace Rcvr X25 Dna dataNetworkAddress (dna)

| | |
|---|---|
| Access | Read and write |
| Description | The attribute contains digits which form a unique identifier for the calling end of the trace connection. DNA digits are selected and assigned by network operators. The maximum DNA length is 15 digits. |
| Values | BCD (1..15) |
| Default | No default |

## GROUP SrvTrace Rcvr X25 Dna OutgoingOptions

| | |
|---|---|
| Properties | Provisioned |
| Description | This group defines call options for outgoing calls. |

## ATTRIBUTE SrvTrace Rcvr X25 Dna outCalls (ouc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute, if set to a value of ***allowed***, indicates that outgoing calls (from the DTE to the network) can be made using this particular *Dna*. If set to a value of ***disallowed***, then outgoing calls cannot be made using this *Dna* - such calls will be cleared by the local DCE.<br><br>This attribute corresponds to the ITU-T 'Outgoing Calls Barred' feature. At least one of *outCalls* and *incCalls* must be set to a value of ***allowed*** for this Dna to be usable. |
| Values | disallowed<br>allowed |
| Default | allowed |

## ATTRIBUTE SrvTrace Rcvr X25 Dna outDefaultPriority (odf)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute, if set to a value of ***normal***, indicates that the default priority for outgoing calls (from the DTE to the network) using this particular *Dna* is normal priority - if the priority is not specified in the call. If this attribute is set to a value of ***high*** then the default priority for outgoing calls using this particular *Dna* is high priority. |
| Values | normal<br>high |
| Default | high |

## ATTRIBUTE SrvTrace Rcvr X25 Dna outIntl (oic)

| | |
|---|---|
| Access | Read only |

Description

This attribute, if set to a value of ***allowed***, indicates that outgoing international calls (from the DTE to the network) can be made using this particular *Dna*. If set to a value of ***disallowed***, then such calls cannot be made using this *Dna* - such calls will be cleared by the local DCE.

This attribute also currently controls access to the E.164 numbering plan, and if set to a value of ***allowed***, then cross-numbering plan calls are allowed.

This attribute is ignored if the corresponding attribute *outCalls* is set to a value of ***disallowed***.

Values

disallowed
allowed

Default

allowed

### ATTRIBUTE SrvTrace Rcvr X25 Dna outDefaultPathReliability (opr)

Access

Read only

Description

This attribute specifies the default reliability class of routing for all calls (from the DTE to the network) using this particular *Dna*. The chosen default reliability class of routing normally applies to all packets (including the call packets) travelling into the network. If the *outPathReliabilityOverRide* attribute is subscribed to, the default reliability class of routing is chosen by the calling party.

This attribute, if set to a value of ***normal***, indicates that the default class of routing is normal reliability routing. If set to a value of ***high***, then the default class of routing is high reliability routing.
High reliability is the standard choice for most DPN and Passport services. It usually indicates that packets are overflowed or retransmitted at various routing levels. Typically high reliability results in duplication and disordering of packets in the network when errors are detected or during link congestion. However, the VC handles the duplication and disordering to ensure that packets are delivered to the DTE properly.

| | |
|---|---|
| Values | normal<br>high |
| Default | high |

### ATTRIBUTE SrvTrace Rcvr X25 Dna outPathReliabilityOverRide (oro)

| | |
|---|---|
| Access | Read only |
| Description | This attribute, if set to a value of ***no***, specifies that the called end of the connection will not use the calling end provisioning data for reliability class of routing to override the provisioning data at the called end. |
| Values | yes<br>no |
| Default | no |

### ATTRIBUTE SrvTrace Rcvr X25 Dna outPathReliabilitySignal (ores)

| | |
|---|---|
| Access | Read only |
| Description | This attribute, if set to a value of ***disallowed***, specifies that reliability routing signaling is not used. |
| Values | allowed<br>disallowed |
| Default | disallowed |

### ATTRIBUTE SrvTrace Rcvr X25 Dna outAccess (oua)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is an extension of the Closed User Group (CUG) facility, as follows:<br>This attribute, if set to a value of ***allowed***, indicates that outgoing calls (from the DTE to the network) to the open (non-CUG) part of the network are permitted. It also permits outgoing calls to DTEs that have Incoming Access capabilities. If set to a value of ***disallowed***, then such calls cannot be made using this *Dna* - such calls will be cleared by the local DCE.<br><br>This attribute corresponds to the ITU-T 'Closed User Group with Outgoing Access' feature. |

| | |
|---|---|
| Values | disallowed<br>allowed |
| Default | disallowed |

### GROUP SrvTrace Rcvr X25 Dna IncomingOptions

| | |
|---|---|
| Properties | Provisioned |
| Description | This group defines the call options for incoming calls. |

### ATTRIBUTE SrvTrace Rcvr X25 Dna incCalls (inc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute, if set to a value of ***allowed***, indicates that incoming calls (from the network to the DTE) can be made to this *Dna*. If set to a value of ***disallowed***, then incoming calls cannot be made to this *Dna* - such calls will be cleared by the local DCE.<br><br>This attribute corresponds to the ITU-T 'Incoming Calls Barred' feature for DNAs in that incoming calls are barred if this attribute is set to a value of ***disallowed***.<br><br>Either *outCalls*, or *incCalls* (or both) must be set to a value of ***allowed*** for this *Dna* to be usable. |
| Values | disallowed<br>allowed |
| Default | disallowed |

### GROUP SrvTrace Rcvr X25 Dna CallOptions

| | |
|---|---|
| Properties | Provisioned |
| Description | This group defines additional options for calls which are not specific to the direction of the call. |

### ATTRIBUTE SrvTrace Rcvr X25 Dna packetSizes (pks)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the allowable packet sizes supported for call setup using this DNA. ITU-T recommends that packet size 128 be always supported. |

The bit placement for the packet sizes is as follows:
Bit 0 - Packet Size 16
Bit 1 - Packet Size 32
Bit 2 - Packet Size 64
Bit 3 - Packet Size 128
Bit 4 - Packet Size 256
Bit 5 - Packet Size 512
Bit 6 - Packet Size 1024
Bit 7 - Packet Size 2048
Bit 8 - Packet Size 4096

This list of allowable packet sizes must always include the default packet sizes: *defaultRecvFrmNetworkPacketSize* and *defaultSendToNetworkPacketSize*.

Set of
16
32
64
128
256
512
1024
2048
4096

Default (2048)

### ATTRIBUTE SrvTrace Rcvr X25 Dna defaultRecvFrmNetworkPacketSize (rps)

Access Read only

Description This attribute specifies the default local receive packet size from network to DTE for calls using this particular *Dna*. The *packetSizes* attribute must be set with corresponding value.

Values
16
32
64
128
256
512
1024

| | |
|---|---|
| | 2048<br>4096 |
| Default | 2048 |

### ATTRIBUTE SrvTrace Rcvr X25 Dna defaultSendToNetworkPacketSize (sps)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the default local send packet size from DTE to network for all calls using this particular *Dna*. The *packetSizes* attribute must be set with corresponding value. |
| Values | 16<br>32<br>64<br>128<br>256<br>512<br>1024<br>2048<br>4096 |
| Default | 2048 |

### ATTRIBUTE SrvTrace Rcvr X25 Dna defaultRecvFrmNetworkThruputClass (drt)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the default receive throughput class, (towards the interface) for all calls using this particular *Dna*. |
| Values | Decimal (0..15) |
| Default | 10 |

### ATTRIBUTE SrvTrace Rcvr X25 Dna defaultSendToNetworkThruputClass (dst)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the default send throughput class (towards the network) for all calls using this particular *Dna*. |
| Values | Decimal (0..15) |
| Default | 10 |

### ATTRIBUTE SrvTrace Rcvr X25 Dna defaultRecvFrmNetworkWindowSize (rws)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the default number of data packets that can be received by the DTE from the DCE before more packets can be received. This view is oriented with respect to the DTE. |
| Values | Decimal (1..7) |
| Default | 1 |

### ATTRIBUTE SrvTrace Rcvr X25 Dna defaultSendToNetworkWindowSize (sws)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the default number of data packets that can be transmitted from the DTE to the DCE and must be acknowledged before more packets can be transmitted. |
| Values | Decimal (1..7) |
| Default | 1 |

### ATTRIBUTE SrvTrace Rcvr X25 Dna packetSizeNegotiation (psn)

| | |
|---|---|
| Access | Read only |
| Description | This attribute, if set to a value of ***local***, indicates that packet sizes can be negotiated locally at the interface irrespective of the setting at the remote interface. If set to ***endtoEnd***, then the packet size negotiation is between the local and remote interface (i.e. packet sizes are the same on both interfaces). |
| Values | endToEnd<br>local |
| Default | local |

### ATTRIBUTE SrvTrace Rcvr X25 Dna cugFormat (cft)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies which CUG format is used when DTE signals CUG indices, ***basic*** or ***extended***. A ***basic*** CUG index format is two digits long. An ***extended*** CUG index format is four digits long. |

This attribute, if set to ***extended***, indicates that the DTE signals and receives CUG indices in extended CUG format. If set to a value of ***basic***, then the DTE signals and receives CUG indices in the basic CUG format.

Values
basic
extended

Default
basic

## COMPONENT SrvTrace Rcvr X25 Dna ClosedUserGroup (Cug)

Instance
Decimal (1..1)

Groups
"GROUP SrvTrace Rcvr X25 Dna Cug CugOptions"

Scope
Application

Description
*SrvTrace Rcvr/<string> X25 Dna ClosedUserGroup*
The component defines options associated with a national or international CUG (Closed User Group) identifier. Other DNAs in the network can have CUGs defined which groups these DNAs by their *Cug interlockCode* attribute value. If DNAs are defined with CUGs, calls from DNAs which do not have the same *interlockCode* attribute value defined are refused. Attributes *incAccess* and *outAccess* can override this rule.

If this component is present, the X.25 interface which connects to the X.25 trace receiver must be provisioned with the same *Cug interlockCode* attribute value.

Common Verbs
Help
List
Display
Add
DELete

## GROUP SrvTrace Rcvr X25 Dna Cug CugOptions

Properties
Provisioned

Description
Attributes in this group define the *ClosedUserGroup* component options associated with the *interlockCode* attribute. DNAs with

the same CUG (*interlockCode*) can make calls within this group. Various combinations of attributes are defined under this option which permit or prevent calls in the same CUG group.

### ATTRIBUTE SrvTrace Rcvr X25 Dna Cug type

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the CUG type - the CUG is either a national CUG, or an international CUG. International closed user groups are usually established between DTEs for which there is an intermediary X.75 Gateway, whereas national closed user groups are usually established between DTEs for which there is no intermediary X.75 Gateway. (National CUGs cannot normally traverse an X.75 Gateway).<br><br>If this attribute is set to ***national***, then the CUG is a national CUG, in which case, the *dnic* attribute should be left at its default value since it is not part of a national CUG. If this attribute is set to ***international***, then the CUG is an international CUG, in which case, the *dnic* attribute should be set appropriately as part of the *Cug interlockCode* attribute value. |
| Values | national<br>international |
| Default | national |

### ATTRIBUTE SrvTrace Rcvr X25 Dna Cug dnic

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the DNIC (Data Network ID Code) of the *Cug* by which packet networks are identified. This attribute is not applicable if the CUG is a national CUG, as specified by the *Cug type* attribute. There are usually 1 or 2 DNICs assigned per country, for public networks. The U.S. is an exception where each BOC has a DNIC. Also, a group of private networks can have its own DNIC.<br><br>DNIC value is not an arbitrary number. It is assigned by international agreement and controlled by ITU-T. |
| Values | BCD (4) |

| | |
|---|---|
| Default | 0000 |

### ATTRIBUTE SrvTrace Rcvr X25 Dna Cug interlockCode (ilc)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the CUG identifier of a national or international CUG call. It is an arbitrary number and it can also be called CUG in some descriptions. Interfaces (*Dna*s) defined with this number can only make calls to *Dna*s defined with the same *interlockCode* attribute value. |
| Values | Decimal (0..65535) |
| Default | 0 |

### ATTRIBUTE SrvTrace Rcvr X25 Dna Cug preferential (pre)

| | |
|---|---|
| Access | Read only |
| Description | This attribute, if set to a value of ***yes***, indicates that this *Cug* is the preferential CUG, in which case it will be used during the call establishment phase if the DTE has not explicitly specified a CUG index in the call request packet. If set to a value of ***no***, then this *Cug* is not the preferential CUG.<br><br>Only one of the *Cug* components associated with a particular DNA can be the preferential CUG - only one *Cug* component can have this attribute set to ***yes***. |
| Values | no<br>yes |
| Default | yes |

### ATTRIBUTE SrvTrace Rcvr X25 Dna Cug outCalls (ouc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute, if set to a value of ***allowed***, indicates that outgoing calls (from the DTE into the network) can be made using this particular *Cug*. If set to a value of ***disallowed***, then outgoing calls cannot be made using this *Cug* - such calls will be cleared by the local DCE.<br><br>This attribute corresponds to the ITU-T 'Outgoing Calls Barred' |

feature for CUG*s* in that outgoing calls are barred if this attribute is set to a value of ***disallowed***.

Values
disallowed
allowed

Default
allowed

### ATTRIBUTE SrvTrace Rcvr X25 Dna Cug incCalls (inc)

Access
Read only

Description
This attribute, if set to a value of ***allowed***, indicates that incoming calls (from the network to the DTE) can be made using this particular *Cug*. If set to a value of ***disallowed***, then incoming calls cannot be made using this *Cug* - such calls will be cleared by the local DCE.

This attribute corresponds to the ITU-T 'Incoming Calls Barred' feature for CUG*s* in that incoming calls are barred if this attribute is set to a value of ***disallowed***.

Values
disallowed
allowed

Default
disallowed

### ATTRIBUTE SrvTrace Rcvr X25 Dna Cug privileged (pri)

Access
Read and write

Description
This attribute, if set to a value of ***yes***, indicates that this *Cug* is a privileged CUG. In DPN, at least one side of a call setup within a CUG must have the CUG as a privileged CUG. If set to a value of ***no***, then the *Cug* is not privileged.

If both the local DTE and the remote DTE subscribe to the CUG, but it is not privileged, then the call will be cleared. This attribute is typically used for a host DTE which must accept calls from many other DTE’s in which case the other DTE’s cannot call one another, but can call the host. In this example, the host would have the privileged CUG, and the other DTE’s would belong to the same CUG, but it would not be privileged.

| | |
|---|---|
| Values | no<br>yes |
| Default | yes |

### COMPONENT SrvTrace Rcvr X25 DirectCall (Dc)

| | |
|---|---|
| Groups | "GROUP SrvTrace Rcvr X25 Dc Options" |
| Scope | Application |
| Description | *SrvTrace Rcvr/<string> X25 DirectCall*<br>This component defines direct call options for the call to the X.25 trace receiver. The connection is initiated on receipt of a *Start FrUni/n SrvTrace* command. |
| Common Verbs | Help<br>List<br>Display |

### GROUP SrvTrace Rcvr X25 Dc Options

| | |
|---|---|
| Properties | Provisioned |
| Description | The *Options* group defines attributes associated with the SVC direct call. |

### ATTRIBUTE SrvTrace Rcvr X25 Dc remoteNpi (rnpi)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates the numbering plan used for the *remoteDna*. |
| Values | x121<br>e164 |
| Default | x121 |

### ATTRIBUTE SrvTrace Rcvr X25 Dc remoteDna (rdna)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the Data Network Address (DNA) of the remote end of the connection. This is the DNA of the X.25 trace receiver that receives the trace data. |

| | |
|---|---|
| Values | BCD (1..15) |
| Default | No default |

### ATTRIBUTE SrvTrace Rcvr X25 Dc type

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the type of call as ***switched***. For a ***switched*** call, no information is defined at the remote end about the local end of the connection. |
| Values | switched (svc)<br>permanentMaster (master)<br>permanentSlave (slave)<br>permanentBackupSlave (backSl) |
| Default | switched |

### ATTRIBUTE SrvTrace Rcvr X25 Dc userData (usd)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute contains the user data. It is a 0 to 16 byte length string which is appended to the call request packet that is presented to the called (destination) DTE. |
| Values | String (0..16, Hex) |
| Default | "" |

### COMPONENT SrvTrace Rcvr FrameRelay (Fr)

| | |
|---|---|
| Scope | Application |
| Description | *SrvTrace Rcvr/<string> FrameRelay*<br>This component identifies the access method used by the receiver of the trace data as Frame Relay. |

| | |
|---|---|
| Subcomponents | "COMPONENT SrvTrace Rcvr Fr DataNetworkAddress (Dna)"<br>"COMPONENT SrvTrace Rcvr Fr DirectCall (Dc)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## COMPONENT SrvTrace Rcvr Fr DataNetworkAddress (Dna)

| | |
|---|---|
| Groups | "GROUP SrvTrace Rcvr Fr Dna Address"<br>"GROUP SrvTrace Rcvr Fr Dna OutgoingOptions"<br>"GROUP SrvTrace Rcvr Fr Dna IncomingOptions"<br>"GROUP SrvTrace Rcvr Fr Dna CallOptions" |
| Scope | Application |
| Description | *SrvTrace Rcvr/<string> Fr DataNetworkAddress*<br>This component defines the calling end of the trace connection. It includes the set of attributes that apply to a VC connection with a Frame Relay trace receiver. |
| Opt. Subcomp. | "COMPONENT SrvTrace Rcvr Fr Dna ClosedUserGroup (Cug)" |
| Common Verbs | Help<br>List<br>Display |

## GROUP SrvTrace Rcvr Fr Dna Address

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains attributes common to all *Dnas*. This group is composed of two attributes that define a DNA. These attributes are used to interpret the format of the address digits. |

## ATTRIBUTE SrvTrace Rcvr Fr Dna numberingPlanIndicator (npi)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute indicates the Numbering Plan Indicator (NPI) of the DNA that is entered. The address may belong to either the E.164 or X.121 plan. X.121 is used in packet-switched data networks. |
| Values | x121<br>e164 |
| Default | x121 |

### ATTRIBUTE SrvTrace Rcvr Fr Dna dataNetworkAddress (dna)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies digits that form a unique identifier of the calling end of the trace connection. DNA digits are selected and assigned by network operators. |
| Values | BCD (1..15) |
| Default | No default |

### GROUP SrvTrace Rcvr Fr Dna OutgoingOptions

| | |
|---|---|
| Properties | Provisioned |
| Description | This group defines the call options for outgoing calls. |

### ATTRIBUTE SrvTrace Rcvr Fr Dna outCalls (ouc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute, if set to a value of ***allowed***, indicates that outgoing calls (from the DTE to the network) can be made using this particular *Dna*. If set to a value of ***disallowed***, then outgoing calls cannot be made using this *Dna* - such calls will be cleared by the local DCE. |
| Values | disallowed<br>allowed |
| Default | allowed |

### ATTRIBUTE SrvTrace Rcvr Fr Dna outDefaultPriority (odf)

| | |
|---|---|
| Access | Read and write |

Description — This attribute, if set to a value of ***normal***, indicates that the default priority for outgoing calls (from the DTE to the network) using this particular *Dna* is normal priority - if the priority is not specified by the DTE. If this attribute is set to a value of ***high,*** then the default priority for outgoing calls using this particular *Dna* is high priority.

Values — normal
high

Default — high

### ATTRIBUTE SrvTrace Rcvr Fr Dna outIntl (oic)

Access — Read only

Description — This attribute, if set to a value of ***allowed***, indicates that outgoing international calls (from the DTE to the network) can be made using this particular *Dna*. If set to a value of ***disallowed***, then such calls cannot be made using this *Dna* - such calls will be cleared by the local DCE.

This attribute also currently controls access to the E.164 numbering plan, and if set to a value of ***allowed***, then cross-numbering plan calls are allowed.

This attribute is ignored if the corresponding attribute *outCalls* is set to a value of ***disallowed***.

Values — disallowed
allowed

Default — allowed

### ATTRIBUTE SrvTrace Rcvr Fr Dna outDefaultPathReliability (opr)

Access — Read only

Description — This attribute specifies the default class of routing for reliability routing for all outgoing calls (from the DTE to the network) using this particular *Dna*. The chosen default class of routing applies to all outgoing calls established using this *Dna*, and applies to the packets travelling in both directions on all outgoing calls (local to remote, and remote to local). For incoming calls,

the default class of routing is chosen by the calling party (as opposed to DPN, where either end of the call can choose the default routing class).

This attribute, if set to a value of ***normal***, indicates that the default class of routing is normal reliability routing. If set to a value of ***high***, then the default class of routing is high reliability routing.
High reliability is the standard choice for most DPN and Passport services. It usually indicates that packets are overflowed or retransmitted at various routing levels. Typically high reliability results in duplication and disordering of packets in the network when errors are detected or during link congestion. However, the VC handles the duplication and disordering to ensure that packets are delivered to the DTE properly.

For the Frame Relay service, duplication of packets is not desired, in which case, normal reliability may be chosen as the preferred class of routing.

Values: normal
high

Default: high

### ATTRIBUTE SrvTrace Rcvr Fr Dna outPathReliabilityOverRide (oro)

Access: Read only

Description: This attribute, if set to a value of ***no***, specifies that the called end of the connection will not use the calling end provisioning data for reliability class of routing to override the provisioning data at the called end.

Values: yes
no

Default: no

### ATTRIBUTE SrvTrace Rcvr Fr Dna outPathReliabilitySignal (ores)

Access: Read only

| | |
|---|---|
| Description | This attribute, if set to a value of ***disallowed***, specifies that reliability routing signaling is not used. |
| Values | allowed<br>disallowed |
| Default | disallowed |

### ATTRIBUTE SrvTrace Rcvr Fr Dna outAccess (oua)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is an extension of the Closed User Group (CUG) facility, as follows:<br>This attribute, if set to a value of ***allowed,*** indicates that outgoing calls (from the DTE to the network) to the open (non-CUG) part of the network are permitted. It also permits outgoing calls to DTEs that have Incoming Access capabilities. If set to a value of ***disallowed***, then such calls cannot be made using this *Dna* - such calls will be cleared by the local DCE.<br><br>This attribute corresponds to the ITU-T 'Closed User Group with Outgoing Access' feature for DNAs in that outgoing access is granted if this attribute is set to a value of ***allowed***. |
| Values | disallowed<br>allowed |
| Default | disallowed |

### GROUP SrvTrace Rcvr Fr Dna IncomingOptions

| | |
|---|---|
| Properties | Provisioned |
| Description | This group defines the call options for incoming calls. |

### ATTRIBUTE SrvTrace Rcvr Fr Dna incCalls (inc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute, if set to a value of ***allowed***, indicates that incoming calls (from the network to the DTE) can be made to this *Dna*. If set to a value of ***disallowed***, then incoming calls cannot be made to this *Dna* - such calls will be cleared by the local DCE. |

This attribute corresponds to the ITU-T 'Incoming Calls Barred' feature for DNAs in that incoming calls are barred if this attribute is set to a value of ***disallowed***.

Either *outCalls*, or *incCalls* (or both) must be set to a value of ***allowed*** for this *Dna* to be usable.

Values: disallowed
allowed

Default: disallowed

## GROUP SrvTrace Rcvr Fr Dna CallOptions

Properties: Provisioned

Description: This group defines additional options for calls not related directly to the direction of a call.

## ATTRIBUTE SrvTrace Rcvr Fr Dna packetSizes (pks)

Access: Read only

Description: This attribute indicates the allowable packet sizes supported for calls setup using this *Dna*. To set a given packet size to be allowed on the *Dna*, the packet size is entered, and the corresponding bit in the structure is set to a value of 1. To set a given packet size to be disallowed on the *Dna*, the packet size is entered preceded with the '~' character, and the corresponding bit in the structure is set to a value of 0. ITU-T recommends that packet size 128 always be supported.

The bit placement for the packet sizes is as follows:
Bit 0 - Packet Size 16
Bit 1 - Packet Size 32
Bit 2 - Packet Size 64
Bit 3 - Packet Size 128
Bit 4 - Packet Size 256
Bit 5 - Packet Size 512
Bit 6 - Packet Size 1024
Bit 7 - Packet Size 2048
Bit 8 - Packet Size 4096

This attribute relates to the *defaultRecvFrmNetworkPacketSize* and *defaultSendToNetworkPacketSize* attributes.

Set of
16
32
64
128
256
512
1024
2048
4096

Default (2048)

### ATTRIBUTE SrvTrace Rcvr Fr Dna defaultRecvFrmNetworkPacketSize (rps)

Access Read only

Description This attribute indicates the default local receive packet size from the network to the DTE for all calls using this particular *Dna*. The *packetSizes* attribute must be set with the corresponding value.

Values
16
32
64
128
256
512
1024
2048
4096

Default 2048

### ATTRIBUTE SrvTrace Rcvr Fr Dna defaultSendToNetworkPacketSize (sps)

Access Read only

Description This attribute indicates the default local send packet size from the DTE to the network for all calls using this particular *Dna*. The *packetSizes* attribute must be set with the corresponding value.

| | |
|---|---|
| Values | 16<br>32<br>64<br>128<br>256<br>512<br>1024<br>2048<br>4096 |
| Default | 2048 |

### ATTRIBUTE SrvTrace Rcvr Fr Dna cugFormat (cft)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies which CUG format is used when DTE signals CUG indices, ***basic*** or ***extended***. A ***basic*** CUG index format is two digits long and an ***extended*** format is four digits long.<br><br>This attribute, if set to a value of ***extended***, indicates that the DTE signals and receives CUG indices in extended CUG format. If set to a value of ***basic***, then the DTE signals and receives CUG indices in the basic CUG format. |
| Values | basic<br>extended |
| Default | basic |

### COMPONENT SrvTrace Rcvr Fr Dna ClosedUserGroup (Cug)

| | |
|---|---|
| Instance | Decimal (1..1) |
| Groups | "GROUP SrvTrace Rcvr Fr Dna Cug CugOptions" |
| Scope | Application |
| Description | *SrvTrace Rcvr/<string> Fr Dna ClosedUserGroup*<br>This component defines options associated with national or international CUG Identifier. Other DNAs in the network can have CUGs defined which groups these DNAs by their *Cug interlockCode* attribute value. If DNAs are defined with CUGs, calls from DNAs which do not have the same *interlockCode* |

attribute value defined are refused. Attributes *incAccess* and *outAccess* can override this rule.

If this component is present, the Frame Relay interface which connects to the Frame Relay trace receiver must be provisioned with the same *Cug interlockCode* attribute value.

Common Verbs

Help
List
Display
Add
DELete

## GROUP SrvTrace Rcvr Fr Dna Cug CugOptions

Properties: Provisioned

Description: Attributes in this group define the *ClosedUserGroup* component options associated with the *interlockCode* attribute. DNAs with the same CUG (*interlockCode*) can make calls within this group. Various combinations which permit or prevent calls in the same CUG group are defined here.

## ATTRIBUTE SrvTrace Rcvr Fr Dna Cug type

Access: Read and write

Description: This attribute specifies the CUG type - the CUG is either a national CUG, or an international CUG. International closed user groups are usually established between DTEs for which there is an intermediary X.75 Gateway, whereas national closed user groups are usually established between DTEs for which there is no intermediary X.75 Gateway. (National CUGs cannot normally traverse an X.75 Gateway).

This attribute, if set to a value of ***national***, then the CUG is a national CUG, in which case, the *dnic* attribute should be left at its default value since it is not part of a national CUG. If set to a value of ***international***, then the CUG is an international CUG, in which case, the *dnic* attribute should be set appropriately as part of the *Cug interlockCode* attribute.

| | |
|---|---|
| Values | national<br>international |
| Default | national |

### ATTRIBUTE SrvTrace Rcvr Fr Dna Cug dnic

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the DNIC (Data Network ID Code) of the *Cug* by which packet networks are identified. This attribute is not applicable if the CUG is a national CUG, as specified by the *Cug type* attribute. There are usually 1 or 2 DNICs assigned per country, for public networks. The U.S. is an exception where each BOC has a DNIC. Also, a group of private networks can have its own DNIC.<br><br>DNIC value is not an arbitrary number. It is assigned by international agreement and controlled by ITU-T. |
| Values | BCD (4) |
| Default | 0000 |

### ATTRIBUTE SrvTrace Rcvr Fr Dna Cug interlockCode (ilc)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the CUG identifier of a national or international CUG call. It is an arbitrary number and it also can be called CUG in some descriptions. Interfaces (DNAs) defined with this number can only make calls to DNAs defined with the same *interlockCode* attribute value. |
| Values | Decimal (0..65535) |
| Default | 0 |

### ATTRIBUTE SrvTrace Rcvr Fr Dna Cug preferential (pre)

| | |
|---|---|
| Access | Read only |
| Description | This attribute, if set to a value of ***yes***, indicates that this *Cug* is the preferential CUG, in which case it will be used during the call establishment phase if the DTE has not explicitly specified a CUG index in the call request packet. If set to a value of ***no***, then |

this *Cug* is not the preferential CUG.

Only one of the *Cug* components associated with a particular DNA can be the preferential CUG - only one *Cug* component can have this attribute set to ***yes***.

Values
no
yes

Default
yes

### ATTRIBUTE SrvTrace Rcvr Fr Dna Cug outCalls (ouc)

Access
Read only

Description
This attribute, if set to a value of ***allowed***, indicates that outgoing calls (from the DTE into the network) can be made using this particular *Cug*. If set to a value of ***disallowed***, then outgoing calls cannot be made using this *Cug* - such calls will be cleared by the local DCE.

This attribute corresponds to the ITU-T 'Outgoing Calls Barred' feature for CUG*s* in that outgoing calls are barred if this attribute is set to a value of ***disallowed***.

Values
disallowed
allowed

Default
allowed

### ATTRIBUTE SrvTrace Rcvr Fr Dna Cug incCalls (inc)

Access
Read only

Description
This attribute, if set to a value of ***allowed***, indicates that incoming calls (from the network to the DTE) can be made using this particular *Cug*. If set to a value of ***disallowed***, then incoming calls cannot be made using this *Cug* - such calls will be cleared by the local DCE.

This attribute corresponds to the ITU-T 'Incoming Calls Barred' feature for CUG*s* in that incoming calls are barred if this attribute is set to a value of ***disallowed***.

Values
disallowed
allowed

Default
disallowed

### ATTRIBUTE SrvTrace Rcvr Fr Dna Cug privileged (pri)

Access
Read only

Description
This attribute, if set to a value of ***yes***, indicates that this *Cug* is a privileged CUG. In DPN, at least one side of a call setup within a CUG must have the CUG as a privileged CUG. If set to a value of ***no***, then this *Cug* is not privileged.

If both the local DTE and the remote DTE subscribe to the CUG, but it is not privileged, then the call will be cleared. This attribute is typically used for a host DTE which must accept calls from many other DTE's, in which case the other DTE's cannot call each other, but can call the host. In this example, the host would have the privileged CUG, and the other DTE's would belong to the same CUG, but it would not be privileged.

Values
no
yes

Default
yes

### COMPONENT SrvTrace Rcvr Fr DirectCall (Dc)

Groups
"GROUP SrvTrace Rcvr Fr Dc Options"

Scope
Application

Description
*SrvTrace Rcvr/<string> Fr DirectCall*
This component defines direct call options for the call to the Frame Relay trace receiver. The connection is initiated on receipt of a *Start FrUni/n SrvTrace* command.

Common Verbs
Help
List
Display

## GROUP SrvTrace Rcvr Fr Dc Options

| | |
|---|---|
| Properties | Provisioned |
| Description | The *Options* group defines attributes associated with the SVC direct call. |

## ATTRIBUTE SrvTrace Rcvr Fr Dc remoteNpi (rnpi)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates the numbering plan used for the *remoteDna*. |
| Values | x121<br>e164 |
| Default | x121 |

## ATTRIBUTE SrvTrace Rcvr Fr Dc remoteDna (rdna)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the Data Network Address (DNA) of the remote end of the connection. This is the DNA of the Frame Relay trace receiver that will receive the trace data. |
| Values | BCD (1..15) |
| Default | No default |

## ATTRIBUTE SrvTrace Rcvr Fr Dc type

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the type of call as ***switched***. For a ***switched*** call, no information is defined at the remote end about the local end of the connection. |
| Values | switched (svc)<br>permanentMaster (master)<br>permanentSlave (slave)<br>permanentBackupSlave (backSl) |
| Default | switched |

### ATTRIBUTE SrvTrace Rcvr Fr Dc userData (usd)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute contains the user data. It is a 0 to 16 byte length string which is appended to the call request packet that is presented to the called (destination) DTE. |
| Values | String (0..16, Hex) |
| Default | "" |

### COMPONENT SrvTrace Rcvr FrAtm

| | |
|---|---|
| Groups | "GROUP SrvTrace Rcvr FrAtm Provisioned (Prov)"<br>"GROUP SrvTrace Rcvr FrAtm TrafficManagement (Tm)" |
| Scope | Application |
| Description | *SrvTrace Rcvr/<string> FrAtm*<br>This component represents the characteristics of FrAtm service trace receiver. If this component is provisioned, the *X25*, *Fr*, or *Atm* component cannot be provisioned under the same *SrvTrace Rcvr* component. If this component is deleted, all active *SrvTrace Session*s associated with this component are not affected. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP SrvTrace Rcvr FrAtm Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains general provisioned information of the FrAtm service trace receiver.<br><br>When started, service trace attempts to establish a connection to the FR-ATM service specified by *calledAddress* attribute. Every time a different DLCI ranging between *minimumDlci* and *maximumDlci* attributes is specified in call setup message, until a successful connection is established or all available DLCIs are |

tried.

To reduce the number of useless connection attempt, a consecutive set of DLCI should be provisioned in the FR-ATM service, and with the *minimumDlci* and *maximumDlci* attributes of *PtsFrAtmProv* group corresponding to the minimum and maximum instance number of *Dlci* provisioned in the FR-ATM service.

### ATTRIBUTE SrvTrace Rcvr FrAtm calledAddress (addr)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the NSAP address of the FR-ATM service through which the FrAtm trace receiver is connected. Changing this attribute does not impact active *SrvTrace Session*s associated with this receiver. This change takes effect when *SrvTrace Session*s are restarted (*stop* and then *start*) |
| Values | String (6..44, AESANsapAddress) |
| Default | No default |

### ATTRIBUTE SrvTrace Rcvr FrAtm tracedLength (len)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum number of octets to trace per frame starting from the octet following the frame flag. If the frame length is longer than the value specified by this attribute, then the traced frame is truncated to *tracedLength*. If set to ***disabled***, the traced frame is not truncated.<br><br>Changing this attribute does not affect active *SrvTrace Session*s. The *SrvTrace Sessions* need to be restarted (*Stop* and then *Start*) for this attribute to take effect. |
| Values | Decimal (1..4000)<br>disabled |
| Units | octets |
| Default | 2000 |

### ATTRIBUTE SrvTrace Rcvr FrAtm minimumDlci (min)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the minimum provisioned *Dlci* instance number in the FR-ATM service specified by *calledAddress*. |
| Values | Decimal (16..1007) |
| Default | 16 |

### ATTRIBUTE SrvTrace Rcvr FrAtm maximumDlci (max)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum provisioned *Dlci* instance number in the FR-ATM service specified by *calledAddress*. |
| Values | Decimal (16..1007) |
| Default | 16 |

### GROUP SrvTrace Rcvr FrAtm TrafficManagement (Tm)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains basic traffic parameters used for ATM connection setup procedure. |

### ATTRIBUTE SrvTrace Rcvr FrAtm serviceCategory (service)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the service category of the ATM connection.<br>Currently, the service trace receiver feature only supports ATM connections whose service category is UBR, RT-VBR or NRT-VBR. |
| Values | unspecifiedBitRate (ubr)<br>rtVariableBitRate (rtvbr)<br>nrtVariableBitRate (nrtvbr) |
| Default | unspecifiedBitRate |

### ATTRIBUTE SrvTrace Rcvr FrAtm peakCellRate (pcr)

| | |
|---|---|
| Access | Read and write |
| Description | The attribute specifies the peak cell rate allowed on the ATM connection. |
| Values | Decimal (1..2147483647) |
| Units | cell/s |
| Default | No default |

### COMPONENT SrvTrace Rcvr Atm

| | |
|---|---|
| Groups | "GROUP SrvTrace Rcvr Atm Provisioned (Prov)"<br>"GROUP SrvTrace Rcvr Atm TrafficManagement (Tm)" |
| Scope | Application |
| Description | *SrvTrace Rcvr/<string> Atm*<br>This component represents the characteristics of ATM service trace receiver. If this component is provisioned, the *X25*, *Fr*, or *FrAtm* component cannot be provisioned under the same *SrvTrace Rcvr* component. If this component is deleted, all active *SrvTrace Session*s associated with this component are not affected. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP SrvTrace Rcvr Atm Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains general provisioned information of the ATM service trace receiver. |

### ATTRIBUTE SrvTrace Rcvr Atm calledAddress (addr)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute specifies the NSAP address of the ATM service trace receiver. Changing this attribute does not impact active *SrvTrace Session*s associated with this receiver. This change takes effect when *SrvTrace Session*s are restarted (*stop* and then *start*). |
| Values | String (6..44, AESANsapAddress) |
| Default | No default |

### ATTRIBUTE SrvTrace Rcvr Atm tracedLength (len)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum number of octets to trace per frame starting from the octet following the frame flag. If the frame length is longer than the value specified by this attribute, then the traced frame is truncated to *tracedLength*. If set to ***disabled***, the traced frame is not truncated.<br><br>Changing this attribute does not affect active *SrvTrace Session*s. The *SrvTrace Sessions* need to be restarted (*Stop* and then *Start*) for this attribute to take effect.<br><br>When this *SrvTrace Rcvr* is used for Frame Relay trace services, the [*FrUni* \| *FrNni]* *SrvTrace Filter tracedLength* attribute overrides this attribute. |
| Values | Decimal (1..4000)<br>disabled |
| Units | octets |
| Default | 2000 |

### GROUP SrvTrace Rcvr Atm TrafficManagement (Tm)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains basic traffic parameters used for ATM connection setup procedure. |

### ATTRIBUTE SrvTrace Rcvr Atm serviceCategory (service)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute specifies the service category of the ATM connection.<br>Currently, the service trace receiver feature only supports ATM connections whose service category is UBR, RT-VBR or NRT-VBR. |
| Values | unspecifiedBitRate (ubr)<br>rtVariableBitRate (rtvbr)<br>nrtVariableBitRate (nrtvbr) |
| Default | unspecifiedBitRate |

### ATTRIBUTE SrvTrace Rcvr Atm peakCellRate (pcr)

| | |
|---|---|
| Access | Read and write |
| Description | The attribute specifies the peak cell rate allowed on the ATM connection. |
| Values | Decimal (1..2147483647) |
| Units | cell/s |
| Default | No default |

### COMPONENT SrvTrace Session

| | |
|---|---|
| Instance | Decimal (1..50) |
| Groups | "GROUP SrvTrace Session Operational" |
| Scope | Application |
| Description | *SrvTrace Session/n*<br>The *Session* component provides information about an active trace. |
| Dyn. Subcomp. | "COMPONENT SrvTrace Session X25"<br>"COMPONENT SrvTrace Session FrameRelay (Fr)"<br>"COMPONENT SrvTrace Session FrAtm"<br>"COMPONENT SrvTrace Session Atm" |
| Common Verbs | Help<br>List<br>Display |

## GROUP SrvTrace Session Operational

| | |
|---|---|
| Properties | Operational |
| Description | This group provides the operational attributes for the *Session* component. It displays the service being traced and the destination for the traced data. |

## ATTRIBUTE SrvTrace Session serviceTraced (service)

| | |
|---|---|
| Access | Read only |
| Description | This attribute identifies the service being traced. An example is *FrUni/5*. |
| Values | The name of the component |
| Default | No default |

## ATTRIBUTE SrvTrace Session receiver (rcvr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute identifies the trace receiver which is the destination for the traced data. |
| Values | The name of the component |
| Default | No default |

## ATTRIBUTE SrvTrace Session sessionState

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the state of the trace session.<br>The ***active*** value is the normal state for a running trace session. The ***waitingForSession***, ***waitingForProvisioningData***, ***callingReceiver*** and ***binding*** values are all normal transient states used to establish a session with the trace receiver on receipt of a *Start* command. In the ***waitingForSession*** state, a trace session is being allocated. In the ***waitingForProvisioningData*** state, a trace session has been allocated and receiver provisioning data, used to setup the call to the receiver, is being retrieved. In the ***callingReceiver*** state, the call to the receiver is being established. In the ***binding*** state, the call to the receiver has been established and the service data path is being adjusted to include trace. |

The ***unbinding***, ***clearingCallToReceiver*** and ***releasingSession*** values are all normal transient states used to disconnect a session with the trace receiver on receipt of a *Stop* command. In the ***unbinding*** state, the service data path is being adjusted to remove trace. In the ***clearingCallToReceiver*** state, the call to the receiver is being cleared. In the ***releasingSession*** state, a trace session is being deallocated.
A value of ***abortingDueToCallFailure*** indicates that the call to the trace receiver has disconnected unexpectedly and trace is stopping. The clear cause and diagnostic for the failure is reported. Correct the fault indicated and retry the *Start* command.
Values of ***initializing*** and ***idle*** can never be seen since these states occur before a *Session* component is created and after it is destroyed.

Values

initializing
idle
waitingForSession
releasingSession
waitingForProvisioningData
callingReceiver
clearingCallToReceiver
abortingDueToCallFailure
binding
unbinding
active

Default

No default

## ATTRIBUTE SrvTrace Session callState

Access

Read only

Description

This attribute indicates the state of the trace call to the receiver.
The ***dataTransfer*** value is the normal state for the call.
The ***initializing***, ***creatingVc***, ***waitingApiUp***, ***calling***, and ***enteringDataTransfer*** values are all normal transient states used to establish a call to the trace receiver on receipt of a *Start* command. These states occur during the ***callingReceiver*** state of the *sessionState* attribute. In the ***initializing*** state, receiver provisioning data, used to setup the call to the receiver, is being retrieved. In the ***creatingVc*** state, the local VC is being created.

In the ***calling*** state, the direct call to the receiver is being connected. In the ***enteringDataTransfer*** state, the call to the receiver has been accepted and the data path is being established. The ***clearing***, ***terminatingVc*** and ***terminated*** values are all normal transient states used to disconnect a call with the trace receiver on receipt of a *Stop* command. These states occur during the ***clearingCallToReceiver*** state of the *sessionState* attribute. In the ***clearing*** state, the call to the receiver is being cleared. In the ***terminatingVc*** state, the local VC is being destroyed. In the ***terminated*** state, the call is down and all cleanup is complete.
A value of ***reseting*** indicates a data sequencing problem has occurred on the call. This value is applicable for sessions to X.25 trace receivers only and indicates an incompatibility with the receiver. Tracing continues, however some trace data may have been lost.
A value of ***terminating*** is a normal transient state which occurs if a *Stop* command is received before the local VC has been created.

Values

initializing
creatingVc
calling
clearing
enteringDataTransfer
terminatingVc
dataTransfer
reseting
terminating
terminated
waitingApiUp

Default

No default

## ATTRIBUTE SrvTrace Session queueState

Access

Read only

Description

This attribute indicates the state of the trace queue. A value of ***normal*** indicates that traced data is being queued normally. A value of ***full*** indicates that trace data is being discarded because the queue is full. A value of ***blocked*** indicates that trace data is being discarded because the trace VC is not able to transport the data.

| | |
|---|---|
| Values | normal<br>full<br>blocked |
| Default | normal |

### ATTRIBUTE SrvTrace Session framesQueued

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of traced frames that are currently queued to be sent to the VC. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE SrvTrace Session framesSent

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of traced frames sent to the VC. The counter wraps when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE SrvTrace Session framesDiscarded

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of discarded trace frames while the trace queue is full. Frames discarded while the queue is blocked are not counted. The counter wraps when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE SrvTrace Session framesTruncated

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of truncated frames that require truncation. Truncation is needed when the traced frame length |

exceeds the limitation specified for this service trace session.

If a *Filter* component exists under the service *SrvTrace*, the limitation is specified by *SrvTrace Filter tracedLength* attribute; otherwise the limitation is specified by the *tracedLength* attribute under component *SrvTrace Rcvr/<string> [FrAtm | Atm]*.

This counter wraps when it exceeds its maximum value.

Values: Decimal (0..4294967295)

Default: No default

## COMPONENT SrvTrace Session X25

Scope: Application

Description: *SrvTrace Session/<n> X25*
This component identifies the access method used by the receiver of the trace data as X.25.

Dyn. Subcomp.: "COMPONENT SrvTrace Session X25 Vc"

Common Verbs:
- Help
- List
- Display

## COMPONENT SrvTrace Session X25 Vc

Groups:
"GROUP SrvTrace Session X25 Vc CallData (Cad)"
"GROUP SrvTrace Session X25 Vc IntervalData (Intd)"
"GROUP SrvTrace Session X25 Vc Statistics (Stats)"

Scope: Application

Description: ... *Vc()*
This component defines display of general Vc dynamic attributes

Common Verbs:
- Help
- List
- Display

### GROUP SrvTrace Session X25 Vc CallData (Cad)

| | |
|---|---|
| Properties | Operational |
| Description | This group represents operational call data related to General *Vc*. It can be displayed only for General *Vc* which is created by application. |

### ATTRIBUTE SrvTrace Session X25 Vc type

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the type of call, ***pvc*** or ***svc***. *type* is provided at provisioning time. |
| Values | pvc<br>svc |
| Default | No default |

### ATTRIBUTE SrvTrace Session X25 Vc state

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the state of call control. P5 state is not supported but is listed for completeness. Transitions from one state to another take very short time. *state* most often displayed is ***dataTransferP4***. |
| Values | creating<br>readyP1<br>dteWaitingP2<br>dceWaitingP3<br>dataTransferP4<br>unsupportedP5<br>dteClearRequestP6<br>dceClearIndicationP7<br>termination |
| Default | No default |

### ATTRIBUTE SrvTrace Session X25 Vc previousState

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute displays the previous state of call control. This is a valuable field to determine how the processing is progressing. |
| Values | creating<br>readyP1<br>dteWaitingP2<br>dceWaitingP3<br>dataTransferP4<br>unsupportedP5<br>dteClearRequestP6<br>dceClearIndicationP7<br>termination |
| Default | No default |

### ATTRIBUTE SrvTrace Session X25 Vc diagnosticCode

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the internal substate of call control. It is used to further refine *state* of call processing. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE SrvTrace Session X25 Vc previousDiagnosticCode

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the internal substate of call control. It is used to further refine *state* of call processing. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE SrvTrace Session X25 Vc calledNpi

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the Numbering Plan Indicator (NPI) of the called end. |
| Values | x121<br>e164 |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE SrvTrace Session X25 Vc calledDna

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the Data Network Address (*Dna*) of the called (destination) DTE to which this call is sent. This address if defined at receiving end will complete *Vc* connection. |
| Values | BCD (1..15) |
| Default | No default |

### ATTRIBUTE SrvTrace Session X25 Vc calledLcn

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the Logical Channel Number of the called end. It is valid only after both ends of *Vc* exchanged relevant information. |
| Values | Decimal (1..65535) |
| Default | No default |

### ATTRIBUTE SrvTrace Session X25 Vc callingNpi

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the Numbering Plan Indicator (NPI) of the calling end. |
| Values | x121<br>e164 |
| Default | No default |

### ATTRIBUTE SrvTrace Session X25 Vc callingDna

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the Data Network Address (*Dna*) of the calling end. |
| Values | BCD (1..15) |
| Default | No default |

### ATTRIBUTE SrvTrace Session X25 Vc callingLcn

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the Logical Channel Number of the calling end. |
| Values | Decimal (1..65535) |
| Default | No default |

### ATTRIBUTE SrvTrace Session X25 Vc accountingEnabled

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates that this optional section of accounting record is suppressed or permitted. If *accountingEnabled* is ***yes***, conditions for generation of accounting record were met. These conditions include billing options, vc recovery conditions and Module wide accounting data options. |
| Values | yes<br>no |
| Default | No default |

### ATTRIBUTE SrvTrace Session X25 Vc fastSelectCall

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays that this is a fast select call. |
| Values | yes<br>no |
| Default | No default |

### ATTRIBUTE SrvTrace Session X25 Vc localRxPktSize

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the locally negotiated size of send packets. |
| Values | unknown<br>16<br>32<br>64 |

| | |
|---|---|
| | 128<br>256<br>512<br>1024<br>2048<br>4096 |
| Default | No default |

### ATTRIBUTE SrvTrace Session X25 Vc localTxPktSize

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the locally negotiated size of send packets. |
| Values | unknown<br>16<br>32<br>64<br>128<br>256<br>512<br>1024<br>2048<br>4096 |
| Default | No default |

### ATTRIBUTE SrvTrace Session X25 Vc localTxWindowSize

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the send window size provided on incoming call packets or the default when a call request packet does not explicitly provide the window size. |
| Values | Decimal (0..127) |
| Default | No default |

### ATTRIBUTE SrvTrace Session X25 Vc localRxWindowSize

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute displays the receive window size provided on incoming call packets or the default when a call request does not explicitly provide the window sizes. |
| Values | Decimal (0..127) |
| Default | No default |

### ATTRIBUTE SrvTrace Session X25 Vc pathReliability

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the path reliability. |
| Values | high<br>normal |
| Default | No default |

### ATTRIBUTE SrvTrace Session X25 Vc accountingEnd

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates if this end should generate an accounting record. Normally, ***callingEnd*** is the end to generate an accounting record. |
| Values | callingEnd<br>calledEnd |
| Default | No default |

### ATTRIBUTE SrvTrace Session X25 Vc priority

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays whether the call is a ***normal*** or a ***high*** priority call. |
| Values | normal<br>high |
| Default | No default |

### ATTRIBUTE SrvTrace Session X25 Vc segmentSize

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute displays the segment size (in bytes) used on the call. It is used to calculate the number of segments transmitted and received. |
| Values | Decimal (0..4096) |
| Default | No default |

### ATTRIBUTE SrvTrace Session X25 Vc subnetTxPktSize

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the locally negotiated size of the data packets on this *Vc*. |
| Values | unknown<br>16<br>32<br>64<br>128<br>256<br>512<br>1024<br>2048<br>4096 |
| Default | No default |

### ATTRIBUTE SrvTrace Session X25 Vc subnetTxWindowSize

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the current send window size of *Vc*. |
| Values | Decimal (0..4096) |
| Default | No default |

### ATTRIBUTE SrvTrace Session X25 Vc subnetRxPktSize

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the locally negotiated size of receive packets. |
| Values | unknown<br>16 |

| | |
|---|---|
| | 32<br>64<br>128<br>256<br>512<br>1024<br>2048<br>4096 |
| Default | No default |

### ATTRIBUTE SrvTrace Session X25 Vc subnetRxWindowSize

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the receive window size provided on incoming call packets and to the default when a call request does not explicitly provide the window sizes. |
| Values | Decimal (0..4096) |
| Default | No default |

### ATTRIBUTE SrvTrace Session X25 Vc maxSubnetPktSize

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the maximum packet size allowed on *Vc*. |
| Values | Decimal (0..4096) |
| Default | No default |

### ATTRIBUTE SrvTrace Session X25 Vc transferPriorityToNetwork

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the priority in which data is transferred to the network.<br><br>The transfer priority is a preference specified by an application according to its delay-sensitivity requirement. Frames with high transfer priority are served by the network before the frames with normal priority.<br><br>Each transfer priority contains a predetermined setting for trunk |

queue (interrupting, delay or throughput), and routing metric (delay or throughput).

When the transfer priority is set at ***high***, the trunk queue is set to high, the routing metric is set to delay.

When the transfer priority is set at ***normal***, the trunk queue is set to normal, the routing metric is set to throughput.

Values: normal
high

Default: No default

### ATTRIBUTE SrvTrace Session X25 Vc transferPriorityFromNetwork

Access: Read only

Description: This attribute displays the priority in which data is transferred from the network.

The transfer priority is a preference specified by an application according to its delay-sensitivity requirement. Frames with high transfer priority are served by the network before the frames with normal priority.

Each transfer priority contains a predetermined setting for trunk queue (interrupting, delay or throughput), and routing metric (delay or throughput).

When the transfer priority is set at ***high***, and the trunk queue is set to high, the routing metric is set to delay.

When the transfer priority is set at ***normal***, the trunk queue is set to normal, and the routing metric is set to throughput.

Values: normal
high

Default: No default

### GROUP SrvTrace Session X25 Vc IntervalData (Intd)

Properties: Operational

| | |
|---|---|
| Description | This group defines display of interval data collected by *Vc*. Data in this group is variable and may depend on time when this *display* command is issued. |

### ATTRIBUTE SrvTrace Session X25 Vc elapsedTimeTillNow

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the elapsed time representing the period of this interval data. It is elapsed time in 0.1 second increments since *Vc* started. |
| Values | Decimal (0..16777215) |
| Default | No default |

### ATTRIBUTE SrvTrace Session X25 Vc segmentsRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of segments received at the time command was issued. This is the segment received count maintained by accounting at each end of the *Vc*. This counter is updated only when the packet cannot be successfully delivered out of the sink *Vc* and to the sink AP Conditions in which packets may be discarded by the sink *Vc* include: missing packets due to subnet discards, segmentation protocol violations due to subnet discard, duplicated and out-of-ranged packets and packets that arrive while *Vc* is in path recovery state. |
| Values | Decimal (0..16777215) |
| Default | No default |

### ATTRIBUTE SrvTrace Session X25 Vc segmentsSent

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of segments sent at the time command was issued. This is the segment sent count maintained by accounting at the source *Vc*. *Vc* only counts packets that *Vc* thinks can be delivered successfully into the subnet. In reality, these packets may be dropped by trunking, for instance. This counter is not updated when splitting fails, when *Vc* is in a path recovery state, when packet forwarding fails to forward this |

packet and when subsequent packets have to be discarded as we want to minimize the chance of out-of-sequence and do not intentionally send out-of-sequenced packets into the subnet.

Values: Decimal (0..16777215)

Default: No default

### ATTRIBUTE SrvTrace Session X25 Vc startTime

Access: Read only

Description: This attribute displays the start time of this interval period. If *Vc* spans 12 hour time or time of day change *startTime* reflects new time as recorded at 12 hour periods or time of day changes.

Values: Time (DHMS)

Default: No default

### ATTRIBUTE SrvTrace Session X25 Vc callReferenceNumber

Access: Read only

Description: This attribute displays the call reference number which is a unique number generated by the switch.The same Call Reference Number is stored in the interval data (accounting record) at both ends of the call. It can be used as one of the attributes in matching duplicate records generated at each end of the call.

Values: Decimal (0..4294967295)

Default: No default

### GROUP SrvTrace Session X25 Vc Statistics (Stats)

Properties: Operational

Description: ... *Statistics(Stats)*
This group defines general attributes collected by general *Vc*.
The purpose of *Vc* attributes is to aid end users and verification people to understand the *Vc* internal behavior. This is particularly useful when the network has experienced abnormality and we want to isolate problems and pinpoint trouble spots.
Attributes are collected on a per *Vc* basis. Until a need is identified, statistics are not collected at a processor level. Each

attribute is stored in a 32 bit field and is initialized to zero when a *Vc* enters into the data transfer state. When a PVC is disconnected and then connected again, the attributes will be reset. Attributes cannot be reset through other methods.

### ATTRIBUTE SrvTrace Session X25 Vc ackStackingTimeouts

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of ack stacking timer expiries. It is used as an indicator of the acknowledgment behavior across the subnet when ack stacking is in effect. If it expires often, usually this means end users will experience longer delay.<br>The ack stacking timer specifies how long the *Vc* will wait before finally sending the subnet acknowledgment. if this attribute is set to a value of 0, then the *Vc* will automatically return acknowledgment packets without delay. If this attribute is set to a value other than zero, then the *Vc* will wait for this amount of time in an attempt to piggyback the acknowledgment packet on another credit or data packet. If the *Vc* cannot piggyback the acknowledgment packet within this time, then the packet is returned without piggybacking. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE SrvTrace Session X25 Vc outOfRangeFrmFromSubnet

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of subnet frames discarded due to the sequence number being out of range.<br>Two Categories apply for the General *Vc*<br>1) lost Acks (previous Range)<br>2) unexpected Packets (next Range)<br>*Vc* internally maintains its own sequence number of packet order and sequencing. Due to packet retransmission, *Vc* may receive duplicate packets that have the same *Vc* internal sequence number. Only 1 copy is accepted by the *Vc* and other copies of the same packets are detected through this count. This attribute can be used to record the frequency of packet retransmission due to *Vc* and other part of the subnet. |

| | |
|---|---|
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE SrvTrace Session X25 Vc duplicatesFromSubnet

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of subnet packets discarded due to duplication. It is used to detect software error fault or duplication caused by retransmitting. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE SrvTrace Session X25 Vc frmRetryTimeouts

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames which have retransmission time-out.<br>If packets from *Vc* into the subnet are discarded by the subnet, the source *Vc* will not receive any acknowledgment. The retransmission timer then expires and packets will be retransmitted again. Note that the *Vc* idle probe may be retransmitted and is included in this count. This statistics does not show the distribution of how many times packets are retransmitted (e.g. first retransmission results in successful packet forwarding). |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE SrvTrace Session X25 Vc peakRetryQueueSize

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the peak size of the retransmission queue. This attribute is used as an indicator of the acknowledgment behavior across the subnet. It records the largest body of unacknowledged packets. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE SrvTrace Session X25 Vc peakOoSeqQueueSize

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the peak size of the out of sequence queue.<br>This attribute is used as an indicator of the sequencing behavior across the subnet. It records the largest body of out of sequence packets. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE SrvTrace Session X25 Vc peakOoSeqFrmForwarded

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the peak size of the sequence packet queue.<br>This attribute is used as an indicator of the sequencing behavior across the subnet. It records the largest body of out of sequence packets, which by the receipt of an expected packet have been transformed to expected packets. The number of times this peak is reached is not recorded as it is traffic dependent. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE SrvTrace Session X25 Vc peakStackedAcksRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the peak size of wait acks.<br>This attribute is used as an indicator of the acknowledgment behavior across the subnet. It records the largest collective acknowledgment. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE SrvTrace Session X25 Vc subnetRecoveries

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the number of successful *Vc* recovery attempts.<br>This attribute is used as an indicator of how many times the *Vc* path is broken but can be recovered. This attribute is useful to record the number of network path failures. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE SrvTrace Session X25 Vc windowClosuresToSubnet

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of window closures to subnet. A packet may have been sent into the subnet but its acknowledgment from the remote *Vc* has not yet been received. This is a 8 bit sequence number.This number is useful in detecting whether the *Vc* is sending any packet into the subnet. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE SrvTrace Session X25 Vc windowClosuresFromSubnet

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of window closures from subnet. This attribute is useful in detecting whether the *Vc* is receiving any packet from the subnet. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE SrvTrace Session X25 Vc wrTriggers

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of times the *Vc* stays within the W-R region. The W-R region is a value used to determined the timing of credit transmission. Should the current window size be beneath this value, the credits will be transmitted immediately. Otherwise, they will be transmitted later with actual data. The |

| | |
|---|---|
| | wrTriggers statistic is therefore used to analyze the flow control and credit mechanism. |
| Values | Decimal (0..5000) |
| Default | No default |

## COMPONENT SrvTrace Session FrameRelay (Fr)

| | |
|---|---|
| Scope | Application |
| Description | *SrvTrace Session/<n> FrameRelay*<br>This component identifies the access method used by the receiver of the trace data as Frame Relay. |
| Dyn. Subcomp. | "COMPONENT SrvTrace Session Fr Vc" |
| Common Verbs | Help<br>List<br>Display |

## COMPONENT SrvTrace Session Fr Vc

| | |
|---|---|
| Groups | "GROUP SrvTrace Session Fr Vc CallData (Cad)"<br>"GROUP SrvTrace Session Fr Vc IntervalData (Intd)"<br>"GROUP SrvTrace Session Fr Vc FrameRelayData (Frd)" |
| Scope | Application |
| Description | This component defines attributes collected by Frame Relay *Vc*. |
| Common Verbs | Help<br>List<br>Display |

## VERB Ping SrvTrace Session Fr Vc

| | |
|---|---|
| Impact | Passive |
| Description | *Ping [-roundTripDelay] [-sendPktDataSize(octets)] [-returnPktDataSize(octets)] FrUni/<n> Dlci/<n> Vc* |

*Ping* causes a query packet to be sent to the destination module where the Frame Relay DLCI VC terminates. It can be used to either display the path of the VC being used by the Frame Relay DLCI or to measure the round trip delay of the Frame Relay DLCI connection. Since the query packet carries the same path selector as the Frame Relay data packets and the Frame Relay VC's transfer priority (TP) is used to set the RCOS, reliability and emission priority of the query packet, the path taken by the *ping* query packet will be the same as that of the Frame Relay data except at the source and destination module. The *ping* packets originate from the CP rather than the Frame Relay DLCI's FP. At the far end, it is also the CP that receives the ping packets and returns them, rather than the Frame Relay FP.

Note that this command does not provide any information regarding the status of the far end VC process. If, however, the destination module is unreachable or the VC path is congested, the operator will be notified.

The *ping* command can be issued with or without options. If no options are specified, the command reports the path of the VC associated with the Frame Relay DLCI. When the command is used to find the VC path, it displays the RID and MID of each module that the query packet passes through on its way to the destination. If the *roundTripDelay* option is specified, the command reports the time taken to reach the destination and back. For the *roundTripDelay* option, the path taken by the query packets in both directions (from the source to the destination and from the destination back to the source) is the same as that of the Frame Relay data except at the source and destination where the *ping* packets are generated and bounced back by the CP rather than the Frame Relay DLCI's FP.

The *ping* command supports the following options:

*-roundTripDelay (-rtd):* If this option is selected, the round trip delay time to reach the destination and back will be reported. The round trip delay is calculated by timing how long it takes to send five packets to the destination node and back. The packet size can be specified using the *sendPktSize* and *returnPktSize* options. The minimum, maximum and average time taken by the returned packets are reported. If this option is not selected, the path taken to the destination is displayed.

*-sendPktDataSize:* This option specifies the number of data octets to be included in the round trip delay query packet. The rtd query packet consists of the Passport common header (2 octets), the subnet header (11 octets), plus the data. The minimum data size is 12, since 12 octets are required to carry the ping control information. If the value specified for this option is less than 12, 12 octets are sent to the destination. The actual number of data octets sent is displayed in the ping response. Note that the total packet size (headers plus data) is identical to that of a Frame Relay packet carrying the same number of octets of data.

If this option is not selected the default value is 64 octets if *transferPriority* of the *Frame Relay DLCI Dc* is 11, and 128 octets otherwise. This option is ignored if the *-rtd* option is not specified. If the specified packet data size exceeds the capability of some facilities on the path, the packet will be discarded and the operator will get the timeout response.

*-returnPktDataSize:* This option specifies the number of data octets to be included in the round trip delay acknowledge packet. The rtd acknowledge packet consists of the Passport common header (2 octets), the subnet header (11 octets), plus the data. The minimum data size is 12, since 12 octets are required to carry the ping control information. If the value specified for this option is

less than 12, 12 octets are returned to the source. The actual number of data octets returned is displayed in the ping response. Note that the total packet size (headers plus data) is identical to that of a Frame Relay packet carrying the same number of octets of data.

If this option is not selected the default value is 64 octets if *transferPriority* of the *Frame Relay DLCI Dc* is 11, and 128 octets otherwise. This option is ignored if the *-rtd* option is not specified. If the specified packet data size exceeds the capability of some facilities on the path, the packet will be discarded and the operator will get the timeout response.

### GROUP SrvTrace Session Fr Vc CallData (Cad)

| | |
|---|---|
| Properties | Operational |
| Description | This group represents operational call data related to Frame Relay *Vc*. It can be displayed only for Frame Relay *Vc* which is created by application. |

### ATTRIBUTE SrvTrace Session Fr Vc type

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the type of call, ***pvc***, ***svc, spvc*** or ***frf10spvc***. |
| Values | pvc<br>svc<br>spvc<br>frf10spvc |
| Default | No default |

### ATTRIBUTE SrvTrace Session Fr Vc state

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the state of call control. P5 state is not supported but is listed for completeness. Transitions from one state to another take very short time. *state* most often displayed is ***dataTransferP4***. |

| | |
|---|---|
| Values | creating<br>readyP1<br>dteWaitingP2<br>dceWaitingP3<br>dataTransferP4<br>unsupportedP5<br>dteClearRequestP6<br>dceClearIndicationP7<br>termination |
| Default | No default |

### ATTRIBUTE SrvTrace Session Fr Vc previousState

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the previous state of call control. This is a valuable field to determine how the processing is progressing. |
| Values | creating<br>readyP1<br>dteWaitingP2<br>dceWaitingP3<br>dataTransferP4<br>unsupportedP5<br>dteClearRequestP6<br>dceClearIndicationP7<br>termination |
| Default | No default |

### ATTRIBUTE SrvTrace Session Fr Vc diagnosticCode

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the internal substate of call control. It is used to further refine *state* of call processing. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE SrvTrace Session Fr Vc previousDiagnosticCode

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute displays the internal substate of call control. It is used to further refine *state* of call processing. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE SrvTrace Session Fr Vc calledNpi

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the Numbering Plan Indicator (NPI) of the called end. |
| Values | x121<br>e164 |
| Default | No default |

### ATTRIBUTE SrvTrace Session Fr Vc calledDna

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the Data Network Address (*Dna*) of the called (destination) DTE to which this call is sent. This address if defined at receiving end will complete *Vc* connection. |
| Values | BCD (1..15) |
| Default | No default |

### ATTRIBUTE SrvTrace Session Fr Vc calledLcn

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the Logical Channel Number of the called end. It is valid only after both ends of *Vc* exchanged relevant information. |
| Values | Decimal (1..65535) |
| Default | No default |

### ATTRIBUTE SrvTrace Session Fr Vc callingNpi

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute displays the Numbering Plan Indicator (NPI) of the calling end. |
| Values | x121<br>e164 |
| Default | No default |

### ATTRIBUTE SrvTrace Session Fr Vc callingDna

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the Data Network Address (*Dna*) of the calling end. |
| Values | BCD (1..15) |
| Default | No default |

### ATTRIBUTE SrvTrace Session Fr Vc callingLcn

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the Logical Channel Number of the calling end. |
| Values | Decimal (1..65535) |
| Default | No default |

### ATTRIBUTE SrvTrace Session Fr Vc accountingEnabled

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates that this optional section of accounting record is suppressed or permitted. If *accountingEnabled* is ***yes***, conditions for generation of accounting record were met. These conditions include billing options, vc recovery conditions and Module wide accounting data options. |
| Values | yes<br>no |
| Default | No default |

### ATTRIBUTE SrvTrace Session Fr Vc fastSelectCall

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute displays that this is a fast select call. |
| Values | yes<br>no |
| Default | No default |

### ATTRIBUTE SrvTrace Session Fr Vc pathReliability

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the path reliability. |
| Values | high<br>normal |
| Default | No default |

### ATTRIBUTE SrvTrace Session Fr Vc accountingEnd

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates if this end should generate an accounting record. Normally, ***callingEnd*** is the end to generate an accounting record. |
| Values | callingEnd<br>calledEnd |
| Default | No default |

### ATTRIBUTE SrvTrace Session Fr Vc priority

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays whether the call is a ***normal*** or a ***high*** priority call. |
| Values | normal<br>high |
| Default | No default |

### ATTRIBUTE SrvTrace Session Fr Vc segmentSize

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute displays the segment size (in bytes) used on the call. It is used to calculate the number of segments transmitted and received. |
| Values | Decimal (0..4096) |
| Default | No default |

### ATTRIBUTE SrvTrace Session Fr Vc maxSubnetPktSize

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the maximum packet size allowed on the *Vc*. |
| Values | Decimal (0..4096) |
| Default | No default |

### ATTRIBUTE SrvTrace Session Fr Vc rcosToNetwork (rcosto)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the routing metric routing class of service to<br>the network. |
| Values | throughput<br>delay<br>multimedia |
| Default | No default |

### ATTRIBUTE SrvTrace Session Fr Vc rcosFromNetwork (rcosfrom)

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the routing metric Routing Class of Service from the Network. |
| Values | throughput<br>delay<br>multimedia |
| Default | No default |

### ATTRIBUTE SrvTrace Session Fr Vc emissionPriorityToNetwork (epto)

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the network internal emission priority to the network. |
| Values | normal<br>high<br>interrupting |
| Default | No default |

### ATTRIBUTE SrvTrace Session Fr Vc emissionPriorityFromNetwork (epfrom)

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the network internal emission priority from the network. |
| Values | normal<br>high<br>interrupting |
| Default | No default |

### ATTRIBUTE SrvTrace Session Fr Vc dataPath (dapa)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the data path used by the connection. The data path is provisioned in *Dna* and *DirectCall* components. The displayed value of this attribute can be different from the provisioned value.<br><br>If the connection is using ***dprsOnly*** data path, the string ***dprsOnly*** is displayed. (dynamic packet routing system)<br><br>If the connection is using ***dprsMcsOnly*** data path, the string ***dprsMcsOnly*** is displayed.<br><br>If the connection is using ***dprsMcsFirst*** data path, the string ***dprsMcsFirst*** is displayed. |
| Values | String (0..32, ASCII) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE SrvTrace Session Fr Vc dprsMcsEndPoint (dmep)

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the data path used by the connection. Data path is provisioned in *Dna* and *DirectCall* components.<br><br>If the connection is using ***dprsOnly*** data path, this attribute is empty.<br><br>If the connection is using ***dprsMcsOnly*** or ***dprsMcsFirst*** data path, this attribute displays component name of the dprsMcsEndPoint. |
| List of | The name of the component |
| Default | No default |

### GROUP SrvTrace Session Fr Vc IntervalData (Intd)

| | |
|---|---|
| Properties | Operational |
| Description | This group defines display of interval data collected by *Vc*. Data in this group is variable and may depend on time when this *display* command is issued. |

### ATTRIBUTE SrvTrace Session Fr Vc elapsedTimeTillNow

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the elapsed time representing the period of this interval data. It is elapsed time in 0.1 second increments since *Vc* started. |
| Values | Decimal (0..16777215) |
| Default | No default |

### ATTRIBUTE SrvTrace Session Fr Vc segmentsRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of segments received at the time command was issued. This is the segment received count maintained by accounting at each end of the *Vc*. This counter is |

updated only when the packet cannot be successfully delivered out of the sink *Vc* and to the sink AP Conditions in which packets may be discarded by the sink *Vc* include: missing packets due to subnet discards, segmentation protocol violations due to subnet discard, duplicated and out-of-ranged packets and packets that arrive while *Vc* is in path recovery state.

| | |
|---|---|
| Values | Decimal (0..16777215) |
| Default | No default |

### ATTRIBUTE SrvTrace Session Fr Vc segmentsSent

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of segments sent at the time command was issued. This is the segment sent count maintained by accounting at the source *Vc*. *Vc* only counts packets that *Vc* thinks can be delivered successfully into the subnet. In reality, these packets may be dropped by trunking, for instance. This counter is not updated when splitting fails, when *Vc* is in a path recovery state, when packet forwarding fails to forward this packet and when subsequent packets have to be discarded as we want to minimize the chance of out-of-sequence and do not intentionally send out-of-sequenced packets into the subnet. |
| Values | Decimal (0..16777215) |
| Default | No default |

### ATTRIBUTE SrvTrace Session Fr Vc startTime

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the start time of this interval period. If *Vc* spans 12 hour time or time of day change *startTime* reflects new time as recorded at 12 hour periods or time of day changes. |
| Values | Time (DHMS) |
| Default | No default |

### ATTRIBUTE SrvTrace Session Fr Vc callReferenceNumber

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute displays the call reference number which is a unique number generated by the switch.The same Call Reference Number is stored in the interval data (accounting record) at both ends of the call. It can be used as one of the attributes in matching duplicate records generated at each end of the call. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP SrvTrace Session Fr Vc FrameRelayData (Frd)

| | |
|---|---|
| Properties | Operational |
| Description | This group defines Frame Relay attributes collected by Frame Relay *Vc*.<br>The purpose of *Vc* attributes is to aid end users and verification people to understand the *Vc* internal behavior. This is particularly useful when the network has experienced abnormality and we want to isolate problems and pinpoint trouble spots.<br>Attributes are collected on a per *Vc* basis. Until a need is identified, statistics are not collected at a processor level. Each attribute is stored in a 32 bit field and is initialized to zero when a *Vc* enters into the data transfer state. When a PVC is disconnected and then connected again, the attributes will be reset. Attributes cannot be reset through other methods.<br>Frame Relay *Vc* uses a best effort data packet delivery protocol and a different packet segmentation and combination methods from the General *Vc*. The Frame Relay *Vc* uses the same call setup and control mechanism (e.g. the support of non-flow control data packets) as in a General *Vc*. Most General *Vc* statistics and internal variables are used in a Frame Relay *Vc* and are displayed by software developers |

### ATTRIBUTE SrvTrace Session Fr Vc frmCongestedToSubnet

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of frames from link discarded due to lack of resources. It keeps track of the number of frames from link that have to be discarded. The discard reasons include insufficient memory for splitting the frame into smaller subnet packet size. |

| | |
|---|---|
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE SrvTrace Session Fr Vc cannotForwardToSubnet

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of discarded packets that can not be forwarded into the subnet because of subnet congestion. Number of frames from link discarded due to failure in forwarding a packet from *Vc* into the subnet.- This attribute is increased when packet forwarding fails to forward a packet into the subnet. If a frame is split into multiple subnet packets and a partial packet has to be discarded, all subsequent partial packets that have not yet been delivered to the subnet will be discarded as well. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE SrvTrace Session Fr Vc notDataXferToSubnet

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the number of frames from link discarded when the *Vc* tries to recover from internal path failure. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE SrvTrace Session Fr Vc outOfRangeFrmFromSubnet

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of frames from subnet discarded due to out of sequence range for arriving too late. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE SrvTrace Session Fr Vc combErrorsFromSubnet

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute records the number of subnet packets discarded at the sink *Vc* due to the *Vc* segmentation and combination protocol error. Usually, this occurs when the subnet discards packets and thus this statistics can be used to guest the number of subnet packets that are not delivered to the *Vc*. It cannot be used as an actual measure because some subnet packets may have been delivered to *Vc* but have to be discarded because these are partial packets to a frame in which some other partial packets have not been properly delivered to *Vc* |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE SrvTrace Session Fr Vc duplicatesFromSubnet

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of subnet packets discarded due to duplication. Although packets are not retransmitted by the Frame Relay *Vc*, it is possible for the subnet to retransmit packets. When packets are out-of-sequenced and copies of the same packets arrive, then this attribute is increased. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE SrvTrace Session Fr Vc notDataXferFromSubnet

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of subnet packets discarded when data transfer is suspended in *Vc* recovery. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE SrvTrace Session Fr Vc frmLossTimeouts

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of lost frame timer expiries. When this count is excessive, the network is very congested and packets have been discarded in the subnet. |

| | |
|---|---|
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE SrvTrace Session Fr Vc ooSeqByteCntExceeded

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number times that the out of sequence byte threshold is exceeded. When the threshold is exceeded, this condition is treated as if the loss frame timer has expired and all frames queued at the sink *Vc* are delivered to the AP. We need to keep this count to examine if the threshold is engineered properly. This should be used in conjunction with the peak value of out-of-sequenced queue and the number of times the loss frame timer has expired. This count should be relatively small when compared with loss frame timer expiry count. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE SrvTrace Session Fr Vc peakOoSeqPktCount

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the frame relay peak packet count of the out of sequence queue. This attribute records the maximum queue length of the out-of-sequenced queue. The counter can be used to deduce the message buffer requirement on a *Vc*. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE SrvTrace Session Fr Vc peakOoSeqFrmForwarded

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the frame relay peak size of the sequence packet queue. The subnet may deliver packets out-of-sequenced. These packets are then queued in an out-of-sequenced queue, waiting for a packet with the expected sequence number to come. When that packet arrives, this attribute records the maximum number of packets that were out-of-sequenced, but now have become in-sequenced. The statistics is used to measure |

| | |
|---|---|
| | expected queue size due to normal subnet packet disorder (not due to subnet packet discard). Current implementation also uses this statistics to set a maximum size for the out-of-sequenced queue. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE SrvTrace Session Fr Vc sendSequenceNumber

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the Vc internal packet's send sequence number. Note that a "packet" in this context, may be either a user data packet, or an OAM frame. |
| Values | Decimal (0..1048575) |
| Default | No default |

### ATTRIBUTE SrvTrace Session Fr Vc pktRetryTimeouts

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of packets which have retransmission time-outs. When this count is excessive, the network is very congested and packets have been discarded in the subnet. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE SrvTrace Session Fr Vc peakRetryQueueSize

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the peak size of retransmission queue. This attribute is used as an indicator of the acknowledgment behavior across the subnet. Records the largest body of unacknowledged packets. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE SrvTrace Session Fr Vc subnetRecoveries

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of successful *Vc* recovery attempts. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE SrvTrace Session Fr Vc ooSeqPktCntExceeded

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number times that the out of sequence packet threshold is exceeded. When the threshold is exceeded, this condition is treated as if the loss frame timer has expired and all frames queued at the sink *Vc* are delivered to the AP. We need to keep this count to examine if the threshold is engineered properly. This should be used in conjunction with the peak value of out-of-sequenced queue and the number of times the loss frame timer has expired. This count should be relatively small when compared with loss frame timer expiry count. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE SrvTrace Session Fr Vc peakOoSeqByteCount

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the frame relay peak byte count of the out of sequence queue. This attribute records the maximum queue length of the out-of-sequenced queue. The counter can be used to deduce the message buffer requirement on a *Vc*. |
| Values | Decimal (0..50000) |
| Default | No default |

### COMPONENT SrvTrace Session FrAtm

| | |
|---|---|
| Groups | "GROUP SrvTrace Session FrAtm Operational" |
| Scope | Application |

| | |
|---|---|
| Description | *SrvTrace Session/<n> FrAtm*<br>This component indicates that this *SrvTrace Session* uses FR-ATM (FrameRelay-ATM Interworking) service to connect with the service trace receiver |
| Dyn. Subcomp. | "COMPONENT SrvTrace Session FrAtm AtmConnection (AtmCon)" |
| Common Verbs | Help<br>List<br>Display |

### GROUP SrvTrace Session FrAtm Operational

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the attributes of the FrAtm connection used by the service trace session. |

### ATTRIBUTE SrvTrace Session FrAtm activeDlci (dlci)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the DLCI (Data Link Connection Identifier) of remote FR-ATM (FrameRelay-ATM Interworking) service associated with the service trace connection. |
| Values | Decimal (16..1007) |
| Default | No default |

### COMPONENT SrvTrace Session FrAtm AtmConnection (AtmCon)

| | |
|---|---|
| Groups | "GROUP SrvTrace Session FrAtm AtmCon Operational (Oper)" |
| Scope | Device |
| Description | An AtmConnection component is created for each ATM connection established by an application. It shows where the data traffic for this connection is directed. |
| Common Verbs | Help<br>List<br>Display |

### GROUP SrvTrace Session FrAtm AtmCon Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains the operational attributes for the *NapAtmConnection* component. |

### ATTRIBUTE SrvTrace Session FrAtm AtmCon nextHop

| | |
|---|---|
| Access | Read only |
| Description | This attribute shows the component name of the *AtmIf Vcc Ep* or *AtmCon* component to which this switched connection is established. |
| Values | The name of the component |
| Default | No default |

### COMPONENT SrvTrace Session Atm

| | |
|---|---|
| Scope | Application |
| Description | *SrvTrace Session/<n> Atm*<br>This component indicates that this *SrvTrace Session* uses ATM services to connect with the service trace receiver. |
| Dyn. Subcomp. | "COMPONENT SrvTrace Session Atm AtmConnection (AtmCon)" |
| Common Verbs | Help<br>List<br>Display |

### COMPONENT SrvTrace Session Atm AtmConnection (AtmCon)

| | |
|---|---|
| Groups | "GROUP SrvTrace Session Atm AtmCon Operational (Oper)" |
| Scope | Device |

| | |
|---|---|
| Description | An AtmConnection component is created for each ATM connection established by an application. It shows where the data traffic for this connection is directed. |
| Common Verbs | Help<br>List<br>Display |

### GROUP SrvTrace Session Atm AtmCon Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains the operational attributes for the *NapAtmConnection* component. |

### ATTRIBUTE SrvTrace Session Atm AtmCon nextHop

| | |
|---|---|
| Access | Read only |
| Description | This attribute shows the component name of the *AtmIf Vcc Ep* or *AtmCon* component to which this switched connection is established. |
| Values | The name of the component |
| Default | No default |

Passport 7400, 15000, 20000

# Component SrvTrace

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component Ss7

241-5701-060

Passport 7400, 15000, 20000

# Component Ss7

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT SignallingSystem7 (Ss7)

| | |
|---|---|
| Scope | Application |
| Description | *SignallingSystem7*<br><br>This component represents the Signalling System 7. |
| Opt. Subcomp. | "COMPONENT Ss7 MessageTransferPartLayer3 (Mtp3)"<br>"COMPONENT Ss7 SignallingConnControlPart (Sccp)"<br>"COMPONENT Ss7 AccessLinkControlApplicationPart (Alcap)"<br>"COMPONENT Ss7 SaalNni (SaalNni)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## COMPONENT Ss7 MessageTransferPartLayer3 (Mtp3)

| | |
|---|---|
| Instance | Decimal (1..16) |
| Groups | "GROUP Ss7 Mtp3 Provisioned (Prov)"<br>"GROUP Ss7 Mtp3 OsiState (State)"<br>"GROUP Ss7 Mtp3 Operational (Oper)"<br>"GROUP Ss7 Mtp3 WlcCustomCounters (WlcCustomCntr)" |

"COLLECTED STATS SignallingSystem7 MessageTransferPartLayer3"

| | |
|---|---|
| Scope | Application |

| | |
|---|---|
| Description | Ss7 MessageTransferPartLayer3/n<br><br>This component represents an MTP 3 layer of the SS7 stack. |
| Subcomponents | "COMPONENT Ss7 Mtp3 Linkset (Ls)" |
| Opt. Subcomp. | "COMPONENT Ss7 Mtp3 ServiceIndicator (ServInd)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Ss7 Mtp3 Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes of the *Mtp3* component. |

## ATTRIBUTE Ss7 Mtp3 mtpType

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the type of MTP3.<br><br>The possible values for *mtpType* are:<br>***mtp3*** - This is the standard MTP layer 3 from Q.704 that supports signalling units up to 272 octets in length.<br>***mtp3b*** - This is the MTP layer 3 broadband variant that supports signalling units up to 4096 octets in length.<br><br>For the SS7 stack on the Iu interface this attribute must be set to ***mtp3b***.<br><br>For the SS7 stack on the Call Server interface this attribute must be set to ***mtp3***. |

Changing the value of this attribute causes all the linksets associated with the MTP3 layer to be restarted.

Values
mtp3
mtp3b

Default
mtp3b

### ATTRIBUTE Ss7 Mtp3 origPointCode (opc)

Access
Read: All
Write: All

Criticality
Component

Description
This attribute specifies the point code of the node that the MTP3 layer manages.

The point code must be provisioned in one of the following formats:

basic***:*** The point code is provisioned as a decimal number in the range ***1***..***16383***. A value of ***0*** is not valid.
segmented: The point code is provisioned as three integers, separated by dots. The first integer must be in the range ***0***..***7***, the second integer must be in the range ***0***..***255***, and the third integer must be in the range ***0***..***7***. A value of ***0.0.0*** is not valid.

This attribute must not specify a point code identical to that specified by *adjPointCode*.

Changing the value of this attribute causes all the linksets associated with this MTP3 layer to be restarted.

Values
Integer Sequence

Default
No default

### ATTRIBUTE Ss7 Mtp3 changeoverHoldoffTimer (t1)

Access
Read: All
Write: All

| | |
|---|---|
| Description | This attribute specifies the value of the timer T1 defined in ITU-T recommendation Q.704. This timer value determines how long to wait for a failed link to become available when changeover is required, but there is no alternate link. It is used to avoid message mis-sequencing on changeover.<br><br>This timer is started when a link goes down and a changeover is required, but changeover messages cannot be exchanged on an alternate link.<br><br>This timer is stopped when the failed link becomes available.<br><br>Upon timer expiration, it sends all the retrieved (layer 2) and buffered (layer 3) messages down the new link and marks changeover as complete. |
| Values | Decimal (500..1200) |
| Units | msec |
| Default | 500 |

### ATTRIBUTE Ss7 Mtp3 changeoverAckTimer (t2)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the value of the timer T2 defined in ITU-T recommendation Q.704.<br><br>This timer is started when MTP layer 3 receives a Backward Sequence Number of the next signalling unit to be Transmitted (BSNT) from a link in the changeover process.<br><br>This timer is stopped when the link becomes available, or when a changeover message is received while waiting for an ack.<br><br>Upon timer expiration, the link is released.<br><br>The number of expiries of this timer is indicated by the attribute *changeoverAckTimeouts*. |
| Values | Decimal (700..2000) |

| | |
|---|---|
| Units | msec |
| Default | 700 |

### ATTRIBUTE Ss7 Mtp3 changebackDiversionDelayTimer (t3)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the timer value for the timer T3 defined in ITU-T recommendation Q.704. It provides time controlled diversion-delay to avoid mis-sequencing on changeback.<br><br>This timer is started when a link is in changeback and the signalling point at the remote end of newly available link is not accessible via an alternative link.<br><br>Upon timer expiry, traffic is restarted on the link. |
| Values | Decimal (500..1200) |
| Units | msec |
| Default | 500 |

### ATTRIBUTE Ss7 Mtp3 firstAttemptChangebackAckTImer (t4)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the timer value for the timer T4 defined in ITU-T recommendation Q.704.<br><br>This timer is started when a link is in changeback and the Signalling Point (SP) at the remote end of the newly available link is accessible via an alternative link.<br><br>This timer is stopped when a link has attempted changeback for the first time and receives a changeback ack for every changeback declaration sent.<br><br>Upon timer expiration, *secondAttemptChangebackAckTimer* is started and all the unacknowledged changeback declarations are re-sent. |

| | |
|---|---|
| | The number of resends of the changeback declarations is indicated by the attribute *changebackDeclarationTimeouts*. |
| Values | Decimal (500..1200) |
| Units | msec |
| Default | 500 |

### ATTRIBUTE Ss7 Mtp3 secondAttemptChangebackAckTimer (t5)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the timer value for the timer T5 defined in ITU-T recommendation Q.704. It creates a delay to avoid oscillation of initial alignment failure and link restart.<br><br>The timer is started when a link does not changeback in the first attempt with *firstAttemptChangeBackAckTimer*.<br><br>The timer is stopped when a link is in the second attempt of changeback and receives a changeback ack for every changeback declaration sent.<br><br>Upon timer expiration, changeback is terminated.<br><br>The number of expiries of this timer is indicated by the attribute *secondAttemptChangebackAckTimeouts*. |
| Values | Decimal (500..1200) |
| Units | msec |
| Default | 500 |

### ATTRIBUTE Ss7 Mtp3 uninhibitAckTimer (t12)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the timer value for the timer T12 defined in ITU-T recommendation Q.704. |

The timer is started every time a link *Uninhibit* command is executed.

The timer is stopped when the link uninhibit is acknowledged by the remote end.

Upon timer expiry, the uninhibit is started again for a maximum of one more time. If it fails this time, the uninhibit is cancelled.

The number of expiries of this timer is indicated by the attribute *uninhibitAckTimeouts*.

| | |
|---|---|
| Values | Decimal (800..1500) |
| Units | msec |
| Default | 800 |

### ATTRIBUTE Ss7 Mtp3 forceUninhibitTimer (t13)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the timer value for the timer T13 defined in ITU-T recommendation Q.704.<br><br>The timer is started when this end initiates a link force uninhibit.<br><br>The timer is stopped when the signalling link uninhibit is acknowledged.<br><br>Upon timer expiry, the uninhibit is started again one more time. If it fails this time, the uninhibit is cancelled.<br><br>The number of expiries of this timer is indicated by the attribute *forceUninhibitTimeouts*. |
| Values | Decimal (800..1500) |
| Units | msec |
| Default | 800 |

### ATTRIBUTE Ss7 Mtp3 inhibitAckTimer (t14)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the value of the timer T14 defined in ITU-T recommendation Q.704. This timer waits for inhibition acknowledgement.<br><br>The timer is started when an *Inhibit* command is executed.<br><br>The timer is stopped when the local link inhibit is denied or successful.<br><br>Upon expiry, the local link inhibit request is cancelled. |
| Values | Decimal (2..3) |
| Units | seconds |
| Default | 2 |

### ATTRIBUTE Ss7 Mtp3 initialAlignmentDelayTimer (t17)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the value of the timer T17 defined in ITU-T recommendation Q.704. It creates a delay to avoid oscillation of initial alignment failure and link restart.<br><br>This timer is started when a signalling link is started.<br><br>Upon timer expiry, it sends a START message to layer 2. |
| Values | Decimal (800..1500) |
| Units | msec |
| Default | 800 |

### ATTRIBUTE Ss7 Mtp3 localInhibitTestTimer (t22)

| | |
|---|---|
| Access | Read: All<br>Write: All |

| | |
|---|---|
| Description | This attribute specifies the value of the timer T22 (Local inhibit test timer) defined in ITU-T recommendation Q.704.<br><br>This timer is started when a link becomes locally inhibited. Upon timer expiry, if the link is still unavailable and locally inhibited, the timer is restarted, and a local inhibit test message is sent to the remote end. |
| Values | Decimal (180..360) |
| Units | seconds |
| Default | 180 |

### ATTRIBUTE Ss7 Mtp3 remoteInhibitTestTimer (t23)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the value of the timer T23 (Remote inhibit test timer) defined in ITU-T recommendation Q.704.<br><br>This timer is started when a link becomes remote inhibited. Upon timer expiry, if the link is still unavailable and remotely inhibited, the timer is restarted, and a remote inhibit test message is sent to the remote end |
| Values | Decimal (180..360) |
| Units | seconds |
| Default | 180 |

### ATTRIBUTE Ss7 Mtp3 sltAckTimer (tQ707T1)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the value of the Supervision timer to wait for a signalling link test acknowledgement message.<br><br>This timer is started every time a Signalling Link Test Controller (SLTC) sends out a test message.<br><br>The timer is stopped when the SLTC receives an acknowledge |

| | |
|---|---|
| | message from the peer MTP3 layer.<br><br>Upon timer expiration, if this is the first attempt, this timer is restarted and a second attempt is made. If the timer expires after the second attempt, the MTP3 layer is informed of a broken link. |
| Values | Decimal (4..12) |
| Units | seconds |
| Default | 4 |

### ATTRIBUTE Ss7 Mtp3 sltIntervalTimer (tQ707T2)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the value of the Interval timer defined in ITU-T recommendation Q.707 for sending signalling link test messages.<br><br>The timer is started when a link comes in service, and each time the timer expires if the link is still good.<br><br>The timer is stopped when the link fails, as determined by the *sltAckTimer*.<br><br>Upon timer expiry, another test message is sent to the peer and the timer is restarted. |
| Values | Decimal (30..90) |
| Units | seconds |
| Default | 30 |

### GROUP Ss7 Mtp3 OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component |

which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Ss7 Mtp3 adminState (osiAdmin)

Access: Read only

Description: This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values: locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default: unlocked

### ATTRIBUTE Ss7 Mtp3 operationalState (osiOper)

Access: Read only

Description: This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the

component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Ss7 Mtp3 usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Ss7 Mtp3 Operational (Oper)

Properties
Operational

Description
This group contains the operational attributes of the *Ss7MessageTransferPartLayer3* component.

### ATTRIBUTE Ss7 Mtp3 changeoverAckTimeouts (t2Tmouts)

Access
Read: All
Write: Illegal

Description
This attribute counts the timeouts of timer T2, specified by the attribute *changeoverAckTimer*.

The counter wraps to zero when its maximum value is exceeded.

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Ss7 Mtp3 firstAttemptChangebackAckTmouts (t4Tmouts)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the timeouts of timer T4, specified by the attribute *firstAttemptChangebackAckTimer*.<br><br>The counter wraps to zero when its maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Ss7 Mtp3 secondAttemptChangebackAckTmouts (t5Tmouts)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the timeouts of timer T5, specified by the attribute *secondAttemptChangebackAckTimer*.<br><br>The counter wraps to zero when its maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Ss7 Mtp3 forceUninhibitAckTimeouts (t13Tmouts)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the timeouts of timer T13, specified by the attribute *forceUninhibitAckTimer*.<br><br>The counter wraps to zero when its maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## GROUP Ss7 Mtp3 WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

## ATTRIBUTE Ss7 Mtp3 customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## ATTRIBUTE Ss7 Mtp3 customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## ATTRIBUTE Ss7 Mtp3 customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |

Default No default

## COLLECTED STATS SignallingSystem7 MessageTransferPartLayer3

Description The statistics record generated by the SignallingSystem7 MessageTransferPartLayer3 component.

### ATTRIBUTE Ss7 Mtp3 linkSetsUnavailable (lsUnavail)

Description This attribute indicates the number of linkset unavailable conditions over the collection interval.

Values Decimal (0..4294967295)

### COMPONENT Ss7 Mtp3 Linkset (Ls)

Instance Decimal (0..63)

Groups "GROUP Ss7 Mtp3 Ls Provisoned (Prov)"
"GROUP Ss7 Mtp3 Ls OsiState (State)"
"GROUP Ss7 Mtp3 Ls WlcCustomCounters (WlcCustomCntr)"

Scope Application

Description Ss7 Mtp3/n Linkset/n

This component represents an MTP3 linkset. A linkset is a grouping of signalling links that are used to transfer signalling between this node and a specific adjacent signalling point.

Subcomponents "COMPONENT Ss7 Mtp3 Ls Link"

Common Verbs
Help
List
Display
Add
DELete
LOCK
Unlock

### GROUP Ss7 Mtp3 Ls Provisoned (Prov)

Properties Provisioned

Description This group contains the provisionable attributes of the *Ss7LinkSet* component.

### ATTRIBUTE Ss7 Mtp3 Ls adjPointCode (apc)

Access
Read: All
Write: All

Criticality Component

Description This attribute specifies the point code of the node that this node directly connects to through this linkset.

The point code must be provisioned in one of the following formats:

basic***:*** The point code is provisioned as a decimal number in the range ***1***..***16383***. A value of ***0*** is not valid.
segmented: The point code is provisioned as three integers, separated by dots. The first integer must be in the range ***0***..***7***, the second integer must be in the range ***0***..***255***, and the third integer must be in the range ***0***..***7***. A value of ***0.0.0*** is not valid.

This attribute must not specify a point code identical to that specified by *origPointCode*.

Changing the value of this attribute causes all the linksets associated with the MTP3 layer to be restarted.

Values Integer Sequence

Default No default

### ATTRIBUTE Ss7 Mtp3 Ls networkIndicator (netInd)

Access
Read: All
Write: All

Criticality Component

Description This attribute specifies whether the network is a national network, or an international network. This attribute determines the value that is filled in the Network Indicator field of the messages sent to the remote end.This attribute must match what the peer MTP3

layer on the remote end expects in the messages. Changing the value of this attribute causes all the linksets associated with this MTP3 layer to be restarted.Each meaning of each valid value for *networkIndicator* is described in SS7 Mtp3 specification Q.704.

***international*** - MTP3 node is a member of an “International” network.
***internationalSpare*** - MTP3 node is a member of an “International Spare” network.
***national*** - MTP3 node is a member of a “National” network.
***nationalSpare*** - MTP3 node is a member of a “National Spare” network.

Values: international, internationalSpare, national, nationalSpare

Default: international

## GROUP Ss7 Mtp3 Ls OsiState (State)

Properties: Operational

Description: This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

## ATTRIBUTE Ss7 Mtp3 Ls adminState (osiAdmin)

Access: Read only

Description: This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Ss7 Mtp3 Ls operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Ss7 Mtp3 Ls usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Ss7 Mtp3 Ls WlcCustomCounters (WlcCustomCntr)

Properties
Operational

Description
This group contains the spare counters that can be dynamically patched.

### ATTRIBUTE Ss7 Mtp3 Ls customCounter1 (customCntr1)

Access
Read: All
Write: Illegal

Description
This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch.

Values
Decimal (0..4294967295)

Default
No default

### ATTRIBUTE Ss7 Mtp3 Ls customCounter2 (customCntr2)

Access
Read: All
Write: Illegal

Description
This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch.

Values
Decimal (0..4294967295)

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Ss7 Mtp3 Ls customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT Ss7 Mtp3 Ls Link

| | |
|---|---|
| Instance | Decimal (0..15) |
| Groups | "GROUP Ss7 Mtp3 Ls Link Provisoned (Prov)"<br>"GROUP Ss7 Mtp3 Ls Link OsiState (State)"<br>"GROUP Ss7 Mtp3 Ls Link Operational (Oper)"<br>"GROUP Ss7 Mtp3 Ls Link WlcCustomCounters (WlcCustomCntr)" |

"COLLECTED STATS SignallingSystem7 MessageTransferPartLayer3 Linkset Link"

| | |
|---|---|
| Scope | Application |
| Description | Ss7 Mtp3/n Linkset/n Link/n<br><br>This component represents a SS7 signalling link that conveys signalling information between two signalling points. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>Unlock |

## VERB INHIBIT Ss7 Mtp3 Ls Link

Impact: Service

Description: *Inhibit Mtp3/n Linkset/n Link/n*

This command requests that the signalling link represented by the *Ss7Link* component be locally inhibited, as per the ITU-T recommendation Q.704.

The *Inhibit* will be denied locally if the requested link is the last available link in the linkset, or if an uninhibit on the requested is in progress. The *Inhibit* can also be denied by the remote end.

If the link is inhibited successfully, all the traffic carried on the linkset will be distributed among the other links in the linkset.

## VERB UNINHIBIT Ss7 Mtp3 Ls Link

Impact: Service

Description: *Uninhibit Mtp3/n Linkset/n Link/n*

This command requests that the signalling link represented by the *Ss7Link* component be uninhibited, as per the ITU-T recommendation Q.704.

The *Uninhibit* will be denied locally if the requested link has not been inhibited from this end, or if an inhibit on the link is in progress.

If the link is uninhibited successfully, the link will be made available for traffic.

### VERB LOCK Ss7 Mtp3 Ls Link

| | |
|---|---|
| Impact | Service |
| Description | *Lock [-force] Mtp3/n Linkset/n Link/n*<br><br>This verb causes the specified *Ss7Link* component to immediately enter the OSI ***locked*** administrative state. Traffic flow ceases on the newly locked *Link* and is diverted to the remaining unlocked *Links* of the *LinkSet.*<br><br>The *Lock* command fails if executed on the last ***unlocked*** *Link* of a *LinkSet*. The last ***unlocked*** *Link* of a *LinkSet* must be locked using the *force* option.<br><br>**Options:**<br>*-force*<br>If this option is specified, the *Link* is locked even if it is the only unlocked *Link* in the *LinkSet*. |

### GROUP Ss7 Mtp3 Ls Link Provisoned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes of the *Ss7Link* component. |

### ATTRIBUTE Ss7 Mtp3 Ls Link linkToSaalNni (saalNni)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies a link to an *Ss7 SaalNni* component for each *Ss7Link* component in a LinkSet (for example, *SaalNni/n).* |
| Values | Link (Service, linkToLinkInLinkset) |
| Default | No default |

### GROUP Ss7 Mtp3 Ls Link OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state |

combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Ss7 Mtp3 Ls Link adminState (osiAdmin)

Access: Read only

Description: This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values: locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default: unlocked

### ATTRIBUTE Ss7 Mtp3 Ls Link operationalState (osiOper)

Access: Read only

Description: This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the

component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Ss7 Mtp3 Ls Link usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Ss7 Mtp3 Ls Link Operational (Oper)

Properties
Operational

Description
This group contains the operational attributes of the *Ss7Link* component.

### ATTRIBUTE Ss7 Mtp3 Ls Link pdusRx

Access
Read: All
Write: Illegal

Description
This attribute counts the Protocol Data Units (PDUs) received from layer 2.

This includes the PDUs with and without user payload.

| | |
|---|---|
| | The counter wraps to 0 when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Ss7 Mtp3 Ls Link payloadPdusRx (plPdusRx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Protocol Data Units (PDUs) with payload received from layer 2.<br><br>The counter wraps to 0 when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Ss7 Mtp3 Ls Link pdusTx

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Protocol Data Units sent to layer 2.<br><br>This includes the PDUs with and without user payload.<br><br>The counter wraps to 0 when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Ss7 Mtp3 Ls Link payloadPdusTx (plPdusTx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Protocol Data Units (PDUs) with payload sent to layer 2.<br><br>The counter wraps to 0 when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Ss7 Mtp3 Ls Link invalidPdusRx (invPdusRx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of invalid Protocol Data Units received from Layer 2.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Ss7 Mtp3 Ls Link WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Ss7 Mtp3 Ls Link customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Ss7 Mtp3 Ls Link customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Ss7 Mtp3 Ls Link customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |
| Default | COLLECTED STATS SignallingSystem7 MessageTransferPartLayer3 Linkset Link |
| Description | The statistics record generated by the SignallingSystem7 MessageTransferPartLayer3 Linkset Link component. |

### ATTRIBUTE Ss7 Mtp3 Ls Link pdusRx

| | |
|---|---|
| Description | This attribute indicates the number of Protocol Data Units (PDUs) received from layer 2 over the collection interval.<br><br>This includes the PDUs with and without user payload. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Ss7 Mtp3 Ls Link payloadPdusRx

| | |
|---|---|
| Description | This attribute indicates the number of Protocol Data Units (PDUs) with payload received from layer 2 over the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Ss7 Mtp3 Ls Link pdusTx

| | |
|---|---|
| Description | This attribute indicates the number of Protocol Data Units (PDUs) sent to layer 2 over the collection interval.<br><br>This includes PDUs with and without user payload. |

Values Decimal (0..4294967295)

### ATTRIBUTE Ss7 Mtp3 Ls Link payloadPdusTx

Description This attribute indicates the number of Protocol Data Units (PDUs) with payload sent to layer 2 over the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Ss7 Mtp3 Ls Link invalidPdusRx

Description This attribute indicates the number of number of invalid Protocol Data Units received over the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Ss7 Mtp3 Ls Link sltFailures

Description This attribute indicates the number of signalling link test message failure conditions over the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Ss7 Mtp3 Ls Link changeovers

Description This attribute indicates the number of link changeover conditions over the collection interval.

Values Decimal (0..4294967295)

### COMPONENT Ss7 Mtp3 ServiceIndicator (ServInd)

Instance Decimal (3; 12)

Groups "GROUP Ss7 Mtp3 ServInd Provisioned (Prov)"
"GROUP Ss7 Mtp3 ServInd WlcCustomCounters (WlcCustomCntr)"

Scope Application

Description *Ss7 Mtp3/n ServiceIndicator/<service indicator>*

This component represents an MTP layer 3 service indicator. A service indicator is a logical identifier that represents a particular user of MTP layer 3 services.

The SS7 specifications define which users are required to use a

given service indicator.

Only one application can use a particular MTP layer 3 service indicator.

Common Verbs

Help
List
Display
Add
DELete

## GROUP Ss7 Mtp3 ServInd Provisioned (Prov)

Properties: Provisioned

Description: This group contains the provisionable attributes of the *SS7ServiceIndicator* component.

## ATTRIBUTE Ss7 Mtp3 ServInd linkToMtp3Connection (lToMtp3Conn)

Access: Read: All
Write: All

Criticality: Component

Description: This attribute specifies a link to the application using the service represented by this service indicator.

This attribute must specify either *Ss7 Sccp Mtp3Connection* or *Ss7 Alcap Mtp3Connection*.

*Ss7 SccpMtp3Connection* must be used for *Ss7 Mtp3/n ServiceIndicator/3* and *Ss7 Alcap Mtp3Connection* must be used for *Ss7 Mtp3/n ServiceIndicator/12*.

Changing the value of this attribute causes all the linksets associated with this MTP3 layer to be restarted.

Values: Link (Service, linkToServiceIndicator)

Default: No default

### GROUP Ss7 Mtp3 ServInd WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Ss7 Mtp3 ServInd customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Ss7 Mtp3 ServInd customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Ss7 Mtp3 ServInd customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

## COMPONENT Ss7 SignallingConnControlPart (Sccp)

| | |
|---|---|
| Instance | Decimal (1..16) |
| Groups | "GROUP Ss7 Sccp Provisioned (Prov)"<br>"GROUP Ss7 Sccp OsiState (State)"<br>"GROUP Ss7 Sccp Operational (Oper)"<br>"GROUP Ss7 Sccp WlcCustomCounters (WlcCustomCntr)" |

"COLLECTED STATS SignallingSystem7 SignallingConnControlPart"

| | |
|---|---|
| Scope | Application |
| Description | *Ss7 SignallingConnControlPart/n*<br><br>This component represents the SCCP layer of the SS7 stack. |
| Subcomponents | "COMPONENT Ss7 Sccp Mtp3Connection (Mtp3Conn)" |
| Opt. Subcomp. | "COMPONENT Ss7 Sccp LocalSubsystem (Loc)"<br>"COMPONENT Ss7 Sccp RemoteSubsystem (Rem)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Ss7 Sccp Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes of the *Ss7SignallingConnControlPart* component. |

## ATTRIBUTE Ss7 Sccp maxConnections (maxC)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the maximum number of signalling connections supported by an SCCP instance across all the local subsystems. |

The current number of open signalling connections is indicated by the attribute *activeConnections*. The number of times a signalling connection establishment was refused because the number of open connections has reached the maximum value is indicated by the attribute *rejectedConnections*.

Changes to this attribute affect only new connections. No existing connections will be affected by any changes made to this attribute.

Values: Decimal (1000..200000)

Default: 16000

### ATTRIBUTE Ss7 Sccp timerConnEst (tConnEst)

Access: Read: All
Write: All

Description: This attribute specifies the value of the TConnEst timer defined in the ITU-T spec Q.714. This is the period of time to wait for a CONNECTION CONFIRM message from the remote user of SCCP.

This timer is started when a CONNECT REQUEST message is sent to the remote SCCP layer.

This timer is stopped when either a CONNECT CONFIRM, RELEASED, or CONNECT REFUSED message is received, or when a routing failure happens.

Upon timer expiration, the resources associated with the connection are released and a disconnect message is sent to the local user(s).

The number of timeouts of this timer is indicated by the attribute *connEstTmouts*.

Values: Decimal (60..120)

Units: seconds

Default 60

### ATTRIBUTE Ss7 Sccp timerInactivitySend (tIas)

Access
Read: All
Write: All

Description
This attribute specifies the value of the Tias timer defined in Q.714. This is the period of time to wait before sending an INACTIVITY TEST message for a connection when there are no messages to send.

The timer is started when a CONNECT CONFIRM or CONNECT RESPONSE message is received.

The timer is restarted if a DATA FORM 1 message is transmitted.

This timer is stopped when a DISCONNECT, RELEASE COMPLETE or ERROR message is received, or when a routing failure occurs.

If the timer expires on an open connection, an INACTIVITY TEST message is sent.

It is recommended that the timer be set to a value that is half as long as the *tIarTimer.*

Values
Decimal (300..600)

Units
seconds

Default
300

### ATTRIBUTE Ss7 Sccp timerInactivityReceive (tIar)

Access
Read: All
Write: All

Description
This attribute specifies the value of the inactivity receive timer defined in Q.714. This is the period of time to wait on receiving a message for a connection, before releasing the connection.

This timer is started when a CONNECT CONFIRM or CONNECT RESPONSE message is received.

This timer is restarted if a DATA FORM 1 or INACTIVITY TEST message is received.

This timer is stopped when a DISCONNECT, RELEASED, or ERROR message is received, or when a routing failure occurs.

If this timer expires on an open connection, a DISCONNECT message is sent and the resources are released.

It is recommended that the timer be set to a value that is twice as long as *tIasTimer*.

The number of timeouts of this timer is indicated by the attribute *inactivityReceiveTimeouts*.

Values: Decimal (660..1260)

Units: seconds

Default: 660

### ATTRIBUTE Ss7 Sccp timerRel (tRel)

Access: Read: All
Write: All

Description: This attribute specifies the value of the release timer defined in Q.714. This is the period of time to wait for a RELEASE COMPLETE message in response to the initial release attempt.

This timer is started when a RELEASED message is sent.

This timer is stopped when a RELEASE COMPLETE or ERROR message is received, or on a routing failure.

Upon timer expiration, a RELEASE message is sent and the *tRepeatRelTimer* is started.

The number of timeouts of this timer is indicated by the attribute *tRelTimeouts*.

Values: Decimal (10..20)

| | |
|---|---|
| Units | seconds |
| Default | 10 |

### ATTRIBUTE Ss7 Sccp timerRepeatRel (tRepeatRel)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the value of the repeat release timer. This is the period of time to wait for a RELEASE COMPLETE message after *tRelTimer* has expired. This timer determines the interval between successive release retries.<br><br>This timer is started when *tRelTimer* expires.<br><br>This timer is stopped when a RELEASE COMPLETE or an ERROR message is received, or when a routing failure occurs.<br><br>Upon timer expiration, the timer is restarted for a maximum of ten times. Upon the tenth timer expiration, the resources are released.<br><br>The number of timeouts of this timer is indicated by the attribute *tRepeatRelTimeouts.* |
| Values | Decimal (10..20) |
| Units | seconds |
| Default | 10 |

### ATTRIBUTE Ss7 Sccp classOfService (classOfServ)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the type of service provided by the SCCP layer.<br>The different service classes are:<br>***0*** - This class represents basic connectionless service.<br>***2***- This class represents basic connection-oriented service. |

| | |
|---|---|
| | Any combination of these classes can be provisioned by the user, but at least one class must be specified. |
| Set of | 0<br>2 |
| Default | (0, 2) |

### GROUP Ss7 Sccp OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Ss7 Sccp adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |

| | |
|---|---|
| Default | unlocked |

### ATTRIBUTE Ss7 Sccp operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Ss7 Sccp usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

## GROUP Ss7 Sccp Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes of the *Ss7SignallingConnControlPart* component. |

## ATTRIBUTE Ss7 Sccp timerConnEstTimeouts (tConnEstTo)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the timeouts of the *tConnEstTimer*.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## ATTRIBUTE Ss7 Sccp timerInactivityReceiveTimeouts (tIarTo)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the timeouts of the timer specified by the attribute *timerInactivityReceive*.<br><br>The counter wraps to zero when it exceeds the maximum value |
| Values | Decimal (0..4294967295) |
| Default | No default |

## ATTRIBUTE Ss7 Sccp timerRelTimeouts (tRelTo)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the timeouts of the timer specified by the attribute *tRelTimer*.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Ss7 Sccp timerRepeatRelTimeouts (repRelTo)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the timeouts of the timer specified by the attribute *tRepeatRelTimer.*<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Ss7 Sccp activeConnections (actConn)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the current open signalling connections for the *Ss7SignallingConnControlPart* component. The maximum number of open signalling connections is set by the attribute *maxConnections.* |
| Values | Decimal (0..1000000) |
| Default | No default |

### ATTRIBUTE Ss7 Sccp rejectedConnections (rejConn)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of times a signalling connection establishment request by the application was refused. The reasons include the subsystem being down, the number of open connections exceeding the limit specified by the attribute *maxConnections* and so on. This includes the number of rejected connections indicated by the attribute *maxConnExhausted*.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Ss7 Sccp maxConnectionsExhausted (maxConnEx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of times a signalling connection establishment request by the application was refused because the number of open connections reached the limit specified by the attribute *maxConnection.*<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Ss7 Sccp lostConnections (lostConn)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of the open signalling connections lost due to unavailability of the SCCP Subsystem.<br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Ss7 Sccp unsupportedMessages (unsuppMsgs)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of unsupported (class1, class3) messages received.<br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Ss7 Sccp gttRequests (gttRqsts)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of messages received that require Global Title Translation.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Ss7 Sccp segmentationRequests (segRqsts)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of messages received that require segmentation.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Ss7 Sccp reassemblyRequests (reassemblyRqsts)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of messages received that require reassembly.<br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Ss7 Sccp localRoutingFailures (localRoutFail)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the number of the routing failures to the local subsystem. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Ss7 Sccp remoteRoutingFailures (remRoutFail)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of the routing failures to the remote subsystem. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Ss7 Sccp messagesTx (msgsTx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of the messages sent to layer 3. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Ss7 Sccp payloadMessagesTx (plMsgsTx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of payload messages transmitted. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Ss7 Sccp messagesRx (msgsRx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of the messages received from layer 3. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Ss7 Sccp payloadMessagesRx (plMsgsRx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of payload messages received from layer 3. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Ss7 Sccp invalidMessages (invMsgs)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of invalid (syntax error or undecodable) messages received.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Ss7 Sccp attemptedConnections (attCon)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the number of signalling connections that this *Ss7SignallingConnControlPart* component has attempted to establish. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Ss7 Sccp WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Ss7 Sccp customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Ss7 Sccp customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Ss7 Sccp customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## COLLECTED STATS SignallingSystem7 SignallingConnControlPart

| | |
|---|---|
| Description | The statistics record generated by the SignallingSystem7 SignallingConnControlPart component. |

### ATTRIBUTE Ss7 Sccp activeConnections

| | |
|---|---|
| Description | This attribute indicates the number of the current open signalling connections for the *Ss7SignallingConnControlPart* component at the end of the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Ss7 Sccp rejectedConnections

| | |
|---|---|
| Description | This attribute indicates the number of rejected signalling connections for the *Ss7SignallingConnControlPart* component over the collection interval. The reasons include the subsystem being down, the number of open connections exceeding the limit specified by the attribute *maxConnections* and so on, at the end of the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Ss7 Sccp maxConnectionsExhausted

| | |
|---|---|
| Description | This attribute indicates the number of times a signalling connection establishment request by the application was refused because the number of open connections reached the limit |

specified by the attribute *maxConnections*, over the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Ss7 Sccp lostConnections

Description This attribute indicates the number of the open signalling connections lost due to unavailability of the SCCP Subsystem over the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Ss7 Sccp invalidMessages

Description This attribute indicates the number of invalid (syntax error or undecodable) messages received over the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Ss7 Sccp messagesTx

Description This attribute indicates the number of the messages sent to layer 3 over the collection interval. This includes maintenance messages.

Values Decimal (0..4294967295)

### ATTRIBUTE Ss7 Sccp payloadMessagesTx

Description This attribute indicates the number of payload messages transmitted over the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Ss7 Sccp messagesRx

Description This attribute indicates the number of the messages received from layer 3 over the collection interval. This includes maintenance messages.

Values Decimal (0..4294967295)

### ATTRIBUTE Ss7 Sccp payloadMessagesRx

Description This attribute indicates the number of payload messages received over the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Ss7 Sccp localRoutingFailures

Description This attribute indicates the number of the routing failures to the local subsystem over the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Ss7 Sccp remoteRoutingFailures

Description This attribute indicates the number of the routing failures to the remote subsystem over the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Ss7 Sccp attemptedConnections (attCon)

Description This attribute indicates the number of signalling connections that this *Ss7SignallingConnControlPart* component has attempted to establish during the collection interval.

Values Decimal (0..4294967295)

### COMPONENT Ss7 Sccp LocalSubsystem (Loc)

Instance Decimal (0..255)

Groups "GROUP Ss7 Sccp Loc Provisioned (Prov)"
"GROUP Ss7 Sccp Loc OsiState (State)"
"GROUP Ss7 Sccp Loc WlcCustomCounters (WlcCustomCntr)"

Scope Application

Description *Ss7 Sccp/n LocalSubsystem*

This component represents a local subsystem that is providing services using this *Ss7SignallingConnControlPart* component.

Common Verbs
Help
List
Display
Add
DELete

## GROUP Ss7 Sccp Loc Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes of the *Ss7LocalSubsystem* component. |

## ATTRIBUTE Ss7 Sccp Loc subsystemNumber (ssn)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the subsystem number of the local subsystem represented by the *Ss7LocalSubsystem* component. |
| Values | ranap<br>rnsap |
| Default | ranap |

## GROUP Ss7 Sccp Loc OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

## ATTRIBUTE Ss7 Sccp Loc adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***. |

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Ss7 Sccp Loc operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Ss7 Sccp Loc usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Ss7 Sccp Loc WlcCustomCounters (WlcCustomCntr)

Properties
Operational

Description
This group contains the spare counters that can be dynamically patched.

### ATTRIBUTE Ss7 Sccp Loc customCounter1 (customCntr1)

Access
Read: All
Write: Illegal

Description
This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch.

Values
Decimal (0..4294967295)

Default
No default

### ATTRIBUTE Ss7 Sccp Loc customCounter2 (customCntr2)

Access
Read: All
Write: Illegal

Description
This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch.

Values
Decimal (0..4294967295)

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Ss7 Sccp Loc customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT Ss7 Sccp RemoteSubsystem (Rem)

| | |
|---|---|
| Instance | Decimal (0..255) |
| Groups | "GROUP Ss7 Sccp Rem Provisioned (Prov)"<br>"GROUP Ss7 Sccp Rem OsiState (State)"<br>"GROUP Ss7 Sccp Rem WlcCustomCounters (WlcCustomCntr)" |
| Scope | Application |
| Description | *Ss7 Sccp/n RemoteSubsystem*<br><br>This optional component represents a remote subsystem that can be accessed by this *Ss7SignallingConnControlPart* component. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Ss7 Sccp Rem Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes of the *Ss7RemoteSubsystem* component. |

### ATTRIBUTE Ss7 Sccp Rem subsystemNumber (subsNum)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the subsystem number of the remote subsystem represented by the *Ss7RemoteSubsystem* component. |
| Values | ranap<br>rnsap |
| Default | ranap |

### ATTRIBUTE Ss7 Sccp Rem adjPointCodeList (apcl)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies a list of adjacent point codes associated with this *Ss7RemoteSubsystem* component. |
| List of | Integer Sequence |
| List Size | 64 |
| Default | No default |

### GROUP Ss7 Sccp Rem OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Ss7 Sccp Rem adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component. |

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Ss7 Sccp Rem operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Ss7 Sccp Rem usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Ss7 Sccp Rem WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Ss7 Sccp Rem customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Ss7 Sccp Rem customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Ss7 Sccp Rem customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT Ss7 Sccp Mtp3Connection (Mtp3Conn)

| | |
|---|---|
| Groups | "GROUP Ss7 Sccp Mtp3Conn Provisioned (Prov)"<br>"GROUP Ss7 Sccp Mtp3Conn WlcCustomCounters (WlcCustomCntr)" |
| Scope | Application |
| Description | Ss7 Alcap/n Mtp3Connection<br>Ss7 Sccp/n Mtp3Connection<br><br>This component represents a connection to an MTP3 layer. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Ss7 Sccp Mtp3Conn Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes of the *Mtp3Connection*component. |

### ATTRIBUTE Ss7 Sccp Mtp3Conn linkToServiceIndicator (lToSI)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies a link to an *Ss7 Mtp3/n ServiceIndicator/n* component for MTP 3 services.<br><br>Changing this attribute will cause the application using the MTP3 layer's services to be restarted. |
| Values | Link (Service, linkToMtp3Connection) |
| Default | No default |

### GROUP Ss7 Sccp Mtp3Conn WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Ss7 Sccp Mtp3Conn customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Ss7 Sccp Mtp3Conn customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Ss7 Sccp Mtp3Conn customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT Ss7 AccessLinkControlApplicationPart (Alcap)

| | |
|---|---|
| Instance | Decimal (1..16) |
| Scope | Application |
| Description | *Ss7 AccessLinkControlApplicationPart/n*<br><br>This component represents the ALCAP layer of the SS7 stack. |
| Subcomponents | "COMPONENT Ss7 Alcap Mtp3Connection (Mtp3Conn)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## COMPONENT Ss7 Alcap Mtp3Connection (Mtp3Conn)

| | |
|---|---|
| Groups | "GROUP Ss7 Alcap Mtp3Conn Provisioned (Prov)"<br>"GROUP Ss7 Alcap Mtp3Conn WlcCustomCounters (WlcCustomCntr)" |
| Scope | Application |
| Description | Ss7 Alcap/n Mtp3Connection<br>Ss7 Sccp/n Mtp3Connection<br><br>This component represents a connection to an MTP3 layer. |
| Common Verbs | Help<br>List<br>Display |

## GROUP Ss7 Alcap Mtp3Conn Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes of the *Mtp3Connection*component. |

## ATTRIBUTE Ss7 Alcap Mtp3Conn linkToServiceIndicator (lToSI)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies a link to an *Ss7 Mtp3/n ServiceIndicator/n* component for MTP 3 services.<br><br>Changing this attribute will cause the application using the MTP3 layer's services to be restarted. |
| Values | Link (Service, linkToMtp3Connection) |
| Default | No default |

## GROUP Ss7 Alcap Mtp3Conn WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |

| | |
|---|---|
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Ss7 Alcap Mtp3Conn customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Ss7 Alcap Mtp3Conn customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Ss7 Alcap Mtp3Conn customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## COMPONENT Ss7 SaalNni (SaalNni)

| | |
|---|---|
| Instance | Decimal (1..1024) |
| Groups | "GROUP Ss7 SaalNni Provisioned (Prov)"<br>"GROUP Ss7 SaalNni SscopProv (Sscop)"<br>"GROUP Ss7 SaalNni SscfProv (Sscf)"<br>"GROUP Ss7 SaalNni OsiState (State)"<br>"GROUP Ss7 SaalNni Operational (Oper)"<br>"GROUP Ss7 SaalNni WlcCustomCounters (WlcCustomCntr)" |

"COLLECTED STATS SignallingSystem7 SaalNni"

| | |
|---|---|
| Scope | Application |
| Description | *Ss7 SaalNni/n*<br><br>This component represents the SAAL-NNI layer that provides an adaptation layer to run signalling traffic over ATM using AAL5. |
| Subcomponents | "COMPONENT Ss7 SaalNni NailedupAdaptationPoint (Nap)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Ss7 SaalNni Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes of the *SS7SaalNni* component. |

## ATTRIBUTE Ss7 SaalNni linkToLinkInLinkset (link)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies a linkage between an *Ss7 Mtp3/n LinkSet/n Link/n* component and an *Ss7 SaalNni/n* component. |
| Values | Link (Service, linkToSaalNni) |

| | |
|---|---|
| Default | No default |

### GROUP Ss7 SaalNni SscopProv (Sscop)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes needed by the SSCOP sub-layer of SAAL-NNI. |

### ATTRIBUTE Ss7 SaalNni maxPdusBetweenPolls (maxPdus)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the maximum number of Signalling Data PDUs that can be sent without sending a POLL PDU, as defined in ITU-T recommendation Q.2110. |
| Values | Decimal (1..1000) |
| Default | 500 |

### ATTRIBUTE Ss7 SaalNni ccTimer (cc)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the time between transmissions of ‘BGN’, ‘END’, ‘RS’ and ‘ER’ PDUs, as defined in ITU-T recommendation Q.2110.<br><br>The timer is started when any one of these PDUs is transmitted.<br><br>The timer is stopped when a proper acknowledgement is received (e.g. BGNAK, ENDAK, RSACK, or ERACK).<br><br>Upon timer expiry the PDU will be retransmitted. The PDU is transmitted a maximum of *maxCc* times.<br><br>If the timer expires *maxCc* times, the link will be released, and the and the number of times this happens will be indicated by the attribute *maxCcReached.*<br><br>Layer 3 will attempt to bring the link back up. |

| | |
|---|---|
| Values | Decimal (100..1000) |
| Units | msec |
| Default | 200 |

### ATTRIBUTE Ss7 SaalNni maxCc

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the maximum number of allowed unacknowledged transmissions of ‘BGN’, ‘END’, ‘ER’ or ‘RS’ Protocol Data Units (PDUs) as defined in ITU-T recommendation Q.2110.<br><br>If the number of unacknowledged transmissions exceeds this value, the link will be released, and the number of times this happens will be indicated by the attribute *maxCcReached*. |
| Values | Decimal (1..1000) |
| Default | 4 |

### ATTRIBUTE Ss7 SaalNni keepAliveTimer (tKeepAl)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the time between sending of POLL PDUs when there is no activity on the link, as defined in ITU-T recommendation Q.2110.<br><br>The timer is started when either the *pollTimer* or the *keepAliveTimer* expires and there are no PDUs queued for sending.<br><br>The timer is stopped when a data request (SD PDU) is ready to be sent.<br><br>Upon expiry this timer sends a POLL PDU.<br><br>The value of *keepAliveTimer* should be set to a value greater that *pollTimer* and greater than the round-trip delay of a PDU. |

| | |
|---|---|
| Values | Decimal (100..1000) |
| Units | msec |
| Default | 100 |

### ATTRIBUTE Ss7 SaalNni noResponseTimer (noResp)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the time interval during which at least one STAT PDU should be received.<br><br>The timer is started when a POLL PDU is sent.<br><br>The timer is stopped when a STAT PDU is received.<br><br>Upon timer expiry, the link is released, that is, brought out of service. Layer 3 will then attempt to bring it back to service.<br><br>The value of the *noResponseTimer* must not be less than the sum of the *keepAliveTimer* and one round-trip delay of a Protocol Data Unit (PDU).<br><br>The number of expiries of this timer is indicated by the attribute *noResponseTimeouts*. |
| Values | Decimal (500..2000) |
| Units | msec |
| Default | 1500 |

### ATTRIBUTE Ss7 SaalNni pollTimer

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the time between sending of POLL PDUs when the link has traffic, as defined in ITU-T recommendation Q.2110.<br><br>The timer is started when the link enters the Data Transfer Ready |

State.

The timer is stopped when the link is released.

Upon expiry, a POLL PDU is sent and *pollTimer* is restarted if the link has traffic.

Values: Decimal (100..1000)

Units: msec

Default: 100

### ATTRIBUTE Ss7 SaalNni idleTimer

Access: Read: All
Write: All

Description: This attribute specifies the idle time after receipt of a STAT PDU, as defined in ITU-T recommendation Q.2110.

The timer is started when a STAT PDU is received.

The timer is stopped when data is sent or received on the link.

Upon expiry, a POLL PDU is sent and the *noResponseTimer* is started.

The value of the *idleTimer* must be greater that the sum of the *pollTimer* and the maximum round trip delay of a PDU.

Values: Decimal (100..1000)

Units: msec

Default: 100

### GROUP Ss7 SaalNni SscfProv (Sscf)

Properties: Provisioned

Description: This group contains provisionable attributes needed by the SSCF sub layer of SAAL-NNI.

## ATTRIBUTE Ss7 SaalNni provingMode

Access
Read: All
Write: All

Description
This attribute allows the operator to place the link into one of the link proving modes defined in ITU-T recommendation Q.2140.

***normal*** - This mode corresponds to the MAAL-FORCE_PROVING-request. It forces the SAAL-NNI layer to utilize proving when bringing up the link.

***neutral*** - This mode corresponds to the MAAL-CLEAR_FORCE_MODES-request.It specifies that the layer using SAAL-NNI will select the proving mode.

***emergency*** - This mode corresponds to the MAAL-FORCE_EMERGENCY-request. It causes proving to be skipped.

When this attribute is set to ***neutral,*** the layer that uses SAAL_NNI (MTP3) selects the proving mode, but when the attribute is set to ***normal*** or ***emergency***, instructions from the entity which uses SAAL-NNI are ignored.

Values
normal
neutral
emergency

Default
neutral

## ATTRIBUTE Ss7 SaalNni linkReEstablishTimer (t1)

Access
Read: All
Write: All

Description
This attributes specifies the time between the link release action and the next link re-establish action during alignment, as defined in ITU-T recommendation Q.2140.

This timer is started when a release indication or confirmation is received while the link is in the Alignment or InService state.

This timer is stopped in one of two cases:

If the SAAL-NNI layer successfully receives an establish request or establish confirm from the peer SAAL-NNI layer.
If the SAAL_NNI layer receives a stop indication or release request from the layer 3 user or layer management respectively.

Upon timer expiration, link alignment and proving is re-started.

Values: Decimal (0..30)

Units: seconds

Default: 5

### ATTRIBUTE Ss7 SaalNni alignmentAcceptTimer (t2)

Access: Read: All
Write: All

Description: This attributes specifies the total time to attempt alignment and is defined in ITU-T recommendation Q.2140.

This timer is started when a start request is received. If the link is put in service before the expiry of this timer, no action is performed.

This timer is stopped in one of two cases.
If the SAAL-NNI layer successfully passes from the link proving state to the InService state.

If the SAAL-NNI layer receives a stop indication from the layer 3, or a release request from layer management.

Upon timer expiration, link establishment is cancelled and link is taken out of service. Layer 3 will attempt to bring the link back in service.

The value of this timer can be adjusted if link proving fails due to an inability to send the target number proving PDUs indicated by the attribute *targetProvingPdus.* The current number of proving PDUs sent successfully is indicated by the attribute *currentProvingPdus*.

| | |
|---|---|
| Values | Decimal (5..150) |
| Units | seconds |
| Default | 30 |

### GROUP Ss7 SaalNni OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Ss7 SaalNni adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

## ATTRIBUTE Ss7 SaalNni operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

## ATTRIBUTE Ss7 SaalNni usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

## GROUP Ss7 SaalNni Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes of the *SS7SaalNni* component. |

## ATTRIBUTE Ss7 SaalNni state (provSt)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the proving state of the link. The different states are:<br>***notStarted*** - Proving has not started.<br>***incomplete*** - Proving is in progress, but not completed yet.<br>***completeSuccess*** - Proving has been completed successfully.<br>***completeFailed*** - This proving attempt failed. |
| Values | notStarted<br>inComplete<br>completeSuccess<br>completeFailed |
| Default | No default |

## ATTRIBUTE Ss7 SaalNni targetProvingPdus (n1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the target number of proving PDUs to be sent across the link during the proving period.<br><br>The current number of proving PDUs that have been sent is indicated by the attribute *currentProvingPdus*. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## ATTRIBUTE Ss7 SaalNni currentProvingPdus (c1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute indicates the number of proving PDUs that have been sent across the link during this proving period.<br><br>The target number of proving PDUs that must be sent is indicated by the attribute *targetProvingPdus* |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Ss7 SaalNni inSrvDuration (inSrvDur)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the time that the signalling link has remained in the in-service state since it was most recently brought in service. |
| Values | Decimal (0..4294967295) |
| Units | seconds |
| Default | No default |

### ATTRIBUTE Ss7 SaalNni maxCcReached (maxCcR)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of times the signalling link has been released because the number of unacknowledeged transmissions of ‘BGN’, ‘END’, ‘ER’ or ‘RS’ Protocol Data Units (PDUs) has exceeded the value provisioned in the attribute *maxCc*.<br><br>The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Ss7 SaalNni noResponseTimeouts (noRespTo)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the expiries of the No Response timer, specified by the attribute *noResponseTimer*.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Ss7 SaalNni pdusTx (pduTx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the protocol data units transmitted.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Ss7 SaalNni pdusRx (pduRx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the protocol data units received.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Ss7 SaalNni pduOctetsTx (pduOctTx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the payload PDU octets transmitted.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Ss7 SaalNni pduOctetsRx (pduOctRx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the payload PDU octets received over the collection interval. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Ss7 SaalNni insvFailures (insvFail)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the in-service link outages. It does not include failures which occur during the alignment process.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Ss7 SaalNni WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Ss7 SaalNni customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Ss7 SaalNni customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Ss7 SaalNni customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## COLLECTED STATS SignallingSystem7 SaalNni

| | |
|---|---|
| Description | The statistics record generated by the SignallingSystem7 SaalNni component. |

### ATTRIBUTE Ss7 SaalNni insvFailures

| | |
|---|---|
| Description | This attribute indicates the number of in-service link outages over the collection interval. It does not include failures which occur during the alignment process. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Ss7 SaalNni pdusTx

| | |
|---|---|
| Description | This attribute indicates the number of protocol data units transmitted over the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Ss7 SaalNni pdusRx

| | |
|---|---|
| Description | This attribute indicates the number of protocol data units received over the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Ss7 SaalNni pduOctetsTx

| | |
|---|---|
| Description | This attribute indicates the number of payload PDU octets transmitted over the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Ss7 SaalNni pduOctetsRx

| | |
|---|---|
| Description | This attribute indicates the number of payload PDU octets received over the collection interval. |
| Values | Decimal (0..4294967295) |

### COMPONENT Ss7 SaalNni NailedupAdaptationPoint (Nap)

| | |
|---|---|
| Groups | "GROUP Ss7 SaalNni Nap Provisioned (Prov)"<br>"GROUP Ss7 SaalNni Nap WlcCustomCounters (WlcCustomCntr)" |
| Scope | Application |
| Description | *Ss7 SaalNni/n NailedupAdaptationPoint*<br><br>This component is used to provide access to a nailed-up ATM connection (an *Atmif/n Vcc/n Nep*). |
| Common Verbs | Help<br>List<br>Display |

### GROUP Ss7 SaalNni Nap Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes of the *Ss7NailedupAdaptationPoint* component. |

### ATTRIBUTE Ss7 SaalNni Nap atmConnection (atmConn)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies a link to an *AtmIf Vcc Nep* component that provides access to an ATM network. |
| Values | Link (Service, applicationName) |
| Default | No default |

### GROUP Ss7 SaalNni Nap WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Ss7 SaalNni Nap customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Ss7 SaalNni Nap customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Ss7 SaalNni Nap customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

Passport 7400, 15000, 20000

# Component Ss7

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component Sw

241-5701-060

Passport 7400, 15000, 20000

# Component Sw

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT Software (Sw)

| | |
|---|---|
| Groups | "GROUP Sw Provisioned (Prov)"<br>"GROUP Sw Operational (Oper)" |
| Scope | Device |
| Description | *SW*<br>The *SW* component is the top-level component of all software configuration components. |
| Opt. Subcomp. | "COMPONENT Sw LogicalProcessorType (Lpt)" |
| Dyn. Subcomp. | "COMPONENT Sw Download (Dld)"<br>"COMPONENT Sw ApplicationVersion (Av)" |
| Common Verbs | Help<br>List<br>Display |

## VERB Tidy Sw

| | |
|---|---|
| Impact | Configuration |
| Description | *Tidy Sw*<br>This verb is used to remove all unreferenced *AV* operational subcomponents along with all their associated software files from the disk. This means that an *AV* can be removed only if all of the following conditions are met:<br>1) The *AV* is not specified in the AVL in the Current view (that is, the one currently activated).<br>2) The *AV* is not specified in the AVL of the Edit view if it has been semantically checked.<br>3) The *AV* is not specified in any AVL which would become active if an existing semantically-checked provisioning file is loaded and activated.<br>4) The *AV* is not specified in any *AVL* in the journaling files.<br>5) The *AV* is not the parent *AV* of a patched *AV* that is ineligible for *Tidy*ing because it doesn't meet one or more of the above criteria.<br>The *Tidy* command is mutually exclusive with *Check Prov*, *Download* and *Remove* commands. It will fail, not removing any *AVs*, if either a *Check Prov*, a download, a *Remove* or *a Tidy* command is still in progress, or the file system is locked or otherwise unavailable. |

## GROUP Sw Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the Provisionable attributes for the *SW* component. |

## ATTRIBUTE Sw avList (avl)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies, for each application, which version of its *Features* and the associated software will be loaded when any of its *Features* are selected in an *LPT*.<br>A version of the "base" application must be specified.<br>All names specified by the user must actually be *AV* names. |

| | |
|---|---|
| | All *AVs* specified must be compatible with each other.<br>No more than one version of a single application can be specified |
| List of | String (1..30, ASCII) |
| Default | No default |

### ATTRIBUTE Sw patchList (patl)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies which patches are to be loaded and enabled.<br>Only patches for *Av*'s that appear in the *AvList* may be specified.<br>Only patches appearing as instances of *Sw Av Patch* may be specified.<br>Patch names are case insensitive. Except for case, patch names must be typed as they appear as instances of *Sw Av Patch*.<br>All patches specified must be compatible with one another.<br>Any prerequisite patches for specified patches, must themselves be specified.<br>A patch must be specified only once in the list. |
| List of | String (1..30, ASCII) |
| Default | No default |

### GROUP Sw Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contain the operational attributes for the *SW* component. |

### ATTRIBUTE Sw tidyStatus

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the tidy or remove status. If the value is ***inactive***, no tidy or remove is in progress. If the value is ***inProgress*** or ***querying***, the tidy or remove process has begun and therefore no further *Tidy Sw or Remove sw/<avName>* command is allowed until status returns to inactive. |

| | |
|---|---|
| Values | inactive<br>inProgress<br>querying |
| Default | No default |

### ATTRIBUTE Sw avBeingTidied

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the name of the AV currently being tidied or removed. An empty string indicates there is no AV being tidied. |
| Values | String (1..30, ASCII) |
| Default | No default |

### ATTRIBUTE Sw avListToTidy

| | |
|---|---|
| Access | Read only |
| Description | This attribute holds the list of names of AVs to be tidied or removed. As AVs are successfully cleaned, they are removed from this list and added to *avListTidied*. |
| List of | String (1..30, ASCII) |
| Default | No default |

### ATTRIBUTE Sw avListTidied

| | |
|---|---|
| Access | Read only |
| Description | This attribute holds the list of names of AVs which have been successfully tidied or removed as a result of the last *Tidy Sw or Remove Sw av/<avName>* command. It is cleared each time a new *Tidy Sw or Remove Sw av/<avName>* command is issued. |
| List of | String (1..30, ASCII) |
| Default | No default |

### COMPONENT Sw Download (Dld)

| | |
|---|---|
| Groups | "GROUP Sw Dld Operational (Oper)" |

| | |
|---|---|
| Scope | Device |
| Description | *Sw Dld*<br>The *Download* component manages the retrieval of software from the Software Distribution Site (SDS). The module initiates the connection to the SDS and retrieves the files it wants according to the *AVs* specified by the user in *avListToDownload*. |
| Common Verbs | Help<br>List<br>Display |

### VERB Start Sw Dld

| | |
|---|---|
| Impact | Configuration |
| Description | *Start -u(<userid>) -p(<password>) -h(<host>) Sw Dld*<br>This command is used to start a download. Before starting the download, the *avListToDownload* should be set up, specifying what to download. The *Start* will fail if a *Remove*, a *Tidy*, or a *Check Prov* are in progress. |

### VERB Stop Sw Dld

| | |
|---|---|
| Impact | Configuration |
| Description | *Stop Sw Dld*<br>This command is used to stop a download. Note that it may not be possible to start another download immediately since it may take some time to tear down the IP connection (that is, the entity handling the connection may be suspended and not be able to even detect that a stoppage was requested). |

### GROUP Sw Dld Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for the *Download* component. |

### ATTRIBUTE Sw Dld avBeingDownloaded

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the name of the AV currently being downloaded. If the download is ***inProgress***, this attribute will indicate the same as the first AV in the list of AV's to be downloaded. If there is no AV being downloaded, this attribute will indicate an empty string. |
| Values | String (0..30, ASCII) |
| Default | No default |

### ATTRIBUTE Sw Dld status

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the download status.<br>If the value is ***inactive***, no download is in progress. This is the value required in order to issue a *Start* command.<br>If the value is ***inProgress***, the download procedure has begun. This process starts from the time a Software Distribution Site (SDS) login is attempted and continues through the time during which files are actually being transferred.<br>If the value is ***stopping***, a user has requested a stoppage but the connections have not yet been completely torn down. |
| Values | inactive<br>inProgress<br>stopping |
| Default | No default |

### ATTRIBUTE Sw Dld filesToTransfer

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of files which are still left to transfer for the *AV* currently being downloaded. It is cleared each time a new *AV* is processed from the *avListToDownload*. Note that for each *AV*, the value of this attribute will be 0 until the actual number of files to transfer has been computed. |
| Values | Decimal (0..1000) |
| Default | No default |

### ATTRIBUTE Sw Dld processorTargets

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates the processor based object file to download on switch. After a CP restart or software migration, this attribute is initialized to the processor targets present on the CP disk for the current provisioned Application Versions ( *AVs*). This attribute can have the following values:<br><br>***i960*** - Object files for cards with an i960 processor are to be downloaded.<br>***ppc*** - Object files for cards with a PowerPC processor are to be downloaded. |
| Set of | i960<br>ppc |
| Default | No default |

### ATTRIBUTE Sw Dld avListToDownload (dldList)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the list of names of *AVs* to be downloaded. If a download is in progress, the first one in the list is the one currently being downloaded. As *AVs* are successfully downloaded, they are removed from this list and added to the *downloadedAvList*.<br>The user cannot specify an *AV* which already exists on disk. It must first be removed before re-downloading it (see the *Tidy* and *Remove* commands). |
| List of | String (1..30, ASCII) |
| Default | No default |

### ATTRIBUTE Sw Dld downloadedAvList

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute holds the list of names of *AVs* which have been successfully downloaded as a result of the last *Start* command. It is cleared each time the *Start* command is issued. |
| List of | String (1..30, ASCII) |
| Default | No default |

### COMPONENT Sw ApplicationVersion (Av)

| | |
|---|---|
| Instance | String (1..30, ASCII) |
| Groups | "GROUP Sw Av Operational (Oper)" |
| Scope | Device |
| Description | *Sw Av/<name>*<br>This component represents a particular version of an application that is available to use in the *AVL*. They can only be created by downloading and can only be deleted by using the *Tidy* or *Remove* commands.<br>An *AV* has one or more *Feature* subcomponents which belong to it. |
| Dyn. Subcomp. | "COMPONENT Sw Av Feature (Feat)"<br>"COMPONENT Sw Av Patch (Patch)" |
| Common Verbs | Help<br>List<br>Display |

### VERB Remove Sw Av

| | |
|---|---|
| Impact | Configuration |
| Description | *Remove Sw Av/<name>*<br>This command is used to remove an *AV* component and the associated software files from the disk as long as it is unreferenced. This means that an *AV* can be removed only if all of the following conditions are met:<br>1) The *AV* is not specified in the *AVL* in the Current view (that is, the one currently activated).<br>2) The *AV* is not specified in the *AVL* in the Edit view if it has been semantically checked.<br>3) The *AV* is not specified in any *AVL* which would become active if an existing semantically-checked provisioning file is loaded and activated.<br>4) The *AV* is not specified in any *AVL* in the journaling files.<br>5) The AV is not a parent *AV* to a patched *AV*. To remove an *AV* that has patched *AV*s based upon it, first remove the patched *AV*s.<br>To clean up unused provisioning files, see the "*Tidy Prov*" command. To clean up journaling files, see the "*Commit Prov*" command.<br>The *Remove* command is mutual exclusive with *Check Prov*, *Download* and *Tidy* command. It will fail, not removing this *AV*, if either a *Check Prov*, a *Download*, a *Tidy* or a *Remove* command is still in progress, or if the file system is locked or otherwise unavailable. |

### GROUP Sw Av Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for an *AV* component. |

### ATTRIBUTE Sw Av processorTargets

| | |
|---|---|
| Access | Read only |
| Description | This is a list of the processor based object file types which exist on disk for a given AV. Semantic check will validate that the |

| | |
|---|---|
| | object files needed for a provisioned card type are present as part of an application. |
| Set of | i960<br>ppc |
| Default | No default |

### ATTRIBUTE Sw Av description (descr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute describes the functionality of the *AV*. If the *AV* is a patched *AV*, this attribute describes the new behavior delivered by the patched *AV*. |
| Values | String (0..512, ASCII) |
| Default | No default |

### ATTRIBUTE Sw Av compatibleAvList

| | |
|---|---|
| Access | Read only |
| Description | This is a list of the *AV* names which specify the minimum version of all other applications that can be used in conjunction with this *AV* in an *AVL*. Semantic checks will validate that *AVs* within the *AVL* are indeed compatible. |
| List of | String (1..30, ASCII) |
| Default | No default |

### COMPONENT Sw Av Feature (Feat)

| | |
|---|---|
| Instance | String (1..30, ASCII) |
| Scope | Device |
| Description | *Sw Av/<name> Feat/<name>*<br>There is one of these components for each provisionable feature of the parent AV component. Each feature's name can be used in an Lpt's feature list attribute. A feature component does not have any attributes of its own. |

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display |

### COMPONENT Sw Av Patch (Patch)

| | |
|---|---|
| Instance | String (1..30, ASCII) |
| Groups | "GROUP Sw Av Patch Operational (Oper)" |
| Scope | Device |
| Description | Sw Av/<name> Patch/<name><br>There is one of these components for each patch of the parent AV component that has been downloaded to the switch. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Sw Av Patch Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for the *Patch* component. |

### ATTRIBUTE Sw Av Patch description (descr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the new behavior that the patch provides. The availability of this description is dependent on the disk being available. |
| Values | String (0..512, ASCII) |
| Default | No default |

### ATTRIBUTE Sw Av Patch patchType (type)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the patch type. This attribute can have a value of ***tap*** (transparent application), ***cpReset***, or ***fpReset***. TAP patches do not require a card reset in order for the patch to become active, whereas Reset patches involve the full replacement of an executable file and therefore necessitate the reloading of the cards on which that file is active. Because the *patchType* attribute is not stored in memory and must be retrieved from the CP disk, the availability of this attribute is dependant on the disk being available. |
| Set of | tap<br>cpReset<br>fpReset |
| Default | No default |

### ATTRIBUTE Sw Av Patch mutuallyExclusive (mutEx)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates patches that are mutually exclusive to the patch being displayed. Because the *mutuallyExclusive* attribute is not stored in memory and must be retrieved from the CP disk, the availability of this attribute is dependant on the disk being available. |
| List of | String (1..30, ASCII) |
| Default | No default |

### ATTRIBUTE Sw Av Patch prerequisites (prereq)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates patches that are prerequisites to the patch being displayed. Prerequisite patches must appear in the *Sw patchList* along with the patch in question. Because the *prerequisites* attribute is not stored in memory and must be |

| | |
|---|---|
| | retrieved from the CP disk, the availability of this attribute is dependant on the disk being available. |
| List of | String (1..30, ASCII) |
| Default | No default |

### ATTRIBUTE Sw Av Patch activateAfter (actAft)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the patch or patches that are activated prior to the patch currently being displayed, when all patches are provisioned (that is, the patch being displayed is activated following the activation of the patches listed in this attribute). For example, if patch A is the patch listed in patch B's *activateAfter* attribute, patch A is activated before patch B, when both patch A and B are present in the *Sw patchList* attribute. Since the *activateAfter* attribute is not stored in memory and must be retrieved from the CP disk, the availability of this attribute is dependent on the disk being available. |
| List of | String (1..30, ASCII) |
| Default | No default |

### COMPONENT Sw LogicalProcessorType (Lpt)

| | |
|---|---|
| Instance | String (1..25, ASCII) |
| Groups | "GROUP Sw Lpt Provisioned (Prov)" |
| Scope | Device |
| Description | *Sw Lpt/<name>*<br>This component is the Logical Processor Type, specifying characteristics of the software to be loaded on a card. Minimally, *LPT/CP* is required to exist. If it is deleted, semantic checks will fail. |

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Sw Lpt Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the *LPT* component. |

### ATTRIBUTE Sw Lpt commentText (text)

| | |
|---|---|
| Access | Read and write |
| Description | An arbitrary string used to enter a comment about an *LPT*. |
| Values | String (0..80, ASCII) |
| Default | No default |

### ATTRIBUTE Sw Lpt systemConfig (systemConfig)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies which set of preconfigured system parameters to use for the set of *Features* selected in *featureList*. |
| Values | default |
| Default | default |

### ATTRIBUTE Sw Lpt featureList (fl)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies a list of names of *Features* that define a particular configuration of application functionality that the user wants to load on a single processor.<br>The combination of *Features* selected must be compatible (for |

| | |
|---|---|
| | example, none can be mutually exclusive with another in the list).<br>All *Features* must belong to an *AV* specified in the *AVL*.<br>All *Features* must be able to be loaded on any of the *Cards* which are linked to *LPs* which are linked to this *LPT*.<br>All prerequisite *Features* of the ones in this list will also be loaded. |
| List of | String (1..30, ASCII) |
| Default | No default |

### ATTRIBUTE Sw Lpt logicalProcessors

| | |
|---|---|
| Access | Read only |
| Description | This attribute shows which *LPs* are configured to load the *Feature* files associated with this *LPT*. It is the opposite side of the *LP* component's *logicalProcessorType* link attribute. |
| List of | Link (Service, logicalProcessorType) |
| List Size | 16 |
| Default | No default |

Passport 7400, 15000, 20000

# Component Sw

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component Tcap

241-5701-060

Passport 7400, 15000, 20000

# Component Tcap

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT TcapStack (Tcap)

| | |
|---|---|
| Instance | Decimal (1..15) |
| Groups | "GROUP Tcap Provisioned (Prov)"<br>"GROUP Tcap SccpUserInfoProv (SccpProv)"<br>"GROUP Tcap OsiState (State)"<br>"GROUP Tcap Operational (Oper)"<br>"GROUP Tcap SigRegistrationOp"<br>"GROUP Tcap WlcCustomCounters (WlcCustomCntr)" |

"COLLECTED STATS TcapStack"

| | |
|---|---|
| Scope | Application |
| Description | *Tcap/n*<br><br>This component represents Transaction Capability Application Part (TCAP) Stack functionality.<br><br>The TCAP Stack provides transaction services to applications such as Mobile Application Part(MAP) and Camel Application Part(CAP) on the UMTS and GPRS Serving GPRS Support Node (SGSN and USGSN). |

| | |
|---|---|
| | At most one *Tcap* component can be linked to given *Lp* at a time. |
| Subcomponents | "COMPONENT Tcap MemoryPoolManager (Mpm)"<br>"COMPONENT Tcap Ss7IpInterface (Ss7IpIf)" |
| Opt. Subcomp. | "COMPONENT Tcap MapStack (Map)" |
| Dyn. Subcomp. | "COMPONENT Tcap RemoteApplicationConnection (RaConn)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Tcap Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisionable attributes for the *Tcap* component. |

## ATTRIBUTE Tcap linkToLogicalProcessor (lp)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the Logical Processor on which the *Tcap* component process will be created. |
| Values | Link (Hardware, linkToApplications) |
| Default | No default |

## ATTRIBUTE Tcap maxTransactionsPerSubsystem (maxTransPerSs)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the maximum number of concurrent TCAP Transactions that are supported by the TCAP stack for each subsystem receiving service. |

The value specified for each subsystem must be less than that specified by the *maxInvokesPerSubsystem* attribute for the same subsystem. Furthermore, the total number of transactions specified over all subsystems must not be greater than 4000.

If the value of the maxTransactionsPerSubsystem attribute is zero, the maxInvokesPerSubsystem attribute must also be zero.

The ratio of the maxTransactionsPerSubsystem attribute value to the maxInvokesPerSubsystem attribute value should be provisioned based on a low or high resource level. For a high resource level, a ratio of 1:1.5 is recommended as a large number of transactions and invokes is provisioned. For a low resource level, a ratio of 1:2 is recommended as a small to average number of transactions and invokes is provisioned.

The current number of TCAP transactions active for each subsystem is indicated by the *currentTransactionsPerSubsystem* operational attribute. If the current number of active transactions for a given subsystem reaches the maximum, new requests for service from that subsystem are ignored.

A Critical alarm is set when the current number of transactions for a subsystem reaches 95% of the value specified for that subsystem by this attribute.

Altering the value specified by this attribute after initial activation will result in an interruption of service for all clients while the TCAP stack is restarted. Transactions in progress are lost and new transactions cannot be serviced.

| | |
|---|---|
| Vector of | Decimal (0..4000) |
| Index | sgsnSubsystem (sgsn)<br>capSubsystem (cap)<br>mscEmulationSubsystem (mscE) |
| Default | (sgsnSubsystem: 500, capSubsystem: 500, mscEmulationSubsystem: 500) |

## ATTRIBUTE Tcap maxInvokesPerSubsystem (maxInvokePerSs)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the maximum number of concurrent TCAP invokes that are supported by the TCAP Stack for each subsystem receiving service.<br><br>The value specified for each subsystem must be greater than that specified by the *maxTransactionsPerSubsystem* attribute for the same subsystem. Furthermore, the total number of invokes specified over all subsystems must not be greater than 6000.<br><br>If the value of the maxTransactionsPerSubsystem attribute is zero, the maxInvokesPerSubsystem attribute must also be zero.<br><br>The ratio of the maxTransactionsPerSubsystem attribute value to the maxInvokesPerSubsystem attribute value should be provisioned based on a low or high resource level. For a high resource level, a ratio of 1:1.5 is recommended as a large number of transactions and invokes is provisioned. For a low resource level, a ratio of 1:2 is recommended as a small to average number of transactions and invokes is provisioned.<br><br>The current number of TCAP invokes active for each subsystem is indicated by the *currentInvokesPerSubsystem* operational attribute. If the current number of active invokes for a given subsystem reaches the maximum, new requests for service from that subsystem are ignored.<br><br>A Minor alarm is set when the current number of transactions reaches 90% of the value specified by this attribute. A Critical alarm is set at 95%.<br><br>Altering the value specified by this attribute after initial activation will result in an interruption of service for all clients while the |

| | |
|---|---|
| | TCAP stack is restarted. Transactions in progress are lost and new transactions cannot be serviced. |
| Vector of | Decimal (0..6000) |
| Index | sgsnSubsystem (sgsn)<br>capSubsystem (cap)<br>mscEmulationSubsystem (mscE) |
| Default | (sgsnSubsystem: 600, capSubsystem: 600, mscEmulationSubsystem: 600) |

### ATTRIBUTE Tcap linkToTcapStackUsers (users)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies components that utilize the services of this *TcapStack* component. |
| List of | Link (Service, linkToTcapStack) |
| Default | No default |

### GROUP Tcap SccpUserInfoProv (SccpProv)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisionable attributes that specify SCCP User Information for the *Tcap* component. |

### ATTRIBUTE Tcap sccpVariant

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the SCCP variant used by the TCAP Stack.<br><br>***itu*** - use ITU SCCP Standards<br>***ansi*** - use ANSI SCCP Standards<br>***ituChinese*** - use ITU Chinese SCCP Standard |
| Values | itu<br>ansi<br>ituChinese |

Default itu

### ATTRIBUTE Tcap natureOfAddress (noa)

Access
Read: All
Write: All

Description
This attribute specifies the Nature of Address for Global Titles in the Calling Party Address (CGPA) and the Called Party Address (CDPA) in the SCCP header. This attribute directly maps to the Nature of Address parameter of the SCCP CgPA/CdPA described in SCCP specifications. It is used to qualify the type (nature) of global title address digits. The Nature of Address must match the corresponding global title translation tables on the SS7/Ip Gateway (SIG) or Universal Signalling Point (USP).

Possible values are:
***subNum*** **-** Subscriber number
***resNationalUse*** **-** Reserved National Use
***natSpecNum*** - National Specific number
***intlNum*** - International number

Values
subNum
resNationalUse
natSpecNum
intlNum

Default intlNum

### ATTRIBUTE Tcap sccpClassOfOperation (sccpCOP)

Access
Read: All
Write: All

Description
This attribute specifies the class of operation used in the SCCP layer for TCAP messaging. It must match SS7/IP Gateway (SIG) or Universal Signalling Point (USP) settings.
Possible values are:

***nonSequenced(nonSeq)***: non-sequenced message delivery
***sequenced(seq):*** sequenced message delivery.

Values
nonSequenced (nonSeq)
sequenced (seq)

| | |
|---|---|
| Default | sequenced |

### ATTRIBUTE Tcap e164TransType (e164tt)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the Global Title Translation type used for E.164 Numbering Plan global titles. This value is used for all message types except Mobile Originated Forward Short Message.<br><br>For the Mobile Originated Forward Short Message, the attribute *e164MofsmTransType* is used.<br><br>When set to ***autoConfig***, the value used is based on the *sccpVariant* attribute. If the value specified by *sccpVariant* is ***itu*** or ***ituChinese***, a value of 0 is used for the E164 Translation Type. If the *sccpVariant* specifies ***ansi***, a value of 10 is used. |
| Values | Decimal (0..255)<br>autoConfig |
| Default | autoConfig |

### ATTRIBUTE Tcap e164MofsmTransType (e164Mtt)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the Global Title Translation type to be used for E.164 Numbering Plan global titles for the Mobile Originated Forward Short Message only.<br><br>When set to ***autoConfig***, the value used is based on the *sccpVariant* attribute. If the value specified by *sccpVariant* is ***itu*** or ***ituChinese***, a value of 0 is used for the E164 Translation Type. If the *sccpVariant* specifies ***ansi***, a value of 10 is used. |
| Values | Decimal (0..255)<br>autoConfig |
| Default | autoConfig |

### ATTRIBUTE Tcap e212TransType

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the Global Title Translation type to be used for E.212 Numbering Plan global titles.<br><br>When set to ***autoConfig***, the value used is based on the *sccpVariant* attribute. If the value specified by *sccpVariant* is ***itu*** or ***ituChinese***, a value of 0 is used for the E164 Translation Type. If the *sccpVariant* specifies ***ansi***, a value of 9 is used. |
| Values | Decimal (0..255)<br>autoConfig |
| Default | autoConfig |

### ATTRIBUTE Tcap e214TransType

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the Global Title Translation Type to be used for E.214 Numbering Plan global titles.<br><br>When set to ***autoConfig***, the value used is based on the *sccpVariant* attribute. If the value specified by *sccpVariant* is ***itu*** or ***ituChinese***, a value of 0 is used for the E164 Translation Type. If the *sccpVariant* specifies ***ansi***, a value of 10 is used. |
| Values | Decimal (0..255) |
| Default | 0 |

### ATTRIBUTE Tcap sccpReturnOption

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the SCCP return option used by the TCAP Stack.<br><br>***noReturn*** - undeliverable messages are discarded.<br>***return*** - undeliverable messages are returned. |

| | |
|---|---|
| Values | noreturn<br>return |
| Default | return |

### ATTRIBUTE Tcap hopCounter

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the number of hops before a message is discarded.<br><br>It is used for circular route prevention. Each SS7 node will decrement the hop counter by one and will discard the message if the counter equals zero. |
| Values | Decimal (1..15) |
| Default | 15 |

### ATTRIBUTE Tcap xudtOption

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies whether or not XUDT (extended unitdata) messages can be used. The specified value is used to determine the type of message the SS7 IP Gateway uses for transmission of SCCP connectionless data.<br><br>***off*** **-** an SCCP XUDT (extended unitdata) message is transmitted only when the data size is such that segmentation is required, otherwise an SCCP UDT (unitdata) message is transmitted.<br><br>***on*** **-** an XUDT message is transmitted for all connectionless data regardless of data size**.**<br><br>Usually, this attribute should specify ***off*** so that XUDT is only used when needed. An operator may desire to set this value to ***on*** so that this SS7 node can use XUDT messages to indicate to other nodes that it supports Whitebook (ITU-T 96/ANSI-96) SCCP. |

| | |
|---|---|
| Values | off<br>on |
| Default | off |

### GROUP Tcap OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Tcap adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Tcap operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Tcap usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

## GROUP Tcap Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data of the *Tcap*. |

## ATTRIBUTE Tcap currentTransactions (currTrans)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of TCAP Transactions that are currently active. The provisionable attribute, *maxTransactionsPerSubsystem*, specifies the maximum number of transactions supported for each subsystem. This attribute will never be greater than the sum of the maximum transactions for each subsystem. |
| Values | Decimal (0..12000) |
| Default | No default |

## ATTRIBUTE Tcap currentInvokes (currInvokes)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of TCAP Invokes that are currently active. The provisionable attribute, *maxInvokesPerSubsystem*, specifies the maximum number of invokes supported for each subsystem. This attribute will never be greater than the sum of the maximum transactions for each subsystem. |
| Values | Decimal (0..15000) |
| Default | No default |

## ATTRIBUTE Tcap beginSent (txBegin)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of TCAP Begin messages sent to all peer nodes. The counter wraps to 0 when it exceeds its maximum value. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Tcap beginReceived (rxBegin)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of TCAP Begin messages received from all peer nodes. The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Tcap continueSent (txContinue)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of TCAP Continue messages sent to all peer nodes. The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Tcap continueReceived (rxContinue)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of TCAP Continue messages received from all peer nodes. The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Tcap endSent (txEnd)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the number of TCAP End messages sent to all peer nodes. The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Tcap endReceived (rxEnd)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of TCAP End messages received from all peer nodes. The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Tcap uabortSent (txUabort)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of TCAP User Abort messages sent to all peer nodes. The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Tcap uabortReceived (rxUabort)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of TCAP User Abort messages received from all peer nodes. The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Tcap pabortReceived (rxPabort)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of TCAP Provider Abort messages received from all peer nodes. The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Tcap noticeReceived (rxNotice)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of TCAP Notice messages received from all peer nodes. Notices are received when messages cannot be delivered to a remote node. The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Tcap invokeSent (txInvoke)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of TCAP Invoke Components sent to all peer nodes. The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Tcap invokeReceived (rxInvoke)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the number of TCAP Invoke Components received from all peer nodes. The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Tcap resultLastSent (txResultLast)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of TCAP Result Last Components sent to all peer nodes. The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Tcap resultLastReceived (rxResultLast)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of TCAP Result Last Components received from all peer nodes. The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Tcap returnErrorSent (txReturnError)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of TCAP Return Error Components sent to all peer nodes. The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Tcap returnErrorReceived (rxReturnError)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of TCAP Return Error Components received from all peer nodes. The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Tcap rejectsSent (txRejects)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of TCAP Reject Components sent to all peer nodes. A Reject Component is sent when an invalid TCAP message is received from a peer node. The *rejectReason* attribute indicates the reason for the most recent reject. The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Tcap rejectsReceived (rxRejects)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of TCAP Reject Components received from all peer nodes. The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Tcap rejectReason

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

Description

This attribute indicates the reason for the most recent Reject message sent to a peer node.

***none*** - no rejects have been received.

***duplicateInvokeId*** - a duplicate Invoke Id was received from the peer.

***unrecognizedComponent*** - an unrecognized component was received from the peer.

***mistypedParameter*** - a mistyped parameter was received from the peer.

***badlyStructuredComponent*** - a badly structured component was received from the peer.

***unrecognizedOperation*** - an unrecognized operation was received from the peer.

***unexpectedLinkedOperation*** - an unexpected linked operation was received from the peer.

***resourceLimitation*** - a resource limitation forced a reject to be sent.

***initRelease*** - the corresponding dialogue has been released.

***unrecognizedLinkedId*** - an unrecognized linked Id was received from the peer.

***linkedResponseUnexpected*** - an unexpected linked response was received from the peer.

***unrecognizedInvokeId*** - an unrecognized invoke Id was received from the peer.

***returnResultUnexpected*** - an unexpected return result was received from the peer.

***returnErrorUnexpected*** - an unexpected return error was

received from the peer.

***unrecognizedError*** - an unrecognized error was received from the peer.

***unexpectedError*** - an unexpected error message was received from the peer.

Values

duplicateInvokeId
unrecognizedComponent
mistypedParameter
badlyStructuredComponent
unrecognizedOperation
unexpectedLinkedOperation
resourceLimitation
initRelease
unrecognizedLinkedId
linkedResponseUnexpected
unrecognizedInvokeId
returnResultUnexpected
returnErrorUnxepected
unrecognizedError
unexpectedError
none

Default

No default

### ATTRIBUTE Tcap currentTransactionsBySubsystem (currTransBySs)

Access

Read: All
Write: Illegal

Description

This attribute indicates the number of TCAP Transactions that are currently active for each subsystem.

***sgsn*** - the SGSN subsystem
***cap*** - the CAP subsystem
***mscE*** - the MSC Emulation subsystem.

| | |
|---|---|
| Vector of | Decimal (0..4000) |
| Index | sgsn<br>cap<br>mscEmulationSubsystem (mscE) |
| Default | No default |

### ATTRIBUTE Tcap currentInvokesBySubsystem (currInvokesBySs)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of TCAP Invokes that are currently active for each subsystem.<br><br>***sgsn*** - the SGSN subsystem<br>***cap*** - the CAP subsystem<br>***mscE***- the MSC Emulation subsystem. |
| Vector of | Decimal (0..6000) |
| Index | sgsn<br>cap<br>mscEmulationSubsystem (mscE) |
| Default | No default |

### GROUP Tcap SigRegistrationOp

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational attributes for any component that monitors SS7 IP Gateway (SIG) registration statistics. |

### ATTRIBUTE Tcap sigRegisterAttempts (regAttempts)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of SCIP registrations attempted with the SIG. The counter wraps to 0 when it exceeds its maximum value. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Tcap sigRegisterSuccessAcks (regAcks)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of successful registration responses received from the SIG. The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Tcap sigRegisterFailures (regFail)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of unsuccessful registration responses received from the SIG. The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Tcap sigDeregisterAttempts (deregAttempts)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of SCIP deregistrations attempted with the SIG. The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Tcap sigDeregisterSuccessAcks (deregAcks)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the number of successful deregistration responses received from the SIG. The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Tcap sigDeregisterFailures (deregFail)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of unsuccessful deregistration responses received from the SIG. The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Tcap sigSccpNoticeIndications (sccpNotice)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of SCCP Notice Indications that have been received from the SIG. SCCP Notice Indications are received from the SIG when there are errors in the messages being sent to it. The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Tcap WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Tcap customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Tcap customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Tcap customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## COLLECTED STATS TcapStack

| | |
|---|---|
| Description | The statistics record generated by the TcapStack component. |

### ATTRIBUTE Tcap registerAttempts (regAttempts)

Description This attribute indicates the number of SCIP registrations attempted with the SIG during the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Tcap registerSuccessAcks (regAcks)

Description This attribute indicates the number of successful registration responses received from the SIG during the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Tcap registerFailures (regFail)

Description This attribute indicates the number of unsuccessful registration responses received from the SIG during the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Tcap deregisterAttempts (deregAttempts)

Description This attribute indicates the number of SCIP deregistrations attempted with the SIG during the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Tcap deregisterSuccessAcks (deregAcks)

Description This attribute indicates the number of successful deregistration responses received from the SIG during the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Tcap deregisterFailures (deregFail)

Description This attribute indicates the number of unsuccessful deregistration responses received from the SIG during the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Tcap sigSccpNoticeIndications (sccpNotice)

Description This attribute indicates the number of SCCP Notice Indications that have been received from the SIG during the collection

interval. SCCP Notice Indications are received from the SIG when there are errors in the messages being sent to it.

Values — Decimal (0..4294967295)

### ATTRIBUTE Tcap concurrentTransactionsLowBySs (transLowBySs)

Description — This attribute indicates the lowest number of simultaneous TCAP Transactions active during the collection interval for each subsystem.

***sgsn*** - the SGSN subsystem
***cap*** - the CAP subsystem
***mscE***- the MSC Emulation subsystem.

Vector of — Decimal (0..4000)

Index — sgsn
cap
mscEmulationSubsystem (mscE)

### ATTRIBUTE Tcap concurrentTransactionsAvgBySs (transAvgBySs)

Description — This attribute indicates the average number of simultaneous Tcap Transactions active over the collection interval for each subsystem.

The average for each subsystem is computed based on the cumulative total of the values of the *currentTransactionsBySubsystem* attribute for that subsystem at each event that causes the attribute to change, divided by the total number of such events during the collection interval.

***sgsn*** - the SGSN subsystem
***cap*** - the CAP subsystem
***mscE***- the MSC Emulation subsystem.

Vector of — Decimal (0..4000)

Index — sgsn
cap
mscEmulationSubsystem (mscE)

### ATTRIBUTE Tcap concurrentTransactionsHighBySs (transHighBySs)

| | |
|---|---|
| Description | This attribute indicates the highest number of simultaneous TCAP Transactions active during the collection interval for each subsystem.<br><br>***sgsn*** - the SGSN subsystem<br>***cap*** - the CAP subsystem<br>***mscE***- the MSC Emulation subsystem. |
| Vector of | Decimal (0..4000) |
| Index | sgsn<br>cap<br>mscEmulationSubsystem (mscE) |

### ATTRIBUTE Tcap concurrentInvokesLowBySs (invksLowBySs)

| | |
|---|---|
| Description | This attribute indicates the lowest number of simultaneous Tcap Invokes active during the collection interval for each subsystem.<br><br>***sgsn*** - the SGSN subsystem<br>***cap*** - the CAP subsystem<br>***mscE***- the MSC Emulation subsystem. |
| Vector of | Decimal (0..6000) |
| Index | sgsn<br>cap<br>mscEmulationSubsystem (mscE) |

### ATTRIBUTE Tcap concurrentInvokesAvgBySs (invksAvgBySs)

| | |
|---|---|
| Description | This attribute indicates the average number of simultaneous Tcap Invokes active during the collection interval.<br><br>The average is computed for each subsystem based on the cumulative total of the values of the *currentInvokesBySubsystem* attribute for that subsystem at each event that causes the attribute to change, divided by the total number of such events during the collection interval.<br><br>***sgsn*** - the SGSN subsystem |

***cap*** - the CAP subsystem
***mscE***- the MSC Emulation subsystem

Vector of: Decimal (0..6000)

Index: sgsn
cap
mscEmulationSubsystem (mscE)

### ATTRIBUTE Tcap concurrentInvokesHighBySs (invksHighBySs)

Description: This attribute indicates the highest number of simultaneous Tcap Invokes active during the collection interval for each subsystem.

***sgsn*** - the SGSN subsystem
***cap*** - the CAP subsystem
***mscE***- the MSC Emulation subsystem

Vector of: Decimal (0..6000)

Index: sgsn
cap
mscEmulationSubsystem (mscE)

### ATTRIBUTE Tcap beginSent (txBegin)

Description: This attribute counts the number of TCAP Begin messages sent to all peer nodes during the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Tcap beginReceived (rxBegin)

Description: This attribute counts the number of TCAP Begin messages received from all peer nodes during the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Tcap continueSent (txContinue)

Description: This attribute counts the number of TCAP Continue messages sent to all peer nodes during the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Tcap continueReceived (rxContinue)

| | |
|---|---|
| Description | This attribute counts the number of TCAP Continue messages received from all peer nodes during the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Tcap endSent (txEnd)

| | |
|---|---|
| Description | This attribute counts the number of TCAP End messages sent to all peer nodes during the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Tcap endReceived (rxEnd)

| | |
|---|---|
| Description | This attribute counts the number of TCAP End messages received from all peer nodes during the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Tcap uabortSent (txUabort)

| | |
|---|---|
| Description | This attribute counts the number of TCAP User Abort messages sent to all peer nodes during the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Tcap uabortReceived (rxUabort)

| | |
|---|---|
| Description | This attribute counts the number of TCAP User Abort messages received from all peer nodes during the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Tcap pabortReceived (rxPabort)

| | |
|---|---|
| Description | This attribute counts the number of TCAP Provider Abort messages received from all peer nodes during the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Tcap noticeReceived (rxNotice)

| | |
|---|---|
| Description | This attribute counts the number of TCAP Notice messages received from all peer nodes during the collection interval. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Tcap invokeSent (txInvoke)

| | |
|---|---|
| Description | This attribute counts the number of TCAP Invoke Components sent to all peer nodes during the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Tcap invokeReceived (rxInvoke)

| | |
|---|---|
| Description | This attribute counts the number of TCAP Invoke Components received from all peer nodes during the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Tcap resultLastSent (txResultLast)

| | |
|---|---|
| Description | This attribute counts the number of TCAP Result Last Components sent to all peer nodes during the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Tcap resultLastReceived (rxResultLast)

| | |
|---|---|
| Description | This attribute counts the number of TCAP Result Last Components received from all peer nodes during the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Tcap returnErrorSent (txReturnError)

| | |
|---|---|
| Description | This attribute counts the number of TCAP Return Error Components sent to all peer nodes during the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Tcap returnErrorReceived (rxReturnError)

| | |
|---|---|
| Description | This attribute counts the number of TCAP Return Error Components received from all peer nodes during the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Tcap rejectsSent (rejsent)

| | |
|---|---|
| Description | This attribute counts the number of TCAP REJECT Components sent to all peer nodes during the collection interval. A Peer is an application on a different node using data from the same protocol layer. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Tcap rejectsReceived (rejRcvd)

| | |
|---|---|
| Description | This attribute counts the number of TCAP REJECT Components received from all peer nodes during the collection interval. |
| Values | Decimal (0..4294967295) |

### COMPONENT Tcap MemoryPoolManager (Mpm)

| | |
|---|---|
| Scope | Application |
| Description | *Gsc/n MemoryPoolManager*<br>*Gsd/n MemoryPoolManager*<br>*Gtl/n MemoryPoolManager*<br>*DnsAgent/<vr>,n MemoryPoolManager*<br><br>This component represents the memory resources of a given GPRS application that are managed as pools of objects. |
| Dyn. Subcomp. | "COMPONENT Tcap Mpm MemoryPoolClient (Mpc)" |
| Common Verbs | Help<br>List<br>Display |

### COMPONENT Tcap Mpm MemoryPoolClient (Mpc)

| | |
|---|---|
| Instance | String (1..30, ASCII) |
| Scope | Application |
| Description | *Gsc/n Mpm MemoryPoolClient/<name>*<br>*Gsd/n Mpm MemoryPoolClient/<name>*<br>*SgGtl/n Mpm MemoryPoolClient/<name>*<br>*DnsAgent/<vr>,n Mpm MemoryPoolClient/<name>* |

This component represents a pool of objects of a particular class that a GPRS application currently owns as well as all the objects that could be owned by that application. All the objects in the pool are of the same class. The instance value of this component is a string which is the class name of the objects in the pool.

Common Verbs

Help
List
Display

## COMPONENT Tcap Ss7IpInterface (Ss7IpIf)

Instance

Decimal (1)

Groups

"GROUP Tcap Ss7IpIf Provisioned (Prov)"
"GROUP Tcap Ss7IpIf OsiState (State)"
"GROUP Tcap Ss7IpIf WlcCustomCounters (WlcCustomCntr)"

Scope

Application

Description

*Tcap/n Ss7IpIf/n*
*Gsc/n Bssap Ss7IpIf/n*

This component represents an interface to the HP or USP SS7-IP Gateway (SIG). The HP SIG and Universal Signalling Point (USP) SIG are referred to generically as the SIG.

The SIG is a “stateless” message routing gateway used by many wireless components to communicate with other SS7 nodes in the wireless network such as the Home Location Register (HLR) and Visitor Location Register (VLR).

A single instance of the *Ss7IpIf* provides connectivity to the SIG, but an additional instance can be added for redundancy.

Common Verbs

Help
List
Display
Add
DELete

### GROUP Tcap Ss7Iplf Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisionable attributes for the *Ss7IpIf* component. |

### ATTRIBUTE Tcap Ss7Iplf linkToPort (lToPort)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies a link to a *Gips/n Ip/address Tcp Port/n* component. This determines the IP Address and port used by this component for communication with the SIG. |
| Values | Link (Service, linkToApplication) |
| Default | No default |

### ATTRIBUTE Tcap Ss7Iplf ss7IpGatewayAddress (sigIpAddr)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the SS7-IP Gateway (SIG) IP address.<br><br>The value must match the IP address specified on the SIG and must not be set to 0.0.0.0.<br><br>Changing this value causes the *Ss7IpIf* to redirect data using the new IP address. Current transactions being processed using this interface may be affected. |
| Values | IP address |
| Default | No default |

### ATTRIBUTE Tcap Ss7Iplf ss7IpGatewayTcpPort (sigTcpPort)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the SS7-IP Gateway (SIG) TCP port number. |

The value must match the TCP port number specified on the SIG.

Changing this value causes the *Ss7IpIf* to redirect data using the new TCP Port number. Current transactions being processed using this interface may be affected.

Values: Decimal (0..65535)

Default: No default

### ATTRIBUTE Tcap Ss7IpIf heartbeatTimer (heartBTmr)

Access: Read: All
Write: All

Description: This attribute specifies the amount of time between heartbeat messages sent to the SIG by the *Ss7IpIf*. Specifying ***disabled*** indicates that the heartbeat timer is disabled, that is, heartbeat messages are not sent to the SIG.

The value specified by this attribute should be less than the keep-alive timer specified on the SIG. It is recommended that this attribute specify a value that is one-third the value of that specified by the keep-alive timer on the SIG.

Values: Decimal (1..100)
disabled

Units: seconds

Default: 20

### ATTRIBUTE Tcap Ss7IpIf keepAliveTimer (keepAliveTmr)

Access: Read: All
Write: All

Description: This attribute specifies the amount of time the *Ss7IpIf* waits to receive heartbeat messages from the USP SIG before timing out. If the *Ss7IpIf* does not receive a heartbeat message from the SIG within the amount of time specified, it transitions into the OSI ***disabled*** operational state until connectivity with the SIG can be reestablished.

If the *Ss7IpIf* is provisioned to connect to an HP SIG, this attribute should be set to ***disabled***. Setting this attribute to ***disabled*** indicates that the *Ss7IpIf* will not monitor heartbeat messages from the SIG.

This attribute should specify a value greater than that specified by the heartbeat timer on the SIG. It is recommended that this attribute specify a value that is three times the value specified by the heartbeat timer on the SIG.

Values: Decimal (1..300)
disabled

Units: seconds

Default: 60

### GROUP Tcap Ss7IpIf OsiState (State)

Properties: Operational

Description: This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Tcap Ss7IpIf adminState (osiAdmin)

Access: Read only

Description: This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Tcap Ss7Iplf operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Tcap Ss7Iplf usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Tcap Ss7Iplf WlcCustomCounters (WlcCustomCntr)

Properties
Operational

Description
This group contains the spare counters that can be dynamically patched.

### ATTRIBUTE Tcap Ss7Iplf customCounter1 (customCntr1)

Access
Read: All
Write: Illegal

Description
This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch.

Values
Decimal (0..4294967295)

Default
No default

### ATTRIBUTE Tcap Ss7Iplf customCounter2 (customCntr2)

Access
Read: All
Write: Illegal

Description
This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch.

Values
Decimal (0..4294967295)

Default
No default

## ATTRIBUTE Tcap Ss7Iplf customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## COMPONENT Tcap MapStack (Map)

| | |
|---|---|
| Groups | "GROUP Tcap Map Timers"<br>"GROUP Tcap Map Operational (Oper)"<br>"GROUP Tcap Map OsiState (State)"<br>"GROUP Tcap Map WlcCustomCounters (WlcCustomCntr)" |

"COLLECTED STATS TcapStack MapStack"

| | |
|---|---|
| Scope | Application |
| Description | *Tcap/n MapStack*<br><br>This component represents the Mobile Application Part (MAP) Stack functionality.<br><br>Mobile Application Part (MAP) Stack provides MAP Protocol services for the MAP client on the (UMTS) Serving GPRS Support Node (SGSN and USGSN). |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Tcap Map Timers

| | |
|---|---|
| Properties | Provisioned |

| | |
|---|---|
| Description | This group contains general provisioning data for the *MapStack* component. |

### ATTRIBUTE Tcap Map uglSanityTimer (ugltim)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the amount of time the MAP Stack waits for the UPDATE GPRS LOCATION RESPONSE from the HLR.<br><br>The timer is started when the UPDATE GPRS LOCATION message is sent to the HLR.<br><br>The number of timeouts of this timer is indicated by the attribute *uglTimeouts*.<br><br>The number of retries is specified by the attribute *uglRetries* in the *MapClient* component that is associated with this MAP Stack. |
| Values | Decimal (1..30) |
| Units | seconds |
| Default | 25 |

### ATTRIBUTE Tcap Map saiSanityTimer (saitim)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the amount of time the MAP Stack waits for the SEND AUTHENTICATION INFORMATION RESPONSE from the HLR.<br><br>The timer is started when the SEND AUTHENTICATION INFORMATION message is sent to the HLR.<br><br>The number of timeouts of this timer is indicated by the attribute *saiTimeouts*.<br><br>The number of retries is specified by the attribute *saiRetries* in the *MapClient* component that is associated with this MAP Stack |

| | |
|---|---|
| Values | Decimal (1..30) |
| Units | seconds |
| Default | 25 |

### ATTRIBUTE Tcap Map clSanityTimer (cltim)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the amount of time the MAP Stack waits for the CANCEL LOCATION RESPONSE from the MAP Client.<br><br>The timer is started when the CANCEL LOCATION message is received from the HLR.<br><br>The number of timeouts of this timer is indicated by the attribute *clTimeouts*.<br><br>The number of retries is specified by the HLR provisioning which is external to the SGSN. |
| Values | Decimal (1..30) |
| Units | seconds |
| Default | 25 |

### ATTRIBUTE Tcap Map dsdSanityTimer (dsdtim)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the amount of time the MAP Stack waits for the DELETE SUBSCRIBER DATA RESPONSE from the MAP Client.<br><br>The timer is started when the DELETE SUBSCRIBER DATA message is received from the HLR.<br><br>The number of timeouts of this timer is indicated by the attribute *dsdTimeouts*. |

| | |
|---|---|
| | The number of retries is specified by the attribute *dsdRetries* in the *MapClient* component that is associated with this MAP Stack |
| Values | Decimal (1..30) |
| Units | seconds |
| Default | 25 |

### ATTRIBUTE Tcap Map isdSanityTimer (isdtim)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the amount of time the MAP Stack waits for the INSERT SUBSCRIBER DATA RESPONSE from the MAP Client.<br><br>The timer is started when the INSERT SUBSCRIBER DATA message is received from the HLR.<br><br>The number of timeouts of this timer is indicated by the attribute *isdTimeouts*.<br><br>The number of retries is specified by HLR provisioning which is external to the SGSN. |
| Values | Decimal (1..30) |
| Units | seconds |
| Default | 25 |

### ATTRIBUTE Tcap Map mtfsmSanityTimer (mtfsmtim)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the amount of time the MAP Stack waits for the MOBILE TERMINATED FORWARD SHORT MESSAGE RESPONSE from the MAP Client.<br><br>The timer is started when the MOBILE TERMINATED FORWARD SHORT MESSAGE message is received from the |

Short Message Service Center (SMSC).

The number of timeouts of this timer is indicated by the attribute *mtfsmTimeouts*.

The number of retries is specified by SMSC provisioning which is external to the SGSN.

Values: Decimal (1..600)

Units: seconds

Default: 60

### ATTRIBUTE Tcap Map mofsmSanityTimer (mofsmtim)

Access: Read: All
Write: All

Description: This attribute specifies the amount of time the MAP Stack waits for the MOBILE ORIGINATED FORWARD SHORT MESSAGE RESPONSE from the SMSC.

The timer is started when the MOBILE ORGINATED FORWARD SHORT MESSAGE message is sent to the SMSC.

The number of timeouts of this timer is indicated by the attribute *mofsmTimeouts*.

There are no retries associated with this message.

Values: Decimal (1..600)

Units: seconds

Default: 60

### ATTRIBUTE Tcap Map fsmSanityTimer (fsmtim)

Access: Read: All
Write: All

Description: This attribute specifies the amount of time the MAP Stack waits for the FORWARD SHORT MESSAGE RESPONSE from the MAP Client.

The timer is started when the FORWARD SHORT MESSAGE message is received from the Short Message Service Center (SMSC).

The number of timeouts of this timer is indicated by the attribute *fsmTimeouts*.

The number of retries is specified by SMSC provisioning which is external to the SGSN.

Values: Decimal (1..600)

Units: seconds

Default: 60

### ATTRIBUTE Tcap Map rfsmSanityTimer (rfsmtim)

Access: Read: All
Write: All

Description: This attribute specifies the amount of time the MAP Stack waits for the READY FOR FORWARD SHORT MESSAGE RESPONSE from the HLR.

The timer is started when the READY FOR FORWARD SHORT MESSAGE message is sent to the HLR.

The number of timeouts of this timer is indicated by the attribute *rfsmTimeouts*.

There are no retries associated with this message.

Values: Decimal (1..30)

Units: seconds

Default: 25

### ATTRIBUTE Tcap Map afrSanityTimer (afrtim)

Access: Read: All
Write: All

| | |
|---|---|
| Description | This attribute specifies the amount of time the MAP Stack waits for the AUTHENTICATION FAILURE REPORT RESPONSE from the HLR.<br><br>The timer is started when the AUTHENTICATION FAILURE REPORT message is sent to the HLR.<br><br>The number of timeouts of this timer is indicated by the attribute *afrTimeouts*.<br><br>The number of retries is specified by the attribute *afrRetries* in the *MapClient* component that is associated with this MAP Stack. |
| Values | Decimal (1..30) |
| Units | seconds |
| Default | 25 |

### ATTRIBUTE Tcap Map pmsSanityTimer (pmstim)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the amount of time the MAP Stack waits for the MOBILE SUBSCRIBER PURGE RESPONSE from the HLR. The timer is started when the MOBILE SUBSCRIBER PURGE REQUEST message is sent to the HLR. The number of timeouts of this timer is indicated by the attribute pmsTimeouts. |
| Values | Decimal (1..60) |
| Units | seconds |
| Default | 50 |

### ATTRIBUTE Tcap Map pslSanityTimer (pslTimer)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the amount of time the MAP Stack waits for the PROVIDE SUBSCRIBER LOCATION RESPONSE message from the MAP Client. |

The timer is started when the PROVIDE SUBSCRIBER LOCATION message is received from the Gateway Mobile Location Center (GMLC).

The number of timeouts of this timer is indicated by the *pslTimeouts* attribute.

In the GPRS network, this attribute value must be greater than the value of the *pagingTimer* attribute.

In the UMTS network, this attribute value must be greater than the sum of the *pagingTimer* attribute and either the *locationReportTimer* attribute or the *locationNotifyTimer* attribute, depending on which of the two has the higher value.

| | |
|---|---|
| Values | Decimal (1..600) |
| Units | seconds |
| Default | 60 |

### ATTRIBUTE Tcap Map linkToMapStackUsers (users)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies components that utilize the services of this *MapStack* component. |
| List of | Link (Service, linkToMapStack) |
| Default | No default |

### GROUP Tcap Map Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data of the *MapStack.* |

### ATTRIBUTE Tcap Map uglTimeouts (uglTo)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the expiries of the timer specified by he attribute *uglSanityTimer*.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Tcap Map saiTimeouts (saiTo)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the expiries of the *saiSanityTimer*.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Tcap Map clTimeouts (clTo)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the expiries of the *clSanityTimer*.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Tcap Map isdTimeouts (isdTo)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the expiries of the *isdSanityTimer*.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Tcap Map dsdTimeouts (dsdTo)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the expiries of the *dsdSanityTimer.*<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Tcap Map mtfsmTimeouts (mtfsmTo)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the expiries of the *mtfsmSanityTimer.*<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Tcap Map mofsmTimeouts (mofsmTo)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the expiries of the *mofsmSanityTimer.*<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Tcap Map fsmTimeouts (fsmTo)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the expiries of the *fsmSanityTimer*.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Tcap Map rfsmTimeouts (rfsmTo)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the expiries of the *rfsmSanityTimer*.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Tcap Map afrTimeouts (afrTo)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the expiries of the *afrSanityTimer*.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Tcap Map pmsTimeouts (pmsTo)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the expiries of the *pmsSanityTimer* attribute.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Tcap Map pslTimeouts (pslTo)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts theexpiries of the *pslSanityTimer* attribute.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Tcap Map OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Tcap Map adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |

| | |
|---|---|
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Tcap Map operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Tcap Map usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |

| | |
|---|---|
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Tcap Map WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Tcap Map customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Tcap Map customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Tcap Map customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## COLLECTED STATS TcapStack MapStack

| | |
|---|---|
| Description | The statistics record generated by the TcapStack MapStack component. |

### ATTRIBUTE Tcap Map uglTimeouts (uglTo)

| | |
|---|---|
| Description | This attribute indicates the number of expiries of the timer specified by the attribute *uglSanityTimer* over the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Tcap Map saiTimeouts (saiTo)

| | |
|---|---|
| Description | This attribute indicates the number of expiries of the timer specified by the attribute *saiSanityTimer* over the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Tcap Map clTimeouts (clTo)

| | |
|---|---|
| Description | This attribute indicates the number of expiries of the timer specified by the attribute *clSanityTimer* over the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Tcap Map isdTimeouts (isdTo)

| | |
|---|---|
| Description | This attribute indicates the number of expiries of the timer specified by the attribute *isdSanityTimer* in the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Tcap Map dsdTimeouts (dsdTo)

| | |
|---|---|
| Description | This attribute indicates the number of expiries of the timer specified by the attribute *dsdSanityTimer* in the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Tcap Map mtfsmTimeouts (mtfsmTo)

| | |
|---|---|
| Description | This attribute indicates the number of expiries of the timer specified by the attribute *mtfsmSanityTimer* in the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Tcap Map mofsmTimeouts (mofsmTo)

| | |
|---|---|
| Description | This attribute indicates the number of expiries of the timer specified by the attribute *mofsmSanityTimer* in the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Tcap Map fsmTimeouts (fsmTo)

| | |
|---|---|
| Description | This attribute indicates the number of expiries of the timer specified by the attribute *fsmSanityTimer* in the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Tcap Map rfsmTimeouts (rfsmTo)

| | |
|---|---|
| Description | This attribute indicates the number of expiries of the timer specified by the attribute *rfsmSanityTimer* in the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Tcap Map afrTimeouts (afrTo)

| | |
|---|---|
| Description | This attribute indicates the number of expiries of the timer specified by the attribute *afrSanityTimer* in the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Tcap Map pmsTimeouts (pmsTo)

| | |
|---|---|
| Description | This attribute indicates the number of expiries of the *pmsSanityTimer* attribute in the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Tcap Map pslTimeouts (pslTo)

| | |
|---|---|
| Description | This attribute counts the expiries of the timer specified by the *pslSanityTimer* attribute in the collection interval. |
| Values | Decimal (0..4294967295) |

### COMPONENT Tcap RemoteApplicationConnection (RaConn)

| | |
|---|---|
| Instance | appType [String (1..8, ASCII)]<br>shelfId [Decimal (0..15)]<br>n [Decimal (1..15)] |
| Groups | "GROUP Tcap RaConn OsiState (State)"<br>"GROUP Tcap RaConn WlcCustomCounters (WlcCustomCntr)" |
| Scope | Application |
| Description | *... RemoteApplicationConnection/<appType, shelfId, n>*<br><br>This component represents the Remote Application Connection information of an application that talks to applications on other shelves. For each application that it can communicate with, one of these connection components is created and is instantiated with the name of the remote application, the Id of the shelf on which the application runs, and the instance number of the application. ShelfId ***0*** represents the Master shelf. |
| Dyn. Subcomp. | "COMPONENT Tcap RaConn AtmConnection (AtmCon)" |
| Common Verbs | Help<br>List<br>Display |

### GROUP Tcap RaConn OsiState (State)

| | |
|---|---|
| Properties | Operational |

Description

This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

## ATTRIBUTE Tcap RaConn adminState (osiAdmin)

Access

Read only

Description

This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values

locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default

unlocked

## ATTRIBUTE Tcap RaConn operationalState (osiOper)

Access

Read only

Description

This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be

providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Tcap RaConn usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Tcap RaConn WlcCustomCounters (WlcCustomCntr)

Properties
Operational

Description
This group contains the spare counters that can be dynamically patched.

### ATTRIBUTE Tcap RaConn customCounter1 (customCntr1)

Access
Read: All
Write: Illegal

| | |
|---|---|
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Tcap RaConn customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Tcap RaConn customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT Tcap RaConn AtmConnection (AtmCon)

| | |
|---|---|
| Groups | "GROUP Tcap RaConn AtmCon Operational (Oper)" |
| Scope | Device |

| | |
|---|---|
| Description | An AtmConnection component is created for each ATM connection established by an application. It shows where the data traffic for this connection is directed. |
| Common Verbs | Help<br>List<br>Display |

## GROUP Tcap RaConn AtmCon Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains the operational attributes for the *NapAtmConnection* component. |

## ATTRIBUTE Tcap RaConn AtmCon nextHop

| | |
|---|---|
| Access | Read only |
| Description | This attribute shows the component name of the *AtmIf Vcc Ep* or *AtmCon* component to which this switched connection is established. |
| Values | The name of the component |
| Default | No default |

Passport 7400, 15000, 20000

# Component Tcap

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component TdmaBc

241-5701-060

Passport 7400, 15000, 20000

# Component TdmaBc

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT TdmaIwfBearerChannel (TdmaBc)

| | |
|---|---|
| Instance | csIndex [Decimal (1..10)]<br>bcIndex [Decimal (1..14030)] |
| Groups | "GROUP TdmaBc Operational (Oper)"<br>"GROUP TdmaBc CustomerIdentifierData (CidData)"<br>"GROUP TdmaBc OsiState (State)" |
| Scope | Application |
| Description | *TdmaBc/<csIndex>,<bcIndex>*<br>This component represents an individual bearer channel resource for a given *TdmaIwfCallServer*. Depending on the call type requested, the *TdmaIwfCallServer* links one or more *TdmaIwfBearerChannel*s in a single DMS-MTX InterWorking Function (IWF) call. Each *TdmaIwfBearerChannel* is linked to a channel on a DS1 or E1 port on a *TdmaIwfLogicalProcessor* (one *TdmaIwfBearerChannel* per channel).<br>The instance value *csIndex* is the logical identifier for the DMS-MTX and is used for associating the call server with this *TdmaIwfBearerChannel* instance.<br>The instance value *bcIndex* is the logical identifier for the *TdmaIwfBearerChannel*. It and the csIndex together define a unique *TdmaIwfBearerChannel*.<br><br>This component is specific to the ***tdmaIwfBearerChannel*** feature of the ***tdmaIwf*** application. |

| | |
|---|---|
| Subcomponents | "COMPONENT TdmaBc Framer" |
| Dyn. Subcomp. | "COMPONENT TdmaBc Modem"<br>"COMPONENT TdmaBc Fax"<br>"COMPONENT TdmaBc DataServiceControl (Dsc)"<br>"COMPONENT TdmaBc RadioLinkProtocol1 (Rlp1)"<br>"COMPONENT TdmaBc V42"<br>"COMPONENT TdmaBc V42Bis"<br>"COMPONENT TdmaBc UpperRelay (Ur)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP TdmaBc Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational attributes concerning the operation of this particular *TdmaIwfBearerChannel* for the current or most recent call. |

## ATTRIBUTE TdmaBc state

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the current state of the MSC/IWF Interface Protocol (MIP) Message Router (MMR) for an IWF element. This attribute has one of the following values:<br>***idle***: Startup state of IWF element.<br>***setup***: This call half is being set up.<br>***active***: This call half has been connected by both the MTX and IWF and is active.<br>***releas***e: This call half is being released. |

Values
idle
setup
active
release

Default
No default

## ATTRIBUTE TdmaBc callType

Access
Read: All
Write: Illegal

Description
This attribute indicates the current call type. This attribute has one of the following values:
***analogSpeech***: Analog speech calls.
***digitalSpeech***: Digital speech calls.
***analogPrefSpeech***: Analog preferred speech calls.
***digitalPrefSpeech***: Digital preferred speech calls.
***asyncData***: Asynchronous data service calls.
***g3Fax***: Group 3 fax calls.
***rejected***: Rejected calls.
***stuIII***: STU III calls.
***notUsedYet***: Bearer Channel has not been used in a call yet.
***directAsyncData***: FastConnect or Direct Async Data Service (DADS) calls.

Values
analogSpeech
digitalSpeech
analogPrefSpeech
digitalPrefSpeech
asyncData
g3Fax
rejected
stuIII
notUsedYet
directAsyncData

Default
No default

## ATTRIBUTE TdmaBc lastResponseCode (respCode)

Access

Read: All
Write: Illegal

Description

This attribute indicates the MSC/IWF Interface Protocol (MIP) Message Router (MMR) response code returned for the last call which was active on this particular *TdmaIwfBearerChannel*. This attribute has one of the following values:
***noCause***: No cause available.
***unassignedNumber***: Unallocated or unassigned number.
***noRouteToDest***: No route to destination.
***normalClearing***: The call was terminated normally.
***userBusy***: User busy.
***noResponse***: No carrier.
***userNoAnswer***: No answer from user.
***invalidNumberFormat***: Translation or routing problem.
***unspecNormal***: Normal, unspecified.
***temporaryFailure***: Temporary failure.
***channelUnavailable***: Channel unavailable.
***resourceUnavailable***: Resources unavailable to handle call.
***qosUnavailabled***: Specified rate of call unavailable.
***serviceUnavailable***: Service not implemented.
***unimplementedOption***: Option not implemented.
***invalidCallRefValue***: Invalid call reference value.
***invalidChannel***: Identified channel does not exist.
***unspecInvalidMessage***: Invalid message, unspecified.
***missingMandatoryIe***: Missing mandatory information element.
***invalidMessageType***: Message type not implemented.
***incompatibleMessage***: Message not compatible with call state.
***timerRecovery***: Recovery on timer expiration.
***protocolError***: Protocol error, unspecified.

Values

noCause
unassignedNumber
noRouteToDest
normalClearing
userBusy
noResponse
userNoAnswer
invalidNumberFormat

unspecNormal
temporaryFailure
channelUnavailable
resourceUnavailable
qosUnavailable
serviceUnavailable
unimplementedOption
invalidCallRefValue
invalidChannel
unspecInvalidMessage
missingMandatoryIe
invalidMessageType
incompatibleMessage
timerRecovery
unspecProtocolError

Default: No default

### ATTRIBUTE TdmaBc mateBearerChannel (mateBc)

Access: Read: All
Write: Illegal

Description: This attribute contains the name of the mate *TdmaIwfBearerChannel* that this *TdmaIwfBearerChannel* is involved with in the currently active call. In the case of a FastConnect call, this mate is a *TdmaIwfFcBearerChannel*.

Values: The name of the component

Default: No default

### GROUP TdmaBc CustomerIdentifierData (CidData)

Properties: Provisioned

Description: This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs.

### ATTRIBUTE TdmaBc customerIdentifier (cid)

Access: Read and write

Description

This attribute holds the Customer Identifier (CID).

Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.

Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.

An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to "basic CIDs" in DPN) may be assigned to specific customers.

Values

Decimal (0; 1..8191)

Default

0

## GROUP TdmaBc OsiState (State)

Properties

Operational

Description

This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

## ATTRIBUTE TdmaBc adminState (osiAdmin)

Access

Read only

Description

This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component.

When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE TdmaBc operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE TdmaBc usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

## COMPONENT TdmaBc Framer

Groups
"GROUP TdmaBc Framer Provisioned (Prov)"
"GROUP TdmaBc Framer Statistics (Stats)"
"GROUP TdmaBc Framer LinkOptions (Link)"
"GROUP TdmaBc Framer OsiState (State)"

Scope
Device

Description
*TdmaBc/<csIndex>,<bcIndex> Framer*
The *TdmaIwfFramer* component controls link layer framing for application components sending and receiving data on a link interface. The *TdmaIwfFramer* component provides provisionable attributes related to datapath aspects of the hardware interface rather than interface specific attributes which are associated with hardware components. The *TdmaIwfFramer* component also provides a provisionable attribute which binds the application component to a specific hardware component.

Common Verbs
Help
List
Display

## GROUP TdmaBc Framer Provisioned (Prov)

Properties
Provisioned

Description

This group contains the base provisioning data for the *Framer* component. Application or hardware interface specific provisioning data is contained in other provisionable *Framer* groups.

### ATTRIBUTE TdmaBc Framer interfaceName

Access: Read and write

Criticality: Process

Description

This attribute contains a hardware component name.

The attribute associates the application with a specific link. This defines the module processor on which *Framer*'s parent component (as well as *Framer* itself) will run.

Values: Link (Hardware, applicationFramerName)

Default: No default

### GROUP TdmaBc Framer Statistics (Stats)

Properties: Operational

Description: This group contains the operational statistics data for a *TdmaIwfFramer* component.

### ATTRIBUTE TdmaBc Framer txFrames

Access: Read only

Description: This attribute counts the number of frames transmitted to the link interface by *TdmaIwfFramer*.
The counter wraps when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE TdmaBc Framer rxFrames

Access: Read only

| | |
|---|---|
| Description | This attribute counts the number of frames received from the link interface by *TdmaIwfFramer*.<br>The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE TdmaBc Framer rxBytes

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of bytes received from the link interface by *TdmaIwfFramer*.<br>The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### GROUP TdmaBc Framer LinkOptions (Link)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisionable attributes for the *TdmaIwfFramer*<br>which controls link layer framing for application components sending and receiving data on a link interface for this particular *TdmaIwfBearerChannel*. |

### ATTRIBUTE TdmaBc Framer framingType

| | |
|---|---|
| Access | Read: All<br>Write: Service |
| Criticality | Process |
| Description | This attribute indicates the type of framing for the link layer data received and transmitted on this channel. This attribute has one of the following values:<br>***btdsFraming***: Bit transparent framing for the *TdmaIwfBearerChannel* components on MVP cards.<br>***mtxFraming***: DMS-MTX InterSystem Link Protocol (ISLP) framing required for the *TdmaIwfBearerChannel* components on DS1C/E1C cards. |

| | |
|---|---|
| Values | btdsFraming<br>mtxFraming |
| Default | No default |

### GROUP TdmaBc Framer OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE TdmaBc Framer adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

## ATTRIBUTE TdmaBc Framer operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

## ATTRIBUTE TdmaBc Framer usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

## COMPONENT TdmaBc Modem

| | |
|---|---|
| Groups | "GROUP TdmaBc Modem Operational (Oper)"<br>"GROUP TdmaBc Modem Statistics (Stats)" |
| Scope | Application |
| Description | *TdmaBc/<csIndex>,<bcIndex> Modem*<br>This component represents the group of measurements for the modem protocol established for a DMS-MTX IWF call (on the IWF to PSTN modem link) on this particular *TdmaIwfBearerChannel.*<br>Note that this component is present only if the current or most recent call involved this protocol. |
| Common Verbs | Help<br>List<br>Display |

## GROUP TdmaBc Modem Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational attributes that measure performance of the *modem* component for this particular *TdmaIwfBearerChannel*. |

## ATTRIBUTE TdmaBc Modem voiceLaw

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the active voice law associated with the *modem* component. This attribute has one of the following values: ***aLaw*** and ***muLaw***. Both protocols are utilized for encoding voice-band audio. For additional information on each, refer to ITU-T G.711 “Pulse Code Modulation (PCM) of Voice Frequencies”. |
| Values | aLaw<br>muLaw |
| Default | No default |

## ATTRIBUTE TdmaBc Modem rate

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the transmission rate of the current modem in use. All rates are the same in both the transmit and receive directions. |
| Values | 50<br>300<br>600<br>1200<br>2400<br>4800<br>7200<br>9600<br>12000<br>14400<br>16800<br>19200<br>21600<br>24000<br>26400<br>28800<br>31200<br>32000<br>33600<br>38400<br>43200<br>48000<br>56000<br>57600<br>64000 |
| Units | bit/s |
| Default | No default |

## ATTRIBUTE TdmaBc Modem modemAlgorithmInUse (algorithm)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

Description

This attribute indicates the current modem algorithm(s) active for the channel. This attribute has one of the following values:
***t30***: T.30 is active. T.30 is the Group 3 fax protocol.
***v17***: V.17 is active.V.17 is an ITU-T 14400bit/s modem standard.
***v21***: V.21 is active. V.21 is an ITU-4 300bit/s modem standard.
***v22***: V.22 ia active. V.22 is an ITU-T modem standard that operates at 1200bit/s and 600 baud.
***v22bis***: V.22bis is active. V.22bis is an ITU-T modem standard that operates at 2400bit/s and 600 baud.
***v27ter***: V.27ter is active. V.27ter is an ITU-T 7200bit/s modem standard.
***v29***: V.29 is active. V.29 is an ITU-T 9600bit/s modem standard.
***v32***: V.32 is active. V.32 is an ITU-T modem standard that operates at 9600bit/s and 2400 baud.
***v32bis***: V.32bis is an ITU-T modem standard that operates at a speed of 14.4kbit/s.

Set of

t30
v17
v21
v22
v22bis
v27ter
v29
v32
v32bis

Default

No default

## ATTRIBUTE TdmaBc Modem protocolState (state)

Access

Read: All
Write: Illegal

Description

This attribute indicates the active protocol state of the modem in use.This attribute has one of the following values:
***idle***: Modem is in an inactive state and has no current connection established.
***training***: Modem is attempting to establish a connection with the far end modem via handshaking.
***connected***: Modem has establish a connection with the far end

modem.
***releasing***: Modem has begun tearing down the connection.

Values
idle
training
connected
releasing

Default
No default

### ATTRIBUTE TdmaBc Modem mobileSideFlowControlState (mobileFlow)

Access
Read: All
Write: Illegal

Description
This attribute indicates the state of flow control based on whether flow control was requested by the mobile side of the connection and an indication was sent to an upper layer protocol. This attribute has one of the following values:
***on***: Flow control is active towards the mobile side of the call.
***off***: Flow control is not active towards the mobile side of the call.

Values
on
off

Default
No default

### ATTRIBUTE TdmaBc Modem pstnSideFlowControlState (pstnFlow)

Access
Read: All
Write: Illegal

Description
This attribute indicates the state of flow control based on whether flow control was requested by the PSTN side of the connection and an indication was sent to the Digital Signal Processor. This attribute has one of the following values:
***on***: Flow control is active towards the DSP (PSTN side of the call).
***off***: Flow control is not active towards the DSP (PSTN side of the call).

Values
on
off

Default
No default

### ATTRIBUTE TdmaBc Modem asyncMode (async)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates whether conversion between synchronous and asynchronous data format (specifically, the stripping or insertion of start and stop bits) is being performed. The value is ***on*** unless the V.42 layer is active or it is a fax call. This attribute has one of the following values:<br>***on***: Conversion between synchronous and asynchronous data is being performed.<br>***off***: Conversion between synchronous and asynchronous data is not being performed. |
| Values | on<br>off |
| Default | No default |

### ATTRIBUTE TdmaBc Modem outbandFlowControl (outbandFlow)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates whether outband flow control conversions are being performed. If outband flow control is on, then when the Modem Application Layer (MAL) receives an xon or xoff from the PSTN, the MAL converts the instruction into a primitive and sends it to the Data Service Control (DSC). In the opposite direction with outband flow control on, when the MAL receives a primitive from the DSC, the MAL converts the primitive into an xon or xoff and forwards it to the PSTN. If outband flow control is off, then all flow control is handled inband. The modem performs either inband or outband flow control unless V.42 layer is active, it is a fax call, or no flow control was specified by the DMS-MTX. This attribute has one of the following values:<br>***on***: Conversion to and from out-of-band signaling is enabled.<br>***off***: Conversion to and from out-of-band signaling is disabled. |
| Values | on<br>off |
| Default | No default |

## ATTRIBUTE TdmaBc Modem outbandBreak (outbandBrk)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates whether inband or outband break control conversions are being performed. If outband break control is on, when the modem detects a break condition coming from the PSTN, the Modem Application Layer (MAL) converts the instruction into a primitive and forwards it to the Data Service Control (DSC). In the opposite direction with outband break control on, when the MAL receives a primitive from the DSC, the MAL converts the primitive into a break and forwards it to the PSTN. When a break condition is discovered all subsequent incoming data is discarded until a start bit is received. |
| Values | on<br>off |
| Default | No default |

## ATTRIBUTE TdmaBc Modem autobaud

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates whether autobaud is active.<br>The modem is instructed at call setup time by the DMS-MTX on the following:<br>(1) the initial modem data rate value, and<br>(2) whether a modem is allowed to perform autobauding (***on***) or not (***off***).<br>With autobauding on, the modem is allowed to connect using a valid modem data rate less than or equal to the initial rate specified to the modem by the DMS-MTX. If a modem cannot perform autobauding and the carrier cannot be established at the initial data rate, the modem is disabled. |
| Values | on<br>off |
| Default | No default |

## GROUP TdmaBc Modem Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational attributes that measure performance of the modem component for this particular *TdmaIwfBearerChannel*. |

## ATTRIBUTE TdmaBc Modem txBytes

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of payload bytes transmitted. The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## ATTRIBUTE TdmaBc Modem rxBytes

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of payload bytes received. The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## ATTRIBUTE TdmaBc Modem framingErrors (frmErr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of framing errors detected by the hardware. This is the absence of a stop bit after a start bit and eight bits of data. All incoming data is discarded until the next start bit is received.<br>The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## COMPONENT TdmaBc Fax

| | |
|---|---|
| Groups | "GROUP TdmaBc Fax Operational (Oper)"<br>"GROUP TdmaBc Fax Statistics (Stats)" |
| Scope | Application |
| Description | *TdmaBc/<csIndex>,<bcIndex> Fax*<br>This component represents the group of measurements for the fax protocol established for a DMS-MTX IWF call (on the mobile station to IWF link or the IWF to PSTN fax modem/machine link) on this particular *TdmaIwfBearerChannel.*<br>Note that this component is present only if the current or most recent call involved this protocol. |
| Common Verbs | Help<br>List<br>Display |

## GROUP TdmaBc Fax Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational attributes which measure the performance of the fax protocol. |

## ATTRIBUTE TdmaBc Fax activeMode (mode)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the mode of the fax T.30 protocol, determined during Exchange Identification (XID) negotiations. The following modes are supported:<br>***normal***: Normal T.30 protocol, Error Correction Mode (ECM) not used.<br>***ecm***: Error Correction Mode used. Fax error correction is done using a half-duplex page selective repeat technique. |
| Values | normal<br>ecm |
| Default | No default |

## ATTRIBUTE TdmaBc Fax protocolState (state)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the protocol state of the fax adaptor. This attribute has one of the following values:<br>***setup***: Call setup state.<br>***idle***: Idle state only transmitting Synchronize (SYNC) frames.<br>***bcsRx***: Receiving Binary Coded Signal (BCS) packet from modem.<br>***bcsTx***: Transmitting BCS packet to modem.<br>***msgRx***: Receiving fax message from modem.<br>***msgTx***: Transmitting fax message to modem. |
| Values | setup<br>idle<br>bcsRx<br>bcsTx<br>msgRx<br>msgTx |
| Default | No default |

## ATTRIBUTE TdmaBc Fax messageRate (msgRate)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the fax message rate used for sending fax documents. |
| Values | Decimal (0..65000) |
| Units | bit/s |
| Default | No default |

## GROUP TdmaBc Fax Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistical attributes which measure the performance of the fax protocol. |

## ATTRIBUTE TdmaBc Fax txPagesToMobile (txPages)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | The attribute counts the number of fax pages transmitted to the mobile.<br>The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## ATTRIBUTE TdmaBc Fax rxPagesFromMobile (rxPages)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of fax pages received from the mobile.<br>The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## COMPONENT TdmaBc DataServiceControl (Dsc)

| | |
|---|---|
| Groups | "GROUP TdmaBc Dsc Operational (Oper)"<br>"GROUP TdmaBc Dsc Statistics (Stats)" |
| Scope | Application |
| Description | *TdmaBc/<csIndex>,<bcIndex> Dsc*<br>This component represents the group of measurements for the DMS-MTX DSC Protocol established for a DMS-MTX IWF call (on the mobile station to the IWF link) on this particular *TdmaIwfBearerChannel*.<br>Note that this component is present only if the current or most recent call involved this protocol. |
| Common Verbs | Help<br>List<br>Display |

## GROUP TdmaBc Dsc Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational attributes that measure the performance of the DSC asynchronous data service. |

## ATTRIBUTE TdmaBc Dsc p0CompressionDirection (p0)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the direction of compression requested from logical link 0 (LL0). This attribute has one of the following values:<br>***noCpmpression***: No data compression.<br>***compInitrResp***: Compression initiator to responder.<br>***compRespInitr***: compression responder to initiator.<br>***compBoth***: compression in both directions. |
| Values | noCompression<br>compInitrResp<br>compRespInitr<br>compBoth |
| Default | No default |

## ATTRIBUTE TdmaBc Dsc p1CompressionMaximumCodewords (p1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the maximum number of codewords to be requested from logical link 0 (LL0) for compression. A codeword is a binary number that represents a string of characters. |
| Values | Decimal (512..65535) |
| Default | No default |

## ATTRIBUTE TdmaBc Dsc p2CompressionMaximumCharacters (p2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute indicates the maximum number of characters that can be represented by a single codeword to be requested from logical link 0 (LL0) for compression. |
| Values | Decimal (6..250) |
| Default | No default |

### GROUP TdmaBc Dsc Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistical attributes that measure the performance of the DSC asynchronous data service. |

### ATTRIBUTE TdmaBc Dsc txBytes

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of data bytes relayed by DSC in the transmit direction (towards the mobile).<br>The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE TdmaBc Dsc rxBytes

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of data bytes relayed by DSC in the receive direction (from the mobile).<br>The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT TdmaBc RadioLinkProtocol1 (Rlp1)

| | |
|---|---|
| Groups | "GROUP TdmaBc Rlp1 Operational (Oper)"<br>"GROUP TdmaBc Rlp1 Statistics (Stats)" |
| Scope | Application |

Description — *TdmaBc/<csIndex>,<bcIndex> Rlp1*
This component represents the group of measurements for the Radio Link Protocol 1 (RLP1) established for a DMS-MTX IWF call (on the mobile station to IWF link) on this particular *TdmaIwfBearerChannel.*
Note that this component is present only if the current or most recent call involved this protocol.

Common Verbs
- Help
- List
- Display

## GROUP TdmaBc Rlp1 Operational (Oper)

Properties — Operational

Description — This group contains operational attributes that measure performance of the *TdmaIwfBearerChannel*.

## ATTRIBUTE TdmaBc Rlp1 layer3L0ReqWinSize (l3ReqW0)

Access — Read: All
Write: Illegal

Description — This attribute indicates the window size for Service Access Point (SAP) 0 requested by layer 3. The window size is the maximum number of sequentially numbered Information (I) frames that may be unacknowledged at any given time.

Values — Decimal (1..64)

Default — No default

## ATTRIBUTE TdmaBc Rlp1 layer3L1ReqWinSize (l3ReqW1)

Access — Read: All
Write: Illegal

Description — This attribute indicates the window size for Service Access Point (SAP) 1 requested by layer 3. The window size is the maximum number of sequentially numbered Information (I) frames that may be unacknowledged at any given time.

Values — Decimal (1..64)

| | |
|---|---|
| Default | No default |

### ATTRIBUTE TdmaBc Rlp1 t1ResponseTimer (t1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the current T1 timer for Service Access Points (SAP) 0 and 1 negotiated by the Radio Link Protocol 1 (RLP1), during Exchange Information (XID). This attribute specifies the time the receiving RLP1 entity shall wait for a response from the peer TIA-136-310 (formerly IS-130) application. The value used for XID negotiations can be provisioned in the *TdmaCs/* Rlp1 t1ResponseTimer* attribute. |
| Values | Decimal (5..20) |
| Units | seconds |
| Default | No default |

### ATTRIBUTE TdmaBc Rlp1 t2LinkActivityTimer (t2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the current T2 timer for Service Access Points (SAP) 0 and 1 negotiated by the Radio Link Protocol 1 (RLP1), during Exchange Information (XID). This attribute specifies the maximum time the receiving RLP1 entity shall wait for link activity. The value used for XID negotiations can be provisioned in the *TdmaCs/* Rlp1 t2LinkActivityTimer* attribute. |
| Values | Decimal (10..120) |
| Units | seconds |
| Default | No default |

### ATTRIBUTE TdmaBc Rlp1 t3PeerAckTimer (t3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the current T3 timer for Service Access Points (SAP) 0 and 1 negotiated by the Radio Link Protocol 1 |

| | |
|---|---|
| | (RLP1), during Exchange Information (XID). The attribute specifies the maximum time the receiving RLP1 entity shall wait for the peer to ACK or NAK data. The value used for XID negotiations can be provisioned in the *TdmaCs/* Rlp1 t3PeerAckTimer* attribute. |
| Values | Decimal (5..20) |
| Units | seconds |
| Default | No default |

### GROUP TdmaBc Rlp1 Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational attributes that measure performance of the *TdmaIwfBearerChannel*. |

### ATTRIBUTE TdmaBc Rlp1 txFrames

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of valid frames transmitted to the mobile.<br>The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE TdmaBc Rlp1 rxFrames

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attributes counts the number of valid frames received from the mobile.<br>The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## ATTRIBUTE TdmaBc Rlp1 badRxFrames

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute count the total number of bad RLP1 frames received from the mobile.<br>The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## COMPONENT TdmaBc V42

| | |
|---|---|
| Groups | "GROUP TdmaBc V42 Operational (Oper)"<br>"GROUP TdmaBc V42 Statistics (Stats)" |
| Scope | Application |
| Description | *TdmaBc/<csIndex>,<bcIndex> V42*<br>This component represents the group of measurements for the ITU-T V.42 error correcting protocol established for a DMS-MTX IWF call (on the IWF to PSTN modem link) on this particular *TdmaIwfBearerChannel.*<br>Note that this component is present only if the current or most recent call involved this protocol. |
| Common Verbs | Help<br>List<br>Display |

## GROUP TdmaBc V42 Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational attributes which measure V.42 error detection and correction performance. |

## ATTRIBUTE TdmaBc V42 protocolState (state)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute indicates the state of V.42. Valid states are:<br><br>***notActive***: The V.42 link connection with the PSTN modem is not established. None of the V.42 functions including the error detection, error correction, and flow control is provided to the data call. This is the initial state of V.42.<br>***disconnected***: This means that the V42 link is disconnected.<br>***linkSetup***: The V.42 operation enters this state from the disconnected state after the V.42 sends to the PSTN modem a Set Asynchronous Balanced Mode Extended (SABME) frame in an attempt to establish the error control connection with the PSTN modem.<br>***frameReject***: The V.42 operation enters into this state after it identifies an invalid frame sent by the peer and it sends back a frame reject (FRMR) frame to the peer.<br>***disconnectRequest***: The V.42 operation enters into this state after it sends to the peer a disconnect (DISC) frame with the attempt to disconnect the V.42 error control link.<br>***informationTransfer***: The V.42 enters into this state after it receives a UA (unnumbered acknowledgment) frame which the peer sent upon receipt of the SAMBE frame from IWF V.42. Once in this state, the V.42 can exchange data and supervisory information with its peer.<br>***waitingAck***: The V.42 enters this state after it sends polling enquiry to its peer. The V.42 sends the polling enquiry when it receives a reject frame (REJ) from its peer or either its acknowledgment timer or inactivity timer timed out on the information frames sent out. |
| Values | notActive<br>disconnected (disc)<br>linkSetup<br>frameReject (frmRej)<br>disconnectRequest (discReq)<br>informationTransfer (infoXfer)<br>waitingAck (waitAck) |
| Default | No default |

### ATTRIBUTE TdmaBc V42 txN401FrameSize (txN401)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the current value of parameter N401 for V.42 which is negotiated during Exchange Information (XID). This is the maximum number of octets that can be carried in the information field of an information frame that the IWF V.42 transmits to the PSTN modem. The IWF V.42 puts this or even smaller size of data into the outgoing information frame. The value used for XID negotiations can be provisioned via *TdmaCs/* V42*. |
| Values | Decimal (0..65355) |
| Units | octets |
| Default | No default |

### ATTRIBUTE TdmaBc V42 rxN401FrameSize (rxN401)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the current value of N401, that is negotiated during Exchange Identification (XID). This is the maximum number of octets that can be carried in the information field of an information frame received from the PSTN modem. An incoming information frame carrying data octets more than this size shall be rejected by the IWF V.42. The value used for XID negotiations can be provisioned via *TdmaCs/* V42*. |
| Values | Decimal (1..255) |
| Units | octets |
| Default | No default |

### ATTRIBUTE TdmaBc V42 txKWindowSize (txK)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute indicates the current value of k, that is negotiated during Exchange Identification (XID). This is the size of flow control sliding window used for the information frames that the V.42 transmits to the PSTN modem. This size governs the maximum number of information frames that the IWF V.42 error-correcting entity can have outstanding (that is, unacknowledged). The value used for XID negotiations can be provisioned via *TdmaCs/* V42*. |
| Values | Decimal (0..127) |
| Default | No default |

### ATTRIBUTE TdmaBc V42 rxKWindowSize (rxK)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the current value of k that is negotiated during Exchange Identification (XID). This is the size of flow control sliding window used for information frames transmitted from the PSTN modem. This size governs the maximum number of information frames that the peer of the IWF V.42 error-correcting entity can have outstanding (that is, unacknowledged). The value used for XID negotiations can be provisioned via *TdmaCs/* V42*. |
| Values | Decimal (1..127) |
| Default | No default |

### ATTRIBUTE TdmaBc V42 v42ActiveInCall

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates whether V42 is really being used in this data call. |
| Values | notActiveInCall<br>activeInCall |
| Default | notActiveInCall |

### ATTRIBUTE TdmaBc V42 v42BisActiveInCall

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates whether V42bis is really being used in this data call. |
| Values | notActiveInCall<br>activeInCall |
| Default | notActiveInCall |

### GROUP TdmaBc V42 Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistical attributes that measure the V.42 error detection and correction performance. |

### ATTRIBUTE TdmaBc V42 rxIBytes

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of bytes that the V.42 actually received from the PSTN modem in a data call.<br>The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Units | octets |
| Default | 0 |

### ATTRIBUTE TdmaBc V42 txIBytes

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of bytes that the V.42 transmitted to the PSTN modem in a data call.<br>The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Units | octets |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE TdmaBc V42 rxIFrames

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of Information (I) frames that the V.42 received from the PSTN modem in a data call.<br>The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE TdmaBc V42 txIFrames

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of information frames that the V.42 transmitted to the PSTN modem in a data call.<br>The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE TdmaBc V42 retransmittedFrames (retransFrm)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of frames retransmitted by the IWF V.42 entity in a data call. The V.42 retransmits the same frame when the associated T401 acknowledgment timer timeouts or when a Reject (REJ) supervisory frame has been received from the PSTN modem.<br>The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE TdmaBc V42 t1AckTimeouts (t1Timeout)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of times that the T401 timer has timed out within a data call. If this timer times-out frequently, the operator may need to adjust the provisioned parameter T401 acknowledgment timer to a larger time amount, since every time that V.42 sends out a frame it sets the T401 timer to wait for the peer's acknowledgment of the frame. When the timer times-out and no acknowledgment has been received, the V.42 sends the same frame to its peer.<br>The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE TdmaBc V42 remoteBusyIndications (remoteBusy)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of times the PSTN modem enters a busy state (the IWF has received a Receive Not Ready message) and asks the IWF V.42 not to send Information (I) frames to it until it is ready to receive information frames again (indicated by receipt of a Receive Ready message or a data message).<br>The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE TdmaBc V42 localBusyIndications (localBusy)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of times the IWF V.42 enters in a busy condition and asks the peer to stop sending information frames until it has cleared up from the busy condition. The V.42 enters busy condition when its data buffer is |

about to be overflowed by the incoming Information (I) frames. The counter wraps when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE TdmaBc V42 badFramesRx (badFrmRx)

Access: Read: All
Write: Illegal

Description: This attribute counts the total number of bad frames the IWF V.42 has received from the PSTN remote modem within the data call. In this instance, “bad frames” refer to the V.42 protocol error frames other than the check sequence error frames.
The counter wraps when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE TdmaBc V42 crcErrorsRx (crcErrRx)

Access: Read: All
Write: Illegal

Description: This attribute counts the total number of frames received from the remote PSTN modem that contain incorrect frame check sequence. A high value signifies the condition of the physical medium is poor.
The counter wraps when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: 0

### COMPONENT TdmaBc V42Bis

Groups: "GROUP TdmaBc V42Bis Operational (Oper)"
"GROUP TdmaBc V42Bis Statistics (Stats)"

Scope: Application

Description: *TdmaBc/<csIndex>,<bcIndex> V42bis*
This component represents the group of measurements for the

ITU-T V.42bis data compression protocol established for an IWF call (on the mobile station to the IWF link or the IWF to PSTN fax modem link) on this particular *TdmaIwfBearerChannel*. Note that this component is present only if the current or most recent call involved this protocol.

Common Verbs

Help
List
Display

## GROUP TdmaBc V42Bis Operational (Oper)

Properties: Operational

Description: This group contains operational attributes that measure the performance of *IwfV42bis*.

## ATTRIBUTE TdmaBc V42Bis protocolModeEncoder (modeEncoder)

Access: Read: All
Write: Illegal

Description: This attribute indicates the current mode of the *IwfV42bis* encoder. This mode can be either:
***transparent***: A mode of operation in which compression has been selected but data is being transmitted in uncompressed form. Transparent mode command sequences may be inserted into the data stream.
***compressed***: A mode of operation in which data is transmitted in codewords.
The encoder switches between the two modes depending on whether the data coming from the Date Terminal Equipment (DTE) is suitable for compression. The data compression function periodically determines the compressibility of the data based on a comparison of the number of bits required to represent a segment of the data stream before and after compression.

Values: transparent
compressed

Default: No default

### ATTRIBUTE TdmaBc V42Bis protocolModeDecoder (modeDecoder)

Access
Read: All
Write: Illegal

Description
This attribute indicates the current mode of the V.42bis decoder. This mode can be either:
***transparent***: A mode of operation in which compression has been selected but data is being transmitted in uncompressed form. Transparent mode command sequences may be inserted into the data stream.
***compressed***: A mode of operation in which data is transmitted in codewords.
The encoder (at the mobile or PSTN) switches between the two modes depending on whether the data coming from the Date Terminal Equipment (DTE) is suitable for compression. The data compression function periodically determines the compressibility of the data based on a comparison of the number of bits required to represent a segment of the data stream before and after compression.

Values
transparent
compressed

Default
No default

### ATTRIBUTE TdmaBc V42Bis p0CompressionDirection (p0)

Access
Read: All
Write: Illegal

Description
This attribute indicates the direction in which V.42bis is active, negotiated at link setup by the data link protocol through Exchange Identification (XID) negotiation of parameter P0 (compression direction). The value used for XID negotiations can be provisioned via *TdmaCs/* V42bis*. This attribute has one of the following values:
***noCompression***: No data compression.
***compInitrResp***: The data sent by the IWF to the other entity is compressed.
***compRespInitr***: The data received by the IWF from the other entity is compressed.
***compBoth***: compression in both directions.

| | |
|---|---|
| Values | noCompression<br>compInitrResp<br>compRespInitr<br>compBoth |
| Default | No default |

### ATTRIBUTE TdmaBc V42Bis p1MaximumCodewords (p1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the maximum number of codewords in the dictionary negotiated at link setup by the data link protocol by way of the Exchange Identification (XID) negotiation of parameter P1 (number of codewords). The value used for XID negotiations can be provisioned via *TdmaCs/* V42bis*. |
| Values | Decimal (0..4096) |
| Default | No default |

### ATTRIBUTE TdmaBc V42Bis p2MaximumStringSize (p2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the maximum number of characters allowed in a string represented by a codeword negotiated at link setup by the data link protocol by way of the Exchange Identification (XID) negotiation of parameter P2 (maximum string size). The value used for XID negotiations can be provisioned via *TdmaCs/* V42bis.* |
| Values | Decimal (6..250) |
| Default | No default |

### ATTRIBUTE TdmaBc V42Bis lastDecodeError (lastDecodeErr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates last error found by the decoder. This attribute has one of the following values: |

***none***: No errors found.
***badStepup***: Receipt of STEPUP (step up codeword size) codeword when it would cause C2 (current code word size) to exceed N1 (maximum code word size).
***codewordEqC1***: Receipt of a codeword, at any time, equal to C1 (next empty dictionary entry).
***emptyCodeword***: Receipt of a codeword representing an empty dictionary entry.
***reservedCommand***: Receipt of a reserved command code.
***generalError***: Receipt of any other error.
The action taken by V.42bis on detecting an error is provisioned via *TdmaCs/* V42bis*.

Values
none
badStepup
codewordEqC1
emptyCodeword
rsvdCommand
generalError

Default
none

## ATTRIBUTE TdmaBc V42Bis compRatioEncoder

Access
Read: All
Write: Illegal

Description
This attribute indicates the number of uncompressed bytes divided by the number of compressed bytes. A value greater than one means that the data is being compressed. This is the compression ratio achieved by the V.42bis encoder running on the Passport. This attribute is relevant for both protocol modes transparent and compressed as the encoder switches between the two modes.

Values
Decimal (0.00..300.00)

Default
No default

## ATTRIBUTE TdmaBc V42Bis compRatioDecoder

Access
Read: All
Write: Illegal

| | |
|---|---|
| Description | This attribute indicates the number of uncompressed bytes divided by the number of compressed bytes. A value greater than one means that the data is being compressed. This is the compression ratio achieved by the V.42bis encoder at the mobile or PSTN. This attribute is relevant for both protocol modes transparent and compressed as the encoder switches between the two modes. |
| Values | Decimal (0.00..300.00) |
| Default | No default |

### GROUP TdmaBc V42Bis Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistical attributes that measure the performance of *IwfV42bis*. |

### ATTRIBUTE TdmaBc V42Bis modeChangesEncode (modeChgEncode)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of mode changes (from transparent to compressed or from compressed to transparent) by the encoder.<br>The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE TdmaBc V42Bis modeChangesDecode (modeChgDecode)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of mode changes (from transparent to compressed or from compressed to transparent) by the decoder. The mode changes are determined by the encoder at the mobile or the PSTN.<br>The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE TdmaBc V42Bis resetsEncode

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of resets sent by the encoder. A reset is a command code sent by the encoder to force dictionary reinitialization.<br>The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE TdmaBc V42Bis resetsDecode

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of resets received by the decoder. A reset is a command code sent by the encoder to force dictionary reinitialization. The resets of the decoder are determined by the encoder at the mobile or PSTN.<br>The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE TdmaBc V42Bis reinitializations (reInit)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of times V.42bis is reinitialized because of a destructive break (a destructive break is a break that causes data to be discarded) occurring on the error-corrected connection initiated by either the mobile or PSTN.<br>The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## ATTRIBUTE TdmaBc V42Bis errorsInDecode (errDecode)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of errors found by the decoder. The errors could be any of the following:<br>1.Receipt of STEPUP (step up codeword size) codeword when it would cause C2 (current code word size) to exceed N1 (maximum code word size).<br>2. Receipt of a codeword, at any time, equal to C1 (next empty dictionary entry).<br>3. Receipt of a codeword representing an empty dictionary entry.<br>4. Receipt of a reserved command code.<br>5. Receipt of any other error.<br>The counter wraps when it exceeds the maximum value.<br>The action taken by V.42bis on detecting any of these errors is provisioned via *TdmaCs/* V42bis.* |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## COMPONENT TdmaBc UpperRelay (Ur)

| | |
|---|---|
| Groups | "GROUP TdmaBc Ur Operational (Oper)"<br>"GROUP TdmaBc Ur Statistics (Stats)" |
| Scope | Application |
| Description | *TdmaBc/<csIndex>,<bcIndex> UpperRelay*<br>This component represents the group of measurements for the Upper Relay function established for each half of a DMS-MTX IWF asynchronous data or fax call (internally between the two *TdmaIwfBearerChannel*s involved in a call) from this particular *TdmaIwfBearerChannel* perspective. |
| Common Verbs | Help<br>List<br>Display |

## GROUP TdmaBc Ur Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational attributes that measure the performance of the *UpperRelay.* |

## ATTRIBUTE TdmaBc Ur rxBufferSize

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the size of the receive flow control buffer. This attribute may be viewed via *TdmaBc/*,*,*,* UpperRelay*. |
| Values | Decimal (0..65535) |
| Default | No default |

## ATTRIBUTE TdmaBc Ur txFlowControlState (txFlowControl)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates whether the transmit flow control is active or not. This attribute has one of the following values:<br>***active***: The transmit flow control is active.<br>***inactive***: The transmit flow control is inactive.<br>This attribute may be viewed via *TdmaBc/*,*,*,* UpperRelay*. |
| Values | active<br>inactive |
| Default | No default |

## ATTRIBUTE TdmaBc Ur rxFlowControlState (rxFlowControl)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates whether the receive flow control is active or not. This attribute has one of the following values:<br>***active***: The receive flow control is active.<br>***inactive***: The receive flow control is inactive.<br>This attribute may be viewed via *TdmaBc/*,*,*,* UpperRelay*. |

| | |
|---|---|
| Values | active<br>inactive |
| Default | No default |

### GROUP TdmaBc Ur Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational attributes that measure the performance of the *UpperRelay*. |

### ATTRIBUTE TdmaBc Ur txFrames

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of frames that are sent in the transmit direction. The counter wraps when it exceeds the maximum value.<br>The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE TdmaBc Ur rxFrames

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of frames that are sent in the receive direction.<br>The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE TdmaBc Ur unacknowledgedFrames (unackFrm)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute indicates the current number of frames sent that have not been acknowledged for this instance of the UpperRelay. The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE TdmaBc Ur cumUnacknowledgedFrames (cUnackFrm)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute is the total number of unacknowledged frames for this instance of the UpperRelay. It is not reset when a new call starts. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

Passport 7400, 15000, 20000

# Component TdmaBc

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component TdmaCs

241-5701-060

Passport 7400, 15000, 20000

# Component TdmaCs

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT TdmaIwfCallServer (TdmaCs)

| | |
|---|---|
| Instance | Decimal (1..10) |
| Groups | "GROUP TdmaCs ServiceProvisioned (ServProv)"<br>"GROUP TdmaCs MiscProvisioned (MiscProv)"<br>"GROUP TdmaCs CustomerIdentifierData (CidData)"<br>"GROUP TdmaCs OsiState (State)"<br>"GROUP TdmaCs Statistics (Stats)" |
| Scope | Application |
| Description | *TdmaCs/<csIndex>*<br>The *TdmaIwfCallServer* component represents an instance of a call manager for Mobile Telephone eXchange communications (MTX) InterWorking Function (IWF) calls on this node. The *TdmaIwfCallServer* provides a mechanism to segregate call resources (*TdmaIwfBearerChannels)* and maintenance activities for the *TdmaIwfBearerChannel*(s) associated with that *TdmaIwfCallServer.* The *csIndex* bears no particular significance and is arbitrary.<br><br>This component is specific to the ***tdmaIwfCallServer*** feature of the ***tdmaIwf*** application. |

| | |
|---|---|
| Subcomponents | "COMPONENT TdmaCs Modem"<br>"COMPONENT TdmaCs Fax"<br>"COMPONENT TdmaCs DataCircuitTerminatingEquipment (Dce)"<br>"COMPONENT TdmaCs DataServiceControl (Dsc)"<br>"COMPONENT TdmaCs RadioLinkProtocol1 (Rlp1)"<br>"COMPONENT TdmaCs V42"<br>"COMPONENT TdmaCs V42Bis" |
| Opt. Subcomp. | "COMPONENT TdmaCs LogicalProcessor (Lp)"<br>"COMPONENT TdmaCs FastConnect (Fc)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP TdmaCs ServiceProvisioned (ServProv)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all the necessary timers for call setup and call clearing scenarios on the IWF. |

## ATTRIBUTE TdmaCs tIwf1

| | |
|---|---|
| Access | Read: All<br>Write: Configuration |
| Description | This is an internal timer to the call server of the IWF and is used during call setup for ensuring the MIT protocol stack and the NIT modem for a new call have been allocated and initialized. |
| Values | Decimal (0..3600) |
| Units | seconds |
| Default | 4 |

### ATTRIBUTE TdmaCs tIwf2

| | |
|---|---|
| Access | Read: All<br>Write: Configuration |
| Description | This is an internal timer to the call server of the IWF and is used during call clearing for ensuring the MIT protocol stack and NIT modem for a call have been deallocated correctly. |
| Values | Decimal (0..3600) |
| Units | seconds |
| Default | 4 |

### ATTRIBUTE TdmaCs t303

| | |
|---|---|
| Access | Read: All<br>Write: Configuration |
| Description | This timer is a call setup timer and is used for ensuring a CallProceeding message is received for a Setup message that has been sent by the IWF to the MTX. |
| Values | Decimal (0..3600) |
| Units | seconds |
| Default | 4 |

### ATTRIBUTE TdmaCs t305

| | |
|---|---|
| Access | Read: All<br>Write: Configuration |
| Description | This timer is a call clearing timer and is used for ensuring a Release message is received for a Disconnect message the IWF has sent to the MTX. |
| Values | Decimal (0..3600) |
| Units | seconds |
| Default | 30 |

## ATTRIBUTE TdmaCs t308

| | |
|---|---|
| Access | Read: All<br>Write: Configuration |
| Description | This timer is a call clearing timer and is used for ensuring a ReleaseComplete message is received for the Release message the IWF has sent to the MTX. |
| Values | Decimal (0..3600) |
| Units | seconds |
| Default | 4 |

## ATTRIBUTE TdmaCs t313

| | |
|---|---|
| Access | Read: All<br>Write: Configuration |
| Description | This is a call setup timer and is used for ensuring a ConnectAck message is received in response for the Connect message the IWF has sent to the MTX. |
| Values | Decimal (0..3600) |
| Units | seconds |
| Default | 4 |

## ATTRIBUTE TdmaCs t999

| | |
|---|---|
| Access | Read: All<br>Write: Configuration |
| Description | This timer is used during a mobile termination call setup and is used for ensuring the Setup message is received from the MTX. |
| Values | Decimal (0..3600) |
| Units | seconds |
| Default | 300 |

### ATTRIBUTE TdmaCs supportedTechnology

| | |
|---|---|
| Access | Read: All<br>Write: Configuration |
| Description | This attribute specifies the wireless technology that is supported for data calls on this IWF. |
| Values | tdmaOnly<br>cdmaOnly<br>tdmaAndCdma |
| Default | tdmaOnly |

### ATTRIBUTE TdmaCs supportedService

| | |
|---|---|
| Access | Read: All<br>Write: Configuration |
| Description | This attribute specifies the type(s) of data calls this IWF supports. |
| Values | asyncDataOnly<br>g3FaxOnly<br>analogFaxOnly<br>packetOnly<br>asyncDataAndG3Fax<br>asyncDataAndAnalogFax<br>asyncDataAndPacket<br>asyncDataG3FaxAndPacket<br>asyncDataAFaxAndPacket |
| Default | asyncDataOnly |

### GROUP TdmaCs MiscProvisioned (MiscProv)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains general provisioning data for the *TdmaIwfCallServer* that does not fit within other provisioning groups. |

### ATTRIBUTE TdmaCs commentText

| | |
|---|---|
| Access | Read: All<br>Write: All |

| | |
|---|---|
| Description | Use of this attribute is at the discretion of the system administrator. Typically, this attribute is used to specify the name of the DMS-MTX configured for this *TdmaIwfCallServer* plus any other commentary information. |
| Values | String (0..40, ASCII) |
| Default | "" |

### ATTRIBUTE TdmaCs mtxIpAddress (ipAddr)

| | |
|---|---|
| Access | Read: All<br>Write: Configuration |
| Description | This attribute specifies the Internet Protocol (IP) Address of the Mobile Telephone Exchange (MTX) that is permitted to set up MTX InterWorking Function (IWF) data calls using this *TdmaIwfCallServer*. This address must be specified in order for this *TdmaIwfCallServer* to provide service.<br>If call setups are attempted from an MSC which does not have this address, those calls are rejected. The *callsRequested* statistic of this *TdmaIwfCallServer* is incremented and appropriate call failure logs are generated at the MSC. |
| Values | IP address |
| Default | 0.0.0.0 |

### ATTRIBUTE TdmaCs virtualRouterName (vr)

| | |
|---|---|
| Access | Read: All<br>Write: Configuration |
| Criticality | Component |
| Description | This attribute specifies the virtual router that this *TdmaIwfCallServer* uses for transmitting and receiving signaling messages to and from the DMS-MTX. |
| Values | The name of the component |
| Default | No default |

### ATTRIBUTE TdmaCs voiceLaw (encoding)

| | |
|---|---|
| Access | Read: All<br>Write: Configuration |
| Description | This attribute specifies the voice law to be established for the IWF to PSTN modem link for calls established by this *TdmaIwfCallServer*. This attribute has one of the following values:<br>***aLaw***: A protocol for encoding voice-band audio, Pulse Code Modulation (PCM).<br>***muLaw***: A protocol for encoding voice-band audio, PCM. Note that this value must match the voice law used at the DMS-MTX connected to this *TdmaIwfCallServer*. |
| Values | aLaw<br>muLaw |
| Default | No default |

### GROUP TdmaCs CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

### ATTRIBUTE TdmaCs customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.<br><br>Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID. |

An operator CID of 0 is used to identify the Network Manager (referred to as “NetMan” in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to “basic CIDs” in DPN) may be assigned to specific customers.

Values: Decimal (0; 1..8191)

Default: 0

### GROUP TdmaCs OsiState (State)

Properties: Operational

Description: This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE TdmaCs adminState (osiAdmin)

Access: Read only

Description: This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

| | |
|---|---|
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE TdmaCs operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE TdmaCs usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |

| | |
|---|---|
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP TdmaCs Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational attributes that measure the performance used for the calls set up by this particular *TdmaIwfCallServer.* |

### ATTRIBUTE TdmaCs currentCalls (currCall)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of active calls currently serviced by this particular *TdmaIwfCallServer.* |
| Values | Decimal (0..2047) |
| Default | 0 |

### ATTRIBUTE TdmaCs callsRequested (callsReq)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of IWF call setup requests received at this particular *TdmaIwfCallServer* from the DMS-MTX. The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE TdmaCs callsSetup (callsSet)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of IWF calls successfully setup by this particular *TdmaIwfCallServer.* A call is considered setup |

| | |
|---|---|
| | when the IWF-Setup-Request message is received, indicating a request for a data communications service, and the IWF has successfully allocated the necessary resources to fulfill the request. The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE TdmaCs callsReleasedNormal (callsRlsdNor)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of IWF calls that have completed successfully on this particular *TdmaIwfCallServer.* The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE TdmaCs callsReleasedAbnormal (callsRlsdAbnor)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of IWF calls that have been released due to error conditions at this particular *TdmaIwfCallServer* or one if its *TdmaIwfBearerChannel*(s). The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE TdmaCs erroredLFrames (errLFrm)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of CM/IWF Control Interface (CCI) messages received from the DMS-MTX that have an incorrect format. The counter wraps when it exceeds the maximum value. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT TdmaCs Modem

| | |
|---|---|
| Scope | Application |
| Description | *TdmaCs/<csIndex> Modem/<modem-type>*<br>This component represents an instance of a particular modem type that enables support of the various modem protocols on the DMS-MTX IWF. |
| Common Verbs | Help<br>List<br>Display |

### COMPONENT TdmaCs Fax

| | |
|---|---|
| Scope | Application |
| Description | *TdmaCs/<csIndex> Fax*<br>This component represents an instance of fax attributes. These specify various default settings for aspects of the fax protocol, which may be used for a DMS-MTX IWF call. |
| Common Verbs | Help<br>List<br>Display |

### COMPONENT TdmaCs DataCircuitTerminatingEquipment (Dce)

| | |
|---|---|
| Scope | Application |
| Description | TdmaCs/<csIndex> Dce<br>This component represents an instance of the Data Circuit-Terminating Equipment (DCE). The DCE represents a layer of the protocol stack for the network-side connection to the Public Switched Telephone Network. It is responsible for call control, AT-command handling, user-data transport, online-command signaling, break signaling, circuit/signal lead transport, and |

compression negotiation. The DCE is based on the BMI (BSC, MSC, IWF) portion of the IS-135 standard.

Common Verbs

Help
List
Display

## COMPONENT TdmaCs DataServiceControl (Dsc)

Groups "GROUP TdmaCs Dsc Provisioned (Prov)"

Scope Application

Description TdmaCs/<csIndex> Dsc
This component represents an instance of the Data Service Control (DSC). The DSC represents a layer of the protocol stack for the mobile-side connection to the IWF. It is responsible for call control, AT-command handling, user-data transport, online-command signaling, break signaling, circuit/signal lead transport, and compression negotiation. The DSC is based on the BMI (BSC, MSC, IWF) portion of the IS-135 standard.

Common Verbs

Help
List
Display

## GROUP TdmaCs Dsc Provisioned (Prov)

Properties Provisioned

Description This group contains the provisionable attributes for Data Service Control Asynchronous Data Service portion of the wireless protocol stack used for the calls set up by this particular *TdmaIwfCallServer.*

## ATTRIBUTE TdmaCs Dsc k0LI0WindowSize (k0)

Access Read: All
Write: Service

Description This attribute specifies the maximum size of the DSC logical link 0 window.

| | |
|---|---|
| Values | Decimal (1..64) |
| Default | 64 |

### ATTRIBUTE TdmaCs Dsc k1Ll1WindowSize (k1)

| | |
|---|---|
| Access | Read: All<br>Write: Service |
| Description | This attribute specifies the maximum size of the DSC logical link 1 window. |
| Values | Decimal (1..64) |
| Default | 64 |

### COMPONENT TdmaCs RadioLinkProtocol1 (Rlp1)

| | |
|---|---|
| Instance | halfRate (half)<br>fullRate (full)<br>doubleRate (double)<br>tripleRate (triple) |
| Groups | "GROUP TdmaCs Rlp1 Provisioned (Prov)" |
| Scope | Application |
| Description | *TdmaCs/<csIndex> Rlp1/<radio-channel-type>*<br>This component represents an instance of Radio Link Protocol 1 (RLP1), indexed by radio channel type. Valid radio channel types are:<br><br>***halfRate***, Half rate channel.<br>***fullRate***, Full rate channel.<br>***doubleRate***, Double rate channel.<br>***tripleRate***, Triple rate channel.<br><br>Many RLP1 attributes are dependent on the frame rate and frame size, that is dictated by the radio channel type. When a *TdmaIwfCallServer* is added, a *RadioLinkProtocol1* instance is added automatically for each possible instance value. The attributes are set to default values, dependent on the radio channel type of the component instance. |

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display<br>Add |

## GROUP TdmaCs Rlp1 Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisionable attributes for the Radio Link Protocol 1 (RLP1) parameters used for the calls set up by this particular *TdmaIwfCallServer*. Changes to these attributes do not affect existing calls. |

## ATTRIBUTE TdmaCs Rlp1 t1ResponseTimer (t1)

| | |
|---|---|
| Access | Read: All<br>Write: Service |
| Description | This attribute specifies the time the receiving Radio Link Protocol (RLP1) entity shall wait for a response from the peer TIA-136-310 (formerly IS-130) application.<br>During the Exchange Information (XID) negotiation, both RLP1 entities (mobile station and IWF) can agree to use a specific value for this timer (T1). The IWF attempts to negotiate to the value specified by this attribute.<br>Changes to this attribute do not affect existing calls. |
| Values | Decimal (5..20) |
| Units | seconds |
| Default | 5 |

## ATTRIBUTE TdmaCs Rlp1 t2LinkActivityTimer (t2)

| | |
|---|---|
| Access | Read: All<br>Write: Service |
| Description | This attribute specifies the maximum time the receiving Radio Link Protocol (RLP1) entity shall wait for link activity. |

| | |
|---|---|
| | During the Exchange Information (XID) negotiation, both RLP1 entities (mobile station and IWF) can agree to use a specific value for this timer (T2). The IWF attempts to negotiate to the value specified by this attribute.<br>Changes to this attribute do not affect existing calls. |
| Values | Decimal (10..120) |
| Units | seconds |
| Default | 10 |

### ATTRIBUTE TdmaCs Rlp1 t3PeerAckTimer (t3)

| | |
|---|---|
| Access | Read: All<br>Write: Service |
| Description | This attribute specifies the maximum time the receiving Radio Link Protocol (RLP1) entity shall wait for the peer to ACK or NAK data.<br>During the Exchange Information (XID) negotiation, both RLP1 entities (mobile station and IWF) can agree to use a specific value for this timer (T3). The IWF attempts to negotiate to the value specified by this attribute.<br>Changes to this attribute do not affect existing calls. |
| Values | Decimal (5..20) |
| Units | seconds |
| Default | 5 |

### COMPONENT TdmaCs V42

| | |
|---|---|
| Groups | "GROUP TdmaCs V42 Provisioned (Prov)" |
| Scope | Application |
| Description | *TdmaCs/<csIndex> V42*<br>This component represents an instance of ITU-T V.42 error correcting data link protocol. Its attributes specify various default settings for aspects of the V.42 protocol, that may be used for an IWF call for the IWF to PSTN modem link. |

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display |

## GROUP TdmaCs V42 Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the V.42 protocol used for the calls set up by this particular *IwfCallServer*. Changes to these attributes do not affect existing calls. |

## ATTRIBUTE TdmaCs V42 t400DetectTimer (t400)

| | |
|---|---|
| Access | Read: All<br>Write: Service |
| Description | This attribute specifies the maximum amount of time that the IWF waits for an Originator Detection Pattern (ODP) or Answerer Detection Pattern (ADP). ODP/ADP is a series of special bit patterns used during the call setup procedures.<br>If the IWF is the originator of the call, it starts sending ODP patterns and waits for an ADP for the duration of T400 from the answerer at call setup time.<br>If the IWF is the answerer of the call, it waits for an ODP for T400 seconds from the originator and if it receives during that time it sends an ADP pattern to the originator at the call setup time. Since both sides operate with different values of T400 timer, a higher value increases the chance of a successful call setup.<br>Changes to this attribute do not affect existing calls. |
| Values | Decimal (0.75..2.54) |
| Units | seconds |
| Default | 0.75 |

## ATTRIBUTE TdmaCs V42 t401AckTimer (t401)

| | |
|---|---|
| Access | Read: All<br>Write: Service |
| Description | This attribute specifies the maximum amount of time that the IWF waits for an acknowledgment before retransmitting a frame. Since information about the T401 timer is not carried in the Exchange Identification (XID) negotiations at call setup time, both sides operate with different timer values. The value for T401 depends on many factors, such as propagation delay or frame processing time. A frame is retransmitted up to N400 times if the timer T401 expires before an acknowledgment for a frame is actually received. The performance of the data link layer can be impacted by the value of this timer as retransmissions of frames occur on expiry of timer T401.<br>Changes to this attribute do not affect existing calls. |
| Values | Decimal (0.50..9.00) |
| Units | seconds |
| Default | 4.00 |

## ATTRIBUTE TdmaCs V42 t402AckDelayTimer (t402)

| | |
|---|---|
| Access | Read: All<br>Write: Service |
| Description | This attribute specifies the maximum amount of time that the IWF may wait following the receipt of any frame requiring a reply before it initiates transmission of an appropriate reply in order to ensure that the reply frame is received by the remote error-correcting entity prior to expiration of the T401 timer of the remote error-correcting entity. Since information about the T402 timer is not carried in the Exchange Identification (XID) negotiations at call setup, both sides operate with different timer values. If this timer expires, then the reply that would have been returned prior to its expiration is not sent. The performance of the data link layer can be impacted by the value of this timer as retransmissions of frames occur on expiry of timer T401. For better performance, a value of *t402AckDelayTimer* (T402) equal |

to half the value of *t401AckTimer* (T401) is recommended. Changes to this attribute do not affect existing calls.

Values: Decimal (0.25..4.50)

Units: seconds

Default: 2.00

### ATTRIBUTE TdmaCs V42 t403IdleProbeTimer (t403)

Access: Read: All
Write: Service

Description: This attribute specifies the maximum amount of time that the IWF allows to elapse without frames being exchanged. The link is permitted to remain idle with no frames being exchanged on the data link. Upon expiry of this timer, the IWF polls its peer for status. Since information about the T403 timer is not carried in the Exchange Identification (XID) negotiations at call setup time, both sides operate with different timer values.
Changes to this attribute do not affect existing calls.

Values: Decimal (30..90)

Units: seconds

Default: 60

### ATTRIBUTE TdmaCs V42 txN401FrameSize (txN401)

Access: Read: All
Write: Service

Description: This attribute specifies the maximum number of octets that can be carried in the information field of an Information (I) frame, Exchange Identification (XID) frame, and a Unnumbered Information (UI) frame from the IWF to the remote entity. The default value is 128 octets, and no XID negotiations required for *txN401FrameSize*. If the value for *txN401FrameSize* value is set to other than 128 octets, then XID frames are exchanged to negotiate a value. The value provided for *txN401FrameSize* sets up the bounds during XID negotiations. The IWF performs XID negotiations with this value as a minimum or maximum value. If a value greater than 128 is specified, then the IWF negotiates or

attempts to negotiate a value between the 128 (as a minimum) and the given value (as a maximum). If a value less than 128 is specified, then the IWF attempts to negotiate a value between the given value (as a minimum) and 128 (as a maximum). Any value can be specified as long as it is within the provisionable limits. However, a value equal to or close to 128 is recommended. Changes to this attribute do not affect existing calls.

Values: Decimal (1..255)

Units: octets

Default: 128

### ATTRIBUTE TdmaCs V42 rxN401FrameSize (rxN401)

Access: Read: All
Write: Service

Description: This attribute specifies the maximum number of octets that can be carried in the information field of an Information (I) frame, Exchange Identification (XID) frame, and a Unnumbered Information (UI) frame from the remote entity to the IWF. The default value is 128 octets, and no XID negotiations are required for *rxN401FrameSize*. If the value set for *rxN401FrameSize* is other than 128, XID frames are exchanged to negotiate a value. The value provided for *rxN401FrameSize* sets up the bounds during XID negotiations. The IWF performs XID negotiations with this value as a minimum or maximum value. If a value greater than 128 is specified, then the IWF attempts to negotiate for a value between 128 (as a minimum) and the given value (as a maximum). If a value less than 128 value is specified, then the IWF attempts to negotiate for a value between the given value (as a minimum) and 128 (as a maximum). Any value can be specified as long as it is within the provisionable limits. However, a value equal to or close to the default is recommended.
Changes to this attribute do not affect existing calls.

Values: Decimal (1..255)

Units: octets

Default: 128

### ATTRIBUTE TdmaCs V42 txKWindowSize (txK)

| | |
|---|---|
| Access | Read: All<br>Write: Service |
| Description | This attribute specifies the maximum number of outstanding unacknowledged sequenced Information (I) frames from the IWF to the remote entity. The default value is 15 frames, and if this value is used then no Exchange Identification (XID) negotiations are required for *txKWindowSize*. If the value set for *txKWindowSize* is other than 15, then XID frames are exchanged to negotiate a value. The value provided for *txKWindowSize* sets up the bounds during XID negotiations. The IWF performs XID negotiations with this value as a minimum or maximum value. If a value greater than 15 is specified, then the IWF attempts to negotiate a value between 15 (as a minimum) and the given value (as a maximum). If a value less than 15 is specified, then the IWF attempts to negotiate for a value between the given value (as a minimum) and 15 (as a maximum). Any value can be specified as long at it is within the provisionable limits. However, a value equal to or close to the default is recommended.<br>Changes to this attribute do not affect existing calls. |
| Values | Decimal (1..255) |
| Default | 15 |

### ATTRIBUTE TdmaCs V42 rxKWindowSize (rxK)

| | |
|---|---|
| Access | Read: All<br>Write: Service |
| Description | This attribute specifies the maximum number of outstanding unacknowledged sequenced Information (I) frames from the remote entity to the IWF. The default value is 15 frames, and if this value is used then no Exchange Identification (XID) negotiations are required for *rxKWindowSize*. If the value set for rxKWindowSize is other than 15, then XID frames are exchanged to negotiate a value. The value provided for *rxKWindowSize* sets up the bounds during XID negotiations. The IWF performs XID negotiations with this value as a minimum or maximum value. If a value greater than 15 is specified, then the IWF attempts to negotiate a value between 15 (as a minimum) and the given value |

(as a maximum). If a value less than 15 is specified, then the IWF attempts to negotiate for a value between the given value (as a minimum) and 15 (as a maximum). Any value can be specified as long as it is within the provisionable limits. However, a value equal to or close to the default is recommended.
Changes to this attribute do not affect existing calls.

Values: Decimal (1..255)

Default: 15

### ATTRIBUTE TdmaCs V42 n400RetransLimit (n400)

Access: Read: All
Write: Service

Description: This attribute specifies the maximum number of times the IWF retransmits a frame upon expiry of *t401AckTimer* before appropriate recovery action is taken. Information about N400 (Retransmission Limit) is not carried in the Exchange Identification (XID) negotiation at call setup time so both sides operate with different N400 values.
Changes to this attribute do not affect existing calls.

Values: Decimal (0..255)

Default: 1

### ATTRIBUTE TdmaCs V42 fcsLength

Access: Read: All
Write: Service

Description: This attribute specifies whether a 16 bit or a 32 bit Frame Check Sequence (FCS) will be used for the link between the IWF and the far end DCE. This attribute has one of the following values:
***fcs16***: Use only a 16 bit FCS.
***fcs32Or16***: 32 bit FCS is preferred; Use a 16 bit FCS if needed.
***fcs32Only***: Use only a 32 it FCS; If unavailable, drop the connection.

Values: fcs16
fcs32Or16
fcs32

| | |
|---|---|
| Default | fcs32Or16 |

## COMPONENT TdmaCs V42Bis

| | |
|---|---|
| Groups | "GROUP TdmaCs V42Bis Provisioned (Prov)" |
| Scope | Application |
| Description | *TdmaCs/<csIndex> V42bis*<br>This component represents an instance of ITU-T V.42bis data compression protocol. Its attributes specify various default settings for aspects of the V.42bis protocol, which may be used in an IWF call on the mobile station to IWF link or the IWF to PSTN modem link or both. |
| Common Verbs | Help<br>List<br>Display |

## GROUP TdmaCs V42Bis Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the V.42bis data compression protocol parameters used for the calls set up by this particular CallServer. Changes to these attributes do not affect existing calls. |

## ATTRIBUTE TdmaCs V42Bis p0CompressionDirection (p0)

| | |
|---|---|
| Access | Read: All<br>Write: Service |
| Description | This attribute specifies the V.42bis data compression direction to be supported. The value for compression direction is negotiated at link setup by the data link protocol by way of the Exchange Identification (XID) negotiation of parameter P0 (compression direction).<br>During XID negotiation of parameter P0, both sides (IWF and mobile or IWF and PSTN) agree on the compression direction. This attribute has one of the following values:<br>***noCompression***: No compression is present.<br>***compInitrResp***: The data sent by the IWF to the other entity is |

compressed.
***compRespInitr***: The data received by the IWF from the other entity is compressed.
***compBoth***: The data sent and received by the IWF is compressed.
Changes to this attribute do not affect existing calls.

Values
noCompression
compInitrResp
compRespInitr
compBoth

Default
compBoth

### ATTRIBUTE TdmaCs V42Bis p1MaximumCodewords (p1)

Access
Read: All
Write: Service

Description
This attribute specifies the maximum number of V.42bis codewords the IWF supports. A codeword is a binary number that represents a string of characters in compressed form. V.42bis keeps a dictionary of codewords for each compression direction. Changes to this attribute impact the compression ratio for the encoder (component *TdmaBc V42Bis* attribute *compRatioEncoder*). Changes also impact the amount of memory used (more memory is used when increasing the attribute). The gain in performance obtained from the selection of a larger dictionary may be offset by the larger codeword size needed, and for certain types of data, better performance may be obtained by using a smaller dictionary.
Changes to this attribute do not affect existing calls.

Values
Decimal (512..4096)

Default
512

### ATTRIBUTE TdmaCs V42Bis p2MaximumStringSize (p2)

Access
Read: All
Write: Service

Description
This attribute specifies the maximum number of characters allowed in a string represented by a codeword that the IWF supports. Each codeword in a V.42bis dictionary represents a

string of characters. Changes to this attribute impact the compression ratio for the encoder.
Changes to this attribute do not affect existing calls.

Values: Decimal (6..250)

Default: 6

### ATTRIBUTE TdmaCs V42Bis actionOnError (actOnErr)

Access: Read: All
Write: Service

Description: This attribute specifies whether or not V.42bis takes down the call or resets the link when any of the following errors occur:
1.Receipt of STEPUP (step up codeword size) codeword when it would cause C2 (current code word size) to exceed N1 (maximum code word size).
2. Receipt of a codeword, at any time, equal to C1 (next empty dictionary entry).
3. Receipt of a codeword representing an empty dictionary entry.
4. Receipt of a reserved command code.
5. Receipt of any other error.
If the value is ***resetLink***, the error corrected connection and V.42bis dictionaries are reset. Some data is lost but the call continues. If the value is ***takeDownCall***, the call is taken down.
Changes to this attribute do not affect existing calls.

Values: resetLink
takeDownCall

Default: resetLink

### COMPONENT TdmaCs LogicalProcessor (Lp)

Instance: Decimal (0..15)

Groups: "GROUP TdmaCs Lp Operational (Oper)"

Scope: Application

Description: *TdmaCs/<csIndex> Lp/n*
The *TdmaIwfLogicalProcessor* component represents an instance of a *TdmaIwfLogicalProcessor* that may be linked to this *TdmaIwfCallServer*. A *TdmaIwfBearerChannel* is indirectly

linked to this *TdmaIwfLogicalProcessor* by way of the *TdmaIwfFramer* component. This component must be added to the *TdmaIwfCallServer* (and the change activated) prior to adding the *TdmaIwfBearerChannel*(s). This component can only be provisioned for one *TdmaIwfCallServer.*

Common Verbs

Help
List
Display
Add
DELete

## GROUP TdmaCs Lp Operational (Oper)

Properties: Operational

Description: This group contains operational attributes pertaining to information about *TdmaIwfBearerChannels* and *TdmaIwfLogicalProcessor* associated with a *TdmaIwfCallServer* from a high-level view.

## ATTRIBUTE TdmaCs Lp configuredBearerChannels (configBc)

Access: Read: All
Write: Illegal

Description: This attribute indicates the number of *TdmaIwfBearerChannel* components provisioned for the *TdmaIwfLogicalProcessor* represented by this component.

Values: Decimal (0..124)

Default: No default

## ATTRIBUTE TdmaCs Lp activeCalls (actCalls)

Access: Read: All
Write: Illegal

Description: This attribute indicates the number of calls currently active on this *LogicalProcessor*.

Values: Decimal (0..124)

| | |
|---|---|
| Default | No default |

### ATTRIBUTE TdmaCs Lp modemsSupported (modemSup)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates if modems are supported with this *TdmaIwfLogicalProcessor*. This attribute has one of the following values:<br>***yes***: Modems are supported with this *TdmaIwfLogicalProcessor*.<br>***no***: Modems are not supported with this *TdmaIwfLogicalProcessor*. |
| Values | yes<br>no |
| Default | No default |

### ATTRIBUTE TdmaCs Lp fastConnectSupported (fcSup)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates if the FastConnect functionality is supported with this *TdmaIwfLogicalProcessor*. This attribute has one of the following values:<br>***yes***: FastConnect is supported with this *TdmaIwfLogicalProcessor*.<br>***no***: FastConnect is not supported with this *TdmaIwfLogicalProcessor*. |
| Values | yes<br>no |
| Default | No default |

### COMPONENT TdmaCs FastConnect (Fc)

| | |
|---|---|
| Groups | "GROUP TdmaCs Fc FcStatistics (FcStats)"<br>"GROUP TdmaCs Fc FcProvisioning (FcProv)" |
| Scope | Application |

| | |
|---|---|
| Description | *TdmaCs/<csIndex> FastConnect*<br>This component represents the TDMA IWF FastConnect functionality for this particular *TdmaIwfCallServer*. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP TdmaCs Fc FcStatistics (FcStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational attributes that measure data about FastConnect calls set up by this particular *TdmaIwfCallServer.* |

## ATTRIBUTE TdmaCs Fc currentCalls (currCall)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the active FastConnect calls currently serviced by this particular *TdmaIwfCallServer.* |
| Values | Decimal (0..2047) |
| Default | 0 |

## ATTRIBUTE TdmaCs Fc callsRequested (callsReq)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the IWF FastConnect call setup requests received at this particular *TdmaIwfCallServer* from the DMS-MTX. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE TdmaCs Fc callsSetUp (callsSet)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the IWF FastConnect calls successfully set up by this particular *TdmaIwfCallServer*. A call is considered set up when the IWF-Setup-Request message is received, indicating a request for a data communications service, and the IWF has successfully allocated the necessary resources to fulfill the request. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE TdmaCs Fc callsReleasedNormal (callsRlsdNor)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the IWF FastConnect calls that have completed successfully on this particular *TdmaIwfCallServer*. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE TdmaCs Fc callsReleasedAbnormal (callsRlsdAbnor)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the IWF FastConnect calls that have been released due to error conditions at this particular *TdmaIwfCallServer* or one if its *TdmaIwfBearerChannel*s. The MTX logs can indicate reasons for abnormal call releases. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## GROUP TdmaCs Fc FcProvisioning (FcProv)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisionable attributes for the TDMA IWF FastConnect feature. |

## ATTRIBUTE TdmaCs Fc fastConnectAccessCode (fcAc)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the digits that must be dialed at the mobile for this call to be identified as a FastConnect call. The dialed digits are used to identify a FastConnect call if the mobile does not support the Direct Async Data Service (DADS) service code. Up to ten access codes can be provisioned. |
| List of | BCD (1..15) |
| List Size | 10 |
| Default | No default |

Passport 7400, 15000, 20000

# Component TdmaCs

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component TdmaFcBc

241-5701-060

Passport 7400, 15000, 20000

# Component TdmaFcBc

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT TdmaIwfFcBearerChannel (TdmaFcBc)

| | |
|---|---|
| Instance | csIndex [Decimal (1..10)]<br>bcIndex [Decimal (1..14030)] |
| Groups | "GROUP TdmaFcBc Provision (Prov)"<br>"GROUP TdmaFcBc Operational (Oper)"<br>"GROUP TdmaFcBc CustomerIdentifierData (CidData)"<br>"GROUP TdmaFcBc OsiState (State)" |
| Scope | Application |
| Description | *TdmaIwfFcBearerChannel/<csIndex>,<bcIndex>*<br>This component represents an individual bearer channel resource for the network (LAN) side of a FastConnect call. If the call type requested is a FastConnect call, the *TdmaIwfCallServer* links one *TdmaIwfBearerChannel* and one *TdmaIwfFcBearerChannel* in a single DMS-MTX InterWorking Function (IWF) call.<br>The instance value *csIndex* is the logical identifier for the DMS-MTX and is used for associating the call server with this *TdmaIwfFcBearerChannel* instance.<br>The instance value *bcIndex* is the logical identifier for the *TdmaIwfFcBearerChannel*. It and the csIndex together define a unique *TdmaIwfFcBearerChannel*.<br><br>This component is specific to the ***tdmaIwfFastConnect*** feature of the ***tdmaIwf*** application. |

| | |
|---|---|
| Dyn. Subcomp. | "COMPONENT TdmaFcBc UpperRelay (Ur)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP TdmaFcBc Provision (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes of the *TdmaIwfFcBearerChannel* component. |

## ATTRIBUTE TdmaFcBc linkToLogicalProcessor (lp)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the link to the Logical Processor that this *TdmaIwfFcBearerChannel* is to use. |
| Values | Link (Hardware, linkToApplications) |
| Default | No default |

## GROUP TdmaFcBc Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational attributes concerning the operation of this particular *TdmaIwfBearerChannel* for the current or most recent call. |

## ATTRIBUTE TdmaFcBc state

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

Description

This attribute indicates the current state of the MSC/IWF Interface Protocol (MIP) Message Router (MMR) for an IWF element. This attribute has one of the following values:
***idle***: Startup state of IWF element.
***setup***: This call half is being set up.
***active***: This call half has been connected by both the MTX and IWF and is active.
***releas***e: This call half is being released.

Values

idle
setup
active
release

Default

No default

## ATTRIBUTE TdmaFcBc callType

Access

Read: All
Write: Illegal

Description

This attribute indicates the current call type. This attribute has one of the following values:
***analogSpeech***: Analog speech calls.
***digitalSpeech***: Digital speech calls.
***analogPrefSpeech***: Analog preferred speech calls.
***digitalPrefSpeech***: Digital preferred speech calls.
***asyncData***: Asynchronous data service calls.
***g3Fax***: Group 3 fax calls.
***rejected***: Rejected calls.
***stuIII***: STU III calls.
***notUsedYet***: Bearer Channel has not been used in a call yet.
***directAsyncData***: FastConnect or Direct Async Data Service (DADS) calls.

Values

analogSpeech
digitalSpeech
analogPrefSpeech
digitalPrefSpeech
asyncData
g3Fax
rejected

stuIII
notUsedYet
directAsyncData

Default: No default

## ATTRIBUTE TdmaFcBc lastResponseCode (respCode)

Access: Read: All
Write: Illegal

Description: This attribute indicates the MSC/IWF Interface Protocol (MIP) Message Router (MMR) response code returned for the last call which was active on this particular *TdmaIwfBearerChannel*. This attribute has one of the following values:
***noCause***: No cause available.
***unassignedNumber***: Unallocated or unassigned number.
***noRouteToDest***: No route to destination.
***normalClearing***: The call was terminated normally.
***userBusy***: User busy.
***noResponse***: No carrier.
***userNoAnswer***: No answer from user.
***invalidNumberFormat***: Translation or routing problem.
***unspecNormal***: Normal, unspecified.
***temporaryFailure***: Temporary failure.
***channelUnavailable***: Channel unavailable.
***resourceUnavailable***: Resources unavailable to handle call.
***qosUnavailabled***: Specified rate of call unavailable.
***serviceUnavailable***: Service not implemented.
***unimplementedOption***: Option not implemented.
***invalidCallRefValue***: Invalid call reference value.
***invalidChannel***: Identified channel does not exist.
***unspecInvalidMessage***: Invalid message, unspecified.
***missingMandatoryIe***: Missing mandatory information element.
***invalidMessageType***: Message type not implemented.
***incompatibleMessage***: Message not compatible with call state.
***timerRecovery***: Recovery on timer expiration.
***protocolError***: Protocol error, unspecified.

Values: noCause
unassignedNumber

noRouteToDest
normalClearing
userBusy
noResponse
userNoAnswer
invalidNumberFormat
unspecNormal
temporaryFailure
channelUnavailable
resourceUnavailable
qosUnavailable
serviceUnavailable
unimplementedOption
invalidCallRefValue
invalidChannel
unspecInvalidMessage
missingMandatoryIe
invalidMessageType
incompatibleMessage
timerRecovery
unspecProtocolError

Default: No default

### ATTRIBUTE TdmaFcBc mateBearerChannel (mateBc)

Access: Read: All
Write: Illegal

Description: This attribute contains the name of the mate *TdmaIwfBearerChannel* that this *TdmaIwfBearerChannel* is involved with in the currently active call. In the case of a FastConnect call, this mate is a *TdmaIwfFcBearerChannel*.

Values: The name of the component

Default: No default

### GROUP TdmaFcBc CustomerIdentifierData (CidData)

Properties: Provisioned

Description This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs.

### ATTRIBUTE TdmaFcBc customerIdentifier (cid)

Access Read and write

Description This attribute holds the Customer Identifier (CID).

Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.

Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.

An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to "basic CIDs" in DPN) may be assigned to specific customers.

Values Decimal (0; 1..8191)

Default 0

### GROUP TdmaFcBc OsiState (State)

Properties Operational

Description This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE TdmaFcBc adminState (osiAdmin)

Access Read only

Description

This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values

locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default

unlocked

## ATTRIBUTE TdmaFcBc operationalState (osiOper)

Access

Read only

Description

This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values

enabled (ena)
disabled (dis)

Default

disabled

## ATTRIBUTE TdmaFcBc usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

## COMPONENT TdmaFcBc UpperRelay (Ur)

| | |
|---|---|
| Groups | "GROUP TdmaFcBc Ur Operational (Oper)"<br>"GROUP TdmaFcBc Ur Statistics (Stats)" |
| Scope | Application |
| Description | *TdmaBc/<csIndex>,<bcIndex> UpperRelay*<br>This component represents the group of measurements for the Upper Relay function established for each half of a DMS-MTX IWF asynchronous data or fax call (internally between the two *TdmaIwfBearerChannel*s involved in a call) from this particular *TdmaIwfBearerChannel* perspective. |
| Common Verbs | Help<br>List<br>Display |

## GROUP TdmaFcBc Ur Operational (Oper)

| | |
|---|---|
| Properties | Operational |

| | |
|---|---|
| Description | This group contains operational attributes that measure the performance of the *UpperRelay*. |

### ATTRIBUTE TdmaFcBc Ur rxBufferSize

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the size of the receive flow control buffer. This attribute may be viewed via *TdmaBc/*,*,*,* UpperRelay*. |
| Values | Decimal (0..65535) |
| Default | No default |

### ATTRIBUTE TdmaFcBc Ur txFlowControlState (txFlowControl)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates whether the transmit flow control is active or not. This attribute has one of the following values:<br>***active***: The transmit flow control is active.<br>***inactive***: The transmit flow control is inactive.<br>This attribute may be viewed via *TdmaBc/*,*,*,* UpperRelay*. |
| Values | active<br>inactive |
| Default | No default |

### ATTRIBUTE TdmaFcBc Ur rxFlowControlState (rxFlowControl)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates whether the receive flow control is active or not. This attribute has one of the following values:<br>***active***: The receive flow control is active.<br>***inactive***: The receive flow control is inactive.<br>This attribute may be viewed via *TdmaBc/*,*,*,* UpperRelay*. |
| Values | active<br>inactive |
| Default | No default |

## GROUP TdmaFcBc Ur Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational attributes that measure the performance of the *UpperRelay*. |

## ATTRIBUTE TdmaFcBc Ur txFrames

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of frames that are sent in the transmit direction. The counter wraps when it exceeds the maximum value.<br>The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## ATTRIBUTE TdmaFcBc Ur rxFrames

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of frames that are sent in the receive direction.<br>The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## ATTRIBUTE TdmaFcBc Ur unacknowledgedFrames (unackFrm)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the current number of frames sent that have not been acknowledged for this instance of the UpperRelay.<br>The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## ATTRIBUTE TdmaFcBc Ur cumUnacknowledgedFrames (cUnackFrm)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute is the total number of unacknowledged frames for this instance of the UpperRelay. It is not reset when a new call starts. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

Passport 7400, 15000, 20000

# Component TdmaFcBc

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component Time

241-5701-060

Passport 7400, 15000, 20000

# Component Time

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT Time (Time)

| | |
|---|---|
| Groups | "GROUP Time Operational (Oper)" |
| Scope | Device |
| Description | *Time*<br>The *Time* component provides access to time and date information on this module. It has operational attributes and optional provisionable *Server* subcomponents. |
| Opt. Subcomp. | "COMPONENT Time Server" |
| Common Verbs | Help<br>List<br>Display |

## GROUP Time Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes of the *Time* component. |

## ATTRIBUTE Time syncStatus

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the XNTP (Network Time Protocol) synchronization status of this module. If the value is ***synchronized*** or ***synchronizing***, the *syncSource* attribute indicates the IP address of the main network time server.<br>The values have the following meanings:<br>***synchronized*** -- The module is synchronized with the network time server. |

***unsynchronized*** -- There is no network time server selected as XNTP server for the module to synchronize its time with.
***synchronizing*** -- The module is trying to synchronize with the network time server.
***unknown*** -- The synchronization status of the module is unknown.

Values
synchronized
unsynchronized
synchronizing
unspecified

Default
No default

### ATTRIBUTE Time moduleTime

Access
Read and write

Description
This attribute indicates the current date and time on this module. The *moduleTime* is obtained by adding an offset to the reference time, which is the Universal Time Coordinated (UTC). When the *moduleTime* is set, it keeps the value even if the card boots. It is the time used for time stamps, such as in alarms and accounting data. The operator resets the current date and time by setting this attribute when *syncStatus* is ***unsynchronized***. Setting this attribute is not allowed if *syncStatus* is ***synchronized*** or ***synchronizing***.

Values
Time (DHMS)

Default
No default

### ATTRIBUTE Time mainServer

Access
Read only

Description
This attribute indicates the IP address of the main network time server that this module synchronizes with. If *syncStatus* is ***unsynchronized,*** then *mainServer* is 0.0.0.0.

Values
IP address

Default
No default

### ATTRIBUTE Time xntpVersion

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current protocol version of XNTP running on this module. |
| Values | Decimal (0..15) |
| Default | No default |

### ATTRIBUTE Time offset

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the number of minutes to be added to the reference time, which is Universal Coordinated Time (UTC), to obtain the *moduleTime*. It keeps its value even if the card reboots. However, if the node is powered-off for an extended period of time, it may reset to the default value. |
| Values | Signed (-720..900) |
| Units | minutes |
| Default | 0 |

### ATTRIBUTE Time syncSources

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the IP addresses of the network time servers that this module synchronizes with. XNTP uses the clock values of the network time servers to set its *moduleTime*. |
| List of | IP address |
| Default | No default |

### COMPONENT Time Server

| | |
|---|---|
| Instance | Decimal (1..10) |
| Groups | "GROUP Time Server Provisioned (Prov)"<br>"GROUP Time Server OsiState (State)"<br>"GROUP Time Server Operational (Oper)" |

| | |
|---|---|
| Scope | Device |
| Description | *Time Server/n*<br>The *Server* component represents a single network time server that this module can use for network time synchronization. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP Time Server Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes of the *Server* component. |

## ATTRIBUTE Time Server ipAddress (ipAddr)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the IP address of a network time server that the module will attempt to synchronize with. The value of *ipAddress* must be unique across all *Server* components. |
| Values | IP address |
| Default | No default |

## ATTRIBUTE Time Server ipStack

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the IP stack that XNTP uses to communicate with the network time server. If ***ipiFrIpiVc*** is selected, then an *IpiFr* or *IpiVc* component must be provisioned on this module. |

If ***vrIp*** is selected, then *Ip* must be provisioned under the management *Vr* on this module.

Values
ipiFrIpiVc
vrIp

Default
ipiFrIpiVc

## GROUP Time Server OsiState (State)

Properties
Operational

Description
This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

## ATTRIBUTE Time Server adminState (osiAdmin)

Access
Read only

Description
This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

| | |
|---|---|
| Default | unlocked |

### ATTRIBUTE Time Server operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Time Server usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

## GROUP Time Server Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes of the *Server* component. |

## ATTRIBUTE Time Server xntpVersion

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the version of XNTP currently in use by the network time server. |
| Values | Decimal (0..15) |
| Default | No default |

## ATTRIBUTE Time Server stratum

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the stratum level of the clock on the network time server. |
| Values | Decimal (0..16) |
| Default | No default |

## ATTRIBUTE Time Server poll

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the time interval for the Passport module to poll the network time server for time synchronization. |
| Values | Decimal (0..15) |
| Default | No default |

## ATTRIBUTE Time Server pktSent

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the packets sent to the network time server. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Time Server pktRecv

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the packets received from the network time server, including the invalid packets. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Time Server pktValid

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the valid packets received from the network time server. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Time Server status

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the status of the network time server.<br>***main*** -- This network time server is working properly, and is the system servers (synchronization sources) of the module.<br>***primary*** -- This network time server is working properly, and is the primary servers (one of the synchronization sources) of the module<br>***secondary*** -- This network time server is working properly, but its offset and dispersion is not stable or too high so that it can not be selected as one of the primary time synchronization sources. But if the primary synchronization sources are not available, it can take over the responsibility and become the time synchronization source of the module.<br>***unused*** -- This network time server is not used as a server (synchronization source) of the module.<br>***noResponse*** -- This network time server is not responding to the module's time synchronization request. This could be caused by network error or protocol error, or network time server |

configuration error.
***stratumTooHigh*** -- This network time server has the bad stratum (higher than 16), or its stratum is higher than the module's stratum.
***leapUnsync*** -- This network time server's leap value indicates that this network time server is not synchronized.
***clockUnsync*** -- This network time server's clock values indicates that this network time server is not synchronized.
***rootTooNoisy*** -- This network time server's root dispersion is too high, so that its time stamp is not used.
***peerTooNoisy*** -- The modules dispersion relative to this network time server is too high, so this network time server's time stamp is not used.
***faultStick*** -- This offset of the module relative to this network time server is out of the range or too high, so that it can not be selected as one of the primary time synchronization source.

Set of

main
primary
secondary
unused
noResponse
stratumTooHigh
leapUnsync
clockUnsync
rootTooNoisy
peerTooNoisy
faultStick

Default

No default

Passport 7400, 15000, 20000

# Component Time

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component Trk

241-5701-060

Passport 7400, 15000, 20000

# Component Trk

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT Trunk (Trk)

| | |
|---|---|
| Instance | Decimal (0..65535) |
| Groups | "GROUP Trk IfEntryProv (IfEntry)"<br>"GROUP Trk Provisioned (Prov)"<br>"GROUP Trk Overrides"<br>"GROUP Trk OsiState (State)"<br>"GROUP Trk OperationalStatus (OperStatus)"<br>"GROUP Trk Operational (Oper)"<br>"GROUP Trk Transport"<br>"GROUP Trk Statistics (Stats)"<br>"GROUP Trk SpeedReporting" |

"COLLECTED STATS Trunk"

| | |
|---|---|
| Scope | Network |
| Description | *Trunk/n*<br>The *Trunk* component provides a Passport to Passport connection. It controls a protocol stack associated with a logical port on a function processor that provides an interconnection to another Passport with a *Trunk* component.<br>It requires the existence of the *Routing* component. Note that ***dpnRouting*** also needs to be included in the *featureList* of CP's *LogicalProcessorType* component.<br>Either an *AtmAccess*, *MplsAccess*, or *Unacknowledged* subcomponent must be added to provide the underlying link protocol and associated hardware that the *Trunk* will use. |

| | |
|---|---|
| Opt. Subcomp. | "COMPONENT Trk UnAcked (UnAcked)"<br>"COMPONENT Trk AtmAccess (Atm)"<br>"COMPONENT Trk PathAdmin (Pa)"<br>"COMPONENT Trk Address (Addr)" |
| Dyn. Subcomp. | "COMPONENT Trk LogicalChannel (LCh)"<br>"COMPONENT Trk PorsStatistics (PorsStats)"<br>"COMPONENT Trk ForwardingStatistics (FwdStats)"<br>"COMPONENT Trk DprsStatistics (DprsStats)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>Unlock |

## VERB LOCK Trk

| | |
|---|---|
| Impact | Service |
| Description | *Lock [-force][-forever] <component name>*<br>This verb causes the specified component to enter the OSI ***shuttingDown*** administrative state. While shutting down, the component continues to provide service to existing clients but rejects any new requests for service. In some cases, locking a component causes all its subcomponents to shut down also.<br><br>When the component is no longer providing service, it enters the OSI ***locked*** administrative state.<br><br>**Options:**<br>*-force*<br>If this option is present, service to current clients is terminated and the ***locked*** state is entered immediately (that is, without first going through the ***shuttingDown*** state). Without this option, *Lock* behaves as described above.<br>*-forever*<br>If this option is present, then after service to current clients is terminated and the ***locked*** state is entered, an unlock command is required to get the service into the ***unlocked*** state. Without this option, the service automatically returns to the ***unlocked*** state after five minutes. |

## GROUP Trk IfEntryProv (IfEntry)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the ifEntry. |

## ATTRIBUTE Trk ifAdminStatus (ifState)

| | |
|---|---|
| Access | Read and write |
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed. |

| | |
|---|---|
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE Trk ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP Trk Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group of attributes provides the parameters used by the layer 3 *Trunk* to *Trunk* staging protocol. |

### ATTRIBUTE Trk expectedRemoteNodeName (expectedRemote)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the expected node name of the module to which this *Trunk* is connected. Once entered, the node name must correspond to the *Mod nodeName* attribute of the remote node. The *Trunk* end points exchange their node name through the *Trunk* staging protocol. The staged value is validated and the *remoteValidationAction* will be executed for those values not matching the value supplied for this attribute.<br>If this attribute is an empty string, then the comparison is always successful. |
| Values | String (0..12, ASCII) |
| Default | No default |

### ATTRIBUTE Trk remoteValidationAction (validation)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the action to be taken if there is a mismatch between the *expectedRemoteNodeName* attribute and the value received from the remote end. The *remoteValidationAction* determines the action when a value is supplied to the *expectedRemoteNodeName* attribute. If this attribute is provisioned to ***continue*** then upon an unsuccessful validation staging continues, otherwise, if ***disable*** is set then the *Trunk* does not continue to stage but, attempts to stage again after a one minute time out.<br>All unsuccessful validation when the *expectedRemoteNodeName* has been set result in the generation of an alarm. |
| Values | continue<br>disable |
| Default | continue |

### ATTRIBUTE Trk maximumExpectedRoundTripDelay (maxRtd)

| | |
|---|---|
| Access | Read and write |
| Description | This is the maximum round trip delay value used by the Trunk staging protocol, in conjunction with *measuredSpeedToIf*, to determine if it has taken too long to successfully stage with a remote Trunk. The value specified must be larger than the *measuredRoundTripDelay* or the Trunk may not successfully stage. |
| Values | Decimal (1..1500) |
| Units | msec |
| Default | 1500 |

### ATTRIBUTE Trk idleTimeOut

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the Trunk protocol idle time out duration in units of seconds. If the local Trunk does not receive any packets from the link for the period specified by this attribute, the |

| | |
|---|---|
| | Trunk enters Are You There (AYT) mode for up to two seconds. If the Trunk does not receive any packets from the remote during the AYT mode it will restage; otherwise, it exits AYT mode and continues to provide service. |
| Values | Decimal (2..30) |
| Units | seconds |
| Default | 4 |

### GROUP Trk Overrides

| | |
|---|---|
| Properties | Provisioned |
| Description | Theses attribute comprise the set of provisionable override parameters supported by both the *Trunk* and *DpnGateway* components. The attributes are used when reporting operational attributes (used for metric calculations) to the routing system. |

### ATTRIBUTE Trk overrideTransmitSpeed (ots)

| | |
|---|---|
| Access | Read and write |
| Description | This is the overridden value of link speed (bit/s) that, if staged successfully with the remote, is reported to the routing system for metric calculations. A zero indicates that an override value has not been provided and that only the measured value will be reported to the routing system.<br>If this value is changed on a *Trunk* or *DpnGateway* that is enabled, the LOCK and UNLOCK commands must be issued to the component to restage the override with the remote. |
| Values | Decimal (0; 1000..4294967295) |
| Units | bit/s |
| Default | 0 |

### ATTRIBUTE Trk overrideRoundTripDelay (ortd)

| | |
|---|---|
| Access | Read and write |
| Description | This is the overridden value of link delay (ms) that, if staged successfully with the remote, is reported to the routing system for metric calculations. A zero indicates that an override value has |

not been provided and that only the measured value will be reported to the routing system.
If this value is changed on a *Trunk* or *DpnGateway* that is enabled, the LOCK and UNLOCK commands must be issued to the component to restage the override with the remote.

| | |
|---|---|
| Values | Decimal (0.0..1500.0) |
| Units | msec |
| Default | 0.0 |

### GROUP Trk OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Trk adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Trk operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Trk usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has

spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
idle
active (activ)
busy

Default
idle

### ATTRIBUTE Trk availabilityStatus (osiAvail)

Access
Read only

Description
If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.

The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.

The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.

The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.

The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Trk proceduralStatus (osiProc)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.<br><br>The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.<br><br>The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.<br><br>The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.<br><br>The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***. |

| | |
|---|---|
| Set of | initializationRequired (initRq)<br>notInitialized (notInit)<br>initializing (init)<br>reporting (report)<br>terminating (term) |
| Default | No default |

### ATTRIBUTE Trk controlStatus (osiCntrl)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.<br><br>The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.<br><br>The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.<br><br>The value ***suspended*** indicates that the service has been administratively suspended. |
| Set of | subjectToTest (subTst)<br>partOfServicesLocked (partLk)<br>reservedForTest (rsrvd)<br>suspended (suspnd) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Trk alarmStatus (osiAlarm)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.<br><br>The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.<br><br>The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.<br><br>The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.<br><br>The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component. |
| Set of | underRepair (repair)<br>critical (crit)<br>major<br>minor<br>alarmOutstanding (outst) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Trk standbyStatus (osiStby)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Standby status of the component.<br><br>The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.<br><br>The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.<br><br>The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.<br><br>The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource. |
| Values | hotStandby (hot)<br>coldStandby (cold)<br>providingService (serv)<br>notSet (nSet) |
| Default | notSet |

### ATTRIBUTE Trk unknownStatus (osiUnknw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Unknown status of the component. |

The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.

The value ***true*** indicates that the actual state of the component is not known for sure.

Values
false
true

Default
false

### GROUP Trk OperationalStatus (OperStatus)

Properties
Operational

Description
This group includes the Operational Status attribute. This attribute defines the current operational state of this component.

### ATTRIBUTE Trk snmpOperStatus

Access
Read only

Description
The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed.

Values
up
down
testing

Default
up

### GROUP Trk Operational (Oper)

Properties
Operational

Description
This is the group of operational attributes supported by the *Trunk*.

### ATTRIBUTE Trk remoteComponentName (remote)

Access
Read only

Description
This is the component name of the remote end which it has supplied through the *Trunk* staging protocol.

| | |
|---|---|
| Values | String (1..27, ASCII) |
| Default | No default |

### GROUP Trk Transport

| | |
|---|---|
| Properties | Operational |
| Description | This group of attributes contains the set of operational parameters measured and maintained by both the *Trunk* and *DpnGateway* components. |

### ATTRIBUTE Trk measuredSpeedToIf (spd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current “transmittable” bandwidth of the underlying facility.<br>For a *Trunk* with a *Unack* subcomponent, and a *DpnGateway* with a *Utp* subcomponent, if a serial port is used, the value is the measured transmit speed of the port; if a channelized port (E1/DS1) is used, the value is the measured transmit speed of the *Channel*.<br>For a *Trunk* with an *AtmAccess* subcomponent, the value is calculated by converting the VCC transmit cell rate to an equivalent bit rate. The VCC transmit cell rate is determined based on the *vccReportingBw* attribute of the *Trunk AtmAccess* component. If *vccReportingBw* has a value of ***pcr*** and attribute *bwElastic* of *AtmAccess* has a value of ***no***, the peak cell rate (PCR) of the VCC, defined in *txTrafficDescParm* of *AtmIf Vcc Vcd*, is used. If *vccReportingBw* has a value of ***pcr*** and attribute *bwElastic* of *AtmAccess* has a value of ***yes***, the minimum of the PCR, defined in *txTrafficDescParm* of *AtmIf Vcc Vcd*, and the current cell rate (CCR) of the VCC is used. If *vccReportingBw* has a value of ***acr***, the best measurement of the actual cell rate (ACR) of the VCC is used, which is the minimum of the PCR, the CCR and the actual shaping rate (ASR).<br>For a *Trunk* with an *MplsAccess* subcomponent, the value is the transmit bandwidth reserved on the MPLS transport *Lsp*.<br>For a *DpnGateway* with a *FrAccess* subcomponent, the value indicates the *committedInformationRate* of *FrAccess FrMuxSetup*. |

| | |
|---|---|
| | A value of zero is displayed when the underlying facility is disabled or the current “transmittable” bandwidth is unknown. |
| Values | Decimal (0..4294967295) |
| Units | bit/s |
| Default | 0 |

### ATTRIBUTE Trk maxTxUnit (mtu)

| | |
|---|---|
| Access | Read only |
| Description | This is the maximum transmission unit (byte size) that is supported by the *Trunk* or *DpnGateway* component. This size includes the data and routing headers. A value of zero indicates the MTU has not yet been determined. |
| Values | Decimal (0..65535) |
| Units | bytes |
| Default | 0 |

### ATTRIBUTE Trk measuredRoundTripDelay (rtd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the measured Round Trip Delay (msec) discovered with the remote through the *Trunk* and *DpnGateway* staging protocols. The value includes emission, propagation, and queuing delays. A 512 byte data packet is used to perform the measurement. A value of zero is displayed when the link is disabled or the measured Round Trip Delay is unknown. |
| Values | Decimal (0.0..1500.0) |
| Units | msec |
| Default | 0.0 |

### GROUP Trk Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | These attributes comprise the statistics collected by the *Trunk* component. |

### ATTRIBUTE Trk areYouThereModeEntries (ayt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times that the component has entered Are You There mode. This counter wraps around to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Trk pktFromIf (pkt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of packets received from the remote module. It does not include the packets received from the interrupting queue. This counter wraps around to zero when the maximum value is exceeded. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Trk trunkPktFromIf (trk)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of internal trunk protocol packets (including those from the interrupting queue) received from the remote module. These packets are forwarded to the *Trunk* component. This counter wraps around to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Trk trunkPktToIf (trkti)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of internal trunk protocol packets (including those through the interrupting queue) |

| | |
|---|---|
| | transmitted to the remote module. This counter wraps around to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Trk discardUnforward (disc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of packets received from the remote module that have been discarded. It does not include the packets received from the interrupting queue that have been discarded. This counter wraps around to zero when the maximum value is exceeded. Two main reasons that cause this counter to increase are:<br>(1) the remote protocol is not compatible with the local protocol stack or,<br>(2) the packet cannot be forwarded due to a recent loss of connectivity or due to congestion. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Trk discardTrunkPktFromIf (discTrk)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of internal trunk protocol packets (including those on the interrupting queue) received from the remote module that have been discarded. This counter wraps around to zero when the maximum value is exceeded. The three main reasons that cause this counter to increase are:<br>(1) the two Trunks are not synchronized,<br>(2) the remote trunk protocol is not the same version as the local protocol, and<br>(3) the remote trunk has restaged. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Trk intPktFromIf (intPkt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of packets received on the interrupting queue from the remote module. This counter wraps around to zero when the maximum value is exceeded. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Trk discardIntUnforward (discInt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of packets received on the interrupting queue from the remote module that have been discarded. This counter wraps around to zero when the maximum value is exceeded. Two main reasons that cause this counter to increment are:<br>(1) the remote protocol is not compatible to the local protocol stack and,<br>(2) the packet cannot be forwarded due to either a recent loss of connectivity or due to congestion. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Trk stagingAttempts (statt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times that the staging protocol has attempted to stage with the remote module. This counter wraps around to zero when the maximum value is exceeded. The main reason that causes this counter to increment is that the local hardware is up but, the local protocol cannot stage with the remote protocol due to a faulty connection. If the value is zero, then the local hardware has never enabled successfully. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Trk discardTrunkPktToIf (discTrkti)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of internal trunk protocol packets (including those through the interrupting queue) that have been discarded before being transmitted to the remote module. This counter wraps around to zero when the maximum value is exceeded. The main reason that causes this counter to increment is that the trunk can not get sufficient resources to create an internal trunk protocol packet. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Trk utilization (util)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the average trunk utilization.<br><br>For a *Trunk/n* with an *Unack* subcomponent, the value is the link receive utilization. It is calculated every minute by comparing the number of octets received from the remote module against the value of the *Trunk/n measuredSpeedToIf*. Since the trunk application solely owns the physical link, the maximum link utilization is 100%.<br><br>For a *Trunk/n* with an *AtmAccess* subcomponent, the value is the VCC(s) transmit utilization. It is calculated every 30 seconds by comparing the number of cells transmitted by *AtmIf Vcc(s)* against the value of the *Trunk/n measuredSpeedToIf*. The VCCs include the trunk VCC indicated by *atmConnection* of *Trunk/n AtmAccess* and the PORS SPO (Short Path Oriented) multiplexing VCC if applicable. The PORS SPO multiplexing VCC only applies to a *Trunk/n* with subcomponents *Pa AtmAccess*, where the *mode* of *AtmAccess* is ***multiplexing***, and the *AtmAccess* is linked to a second VCC indicated by *atmConnection* of *Pa AtmAccess*. Since the trunk application shares a physical link with other applications, the VCCs |

utilization can exceed 100%, and the value 200% is chosen as the maximum calculated utilization.

For a *Trunk/n* with an *MplsAccess* subcomponent, the value is the receive utilization. It is calculated every 30 seconds by comparing the number of octets received from the remote module against the value of the *Trunk/n measuredSpeedToIf*. Since the trunk application shares a physical link with other applications, utilization can exceed 100%, and the value 200% is chosen as the maximum calculated utilization.

| | |
|---|---|
| Values | Decimal (0..200) |
| Units | % |
| Default | No default |

### ATTRIBUTE Trk pktFromIfByPrio (pktBp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of packets received by the *Trunk*. It is a vector indexed by the emission priorities (*ep0*, *ep1*, and *ep2*) of the packets. The highest emission priority is *ep0*. These counters wrap around to zero when the maximum value is exceeded. |
| Vector of | Long Integer |
| Index | ep0<br>ep1<br>ep2 |
| Default | No default |

### ATTRIBUTE Trk discPktFromIfByPrio (discBp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of packets received from the remote module that have been discarded. It is a vector indexed by the emission priorities (*ep0*, *ep1* and *ep2*) of the packets. The highest emission priority is *ep0*. These counters wrap around to zero when the maximum value is exceeded.<br>Two main reasons that cause this counter to increment are: |

| | |
|---|---|
| | (1) the remote protocol is not compatible to the local protocol stack and,<br>(2) the packet cannot be forwarded due to either a recent loss of connectivity or due to congestion. |
| Vector of | Long Integer |
| Index | ep0<br>ep1<br>ep2 |
| Default | No default |

### ATTRIBUTE Trk octetFromIfByPrio (octBp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the octets coming from the remote module which are received by the Trunk. It is a vector indexed by the emission priorities (*ep0*, *ep1* and *ep2*) of the packets. The highest emission priority is *ep0*. These counters wrap around to zero when the maximum value is exceeded. |
| Vector of | Long Integer |
| Index | ep0<br>ep1<br>ep2 |
| Default | No default |

### GROUP Trk SpeedReporting

| | |
|---|---|
| Properties | Provisioned |
| Description | This group of provisionable attributes provides the ability to disable or enable the generation of speed change alarms by the *Trunk* component. It also provides the ability to disable or enable the Dynamic Speed Reporting mechanism. |

### ATTRIBUTE Trk speedReportingHoldOff (spdHO)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the hold off time for reporting speed increases. When the *measuredSpeedToIf* reaches a level specified |

| | |
|---|---|
| | by the *speedReportingThresholds* attribute, the value specifies the duration (in units of seconds) for which the *measuredSpeedToIf* must maintain that level before it will be reported. |
| Values | Decimal (1..1200) |
| Units | seconds |
| Default | 30 |

### ATTRIBUTE Trk lowSpeedAlarmThreshold (lowAla)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the lower end of the range of normal speeds for this Trunk. If the *measuredSpeedToIf* drops below this value the *Trunk* component generates a SET alarm. When the *measuredSpeedToIf* reaches or exceeds the value of this attribute, the *Trunk* component will generate a CLEAR alarm. |
| Values | Decimal (0; 1..4294967295) |
| Units | bit/s |
| Default | 0 |

### ATTRIBUTE Trk highSpeedAlarmThreshold (hiAla)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the upper end of the range of normal speeds for this Trunk. If the *measuredSpeedToIf* exceeds this value the *Trunk* component generates a SET alarm. When the *measuredSpeedToIf* returns to or falls below the value of this attribute, the *Trunk* component will generate a CLEAR alarm. |
| Values | Decimal (1..4294967295) |
| Units | bit/s |
| Default | 4294967295 |

### ATTRIBUTE Trk speedReportingThresholds (spdTh)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute controls the behavior of the Dynamic Speed Reporting mechanism. If its value is empty then the mechanism is disabled and neither increases nor decreases are reported. Otherwise, the attribute may contain up to seven threshold levels which are used to control the reporting of speed increases. Speed decreases are always reported immediately. If the *measuredSpeedToIf* increases such that it reaches one of the threshold levels which is greater than the last reported speed, the Trunk starts the *speedReportingHoldOff* timer. If the speed remains above this threshold until the timer expires, the *Trunk* component then reports the *measuredSpeedToIf*; otherwise the increase is not reported. |
| List of | Decimal (0..4294967295) |
| Units | bit/s |
| List Size | 7 |
| Default | No default |

# COLLECTED STATS Trunk

| | |
|---|---|
| Description | The statistics record generated by the Trunk component. |

### ATTRIBUTE Trk remoteComponentName (remote)

| | |
|---|---|
| Description | This attribute is the component name of the remote end which it has supplied through the *Trunk* staging protocol. |
| Values | String (1..26, ASCII) |

### ATTRIBUTE Trk measuredSpeedToIfMax

| | |
|---|---|
| Description | This is the maximum measured transmit speed (bit/s) of the link. A value of zero is provided when the link is disabled for the whole interval or the measured speed is unknown. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Trk measuredSpeedToIfMin

| | |
|---|---|
| Description | This is the minimum measured transmit speed (bit/s) of the link. A value of zero is provided when the link is disabled for any part of the interval or the measured speed is unknown. |

Values Decimal (0..4294967295)

### ATTRIBUTE Trk measuredSpeedToIfCurrent

Description This is the current measured transmit speed (bit/s) of the link. A value of zero is provided when the link is disabled or the measured speed is unknown.

Values Decimal (0..4294967295)

### ATTRIBUTE Trk measuredRoundTripDelayMax

Description This is the maximum measured Round Trip Delay (ms) discovered with the remote through the *Trunk* staging protocols. A value of zero is provided when the link is disabled for the whole interval or the delay is unknown.

Values Decimal (0..1500)

### ATTRIBUTE Trk measuredRoundTripDelayMin

Description This is the minimum measured Round Trip Delay (ms) discovered with the remote through the *Trunk* staging protocols. A value of zero is provided when the link is disabled for any part of the interval or the delay is unknown.

Values Decimal (0..1500)

### ATTRIBUTE Trk measuredRoundTripDelayCurrent

Description This is the measured Round Trip Delay (ms) discovered with the remote through the *Trunk* staging protocols. A value of zero is provided when the link is disabled or the delay is unknown.

Values Decimal (0..1500)

### ATTRIBUTE Trk porsNormPktFromIf (normPkt)

Description This attribute counts the number of normal priority packets received on the PORS *Trunk* normal priority queue in the last statistics collection interval.

Values Long Integer

### ATTRIBUTE Trk porsNormDiscUnforwardFromIf (normDisc)

| | |
|---|---|
| Description | This attribute counts the number of normal priority packets discarded from the PORS *Trunk* normal priority queue in the last statistics collection interval. |
| Values | Long Integer |

### ATTRIBUTE Trk porsNormOctetFromIf (normOctet)

| | |
|---|---|
| Description | This attribute counts the number of normal priority bytes received on the PORS *Trunk* normal priority queue in the last statistics collection interval. |
| Values | Long Integer |

### ATTRIBUTE Trk porsIntPktFromIf (intPkt)

| | |
|---|---|
| Description | This attribute counts the number of interrupting priority packets received on the PORS *Trunk* interrupting priority queue in the last statistics collection interval. |
| Values | Long Integer |

### ATTRIBUTE Trk porsIntDiscUnforwardFromIf (intDisc)

| | |
|---|---|
| Description | This attribute counts the number of interrupting priority packets discarded from the PORS *Trunk* interrupting priority queue in the last statistics collection interval. |
| Values | Long Integer |

### ATTRIBUTE Trk porsIntOctetFromIf (intOctets)

| | |
|---|---|
| Description | This attribute counts the number of interrupting priority bytes received on the PORS *Trunk* interrupting priority queue in the last statistics collection interval. |
| Values | Long Integer |

### ATTRIBUTE Trk remoteComponentName (remote)

| | |
|---|---|
| Description | This attribute is the component name of the remote end which it has supplied through the *Trunk* or *DpnGateway* staging protocol. |
| Values | String (1..26, ASCII) |

### ATTRIBUTE Trk measuredSpeedToIfMax

| | |
|---|---|
| Description | This is the maximum measured transmit speed (bit/s) of the link. A value of zero is provided when the link is disabled for the whole interval or the measured speed is unknown. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Trk measuredSpeedToIfMin

| | |
|---|---|
| Description | This is the minimum measured transmit speed (bit/s) of the link. A value of zero is provided when the link is disabled for any part of the interval or the measured speed is unknown. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Trk measuredSpeedToIfCurrent

| | |
|---|---|
| Description | This is the current measured transmit speed (bit/s) of the link. A value of zero is provided when the link is disabled or the measured speed is unknown. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Trk measuredRoundTripDelayMax

| | |
|---|---|
| Description | This is the maximum measured Round Trip Delay (ms) discovered with the remote through the *Trunk* and *DpnGateway* staging protocols. A value of zero is provided when the link is disabled for the whole interval or the delay is unknown. |
| Values | Decimal (0..1500) |

### ATTRIBUTE Trk measuredRoundTripDelayMin

| | |
|---|---|
| Description | This is the minimum measured Round Trip Delay (ms) discovered with the remote through the *Trunk* and *DpnGateway* staging protocols. A value of zero is provided when the link is disabled for any part of the interval or the delay is unknown. |
| Values | Decimal (0..1500) |

### ATTRIBUTE Trk measuredRoundTripDelayCurrent

| | |
|---|---|
| Description | This is the measured Round Trip Delay (ms) discovered with the remote through the *Trunk* and *DpnGateway* staging protocols. A |

value of zero is provided when the link is disabled or the delay is unknown.

Values Decimal (0..1500)

### ATTRIBUTE Trk fwdPktFromIf (fwdPkt)

Description This attribute counts the number of forwarding packets received on the *Trunk* or *DpnGateway* in the last statistics collection interval.

Values Long Integer

### ATTRIBUTE Trk fwdDiscUnforwardFromIf (fwdDisc)

Description This attribute counts the number of forwarding packets discarded by the *Trunk* or *DpnGateway* in the last statistics collection interval.

Values Long Integer

### ATTRIBUTE Trk fwdOctetFromIf (fwdOctet)

Description This attribute counts the number of forwarding bytes received on the *Trunk* or *DpnGateway* in the last statistics collection interval.

Values Long Integer

### ATTRIBUTE Trk dprsPktFromIfByPrio (dprsPktBp)

Description This attribute counts the number of DPRS packets received by the Trunk in the last statistics collection interval. It is an array indexed by the emission priorities (*ep0*, *ep1* and *ep2*) and discard priorities (*dp0*, *dp1*, *dp2* and *dp3*) of the packets. The highest emission priority is *ep0* and the least discardable priority is *dp0*.

Array of Long Integer

Row ep [ep0
ep1
ep2]

Column dp [dp0
dp1
dp2
dp3]

### ATTRIBUTE Trk dprsDiscPktFromIfByPrio (dprsDiscBp)

| | | |
|---|---|---|
| Description | This attribute counts the number of DPRS packets received and discarded by the Trunk in the last statistics collection interval. It is an array indexed by the emission priorities (*ep0*, *ep1* and *ep2*) and discard priorities (*dp0*, *dp1*, *dp2* and *dp3*) of the packets. The highest emission priority is *ep0* and the least discardable priority is *dp0*. | |
| Array of | Long Integer | |
| Row | ep<br>ep1<br>ep2] | [ep0 |
| Column | dp<br>dp1<br>dp2<br>dp3] | [dp0 |

### ATTRIBUTE Trk dprsOctetFromIfByPrio (dprsOctBp)

| | | |
|---|---|---|
| Description | This attribute counts the number of DPRS octets received by the Trunk in the last statistics collection interval. It is an array indexed by the emission priorities (*ep0*, *ep1* and *ep2*) and discard priorities (*dp0*, *dp1*, *dp2* and *dp3*) of the packets. The highest emission priority is *ep0* and the least discardable priority is *dp0*. | |
| Array of | Long Integer | |
| Row | ep<br>ep1<br>ep2] | [ep0 |
| Column | dp<br>dp1<br>dp2<br>dp3] | [dp0 |

### ATTRIBUTE Trk porsPktFromIfByPrio (porsPktBp)

| | |
|---|---|
| Description | This attribute counts the number of PORS packets received by the Trunk in the last statistics collection interval. It is an array indexed by the emission priorities (*ep0*, *ep1* and *ep2*) and discard |

priorities (*dp0*, *dp1*, *dp2* and *dp3*) of the packets. The highest emission priority is *ep0* and the least discardable priority is *dp0*.

Array of Long Integer

Row ep [ep0
ep1
ep2]

Column dp [dp0
dp1
dp2
dp3]

### ATTRIBUTE Trk porsDiscPktFromIfByPrio (porsDiscBp)

Description This attribute counts the number of PORS packets received and discarded by the Trunk in the last statistics collection interval. It is an array indexed by the emission priorities (*ep0*, *ep1* and *ep2*) and discard priorities (*dp0*, *dp1*, *dp2* and *dp3*) of the packets. The highest emission priority is *ep0* and the least discardable priority is *dp0*.

Array of Long Integer

Row ep [ep0
ep1
ep2]

Column dp [dp0
dp1
dp2
dp3]

### ATTRIBUTE Trk porsOctetFromIfByPrio (porsOctBp)

Description This attribute counts the number of PORS octets received by the Trunk in the last statistics collection interval. It is an array indexed by the emission priorities (*ep0*, *ep1* and *ep2*) and discard

priorities (*dp0*, *dp1*, *dp2* and *dp3*) of the packets. The highest emission priority is *ep0* and the least discardable priority is *dp0*.

| | | |
|---|---|---|
| Array of | Long Integer | |
| Row | ep<br>ep1<br>ep2] | [ep0 |
| Column | dp<br>dp1<br>dp2<br>dp3] | [dp0 |

## COMPONENT Trk UnAcked (UnAcked)

| | |
|---|---|
| Groups | "GROUP Trk UnAcked Provisioned (Prov)"<br>"GROUP Trk UnAcked OsiState (State)" |
| Scope | Network |
| Description | *Trunk/n Unacknowledged*<br>The *Unacknowledged* component provides a Layer 2 protocol that adds the minimum of overhead to data on the link. A *Framer* subcomponent is automatically added providing the underlying HDLC framing and associated hardware that the *Unacknowledged* component will use. |
| Subcomponents | "COMPONENT Trk UnAcked Framer" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Trk UnAcked Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group of provisionable attributes contains the parameters used by *Unacknowledged*, *Utp*, and *FrAccess* for monitoring link quality. |

### ATTRIBUTE Trk UnAcked maximumErroredInterval

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the interval time over which the error threshold (as specified by *receiveErrorSensitivity)* must be continuously exceeded before the *Unacknowledged*, *Utp*, or *FrAccess* component can be degraded. Once the error interval count exceeds the provisioned value, the *Unacknowledged*, *Utp*, or *FrAccess* component issues an alarm indicating that link quality has degraded, and it disables its parent component. The exception to this is a value of zero, the default, which indicates that the mechanism is completely disabled. |
| Values | Decimal (0; 1..15) |
| Units | minutes |
| Default | 0 |

### ATTRIBUTE Trk UnAcked receiveErrorSensitivity

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the allowable error rate beyond which the *Unacknowledged*, *Utp*, or *FrAccess* component can be degraded if it persists for a duration longer than the *maximumErrorInterval*. The threshold is expressed as a percentage of number of errored frames in the last interval per number of frames received in the last interval. The exception to this is a value of zero, which indicates that the mechanism is completely disabled. The configurable values are:<br>0 = the mechanism is completely disabled<br>1 = 1/(2**1)<br>2 = 1/(2**2)<br>3 = 1/(2**3)<br>:<br>10 = 1/(2**10) |
| Values | Decimal (0; 1..10) |
| Default | 3 |

## GROUP Trk UnAcked OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

## ATTRIBUTE Trk UnAcked adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Trk UnAcked operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Trk UnAcked usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |

| | |
|---|---|
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### ATTRIBUTE Trk UnAcked availabilityStatus (osiAvail)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.<br><br>The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.<br><br>The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.<br><br>The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.<br><br>The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***. |

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

### ATTRIBUTE Trk UnAcked proceduralStatus (osiProc)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the

user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.

The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of
initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default
No default

### ATTRIBUTE Trk UnAcked controlStatus (osiCntrl)

Access
Read only

| | |
|---|---|
| Description | If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.<br><br>The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.<br><br>The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.<br><br>The value ***suspended*** indicates that the service has been administratively suspended. |
| Set of | subjectToTest (subTst)<br>partOfServicesLocked (partLk)<br>reservedForTest (rsrvd)<br>suspended (suspnd) |
| Default | No default |

### ATTRIBUTE Trk UnAcked alarmStatus (osiAlarm)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions |

described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

## ATTRIBUTE Trk UnAcked standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and

thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values
hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

Default
notSet

### ATTRIBUTE Trk UnAcked unknownStatus (osiUnknw)

Access
Read only

Description
This attribute indicates the OSI Unknown status of the component.

The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.

The value ***true*** indicates that the actual state of the component is not known for sure.

Values
false
true

Default
false

## COMPONENT Trk UnAcked Framer

Groups
"GROUP Trk UnAcked Framer Provisioned (Prov)"
"GROUP Trk UnAcked Framer LinkOptions (Link)"
"GROUP Trk UnAcked Framer OsiState (State)"
"GROUP Trk UnAcked Framer Statistics (Stats)"
"GROUP Trk UnAcked Framer LinkUtilization (Util)"
"GROUP Trk UnAcked Framer LinkUtilThreshold (UtilThreshold)"

"COLLECTED STATS Trunk UnAcked Framer"

Scope
Device

Description

*Trunk/n Unack Framer*

The *Framer* component controls link layer framing for application components sending and receiving data on a link interface. It is also through *Framer*, that an application component is associated with a specific hardware link interface.

The *Framer* component provides provisionable attributes related to datapath aspects of the hardware interface (such as crc and frame length) rather than interface specific attributes (such as modem leads and clocking) which are associated with specific hardware components (such as *V35/n* or *DS1/n*). The *Framer* component also provides a provisionable attribute which binds the application component to a specific hardware component.

The *Framer* component contains operational attributes for link interface datapath statistics (such as frame counts and aborts).

Common Verbs
Help
List
Display

## GROUP Trk UnAcked Framer Provisioned (Prov)

Properties
Provisioned

Description

This group contains the base provisioning data for the *Framer* component. Application or hardware interface specific provisioning data is contained in other provisionable *Framer* groups.

### ATTRIBUTE Trk UnAcked Framer interfaceName

Access: Read and write

Criticality: Process

Description

This attribute contains a hardware component name.

The attribute associates the application with a specific link. This defines the module processor on which *Framer*'s parent component (as well as *Framer* itself) will run.

Values: Link (Hardware, applicationFramerName)

Default: No default

### GROUP Trk UnAcked Framer LinkOptions (Link)

Properties: Provisioned

Description

This group contains attributes defining the framing of data on the link interface.

### ATTRIBUTE Trk UnAcked Framer framingType

Access: Read and write

Criticality: Process

Description

This attribute specifies the type of framing protocol that will be used for frames transmitted to the link interface and received from the link interface. If the value of this attribute is set to the default *interrupting*, then a Proprietary hdlc protocol is used which allows for voice cells to interrupt transmission of data frames, transmit the voice cell, and then continue transmitting the

data frame. If the value of this attribute is set to *hdlc*, then the standard hdlc protocol is used for the sequential transmission of individual frames.

Values
hdlc
interrupting

Default
interrupting

### ATTRIBUTE Trk UnAcked Framer dataInversion

Access
Read and write

Description
This attribute determines whether data bits are to be inverted (1 to 0 and 0 to 1) before transmission of frames to the interface. If the value of this attribute is On, the incoming data bits will also be inverted when frames are received from the link before being processed.

This option is typically used in ***hdlc*** framing mode when inversion is used to guarantee 1's density.

Note that aborts (in ***hdlc*** and ***interrupting*** modes) are corrupted when data is inverted.

Values
off
on

Default
off

### ATTRIBUTE Trk UnAcked Framer frameCrcType

Access
Read and write

Description
This attribute defines the type of CRC used.

The CRC value calculated is appended to the end of the frames transmitted to the link. The CRC value is removed from the end of frames received from the link and checked for correctness. NoCrc means that CRC is not used.

| | |
|---|---|
| Values | crc16<br>crc32<br>noCrc |
| Default | crc16 |

### ATTRIBUTE Trk UnAcked Framer flagsBetweenFrames

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the number of flags that are inserted between frames sent to the link interface. |
| Values | Decimal (1..16) |
| Default | 1 |

### GROUP Trk UnAcked Framer OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Trk UnAcked Framer adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down. |

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Trk UnAcked Framer operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Trk UnAcked Framer usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

| | |
|---|---|
| | The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Trk UnAcked Framer Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational statistics data for an unacknowledged Framer component. |

### ATTRIBUTE Trk UnAcked Framer aborts

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of aborts received. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Trk UnAcked Framer crcErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of frames with CRC errors. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Trk UnAcked Framer lrcErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of frames with LRC errors. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Trk UnAcked Framer nonOctetErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of frames that were non octet aligned. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Trk UnAcked Framer overruns

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of frames received from the link for which overruns occurred. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Trk UnAcked Framer underruns

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of frames transmitted to the link for which underruns occurred. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Trk UnAcked Framer largeFrmErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of frames received which were too large. The frame exceeded the *maximumFrameLengthLimit* provisioned attribute or it contained more than the 255 block hardware limit. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Trk UnAcked Framer frmModeErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of frames detected with framing mode errors. A *framingModeError* is flagged when frames are inconsistent with the specified *framingType*, that is when interrupting frames are used while running in hdlc mode. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Trk UnAcked Framer outOfSequenceFrm

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of out of sequence frames in interrupting mode that have been received from the link. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Trk UnAcked Framer repeatedFrm

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of repeated frames (frames with the same sequence number) in interrupting mode that have been received from the link. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Trk UnAcked Framer frmFromIf

| | |
|---|---|
| Access | Read only |
| Description | The number of frames received from the link interface by Framer. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Trk UnAcked Framer octetFromIf

| | |
|---|---|
| Access | Read only |
| Description | The number of bytes received from the link interface by Framer. |
| Values | Long Integer |
| Default | No default |

### GROUP Trk UnAcked Framer LinkUtilization (Util)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the link utilization operational data for a Framer component. |

### ATTRIBUTE Trk UnAcked Framer normPrioLinkUtilToIf

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the utilization of the normal and high priority data traffic (interruptible traffic) sent to the link as a percentage of the available bandwidth on the link. Note that this includes traffic with Transfer Priorities (TP) of 0, 6 and 9 and/or Emission Priority of 2 and 3. The utilization is the average for the last minute. |
| Values | Decimal (0..100) |
| Units | % |
| Default | 0 |

### ATTRIBUTE Trk UnAcked Framer highPrioLinkUtilToIf

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the utilization of the interrupting data traffic sent to the link as a percentage of the available bandwidth on the link. Note that this includes traffic with a Transfer Priority (TP) of 11 and/or Emission Priority of 1. The utilization is the average for the last minute. |
| Values | Decimal (0..100) |
| Units | % |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE Trk UnAcked Framer normPrioLinkUtilFromIf

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the utilization of the normal and high priority data traffic (interruptible traffic) received from the link as a percentage of the available bandwidth on the link. Note that this includes traffic with Transfer Priorities (TP) of 0, 6 and 9 and/or Emission Priority of 2 and 3. The utilization is the average for the last minute. |
| Values | Decimal (0..100) |
| Units | % |
| Default | 0 |

### ATTRIBUTE Trk UnAcked Framer highPrioLinkUtilFromIf

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the utilization of the interrupting data traffic received from the link as a percentage of the available bandwidth on the link. Note that this includes traffic with a Transfer Priority (TP) of 11 and/or Emission Priority of 1. The utilization is the average for the last minute. |
| Values | Decimal (0..100) |
| Units | % |
| Default | 0 |

### GROUP Trk UnAcked Framer LinkUtilThreshold (UtilThreshold)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all of the provisioning data required to set the link utilization alarm thresholds. All thresholds are percentages which can take on any value in the range of 0% through 100%. The value 100% is used to disable an individual threshold. For values other than 100%, a semantic check ensures that the minor alarm threshold is less than the other thresholds and that the major alarm threshold is less than the critical alarm threshold. |

## ATTRIBUTE Trk UnAcked Framer minorLinkUtilAlarmThreshold (minor)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute provides the threshold value which defines when a minor alarm would be issued, denoting a sustained total average link utilization. The total average link utilization is calculated based on the number of received bytes. The Set alarm is issued after 3 minutes of utilization greater than the given threshold. The corresponding Clear alarm is issued after a subsequent 3 minutes of utilization less than or equal to the given threshold.<br>The value 100% is used to disable an individual threshold. For values other than 100%, a semantic check ensures that the minor alarm threshold is less than the other thresholds. |
| Values | Decimal (0..100) |
| Units | % |
| Default | 75 |

## ATTRIBUTE Trk UnAcked Framer majorLinkUtilAlarmThreshold (major)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute provides the threshold value which defines when a major alarm would be issued, denoting a sustained total average link utilization. The total average link utilization is calculated based on the number of received bytes. The Set alarm is issued after 3 minutes of utilization greater than the given threshold. The corresponding Clear alarm is issued after a subsequent 3 minutes of utilization less than or equal to the given threshold.<br>The value 100% is used to disable an individual threshold. For values other than 100%, a semantic check ensures that the major alarm threshold is greater than the minor threshold and less than the critical threshold. |
| Values | Decimal (0..100) |
| Units | % |
| Default | 85 |

### ATTRIBUTE Trk UnAcked Framer criticalLinkUtilAlarmThreshold (critical)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute provides the threshold value which defines when a critical alarm would be issued, denoting a sustained total average link utilization. The total average link utilization is calculated based on the number of received bytes. The Set alarm is issued after 3 minutes of utilization greater than the given threshold. The corresponding Clear alarm is issued after a subsequent 3 minutes of utilization less than or equal to the given threshold.<br>The value 100% is used to disable an individual threshold. For values other than 100%, a semantic check ensures that the critical alarm threshold is greater than the other thresholds. |
| Values | Decimal (0..100) |
| Units | % |
| Default | 95 |

### ATTRIBUTE Trk UnAcked Framer linkUtilAlarmStatus (status)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute provides control of the generation of link utilization alarms. If the value is ***disabled***, none of the alarms are generated (this is equivalent to setting all of the thresholds to 100%). If the value is ***enabled***, the individual thresholds are handled. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

## COLLECTED STATS Trunk UnAcked Framer

| | |
|---|---|
| Description | The statistics record generated by the Trunk UnAcked Framer component. |

### ATTRIBUTE Trk UnAcked Framer rxBytes

| | |
|---|---|
| Description | This attribute provides the number of bytes received on the link by the Framer in the last collection interval. |
| Values | Long Integer |

### ATTRIBUTE Trk UnAcked Framer rxFrames

Description: This attribute provides the number of frames received on the link interface by the Framer in the last collection interval.

Values: Long Integer

### ATTRIBUTE Trk UnAcked Framer txBytes

Description: This attribute provides the number of bytes transmitted to the link by the Framer in the last collection interval. This value could be zero if the application sends the frames directly to the link.

Values: Long Integer

### ATTRIBUTE Trk UnAcked Framer txFrames

Description: This attribute provides the number of frames transmitted to the link interface by the Framer in the last collection interval. This value could be zero if the application sends the frames directly to the link.

Values: Long Integer

### ATTRIBUTE Trk UnAcked Framer rxTotalLinkUtil

Description: This attribute provides the average total link utilization computed based on the total number of bytes received on the link in the last collection interval.

Values: Decimal (0..100)

## COMPONENT Trk AtmAccess (Atm)

Groups:
"GROUP Trk Atm Provisioned (Prov)"
"GROUP Trk Atm Interface"
"GROUP Trk Atm OsiState (State)"
"GROUP Trk Atm UtilThreshold (Util)"
"GROUP Trk Atm Statistics (Stats)"

"COLLECTED STATS Trunk AtmAccess"

Scope: Network

Description — *Trunk/n AtmAccess*
The *AtmAc*cess component provides a Layer 2 protocol that adds no overhead to data on the ATM link that it accesses.

Common Verbs
- Help
- List
- Display
- Add
- DELete

## GROUP Trk Atm Provisioned (Prov)

Properties — Provisioned

Description — This group of provisionable attributes contains the parameters used by *AtmAccess* for monitoring link quality.

## ATTRIBUTE Trk Atm receiveErrorSensitivity

Access — Read and write

Description — This attribute specifies the allowable error rate beyond which the *AtmAccess* component can be degraded if the error rate persists for a duration longer than the *maximumErrorInterval*. The threshold is expressed as a percentage. It is the ratio of the number of errored cells in the last interval over the number of cells received in the last interval. For AAL5, the number of errored cells is converted from *rxFrameDiscard* of *AtmIf Vcc* using the assumption that three ATM cells are used to carry a 128 byte AAL5 frame. The number of received cells is specified by *rxCell* of *AtmIf Vcc*.

The configurable values are:
0 = the mechanism is completely disabled
1 = 1/(2**1)
2 = 1/(2**2)
3 = 1/(2**3)
:
10 = 1/(2**10)

Values — Decimal (0; 1..10)

Default — 3

### ATTRIBUTE Trk Atm maximumErroredInterval

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the interval time over which the error threshold (as specified by *receiveErrorSensitivity)* must be continuously exceeded before the *AtmAccess* component can be degraded. Once the error interval count exceeds the provisioned value, the *AtmAccess* component issues an alarm indicating that link quality has degraded, and it disables its parent component. The exception to this is a value of zero, the default, which indicates that the mechanism is completely disabled. |
| Values | Decimal (0.0; 0.5; 1.0; 1.5; 2.0; 2.5; 3.0; 3.5; 4.0; 4.5; 5.0; 6.0; 7.0; 8.0; 9.0; 10.0; 11.0; 12.0; 13.0; 14.0; 15.0) |
| Units | minutes |
| Default | 0.0 |

### GROUP Trk Atm Interface

| | |
|---|---|
| Properties | Provisioned |
| Description | This group of attributes provides the parameters used by the *AtmAccess* component for specifying access to an ATM interface. |

### ATTRIBUTE Trk Atm atmConnection (ac)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the component name of the ATM Layer 2 AAL5 interface that the *AtmAccess* component will use. |
| Values | Link (Hardware, applicationName) |
| Default | No default |

### ATTRIBUTE Trk Atm bwElastic (bwE)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |

| | |
|---|---|
| Description | This attribute specifies how changes in the bandwidth of the *atmConnection* are handled by the ATM software. If its value is ***no,*** the *atmConnection* will be released by the ATM software if it is incapable of providing the bandwidth specified by the peak cell rate (PCR) defined in *txTrafficDescParm* of *AtmIf Vcc Vcd*. If the value is ***yes,*** the *atmConnection* is not released in this situation, but its bandwidth may be reduced. Also, if this value is ***yes***, the Dynamic Speed Reporting mechanism must be enabled, by provisioning at least one value in the *speedReportingThresholds* attribute of the parent *Trunk* component. |
| Values | no<br>yes |
| Default | no |

### ATTRIBUTE Trk Atm vccReportingBw (vccRepBw)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies how the bandwidth of the VCC is reported to the parent *Trunk* component. If its value is ***pcr*** and attribute *bwElastic* of *AtmAccess* has a value of ***no***, the peak cell rate (PCR) of the VCC, defined in *txTrafficDescParm* of *AtmIf Vcc Vcd,* is reported. If its value is ***pcr*** and attribute *bwElastic* of *AtmAccess* has a value of ***yes***, the minimum of the PCR, defined in *txTrafficDescParm* of *AtmIf Vcc Vcd*, and the current cell rate (CCR) of the VCC is reported. If its value is ***acr,*** the best measurement of the actual cell rate (ACR) of the VCC is reported, which is the minimum of the PCR, the CCR and the actual shaping rate (ASR). The value of the reported bandwidth of the VCC is indicated by the *measuredSpeedToIf* attribute of the parent *Trunk* component. |
| Values | pcr<br>acr |
| Default | pcr |

### GROUP Trk Atm OsiState (State)

| | |
|---|---|
| Properties | Operational |

Description

This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

## ATTRIBUTE Trk Atm adminState (osiAdmin)

Access

Read only

Description

This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values

locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default

unlocked

## ATTRIBUTE Trk Atm operationalState (osiOper)

Access

Read only

Description

This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values

enabled (ena)
disabled (dis)

Default

disabled

### ATTRIBUTE Trk Atm usageState (osiUsage)

Access

Read only

Description

This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values

idle
active (activ)
busy

Default

idle

## ATTRIBUTE Trk Atm availabilityStatus (osiAvail)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.<br><br>The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.<br><br>The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.<br><br>The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.<br><br>The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.<br><br>The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***. |

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

### ATTRIBUTE Trk Atm proceduralStatus (osiProc)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.

The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

### ATTRIBUTE Trk Atm controlStatus (osiCntrl)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the

attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

Set of: subjectToTest (subTst)
partOfServicesLocked (partLk)
reservedForTest (rsrvd)
suspended (suspnd)

Default: No default

### ATTRIBUTE Trk Atm alarmStatus (osiAlarm)

Access: Read only

Description: If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are

outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE Trk Atm standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and

containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values
hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

Default
notSet

### ATTRIBUTE Trk Atm unknownStatus (osiUnknw)

Access
Read only

Description
This attribute indicates the OSI Unknown status of the component.

The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.

The value ***true*** indicates that the actual state of the component is not known for sure.

Values
false
true

Default
false

### GROUP Trk Atm UtilThreshold (Util)

Properties
Provisioned

Description
This group contains all of the provisioning data required to set the ATM VCC utilization alarm thresholds. The ATM VCC utilization is indicated by the *lastCalculatedVccUtilization* attribute.
All thresholds are percentages which can take on any value in the

range of 0% through 200%. The value 200% is used to disable an individual threshold. For values other than 200%, the minor alarm threshold must be less than the other thresholds and the major alarm threshold must be less than the critical alarm threshold.

### ATTRIBUTE Trk Atm minorVccUtilAlarmThreshold (minor)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the threshold value at which a minor alarm will be issued based on a sustained average ATM VCC utilization as indicated by the *lastCalculatedVccUtilization* attribute. The Set alarm is issued after 3 minutes of utilization greater than the threshold. The corresponding Clear alarm is issued after a subsequent 3 minutes of utilization less than or equal to the threshold.<br>The value 200% is used to disable this threshold. For values other than 200%, the minor alarm threshold must be less than the other thresholds. |
| Values | Decimal (0..200) |
| Units | % |
| Default | 75 |

### ATTRIBUTE Trk Atm majorVccUtilAlarmThreshold (major)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the threshold value at which a major alarm will be issued based on a sustained average ATM VCC utilization as indicated by the *lastCalculatedVccUtilization* attribute. The Set alarm is issued after 3 minutes of utilization greater than the threshold. The corresponding Clear alarm is issued after a subsequent 3 minutes of utilization less than or equal to the threshold.<br>The value 200% is used to disable this threshold. For values other than 200%, the major alarm threshold must be greater than the minor threshold and less than the critical threshold. |
| Values | Decimal (0..200) |

| | |
|---|---|
| Units | % |
| Default | 85 |

### ATTRIBUTE Trk Atm criticalVccUtilAlarmThreshold (critical)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the threshold value at which a critical alarm will be issued based on a sustained average ATM VCC utilization as indicated by the *lastCalculatedVccUtilization* attribute. The Set alarm is issued after 3 minutes of utilization greater than the threshold. The corresponding Clear alarm is issued after a subsequent 3 minutes of utilization less than or equal to the threshold.<br>The value 200% is used to disable this threshold. For values other than 200%, the critical alarm threshold must be greater than the other thresholds. |
| Values | Decimal (0..200) |
| Units | % |
| Default | 95 |

### ATTRIBUTE Trk Atm vccUtilAlarmStatus (status)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute provides control of the generation of ATM VCC utilization alarms. If the value is *disabled*, none of the alarms is generated (this is equivalent to setting all of the thresholds to 200%). If the value is *enabled*, the individual thresholds are handled. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### GROUP Trk Atm Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group of attributes contains statistics collected by the *AtmAccess* component. |

### ATTRIBUTE Trk Atm lastCalculatedVccUtilization (util)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the last calculated receive utilization of the ATM VCC. It is calculated every 30 seconds based on comparing the number of cells received by the *AtmIf Vcc* with the estimated available bandwidth on the *AtmIf Vcc*. |
| Values | Decimal (0..200) |
| Units | % |
| Default | 0 |

### ATTRIBUTE Trk Atm lastCalculatedTxVccUtilization (txutil)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the last calculated transmit utilization of the ATM VCC. It is calculated every 30 seconds based on comparing the number of cells transmitted by the *AtmIf Vcc* with the estimated available bandwidth on the *AtmIf Vcc*. |
| Values | Decimal (0..200) |
| Units | % |
| Default | 0 |

## COLLECTED STATS Trunk AtmAccess

| | |
|---|---|
| Description | The statistics record generated by the Trunk AtmAccess component. |

### ATTRIBUTE Trk Atm interfaceName (interface)

| | |
|---|---|
| Description | This attribute indicates the component name of the local ATM Layer 2 AAL5 interface that the *AtmAccess* component uses. |
| Values | String (1..45, ASCII) |

### ATTRIBUTE Trk Atm txCell

| | |
|---|---|
| Description | This attribute counts the number of cells that have been transmitted to the interface on the *Vcc* in the last collection interval. |
| Values | Long Integer |
| Units | cells |

### ATTRIBUTE Trk Atm txCellClp

| | |
|---|---|
| Description | This attribute counts the number of cells that have been transmitted to the interface on the *Vcc* with the CLP=1 in the last collection interval. |
| Values | Long Integer |
| Units | cells |

### ATTRIBUTE Trk Atm txDiscard

| | |
|---|---|
| Description | This attribute counts the number of cells or frames received from the bus on the *Vcc* that have been discarded (due to congestion or when the *Vcc* interface is disabled) in the last collection interval. |
| Values | Long Integer |

### ATTRIBUTE Trk Atm txDiscardClp

| | |
|---|---|
| Description | This attribute counts the number of cells or frames received from the bus on the *Vcc* with the CLP=1 that have been discarded (due to congestion or when the *Vcc* interface is disabled) in the last collection interval. |
| Values | Long Integer |

### ATTRIBUTE Trk Atm rxCell

| | |
|---|---|
| Description | This attribute counts the number of cells that have been received from the interface on the *Vcc* in the last collection interval. |
| Values | Long Integer |
| Units | cells |

### ATTRIBUTE Trk Atm rxCellClp

| | |
|---|---|
| Description | This attribute counts the number of cells that have been received from the interface on the *Vcc* with the CLP=1 in the last collection interval. |
| Values | Long Integer |
| Units | cells |

### ATTRIBUTE Trk Atm rxDiscard

| | |
|---|---|
| Description | This attribute counts the number of cells or frames received from the interface on the *Vcc* that have been discarded (due to congestion, non-conformance with UPC or AAL reassembly problems) in the last collection interval. |
| Values | Long Integer |

### ATTRIBUTE Trk Atm rxDiscardClp

| | |
|---|---|
| Description | This attribute counts the number of cells or frames received from the interface on the *Vcc* with the CLP=1 that have been discarded (due to congestion, non-conformance with UPC or AAL reassembly problems) in the last collection interval. |
| Values | Long Integer |

### ATTRIBUTE Trk Atm txCellRateMax

| | |
|---|---|
| Description | This attribute indicates the maximum transmit cell throughput rate of the *Vcc* in the last collection interval. |
| Values | Decimal (0..4294967295) |
| Units | cell/s |

### ATTRIBUTE Trk Atm txCellRateMin

| | |
|---|---|
| Description | This attribute indicates the minimum transmit cell throughput rate of the *Vcc* in the last collection interval. |
| Values | Decimal (0..4294967295) |
| Units | cell/s |

### ATTRIBUTE Trk Atm txCellRateAvg

| | |
|---|---|
| Description | This attribute indicates the average transmit cell throughput rate of the *Vcc* in the last collection interval. |
| Values | Decimal (0..4294967295) |
| Units | cell/s |

### ATTRIBUTE Trk Atm txClpCellRateMax

| | |
|---|---|
| Description | This attribute indicates the maximum transmit cell throughput rate with the CLP=1 of the *Vcc* in the last collection interval. |
| Values | Decimal (0..4294967295) |
| Units | cell/s |

### ATTRIBUTE Trk Atm txClpCellRateMin

| | |
|---|---|
| Description | This attribute indicates the minimum transmit cell throughput rate with the CLP=1 of the *Vcc* in the last collection interval. |
| Values | Decimal (0..4294967295) |
| Units | cell/s |

### ATTRIBUTE Trk Atm txClpCellRateAvg

| | |
|---|---|
| Description | This attribute indicates the average transmit cell throughput rate with the CLP=1 of the *Vcc* in the last collection interval. |
| Values | Decimal (0..4294967295) |
| Units | cell/s |

### ATTRIBUTE Trk Atm rxCellRateMax

| | |
|---|---|
| Description | This attribute indicates the maximum receive cell throughput rate of the *Vcc* in the last collection interval. |
| Values | Decimal (0..4294967295) |
| Units | cell/s |

### ATTRIBUTE Trk Atm rxCellRateMin

| | |
|---|---|
| Description | This attribute indicates the minimum receive cell throughput rate of the *Vcc* in the last collection interval. |
| Values | Decimal (0..4294967295) |
| Units | cell/s |

### ATTRIBUTE Trk Atm rxCellRateAvg

| | |
|---|---|
| Description | This attribute indicates the average receive cell throughput rate of the *Vcc* in the last collection interval. |
| Values | Decimal (0..4294967295) |
| Units | cell/s |

### ATTRIBUTE Trk Atm rxClpCellRateMax

| | |
|---|---|
| Description | This attribute indicates the maximum receive cell throughput rate with the CLP=1 of the *Vcc* in the last collection interval. |
| Values | Decimal (0..4294967295) |
| Units | cell/s |

### ATTRIBUTE Trk Atm rxClpCellRateMin

| | |
|---|---|
| Description | This attribute indicates the minimum receive cell throughput rate with the CLP=1 of the *Vcc* in the last collection interval. |
| Values | Decimal (0..4294967295) |
| Units | cell/s |

### ATTRIBUTE Trk Atm rxClpCellRateAvg

| | |
|---|---|
| Description | This attribute indicates the average receive cell throughput rate with the CLP=1 of the *Vcc* in the last collection interval. |
| Values | Decimal (0..4294967295) |
| Units | cell/s |

### ATTRIBUTE Trk Atm rxTotalVccUtil

| | |
|---|---|
| Description | This attribute indicates the average total receive *Vcc* utilization computed based on comparing the total number of cells received on the *Vcc* with the estimated available bandwidth in the last collection interval. |
| Values | Decimal (0..200) |
| Units | % |

### ATTRIBUTE Trk Atm txTotalVccUtil

| | |
|---|---|
| Description | This attribute indicates the average total transmitted *Vcc* utilization computed based on comparing the total number of cells transmitted on the *Vcc* with the estimated available bandwidth in the last collection interval. |
| Values | Decimal (0..200) |
| Units | % |

### COMPONENT Trk PathAdmin (Pa)

| | |
|---|---|
| Groups | "GROUP Trk Pa Prov"<br>"GROUP Trk Pa Oper"<br>"GROUP Trk Pa Adaptation" |
| Scope | Application |
| Description | *Trunk/n PathAdmin*<br>This component manages all path related activities on behalf of the trunk. This component is provisioned with a maximum count of *LogicalChannels* that it is allowed to create and a maximum percent of the trunk's outgoing bandwidth that it is permitted to allocate to these *LogicalChannels.* |
| Opt. Subcomp. | "COMPONENT Trk Pa AtmAccess (Atm)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Trk Pa Prov

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all provisionable attributes relevant to path oriented traffic on a trunk. These attributes provide the maximum number of Logical Channels that are permitted under a *Trunk/n* and the maximum total bandwidth they are allowed to occupy as a percentage of the outgoing trunk bandwidth. |

## ATTRIBUTE Trk Pa maxLc (maxLc)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute indicates the number of Logical Channels (*LCh/n*) supported on this trunk. This attribute is used to allocate memory on the trunk FP for the PORS forwarding tables.Unless running in mapped mode on ATM hardware, the *PathAdmin* will add 100 channels to *maxL*c to reduce the chances of allocation clashes. However, you should never see more than *maxLc* channels in use for any extended period of time. On ATM hardware in mapped mode the *PathAdmin* will only add 10 channels to *maxLc* to permit more efficient use of the available VCC space.<br><br>The *PathAdmin* may not be able to honor a request for *maxLc* channels. This will happen when the neighbor *PathAdmin* asks for less channels than this *PathAdmin*. To resolve the conflict the *PathAdmin* will always pick the minimum of the two *maxLc* values. This minimum value is called the *negotiatedMaxLc* and can be viewed as an operational parameter of the *PathAdmin*.<br><br>Note that in mapped mode on ATM hardware, the value of this attribute provides an upper bound to the number of VCCs that this *Trunk/n PathAdmin* can occupy. It is not a guarantee that *maxLc* VCCs will be available to this *PathAdmin* because the VCC space is a shared resource on the card or port. |
| Values | Decimal (0..65435) |
| Default | 512 |

### ATTRIBUTE Trk Pa maxReservedBwOut (mrbwout)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute controls the percentage of trunk bandwidth which may be reserved by outgoing path oriented traffic on the trunk. The sum of *requiredBandwidth* attributes for all paths on this trunk must not exceed this attribute. Setting this attribute to zero (0) prevents paths from being established on this trunk. The limit of reserved bandwidth for incoming path oriented traffic is set using the same attribute on the trunk component on the other end of the trunk.This attribute may be changed without the trunk being restaged. If the value is decreased, calls may be bumped as necessary to free up bandwidth. Increasing the value has no impact on existing calls and new calls are able to use the new bandwidth.<br>If this attribute is set to greater than 100%, connectionless traffic is given a minimum of 1Kbit per second for administrative traffic. A value greater than 100% overbooks the trunk bandwidth. By overbooking bandwidth, more calls are able to be established using the unused bandwidth reserved by idle *PLCs*. |
| Values | Decimal (0..200) |
| Units | % |
| Default | 50 |

### ATTRIBUTE Trk Pa trunkSecurity (tsec)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute indicates the security level of the trunk. Zero(0) represents the most secure trunk and seven(7) represents the least secure. The path's minimum security requirement is indicated by the *Plc requiredSecurity* attribute, with values identical in range and meaning to this attribute. PORS ensures that the route selected does not contain a trunk whose *PathAdmin trunkSecurity* attribute is numerically greater than the path's *requiredSecurity.* |

| | |
|---|---|
| Values | Decimal (0..7) |
| Default | 0 |

### ATTRIBUTE Trk Pa supportedTrafficTypes (sttyp)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute indicates the type of traffic that can be transmitted on the trunk. There are eight(8) possible traffic types, and the trunk can transmit all of them if desired. The ***voice, data*** and ***video*** traffic types are defined, and five(5) other traffic types can be defined by the network administration. This attribute is used in the route selection process to limit the route to trunks that support the traffic type carried by the path. The *requiredTrafficType* attribute of the *PLC* indicates the type of traffic carried on the path. |
| Set of | voice<br>data<br>video<br>trafficType1 (tt1)<br>trafficType2 (tt2)<br>trafficType3 (tt3)<br>trafficType4 (tt4)<br>trafficType5 (tt5) |
| Default | (voice, data, video, trafficType1, trafficType2) |

### ATTRIBUTE Trk Pa trunkType (ttyp)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute lists the type of the trunk. There can be up to eight(8) types of trunks. The ***terrestrial*** and ***satellite*** trunk types have been defined, leaving six(6) remaining types that can be defined by the network administration. The set of allowed trunk types for a path is indicated in the *permittedTrunkType* attribute |

of the *PLC*. When selecting a route, PORS only chooses trunks whose P*athAdmin trunkType* are in the *permittedTrunkTypes* set of the path.

Values
terrestrial
satellite
trunkType1 (tt1)
trunkType2 (tt2)
trunkType3 (tt3)
trunkType4 (tt4)
trunkType5 (tt5)
trunkType6 (tt6)

Default
terrestrial

### ATTRIBUTE Trk Pa customerParameter (cpar)

Access
Read: All
Write: All

Criticality
Process

Description
This attribute indicates the customer defined parameter for the trunk. Its value, a number from zero(0) to seven(7), is chosen by a network administration to have a meaning specific to their network, thus allowing them to customize the use of their trunks. A complementary *PLC* attribute, *requiredCustomerParameter*, also has a value from zero(0) to seven(7). The Route Selector does not consider trunks whose *PathAdmin customerParameter* is greater than the *requiredCustomerParameter* of the path.

Values
Decimal (0..7)

Default
0

### ATTRIBUTE Trk Pa trunkCost (tcost)

Access
Read: All
Write: All

Description
This attribute is the cost metric for the trunk. This value is assigned by the network administration to represent the network cost of using this trunk. It can be related to distance, speed, dollars, or any other factor that could be taken into consideration.

If the trunkAttributeToMinimize is set to *trunkCost*, PORS finds a route with the smallest sum of the PathAdmin *trunkCost* attribute over all trunks. The trunk cost can be increased or decreased without disrupting the service to the link. If it is increased and the PORS optimization feature is enabled calls will move off this link to lower cost links when possible. If the cost is decreased new calls will be attracted to this link.

Values: Decimal (1..255)

Default: 128

### ATTRIBUTE Trk Pa overrideTrunkDelay (ovrtd)

Access: Read: All
Write: All

Description: This attribute specifies the override value of parent trunk's half round trip delay (propagation delay), which is used by the *PathAdmin* to negotiate the value of *negotiatedTrunkDelay.* A value of zero indicates that an override value has not been provided, and that the measured propagation delay value is used for negotiation.

Values: Decimal (0..1500)

Units: msec

Default: 0

### GROUP Trk Pa Oper

Properties: Operational

Description: This group contains all operational attributes relevant to path oriented and connectionless bandwidth utilization and path activity on a trunk.

### ATTRIBUTE Trk Pa state

Access: Read: All
Write: Illegal

| | |
|---|---|
| Description | This attribute gives the operational state of the *PathAdmin* component. The *PathAdmin* may be ***up, down, goingDown, staging*** or ***downWaitingRestage***. |
| Values | String (1..80, ASCII) |
| Default | No default |

### ATTRIBUTE Trk Pa usedLc (ulc)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute gives the total number of Logical Channels currently busy on the trunk. When this number reaches *maxLc*, no more paths are allowed to instantiate through this trunk. Note that it is possible for *usedLc* to be less than *maxLc* but for there to be no currently free *LogicalChannels*. This is because a *LogicalChannel* can be in one of several intermediate states between ***free*** and ***busy***. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Trk Pa negotiatedMaxLc (nmlc)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute gives the actual value of *maxLc* that the *PathAdmin* has decided on after negotiation with the far end *PathAdmin*. If there is disagreement between the two *PathAdmin*'s *maxLc* provisionable attributes the smaller of the two is chosen on both sides. This attribute reflects the minimum of these two *maxLc*'s. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Trk Pa maxReservableBwOut (mrbwo)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute gives the total bandwidth that this *PathAdmin* is allowed to reserve. This number is computed by multiplying the parent trunk's *measuredSpeedToIf* attribute by the *maxReservedBwOut* provisionable attribute of this *PathAdmin*. |
| Values | Decimal (0..4294967295) |
| Units | bit/s |
| Default | No default |

### ATTRIBUTE Trk Pa overReservedBwOut (orbwo)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | When bumping is required to free up enough bandwidth for a new path there exists a short period of time when both the new path and the soon to be bumped path are occupying the same bandwidth. This means that the total amount of reserved bandwidth will exceed *maxReservableBwOut*. When this happens the *unreservedBwOut* attribute will be 0 and the *overReservedBwOut* attribute will be non-zero to indicate by how much we are currently overcommitted. This value should quickly drop back to zero as the bumping starts to clear the lower *holdingPriority* calls. |
| Values | Decimal (0..4294967295) |
| Units | bit/s |
| Default | No default |

### ATTRIBUTE Trk Pa unreservedBwOut (urbwo)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute gives the total of amount of bandwidth that is still available for reservation by new connections. When this number reaches 0 the *PathAdmin* will no longer admit new connections to the trunk. This number represents available bandwidth in the outward going direction. To determine the inward available bandwidth you must query the *PathAdmin* at the other end of this *Trunk*. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Units | bit/s |
| Default | No default |

### ATTRIBUTE Trk Pa clashCount (clcnt)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute gives the total number of path setup requests that resulted in an *LCh/n* or *Vcc/x.y* clash. A large value for this number is an indicator of poor performance by the *PathAdmin* in its allocation of *LCh/n* or *Vcc/x.y* components. In general the channels will be allocated in opposite orders at each end of the *Trunk* but this may not always be the case. Note that as the *PathAdmin* runs out of *LCh/n* or *Vcc/x.y* components the number of clashes will increase. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Trk Pa negotiatedSupportedTrafficTypes (nsttyp)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute gives the actual value of *supportedTrafficTypes* that the *PathAdmin* has decided on after negotiation with the far end *PathAdmin*. If there is disagreement between the two *PathAdmin*'s *supportedTrafficTypes* provisionable attributes the union of the two is chosen on both sides. This attribute reflects the union of these two *supportedTrafficTypes* 's. It is this union that is advertised to all other nodes in the network and which is used for routing decisions. |

| | |
|---|---|
| Set of | voice<br>data<br>video<br>trafficType1 (tt1)<br>trafficType2 (tt2)<br>trafficType3 (tt3)<br>trafficType4 (tt4)<br>trafficType5 (tt5) |
| Default | No default |

### ATTRIBUTE Trk Pa negotiatedTrunkSecurity (ntsec)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute gives the actual value of the *trunkSecurity* that the *PathAdmin* has decided on after negotiation with the far end *PathAdmin*. If there is disagreement between the two *PathAdmin*'s *trunkSecurity* provisionable attributes the larger of the two is chosen on both sides. This attribute reflects the maximum of these two *trunkSecurity*'s. |
| Values | Decimal (0..7) |
| Default | No default |

### ATTRIBUTE Trk Pa negotiatedCustomerParameter (ncpar)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute gives the actual value of customerParameter that the *PathAdmin* has decided on after negotiation with the far end *PathAdmin*. If there is disagreement between the two *PathAdmin*'s customerParameter provisionable attributes the larger of the two is chosen on both sides. This attribute reflects the maximum of these two customerParameter's. |
| Values | Decimal (0..7) |
| Default | No default |

### ATTRIBUTE Trk Pa negotiatedTrunkCost (ntcost)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute gives the actual value of *trunkCost* that the *PathAdmin* has decided on after negotiation with the far end *PathAdmin*. If there is disagreement between the two *PathAdmin*'s *trunkCost* provisionable attributes the larger of the two is chosen on both sides. This attribute reflects the maximum of these two trunkCost's. |
| Values | Decimal (1..255) |
| Default | No default |

### ATTRIBUTE Trk Pa negotiatedAtmMode (namode)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute gives the actual value of *PathAdmin Atm mode* that the *PathAdmin* has decided on after negotiation with the far end *PathAdmin*. This is only applicable to ATM cards since the mode on non ATM hardware is not specified. The ***multiplexing*** mode implies that all voice traffic will be multiplexed onto the *Atm atmConnection Vcc* and all data will be multiplexed onto the *Trunk Atm atmConnection Vcc*. The ***mapping*** mode implies that each unique logical channel will be allocated its own *Vcc*. The mode ***notApplicable*** implies either this is not ATM hardware or that no *Atm* subcomponent exists under this or the peer *PathAdmin*. |
| Values | multiplexing (mux)<br>mapping (map)<br>notApplicable (na) |
| Default | No default |

### ATTRIBUTE Trk Pa negotiatedTrunkDelay (ntdel)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute gives the actual value of parent trunk's half round trip delay (propagation delay) that the *PathAdmin* has decided on after negotiation with the far end *PathAdmin*. If there is disagreement between the two *PathAdmins* the larger of the two propagation delays is chosen on both sides. This attribute reflects the maximum of these two propagation delays. |
| Values | Decimal (0..1500) |
| Units | msec |
| Default | No default |

### ATTRIBUTE Trk Pa negotiatedTrunkType (nttyp)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute gives the actual value of *trunkType* that the *PathAdmin* has decided on after negotiation with the far end *PathAdmin*. If there is disagreement between the two *PathAdmin*'s *trunkType* provisionable attributes the provisioned values are used on both sides. That is, both sides maintain their provisioned value.. |
| Values | terrestrial<br>satellite<br>trunkType1 (tt1)<br>trunkType2 (tt2)<br>trunkType3 (tt3)<br>trunkType4 (tt4)<br>trunkType5 (tt5)<br>trunkType6 (tt6) |
| Default | No default |

### ATTRIBUTE Trk Pa adaptationLevel (adpl)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the current PORS adaptation level of the parent trunk. The adaptation mechanism is controlled by *Adaptation* group, which is used to alleviate the high utilization |

condition on the parent trunk.
0 - adaptation is not active.
1 - new calls are prevented from being established over the parent trunk.
2 - some connections starting from the lowest *holdingPriority* attempt to reroute their paths using alternate trunks.
3 - some connections starting from the lowest *holdingPriority* are bumped away from the parent trunk.

| | |
|---|---|
| Values | Decimal (0..3) |
| Default | No default |

### ATTRIBUTE Trk Pa reservedBwOutByHp (rbw)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute gives the total bandwidth reserved by paths for each of five (5) holding priorities. For example the bandwidth used by *holdingPriority* 0 paths is shown in the left most value. |
| Values | Decimal (0..4294967295) |
| Units | bit/s |
| Replication | Decimal (0..4) |
| Default | No default |

### ATTRIBUTE Trk Pa attemptCountByHp (pacnt)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute gives the total number of path instantiation attempts this trunk has processed since its creation. This number includes successful and unsuccessful attempts. This attribute provides five (5) values of this count, one for each path *holdingPriority.* |
| Values | Decimal (0..4294967295) |
| Replication | Decimal (0..4) |
| Default | No default |

### ATTRIBUTE Trk Pa failCountByHp (pfcnt)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute gives the total number of path instantiation failures that have happened since the creation of this trunk. This attribute provides five (5) values of this count, one for each path *holdingPriority.* |
| Values | Decimal (0..4294967295) |
| Replication | Decimal (0..4) |
| Default | No default |

### ATTRIBUTE Trk Pa clearCountByHp (pccnt)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute gives the total number of path clear requests this trunk has processed since its creation. This attribute provides five (5) values of this count, one for each path *holdingPriority.* |
| Values | Decimal (0..4294967295) |
| Replication | Decimal (0..4) |
| Default | No default |

### ATTRIBUTE Trk Pa bumpCountByHp (pbcnt)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute gives the total number of path bumping requests this trunk has processed since its creation. This attribute provides 5 values of this count, one for each path *holdingPriority.* |
| Values | Decimal (0..4294967295) |
| Replication | Decimal (0..4) |
| Default | No default |

## GROUP Trk Pa Adaptation

| | |
|---|---|
| Properties | Provisioned |
| Description | This group of provisionable attributes controls the PORS adaptive routing mechanism. Adaptation is triggered by high trunk utilization, and is used to alleviate the high utilization condition on the parent *Trunk/n* component.<br><br>For a *Trunk/n* with *an Unack* subcomponent, the link receive utilization (indicated by *utilization* of *Trunk/n)* is used for triggering adaptation.<br><br>For a *Trunk/n* with an *AtmAccess* subcomponent, the aggregation of the transmit VCCs utilization (indicated by *utilization* of *Trunk/n)*, VP utilization, and PORT utilization (normal port or IMA port if *Ima* is used) is used for triggering adaptation. |

## ATTRIBUTE Trk Pa maxAdaptationLevel (maxadpl)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the maximum adaptation level that the parent trunk can reach. It determines the highest degree of adaptation that can be triggered by high trunk utilization.<br><br>When the first degree of adaptation is triggered, new calls are prevented from being established over the parent trunk, and the *adaptationLevel* changes to level one (1).<br><br>When the second degree of adaptation is triggered, some connections starting from the lowest *holdingPriority* attempt to reroute their paths using alternate trunks, and the *adaptationLevel* changes to level two (2).<br><br>When the third degree of adaptation is triggered, some connections starting from the lowest *holdingPriority* are bumped away from the parent trunk, and the *adaptationLevel* changes to level three (3).<br><br>The configurable values are: |

0 - The adapation mechanism is disabled.
1 - Only the first degree of adaptation can be triggered.
2 - Up to two degrees of adaptation can be triggered.
3 - Up to three degrees of adaptation can be triggered.

Regardless of its value, the operator command *CLEAR -hotSwap or CLEAR* (without an option) can always be issued on a particular *LCh/n* to cause the entire path to be rerouted if possible or bumped.

Values: Decimal (0..3)

Default: 0

### ATTRIBUTE Trk Pa adaptationBandwidth (adpbw)

Access: Read: All
Write: All

Description: This attribute specifies the amount of bandwidth to be potentially freed up by rerouting connections if possible or freed up by bumping connections on the trunk when the second or third degree of adaptation is triggered.

The *adaptationBandwidth* value is used to determine the number of connections to be rerouted or bumped starting from the lowest *holdingPriority*, such that the total of the chosen connections reserved outgoing bandwidth *requiredTxBandwidth* reaches this *adaptationBandwidth* value.

If its value is greater than the *maxReservableBwOut* of *Trunk/n Pa*, the *maxReservableBwOut* amount of bandwidth is used for rerouting or bumping.

Values: Decimal (0..4294967295)

Units: bit/s

Default: 64000

### ATTRIBUTE Trk Pa adaptationThreshold (adpth)

Access: Read: All
Write: All

Description

This attribute specifies three utilization thresholds used to trigger the three degrees of adaptation. It is a vector indexed by (*level1*, *level2*, and *level3*).

While the PORS *adaptationLevel* is zero (0),
- if the trunk utilization has exceeded the *level1* value for the period of time specified by the *set* value of *adaptationHoldOffTime*, the first degree of adaptation is triggered. Meanwhile, the *Trunk/n Pa* component generates a SET alarm indicating that the PORS adaptation mechanism is active. The PORS *adaptationLevel* increases to level one (1).

While the PORS *adaptationLevel* is one (1),
- if the trunk utilization has exceeded the *level2* value for the period of time specified by the *set* value of *adaptationHoldOffTime*, the second degree of adaptation is triggered. The PORS *adaptationLevel* increases to level two (2).
- Otherwise, if the trunk utilization has exceeded the *level1* value for an additional period of time specified by the *set* value of *adaptationHoldOffTime*, the PORS *adaptationLevel* remains unchanged.
- Otherwise, if the trunk utilization has subsequently fallen back to a level at or below the *level1* value for the period of time specified by the *clear* value of *adaptationHoldOffTime*, new calls are allowed to be established over the parent trunk. Meanwhile, the *Trunk/n Pa* component generates a CLEAR alarm indicating that the PORS adaptation mechanism is no longer active. The PORS *adaptationLevel* decreases to level zero (0).

While the PORS *adaptationLevel* is two (2),
- if the trunk utilization has exceeded the *level3* value for the period of time specified by the *set* value of *adaptationHoldOffTime*, the third degree of adaptation is triggered. The PORS *adaptationLevel* increases to level three (3).
- Otherwise, if the trunk utilization has exceeded the *level2* value for an additional period of time specified by the *set* value of *adaptationHoldOffTime*, the second degree of adaptation is triggered again, and the PORS *adaptationLevel* remains unchanged.
- Otherwise, if the trunk utilization has subsequently fallen back to a level at or below the *level2* value for the period of time

specified by the *clear* value of *adaptationHoldOffTime*, the PORS *adaptationLevel* decreases to level one (1).

While the PORS *adaptationLevel* is three (3),
- if the trunk utilization has exceeded the *level3* value for an additional period of time specified by the *set* value of *adaptationHoldOffTime*, the third degree of adaptation is triggered again, and the PORS *adaptationLevel* remains unchanged.
- Otherwise, if the trunk utilization has subsequently fallen back to a level at or below the *level3* value for the period of time specified by the *clear* value of *adaptationHoldOffTime*, the PORS *adaptationLevel* decreases to level two (2).

For a *Trunk/n* with an *Unack* subcomponent, the link receive utilization (indicated by *utilization* of *Trunk/n*) is monitored against the thresholds. Since the trunk application solely owns the physical link, the maximum link receive utilization is 100%. The restrictions on the setting of the three thresholds are:
- when *maxAdaptationLevel* is 1, the value of *(level1)* must be in the range of 0% to 100%.
- when *maxAdaptationLevel* is 2, the values of *(level1* and *level2)* must be the range of 0% to 100%, and the value of *level1* must be less than or equal to the value of *level2*.
- when *maxAdaptationLevel* is 3, the values of (*level1*, *level2*, and *level3*) must be in the range of 0% to 100%, and the value of *level1* must be less than or equal to the value of level2, which must be less than or equal to the value of level3.

For a *Trunk/n* with an *AtmAccess* subcomponent, the aggregation of transmit VCCs utilization (indicated by *utilization* of *Trunk/n*), VP utilization, and PORT utilization (normal port or IMA port if *Ima* is used) is monitored against the thresholds. Since the trunk application shares a physical link with other applications, both the VCCs and VP utilizations can exceed 100%, and the value 200% is chosen as the maximum calculated utilization for VCCs and VP, so all thresholds can take on any value in the range of 0% to 200%. The restrictions on the setting of the three thresholds are:
- when *maxAdaptationLevel* is 2, the value of *level1* must be less than or equal to the value of *level2*.

- when *maxAdaptationLevel* is 3, the value of *level1* must be less than or equal to the value of level2, which must be less than or equal to the value of level3.

| | |
|---|---|
| Vector of | Decimal (0..200) |
| Units | % |
| Index | level1<br>level2<br>level3 |
| Default | (level1: 75, level2: 85, level3: 95) |

### ATTRIBUTE Trk Pa adaptationHoldOffTime (adpho)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies two interval times. It is a vector indexed by (*set clear*). The *set* value specifies the period of time for which the trunk utilization must be above the utilization threshold specified by *adaptationThreshold* before the corresponding degree of adaptation is triggered. The *clear* value specifies the period of time for which the trunk utilization must be at or below the utilization threshold specified by *adaptationThreshold* before the PORS *adaptationLevel* is decreased by one (1). |
| Vector of | Decimal (5..60) |
| Units | minutes |
| Index | set<br>clear |
| Default | ([2] 30) |

### COMPONENT Trk Pa AtmAccess (Atm)

| | |
|---|---|
| Groups | "GROUP Trk Pa Atm Prov" |
| Scope | Network |
| Description | *Trunk/n PathAdmin AtmAccess*<br>This subcomponent is optionally added to the *PathAdmin* component on ATM hardware. |

Without this subcomponent the *PathAdmin* will transport all Path Oriented traffic as AAL5 encapsulated cells on the *Trunk AtmAccess localConnection* VCC.
With this subcomponent added under the *PathAdmin* the *PathAdmin* will operate in one of two modes. These modes are referred to as mapping and multiplexing and the selection of the mode is done by setting the *PathAdmin AtmAccess mode* attribute to either ***mapping*** or ***multiplexing***.
When the mode is set to ***mapping***, the *PathAdmin* will create new VCCs for each new *LCh* that it sets up. In mapped mode the CPU usage is normally 0 for a connection and so the ATM FP can support a great many more mapped mode connections than it can multiplexed mode connections. Connections whose *maximumTransmissionUnit* is exactly 45 will use the SPO adaption layer to efficiently fit a single voice frame into a single cell with minimum overhead. All other connections will use the AAL5 adaption layer protocol.
When the mode is set to ***multiplexing***, the *PathAdmin* will look at the attribute *atmConnection* which points to a second provisioned ATM VCC. The *PathAdmin* will then multiplex voice frames onto this second VCC using a proprietary Short Path Oriented adaption layer which encapsulates one voice frame into one voice cell with low overhead. The *PathAdmin* will multiplex all non voice traffic over the *Trunk/n AtmAccess atmConnection* VCC using the AAL5 protocol.

Common Verbs

Help
List
Display
Add
DELete

## GROUP Trk Pa Atm Prov

Properties: Provisioned

Description: This group of attributes provides the parameters used by the *AtmAccess* component for specifying access to an ATM interface.

### ATTRIBUTE Trk Pa Atm atmConnection (ac)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the component name of the ATM Virtual Circuit that the *AtmAccess* component will use. The format of the component name is *AtmIf/n Vcc/x.y Nep* |
| Values | Link (Service, applicationName) |
| Default | No default |

### ATTRIBUTE Trk Pa Atm mode (mode)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the operating mode of the PathAdmin. When set to ***multiplexing*** the *PathAdmin* to multiplex voice calls to the given atmConnection using single cell per voice packet transport. All other calls will be multiplexed using AAL5 over the Trunk's VCC. When set to ***mapping*** the *PathAdmin* will allocate a VCC per *LCh/n*. In ***mapping*** mode the *atmConnection* should not be set. The VCC chosen for a given connection can be seen in the *LCh localConnection* attribute. |
| Values | multiplexing (mux)<br>mapping (map) |
| Default | multiplexing |

### COMPONENT Trk LogicalChannel (LCh)

| | |
|---|---|
| Instance | Decimal (1..65535) |
| Groups | "GROUP Trk LCh Oper" |
| Scope | Application |
| Description | *Trunk/n LogicalChannel/n*<br>This component is automatically created when a new path sets up over the *Trunk* and is deleted when that path terminates. An application component name followed by a series of |

*LogicalChannel* component names followed by an application component name serve to uniquely identify a path. Issuing a *clear* to this component will cause the entire path to collapse and all resources to be freed. Normally the end point components will attempt to reroute after a clear and may even reroute over this same trunk.

Common Verbs

Help
List
Display

## VERB CLEAR Trk LCh

Impact: Service

Description: *Clear [-hotSwap] <component name>*
Clearing an *LCh* (with no options specified) causes the entire path to be abruptly terminated and its resources freed. The end point applications see a disruption in service while their *LC*s attempt to find new routes. It is possible that the new route may go right back over the trunk from which it was cleared. Clearing is normally used in conjunction with a trunk lock. The trunk is locked and its *LCh/n* manually cleared. This is more controlled than to *lock force* a trunk.

**Options:**
*-hotSwap*
If this option is present, the entire path is not terminated abruptly. Instead, the end point application sends traffic using the existing path while its *LC* attempts to find an alternate route. If an alternate route is found and a path is established, the data traffic is swapped from the current path to the alternate path, the current path is terminated, and the alternate path becomes the current path. Otherwise, if an alternate route is not found, the existing path continues to be used.

When '*clear -hotSwap*' is issued against an *LCh/n* which is on a ***manual*** or ***forced*** path, the path gets re-setup.

## GROUP Trk LCh Oper

Properties: Operational

| | |
|---|---|
| Description | This group contains all operational attributes pertaining to the *Logical Channel* component owned by this trunk. |

### ATTRIBUTE Trk LCh nextHop (nhop)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | The *nextHop* is the name of the component across the bus which is forwarding packets to us. Inversely the *nextHop* of our *nextHop* component is us. More precisely, *LCh/n* components point to each other across the bus via their *nextHop* attributes. In the case where the next hop is an application the *nextHop* attribute will indicate the component name of this application. |
| Values | The name of the component |
| Default | No default |

### ATTRIBUTE Trk LCh setupPriority (sp)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute gives the priority at which a path is established. Zero (0) is the highest priority and four (4) is the lowest. When PORS establishes a path through the network, it uses the *setupPriority* attribute to determine its potential for bumping established paths to acquire their bandwidth. The *holdingPriority*, a complementary attribute of this component, indicates the priority a path maintains once it is established. A new path can bump an existing path if the new path's *setupPriority* is higher (or numerically less) than the existing path's *holdingPriority.* |
| Values | Decimal (0..4) |
| Default | No default |

### ATTRIBUTE Trk LCh holdingPriority (hp)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute gives the priority that a path holds once it is established. Zero (0) is the highest priority and four (4) is the |

lowest. A path's *holdingPriority* determines its likelihood of being bumped by a new path to acquire its bandwidth. The *setupPriority*, a complementary attribute, indicates the priority of a path at establishment time. A new path can bump an existing path if the new path's *setupPriority* is higher (or numerically less) than the existing path's *holdingPriority*.

Values: Decimal (0..4)

Default: No default

### ATTRIBUTE Trk LCh emissionPriority (ep)

Access: Read: All
Write: Illegal

Description: This attribute indicates the urgency with which packets on the *LCh*'s path are emitted by this trunk. The *emissionPriority* translates into the trunk's emission queue. Zero (0) indicates the highest *emissionPriority*, while three (3) indicates the lowest. Packets with a higher *emissionPriority* (or numerically less) are put on an emission queue which is serviced before a queue which accepts packets of a lower *emissionPriority* and hence experience smaller delays traversing congested trunks.

Values: Decimal (0..3)

Default: No default

### ATTRIBUTE Trk LCh discardPriority (dp)

Access: Read: All
Write: Illegal

Description: This attribute indicates the importance of the packets on the path. Zero (0) is used for paths carrying the most important traffic, and two (3) is used for paths carrying the least important traffic. In times of congestion, the *discardPriority* is used by packet forwarding on the trunk to determine which packets are discarded first to reduce the load. Packets with a higher *discardPriority* (or numerically less) are discarded after packets with a lower *discardPriority* (or numerically higher).

Values: Decimal (0..3)

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Trk LCh requiredTxBandwidth (tbw)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute gives the bandwidth (in bits per second units) reserved by this *LCh/n* for emitting packets on the trunk. |
| Values | Decimal (0..4294967295) |
| Units | bit/s |
| Default | No default |

### ATTRIBUTE Trk LCh requiredRxBandwidth (rbw)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute gives the bandwidth (in bits per second units) reserved by this *LCh/n* for receiving packets on the trunk. |
| Values | Decimal (0..4294967295) |
| Units | bit/s |
| Default | No default |

### ATTRIBUTE Trk LCh mode

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute gives the operational mode of the *LogicalChannel* component. It indicates what kind of transport is being performed on the packets in the channel. There are 7 possible values of this attribute as follows:<br><br>***unknown*** - not currently in busy state, type of forwarding not determined yet.<br><br>***hdlcFrmMux*** **-** frames are being multiplexed (multiple *LCh/n* on same port or channel) using HDLC encapsulation. |

***aal5FrmMux*** - frames are being multiplexed (multiple *LCh/n* on same ATM VCC) using the AAL5 segmentation and recombination protocol.

***spoFrmMux*** - frames are being multiplexed (multiple *LCh/n* on same ATM VCC) using the Short Path Oriented segmentation and recombination protocol. This is a proprietary protocol which encapsulates voice frames into a single ATM cell unlike AAL5 which would require two cells to transport the 45 byte voice frames.

***aal5FrmMap*** - frames are being mapped (a single *LCh/n* per ATM VCC) using the AAL5 segmentation and recombination protocol. AAL5 mapped frames are forwarded by hardware in both directions and require no CPU intervention.

***spoFrmMap*** - frames are being mapped (a single *LCh/n* per ATM VCC) using the Short Path Oriented segmentation and recombination protocol. SPO mapped frames are forwarded by hardware in both directions and require no CPU intervention in all but one special case. In particular CPU is required only if frames are being forwarded to an *LCh/n* whose *mode* is ***spoFrmMux***.

***cellMap*** - ATM cells are being relayed directly over the bus with no segmentation and recombination protocol. The segmentation and recombination is only done at transition points between frame based cards and ATM cell based cards so this hop represents a pure tandem cell hop, ATM card to ATM card. No CPU is required to process these cells.

Values

unknown (unknwn)
hdlcFrmMux (hdlcMx)
aal5FrmMux (al5Mux)
spoFrmMux (spoMux)
spoFrmMap (spoMap)
aal5FrmMap (al5Map)
cellMap (celMap)

Default

No default

### ATTRIBUTE Trk LCh maximumTransmissionUnit (mtu)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute gives the size of the largest frame this service will send. A value of 0 means that the *Mtu* is unknown. A value of 45 or less (but non zero) means that ATM single cell transport will be used wherever possible. Otherwise ATM AAL5 adaption layer transport will be required to handle all frames. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Trk LCh localConnection (lcon)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | The *localConnection* attribute specifies the name of the connection on the local interface. On ATM hardware this is in the form *AtmIf/n Vcc/x.y*. On non ATM hardware this attribute is empty. |
| Values | The name of the component |
| Default | No default |

### COMPONENT Trk PorsStatistics (PorsStats)

| | |
|---|---|
| Groups | "GROUP Trk PorsStats Operational (Oper)" |
| Scope | Application |
| Description | *Trunk/n PorsStatistics*<br>This is a dynamic subcomponent of a *Trunk* which appears when a *PathAdmin* component is provisioned under the *Trunk* supporting interrupting priority queue. It contains statistics associated with PORS traffic for a *Trunk* component. |
| Common Verbs | Help<br>List<br>Display |

## GROUP Trk PorsStats Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This operational group provides the PORS Trunks interrupting and normal traffic statistics for operator console display. |

## ATTRIBUTE Trk PorsStats porsNormPktFromIf (normPkt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of normal priority packets received on the PORS Trunk normal priority queue. This counter wraps around to zero when the maximum value is exceeded. |
| Values | Long Integer |
| Default | No default |

## ATTRIBUTE Trk PorsStats porsNormDiscUnforwardFromIf (normDisc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of normal priority packets discarded from the PORS Trunk normal priority queue. This counter wraps around to zero when the maximum value is exceeded. |
| Values | Long Integer |
| Default | No default |

## ATTRIBUTE Trk PorsStats porsNormOctetFromIf (normOctet)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of normal priority bytes received on the PORS Trunk normal priority queue.This counter wraps around to zero when the maximum value is exceeded. |
| Values | Long Integer |
| Default | No default |

## ATTRIBUTE Trk PorsStats porsIntPktFromIf (intPkt)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the number of interrupting priority packets received on the PORS Trunk interrupting priority queue. This counter wraps around to zero when the maximum value is exceeded. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Trk PorsStats porsIntDiscUnforwardFromIf (intDisc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of interrupting priority packets discarded from the PORS Trunk interrupting priority queue. This counter wraps around to zero when the maximum value is exceeded. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Trk PorsStats porsIntOctetFromIf (intOctets)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of interrupting priority bytes received on the PORS Trunk interrupting priority queue. This counter wraps around to zero when the maximum value is exceeded. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Trk PorsStats pktFromIfByPrio (pktBp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of PORS packets received by the *Trunk*. It is an array indexed by the emission priorities (*ep0*, *ep1* and *ep2*) and discard priorities (*dp0*, *dp1*, *dp2* and *dp3*) of the packets. The highest emission priority is *ep0* and the least discardable priority is *dp0*. These counters wrap around to zero when the maximum value is exceeded. |

| | | |
|---|---|---|
| Array of | Long Integer | |
| Row | ep<br>ep1<br>ep2] | [ep0 |
| Column | dp<br>dp1<br>dp2<br>dp3] | [dp0 |
| Default | No default | |

### ATTRIBUTE Trk PorsStats discPktFromIfByPrio (discBp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of PORS packets received from the remote module that have been discarded. It is an array indexed by the emission priorities (*ep0*, *ep1* and *ep2*) and discard priorities (*dp0*, *dp1*, *dp2* and *dp3*) of the packets. The highest emission priority is *ep0* and the least discardable priority is *dp0*. These counters wrap around to zero when the maximum value is exceeded. |

| | | |
|---|---|---|
| Array of | Long Integer | |
| Row | ep<br>ep1<br>ep2] | [ep0 |
| Column | dp<br>dp1<br>dp2<br>dp3] | [dp0 |
| Default | No default | |

### ATTRIBUTE Trk PorsStats octetFromIfByPrio (octBp)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the number of PORS octets received by the *Trunk*. It is an array indexed by the emission priorities (*ep0*, *ep1* and *ep2*) and discard priorities (*dp0*, *dp1*, *dp2* and *dp3*) of the packets. The highest emission priority is *ep0* and the least discardable priority is *dp0*. These counters wrap around to zero when the maximum value is exceeded. |
| Array of | Long Integer |
| Row | ep [ep0<br>ep1<br>ep2] |
| Column | dp [dp0<br>dp1<br>dp2<br>dp3] |
| Default | No default |

## COMPONENT Trk ForwardingStatistics (FwdStats)

| | |
|---|---|
| Groups | "GROUP Trk FwdStats Operational (Oper)" |
| Scope | Application |
| Description | *Trunk/n ForwardingStatistics*<br>This is a dynamic subcomponent of a *Trunk* or *DpnGateway* which appears when packet forwarding traffic is used over the *Trunk* or *DpnGateway*. It contains statistics associated with packet forwarding traffic for *Trunks* and *DpnGateways*. |
| Common Verbs | Help<br>List<br>Display |

## GROUP Trk FwdStats Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This operational group counts the *Trunk* or *DpnGateway* packet forwarding traffic statistics for operator console display. |

### ATTRIBUTE Trk FwdStats fwdPktFromIf (fwdPkt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of forwarding packets received by the *Trunk* or *DpnGateway*. This counter wraps around to zero when the maximum value is exceeded. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Trk FwdStats fwdDiscUnforwardFromIf (fwdDisc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of forwarding packets discarded by the *Trunk* or *DpnGateway*. This counter wraps around to zero when the maximum value is exceeded. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Trk FwdStats fwdOctetFromIf (fwdOctet)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of forwarding bytes received by the *Trunk* or *DpnGateway*. This counter wraps around to zero when the maximum value is exceeded. |
| Values | Long Integer |
| Default | No default |

### COMPONENT Trk DprsStatistics (DprsStats)

| | |
|---|---|
| Groups | "GROUP Trk DprsStats Operational (Oper)" |
| Scope | Application |
| Description | *Trunk/n DprsStatistics*<br>This is a dynamic subcomponent of a *Trunk* which appears when |

DPRS traffic is used over the *Trunk*. It contains statistics associated with packet forwarding traffic for *Trunks*.

Common Verbs

Help
List
Display

## GROUP Trk DprsStats Operational (Oper)

Properties: Operational

Description: This operational group counts the *Trunk* or *DpnGateway* packet forwarding traffic statistics for operator console display.

## ATTRIBUTE Trk DprsStats pktFromIfByPrio (pktBp)

Access: Read only

Description: This attribute counts the number of DPRS packets received by the *Trunk*. It is an array indexed by the emission priorities (*ep0*, *ep1* and *ep2*) and discard priorities (*dp0*, *dp1*, *dp2* and *dp3*) of the packets. The highest emission priority is *ep0* and the least discardable priority is *dp0*. These counters wrap around to zero when the maximum value is exceeded.

Array of: Long Integer

Row: ep [ep0
ep1
ep2]

Column: dp [dp0
dp1
dp2
dp3]

Default: No default

## ATTRIBUTE Trk DprsStats discPktFromIfByPrio (discBp)

Access: Read only

Description: This attribute counts the number of DPRS packets received from the remote module that have been discarded by the *Trunk*. It is an

array indexed by the emission priorities (*ep0*, *ep1* and *ep2*) and discard priorities (*dp0*, *dp1*, *dp2* and *dp3*) of the packets. The highest emission priority is *ep0* and the least discardable priority is *dp0*. These counters wrap around to zero when the maximum value is exceeded.

| | | |
|---|---|---|
| Array of | Long Integer | |
| Row | ep<br>ep1<br>ep2] | [ep0 |
| Column | dp<br>dp1<br>dp2<br>dp3] | [dp0 |
| Default | No default | |

### ATTRIBUTE Trk DprsStats octetFromIfByPrio (octBp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of DPRS octets received by the *Trunk*. It is an array indexed by the emission priorities (*ep0*, *ep1* and *ep2*) and discard priorities (*dp0*, *dp1*, *dp2* and *dp3*) of the packets. The highest emission priority is *ep0* and the least discardable priority is *dp0*. These counters wrap around to zero when the maximum value is exceeded. |

| | | |
|---|---|---|
| Array of | Long Integer | |
| Row | ep<br>ep1<br>ep2] | [ep0 |
| Column | dp<br>dp1<br>dp2<br>dp3] | [dp0 |
| Default | No default | |

## COMPONENT Trk Address (Addr)

| | |
|---|---|
| Instance | String (1..40, ASCII) |
| Groups | "GROUP Trk Addr Prov" |
| Scope | Application |
| Description | *Trunk/n Address*<br>This subcomponent is optionally added to the *Trunk* component to specify an NSAP address of a single destination that can be reached through that trunk, or to specify an NSAP address prefix which describes a set of destinations that can be reached through that trunk. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP Trk Addr Prov

| | |
|---|---|
| Properties | Provisioned |
| Description | This group of attributes specifies the provisionable characteristics of the *TrkReachableAddress* component. |

## ATTRIBUTE Trk Addr cost (cost)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies a cost of using the trunk to reach a destination or destinations described by *TrkReachableAddress* component. The value is assigned by the network administrator to represent the network cost of using this trunk. It can be related to distance, speed, dollars, or any other factor that could be taken into consideration. |
| Values | Decimal (0..65435) |
| Default | 200 |

Passport 7400, 15000, 20000

# Component Trk

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component Trm

241-5701-060

Passport 7400, 15000, 20000

# Component Trm

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT TransportResource (Trm)

| | |
|---|---|
| Scope | Network |
| Description | *TransportResource*<br>This component resides on all Passport modules and is responsible for managing link resources. It acts as an intermediary between a link and all the routing systems that use the link. |
| Dyn. Subcomp. | "COMPONENT Trm Link (Lk)"<br>"COMPONENT Trm LinkGroup (Lg)" |
| Common Verbs | Help<br>List<br>Display |

## COMPONENT Trm Link (Lk)

| | |
|---|---|
| Instance | Decimal (1..1023) |
| Groups | "GROUP Trm Lk Operational (Oper)"<br>"GROUP Trm Lk ForwardingStatistics (FwdStats)" |
| Scope | Network |
| Description | *Trm Link/<n>*<br>This component is a dynamic subcomponent of *TransportResource*. It has operational attributes only which are stored and maintained by this component for listing links. |

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display |

## GROUP Trm Lk Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | *Trm Lk/<n> Operational*<br>This group of attributes is used to list links. These links are all registered with Transport Resource Manager. They have a status which reflects the current view of the link. |

## ATTRIBUTE Trm Lk status

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates if the inactive link is disabled, joining, waiting to join, or in standby mode.<br><br>***inactive*** - The link is known to TRM but is not active. This can mean that it is disabled, or has not yet started to join.<br>***joining*** - The link has requested to join the routing systems.<br>***online***- The link is active and has joined one or more routing systems. |
| Values | inactive<br>joining<br>online |
| Default | No default |

## ATTRIBUTE Trm Lk throughput

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the throughput of the link in kbit/s. This value represents a nominal bandwidth available for connectionless traffic, after the maximum reserved for path-oriented traffic has been subtracted from trunk bandwidth. If a |

| | |
|---|---|
| | trunk speed override is specified, it is used instead. The “throughput” value can be exceeded by connectionless traffic whenever path-oriented traffic is not using it’s reserved bandwidth. |
| Values | Decimal (1..640000000) |
| Units | kbit/s |
| Default | No default |

### ATTRIBUTE Trm Lk maxTxUnit

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the maximum data unit in bytes of this link. It represents the maximum frame length (including user data and routing headers) that can be sent on the link. |
| Values | Decimal (1..65535) |
| Units | bytes |
| Default | No default |

### ATTRIBUTE Trm Lk linkComponentName

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the link’s component name. A link is either a trunk or a gateway to another module. The component name may be used to obtain additional information from the link system. |
| Values | The name of the component |
| Default | No default |

### ATTRIBUTE Trm Lk delay

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the round trip delay of the link in milliseconds. This value represents a nominal delay for connectionless traffic. Connectionless traffic is biased away from trunks carrying path-oriented traffic by increasing this value. The |

| | |
|---|---|
| | value of this attribute is a function of the percentage of reserved path-oriented bandwidth and takes a maximum value of 1500 msec for 100% path-oriented trunks. If a delay override is specified, it will be used instead. |
| Values | Decimal (1.0..1500.0) |
| Units | msec |
| Default | No default |

### GROUP Trm Lk ForwardingStatistics (FwdStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group of attributes is used to display egress statistics collected by packet forwarding on this link. The statistics can be used to monitor congestion conditions and packet discards on a link. |

### ATTRIBUTE Trm Lk fciSet

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the packets whose FCI bits are set by packet forwarding due to congestion on this link, and when the *forwardingPolicy* attribute of the *Routing DpnAddressPlan* component is set to a value of either ***loadshare*** or ***loadspread***. This counter wraps around to zero when the maximum value is reached. |
| Values | Decimal (0..2147483647) |
| Default | No default |

### ATTRIBUTE Trm Lk overflowAttempts

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times DPRS packet forwarding attempts to overflow packets to another link in a link group due to congestion on this link. It is used only when the *forwardingPolicy* attribute in the *Routing DpnAddressPlan* component is set to a value of either ***loadshare*** or ***loadspread***. |

| | |
|---|---|
| | This counter wraps around to zero when the maximum value is reached. |
| Values | Decimal (0..2147483647) |
| Default | No default |

### ATTRIBUTE Trm Lk pathOverflowAttempts

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times DPRS packet forwarding<br>attempts to overflow packets to another link group due to congestion on the link group of this link. It is used only when the *forwardingPolicy* attribute of the *Routing DpnAddressPlan* component is set to a value of either ***loadshare*** or ***loadspread***. This counter wraps around to zero when the maximum value is reached. |
| Values | Decimal (0..2147483647) |
| Default | No default |

### ATTRIBUTE Trm Lk discardCongested

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the packets that have been discarded by packet forwarding due to congestion on this link and when the *forwardingPolicy* attribute of the *Routing DpnAddressPlan* component is set to a value of either ***loadshare*** or ***loadspread***.<br><br>This attribute is a vector with three entries. Each entry corresponds to a discard priority of the packet. The first entry represents the discard count of packets with discard priority 1, the second entry discard priority 2, and the third entry discard priority 3. Each entry (counter) wraps around to zero when the maximum value is reached. |
| Vector of | Decimal (0..2147483647) |
| Index | discardPriority_1 (dp1)<br>discardPriority_2 (dp2)<br>discardPriority_3 (dp3) |

| | |
|---|---|
| Default | No default |

## COMPONENT Trm LinkGroup (Lg)

| | |
|---|---|
| Instance | String (1..12, ASCII) |
| Scope | Network |
| Description | *Trm LinkGroup /<neighborNodeName>*<br>This component is a dynamic subcomponent of *TransportResource*. It has operational attributes only which are stored and maintained by this component for the purpose of displaying link groups.<br><br>A link group contains 1 to 4 links, all of which are active.<br><br>The neighbor node name is the node name provisioned in the *Module* component on the remote Passport module if the link group connects to a Passport switch. Otherwise it is the remote module node name provisioned in the components of gateways in this link group.<br><br>Links in a link group can have differing throughputs and round trip delays. If the difference within the set of throughputs, or within the set of delays is significant, some links may not be used. The rule that is applied is that links within 50% of the throughput of the highest throughput link are used for the throughput RCOS. similarly links within 50% of the delay of the lowest delay link are used for the throughput RCOS. As links are added or removed from the link group, the set of links which are used is re-evaluated. |
| Dyn. Subcomp. | "COMPONENT Trm Lg Link (Lk)"<br>"COMPONENT Trm Lg LogicalNetworkNumber (LNN)" |
| Common Verbs | Help<br>List<br>Display |

## COMPONENT Trm Lg Link (Lk)

| | |
|---|---|
| Instance | Decimal (1..1023) |

| | |
|---|---|
| Groups | "GROUP Trm Lg Lk Operational (Oper)"<br>"GROUP Trm Lg Lk ForwardingStatistics (FwdStats)" |
| Scope | Network |
| Description | *Trm Lg/<neighborNodeName> Link /<linkInstance>*<br>This component is a dynamic subcomponent of *LinkGroup*. It has operational attributes only which are stored and maintained by this component for displaying links in a link group. There are 1 to 4 active links in a link group. A link group object is not created until there is at least one active link in the group. Inactive links are not shown in a link group. |
| Common Verbs | Help<br>List<br>Display |

## GROUP Trm Lg Lk Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | *Trm Lk/<n> Operational*<br>This group of attributes is used to list links. These links are all registered with Transport Resource Manager. They have a status which reflects the current view of the link. |

## ATTRIBUTE Trm Lg Lk status

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates if the inactive link is disabled, joining, waiting to join, or in standby mode.<br><br>***inactive*** - The link is known to TRM but is not active. This can mean that it is disabled, or has not yet started to join.<br>***joining*** - The link has requested to join the routing systems.<br>***online***- The link is active and has joined one or more routing systems. |
| Values | inactive<br>joining<br>online |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Trm Lg Lk throughput

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the throughput of the link in kbit/s. This value represents a nominal bandwidth available for connectionless traffic, after the maximum reserved for path-oriented traffic has been subtracted from trunk bandwidth. If a trunk speed override is specified, it is used instead. The “throughput” value can be exceeded by connectionless traffic whenever path-oriented traffic is not using it’s reserved bandwidth. |
| Values | Decimal (1..640000000) |
| Units | kbit/s |
| Default | No default |

### ATTRIBUTE Trm Lg Lk maxTxUnit

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the maximum data unit in bytes of this link. It represents the maximum frame length (including user data and routing headers) that can be sent on the link. |
| Values | Decimal (1..65535) |
| Units | bytes |
| Default | No default |

### ATTRIBUTE Trm Lg Lk linkComponentName

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the link’s component name. A link is either a trunk or a gateway to another module. The component name may be used to obtain additional information from the link system. |
| Values | The name of the component |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Trm Lg Lk delay

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the round trip delay of the link in milliseconds. This value represents a nominal delay for connectionless traffic. Connectionless traffic is biased away from trunks carrying path-oriented traffic by increasing this value. The value of this attribute is a function of the percentage of reserved path-oriented bandwidth and takes a maximum value of 1500 msec for 100% path-oriented trunks. If a delay override is specified, it will be used instead. |
| Values | Decimal (1.0..1500.0) |
| Units | msec |
| Default | No default |

### GROUP Trm Lg Lk ForwardingStatistics (FwdStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group of attributes is used to display egress statistics collected by packet forwarding on this link. The statistics can be used to monitor congestion conditions and packet discards on a link. |

### ATTRIBUTE Trm Lg Lk fciSet

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the packets whose FCI bits are set by packet forwarding due to congestion on this link, and when the *forwardingPolicy* attribute of the *Routing DpnAddressPlan* component is set to a value of either ***loadshare*** or ***loadspread***. This counter wraps around to zero when the maximum value is reached. |
| Values | Decimal (0..2147483647) |
| Default | No default |

### ATTRIBUTE Trm Lg Lk overflowAttempts

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times DPRS packet forwarding attempts to overflow packets to another link in a link group due to congestion on this link. It is used only when the *forwardingPolicy* attribute in the *Routing DpnAddressPlan* component is set to a value of either ***loadshare*** or ***loadspread***. This counter wraps around to zero when the maximum value is reached. |
| Values | Decimal (0..2147483647) |
| Default | No default |

### ATTRIBUTE Trm Lg Lk pathOverflowAttempts

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times DPRS packet forwarding<br>attempts to overflow packets to another link group due to congestion on the link group of this link. It is used only when the *forwardingPolicy* attribute of the *Routing DpnAddressPlan* component is set to a value of either ***loadshare*** or ***loadspread***. This counter wraps around to zero when the maximum value is reached. |
| Values | Decimal (0..2147483647) |
| Default | No default |

### ATTRIBUTE Trm Lg Lk discardCongested

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the packets that have been discarded by packet forwarding due to congestion on this link and when the *forwardingPolicy* attribute of the *Routing DpnAddressPlan* component is set to a value of either ***loadshare*** or ***loadspread***.<br><br>This attribute is a vector with three entries. Each entry corresponds to a discard priority of the packet. The first entry represents the discard count of packets with discard priority 1, the |

second entry discard priority 2, and the third entry discard priority 3. Each entry (counter) wraps around to zero when the maximum value is reached.

Vector of: Decimal (0..2147483647)

Index:
discardPriority_1 (dp1)
discardPriority_2 (dp2)
discardPriority_3 (dp3)

Default: No default

## COMPONENT Trm Lg LogicalNetworkNumber (LNN)

Instance: Decimal (0..2047)

Groups: "GROUP Trm Lg LNN Operational (Oper)"

Scope: Network

Description: *Trm Lg/<neighborNodeName> LNN /<logical network number>*
This component is a dynamic subcomponent of *LinkGroup*. It has operational attributes only which are stored and maintained by this component for displaying address plans supported over this link group. A logical network number (which is used as an instance to this component) uniquely identifies an address plan and its traffic in a Passport network.

Common Verbs:
Help
List
Display

## GROUP Trm Lg LNN Operational (Oper)

Properties: Operational

Description: *Trm Lg/<neighborNodeName> LNN/<logical network number> Operational*
This group of attributes is the information associated with an address plan.

## ATTRIBUTE Trm Lg LNN linkType

Access: Read only

| | |
|---|---|
| Description | This attribute indicates how the LNN is transported over the link group. It can be one of three types:<br>*trunk* - the LNN is supported by Topology over a Passport to Passport link<br>*internal gateway* - the LNN is supported by an address plan (but not Topology) over a Passport to Passport link<br>*external gateway* - the LNN is supported by an address plan (but not Topology) over a Passport to non-Passport link |
| Values | trunk<br>internalGateway<br>externalGateway |
| Default | No default |

### ATTRIBUTE Trm Lg LNN addressPlanComponentName (addrPlanCompName)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the component name of the address plan which owns the logical network number of this component. |
| Values | The name of the component |
| Default | No default |

Passport 7400, 15000, 20000

# Component Trm

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component Usc

241-5701-060

Passport 7400, 15000, 20000

# Component Usc

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT UsgsnSubscriberControl (Usc)

| | |
|---|---|
| Instance | Decimal (1..15) |
| Groups | "GROUP Usc Provisioned (Prov)"<br>"GROUP Usc OsiState (State)"<br>"GROUP Usc Statistics (Stats)"<br>"GROUP Usc WlcCustomCounters (WlcCustomCntr)"<br>"GROUP Usc OvldScOper"<br>"GROUP Usc OvldOper" |

"COLLECTED STATS UsgsnSubscriberControl"

| | |
|---|---|
| Scope | Application |
| Description | *UmtsSubscriberControl/n*<br><br>This component represents the subscriber control entities such as the GPRS Mobility Management (GMM), the Session Management SM), the control part of the GPRS Tunneling Protocol (GTP-C), and the interfaces to the Home Location Register (HLR) (*HlrCache, MapClient*). |

| | |
|---|---|
| Subcomponents | "COMPONENT Usc GtpC"<br>"COMPONENT Usc MemoryPoolManager (Mpm)"<br>"COMPONENT Usc HlrCache (HlrC)"<br>"COMPONENT Usc SessionManagement (Sm)"<br>"COMPONENT Usc GprsMobilityManagement (Gmm)"<br>"COMPONENT Usc MapClient (Mc)"<br>"COMPONENT Usc ServiceSwitchingFunction (Ssf)" |
| Opt. Subcomp. | "COMPONENT Usc LocationServices (Lcs)" |
| Dyn. Subcomp. | "COMPONENT Usc RemoteApplicationConnection (RaConn)"<br>"COMPONENT Usc Ranap"<br>"COMPONENT Usc DifferentiatedService (Ds)"<br>"COMPONENT Usc GprsSupportNode (Gsn)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Usc Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes of the *Usc* component. |

## ATTRIBUTE Usc linkToLogicalProcessor (lp)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the Logical Processor that the *UmtsSubscriberControl (Usc)* and its subcomponents are provisioned on.<br><br>Changing the value of this attribute causes the card to be reset and all the subscribers using this *Usc* component will be disconnected. |

| | |
|---|---|
| Values | Link (Hardware, linkToApplications) |
| Default | No default |

### ATTRIBUTE Usc sgsnNumber (sgsnNum)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the designated E.164 number for this USGSN. This is used to associate the USGSN in the Home Location Register (HLR) with the MSC-VLR, to identify the USGSN in the SS7 network, and to identify the routing capabilities.<br><br>Changing the value of this attribute causes the card to be reset and all the subscribers using this *Usc* component will be disconnected. |
| Values | String (8..17, NativeAddress) |
| Default | No default |

### ATTRIBUTE Usc maxAttachedSubscribers (maxSubs)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the maximum attached subscribers for this instance of UMTS Subscriber Control (*Usc*).<br><br>The current attached subscribers can be obtained from the attribute *currentlyAttached* defined in the *GprsMobilityManagement (Gmm)* component.<br><br>Changing the value of this attribute causes the card to be reset and all the subscribers using this *Usc* component will be disconnected.<br><br>This attribute together with currentlyAttached are used to |

| | |
|---|---|
| | determine when subscriber count overload occurs (Refer to *Usc* subCountOvldAttachesDiscarded). |
| Values | Decimal (1..1000000) |
| Default | 500 |

### ATTRIBUTE Usc maxActiveSessions (maxActSess)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the maximum simultaneous active sessions supported in this UMTS Subscriber Control (*Usc*).<br><br>Changing the value of this attribute causes the card to be reset and all the subscribers using this *Usc* component will be disconnected |
| Values | Decimal (1..600000) |
| Default | 1500 |

### ATTRIBUTE Usc linkToDnsAgent (lToDns)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies a link to the *DnsAgent* to be used by the *UmtsSubscriberControl* entities. |
| Values | Link (Service, linkToDnsClient) |
| Default | No default |

### ATTRIBUTE Usc linkToLisp

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies a link to the *LawfulIntercept* to be used by the *UmtsSubscriberControl* entities. |
| Values | Link (Service, linkToLiClient) |

Default No default

### ATTRIBUTE Usc localPointCode (localPc)

Access Read: All
Write: All

Description This attribute specifies the point code of the node that the MAP layer manages.

The point code must be provisioned in one of the following formats:

***basic***: The point code is provisioned as a decimal number in the range 1..16383 if the value of the attribute *sccpVariant* in *Usc/n MapClient* is set to ***itu.***

The point code is provisioned as a decimal number in the range ***1..16777215*** if the value of the attribute *sccpVariant* in *Usc/n MapClient* is set to ***ansi*** or ***ituChinese.***

***segmented***: The point code is provisioned as three integers, separated by dots.

If the value of the attribute *sccpVariant* in *Usc/n MapClient* is set to ***itu,*** the first integer must be in the range ***0..7***, the second integer must be in the range ***0..255***, and the third integer must be in the range ***0..7***. A value of ***0.0.0*** is not valid.

If the value of the attribute *sccpVariant* in *Usc/n MapClient* is set to ***ansi*** or ***ituChinese,*** all the three integers must be in the range ***0..255***.

A value of ***0.0.0*** or ***0*** is not valid.

Values Integer Sequence

Default No default

### GROUP Usc OsiState (State)

Properties Operational

Description

This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Usc adminState (osiAdmin)

Access

Read only

Description

This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values

locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default

unlocked

### ATTRIBUTE Usc operationalState (osiOper)

Access

Read only

Description

This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values

enabled (ena)
disabled (dis)

Default

disabled

### ATTRIBUTE Usc usageState (osiUsage)

Access

Read only

Description

This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values

idle
active (activ)
busy

Default

idle

## ATTRIBUTE Usc availabilityStatus (osiAvail)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.<br><br>The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.<br><br>The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.<br><br>The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.<br><br>The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.<br><br>The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***. |

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

### ATTRIBUTE Usc proceduralStatus (osiProc)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.

The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

### ATTRIBUTE Usc controlStatus (osiCntrl)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the

attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

Set of

subjectToTest (subTst)
partOfServicesLocked (partLk)
reservedForTest (rsrvd)
suspended (suspnd)

Default

No default

## ATTRIBUTE Usc alarmStatus (osiAlarm)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are

outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE Usc standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and

containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values
hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

Default
notSet

### ATTRIBUTE Usc unknownStatus (osiUnknw)

Access
Read only

Description
This attribute indicates the OSI Unknown status of the component.

The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.

The value ***true*** indicates that the actual state of the component is not known for sure.

Values
false
true

Default
false

### GROUP Usc Statistics (Stats)

Properties
Operational

Description
This group contains the statistical attributes for the Mobile Subscriber Purge functionality on the (UMTS) Serving GPRS Support Node (USGSN or SGSN).

### ATTRIBUTE Usc explicitDetachPurge (expDetPurge)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Mobile Subscriber (MS) Purge requests initiated due to an explicit mobile detach. Mobile Subscriber Purge requests are initiated upon explicit detach when the *purgeOnExplicitDetach* attribute in (U) SGSN MobileSubscriberPurge is enabled.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc operatorInitiatedPurge (opInitPurge)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Mobile Subscriber (MS) Purge requests initiated by the operator.<br><br>An operator initiated the Mobile Subscriber Purge request by issuing the *clear* command on an (U) SGSN *Imsi* component.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc contextReusePurge (crPurge)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Mobile Subscriber (MS) Purge requests initiated due to context reuse.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Usc periodicAuditPurge (auditPurge)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Mobile Subscriber (MS) Purge requests initiated due to periodic audit. During a periodic audit, Mobile Subscribers whose age is greater than the value specified by the auditPurgeMinimumInactiveAge attribute in (U) SGSN MobileSubscriberPurge are considered candidates for purge.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc msPurgeAckFailures (ackFail)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Mobile Subscriber (MS) Purge Acknowledgement Failures received from the Home Location Register (HLR).<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc msPurgeSendFailures (sendFail)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Mobile Subscriber (MS) Purge requests that were not sent from the (UMTS) Serving GPRS Support Node (USGSN or SGSN) due to network related faults such as SIG failure.<br><br>The counter wraps to zero when it exceeds the maximum value. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Usc WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Usc customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a |

| | |
|---|---|
| | mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Usc OvldScOper

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for overload controls for the *Gsc* and *Usc* components. |

### ATTRIBUTE Usc cpuOvldAttachesDiscarded (cpuOvldAttDisc)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of GPRS Mobility Management (GMM) attach request messages that are discarded due to a CPU overload condition on the GSC and USC applications.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc cpuOvldActivationsDiscarded (cpuOvldActDisc)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of Session Management (SM) session activate request messages that are discarded due to CPU overload on the GSC and USC applications.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc subCountOvldAttachesDiscarded (subOvldAttDisc)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of GPRS Mobility Management (GMM) attach request messages that are discarded due to subscriber count overload, which occurs when the value of the *currentlyAttached* attribute is equal to the value of the *maxAttachedSubscribers* attribute.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Usc OvldOper

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for overload controls. |

### ATTRIBUTE Usc cpuOvldMovingAvg (cpuOvldAvg)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the CPU moving average calculated from within the defined moving window, the size of which is determined by the value of *cpuOvldWindowSize attribute*. |
| Values | Decimal (0..100) |
| Units | % |
| Default | No default |

### ATTRIBUTE Usc cpuOvldWindowSize (cpuOvldWinSz)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the CPU moving average window size. The window size is the duration over which the CPU usage |

measurements are taken before the average CPU usage is calculated. CPU measurements are separated by a fixed interval.

Values: Decimal (0..4294967295)

Units: seconds

Default: 60

# COLLECTED STATS UsgsnSubscriberControl

Description: The statistics record generated by the UsgsnSubscriberControl component.

### ATTRIBUTE Usc cpuOvldAttachesDiscarded (cpuOvldAttDisc)

Description: This attribute counts the number of GPRS Mobility Management (GMM) attach request messages that are discarded due to a CPU overload condition on the GSC and USC applications.

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Usc cpuOvldActivationsDiscarded (cpuOvldActDisc)

Description: This attribute counts the number of Session Management (SM) session activate request messages that are discarded due to CPU overload on the GSC and USC applications.

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Usc subCountOvldAttachesDiscarded (subOvldAttDisc)

Description: This attribute counts the number of GPRS Mobility Management (GMM) attach request messages that are discarded due to subscriber count overload, which occurs when the value of the *currentlyAttached* attribute is equal to the value of the *maxAttachedSubscribers* attribute.

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Usc cpuOvldMovingAvg (cpuOvldAvg)

| | |
|---|---|
| Description | This attribute indicates the CPU moving average calculated from within the defined moving window, the size of which is determined by the value of *cpuOvldWindowSize* attribute.<br><br>The value of the attribute is set at the end of the collection interval. |
| Values | Decimal (0..100) |
| Units | % |

### ATTRIBUTE Usc explicitDetachPurge

| | |
|---|---|
| Description | This attribute counts the Mobile Subscriber (MS) Purge requests initiated due to an explicit mobile detach. Mobile Subscriber Purge request are initiated upon explicit detach when the *purgeOnExplicitDetach* attribute in (U) SGSN MobileSubscriberPurge is enabled.<br><br>The counter counts the events in the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Usc operatorInitiatedPurge

| | |
|---|---|
| Description | This attribute counts the number of Mobile Subscriber (MS) Purge requests initiated by the operator.<br><br>An operator initiates the Mobile Subscriber Purge request by issuing the *clear* command on an (U) SGSN *Imsi* component.<br><br>The counter counts the events in the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Usc contextReusePurge

| | |
|---|---|
| Description | This attribute counts the number of Mobile Subscriber (MS) Purge requests initiated due to memory reuse.<br><br>The counter counts the events in the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Usc periodicAuditPurge

Description: This attribute counts the number of Mobile Subscriber (MS) Purge requests initiated due to periodic. During a periodic audit, detached Mobile Subscribers whose age is greater than the value specified by the auditPurgeMinimumInactiveAge attribute in (U) SGSN MobileSubscriberPurge are considered candidates for purge.

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Usc msPurgeAckFailures

Description: This attribute counts the Mobile Subscriber (MS) Purge Acknowledgement Failures received by the (UMTS) Serving GPRS Support Node (USGSN or SGSN) from the Home Location Register (HLR).

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Usc msPurgeSendFailures

Description: This attribute counts the Mobile Subscriber (MS) Purge requests that were not sent from the (UMTS) Serving GPRS Support Node (USGSN or SGSN) due to network related faults such as SIG failure and so on.

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### COMPONENT Usc GtpC

Groups:
"GROUP Usc GtpC Provisioned (Prov)"
"GROUP Usc GtpC Operational (Oper)"
"GROUP Usc GtpC WlcCustomCounters (WlcCustomCntr)"
"GROUP Usc GtpC OsiState (State)"

"COLLECTED STATS UsgsnSubscriberControl GtpC"

Scope: Application

| | |
|---|---|
| Description | *Usc/n GtpC*<br><br>This component represents the control plane (signalling traffic) of the GPRS Tunnelling Protocol (GTP) layer used over the Gn and Gp interfaces. |
| Dyn. Subcomp. | "COMPONENT Usc GtpC GtpPath (Path)" |
| Common Verbs | Help<br>List<br>Display |

### VERB Zero Usc GtpC

| | |
|---|---|
| Impact | Service |
| Description | *Zero Usc/n GtpC*<br><br>This command resets all the peak attributes in the *Usc/n GtpC* component. |

### GROUP Usc GtpC Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the control plane (signalling traffic) of the GPRS Tunnelling Protocol layer (GTP-C) used over the Gn and Gp interfaces. |

### ATTRIBUTE Usc GtpC maxGtpPaths (maxPaths)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the maximum number of paths that can be setup between this UMTS Serving GPRS Support Node (USGSN) and the GPRS Support Nodes (GSNs). Each path contains one or more tunnels which may be used by, for example, PDP Contexts.<br><br>The peak number of paths can be obtained from the attribute *peakGtpPaths*. The current number of paths can be obtained from |

the attribute *currentGtpPaths.*

Changing the value of this attribute causes the card to be reset and all outstanding transactions will be affected.

Values: Decimal (1..65535)

Default: 10

### ATTRIBUTE Usc GtpC maxTransactions (maxTr)

Access: Read: All
Write: All

Criticality: Process

Description: This attribute specifies the maximum number of outstanding GPRS Tunneling Protocol (GTP) messages that can be simultaneously waiting for responses or acknowledgments from the peer GPRS Support Nodes (GSNs).

The peak number of transactions can be obtained from the attribute *peakTransactions*. The current number of transactions can be obtained from the attribute *currentTransactions.*

Changing the value of this attribute causes the card to be reset and all outstanding transactions will be affected.

Values: Decimal (10..65535)

Default: 100

### ATTRIBUTE Usc GtpC linkToPort (lToPort)

Access: Read: All
Write: All

Description: This attribute specifies the IP Address and the UDP port numbers that the GPRS Tunneling Protocol (GTP) version 0 and version 1 respectively use to communicate with the Gateway GPRS Support Node (GGSN).

The IP Address and UDP Port are specified by setting this attribute to link to the correct *Gips IpAddress Port Udp*

component.

The standards recommend the value of the first member of this list (used by GTP Version 0) to be set to ***Gips IpAddress/ <ipaddress> Port Udp/3386***

The standards recommend the value of the second member of this list (used by GTP Version 1) to be set to ***Gips IpAddress/ <ipaddress> Port Udp/2352***

Changing the value of this attribute causes all the outstanding transactions to be affected.

| | |
|---|---|
| List of | Link (Service, linkToApplication) |
| Default | No default |

### GROUP Usc GtpC Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational attributes of the control plane (signalling traffic) of the GPRS Tunnelling Protocol (GTP) layer used over the Gn and Gp interfaces. |

### ATTRIBUTE Usc GtpC peakGtpPaths (peakGtpP)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the peak number of managed paths that have been setup between this UMTS Serving GPRS Support Node (USGSN) and the GPRS Support Nodes (GSNs).<br><br>The maximum value is provisioned in the attribute *maxGtpPaths* and the current value is indicated by the *currentGtpPaths* attribute. The value of this attribute indicates the peak value attained by the *currentGtpPaths* attribute.<br><br>The *Zero* verb resets the value of this attribute to the current number of GTP paths. |
| Values | Decimal (0..65535) |

Default — No default

### ATTRIBUTE Usc GtpC pathFailures (pathFail)

Access — Read: All
Write: Illegal

Description — This attribute counts the path failures detected by GTPC, based on the attribute *strictPathSupervision*, provisioned in *Usgsn Usc*.

If *strictPathSupervision* has the value ***enabled,*** failure of the remote end to respond to any GTP request will result in path failure being declared.

If *strictPathSupervision* has the value ***disabled***, then failure of the remote end to respond to an echo request will be marked as a path failure, but all other failures will not be detected.

The counter wraps to zero when its maximum value is exceeded.

Values — Decimal (0..4294967295)

Default — No default

### ATTRIBUTE Usc GtpC peakTransactions

Access — Read: All
Write: Illegal

Description — This attribute indicates the peak number of transactions between this UMTS Serving GPRS Support Node (USGSN) and the GPRS Support Nodes (GSNs).

The maximum value is provisioned in the *maxTransactions* attribute and the current value is indicated by the *currentTransactions* attribute. The value of this attribute indicates the peak value attained by the *currentTransactions* attribute.

The *Zero* verb resets the value of this attribute to the current number of Transactions.

Values — Decimal (0..65535)

Default — No default

### ATTRIBUTE Usc GtpC currentGtpPaths (currGtpP)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of managed paths currently maintained that have been setup between this UMTS Serving GPRS Support Node (USGSN) and the GPRS Support Nodes (GSNs).<br><br>The maximum value is provisioned in the *maxGtpPaths* attribute and the peak value attained by this attribute is indicated by the *peakGtpPaths* attribute. |
| Values | Decimal (0..65535) |
| Default | No default |

### ATTRIBUTE Usc GtpC currentTransactions (currTr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of outstanding transactions between this UMTS Serving GPRS Support Node (USGSN) and the GPRS Support Nodes (GSNs). It is the sum of the outstanding requests in each path.<br><br>The maximum value is provisioned in the *maxTransactions* attribute and the peak value attained by this attribute is indicated by the *peakTransactions* attribute. |
| Values | Decimal (0..65535) |
| Default | No default |

### GROUP Usc GtpC WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Usc GtpC customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc GtpC customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc GtpC customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Usc GtpC OsiState (State)

| | |
|---|---|
| Properties | Operational |

Description

This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Usc GtpC adminState (osiAdmin)

Access

Read only

Description

This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values

locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default

unlocked

### ATTRIBUTE Usc GtpC operationalState (osiOper)

Access

Read only

Description

This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be

providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Usc GtpC usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

## COLLECTED STATS UsgsnSubscriberControl GtpC

Description
The statistics record generated by the UsgsnSubscriberControl GtpC component.

### ATTRIBUTE Usc GtpC echoRqstsTx

Description
This attribute indicates the number of Echo Request Messages sent over the collection interval.

The count is taken at the end of the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc GtpC gnEchoRespTx

Description This attribute indicates the number of Echo Response Messages sent on the Gn Interface over the collection interval.

The count is taken at the end of the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc GtpC pathFailures

Description This attribute indicates the number of path failures detected by GTPC, based on the attribute *strictPathSupervision* in *Usgsn Usc*, over the collection interval.

If *strictPathSupervision* has the value ***enabled,*** failure of the remote end to respond to any GTP request will result in path failure being declared.
If *strictPathSupervision* has the value ***disabled***, then failure of the remote end to respond to an echo request will be marked as a path failure, but all other failures will not be detected.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc GtpC idenRqstMsgsTx

Description This value indicates the number of times the USGSN sent a IDENTIFICATION REQUEST message to the Mobile Station (MS) over the collection interval.

The count is taken at the end of the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc GtpC sgsnCntxtRqstMsgsTx

Description This attribute indicates the number of times the USGSN sent a SGSN CONTEXT REQUEST Message to the Mobile Station over the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc GtpC sgsnCntxtAckRqstMsgsTx

Description

This value indicates the number of times the USGSN sent a SGSN CONTEXT ACKNOWLEDGE REQUEST Message to the Mobile Station.

The count is taken at the end of the collection interval.

Values

Decimal (0..4294967295)

### COMPONENT Usc GtpC GtpPath (Path)

Instance

IP address

Groups

"GROUP Usc GtpC Path OsiState (State)"
"GROUP Usc GtpC Path WlcCustomCounters (WlcCustomCntr)"

Scope

Application

Description

*Usc/n GtpC GtpPath/<ipaddress>*
*Gsc/n GtpMgmt GtpPath/<ipaddress>*

This component represents paths managed by the signaling part of the GPRS Tunneling Protocol (GTP) protocol layer. Paths are set up between this (UMTS) Serving GPRS Support Node ((U) SGSN) and the GPRS Support Nodes (GSNs).

Common Verbs

Help
List
Display

### GROUP Usc GtpC Path OsiState (State)

Properties

Operational

Description

This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Usc GtpC Path adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Usc GtpC Path operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |

| | |
|---|---|
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Usc GtpC Path usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Usc GtpC Path WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Usc GtpC Path customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Usc GtpC Path customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc GtpC Path customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT Usc MemoryPoolManager (Mpm)

| | |
|---|---|
| Scope | Application |
| Description | *Gsc/n MemoryPoolManager*<br>*Gsd/n MemoryPoolManager*<br>*Gtl/n MemoryPoolManager*<br>*DnsAgent/<vr>,n MemoryPoolManager*<br><br>This component represents the memory resources of a given GPRS application that are managed as pools of objects. |

Dyn. Subcomp. "COMPONENT Usc Mpm MemoryPoolClient (Mpc)"

Common Verbs
Help
List
Display

## COMPONENT Usc Mpm MemoryPoolClient (Mpc)

Instance String (1..30, ASCII)

Scope Application

Description *Gsc/n Mpm MemoryPoolClient/<name>*
*Gsd/n Mpm MemoryPoolClient/<name>*
*SgGtl/n Mpm MemoryPoolClient/<name>*
*DnsAgent/<vr>,n Mpm MemoryPoolClient/<name>*

This component represents a pool of objects of a particular class that a GPRS application currently owns as well as all the objects that could be owned by that application. All the objects in the pool are of the same class. The instance value of this component is a string which is the class name of the objects in the pool.

Common Verbs
Help
List
Display

## COMPONENT Usc HlrCache (HlrC)

Groups "GROUP Usc HlrC Provisioned (Prov)"
"GROUP Usc HlrC Statistics (Stats)"
"GROUP Usc HlrC WlcCustomCounters (WlcCustomCntr)"

"COLLECTED STATS UsgsnSubscriberControl HlrCache"

Scope Application

Description *Usc/n HlrCache*

This component represents the Home Location Register (HLR)

Cache functionality. It stores subscription data retrieved from the HLR.

Subcomponents "COMPONENT Usc HlrC RefreshAudit"

Common Verbs
Help
List
Display

## GROUP Usc HlrC Provisioned (Prov)

Properties Provisioned

Description This group contains the provisionable attributes of the *HlrCache* in this UMTS Serving GPRS Support Node (USGSN).

## ATTRIBUTE Usc HlrC maxRecords (maxRecs)

Access
Read: All
Write: All

Criticality Process

Description This attribute specifies the maximum number of records that can be stored in the Home Location Register (HLR) Cache. The maximum number of records in HLR Cache can be greater than the *maxSubscribers* (defined in the parent *Usc* component) because in addition to active records, the HLR Cache also stores inactive records, which are reused when the inactive subscribers become active.

The current number of active and inactive records that are stored by the HLR Cache are indicated by the attributes *recordsActive* and *recordsInactive* respectively.

Changing the value of this attribute causes the card to be reset and all outstanding transactions will be affected.

Values Decimal (1..150000)

Default 5000

### ATTRIBUTE Usc HlrC maxPdpContexts (maxPdpC)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the maximum number of Packet Data Protocol (PDP) context subscription data records that can be stored in the *HlrCache*.<br><br>The current number of PDP Contexts that are stored in the Home Location Register (HLR) Cache is indicated by the attribute *currHlrCachePdpContexts*.<br><br>Changing the value of this attribute causes the card to be reset and all outstanding transactions will be affected. |
| Values | Decimal (1..750000) |
| Default | 1500 |

### GROUP Usc HlrC Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistical attributes of the *HlrCache*. |

### ATTRIBUTE Usc HlrC currHlrCachePdpContexts (currPdpC)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the current number of Packet Data Protocol (PDP) context subscription data records that are stored in the Home Location Register (HLR) Cache.<br><br>The maximum number of PDP contexts that can be stored in the HLR Cache is provisioned in the attribute *maxPdpContexts*. |
| Values | Decimal (0..3000000) |
| Default | No default |

### ATTRIBUTE Usc HlrC cacheHits

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the times the Home Location Register (HLR) Cache had the subscriber information locally and did not need to retrieve information from the HLR.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc HlrC cacheMisses (cacheMiss)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the times the Home Location Register (HLR) Cache does not have the subscriber information locally and must retrieve information from the HLR.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc HlrC recordsInactive (recInact)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of Home Location Register (HLR) Cache Records that are currently inactive, that is, the number of records for which subscribers are detached from the UMTS Serving GPRS Support Node (USGSN). |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc HlrC recordsActive (recAct)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of Home Location Register (HLR) Cache Records that are currently active, that is, the number of records that are active and the UPDATE GPRS LOCATION RESPONSE has been received from the HLR. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc HlrC recordsWaitingForHlrConf (hlrConf)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of Home Location Register (HLR) Cache Records that are active and waiting for HLR Confirmation, that is, number of records which are yet to receive UPDATE GPRS LOCATION RESPONSE from the HLR. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Usc HlrC WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Usc HlrC customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |

Default No default

### ATTRIBUTE Usc HlrC customCounter2 (customCntr2)

Access Read: All
Write: Illegal

Description This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch.

Values Decimal (0..4294967295)

Default No default

### ATTRIBUTE Usc HlrC customCounter3 (customCntr3)

Access Read: All
Write: Illegal

Description This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch.

Values Decimal (0..4294967295)

Default No default

## COLLECTED STATS UsgsnSubscriberControl HlrCache

Description The statistics record generated by the UsgsnSubscriberControl HlrCache component.

### ATTRIBUTE Usc HlrC currHlrCachePdpContexts

Description This attribute indicates the number of Packet Data Protocol (PDP) context subscription data records that are stored in the Home Location Register (HLR) Cache.

The maximum number of PDP contexts that can be stored in the HLR Cache is provisioned in the attribute *maxPdpContexts*, at the end of the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc HlrC cacheHits

Description This attribute counts the times the Home Location Register (HLR) Cache had the subscriber information locally and did not need to retrieve information from the HLR.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc HlrC cacheMisses

Description This attribute counts the times the Home Location Register (HLR) Cache does not have the subscriber information locally and must retrieve information from the HLR.

It counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc HlrC recordsInactive

Description This attribute indicates the number of Home Location Register (HLR) Cache Records that are currently inactive, that is, the number of records for which subscribers are detached from the UMTS Serving GPRS Support Node (USGSN).

The count is taken at the end of the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc HlrC recordsActive

Description This attribute indicates the number of Home Location Register (HLR) Cache Records that are currently active, that is, the number of records that are active and the UPDATE GPRS LOCATION RESPONSE has been received from HLR.

The count is taken at the end of the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc HlrC recordsToBeReset

Description

This attribute indicates the Home Location Register (HLR) Cache Records currently waiting to be reset. When a RESET message is received from a HLR, all Location Confirmation flags of the HLR Cache Records, corresponding to the HLR is set to false. The GPRS Mobility Management (GMM) is notified to request UPDATE GPRS LOCATION for the HLR Cache Records corresponding to the reset HLR.

The count is taken at the end of the collection interval.

Values

Decimal (0..4294967295)

### ATTRIBUTE Usc HlrC recordsWaitingForHlrConf

Description

This attribute indicates the number of Home Location Register (HLR) Cache Records that are currently active and waiting for HLR Confirmation, that is, the number of records which are yet to receive UPDATE GPRS LOCATION RESPONSE from the HLR.

The count is taken at the end of the collection interval.

Values

Decimal (0..4294967295)

### COMPONENT Usc HlrC RefreshAudit

Groups

"GROUP Usc HlrC RefreshAudit WlcRefreshAuditProv (AuditProv)"
"GROUP Usc HlrC RefreshAudit WlcRefreshAuditOper (AuditOper)"

Scope

Application

Description

*Gsc/n Hlrc RefreshAudit*
*Usc/n Hlrc RefreshAudit*

This component represents the subscriber refresh audit functionality of the *HlrCache (HlrC)* component. The purpose of the audit is to request new subscriber profile data from the Home

Location Register (HLR). The audit initiates the Update GPRS Location Dialogue to the HLR for all attached subscribers.

Common Verbs

Help
List
Display

### VERB START Usc HlrC RefreshAudit

Impact: Service

Description: *start Gsc/n Hlrc RefreshAudit*
*start Usc/n Hlrc RefreshAudit*

This command starts the refresh audit to request subscriber information from the Home Location Register for all the attached subscribers.

### VERB STOP Usc HlrC RefreshAudit

Impact: Service

Description: *stop Gsc/n Hlrc RefreshAudit*
*stop Usc/n Hlrc RefreshAudit*

This command stops the refresh audit in progress. If the audit is currently running, it is immediately stopped. If the audit has not started or has already finished running, this command does nothing.

### GROUP Usc HlrC RefreshAudit WlcRefreshAuditProv (AuditProv)

Properties: Provisioned

Description: This group contains the provisionable attributes for the *RefreshAudit* component.

### ATTRIBUTE Usc HlrC RefreshAudit autoStart

Access: Read: All
Write: All

Description: This attribute specifies whether the refresh audit function is ***enabled*** or ***disabled.*** When enabled, the *HlrCache* component

will automatically initiate a process to refresh subscriber profiles whenever certain optional supplementary services, such as Location Services and Short Message Services, are provisioned. When disabled, the *HlrCache* component will not start the audit automatically.

Values: enabled
disabled

Default: enabled

### GROUP Usc HlrC RefreshAudit WlcRefreshAuditOper (AuditOper)

Properties: Operational

Description: This group contains the operational attributes for the *RefreshAudit* component.

### ATTRIBUTE Usc HlrC RefreshAudit auditPercentComplete (percentComplete)

Access: Read: All
Write: Illegal

Description: This attribute indicates the current completion percentage of the refresh audit.

A value of ***0%*** means the refresh audit is not currently running but may need to run due to recent activation of a feature that normally triggers the audit. The refresh audit is not running because the value of the *autoStart* attribute is ***disabled*** or the audit was manually interrupted by the *stop* command.
A value of ***1-99%*** means the refresh audit is currently running.
A value of ***100%*** means the refresh audit has been completed.

Values: Decimal (0..100)

Units: %

Default: No default

### COMPONENT Usc SessionManagement (Sm)

Groups: "GROUP Usc Sm PdpOper"
"GROUP Usc Sm WlcCustomCounters (WlcCustomCntr)"

"GROUP Usc Sm PdpModOper"
"GROUP Usc Sm UmtsPdpModOper"

"COLLECTED STATS UsgsnSubscriberControl SessionManagement"

| | |
|---|---|
| Scope | Application |
| Description | *Usc/n SessionManagement*<br><br>This component represents the Session Management (SM) protocol layer of the UMTS Serving GPRS Support Node (USGSN). |
| Dyn. Subcomp. | "COMPONENT Usc Sm Failures" |
| Common Verbs | Help<br>List<br>Display |

## GROUP Usc Sm PdpOper

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational attributes of the Session Management (SM) protocol layer associated with the Packet Data Protocol (PDP). |

## ATTRIBUTE Usc Sm currentPdpContexts (currPdpC)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of currently active Packet Data Protocol (PDP) contexts. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## ATTRIBUTE Usc Sm mobileInitActivations (mia)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the successful Packet Data Protocol (PDP) context activations initiated by the Mobile Station (MS).<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Sm mobileInitDeacts (mid)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the successful Packet Data Protocol (PDP) context deactivations initiated by the Mobile Station (MS).<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Sm ggsnInitDeacts (nwkD)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Packet Data Protocol (PDP) context deactivations initiated by the Gateway GPRS Support Node (GGSN).<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Sm usgsnInitDeacts (usgsnD)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Packet Data Protocol (PDP) context deactivations initiated locally from the UMTS Serving GPRS Support Node (USGSN) (for example, an implicit session |

| | |
|---|---|
| | deactivation as a result of a Gateway GPRS support Node (GGSN) restart or path failure).<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Sm hlrInitDeacts (hlrD)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Packet Data Protocol (PDP) context deactivations initiated by the Home Location Register (HLR), for example, Delete Subscriber Data (DSD) withdrawing subscription for an active session.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Sm usgsnInitModifies (usgsnM)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Packet Data Protocol (PDP) context Modifications initiated from the UMTS Serving GPRS Support Node (USGSN), for example, as a result of QoS renegotiations with the Mobile Station (MS). This counter is pegged only during a Routing Area Update (RAU) scenario.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Sm currentRoamers

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This value indicates the number of mobiles that have entered the PLMN that is not their home PLMN, and are served by the UMTS Serving GPRS Support Node (USGSN).<br><br>The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Sm attemptedActivationsPdpContexts (attActPdpC)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Packet Data Protocol (PDP) contexts that the Mobile Station or the SGSN Session Management Entity has attempted to activate. This counter includes the successful activations counted by the *mobileInitActivations* attribute. This attribute counts both attempted PDP context activations using static addresses and PDP context activations using dynamic PDP addresses. This attribute does not count Inter Routing Area Update (IRAU) activations.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Sm activationFailuresPdpContexts (actFailPdpC)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Packet Data Protocol (PDP) contexts initiated by the Mobile Station (MS) or the SGSN Session Management Entity that were rejected by the Serving GPRS Support Node (SGSN). This attribute counts both the failures for PDP context activations using static addresses and failures for |

PDP context activations using dynamic PDP addresses. This attribute does not count Inter Routing Area Update (IRAU) activation failures.

The counter wraps to zero when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Usc Sm actFailSgsnInsufficientResources (actFailSgsnInsufRes)

Access: Read: All
Write: Illegal

Description: This attribute counts the activations initiated by the Mobile Station (MS) or the SGSN Session Management Entity, and rejected by the Serving GPRS Support Node (SGSN) due to the cause code NO RESOURCES AVAILABLE. This counter is incremented due to the SGSN having insufficient resources for the session. The value of this attribute is included in the count of *activationFailuresPdpContexts*.

The counter wraps to zero when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Usc Sm actFailMissingOrUnknownApn (actFailMissOrUnkn)

Access: Read: All
Write: Illegal

Description: This attribute counts the number of times the Serving GPRS Support Node (SGSN) rejected a Mobile Station (MS) or an SGSN Session Management Entity initiated activation due to the requested service being rejected by the external packet data network. The service is rejected because the required Access Point Name (APN) was not included or the APN was not resolved. The value of this attribute is included in the count of *activationFailuresPdpContexts*.

The counter wraps to zero when it exceeds the maximum value.

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Sm actFailUnknownPdpAddrOrPdpType (actFailUnknPdpAddType)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of times a CREATE PDP CONTEXT RESPONSE message was received from the Gateway GPRS Support Node (GGSN) with the cause code “Unknown PDP address or PDP type”. This could be due to the requested service being rejected by the external packet data network because the Packet Data Protocol (PDP) address or the PDP type was not recognized. This event is also counted by the *activationFailuresPdpContexts* attribute.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Sm actFailUserAuthentications (actFailUserAuth)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of times a CREATE PDP CONTEXT REQUEST message was received from the Gateway GPRS Support Node (GGSN) with the cause code USER AUTHENTICATION FAILED. This could be due to the requested service being rejected by the external packet data network due to a failed user authentication. The value of this attribute is included in the count of *activationFailuresPdpContexts*.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Sm actFailRejectedByGgsn (actFailRejGgsn)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of times the Serving GPRS Support Node (SGSN) rejected a Mobile Station (MS) or an SGSN Session Management Entity initiated activation due to the requested service being rejected by the Gateway GPRS Support Node (GGSN) with a cause code that does not map to a cause code in the ACTIVATE PDP CONTEXT REJECT message. The value of this attribute is included in the count of *activationFailuresPdpContexts*.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Sm actFailGgsnInsufficientRessources (actFailGgsnInsufRes)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Mobile Station (MS) initiated activations rejected by the Serving GPRS Support Node (SGSN) due to the cause code NO RESOURCES AVAILABLE. This counter is incremented due to the Gateway GPRS Support Node (GGSN) returning a cause code of NO RESOURCES AVAILABLE in the CREATE PDP CONTEXT RESPONSE message. The value of this attribute is included in the count of *activationFailuresPdpContexts*.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Sm attemptedActivationsDynPdpC (attActDynPdpC)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the Packet Data Protocol (PDP) contexts that the Mobile Station or the SGSN Session Management Entity has attempted to activate and that requires the use of a dynamic PDP address. This attribute does not count Inter Routing Area Update (IRAU) activations.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Sm activationFailuresDynPdpC (actFailDynPdpC)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of times the Serving GPRS Support Node (SGSN) rejected a PDP context activation initiated by a Mobile Station (MS) or an SGSN Session Management Entity and that requires the use of a dynamic PDP address. This attribute does not count Inter Routing Area Update (IRAU) activation failures.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Sm sgsnAttemptedModifictionsPdpC (sgsnAttModPdpC)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Packet Data Protocol (PDP) contexts that the Service GPRS Support Node (SGSN) has attempted to modify.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Sm attemptedNetworkDeactivationsPdpC (attNwkDeactivationsPdpC)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Packet Data Protocol (PDP) context deactivations initiated by the Gateway GPRS Support Node (GGSN), the UMTS Gateway GPRS Support Node (USGSN) or the Home Location Register (HLR).<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Usc Sm WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Usc Sm customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Sm customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a |

| | |
|---|---|
| | mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Sm customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Usc Sm PdpModOper

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational attributes of the Session Management (SM) protocol layer associated with the Packet Data Protocol (PDP) context modification. |

### ATTRIBUTE Usc Sm sgsnInitModifyAttempts (sgsnInitMod)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of Packet Data Protocol (PDP) context modifications initiated by the Serving GPRS Support Node (SGSN), for example, as a result of QoS renegotiations with the Mobile Station (MS). This counter is pegged only during SGSN Initiated PDP Context Modification.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Sm sgsnInitFailAtMs (sgsnInitMsFail)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the unsuccessful Packet Data Protocol (PDP) context modifications initiated by the Serving GPRS Support Node (SGSN) that failed at the Mobile Station (MS).<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Sm sgsnInitFailAtGgsn (sgsnInitGgsnFail)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the unsuccessful Packet Data Protocol (PDP) context modifications initiated by the Serving GPRS Support Node (SGSN) that failed at the Gateway GPRS Support Node (GGSN).<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Sm sgsnInitFailAtSgsn (sgsnInitSgsnFail)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the unsuccessful Packet Data Protocol (PDP) context modifications initiated by the Serving GPRS Support Node (SGSN) that failed at the SGSN.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Sm msInitModifyAttempts (msInitMod)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of Packet Data Protocol (PDP) context modifications initiated by the Mobile Station (MS).<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Sm msInitFailAtGgsn (msInitGgsnFail)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the unsuccessful Packet Data Protocol (PDP) context modifications initiated by the Mobile Station (MS) that failed at the Gateway GPRS Support Node (GGSN).<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Sm msInitFailAtSgsn (msInitSgsnFail)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the unsuccessful Packet Data Protocol (PDP) context modifications initiated by the Mobile Station (MS) that failed at the Serving GPRS Support Node (SGSN).<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## GROUP Usc Sm UmtsPdpModOper

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational attributes of the UMTS Session Management (SM) protocol layer associated with the Packet Data Protocol (PDP) context modification. |

## ATTRIBUTE Usc Sm sgsnInitFailAtRnc (sgsnInitRncFail)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the unsuccessful Packet Data Protocol (PDP) context modifications initiated by the UMTS Serving GPRS Support Node (USGSN) that failed at the Radio Network Controller (RNC).<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## ATTRIBUTE Usc Sm msInitFailAtMs (msInitMsFail)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the unsuccessful Packet Data Protocol (PDP) context modifications initiated by the Mobile Station (MS) that failed at the MS.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## ATTRIBUTE Usc Sm msInitFailAtRnc (msInitRncFail)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the unsuccessful Packet Data Protocol (PDP) context modifications initiated by the Mobile Station (MS) |

that failed at the Radio Network Controller (RNC).

The counter wraps to zero when it exceeds the maximum value.

Values Decimal (0..4294967295)

Default No default

## COLLECTED STATS UsgsnSubscriberControl SessionManagement

Description The statistics record generated by the UsgsnSubscriberControl SessionManagement component.

### ATTRIBUTE Usc Sm currentPdpContexts

Description This attribute indicates the number of currently active Packet Data Protocol (PDP) contexts.

The count is taken at the end of the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Sm mobileInitActivations

Description This attribute indicates the number of successful Mobile-Initiated Packet Data Protocol (PDP) context activations.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Sm mobileInitDeacts

Description This attribute counts the successful Packet Data Protocol (PDP) context deactivations initiated by the Mobile Station (MS).

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Sm ggsnInitDeacts

Description This attribute indicates the number of Packet Data Protocol (PDP) context deactivations initiated by the Gateway GPRS

Support Node (GGSN).

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Sm usgsnInitDeacts

Description This attribute indicates the number of Packet Data Protocol (PDP) context deactivations initiated locally from the UMTS Serving GPRS Support Node (USGSN) (for example, an implicit session deactivation as a result of a Gateway GPRS Support Node (GGSN) restart or path failure).

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Sm hlrInitDeacts

Description This attribute indicates the number of Packet Data Protocol (PDP) context deactivations initiated by the Home Location Register (HLR), for example, Delete Subscriber Data (DSD) withdrawing subscription for an active session.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Sm usgsnInitModifies

Description This attribute indicates the number of Packet Data Protocol (PDP) context Modifications initiated from the UMTS Serving GPRS Support Node (USGSN), for example, as a result of QoS renegotiations with the Mobile Station (MS). This counter is pegged only during a Routing Area Update (RAU) scenario.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Sm currentRoamers

Description This value indicates the number of mobiles that have entered the PLMN, which is not their home PLMN, and are served by the

USGSN.

The count is taken at the end of the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Sm tRabAssgtTimeouts

Description This value indicates the number of times the tRabAssgtTimer expires. If the value of this attribute increases consistently, the value of the tRabAssgtTimer can be increased.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Sm usgsnInitModifyExhaust (usgsnME)

Description This value indicates the number of times the *usgsnInitModifies* attribute is exhausted during Inter-SGSN Routing Area Update. This counter is incremented in the new SGSN.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Sm attemptedActivationsPdpContexts (attActPdpC)

Description This attribute indicates the Packet Data Protocol (PDP) contexts that the Mobile Station or the SGSN Session Management Entity has attempted to activate during the collection interval. This counters includes the successful activations counted by the *mobileInitActivations* attribute. This attribute counts both attempted PDP context activations using static addresses and PDP context activations using dynamic PDP addresses.This attribute does not count Inter Routing Area Update (IRAU) activations.

This counter includes static as well as dynamic PDP addresses.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Sm activationFailuresPdpContexts (actFailPdpC)

Description This attribute indicates the Packet Data Protocol (PDP) contexts, initiated by the Mobile Station (MS) or the SGSN Session Management Entity, that were rejected by the Serving GPRS Support Node (SGSN). This attribute counts both the failures for

PDP context activations using static addresses and failures for PDP context activations using dynamic PDP addresses. This attribute does not count Inter Routing Area Update (IRAU) activation failures.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Sm actFailSgsnInsufficientResources (actFailSgsnInsufRes)

Description This attribute indicates, for the collection interval, the activations initiated by the Mobile Station (MS) or the SGSN Session Management Entity, and rejected by the Serving GPRS Support Node (SGSN) due to the cause code NO RESOURCES AVAILABLE. This counter is incremented due to the SGSN having insufficient resources for the session. The value of this attribute is included in the count of *activationFailuresPdpContexts*.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Sm actFailMissingOrUnknownApn (actFailMissOrUnkn)

Description This attribute indicates, for the collection interval, the number of times the Serving GPRS Support Node (SGSN) rejected a Mobile Station (MS) or an SGSN Session Management Entity initiated activation due to the requested service being rejected by the external packet data network. The service is rejected because the required Access Point Name (APN) was not included or the APN was not resolved. The value of this attribute is included in the count of *activationFailuresPdpContexts*.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Sm actFailUnknownPdpAddrOrPdpType (actFailUnknPdpAddType)

Description This attribute indicates, for the collection interval, the number of times a CREATE PDP CONTEXT RESPONSE message was received from the Gateway GPRS Support Node (GGSN) with the cause code “Unknown PDP address or PDP type”. This could be due to the requested service being rejected by the external packet data network because the Packet Data Protocol (PDP)

address or the PDP type was not recognized. This event is also counted by the *activationFailuresPdpContexts* attribute.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Sm actFailUserAuthentications (actFailUserAuth)

Description This attribute indicates, for the collection interval, the number of times a CREATE PDP CONTEXT REQUEST message was received from the Gateway GPRS Support Node (GGSN) with the cause code USER AUTHENTICATION FAILED. This could be due to the requested service being rejected by the external packet data network due to a failed user authentication. The value of this attribute is included in the count of *activationFailuresPdpContexts*.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Sm actFailRejectedByGgsn (actFailRejGgsn)

Description This attribute indicates, for the collection interval, the number of times the Serving GPRS Support Node (SGSN) rejected a Mobile Station (MS) or an SGSN Session Management Entity initiated activation, due to the requested service being rejected by the Gateway GPRS Support Node (GGSN) with a cause code that does not map to a cause code in the ACTIVATE PDP CONTEXT REJECT message. The value of this attribute is included in the count of *activationFailuresPdpContexts*.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Sm actFailGgsnInsufficientResources (ggsnInsufRes)

Description This attribute indicates, for the collection interval, the activations initiated by the Mobile Station (MS) or the SGSN Session Management Entity, and rejected by the Serving GPRS Support Node (SGSN) due to the cause code NO RESOURCES AVAILABLE. This counter is incremented due to the Gateway GPRS Support Node (GGSN) returning a cause code of NO RESOURCES AVAILABLE in the CREATE PDP CONTEXT RESPONSE message. The value of this attribute is included in the count of *activationFailuresPdpContexts*.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Sm attemptedActivationsDynPdpC (attActDynPdpC)

Description: This attribute indicates, for the collection interval, the Packet Data Protocol (PDP) contexts that the Mobile Station or the SGSN Session Management Entity has attempted to activate and that requires the use of a dynamic PDP address. This attribute does not count Inter Routing Area Update (IRAU) activations.

Values: Decimal (0..4294967295)

### ATTRIBUTE Usc Sm activationFailuresDynPdpC (actFailDynPdpC)

Description: This attribute indicates, for the collection interval, the number of times the Serving GPRS Support Node (SGSN) rejected a PDP context activation initiated by a Mobile Station (MS) or an SGSN Session Management Entity and that requires the use of a dynamic PDP address. This attribute does not count Inter Routing Area Update (IRAU) activation failures.

Values: Decimal (0..4294967295)

### ATTRIBUTE Usc Sm maxSubsWithActivationsPdpC (maxSubsActPdpC)

Description: This attribute displays the highest recorded value for the number of subscribers with an active Packet Data Protocol (PDP) context. The value is obtained by comparing on an update of the actual number of subscribers with activated PDP contexts in the SGSN, with the currently maximal value in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Usc Sm sgsnAttemptedModificationsPdpC (sgsnAttModPdpC)

Description: This attribute indicates the Packet Data Protocol (PDP) contexts that the Service GPRS Support Node (SGSN) has attempted to modify during the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Usc Sm attemptedNetworkDeactivationsPdpC (attNwkDeactPdpC)

Description: This attribute indicates, for the collection interval, the Packet Data Protocol (PDP) context deactivations initiated by the Gateway GPRS Support Node (GGSN), the UMTS Gateway

GPRS Support Node (USGSN) or the Home Location Register (HLR).

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Sm sgsnInitModifyAttempts

Description This attribute counts the number of Packet Data Protocol (PDP) context modifications initiated by the Serving GPRS Support Node (SGSN), for example, as a result of QoS renegotiations with the Mobile Station (MS). This counter is pegged only during SGSN Initiated PDP Context Modification.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Sm sgsnInitFailAtMs

Description This attribute counts the unsuccessful Packet Data Protocol (PDP) context modifications initiated by the Serving GPRS Support Node (SGSN) that failed at the Mobile Station (MS).

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Sm sgsnInitFailAtGgsn

Description This attribute counts the unsuccessful Packet Data Protocol (PDP) context modifications initiated by the Serving GPRS Support Node (SGSN) that failed at the Gateway GPRS Support Node (GGSN).

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Sm sgsnInitFailAtSgsn

Description This attribute counts the unsuccessful Packet Data Protocol (PDP) context modifications initiated by the Serving GPRS Support Node (SGSN) that failed at the SGSN.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Sm msInitModifyAttempts

Description This attribute counts the number of Packet Data Protocol (PDP) context modifications initiated by the Mobile Station (MS).

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Sm msInitFailAtGgsn

Description This attribute counts the unsuccessful Packet Data Protocol (PDP) context modifications initiated by the Mobile Station (MS) that failed at the Gateway GPRS Support Node (GGSN).

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Sm msInitFailAtSgsn

Description This attribute counts the unsuccessful Packet Data Protocol (PDP) context modifications initiated by the Mobile Station (MS) that failed at the SGSN.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Sm sgsnInitFailAtRnc

Description This attribute counts the unsuccessful Packet Data Protocol (PDP) context modifications initiated by the UMTS Serving GPRS Support Node (USGSN) that failed at the Radio Network Controller (RNC).

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Sm msInitFailAtMs

Description: This attribute counts the unsuccessful Packet Data Protocol (PDP) context modifications initiated by the Mobile Station (MS) that failed at the MS.

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Usc Sm msInitFailAtRnc

Description: This attribute counts the unsuccessful Packet Data Protocol (PDP) context modifications initiated by the Mobile Station (MS) that failed at the Radio Network Controller (RNC).

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### COMPONENT Usc Sm Failures

Instance:
systemFailure
imsiUnknown
mandatoryIeIncorrect
mandatoryIeMissing
optionalIeIncorrect
invalidMsgFormat
versionUnsupported
pTmsiSignatureMismatch
resourcesUnavailable
authenticationFailure
allDynamicPdpAddressesOccupied
semanticErrorInTftOperation
syntacticErrorInTftOperation
semanticErrorsInPacketFilters
syntacticErrorsInPacketFilters

Groups: "GROUP Usc Sm Failures WlcCustomCounters (WlcCustomCntr)"

"COLLECTED STATS UsgsnSubscriberControl SessionManagement Failures"

Scope: Application

| | |
|---|---|
| Description | *Usc/n Sm Failures/<cause>*<br><br>This component represents the Session Management (SM) Failures of the UMTS Serving GPRS Support Node (USGSN). The instance value represents the cause of failure. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Usc Sm Failures WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Usc Sm Failures customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Sm Failures customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Sm Failures customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## COLLECTED STATS UsgsnSubscriberControl SessionManagement Failures

| | |
|---|---|
| Description | The statistics record generated by the UsgsnSubscriberControl SessionManagement Failures component. |

### ATTRIBUTE Usc Sm Failures idenRespMsgsRx

| | |
|---|---|
| Description | This attribute indicates the number of IDENTIFICATION RESPONSE message failures received with the cause indicated by the instance of the component, over the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Usc Sm Failures sgsnCntxtRespMsgsRx

| | |
|---|---|
| Description | This attribute indicates the number of SGSN CONTEXT RESPONSE message failures received with the cause indicated by the instance of the component, over the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Usc Sm Failures sgsnCntxtAckRespMsgsRx

| | |
|---|---|
| Description | This attribute indicates the number of SGSN CONTEXT ACKNOWLEDGE RESPONSE message failures received with the cause indicated by the instance of the component, over the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Usc Sm Failures createPdpCntxtRespMsgsRx

Description: This attribute indicates the number of CREATE PDP CONTEXT RESPONSE message failures received with the cause indicated by the instance of the component, over the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Usc Sm Failures updatePdpCntxtRespMsgsTx

Description: This attribute indicates the number of UPDATE PDP CONTEXT RESPONSE message failures received with the cause indicated by the instance of the component, over the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Usc Sm Failures deletePdpCntxtRespMsgsRx

Description: This attribute indicates the number of DELETE PDP CONTEXT RESPONSE message failures received with the cause indicated by the instance of the component, over the collection interval.

Values: Decimal (0..4294967295)

## COMPONENT Usc GprsMobilityManagement (Gmm)

Groups:
"GROUP Usc Gmm GmmProv"
"GROUP Usc Gmm GmmStats"
"GROUP Usc Gmm GmmStatusRxStats (StStats)"
"GROUP Usc Gmm GmmMsgCountsStats (MsgCounts)"
"GROUP Usc Gmm WlcCustomCounters (WlcCustomCntr)"

"COLLECTED STATS UsgsnSubscriberControl GprsMobilityManagement"

Scope: Application

Description: *Usc/n GprsMobiltyManagement*

This component represents the GPRS Mobility Management (GMM) protocol layer of the UMTS Serving GPRS Support Node (USGSN).

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display |

## GROUP Usc Gmm GmmProv

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the Usc/n Gmm component. |

## ATTRIBUTE Usc Gmm simultaneousTransientContexts (simulTransContexts)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the percentage of subscribers expected to be in transient mobile states (for example, attaching, detaching, authenticating) at any one given time. It is expressed as a percentage of the *maxAttachedSubscribers* attribute within the *Usc/n* component.<br><br>This attribute is used to reserve a pool of memory set aside for the transient contexts.<br><br>This value of this attribute may be increased from the default value in increments of 10, after consulting a Nortel Networks support personnel.<br><br>The value of this attribute may need to be increased if the values of the attributes *attachRejectMsgs*, *rauRejectMsgs*, and *authAndCiphRejectMsgs* are increasing. |
| Values | Decimal (0; 10; 20; 30; 40; 50; 60; 70; 80; 90; 100) |
| Units | % |
| Default | 10 |

## GROUP Usc Gmm GmmStats

| | |
|---|---|
| Properties | Operational |
| Description | This group contains attributes which maintain various statistics for the GMM layer of the UMTS Serving GPRS Support Node (USGSN). |

## ATTRIBUTE Usc Gmm pmmIdleStateSubscribers (pmmIdleStSubs)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of mobile subscribers that are GPRS-attached and in the PMM-IDLE state. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## ATTRIBUTE Usc Gmm pmmConnectedStateSubscribers (pmmConnStSubs)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of mobile subscribers that are GPRS-attached and in the PMM-CONNECTED state. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## ATTRIBUTE Usc Gmm currentlyAttached (currAttached)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the Mobile Stations (MS) that are currently GPRS-attached and in the PMM-IDLE or PMM-CONNECTED state.<br><br>The maximum subscribers that can be GPRS-attached is provisioned in the *maxAttachedSubscribers* attribute of the parent *UmtsSubscriberControl (Usc)* component.<br><br>This attribute together with maxAttachedSubscribers are used to |

| | |
|---|---|
| | determine when subscriber count overload occurs (Refer to *Usc* subCountOvldAttachesDiscarded). |
| Values | Decimal (0..1000000) |
| Default | No default |

### ATTRIBUTE Usc Gmm authenticationRequests (authReq)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of times the authentication procedure is initiated by the SGSN.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Gmm attachesSuccessful (attachSuccess)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the GPRS-attaches to this UMTS Serving GPRS Support Node (USGSN) that were successful.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Gmm attachesRejected (attRej)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the GPRS-attaches to this UMTS Serving GPRS Support Node (USGSN) that were rejected.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |

Default No default

### ATTRIBUTE Usc Gmm attachesWithKnownPtmsi (attachWKPtmsi)

Access Read: All
Write: Illegal

Description This attribute counts the ATTACH REQUEST messages received with a Packet-Temporary Mobile Subscriber Identity (P-TMSI) previously assigned by this UMTS Serving GPRS Support Node (USGSN).

This includes all successful and unsuccessful attempts.

The counter wraps to zero when it exceeds the maximum value.

Values Decimal (0..4294967295)

Default No default

### ATTRIBUTE Usc Gmm attachesWithUnknownPtmsi (attachWUPtmsi)

Access Read: All
Write: Illegal

Description This attribute counts the ATTACH REQUEST messages received with a Packet-Temporary Mobile Subscriber Identity (P-TMSI) not assigned by this UMTS Serving GPRS Support Node (USGSN).

This includes all successful and unsuccessful attempts.

The counter wraps to zero when it exceeds the maximum value.

Values Decimal (0..4294967295)

Default No default

### ATTRIBUTE Usc Gmm attachesWithImsi (attachWImsi)

Access Read: All
Write: Illegal

Description This attribute counts the ATTACH REQUEST messages received with an International Mobile Subscriber Identity (IMSI) as an

identifier.

This includes all successful and unsuccessful attempts.

The counter wraps to zero when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Usc Gmm serviceRequestsForData (servReqData)

Access: Read: All
Write: Illegal

Description: This attribute counts the successful SERVICE REQUEST messages sent by mobile stations (MS) requesting a resource reservation for active PDP contexts.

The counter wraps to zero when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Usc Gmm serviceRequestsForSignalling (servReqSig)

Access: Read: All
Write: Illegal

Description: This attributes counts the successful SERVICE REQUEST messages sent by mobile stations (MS) requesting a signalling connection in order to send uplink signalling messages (such as ATTACH REQUEST, PDP CONTEXT REQUEST, and so on).

The counter wraps to zero when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Usc Gmm serviceRequestsForPagingResponse (servReqPR)

Access: Read: All
Write: Illegal

| | |
|---|---|
| Description | This attribute counts the successful SERVICE REQUEST messages sent by mobile stations (MS) indicating a paging response.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Gmm detachesSuccessful (detachSuccess)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the successful DETACHes that are either mobile or network initiated.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Gmm msDetachRejected (msDR)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Mobile Station (MS) initiated GPRS-DETACH REQUEST messages which have been rejected by this UMTS Serving GPRS Support Node (USGSN).<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Gmm normalIntraUsgsnRaUpdate (normIntraURU)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the normal intra-UMTS Serving GPRS Support Node (USGSN) ROUTING AREA UPDATE REQUEST |

messages received from the Mobile Station (MS).

The counter wraps to zero when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Usc Gmm periodicIntraUsgsnRAUpdate (periodIURAU)

Access: Read: All
Write: Illegal

Description: This attribute counts the periodic intra-UMTS Serving GPRS Support Node (USGSN) ROUTING AREA UPDATE REQUEST messages from the Mobile Station (MS).

The counter wraps to zero when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Usc Gmm normalInterUsgsnRaUpdate (normInterURU)

Access: Read: All
Write: Illegal

Description: This attribute counts the inter-UMTS Serving GPRS Support Node (USGSN) ROUTING AREA UPDATE REQUEST messages from the Mobile Station (MS).

The counter wraps to zero when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Usc Gmm initialPsPageRequests (initPPR)

Access: Read: All
Write: Illegal

Description: This attribute counts the initial PS (Packet-Switched) PAGE REQUEST messages sent to the Mobile Station (MS).

The counter wraps to zero when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Usc Gmm reattemptPsPageRequests (reattempPPR)

Access: Read: All
Write: Illegal

Description: This attribute counts the re-attempt PS (Packet-Switched) PAGE REQUEST messages sent to the Mobile Station (MS) after the initial page request.

The counter wraps to zero when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Usc Gmm intraSgsnRaUpdateRejects (rauReject)

Access: Read: All
Write: Illegal

Description: This attribute counts the ROUTING AREA UPDATE REJECT messages sent during an Intra-SGSN Routing Area Update to the Mobile Station (MS). This counters includes the failures due to one of the following conditions:

IMSI Unknown In HLR
Service Not Allowed
PLMN Not Allowed
Roaming Not Allowed
Network Failure
Unspecified Protocol Error
Invalid Mandatory Information
Conditional Information Element Error

The counter wraps to zero when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default No default

### ATTRIBUTE Usc Gmm interSgsnRaUpdateRejects (irauReject)

Access Read: All
Write: Illegal

Description This attribute counts the ROUTING AREA UPDATE REJECT messages sent from this SGSN, while acting in the role of new SGSN, to the Mobile Station (MS). This counter includes the failures due to one of the following conditions:

IMSI Unknown In HLR
Service Not Allowed
PLMN Not Allowed
Roaming Not Allowed
Network Failure
Unspecified Protocol Error
Invalid Mandatory Information
Conditional Information Element Error

The counter wraps to zero when it exceeds the maximum value.

Values Decimal (0..4294967295)

Default No default

### ATTRIBUTE Usc Gmm psPagingProcFailures (psPagProcFail)

Access Read: All
Write: Illegal

Description This attribute counts the PS (Packet-Switched) paging procedures initiated by the UMTS Serving GPRS Support Node (USGSN) over the Iu interface that are rejected.

The counter wraps to zero when it exceeds the maximum value.

Values Decimal (0..4294967295)

Default No default

### ATTRIBUTE Usc Gmm securityModeRequests (secuModeReq)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of times the Security Mode procedure is initiated by the UMTS Serving GPRS Support Node (USGSN).<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Usc Gmm GmmStatusRxStats (StStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the attributes which count the status messages received by the UMTS Serving GPRS Support Node (USGSN). |

### ATTRIBUTE Usc Gmm retriesUponEntry (nEntry)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the times the UMTS Serving GPRS Support Node (USGSN) received a status message from a Mobile Station (MS) to indicate a retry upon entry into a new cell.<br><br>The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Gmm incorrectMsgs (incorrMsgs)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the times the UMTS Serving GPRS Support Node (USGSN) received a status message from a Mobile Station (MS) indicating that a semantically incorrect message was |

received by the MS.

The counter wraps when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Usc Gmm invalidMandatoryInfos (invMandInfos)

Access: Read: All
Write: Illegal

Description: This attribute counts the number of mobile originated messages containing invalid mandatory information that are received by the UMTS Serving GPRS Support Node (USGSN).

The counter wraps when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Usc Gmm unimplementedMsgs (uniMsgs)

Access: Read: All
Write: Illegal

Description: This attribute counts the times the UMTS Serving GPRS Support Node (USGSN) received a status message from a Mobile Station (MS) indicating an unimplemented or unrecognized message was received by the MS.

The counter wraps when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Usc Gmm incompatibleMsgsType (incMsgsT)

Access: Read: All
Write: Illegal

Description: This attribute counts the times the UMTS Serving GPRS Support Node (USGSN) received a status message from a Mobile Station

(MS) indicating a message type received by the MS was not compatible with the protocol state of the MS.

The counter wraps when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Usc Gmm unimplementedInfos (uniInfos)

Access: Read: All
Write: Illegal

Description: This attribute counts the times the UMTS Serving GPRS Support Node (USGSN) received a status message from a Mobile Station (MS) indicating an unimplemented or unrecognized information element inside a message was received by the MS.

The counter wraps when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Usc Gmm conditionalIeErrors (condIeErrs)

Access: Read: All
Write: Illegal

Description: This attribute counts the times the UMTS Serving GPRS Support Node (USGSN) received a status message from a Mobile Station (MS) indicating that a message containing a conditional information element error was received by the MS.

The counter wraps when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Usc Gmm incompatibleMsgs (incMsgs)

Access: Read: All
Write: Illegal

| | |
|---|---|
| Description | This attribute counts the times the UMTS Serving GPRS Support Node (USGSN) received a status message from a Mobile Station (MS) indicating a message received by the MS was not compatible with the protocol state of the MS.<br><br>The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Gmm unspecifiedProtocolErrors (unPerrs)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the times the UMTS Serving GPRS Support Node (USGSN) received a status message from the Mobile Station (MS) indicating that the MS received a message containing an unspecified protocol error.<br><br>The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Gmm miscStatusRx (mStRx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the times the UMTS Serving GPRS Support Node (USGSN) received a miscellaneous status message from a Mobile Station (MS).<br><br>The counter wraps when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Usc Gmm GmmMsgCountsStats (MsgCounts)

| | |
|---|---|
| Properties | Operational |

| | |
|---|---|
| Description | This group contains attributes that maintain counts of messages received or sent by the GMM layer of the UMTS Serving GPRS Support Node (USGSN). |

### ATTRIBUTE Usc Gmm attachRequestMsgs (attachReq)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Mobile Station (MS) initiated ATTACH REQUEST messages received by this UMTS Serving GPRS Support Node (USGSN).<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Gmm attachAcceptMsgs (attachAcc)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the ATTACH ACCEPT messages sent by this UMTS Serving GPRS Support Node (USGSN) to mobile subscribers.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Gmm attachCompleteMsgs (attachCompl)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Mobile Station (MS) initiated ATTACH COMPLETE messages received by this UMTS Serving GPRS Support Node (USGSN).<br><br>The counter wraps to zero when it exceeds the maximum value. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Gmm attachRejectMsgs (attachRej)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the ATTACH REJECT messages sent by this UMTS Serving GPRS Support Node (USGSN) to mobile subscribers.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Gmm msDetachRequestMsgs (msDetachReq)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Mobile Station (MS) initiated DETACH REQUEST messages received by this UMTS Serving GPRS Support Node (USGSN).<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Gmm msDetachAcceptMsgs (detachAcc)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Mobile Station (MS) initiated DETACH ACCEPT messages received by this UMTS Serving GPRS Support Node (USGSN).<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Usc Gmm nwkDetachRequestMsgs (nwkDetachReq)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the DETACH REQUEST messages sent by this UMTS Serving GPRS Support Node (USGSN) to mobile subscribers.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Gmm nwkDetachAcceptMsgs (nwkDetach)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the DETACH ACCEPT messages sent by this UMTS Serving GPRS Support Node (USGSN) to mobile subscribers.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Gmm rauRequestMsgs (rauReq)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Mobile Station (MS) initiated ROUTING AREA UPDATE REQUEST messages received by this UMTS Serving GPRS Support Node (USGSN).<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Gmm rauAcceptMsgs (rauAcc)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the ROUTING AREA UPDATE ACCEPT messages sent by this UMTS Serving GPRS Support Node (USGSN) to mobile subscribers.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Gmm rauCompleteMsgs (rauCompl)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Mobile Station (MS) initiated ROUTING AREA UPDATE COMPLETE messages received by this UMTS Serving GPRS Support Node (USGSN).<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Gmm rauRejectMsgs (rauRej)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the ROUTING AREA UPDATE REJECT messages sent successfully by this UMTS Serving GPRS Support Node (USGSN) to mobile subscribers.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Gmm ptmsiReallocCommandMsgs (ptmsiReallocCommand)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the P-TMSI REALLOCATION COMMAND messages sent by this UMTS Serving GPRS Support Node (USGSN) to mobile subscribers.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Gmm ptmsiReallocCompleteMsgs (ptmsiReallocCompl)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Mobile Station (MS) initiated P-TMSI REALLOCATION COMPLETE messages received by this UMTS Serving GPRS Support Node (USGSN).<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Gmm authAndCiphRequestMsgs (authAndCiphReq)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the AUTHENTICATION AND CIPHERING REQUEST messages sent by this UMTS Serving GPRS Support Node (USGSN) to mobile subscribers.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Gmm authAndCiphResponseMsgs (authAndCiphResp)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Mobile Station (MS) initiated AUTHENTICATION AND CIPHERING RESPONSE messages received by this UMTS Serving GPRS Support Node (USGSN).<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Gmm authAndCiphFailureMsgs (authAndCipFail)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Mobile Station (MS) initiated AUTHENTICATION AND CIPHERING FAILURE messages received by this Serving GPRS Support Node (USGSN).<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Gmm authAndCiphRejectMsgs (authAndCiphRej)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the AUTHENTICATION AND CIPHERING REJECT messages sent by this UMTS Serving GPRS Support Node (USGSN) to mobile subscribers.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Gmm identityRequestMsgs (idReq)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the IDENTITY REQUEST messages sent by this UMTS Serving GPRS Support Node (USGSN) to mobile subscribers.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Gmm identityResponseMsgs (idResp)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Mobile Station (MS) initiated IDENTITY RESPONSE messages received by this UMTS Serving GPRS Support Node (USGSN).<br><br>The counter wraps to zero when it exceeds the maximum value |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Gmm msGmmStatusMsgs (msGmmSt)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Mobile Station (MS) initiated GMM STATUS messages received by this UMTS Serving GPRS Support Node (USGSN).<br><br>The counter wraps to zero when it exceeds the maximum value |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Gmm nwkGmmStatusMsgs (nwkGmmSt)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the GMM STATUS messages sent by this UMTS Serving GPRS Support Node (USGSN) to mobile subscribers. This counter excludes the GMM Status messages sent by the Signalling Gateway (SG) due to invalid mobile identity, invalid message type, or missing mandatory Information Elements found in the incoming GMM messages.<br><br>The counter wraps to zero when it exceeds the maximum value |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Gmm gmmInformationMsgs (gmmInfo)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the GMM INFORMATION messages sent by this UMTS Serving GPRS Support Node (USGSN) to mobile subscribers.<br><br>The counter wraps to zero when it exceeds the maximum value |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Gmm serviceRequestMsgs (serviceReq)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Mobile Station (MS) initiated SERVICE REQUEST messages received by this UMTS Serving GPRS Support Node (USGSN).<br><br>The counter wraps to zero when it exceeds the maximum value |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Usc Gmm serviceAcceptMsgs (serviceAcc)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the SERVICE ACCEPT messages sent by this UMTS Serving GPRS Support Node (USGSN) to mobile subscribers.<br><br>The counter wraps to zero when it exceeds the maximum value |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Gmm serviceRejectMsgs (serviceRej)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the SERVICE REJECT messages sent by this UMTS Serving GPRS Support Node (USGSN) to mobile subscribers.<br><br>The counter wraps to zero when it exceeds the maximum value |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Usc Gmm WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Usc Gmm customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a |

| | |
|---|---|
| | mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Gmm customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Gmm customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## COLLECTED STATS UsgsnSubscriberControl GprsMobilityManagement

| | |
|---|---|
| Description | The statistics record generated by the UsgsnSubscriberControl GprsMobilityManagement component. |

### ATTRIBUTE Usc Gmm pmmIdleStateSubscribers

| | |
|---|---|
| Description | This attribute indicates the number of mobile subscribers that are GPRS-attached and in the PMM-IDLE state at the end of the collection interval. |

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Gmm pmmConnectedStateSubscribers

Description This attribute indicates the number of mobile subscribers that are GPRS-attached and in the PMM-CONNECTED state at the end of the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Gmm currentlyAttached

Description This attribute indicates the Mobile Stations (MS) that are currently GPRS-attached and in the PMM-IDLE or PMM-CONNECTED state.
The maximum subscribers that can be GPRS-attached is provisioned in the maxAttachedSubscribers attribute of the parent UmtsSubscriberControl (*Usc*) component.

The count is taken at the end of the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Gmm attachesSuccessful

Description This attribute indicates the number of GPRS-attaches to this UMTS Serving GPRS Support Node (USGSN) that were successful over the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Gmm attachesWithKnownPtmsi

Description This attribute indicates the number of ATTACH REQUEST messages received with a Packet-Temporary Mobile Subscriber Identity (P-TMSI) previously assigned by this UMTS Serving GPRS Support Node (USGSN).

This includes all successful and unsuccessful attempts.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Gmm attachesWithUnknownPtmsi

Description: This attribute indicates the number of ATTACH REQUEST messages received with a Packet-Temporary Mobile Subscriber Identity (P-TMSI) not assigned by this UMTS Serving GPRS Support Node (USGSN) over the collection interval.

This includes all successful and unsuccessful attempts.

Values: Decimal (0..4294967295)

### ATTRIBUTE Usc Gmm attachesWithImsi

Description: This attribute indicates the number of ATTACH REQUEST messages received with an International Mobile Subscriber Identity (IMSI) as an identifier, over the collection interval. This includes all successful and unsuccessful attempts.

Values: Decimal (0..4294967295)

### ATTRIBUTE Usc Gmm authenticationRequests

Description: This attribute indicates the number of times the authentication procedure was initiated by the UMTS Serving GPRS Support Node (USGSN).

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Usc Gmm serviceRequestsForSignalling

Description: This attributes counts the successful SERVICE REQUEST messages sent by mobile stations (MS) requesting a signalling connection in order to send uplink signalling messages (such as ATTACH REQUEST, PDP CONTEXT REQUEST, and so on.), over the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Usc Gmm serviceRequestsForData

Description: This attribute counts the successful SERVICE REQUEST messages sent by mobile stations (MS) requesting a resource reservation for active PDP contexts, over the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Gmm serviceRequestsForPagingResponse

Description This attribute counts the successful SERVICE REQUEST messages sent by mobile stations (MS) indicating a paging response, over the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Gmm detachesSuccessful

Description This attribute counts the successful DETACHes that are either mobile or network initiated.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Gmm msDetachRejected

Description This attribute counts the Mobile Station (MS) initiated GPRS-DETACH REQUEST messages which have been rejected by this UMTS Serving GPRS Support Node (USGSN).

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Gmm normalIntraUsgsnRaUpdate

Description This attribute counts the normal intra-Serving GPRS Support Node ROUTING AREA UPDATE REQUEST messages received from the Mobile Station (MS).

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Gmm periodicIntraUsgsnRaUpdate

Description This attribute counts the periodic intra-Serving GPRS Support Node ROUTING AREA UPDATE REQUEST messages from the Mobile Station (MS).

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Gmm normalInterUsgsnRaUpdate

Description This attribute counts the inter-UMTS Serving GPRS Support Node ROUTING AREA UPDATE REQUEST messages from the Mobile Station (MS).

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Gmm initialPsPageRequests

Description This attribute counts the initial PS (Packet-Switched) PAGE REQUEST messages sent to the Mobile Station (MS).

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Gmm reattemptPsPageRequests

Description This attribute counts the re-attempt PS (Packet-Switched) PAGE REQUEST messages sent to the Mobile Station (MS) after the initial page request.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Gmm interSgsnRaUpdateAccepts (irauAccept)

Description This attribute counts the ROUTING AREA UPDATE ACCEPT messages sent from this SGSN, while acting in the role of new SGSN, to the Mobile Station (MS) in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Gmm interSgsnRaUpdateRejects (irauReject)

Description This attribute indicates the ROUTING AREA UPDATE REJECT messages sent from this SGSN, while acting in the role of new

SGSN, to the Mobile Station (MS). This attribute includes one of the following conditions:

IMSI Unknown In HLR
Service Not Allowed
PLMN Not Allowed
Roaming Not Allowed
Network Failure
Unspecified Protocol Error
Invalid Mandatory Information
Conditional Information Element Error

This counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Usc Gmm intraSgsnRaUpdateRejects (rauReject)

Description: This attribute counts the ROUTING AREA UPDATE REJECT message sent during an Intra-SGSN Routing Area Update to the Mobile Station (MS). This attribute includes one of the following conditions:

IMSI Unknown In HLR
Service Not Allowed
PLMN Not Allowed
Roaming Not Allowed
Network Failure
Unspecified Protocol Error
Invalid Mandatory Information
Conditional Information Element Error

This counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Usc Gmm periodicRaUpdateRejects (periodicRauReject)

Description: This attribute counts the ROUTING AREA UPDATE REJECT message sent during Periodic Routing Area Updates to the Mobile Station (MS) in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Usc Gmm psPagingProcFailures (psPagProcFail)

Description: This attribute indicates the PS (Packet-Switched) paging procedures initiated by the UMTS Serving GPRS Support Node (USGSN) over the Iu interface that are rejected by the Mobile Station (MS).

This counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Usc Gmm securityModeRequests

Description: This attribute counts the number of times the Security Mode procedure was initiated by the UMTS Serving GPRS Support Node (USGSN).

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### COMPONENT Usc RemoteApplicationConnection (RaConn)

Instance: appType [String (1..8, ASCII)]
shelfId [Decimal (0..15)]
n [Decimal (1..15)]

Groups: "GROUP Usc RaConn OsiState (State)"
"GROUP Usc RaConn WlcCustomCounters (WlcCustomCntr)"

Scope: Application

Description: *... RemoteApplicationConnection/<appType, shelfId, n>*

This component represents the Remote Application Connection information of an application that talks to applications on other shelves. For each application that it can communicate with, one of these connection components is created and is instantiated with the name of the remote application, the Id of the shelf on

which the application runs, and the instance number of the application. ShelfId ***0*** represents the Master shelf.

Dyn. Subcomp. "COMPONENT Usc RaConn AtmConnection (AtmCon)"

Common Verbs
Help
List
Display

## GROUP Usc RaConn OsiState (State)

Properties Operational

Description This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

## ATTRIBUTE Usc RaConn adminState (osiAdmin)

Access Read only

Description This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

| | |
|---|---|
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Usc RaConn operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Usc RaConn usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |

| | |
|---|---|
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Usc RaConn WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Usc RaConn customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc RaConn customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc RaConn customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## COMPONENT Usc RaConn AtmConnection (AtmCon)

| | |
|---|---|
| Groups | "GROUP Usc RaConn AtmCon Operational (Oper)" |
| Scope | Device |
| Description | An AtmConnection component is created for each ATM connection established by an application. It shows where the data traffic for this connection is directed. |
| Common Verbs | Help<br>List<br>Display |

## GROUP Usc RaConn AtmCon Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains the operational attributes for the *NapAtmConnection* component. |

## ATTRIBUTE Usc RaConn AtmCon nextHop

| | |
|---|---|
| Access | Read only |
| Description | This attribute shows the component name of the *AtmIf Vcc Ep* or *AtmCon* component to which this switched connection is established. |
| Values | The name of the component |
| Default | No default |

## COMPONENT Usc MapClient (Mc)

Groups
"GROUP Usc Mc Provisioned (Prov)"
"GROUP Usc Mc Statistics (Stats)"
"GROUP Usc Mc MapClientSccpUserInfo (McSccpUI)"
"GROUP Usc Mc OsiState (State)"
"GROUP Usc Mc WlcCustomCounters (WlcCustomCntr)"

"COLLECTED STATS UsgsnSubscriberControl MapClient"

Scope
Application

Description
*Usc/n MapClient*

This component represents the *MapClient* functionality of the *UmtsSubscriberControl (Usc)*. The *MapClient* component provides the Mobile Application Part (MAP) over SS7 to interact with the Home Location Register (HLR) via the SS7-IP Gateway.

Common Verbs
Help
List
Display

## GROUP Usc Mc Provisioned (Prov)

Properties
Provisioned

Description
This group contains provisionable attributes to specify the Port Number and the SS7-IP Gateway information that this *MapClient* uses.

## ATTRIBUTE Usc Mc mscE164Address (mscEAddr)

Access
Read: All
Write: All

Description
This attribute supplies the E.164 number associated with the local MSC SCCP subsystem on the SGSN. This E.164 number will be used in the global title address field of the Calling Party Address (CgPA) when the USC MAP Client attribute *mapCgpaRoutingIndicator* is set to ***globalTitle***.

If this attribute is changed after the MAP Client has registered

with the MAP Stack, the MAP Client will need to deregister with the MAP Stack and then re-register. Any outstanding MAP transactions will be lost as a result of the re-registration.

If this attribute is empty, the value of the USC's or GSC's E.164 address specified in the *sgsnNumber* attribute is used for the MAP Client's E.164 address.

| | |
|---|---|
| Values | String (0..17, NativeAddress) |
| Default | No default |

### ATTRIBUTE Usc Mc linkToMapStack (mapLink)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the *MapStack* used by this *MapClient*. |
| Values | Link (Service, linkToMapStackUsers) |
| Default | No default |

### GROUP Usc Mc Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistical attributes of the *MapClient* application. |

### ATTRIBUTE Usc Mc currentTransactions (curTr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates how many MAP transactions are currently being handled by the MAP Client. *currentTransactions* is expressed as a percentage utilization of the number of MAP transactions the MAP Client is capable of handling concurrently.<br><br>A SET alarm is generated by the MAP Client when the percentage utilization reaches a high threshold. A CLEAR alarm is generated by the MAP Client when the percentage utilization reaches a low threshold and an outstanding SET alarm exists. |

| | |
|---|---|
| Values | Decimal (0..100) |
| Units | % |
| Default | No default |

### ATTRIBUTE Usc Mc uglMsgs

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the MAP-UPDATE GPRS LOCATION messages sent to the Home Location Register (HLR). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Mc uglResponseMsgs (uglResp)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the successful MAP-UPDATE GPRS LOCATION RESPONSE messages received from the Home Location Register (HLR). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Mc isdMsgs

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the MAP-INSERT SUBSCRIBER DATA messages received from the Home Location Register (HLR). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Mc isdResponseMsgs (isdResp)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the MAP-INSERT SUBSCRIBER DATA RESPONSE messages sent to the Home Location Register (HLR). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Mc dsdMsgs

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the MAP-DELETE SUBSCRIBER DATA messages received from the Home Location Register (HLR). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Mc dsdResponseMsgs (dsdResp)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the MAP-DELETE SUBSCRIBER DATA RESPONSE messages sent to the Home Location Register (HLR). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Mc clMsgs

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute indicates the MAP-CANCEL LOCATION messages received from the Home Location Register (HLR). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Mc clResponseMsgs (clResp)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the MAP-CANCEL LOCATION RESPONSE messages sent to the Home Location Register (HLR). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Mc rstMsgs

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the MAP-RESET messages received from the Home Location Register (HLR). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Mc saiMsgs

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the MAP-SEND AUTHENTICATION INFO messages sent to the Home Location Register (HLR). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Usc Mc saiResponseMsgs (saiResp)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the MAP-SEND AUTHENTICATION INFO ACK messages received from the Home Location Register (HLR). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Mc transLimitDiscards (trDisc)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the transactions rejected by the MAP Client when the maximum number of concurrent MAP transactions supported by the MAP Client has been exceeded. The maximum number of MAP transactions is constrained by the MAP Client internal memory available to store the transactions. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Mc tmrExpiries (tmrEx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the times the *mcTimer* (defined in component *Sgsn GprsSubscriberControl* and *Usgsn UmtsSubscriberControl*) expires before receiving a response from the Home Location Register (HLR). This can be used to determine if the provisionable attribute *mcTimer* must be changed, or a problem exists between the Serving GPRS Support Node (SGSN) or Umts Serving General Support Node (USGSN) |

| | |
|---|---|
| | and the Home Location Register (HLR). The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Mc afrMsgs

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the AUTHENTICATION FAILURE REPORT message sent to HLR from MAP Client in the collection interval. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Mc afrResponseMsgs (afrResp)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the AUTHENTICATION FAILURE REPORT RESPONSE messages sent to MAP Client from HLR in the collection interval. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Mc sccpServiceRequestTimeouts

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the MAP Stack Service request timeouts. This could occur if the MAP Stack was not responding to Service requests from the MAP Clients, or if there was an SS7-IP Gateway (SIG) or IP network problem.<br><br>Retries of the Service request are infinite since the MAP Client |

can not send or receive MAP messages until it is successfully registered with the MAP Stack.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Usc Mc decodeErrors

Access: Read: All
Write: Illegal

Description: This attribute indicates the number of MAP messages received from the peer nodes that are not decodable. The inability to decode the MAP message is caused by the MAP Client receiving a message with invalid data. The counter wraps to zero when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Usc Mc dataMissingRespSent

Access: Read: All
Write: Illegal

Description: This attribute indicates the number of “data missing” error responses sent to the peer nodes. This error may occur when optional data is missing from a MAP message received, when required data is missing from a MAP message received, or when an internal data structure is missing data. The counter wraps to zero when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Usc Mc unexpectedDataValuesRespSent (unexpDataRespSent)

Access: Read: All
Write: Illegal

Description: This attribute indicates the number of “unexpected data value” error responses sent to the peer nodes. This error may occur when the parameter type is correct in the MAP message received but

contains data which is not relevant for the type of MAP service being invoked. The counter wraps to zero when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Usc Mc unidentifiedSubscribersRespSent (unidentSubRespSent)

Access: Read: All
Write: Illegal

Description: This attribute indicates the number of “unidentified subscriber” error responses sent to the peer nodes. This error may occur when the subscriber is not contained in the subscriber database resulting in the failure to establish a call. The counter wraps to zero when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Usc Mc dataMissingRespRecv

Access: Read: All
Write: Illegal

Description: This attribute indicates the number of data missing errors received from the peer nodes. This error may occur when optional data is missing from a MAP message sent, when required data is missing from a MAP message sent, or when an internal data structure is missing data. The counter wraps to zero when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Usc Mc unexpectedDataValuesRespRecv (unexpDataRespRecv)

Access: Read: All
Write: Illegal

Description: This attribute indicates the number of “unexpected data value” error responses received from the peer nodes. This error may

occur when the parameter type is correct in the MAP message sent but contains data which is not relevant for the type of MAP service being invoked. The counter wraps to zero when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Usc Mc systemFailuresRespRecv (sysFailRespRecv)

Access: Read: All
Write: Illegal

Description: This attribute indicates the number of “system failure” error responses received from the peer nodes. This error may occur when a task specified in a MAP message sent cannot be performed because of a problem with another entity. The counter wraps to zero when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Usc Mc unknownSubscribersRespRecv (unkSubRespRecv)

Access: Read: All
Write: Illegal

Description: This attribute indicates the number of “unknown subscriber” error responses received from the peer nodes. This error may occur when a message sent is processed for a subscription that does not exist. The counter wraps to zero when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Usc Mc roamingNotAllowedRespRecv (noRoamRespRecv)

Access: Read: All
Write: Illegal

Description: This attribute indicates the number of “roaming not allowed” error responses received from the peer nodes. This error may

occur when a location update attempt is made in an area not covered by the subscription. The counter wraps to zero when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Usc Mc invalidMessages

Access: Read: All
Write: Illegal

Description: This attribute indicates the number of invalid messages received by the MAP Client. This may occur if the MAP Client receives an unsolicited message, a message with an invalid header, or an invalid dialogue ID. The counter wraps to zero when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Usc Mc isdMsgsUpdateLocation (isdMsgsUpdLoc)

Access: Read: All
Write: Illegal

Description: This attribute indicates the number of MAP-INSERT SUBSCRIBER DATA messages received from the Home Location Register (HLR) during a GPRS Update Location procedure. The counter wraps to zero when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Usc Mc isdMsgsHlrSubUpdate (isdMsgsHlrSubUp)

Access: Read: All
Write: Illegal

Description: This attribute indicates the number of MAP-INSERT SUBSCRIBER DATA messages received from the Home

| | |
|---|---|
| | Location Register (HLR) due to an HLR operator intervention. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Mc isdFailures (isdFail)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of MAP-INSERT SUBSCRIBER DATA messages sent to the Home Location Register (HLR) that could not be processed due to one of the following errors:<br><br>Data Missing<br>Unexpected Data Value<br>Unidentified Subscriber<br>Decode errors<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Mc clMsgsHlrDetach (clMsgsHlrDetach)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of MAP-CANCEL LOCATION messages received from the Home Location Register (HLR) due to an HLR initiated Detach. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Mc clMsgsSgsnChange (clMsgsSgsnChg)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of MAP-CANCEL LOCATION messages received from the Home Location Register (HLR) due to a Service GPRS Support Node (SGSN) change. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Mc clMsgsHlrOther (clMsgsHlrOther)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of MAP-CANCEL LOCATION messages received from the Home Location Register (HLR) with a cancellation type other than a Service GPRS Support Node (SGSN) change or an HLR initiated Detach. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Mc clFailures (clFail)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of MAP-CANCEL LOCATION messages received from the Home Location Register (HLR) that could not be processed due to one of the following errors:<br><br>Data Missing<br>Unexpected Data Value<br>Decode errors<br><br>The counter wraps to zero when it exceeds the maximum value. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Mc dsdFailures (dsdFail)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of MAP-DELETE SUBSCRIBER DATA messages sent to the Home Location Register (HLR) that could not be processed due to one of the following errors:<br><br>Data Missing<br>Unexpected Data Value<br>Unidentified Subscriber<br>Decode errors<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Mc uAbortMsgSent

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of MAP USER ABORT messages sent by the MAP Client to the peer nodes. This message may be sent as a result of a resource limitation caused by congestion or as a result of the unavailability of resources. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Mc pAbortMsgRecv

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute indicates the number of MAP PROVIDER ABORT messages received by the MAP Client from the peer nodes. This message indicates to the MAP service-user to abort a MAP dialogue. This message may be received due to a MAP service-provider malfunction, supporting dialogue/transaction release, resource limitation, maintenance activity, version incompatibility, or an abnormal MAP dialogue. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Mc uAbortMsgRecv

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of MAP USER ABORT messages received by the MAP Client from the peer nodes. This message indicates to the MAP service-provider to abort a MAP dialogue. This message may be received due to a resource limitation caused by congestion or by unavailability of resources. The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Mc pmsMsgs

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of Mobile Subscriber Purge messages sent to the Home Location Register (HLR).<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Mc pmsResponseMsgs (pmsRes)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of Mobile Subscriber Purge Response messages received from the Home Location Register (HLR).<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Mc pslMsgs

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the MAP-PROVIDE SUBSCRIBER LOCATION messages received by the MAP Client from the Gateway Mobile Location Center (GMLC).<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Mc pslRespMsgs

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the MAP-PROVIDE SUBSCRIBER LOCATION response messages sent by the MAP Client to the Gateway Mobile Location Center (GMLC).<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Mc unauthorizedReqNetworkRespSent (unauthReqNetRespSent)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of “Unauthorized Requested Network” error responses sent to the Gateway Mobile Location Center (GMLC). This error may occur when a Location Request is denied due to the GMLC not being in the home country.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Mc unauthorizedLcsClientRespSent (unauthLcsCliRespSent)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of “Unauthorized LCS Client” error responses sent to the Gateway Mobile Location Center (GMLC). This error may occur when a Location Request is denied due to privacy restrictions.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Mc positionMethodFailureRespSent (posMethFailRespSent)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of “Positioning Method Failure” error responses sent to the Gateway Mobile Location Center (GMLC). This error may occur when the position of the mobile cannot be retrieved.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Usc Mc absentSubscriberRespSent (absentSubRespSent)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of “Absent Subscriber” error responses sent to the Gateway Mobile Location Center (GMLC). This error may occur when the subscriber is International Mobile Subscriber Identity (IMSI) detached, in a restricted area, or does not respond to paging.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Usc Mc MapClientSccpUserInfo (McSccpUI)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisionable attributes of the Sccp User Information of the *MapClient* application |

### ATTRIBUTE Usc Mc mapCgpaRoutingIndicator (mapRtInd)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies routing by global title or point code. If set to ***globalTitle*** the MAP Client sets the CgPA routing indicator to route on global title and supply global title information. If set to ***pointCode*** the MAP Client sets the CgPA routing indicator to route on SSN and supply point code and subsystem number in the CgPA. |
| Values | globalTitle (gt)<br>pointCode (pc) |
| Default | globalTitle |

### ATTRIBUTE Usc Mc mapSgsnSubsystemNumber (msssn)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the MAP SGSN SSN. This SSN is used by SCCP for subsystem routing. |
| Values | Decimal (1..255) |
| Default | 149 |

### ATTRIBUTE Usc Mc sccpServiceRequestTimer

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the amount of time the MAP Client waits for a response after sending a Service Request primitive to the MAP Protocol Stack.<br><br>The count of timeouts is available in the *sccpServiceRequestTimeouts* attribute.<br><br>Retries of the Service request are infinite since the MAP Client can not send or receive MAP messages until it is successfully registered with the MAP Stack. |
| Values | Decimal (0..60) |
| Units | seconds |
| Default | 10 |

### ATTRIBUTE Usc Mc sccpVariant

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the SCCP variant used by the MAP Client on this SS7 network for the SCCP Called Party Address that is based on the E.212 or E.214 Mobile Subscriber number. |

| | |
|---|---|
| Values | itu<br>ansi<br>ituChinese |
| Default | itu |

### GROUP Usc Mc OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Usc Mc adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Usc Mc operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Usc Mc usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

## GROUP Usc Mc WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

## ATTRIBUTE Usc Mc customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## ATTRIBUTE Usc Mc customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## ATTRIBUTE Usc Mc customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |

Default No default

## COLLECTED STATS UsgsnSubscriberControl MapClient

Description The statistics record generated by the UsgsnSubscriberControl MapClient component.

### ATTRIBUTE Usc Mc uglMsgs

Description This attribute indicates the MAP-UPDATE GPRS LOCATION messages sent to the Home Location Register (HLR) in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Mc uglResponseMsgs (uglResp)

Description This attribute indicates the successful MAP-UPDATE GPRS LOCATION RESPONSE messages received from the Home Location Register (HLR) in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Mc isdMsgs

Description This attribute indicates the MAP-INSERT SUBSCRIBER DATA messages received from the Home Location Register (HLR) in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Mc isdResponseMsgs (isdResp)

Description This attribute indicates the MAP-INSERT SUBSCRIBER DATA RESPONSE messages sent to the Home Location Register (HLR) in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Mc dsdMsgs

Description This attribute indicates the MAP-DELETE SUBSCRIBER DATA messages received from the Home Location Register (HLR) in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Mc dsdResponseMsgs (dsdResp)

| | |
|---|---|
| Description | This attribute indicates the MAP-DELETE SUBSCRIBER DATA RESPONSE messages sent to the Home Location Register (HLR) in the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Usc Mc clMsgs

| | |
|---|---|
| Description | This attribute indicates the MAP-CANCEL LOCATION messages received from the Home Location Register (HLR) in the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Usc Mc clResponseMsgs (clResp)

| | |
|---|---|
| Description | This attribute indicates the MAP-CANCEL LOCATION RESPONSE messages sent to the Home Location Register (HLR) in the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Usc Mc rstMsgs

| | |
|---|---|
| Description | This attribute indicates the MAP-RESET messages received from the Home Location Register (HLR) in the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Usc Mc saiMsgs

| | |
|---|---|
| Description | This attribute indicates the MAP-SEND AUTHENTICATION INFO messages sent to the Home Location Register (HLR) in the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Usc Mc saiResponseMsgs (saiResp)

| | |
|---|---|
| Description | This attribute indicates the MAP-SEND AUTHENTICATION INFO RESPONSE messages received from the Home Location Register (HLR) in the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Usc Mc transLimitDiscards (trDisc)

Description: This attribute indicates the number of transactions rejected by the MAP Client when the maximum number of concurrent MAP transactions supported by the MAP Client has been exceeded. The maximum number of MAP transactions is constrained by the MAP Client internal memory available to store the transactions. This counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Usc Mc tmrExpiries (tmrEx)

Description: This attribute indicates the times the *mcTimer* (defined in component *Sgsn GprsSubscriberControl* and *Usgsn UmtsSubscriberControl*) expires before receiving a response from the Home Location Register (HLR). This can be used to determine if the provisionable attribute *mcTimer* must be changed, or a problem exists between the Serving GPRS Support Node (SGSN) or the UMTS Serving General Support Node (USGSN) and the Home Location Register (HLR). This counter counts the value in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Usc Mc afrMsgs

Description: This attribute indicates the AUTHENTICATION FAILURE REPORT messages sent to the Home Location Register (HLR) in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Usc Mc afrResponseMsgs (afrResp)

Description: This attribute indicates the ATHENTICATION FAILURE REPORT RESPONSE messages received from the Home Location Register (HLR) in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Usc Mc currentTransactions (curTr)

Description: This attribute indicates how many MAP transactions are currently being handled by the MAP Client. *currentTransactions* is

expressed as a percentage utilization of the number of MAP transactions the MAP Client is capable of handling concurrently.

A SET alarm is generated by the MAP Client when the percentage utilization reaches a high threshold. A CLEAR alarm is generated by the MAP Client when the percentage utilization reaches a low threshold and an outstanding SET alarm exists.

The value reported is the value at the end of the collection interval.

Values: Decimal (0..100)

### ATTRIBUTE Usc Mc sccpServiceRequestTimeouts

Description: This attribute indicates the MAP Stack Service request timeouts in the collection interval. This could occur if the MAP Stack was not responding to Service requests from the MAP Clients, or if there was an SS7-IP Gateway (SIG) or IP network problem.

Retries of the Service request are infinite since the MAP Client can not send or receive MAP messages until it is successfully registered with the MAP Stack.

Values: Decimal (0..4294967295)

### ATTRIBUTE Usc Mc decodeErrors

Description: This attribute indicates, over the collection interval, the number of MAP messages received from the peer nodes that are not decodable. The inability to decode the MAP message is caused by the MAP Client receiving a message with invalid data.

Values: Decimal (0..4294967295)

### ATTRIBUTE Usc Mc dataMissingRespSent

Description: This attribute indicates, over the collection interval, the number of “data missing error” responses sent to the peer nodes. This error may occur when optional data is missing from a MAP message received, when required data is missing from a MAP message received, or when an internal data structure is missing data.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Mc unexpectedDataValuesRespSent (unexpDataRespSent)

Description This attribute indicates, over the collection interval, the number of “unexpected data value” error responses sent to the peer nodes. This error may occur when the parameter type is correct in a MAP message received but contains data which is not relevant for the type of MAP service being invoked.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Mc unidentifiedSubscribersRespSent (unidentSubRespSent)

Description This attribute indicates, over the collection interval, the number of “unidentified subscriber” error responses sent to the peer nodes. This error may occur when the subscriber is not contained in the subscriber database resulting in the failure to establish a call.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Mc dataMissingRespRecv

Description This attribute indicates, over the collection interval, the number of “data missing” error responses received from the peer nodes. This error may occur when optional data is missing from a MAP message sent, when required data is missing from a MAP message sent, or when an internal data structure is missing data.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Mc unexpectedDataValuesRespRecv (unexpDataRespRecv)

Description This attribute indicates, over the collection interval, the number of “unexpected data value” error responses received from the peer nodes. This error may occur when the parameter type is correct in a MAP message sent but contains data which is not relevant for the type of MAP service being invoked.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Mc systemFailuresRespRecv (sysFailRespRecv)

Description: This attribute indicates, over the collection interval, the number of “system failure” error responses received from the peer nodes. This error may occur when a task specified by a MAP message sent cannot be performed because of a problem with another entity.

Values: Decimal (0..4294967295)

### ATTRIBUTE Usc Mc unknownSubscribersRespRecv (unkSubRespRecv)

Description: This attribute indicates, over the collection interval, the number of “unknown subscriber” error responses received from the peer nodes. This error may occur when a message sent is processed for a subscription that does not exist.

Values: Decimal (0..4294967295)

### ATTRIBUTE Usc Mc roamingNotAllowedRespRecv (noRoamRespRecv)

Description: This attribute indicates, over the collection interval, the number of “roaming not allowed” error responses received from the peer nodes. This error may occur when a location update attempt is made in an area not covered by the subscription.

Values: Decimal (0..4294967295)

### ATTRIBUTE Usc Mc invalidMessages

Description: This attribute indicates, over the collection interval, the number of invalid messages received by the MAP Client. This may occur if the MAP Client receives an unsolicited message, a message with an invalid header, or an invalid dialogue ID.

Values: Decimal (0..4294967295)

### ATTRIBUTE Usc Mc isdMsgsUpdateLocation (isdMsgsUpdLoc)

Description: This attribute indicates, over the collection interval, the number of MAP-INSERT SUBSCRIBER DATA messages received from the Home Location Register (HLR) during a GPRS Update Location procedure.

Values: Decimal (0..4294967295)

### ATTRIBUTE Usc Mc isdMsgsHlrSubUpdate (isdMsgsHlrSubUp)

Description: This attribute indicates, over the collection interval, the number of MAP-INSERT SUBSCRIBER DATA messages received from the Home Location Register (HLR) due to an updated mobile subscription.

Values: Decimal (0..4294967295)

### ATTRIBUTE Usc Mc isdFailures (isdFail)

Description: This attribute indicates the number of MAP-INSERT SUBSCRIBER DATA messages sent to the Home Location Register (HLR) that could not be processed due to one of the following errors:

Data Missing
Unexpected Data Value
Unidentified Subscriber
Decode errors

This counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Usc Mc clMsgsHlrDetach (clMsgsHlrDetach)

Description: This attribute indicates, over the collection interval, the number of MAP-CANCEL LOCATION messages received from the Home Location Register (HLR) due to an HLR initiated Detach.

Values: Decimal (0..4294967295)

### ATTRIBUTE Usc Mc clMsgsSgsnChange (clMsgsSgsnChg)

Description: This attribute indicates, over the collection interval, the number of MAP-CANCEL LOCATION messages received from the Home Location Register (HLR) due to a Service GPRS Support Node (SGSN) change.

Values: Decimal (0..4294967295)

### ATTRIBUTE Usc Mc clMsgsHlrOther (clMsgsHlrOther)

Description: This attribute indicates, over the collection interval, the number of MAP-CANCEL LOCATION messages received from the Home Location Register (HLR) with a cancellation type other than a Service GPRS Support Node (SGSN) change or an HLR initiated Detach.

Values: Decimal (0..4294967295)

### ATTRIBUTE Usc Mc clFailures (clFail)

Description: This attribute counts the MAP-CANCEL LOCATION messages received from the Home Location Register (HLR) that could not be processed due to one of the following errors:

Data Missing
Unexpected Data Value
Decode errors

This counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Usc Mc dsdFailures (dsdFail)

Description: This attribute indicates the number of MAP-DELETE SUBSCRIBER DATA messages sent to the Home Location Register (HLR) that could not be processed due to one of the following errors:

Data Missing
Unexpected Data Value
Unidentified Subscriber
Decode errors

This counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Usc Mc uAbortMsgSent

Description: This attribute indicates, over the collection interval, the number of MAP USER ABORT messages sent by the MAP Client to the

peer nodes. This message may be sent as a result of a resource limitation caused by congestion or as a result of the unavailability of resources.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Mc pAbortMsgRecv

Description This attribute indicates, over the collection interval, the number of MAP PROVIDER ABORT messages received by the MAP Client from the peer nodes. This message indicates to the MAP service-user to abort a MAP dialogue. This message may be received due to a MAP service-provider malfunction, supporting dialogue/transaction release, resource limitation, maintenance activity, version incompatibility, or an abnormal MAP dialogue.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Mc uAbortMsgRecv

Description This attribute indicates, over the collection interval, the number of MAP USER ABORT messages received by the MAP Client from the peer nodes. This message indicates to the MAP service-provider to abort a MAP dialogue. This message may be received due to a resource limitation caused by congestion or by unavailability of resources.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Mc pmsMsgs

Description This attribute indicates the number of Mobile Subscriber Purge messages sent to the Home Location Register (HLR).

This counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Mc pmsResponseMsgs (pmsRes)

Description This attribute indicated the number of Mobile Subscriber Purge Response messages received from the Home Location Register (HLR).

This counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Mc pslMsgs

Description This attribute counts the MAP-PROVIDE SUBSCRIBER LOCATION messages received by the MAP Client from the Gateway Mobile Location Center (GMLC).

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Mc pslRespMsgs

Description This attribute counts the MAP-PROVIDE SUBSCRIBER LOCATION response messages sent by the MAP Client to the Gateway Mobile Location Center (GMLC).

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Mc unauthorizedReqNetworkRespSent (unauthReqNetRespSent)

Description This attribute counts the number of “Unauthorized Requested Network” error responses sent to the Gateway Mobile Location Center (GMLC). This error may occur when a Location Request is denied due to the GMLC not being in the home country.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Mc unauthorizedLcsClientRespSent (unauthLcsCliRespSent)

Description This attribute counts the number of “Unauthorized LCS Client” error responses sent to the Gateway Mobile Location Center (GMLC). This error may occur when a Location Request is denied due to privacy restrictions.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Mc positionMethodFailureRespSent (posMethFailRespSent)

Description: This attribute counts the number of “Positioning Method Failure” error responses sent to the Gateway Mobile Location Center (GMLC). This error may occur when the position of the mobile cannot be retrieved.

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Usc Mc absentSubscriberRespSent (absentSubRespSent)

Description: This attribute counts the number of “Absent Subscriber” error responses sent to the Gateway Mobile Location Center (GMLC). This error may occur when the subscriber is International Mobile Subscriber Identity (IMSI) detached, in a restricted area, or does not respond to paging.

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### COMPONENT Usc Ranap

Groups: "GROUP Usc Ranap Operational (Oper)"
"GROUP Usc Ranap WlcCustomCounters (WlcCustomCntr)"

"COLLECTED STATS UsgsnSubscriberControl Ranap"

Scope: Application

Description: *Usc/n Ranap*

This component represents the RANAP protocol layer of the UMTS Serving GPRS Support Node (USGSN).

Common Verbs:
- Help
- List
- Display

### GROUP Usc Ranap Operational (Oper)

Properties: Operational

| | |
|---|---|
| Description | This group contains operational attributes of the RANAP sub-component under the *Usc* component |

### ATTRIBUTE Usc Ranap rabAssignmentMsgs (rabAssgn)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the RAB ASSIGNMENT messages that were sent to the RNC.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Ranap rabSetupRequestMsgs (rabSetupRqstMsgs)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the RAB SETUP REQUEST messages that were sent to the RNC.The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Ranap rabReleaseRequestMsgs (rabReleaseRqstMsgs)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the RAB RELEASE REQUEST messages that were sent to the RNC.The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Ranap iuReleaseRequestRxMsgs (iuReleaseRqstRxMsgs)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Iu RELEASE REQUEST messages that were received from the RNC. The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Ranap iuReleaseCommandTxMsgs (iuRelCmdTxMsgs)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Iu RELEASE COMMAND messages that were sent to the RNC.The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Ranap relocRequestMsgs (relocReq)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Relocation Request messages that were sent to the RNC.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Ranap pagingMsgs (paging)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the Paging messages that were sent to the RNC.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Ranap resetMsgs (reset)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Reset messages that were received from the RNC.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Ranap initialUeMsgs (inUe)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Initial UE messages that were received from the RNC.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Ranap errorIndicationMsgsRx (errIndRx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Error Indication messages that were received from the RNC.<br><br>The counter wraps to 0 when it exceeds its maximum value. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Ranap errorIndicationMsgsTx (errIndTx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Error Indication messages that were sent to the RNC.The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Ranap locationReportingControlMsgs (lcsControl)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Location Reporting Control messages that are sent to the Radio Network Controller.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Ranap locationReportMsgs (lcsReport)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Location Report messages that are received from the Radio Network Controller.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## GROUP Usc Ranap WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

## ATTRIBUTE Usc Ranap customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## ATTRIBUTE Usc Ranap customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## ATTRIBUTE Usc Ranap customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |

Default No default

## COLLECTED STATS UsgsnSubscriberControl Ranap

Description The statistics record generated by the UsgsnSubscriberControl Ranap component.

### ATTRIBUTE Usc Ranap rabAssignmentMsgs

Description This attribute indicates the number of RAB ASSIGNMENT messages that were sent to the RNC over the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Ranap rabSetupRequestMsgs

Description This attribute indicates the number of RAB SETUP REQUEST messages that were sent to the RNC over the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Ranap rabReleaseRequestMsgs

Description This attribute indicates the number of RAB RELEASE REQUEST messages that were sent to the RNC over the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Ranap iuReleaseRequestRxMsgs

Description This attribute indicates the number of Iu RELEASE REQUEST messages that were received from the RNC over the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Ranap iuReleaseCommandTxMsgs

Description This attribute indicates the number of Iu RELEASE COMMAND messages that were sent to the RNC over the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Ranap relocRequestMsgs

Description This attribute indicates the number of RELOCATION REQUEST messages that were sent to the RNC over the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Ranap pagingMsgs

Description This attribute indicates the number of PAGING messages that were sent to the RNC over the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Ranap resetMsgs

Description This attribute indicates the number of RESET messages that were received from the RNC over the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Ranap initialUeMsgs

Description This attribute indicates the number of INITIAL UE messages that were received from the RNC over the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Ranap errorIndicationMsgsRx

Description This attribute indicates the number of ERROR INDICATION messages that were received from the RNC over the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Ranap errorIndicationMsgsTx

Description This attribute indicates the number of ERROR INDICATION messages that were sent to the RNC over the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Ranap locationReportingControlMsgs

| | |
|---|---|
| Description | This attribute indicates the number of Location Reporting Control messages that are sent to the Radio Network Controller over the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Usc Ranap locationReportMsgs

| | |
|---|---|
| Description | This attribute indicates the number of Location Report messages that are received from the Radio Network Controller over the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Usc Ranap rabAssgnRqstSetupFailureMsgs

| | |
|---|---|
| Description | This attribute indicates the number of times a RAB assignment request of type setup was rejected by the RNC over the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Usc Ranap rabAssgnRqstRelFailureMsgs

| | |
|---|---|
| Description | This attribute indicates the number of times a RAB assignment message of type release was rejected by the RNC over the collection interval. |
| Values | Decimal (0..4294967295) |

### COMPONENT Usc DifferentiatedService (Ds)

| | |
|---|---|
| Groups | "GROUP Usc Ds WlcCustomCounters (WlcCustomCntr)" |
| Scope | Application |
| Description | *Gsc/n* DifferentiatedService<br>*Usc/n* DifferentiatedServices<br>This component represents the differentiated service (QOS) on the (UMTS or GPRS) Subscriber Control (USC or GSC) that governs the behavior of packets and contexts that pass through |

| | |
|---|---|
| | this node. This component is a logical container for statistical attributes based on the differentiated services levels. |
| Dyn. Subcomp. | "COMPONENT Usc Ds AllocationRetention (Ar)" |
| Common Verbs | Help<br>List<br>Display |

### GROUP Usc Ds WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Usc Ds customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Ds customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## ATTRIBUTE Usc Ds customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## COMPONENT Usc Ds AllocationRetention (Ar)

| | |
|---|---|
| Instance | Decimal (1..3) |
| Groups | "GROUP Usc Ds Ar WlcCustomCounters (WlcCustomCntr)" |
| Scope | Application |
| Description | *Usd Ds AllocRetention/<allocation retention priority>*<br>*Gsd Ds AllocRetention/<allocation retention priority>*<br><br>This component represents the allocation retention priority on the Subscriber Control Card. The instance value of the component represents the allocation retention priority. |
| Dyn. Subcomp. | "COMPONENT Usc Ds Ar TrafficClass (Tc)" |
| Common Verbs | Help<br>List<br>Display |

## GROUP Usc Ds Ar WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Usc Ds Ar customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Ds Ar customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Ds Ar customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## COMPONENT Usc Ds Ar TrafficClass (Tc)

| | |
|---|---|
| Instance | conversational (conv)<br>streaming (strm)<br>interactive (int)<br>background (bkgr) |
| Groups | "GROUP Usc Ds Ar Tc Statistics (Stats)"<br>"GROUP Usc Ds Ar Tc WlcCustomCounters (WlcCustomCntr)" |

"COLLECTED STATS UsgsnSubscriberControl DifferentiatedService AllocationRetention TrafficClass"

| | |
|---|---|
| Scope | Application |
| Description | *Usc Ds Ar/<alloc retention priority> TrafficClass/<traffic class>*<br>*Gsc Ds Ar/<alloc retention priority> TrafficClass/<traffic class>*<br><br>This component represents the traffic class on the Subscriber Control Card. |
| Common Verbs | Help<br>List<br>Display |

## GROUP Usc Ds Ar Tc Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the statistical attributes of this component. |

## ATTRIBUTE Usc Ds Ar Tc createPdpReq

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of CREATE PDP CONTEXT REQUEST messages sent by the (UMTS) Serving GPRS Support Node (USGSN or SGSN) for the allocation retention priority and traffic class represented by this component. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Usc Ds Ar Tc createPdpRes

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of CREATE PDP CONTEXT RESPONSE messages received with the cause REQUEST ACCEPTED for the allocation retention priority and traffic class represented by this component. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Ds Ar Tc sgsnInitPdpUpdateReq

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of UPDATE PDP CONTEXT REQUEST messages sent by the (UMTS) Serving GPRS Support Node (USGSN or SGSN) for the allocation retention priority and traffic class represented by this component. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Ds Ar Tc sgsnInitPdpUpdateRes

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of UPDATE PDP CONTEXT RESPONSE messages sent by the (UMTS) Serving GPRS Support Node (USGSN or SGSN) for the allocation retention priority and traffic class represented by this component. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Ds Ar Tc ggsnInitPdpUpdateReq

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of UPDATE PDP CONTEXT REQUEST messages received from the Gateway Serving GPRS Support Node (GGSN) for the allocation retention priority and traffic class represented by this component. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Ds Ar Tc wlcGgsnInitPdpUpdateRes

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of UPDATE PDP CONTEXT RESPONSE messages sent with a cause REQUEST ACCEPTED by the (UMTS) Serving GPRS Support Node (USGSN or SGSN) for the allocation retention priority and traffic class represented by this component. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Usc Ds Ar Tc WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Usc Ds Ar Tc customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Usc Ds Ar Tc customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Ds Ar Tc customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |
| Default | COLLECTED STATS UsgsnSubscriberControl DifferentiatedService AllocationRetention TrafficClass |
| Description | The statistics record generated by the UsgsnSubscriberControl DifferentiatedService AllocationRetention TrafficClass component. |

### ATTRIBUTE Usc Ds Ar Tc createPdpReq

| | |
|---|---|
| Description | This attribute indicates the number of CREATE PDP CONTEXT REQUEST messages sent by the (UMTS) Serving GPRS Support Node (USGSN or SGSN) for the allocation retention priority and traffic class represented by this component over the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Usc Ds Ar Tc createPdpRes

Description: This attribute indicates the number of CREATE PDP CONTEXT RESPONSE messages received with the cause REQUEST ACCEPTED for the allocation retention priority and traffic class represented by this component over the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Usc Ds Ar Tc sgsnInitPdpUpdateReq

Description: This attribute indicates the number of UPDATE PDP CONTEXT REQUEST messages sent by the (UMTS) Serving GPRS Support Node (USGSN or SGSN) for the allocation retention priority and traffic class represented by this component over the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Usc Ds Ar Tc sgsnInitPdpUpdateRes

Description: This attribute indicates the number of UPDATE PDP CONTEXT RESPONSE messages sent by the (UMTS) Serving GPRS Support Node (USGSN or SGSN) for the allocation retention priority and traffic class represented by this component over the collection interval..

Values: Decimal (0..4294967295)

### ATTRIBUTE Usc Ds Ar Tc ggsnInitPdpUpdateReq

Description: This attribute indicates the number of UPDATE PDP CONTEXT REQUEST messages received from the Gateway Serving GPRS Support Node (GGSN) for the allocation retention priority and traffic class represented by this component over the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Usc Ds Ar Tc wlcGgsnInitPdpUpdateRes

Description: This attribute indicates the number of UPDATE PDP CONTEXT RESPONSE messages sent with a cause REQUEST ACCEPTED by the (UMTS) Serving GPRS Support Node (USGSN or SGSN) for the allocation retention priority and traffic class represented by this component over the collection interval.

| | |
|---|---|
| Values | Decimal (0..4294967295) |

## COMPONENT Usc GprsSupportNode (Gsn)

| | |
|---|---|
| Groups | "GROUP Usc Gsn WlcCustomCounters (WlcCustomCntr)" |

"COLLECTED STATS UsgsnSubscriberControl GprsSupportNode"

| | |
|---|---|
| Scope | Application |
| Description | *Usc/n GprsSupportNode*<br><br>This component represents the GPRS Support Node (GSN) protocol layer of the UMTS Serving GPRS Support Node (USGSN) |
| Common Verbs | Help<br>List<br>Display |

## GROUP Usc Gsn WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

## ATTRIBUTE Usc Gsn customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## ATTRIBUTE Usc Gsn customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Gsn customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## COLLECTED STATS UsgsnSubscriberControl GprsSupportNode

| | |
|---|---|
| Description | The statistics record generated by the UsgsnSubscriberControl GprsSupportNode component. |

### ATTRIBUTE Usc Gsn incomingRequestsRejected (inReqReject)

| | |
|---|---|
| Description | This attribute indicates the number of incoming request messages on the Gn interface that were rejected during the collection interval because the maximum number of outstanding incoming requests was exceeded. |
| Values | Decimal (0..4294967295) |

### COMPONENT Usc ServiceSwitchingFunction (Ssf)

| | |
|---|---|
| Groups | "GROUP Usc Ssf Provisioned (SsfProv)"<br>"GROUP Usc Ssf OsiState (State)" |

"GROUP Usc Ssf Operational (SsfOp)"
"GROUP Usc Ssf WlcCustomCounters (WlcCustomCntr)"

"COLLECTED STATS UsgsnSubscriberControl ServiceSwitchingFunction"

Scope: Application

Description: *Gsc/n ServiceSwitchingFunction*
*Usc/n ServiceSwitchingFunction*

This component represents the Service Switching Function (SSF) functionality of the SGSN (2G) and USGSN (3G). The Service Switching Function is responsible for handling communication between the SGSN (2G and 3G) and one or more Service Control Points (SCP). An SCP is an external entity present in a wireless network supporting CAMEL (Customized Application for Mobile Network Enhanced Logic). It provides prepaid services.

The SSF maintains the state of the CAMEL dialogues between the SGSN and the external SCPs with which it communicates.

Common Verbs: Help
List
Display

## GROUP Usc Ssf Provisioned (SsfProv)

Properties: Provisioned

Description: This group contains provisioning data for the *Ssf* component.

## ATTRIBUTE Usc Ssf maxCamelDialogues (maxDialogues)

Access: Read: All
Write: All

Criticality: Process

Description: This attribute specifies the maximum number of CAMEL dialogs that can be active at any time.

The current number of active CAMEL dialogs is indicated by the *currentCamelDialogues* attribute, and the total number of

dialogues created since the creation of this component is counted by *totalCamelDialogues*.

Values: Decimal (1..150000)

Default: 20000

### ATTRIBUTE Usc Ssf linkToTcapStack (tcapLink)

Access: Read: All
Write: All

Description: This attribute specifies the TCAP (Transaction Capabilities Application Part) Stack used by this *Ssf*. The TCAP Stack provides services to the CAMEL Application Part (CAP) and facilitates network communication required by CAMEL.

Values: Link (Service, linkToTcapStackUsers)

Default: No default

### GROUP Usc Ssf OsiState (State)

Properties: Operational

Description: This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Usc Ssf adminState (osiAdmin)

Access: Read only

Description: This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is

administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Usc Ssf operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Usc Ssf usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Usc Ssf Operational (SsfOp)

Properties
Operational

Description
This group contains the operational data of the *Ssf* component.

### ATTRIBUTE Usc Ssf currentCamelDialogues (currDialogues)

Access
Read: All
Write: Illegal

Description
This attribute indicates the number of CAMEL dialogues that are currently active.

Values
Decimal (0..4294967295)

Default
No default

### ATTRIBUTE Usc Ssf pdpContextsRedirected (pdpRedir)

Access
Read: All
Write: Illegal

Description
This attribute counts the number of PDP (Packet Data Protocol) Contexts redirected to a different APN (Access Point Name) by the SCP (Service Control Point).

If the counter is increasing rapidly, the operator may want to examine the network configuration to determine why so many PDP contexts are being redirected. It is possible that the current network configuration is not optimal and that the SCP is redirecting PDP contexts to avoid undesirable or expensive network access paths.

The counter wraps to zero when its maximum value is exceeded.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Usc Ssf attemptedCamelDialogues (attDialogues)

Access: Read: All
Write: Illegal

Description: This attribute counts the total number of CAMEL dialogue establishments attempted by this *Ssf* component. The counter wraps to zero when it exceeds its maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Usc Ssf unsuccessfulCamelDialogues (unsuccDialogues)

Access: Read: All
Write: Illegal

Description: This attribute counts the total number of unsuccessful CAMEL dialogue establishment attempts caused by errors or reject messages received from an SCP. The counter wraps to zero when it exceeds it maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Usc Ssf totalTssfTimeouts (totTssfTimeouts)

Access: Read: All
Write: Illegal

Description: This attribute counts the total number of Tssf timeouts for this *Ssf* component. The timeout period is specified by the *ssfTimer* attribute of the *Sgsn Gsc* component.

The counter wraps to zero when it exceeds its maximum value.

Values: Decimal (0..4294967295)

Default No default

### ATTRIBUTE Usc Ssf totalDefaultGprsHandlings (totDefHand)

Access Read: All
Write: Illegal

Description This attribute counts the total number of times the SSF (Service Switching Function) detected an error and had to refer to the Default Gprs Handing field of the related mobile's CAMEL Subscriber Information (CSI) to determine whether to continue or fail the PDP (Packet Data Protocol) Context.

If this counter is rapidly increasing, the *totalProtocolErrors* and *totalNoCopFailures* attributes can be examined for information about why the Default Gprs Handling field is so often referenced. The counter wraps to zero when it exceeds its maximum value.

Values Decimal (0..4294967295)

Default No default

### ATTRIBUTE Usc Ssf totalProtocolErrors (totProtoErr)

Access Read: All
Write: Illegal

Description This attribute counts the total number of protocol errors detected in CAP (CAMEL Application Part) messages from the SCP (Service Control Point).

If this counter is rapidly increasing, there may be a mismatch in the protocol version being used by the SCP and the version being used by the SGSN. The counter wraps to zero when it exceeds its maximum value.

Values Decimal (0..4294967295)

Default No default

### ATTRIBUTE Usc Ssf totalNoCopFailures (totNoCopFail)

Access Read: All
Write: Illegal

| | |
|---|---|
| Description | This attribute counts the total number of PDP (Packet Data Protocol) Contexts that have failed because an IRAU (Inter Routing Area Updates) occurred when the Change Of Position (COP) trigger was not in the TDP (Trigger Detection Point) list of the subscriber for which the PDP Context was requested.<br><br>If this value is rapidly increasing, it may indicate that roaming should be disabled for CAMEL users or that Camel Subscriber Information (CSI) is not properly specified in the HLR for some users. The counter wraps to zero when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Usc Ssf WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Usc Ssf customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Ssf customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a |

mechanism by which custom counters can be set up at runtime through a patch.

Values Decimal (0..4294967295)

Default No default

### ATTRIBUTE Usc Ssf customCounter3 (customCntr3)

Access Read: All
Write: Illegal

Description This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch.

Values Decimal (0..4294967295)

Default No default

## COLLECTED STATS UsgsnSubscriberControl ServiceSwitchingFunction

Description The statistics record generated by the UsgsnSubscriberControl ServiceSwitchingFunction component.

### ATTRIBUTE Usc Ssf pdpContextsRedirected (pdpRedir)

Description This attribute indicates the number of PDP (Packet Data Protocol) Contexts that have been redirected to a different APN (Access Point Name) by an SCP (Service Control Point) during the collection interval.

If this attribute is continuously reporting a high value during each collection interval, the operator may want to examine the network configuration to determine why so many PDP contexts are being redirected. It is possible that the current network configuration is not optimal and that the SCP is redirecting PDP contexts to avoid undesirable or expensive network access paths.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Ssf attemptedCamelDialogues (attDialogues)

Description: This attribute indicates the total number of CAMEL dialogues that this *Ssf* component has attempted to establish during the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Usc Ssf unsuccessfulCamelDialogues (unsuccDialogues)

Description: This attribute indicates the total number of unsuccessful CAMEL dialogues establishment attempts caused by errors or reject messages received from an SCP during the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Usc Ssf totalTssfTimeouts (totTssfTimeouts)

Description: This attribute indicates the total number of Tssf timeouts during the collection interval. The timeout period is specified by the *ssfTimer* attribute of the *Sgsn Gsc* component.

Values: Decimal (0..4294967295)

### ATTRIBUTE Usc Ssf totalDefaultGprsHandlings (totDefHand)

Description: This attribute indicates the number of times during the collection interval the SSF (Service Switching Function) detected an error and had to refer to the Default Gprs Handing field of the related mobile's CAMEL Subscriber Information (CSI) to determine whether to continue or fail the PDP (Packet Data Protocol) Context.

If this attribute is continuously reporting a high value during each collection interval, the *totalProtocolErrors* and *totalNoCopFailures* attributes can be examined for information about why the Default Gprs Handling field is so often referenced.

Values: Decimal (0..4294967295)

### ATTRIBUTE Usc Ssf totalProtocolErrors (totProtoErr)

Description: This attribute indicates the total number of protocol errors detected in CAP (CAMEL Application Part) messages from an SCP (Service Control Point) during the collection interval.

If this attribute is continuously reporting a high number of errors during each collection interval, there may be a mismatch in the protocol version being used by the SCP and the version being used by the SGSN.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Ssf totalNoCopFailures (totNoCopFail)

Description This attribute indicates the total number of PDP (Packet Data Protocol) Contexts that have failed during the collection interval because an IRAU (Inter Routing Area Updates) occurred when the Change Of Position (COP) trigger was not in the TDP (Trigger Detection Point) list of the subscriber for which the PDP Context was requested.

If this attribute is continuously reporting a high number of errors during each collection interval, it may indicate that roaming should be disabled for CAMEL users or that Camel Subscriber Information (CSI) is not properly specified in the HLR for some users.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Ssf currentCamelDialogues (currDialogues)

Description This attribute indicates the number of CAMEL dialogues active at the end of the collection interval.

Values Decimal (0..4294967295)

### COMPONENT Usc LocationServices (Lcs)

Groups "GROUP Usc Lcs WlcLcsProv (Prov)"
"GROUP Usc Lcs UmtsLcsProv (UmtsProv)"
"GROUP Usc Lcs OsiState (State)"
"GROUP Usc Lcs WlcLcsOper (Oper)"
"GROUP Usc Lcs UmtsLcsOper (UmtsOper)"

"COLLECTED STATS UsgsnSubscriberControl LocationServices"

Scope Application

Description *Usc/n LocationServices*

This component represents the *LocationServices* functionality of the *UmtsSubscriberControl (Usc)* component. The LCS functions include LCS coordination, managing the location request, and authorization and operation of the LCS services. LCS furnishes its clients with information about the physical location of a mobile terminal. This positioning information is typically used for value-added services, charging, law enforcement, or emergency services.

The LCS function is not available for all LCS-enabled subscribers until the audit represented by the *Usc/n Hlrc RefreshAudit* component has completed.

Common Verbs

Help
List
Display
Add
DELete

## GROUP Usc Lcs WlcLcsProv (Prov)

Properties Provisioned

Description This group contains the provisionable attributes for the *LocationServices* component.

## ATTRIBUTE Usc Lcs maxLcsSubscribers (maxLcsSubs)

Access Read: All
Write: All

Description This attribute specifies the maximum number of subscribers that can have Location Services capabilities.

When this attribute is set to a lower value, the new value will not take effect until the card is reset.

This attribute value must be less than or equal to the value specified by the *maxAttachedSubscribers* attribute.

| | |
|---|---|
| Values | Decimal (1..1000000) |
| Default | No default |

### ATTRIBUTE Usc Lcs privacyProfileAlarmsThreshold (priProfileThreshold)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the percentage threshold at which the warning PrivacyProfileUsage alarm is set. The memory for storing the privacy profile information is allocated based on the value of the *maxLcsSubscribers* attribute.<br><br>A SET major PrivacyProfileUsage alarm is set when the memory usage for privacy profile information reaches 100%. This alarm is cleared when the usage drops by 5%.<br><br>A SET warning PrivacyProfileUsage alarm is set when the memory usage for privacy profile information reaches the value of the *privacyProfileAlarmsThreshold* attribute. This alarm is cleared when the usage drops by 5% below the value of the *privacyProfileAlarmsThreshold* attribute. |
| Values | Decimal (50..95) |
| Units | % |
| Default | 90 |

### ATTRIBUTE Usc Lcs maxCurrentTransactions (maxlcsTrans)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the number of maximum Location Services (LCS) subscribers that can concurrently use the LCS functionality on the SGSN/USGSN.<br><br>When this attribute is set to a lower value, the new value will not take effect until the card is reset.<br><br>This attribute value must be less than or equal to the value specified by *maxLcsSubscribers* attribute. |

| | |
|---|---|
| Values | Decimal (1..1000000) |
| Default | No default |

### ATTRIBUTE Usc Lcs lcsContextAlarmsThreshold (lcsContextThreshold)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the percentage threshold at which the warning LcsContextUsage alarm is set. The memory for storing the location services context information is allocated based on the value of the *maxCurrentTransactions* attribute.<br><br>A SET major LcsContextUsage alarm is set when the memory usage for location services context information reaches 100%. This alarm is cleared when the usage drops by 5%.<br><br>A SET warning LcsContextUsage alarm is set when the memory usage for location services context information reaches the value of the *lcsContextAlarmsThreshold* attribute. This alarm is cleared when the usage drops by 5% below the value of the *lcsContextAlarmsThreshold* attribute. |
| Values | Decimal (50..95) |
| Units | % |
| Default | 90 |

### ATTRIBUTE Usc Lcs maxLcsExternalClientBlocks (maxlcsExtClientBk)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the maximum number of memory blocks used for storing lists of external clients in the Subscriber Location Privacy Profiles. Each block holds data for up to five external clients. A minimum of one block is needed per list (session related or session unrelated) per Location Services (LCS) subscriber.<br><br>When this attribute is set to a lower value, the new value will not take effect until the card is reset. |

This attribute value must be less than or equal to 14 times the value specified by the *maxLcsSubscribers* attribute.

Values: Decimal (1..14000000)

Default: No default

### ATTRIBUTE Usc Lcs externalClientAlarmsThreshold (extClientThreshold)

Access: Read: All
Write: All

Description: This attribute specifies the percentage threshold at which the warning ExternalClientUsage alarm is set. The memory for storing the external client index information is allocated based on the value of the *maxLcsExternalClientBlocks* attribute.

A SET major ExternalClientUsage alarm is set when the memory usage for external client index information reaches 100%. This alarm is cleared when the usage drops by 5%.

A SET warning ExternalClientUsage alarm is set when the memory usage for external client index information reaches the value of the *externalClientAlarmsThreshold* attribute. This alarm is cleared when the usage drops by 5% below the value of the *externalClientAlarmsThreshold* attribute.

Values: Decimal (50..95)

Units: %

Default: 90

### GROUP Usc Lcs UmtsLcsProv (UmtsProv)

Properties: Provisioned

Description: This group contains the provisionable attributes for the *LocationServices* component of the *UmtsSubscriberControl* component.

### ATTRIBUTE Usc Lcs locationReportTimer (tLcsr)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the amount of time Location Services waits for the Radio Network Controller (RNC) to respond to a location request.<br><br>The timer is started when the Location Reporting Control message is sent to the RNC.<br><br>The expiries of this timer are counted by the attribute *lcsReportExpiries*.<br><br>This attribute must be set to the same value for all the *Location Services* components on the same shelf. |
| Values | Decimal (3..60) |
| Units | seconds |
| Default | 11 |

### ATTRIBUTE Usc Lcs locationNotifyTimer (tLcsn)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the amount of time Location Services waits for the Mobile Subscriber (MS) to respond to a Location Notification message.<br><br>The timer is started when the Location Notification message is sent to the MS.<br><br>The expiries of this timer are counted by the attribute *lcsNotifyExpiries*.<br><br>This attribute must be set to the same value for all the *Location Services* components on the same shelf. |
| Values | Decimal (10..20) |

| | |
|---|---|
| Units | seconds |
| Default | 10 |

### GROUP Usc Lcs OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Usc Lcs adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Usc Lcs operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Usc Lcs usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Usc Lcs WlcLcsOper (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for the *LocationServices* component. |

### ATTRIBUTE Usc Lcs lcsCurrentEnabledSubscribers (enabledSubs)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the current number of location services enabled subscribers. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Lcs lcsCurrentTransactions (currentTrans)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the current number of location transactions that are being processed. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Lcs lcsCurrentExternalClientBlocks (currentExtClientBks)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the current number of external client blocks that are being utilized for storing the external client index information. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Lcs lcsMtRequests (mtReq)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total mobile terminated location requests.<br><br>The counter wraps to 0 when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Lcs lcsMtFailures (mtFail)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total unsuccessful mobile terminated location requests.<br><br>The counter wraps to 0 when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Lcs lcsPagingRequests (pagingReq)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total paging requests sent by the *LocationServices* component.<br><br>The counter wraps to 0 when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Lcs lcsPagingFailures (pagingFail)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the total unsuccessful paging requests sent by the *LocationServices* component.<br><br>The counter wraps to 0 when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Lcs lcsRequestTypeNotSupported (reqTypeNotSupp)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total failed location requests due to a requested location that is not supported.<br><br>The counter wraps to 0 when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Lcs lcsDataMissing (dataMiss)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total failed location requests due to missing information. For example, Imsi or Msisdn is missing in the location request message.<br><br>The counter wraps to 0 when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Lcs lcsSubscriberNotAttached (subNotAttach)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total failed location requests due to the subscriber not currently attached. |

| | |
|---|---|
| | The counter wraps to 0 when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Lcs lcsUnauthorizedGmlc (unauthGmlc)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total failed location requests due to location requests messages received from an unauthorized Gateway Mobile Location Center.<br><br>The counter wraps to 0 when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Lcs lcsUnauthorizedClient (unauthClient)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total failed location requests due to location requests messages received from an unauthorized client.<br><br>The counter wraps to 0 when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Lcs lcsServiceBusy (servBusy)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total failed location requests due to another location request already in progress for the same subscriber.<br><br>The counter wraps to 0 when it exceeds the maximum value. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Lcs lcsNotificationNotPossible (notifyNotPossible)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total failed location requests due to the reason that it is impossible to send a notification message to the mobile.<br><br>The counter wraps to 0 when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Lcs lcsGadShapeNotSupported (gadShapeNotSupp)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total failed location requests due to the obtained location estimates using a Geographical Area Description (GAD) shape, that is not supported in the Location Request message.<br><br>The counter wraps to 0 when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Lcs lcsInterrupted (interrupted)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total failed location requests due to information received from the Radio Network Controller (RNC) showing that the Location Services (LCS) entity has been interrupted. For example, LCS can be interrupted by an Inter-SGSN Routing Area Update (IRAU). |

The counter wraps to 0 when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Usc Lcs lcsQosNotAttained (qosNotAttained)

Access: Read: All
Write: Illegal

Description: This attribute counts the total failed location requests due to the quality of service information not matching the requested quality of service in the Provide Subscriber Location (PSL) message from the Gateway Mobile Location Center (GMLC).

The counter wraps to 0 when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: No default

### GROUP Usc Lcs UmtsLcsOper (UmtsOper)

Properties: Operational

Description: This group contains the operational attributes for the *LocationServices* component of the *UmtsSubscriberControl* component.

### ATTRIBUTE Usc Lcs lcsNotificationRequests (notifyRequest)

Access: Read: All
Write: Illegal

Description: This attribute counts the total notification requests to the mobile subscribers.

The counter wraps to 0 when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Usc Lcs lcsNotificationFailures (notifyFail)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total unsuccessful notification requests to the mobile subscribers.<br><br>The counter wraps to 0 when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Lcs lcsReportExpiries (reportExpiries)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the timer expiries associated with the *locationReportTimer* attribute.<br><br>The counter wraps to 0 when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Lcs lcsNotifyExpiries (notifyExpiries)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the timer expiries associated with the *locationNotifyTimer* attribute.<br><br>The counter wraps to 0 when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usc Lcs lcsClientDeniedByMs (deniedByMs)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

Description This attribute counts the location requests that are failed due to the subscriber denying the request.

The counter wraps to 0 when it exceeds the maximum value.

Values Decimal (0..4294967295)

Default No default

### ATTRIBUTE Usc Lcs lcsRncPositioningFailure (rncPosFail)

Access Read: All
Write: Illegal

Description This attribute counts the total failed location requests due to the Radio Network Controller (RNC) failing to determine the location of the subscriber.

The counter wraps to 0 when it exceeds the maximum value.

Values Decimal (0..4294967295)

Default No default

## COLLECTED STATS UsgsnSubscriberControl LocationServices

Description The statistics record generated by the UsgsnSubscriberControl LocationServices component.

### ATTRIBUTE Usc Lcs lcsMaxCurrentEnabledSubscribers (maxEnabledSubs)

Description This attribute indicates the current number of location services enabled subscribers.

The value reported is the peak value for the duration of the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Lcs lcsMtRequests (mtReq)

Description This attribute counts the total mobile terminated location requests.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Lcs lcsMtFailures (mtFail)

Description This attribute counts the total unsuccessful mobile terminated location requests.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Lcs lcsPagingRequests (pagingReq)

Description This attribute counts the total paging requests sent by the *LocationServices* component.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Lcs lcsPagingFailures (pagingFail)

Description This attribute counts the total unsuccessful paging requests sent by the *LocationServices* component.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Lcs lcsRequestTypeNotSupported (reqTypeNotSupp)

Description This attribute counts the total failed location requests due to a requested location that is not supported.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Lcs lcsDataMissing (dataMiss)

Description This attribute counts the total failed location requests due to missing information. For example, Imsi or Msisdn is missing in the location request message.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Lcs lcsSubscriberNotAttached (subNotAttach)

Description This attribute counts the total failed location requests due to the subscriber not currently attached.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Lcs lcsUnauthorizedGmlc (unauthGmlc)

Description This attribute counts the total failed location requests due to location requests messages received from an unauthorized Gateway Mobile Location Center.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Lcs lcsUnauthorizedClient (unauthClient)

Description This attribute counts the total failed location requests due to location requests messages received from an unauthorized client.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Lcs lcsServiceBusy (servBusy)

Description This attribute counts the total failed location requests due to another location request already in progress for the same subscriber.

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Usc Lcs lcsNotificationNotPossible (notifyNotPossible)

Description: This attribute counts the total failed location requests due to the reason that it is impossible to send a notification message to the mobile.

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Usc Lcs lcsGadShapeNotSupported (gadShapeNotSupp)

Description: This attribute counts the total failed location requests due to the obtained location estimates using a Geographical Area Description (GAD) shape that are not supported in the Location Request message.

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Usc Lcs lcsInterrupted (interrupted)

Description: This attribute counts the total failed location requests due to information received from the Radio Network Controller (RNC) showing that the Location Services (LCS) entity has been interrupted. For example, LCS can be interrupted by an Inter-SGSN Routing Area Update (IRAU).

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Usc Lcs lcsQosNotAttained (qosNotAttained)

Description: This attribute counts the total failed location requests due to the quality of service information not matching the requested quality of service in the Provide Subscriber Location (PSL) message from the Gateway Mobile Location Center (GMLC).

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Usc Lcs lcsNotificationRequests (notifyRequest)

Description: This attribute counts the total notification requests to the mobile subscribers.

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Usc Lcs lcsNotificationFailures (notifyFail)

Description: This attribute counts the total unsuccessful notification requests to the mobile subscribers.

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Usc Lcs lcsReportExpiries (reportExpiries)

Description: This attribute counts the timer expiries associated with the *locationReportTimer* attribute.

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Usc Lcs lcsNotifyExpiries (notifyExpiries)

Description: This attribute counts the timer expiries associated with the *locationNotifyTimer* attribute.

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

### ATTRIBUTE Usc Lcs lcsClientDeniedByMs (deniedByMs)

Description: This attribute counts the location requests that fail due to the subscriber denying the request.

The counter counts the events in the collection interval.

Values: Decimal (0..4294967295)

## ATTRIBUTE Usc Lcs lcsRncPositioningFailure (rncPosFail)

| | |
|---|---|
| Description | This attribute counts the total failed location requests due to the Radio Network Controller (RNC) failing to determine the location of the subscriber.<br><br>The counter counts the events in the collection interval. |
| Values | Decimal (0..4294967295) |

Passport 7400, 15000, 20000

# Component Usc

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component Usd

241-5701-060

Passport 7400, 15000, 20000

# Component Usd

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT UsgsnSubscriberDatapath (Usd)

| | |
|---|---|
| Instance | Decimal (1..15) |
| Groups | "GROUP Usd Provisioned (Prov)"<br>"GROUP Usd OsiState (State)"<br>"GROUP Usd Stats"<br>"GROUP Usd WlcCustomCounters (WlcCustomCntr)" |

"COLLECTED STATS UsgsnSubscriberDatapath"

| | |
|---|---|
| Scope | Application |
| Description | *UsgsnSubscriberDatapath/n*<br><br>This component represents the data path layers of the UMTS Subscriber GPRS Support Node (USGSN).<br><br>Only one instance of this component can be provisioned on an LP. |

| | |
|---|---|
| Subcomponents | "COMPONENT Usd MemoryPoolManager (Mpm)"<br>"COMPONENT Usd GtpUserPlane (GtpU)" |
| Dyn. Subcomp. | "COMPONENT Usd RemoteApplicationConnection (RaConn)"<br>"COMPONENT Usd TieredSubscription (Ts)"<br>"COMPONENT Usd InternationalMobileSubscriberId (Imsi)"<br>"COMPONENT Usd DifferentiatedService (Ds)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Usd Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes of this component. |

## ATTRIBUTE Usd linkToLogicalProcessor (lp)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the Logical Processor that the *UmtsSubscriberDataPath (Usd)* and its subcomponents are provisioned on. |
| Values | Link (Hardware, linkToApplications) |
| Default | No default |

## ATTRIBUTE Usd maxActiveSessions (maxSc)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the maximum number of active session contexts allowed for this instance of *UmtsSubscriberDataPath* |

*(Usd).*

The current number of active sessions allowed is indicated by the attribute *currentActiveSessions.*

Values Decimal (0..300000)

Default 15000

### GROUP Usd OsiState (State)

Properties Operational

Description This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Usd adminState (osiAdmin)

Access Read only

Description This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Usd operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Usd usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
idle
active (activ)
busy

Default
idle

### ATTRIBUTE Usd availabilityStatus (osiAvail)

Access
Read only

Description
If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.

The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.

The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.

The value ***powerOff*** indicates the resource requires power to be

applied and it is not powered on. The *operationalState* is ***disabled***.

The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

## ATTRIBUTE Usd proceduralStatus (osiProc)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.<br><br>The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.<br><br>The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.<br><br>The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.<br><br>The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***. |
| Set of | initializationRequired (initRq)<br>notInitialized (notInit)<br>initializing (init)<br>reporting (report)<br>terminating (term) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Usd controlStatus (osiCntrl)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.<br><br>The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.<br><br>The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.<br><br>The value ***suspended*** indicates that the service has been administratively suspended. |
| Set of | subjectToTest (subTst)<br>partOfServicesLocked (partLk)<br>reservedForTest (rsrvd)<br>suspended (suspnd) |
| Default | No default |

### ATTRIBUTE Usd alarmStatus (osiAlarm)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is |

defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE Usd standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values

hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

Default

notSet

### ATTRIBUTE Usd unknownStatus (osiUnknw)

Access

Read only

Description

This attribute indicates the OSI Unknown status of the component.

The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.

The value ***true*** indicates that the actual state of the component is not known for sure.

Values

false
true

| | |
|---|---|
| Default | false |

### GROUP Usd Stats

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the statistical attributes of the *Usd/n* component. |

### ATTRIBUTE Usd currentActiveSessions (currActSess)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the current number of active session contexts for this instance of *UmtsSubscriberDataPath (Usd).*<br><br>The maximum number of active sessions allowed is provisioned in the attribute *maxActiveSessions.* |
| Values | Decimal (0..6000000) |
| Default | No default |

### ATTRIBUTE Usd pdusToUtran

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Protocol Data Units (PDUs) sent to the UMTS Terrestrial Radio Access Network (UTRAN).<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usd pdusFromUtran

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Protocol Data Units (PDUs) received from the UMTS Terrestrial Radio Access Network (UTRAN). |

The counter wraps to zero when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Usd pdusToNetwork (pdusToNwk)

Access: Read: All
Write: Illegal

Description: This attribute counts the GPRS Tunneling Protocol (GTP-U) Protocol Data Units (PDUs) transmitted to the Gateway GPRS Support Node (GGSN).

The counter wraps to zero when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Usd pdusFromNetwork (pdusFromNwk)

Access: Read: All
Write: Illegal

Description: This attribute counts the GPRS Tunneling Protocol (GTP-U) Protocol Data Units (PDUs) received from the Gateway GPRS Support Node (GGSN).

This includes PDUs counted in the attribute *discardedPdus.*

The counter wraps to zero when it exceeds the maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Usd discardedPdus (discPdus)

Access: Read: All
Write: Illegal

Description: This attribute counts the discarded Protocol Data Units (PDUs) received from the GPRS Support Nodes (GSNs) or UMTS

| | |
|---|---|
| | Terrestrial Radio Access Network (UTRAN). This includes packets dropped due to GPRS Tunneling Protocol (GTP-U) protocol errors, packets received with no currently linked session context, packets received without a path to send them or packets dropped due to the Tiered Subscription feature policing downlink data.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Usd WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Usd customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usd customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Usd customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## COLLECTED STATS UsgsnSubscriberDatapath

| | |
|---|---|
| Description | The statistics record generated by the UsgsnSubscriberDatapath component. |

### ATTRIBUTE Usd currentActiveSessions (currActSess)

| | |
|---|---|
| Description | This attribute indicates the current number of active session contexts allowed for this instance of *UmtsSubscriberDataPath (Usd)* over the collection interval. |
| Values | Decimal (0..6000000) |

### ATTRIBUTE Usd pdusToUtran

| | |
|---|---|
| Description | This attribute indicates the number of Protocol Data Units (PDUs) sent to the UMTS Terrestrial Radio Access Network (UTRAN) over the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Usd pdusFromUtran

| | |
|---|---|
| Description | This attribute indicates the number of Protocol Data Units (PDUs) received from the UMTS Terrestrial Radio Access Network (UTRAN) over the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Usd pdusToNetwork (pdusToNwk)

| | |
|---|---|
| Description | This attribute indicates the number of GPRS Tunneling Protocol User Plane (GTP-U) Protocol Data Units (PDU) transmitted to the Gateway GPRS Support Node (GGSN) over the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Usd pdusFromNetwork (pdusFromNwk)

| | |
|---|---|
| Description | This attribute indicates the number of GPRS Tunneling Protocol User Plane (GTP-U) Protocol Data Units (PDU) received from the Gateway GPRS Support Node (GGSN) over the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Usd discardedPdus (discPdus)

| | |
|---|---|
| Description | This attribute indicates the number of discarded Protocol Data Units (PDUs) received from the GPRS Support Nodes (GSNs) or UMTS Terrestrial Radio Access Network (UTRAN). This includes packets dropped due to GPRS Tunneling Protocol (GTP-U) protocol errors, packets received with no currently linked session context, packets received without a path to send them or packets dropped due to the Tiered Subscription feature policing downlink data.<br><br>The counter counts events in the collection interval. |
| Values | Decimal (0..4294967295) |

### COMPONENT Usd MemoryPoolManager (Mpm)

| | |
|---|---|
| Scope | Application |
| Description | *Gsc/n MemoryPoolManager*<br>*Gsd/n MemoryPoolManager*<br>*Gtl/n MemoryPoolManager*<br>*DnsAgent/<vr>,n MemoryPoolManager* |

This component represents the memory resources of a given GPRS application that are managed as pools of objects.

Dyn. Subcomp. "COMPONENT Usd Mpm MemoryPoolClient (Mpc)"

Common Verbs
Help
List
Display

## COMPONENT Usd Mpm MemoryPoolClient (Mpc)

Instance String (1..30, ASCII)

Scope Application

Description *Gsc/n Mpm MemoryPoolClient/<name>*
*Gsd/n Mpm MemoryPoolClient/<name>*
*SgGtl/n Mpm MemoryPoolClient/<name>*
*DnsAgent/<vr>,n Mpm MemoryPoolClient/<name>*

This component represents a pool of objects of a particular class that a GPRS application currently owns as well as all the objects that could be owned by that application. All the objects in the pool are of the same class. The instance value of this component is a string which is the class name of the objects in the pool.

Common Verbs
Help
List
Display

## COMPONENT Usd RemoteApplicationConnection (RaConn)

Instance appType [String (1..8, ASCII)]
shelfId [Decimal (0..15)]
n [Decimal (1..15)]

Groups "GROUP Usd RaConn OsiState (State)"
"GROUP Usd RaConn WlcCustomCounters (WlcCustomCntr)"

Scope Application

Description *... RemoteApplicationConnection/<appType, shelfId, n>*

This component represents the Remote Application Connection information of an application that talks to applications on other shelves. For each application that it can communicate with, one of these connection components is created and is instantiated with the name of the remote application, the Id of the shelf on which the application runs, and the instance number of the application. ShelfId ***0*** represents the Master shelf.

Dyn. Subcomp. "COMPONENT Usd RaConn AtmConnection (AtmCon)"

Common Verbs
Help
List
Display

## GROUP Usd RaConn OsiState (State)

Properties Operational

Description This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

## ATTRIBUTE Usd RaConn adminState (osiAdmin)

Access Read only

Description This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Usd RaConn operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Usd RaConn usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

| | |
|---|---|
| | The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Usd RaConn WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Usd RaConn customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usd RaConn customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usd RaConn customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT Usd RaConn AtmConnection (AtmCon)

| | |
|---|---|
| Groups | "GROUP Usd RaConn AtmCon Operational (Oper)" |
| Scope | Device |
| Description | An AtmConnection component is created for each ATM connection established by an application. It shows where the data traffic for this connection is directed. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Usd RaConn AtmCon Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains the operational attributes for the *NapAtmConnection* component. |

### ATTRIBUTE Usd RaConn AtmCon nextHop

| | |
|---|---|
| Access | Read only |
| Description | This attribute shows the component name of the *AtmIf Vcc Ep* or *AtmCon* component to which this switched connection is established. |
| Values | The name of the component |

| | |
|---|---|
| Default | No default |

## COMPONENT Usd TieredSubscription (Ts)

| | |
|---|---|
| Groups | "GROUP Usd Ts Statistics (Stats)"<br>"GROUP Usd Ts WlcCustomCounters (WlcCustomCntr)" |

"COLLECTED STATS UsgsnSubscriberDatapath TieredSubscription"

| | |
|---|---|
| Scope | Application |
| Description | *Gsd/n TieredSubscription*<br>*Usd/n TieredSubscription*<br><br>This component represents the differentiated tiers of service on the (UMTS) Serving GPRS Support Node (SGSN or USGSN) per Packet Data Protocol (PDP) context basis for downlink traffic. The maximum average bandwidth associated with each tier is not guaranteed at all times but indicates the upper bound on the average data rate for the service. |
| Common Verbs | Help<br>List<br>Display |

## GROUP Usd Ts Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the statistical attributes of this component. |

## ATTRIBUTE Usd Ts activePdpCServiced (actPdpCSer)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the active PDP contexts for each tier. The value is incremented on a PDP context activation for a tier and decremented when a PDP context is deactivated for the tier. |
| Vector of | Decimal (0..4294967295) |
| Index | Decimal (1..9) |
| Default | No default |

### GROUP Usd Ts WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Usd Ts customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usd Ts customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usd Ts customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |

Default No default

## COLLECTED STATS UsgsnSubscriberDatapath TieredSubscription

Description The statistics record generated by the UsgsnSubscriberDatapath TieredSubscription component.

### ATTRIBUTE Usd Ts pktsPerTierToMobile (pktsToM)

Description This attribute counts the number of packets successfully sent by the SGSN or USGSN for each tier in the down link direction in the collection interval.

Vector of Decimal (0..4294967295)

Index Decimal (1..9)

### ATTRIBUTE Usd Ts octetsPerTierToMobile (octToM)

Description This attribute counts the number of octets successfully sent by the SGSN or USGSN for each tier in the down link direction in the collection interval.

Vector of Decimal (0..4294967295)

Index Decimal (1..9)

### ATTRIBUTE Usd Ts pktsDropped (pktsDr)

Description This attribute counts the packets dropped by the Tiered Subscription of the SGSN or USGSN for each tier in the collection interval.

For example, if the peak throughput for a context is 56kbit/s and there is a burst of downlink data packets exceeding 56kbit/s, then the excess packets will be dropped, and the *pktsDropped* attribute is incremented every time a packet is dropped.

Vector of Decimal (0..4294967295)

Index Decimal (1..9)

### ATTRIBUTE Usd Ts activePdpCServiced (actPdpCSer)

| | |
|---|---|
| Description | This attribute indicates the current number of PDP contexts that are active for each tier. The value is incremented on a PDP context activation for a tier and decremented when a PDP context is deactivated for the tier.<br>This value reported is the value at the end of the collection interval. |
| Vector of | Decimal (0..4294967295) |
| Index | Decimal (1..9) |

### ATTRIBUTE Usd Ts peakPdpCServiced (peakPdpCSer)

| | |
|---|---|
| Description | This attribute indicates the maximum number of PDP contexts serviced for the tier during the collection interval. The value is incremented every time *currentPdpCServiced* for that tier exceeds the current value of *peakPdpCServiced* for that tier. It is reset to<br>*currentPdpCServiced* after every data collection. |
| Vector of | Decimal (0..4294967295) |
| Index | Decimal (1..9) |

### COMPONENT Usd GtpUserPlane (GtpU)

| | |
|---|---|
| Groups | "GROUP Usd GtpU Provisioned (Prov)"<br>"GROUP Usd GtpU WlcCustomCounters (WlcCustomCntr)" |
| Scope | Application |
| Description | *UsgsnSubscriberDatapath/n GtpU*<br><br>This component represents the data traffic part of the GPRS Tunneling Protocol (GTP-U). |
| Common Verbs | Help<br>List<br>Display |

## GROUP Usd GtpU Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes of the *GtpUserPlane* component. |

## ATTRIBUTE Usd GtpU networkPortLink (netPort)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the IP Address and the UDP port numbers that the GPRS Tunneling Protocol User Plane (GTP-U) version 0 and version 1 respectively use to communicate with the Gateway GPRS Support Node (GGSN).<br><br>The IP Address and UDP Port are specified by setting this attribute to link to the correct *Gips/n Ip/<ipaddress> Udp Port/<n>* component.<br><br>The standards recommend the value of the first member of this list (used by GTP Version 0) to be set to *Gips/n Ip/<ipaddress> Udp Port/3386*<br><br>The standards recommend the value of the second member of this list (used by GTP Version 1) to be set to *Gips/n Ip/<ipaddress> Udp Port/2152*<br><br>Changing this value causes the outstanding transactions to be affected.<br><br>If the *utranPortLink* attribute is set, the IP address and port specified by this attribute are only used for GGSN traffic. Traffic to the UMTS Terrestrial Radio Access Network (UTRAN) is routed using the IP address and port specified by *utranPortLink*. If the *utranPortLink* attribute is empty, the IP address and port specified by this attribute are used to route all GTP-U traffic |

| | |
|---|---|
| | whether from the UMTS Terrestrial Radio Access Network (UTRAN) or the GGSN. |
| List of | Link (Service, linkToApplication) |
| Default | No default |

### ATTRIBUTE Usd GtpU utranPortLink (utranPort)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the IP Address and the UDP port numbers that the GPRS Tunneling Protocol User Plane (GTP-U) version 0 and version 1 respectively use to communicate with the UMTS Terrestrial Radio Access Network (UTRAN).<br><br>The IP Address and UDP Port are specified by setting this attribute to link to the correct *Gips/n Ip/<ipaddress> Port Udp/<n>* component.<br><br>The standards recommend the value of the first member of this list (used by GTP Version 0) to be set to *Gips/n Ip/<ipaddress> Port Udp/3386*<br><br>The standards recommend the value of the second member of this list (used by GTP Version 1) to be set to *Gips/n Ip/<ipaddress> Port Udp/2152*<br><br>Changing this value causes the outstanding transactions to be affected.<br><br>If this attribute is empty, the IP address and port specified by the *networkPortLink* attribute will be used for communication with the UMTS Terrestrial Radio Access Network (UTRAN). |
| List of | Link (Service, linkToApplication) |
| Default | No default |

### GROUP Usd GtpU WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Usd GtpU customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usd GtpU customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usd GtpU customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### COMPONENT Usd InternationalMobileSubscriberId (Imsi)

| | |
|---|---|
| Instance | BCD (5..15) |
| Groups | "GROUP Usd Imsi WlcCustomCounters (WlcCustomCntr)" |
| Scope | Application |
| Description | *UsgsnSubscriberDatapath/n Imsi*<br><br>This component represents an instance of a International Mobile Subscriber Identity (IMSI). It contains information about the datapath on a per-IMSI basis. The control path information is represented by the *Usgsn Imsi/n* component.<br>Each instance of this component is indexed by the IMSI of the mobile subscriber. A list of all current *Imsi* instances is not possible, but it is possible to display a certain instance of *Imsi*. |
| Dyn. Subcomp. | "COMPONENT Usd Imsi SessionContext (Sc)" |
| Common Verbs | Help<br>List<br>Display |

### GROUP Usd Imsi WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Usd Imsi customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Usd Imsi customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usd Imsi customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT Usd Imsi SessionContext (Sc)

| | |
|---|---|
| Instance | Decimal (1..15) |
| Groups | "GROUP Usd Imsi Sc Stats"<br>"GROUP Usd Imsi Sc WlcCustomCounters (WlcCustomCntr)" |
| Scope | Application |
| Description | *Usd/n Imsi/<imsi> SessionContext/<nsapi>*<br><br>This component represents the datapath session context information of a subscriber being serviced by this *Usd.*<br><br>An instance of this component is created for each activated Packet Data Protocol (PDP) context of a subscriber. |

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display |

## GROUP Usd Imsi Sc Stats

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the statistical attributes of this component. |

## ATTRIBUTE Usd Imsi Sc uplinkOctetsToNetwork (upOctsToNwk)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the uplink octets sent from this *UmtsSubscriberDataPath (Usd)* to the Network (GGSN).<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## ATTRIBUTE Usd Imsi Sc downlinkOctetsToUtran (dlOctsToUtran)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the downlink octets sent from this *UmtsSubscriberDataPath (Usd)* to the UMTS Terrestrial Radio Access Network (UTRAN).<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usd Imsi Sc pdusToUtran

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Protocol Data Units (PDUs) sent to the UMTS Terrestrial Radio Access Network (UTRAN).<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usd Imsi Sc pdusFromUtran

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Protocol Data Units (PDUs) received from the UMTS Terrestrial Radio Access Network (UTRAN).<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usd Imsi Sc pdusToNetwork (pdusToNwk)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the Protocol Data Units (PDU) sent to the Network (GGSN).<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usd Imsi Sc pdusFromNetwork (pdusFromNwk)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the Protocol Data Unit (PDU) received from the Network (GSNs).<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usd Imsi Sc discardedPdus (discPdus)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the discarded Protocol Data Units (PDUs) received from the GPRS Support Nodes (GSNs) or UMTS Terrestrial Radio Access Network (UTRAN). This includes packets dropped due to GPRS Tunneling Protocol (GTP-U) protocol errors, packets received without a path to send them or packets dropped due to the Tiered Subscription feature policing downlink data.<br><br>The counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Usd Imsi Sc WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Usd Imsi Sc customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usd Imsi Sc customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usd Imsi Sc customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT Usd DifferentiatedService (Ds)

| | |
|---|---|
| Groups | "GROUP Usd Ds WlcCustomCounters (WlcCustomCntr)" |
| Scope | Application |
| Description | *Gsd*/n DifferentiatedService<br>*Usd/n* DifferentiatedService<br><br>This component represents the differentiated service (OQS) on the (UMTS or GPRS) Subscriber Data (GSD or USD) that governs the behavior of packets and contexts that pass through |

| | |
|---|---|
| | this node. This component is a logical container for statistical attributes based on the differentiated services levels |
| Dyn. Subcomp. | "COMPONENT Usd Ds AllocationRetention (Ar)" |
| Common Verbs | Help<br>List<br>Display |

### GROUP Usd Ds WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Usd Ds customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usd Ds customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## ATTRIBUTE Usd Ds customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## COMPONENT Usd Ds AllocationRetention (Ar)

| | |
|---|---|
| Instance | Decimal (1..3) |
| Groups | "GROUP Usd Ds Ar WlcCustomCounters (WlcCustomCntr)" |
| Scope | Application |
| Description | *Usd Ds AllocRetention/<alloc retention priority>*<br>*Gsd Ds AllocRetention/<alloc retention priority>*<br><br>This component represents the allocation retention priority of the subscriber data traffic. The instance value of this component indicates the allocation retention priority. |
| Dyn. Subcomp. | "COMPONENT Usd Ds Ar TrafficClass (Tc)" |
| Common Verbs | Help<br>List<br>Display |

## GROUP Usd Ds Ar WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Usd Ds Ar customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usd Ds Ar customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usd Ds Ar customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## COMPONENT Usd Ds Ar TrafficClass (Tc)

| | |
|---|---|
| Instance | conversational (conv)<br>streaming (strm)<br>interactive (int)<br>background (bkgr) |
| Groups | "GROUP Usd Ds Ar Tc Statistics (Stats)"<br>"GROUP Usd Ds Ar Tc WlcCustomCounters (WlcCustomCntr)" |

"COLLECTED STATS UsgsnSubscriberDatapath DifferentiatedService AllocationRetention TrafficClass"

| | |
|---|---|
| Scope | Application |
| Description | *Usd Ds Ar/<alloc retention priority> TrafficClass/<traffic class>*<br>*Gsd Ds Ar/<alloc retention priority> TrafficClass/<traffic class>*<br><br>This component represents the traffic class of the data traffic. The instance value of this component can be one of the following: Conversational, Background, Interactive, Streaming. |
| Common Verbs | Help<br>List<br>Display |

## GROUP Usd Ds Ar Tc Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the statistical attributes of this component. |

## ATTRIBUTE Usd Ds Ar Tc dsUplink

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of octets transferred uplink for the allocation retention priority and traffic class represented by this component over the collection interval. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Usd Ds Ar Tc dsDownlink

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute countes the number of octets transferred downlink for the allocation retention priority and traffic class represented by this component. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Usd Ds Ar Tc WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Usd Ds Ar Tc customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usd Ds Ar Tc customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Usd Ds Ar Tc customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |
| Default | COLLECTED STATS UsgsnSubscriberDatapath DifferentiatedService AllocationRetention TrafficClass |
| Description | The statistics record generated by the UsgsnSubscriberDatapath DifferentiatedService AllocationRetention TrafficClass component. |

### ATTRIBUTE Usd Ds Ar Tc dsUplink

| | |
|---|---|
| Description | This attribute indicates the number of octets transferred uplink for the allocation retention priority and traffic class represented by this component over the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Usd Ds Ar Tc dsDownlink

| | |
|---|---|
| Description | This attribute indicates the number of octets transferred downlink for the allocation retention priority and traffic class represented by this component. |
| Values | Decimal (0..4294967295) |

Passport 7400, 15000, 20000

# Component Usd

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component Usgsn

241-5701-060

Passport 7400, 15000, 20000

# Component Usgsn

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT UmtsServingGprsSupportNode (Usgsn)

| | |
|---|---|
| Groups | "GROUP Usgsn Provisioned (Prov)"<br>"GROUP Usgsn VolumeCounts (Vc)" |
| Scope | Application |
| Description | *UmtsServingGprsSupportNode*<br><br>This component represents the UMTS Serving GPRS Support Node (USGSN) functionality. It contains the common provisioning data for all the USGSN features on this shelf.<br><br>If the USGSN spans multiple shelves, each shelf will have to be provisioned separately.<br><br>It is strongly recommended that the provisioning for each shelf be done the same way so that the behavior of the network at any given time does not depend on which shelf is handling the traffic. |

| | |
|---|---|
| Subcomponents | "COMPONENT Usgsn Shelf (Sh)"<br>"COMPONENT Usgsn DnsAgent (DnsAg)" |
| Opt. Subcomp. | "COMPONENT Usgsn UmtsSubscriberControl (Usc)"<br>"COMPONENT Usgsn TieredSubscription (Ts)"<br>"COMPONENT Usgsn PlmnImsiEntry (PlmnImsi)"<br>"COMPONENT Usgsn MobileCountryCode (Mcc)"<br>"COMPONENT Usgsn Accounting (Acct)"<br>"COMPONENT Usgsn DifferentiatedService (Ds)"<br>"COMPONENT Usgsn EquivalentPlmn (EquivPlmn)" |
| Dyn. Subcomp. | "COMPONENT Usgsn InternationalMobileSubscriberId (Imsi)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Usgsn Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains general provisioning data for *UmtsServingGprsSupportNode (Usgsn)* including Software Optionality Control (SOC). |

## ATTRIBUTE Usgsn networkOpId (nwOpId)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the Network Operator Identity, used to identify the operator. This attribute is used by the Lawful Interception functionality. |
| Values | String (1..37, ASCII) |
| Default | No default |

### ATTRIBUTE Usgsn maxSubscribers (maxSubs)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the total number of ‘UMTS-Attached’ subscribers this Umts Serving GPRS Support Node (USGSN) can support simultaneously. It does this by limiting the total of all the individual *maxAttachedSubscribers* attribute in all the *UmtsSubscriberControl (Usc)* components.<br><br>The sum of the ‘maxAttachedSubscribers’ values of all ‘Usc’ instances should be less than or equal to the value of this attribute.<br><br>For example, if this USGSN has two FP *UmtsSubscriberControl* provisioned, the first *UmtsSubscriberControl* provisioned to support ***5000*** subscribers and the second to support ***2500*** subscribers, this attribute must be provisioned with a value of ***7500*** or greater. The value of this attribute cannot be greater than the number authorized by the access code. The access code (attribute *maxSubsAccessCode*) is unique for each USGSN. Please contact your local Nortel Networks Customer Service representative for more information.<br><br>The current number of ‘UMTS-Attached’ subscribers can be obtained from the sum of the *currentlyAttached* attribute defined in the *Usc UscGprsMobilityManagement* component for all the *Usc* instances. |
| Values | Decimal (1000..5000000) |
| Default | 1000 |

### ATTRIBUTE Usgsn maxSubsAccessCode (mSubsCode)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the access code that allows the *maxSubscribers* attribute to be changed to a higher value. The access code must be obtained from an authorized Nortel Networks representative. Each UMTS Serving GPRS Support |

Node (USGSN) requires a unique access code for each and every increase to the *maxSubscribers* attribute.

Values: BCD (0..18)

Default: No default

### ATTRIBUTE Usgsn longMncMccs (longMnc)

Access: Read: All
Write: All

Description: This attribute specifies which Mobile Country Codes (MCC) use a three digit Mobile Network Code (MNC). All MCCs not in this list are assumed to use a two digit MNC.

This information is used to construct an APN-Operator Identity in the format mnc<MNC digits>.mcc<MCC digits>.gprs for APN translations during DNS queries.

An operator would need to add entries to this list, if he has roamers from another PLMN with 3 digit MNCs for whom he needs to do APN translations.

List of: BCD (3)

Default: No default

### GROUP Usgsn VolumeCounts (Vc)

Properties: Provisioned

Description: This group contains provisionable attributes for the *UmtsServingGprsSupportNode (Usgsn)* component to provide traffic volume control.

### ATTRIBUTE Usgsn tariffTimeChangeTrigger (ttcTrig)

Access: Read: All
Write: All

Description: This attribute specifies whether Tariff Time Change Trigger (TTCT) feature is ***enabled*** or ***disabled***. When enabled, SGSN Accounting Server closes existing Change of Charging Condition containers and opens new containers in SGSN Packet Data

Protocol (PDP) Call Detail Records (S-CDRs) to indicate to the down stream billing device that a Tariff Time Change event has occurred. This enables the down stream billing system to use different billing rates for different time containers.

TTCT relies on Time of Day Accounting (TODA) for provisioning the tariff periods. Both the SGSN Accounting Server and the Subscriber Data applications register with TODA for notification of tariff time changes.

When the *tariffTimeChangeTrigger* attribute is enabled, the *collectionTimes* attribute (defined in the *Collector/Accounting* component) must not specify more than 6 periods with no period closer than 4 hours.

| | |
|---|---|
| Values | disabled<br>enabled |
| Default | disabled |

### ATTRIBUTE Usgsn dataVolumeLimit (dvl)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies when partial SGSN Packet Data Protocol (PDP) Call Detail Records (S-CDRs) are generated with a partial record reason of “data volume limit” based upon the number of combined uplink and downlink kilobytes that have been transferred by the active session.<br><br>If this attribute is set to ***disabled***, then a default value of 2 gigabytes for the volume limit is used to trigger the generation of partial S-CDRs. |
| Values | Decimal (128..5120)<br>disabled |
| Units | kbyte |
| Default | disabled |

## COMPONENT Usgsn Shelf (Sh)

| | |
|---|---|
| Groups | "GROUP Usgsn Sh Provisioned (Prov)" |
| Scope | Application |
| Description | *Usgsn Shelf*<br><br>This component represents a shelf in a Multi Shelf USGSN configuration.<br><br>The *Shelf* component is the control entity for a passport shelf and for a network of shelves. A shelf in a multishelf configuration is either a Master or a Slave shelf. Only one shelf can be provisioned as a master shelf.<br><br>A master shelf is one that has at least one *ConnectionToSlave* component provisioned. A slave shelf is one that has the *ConnectionToMaster* component provisioned. |
| Opt. Subcomp. | "COMPONENT Usgsn Sh ConnectionToMaster (ConM)"<br>"COMPONENT Usgsn Sh ConnectionToSlave (ConS)" |
| Common Verbs | Help<br>List<br>Display |

## GROUP Usgsn Sh Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioning data of the *Shelf (Sh)* component. |

## ATTRIBUTE Usgsn Sh atmLocalEsi (atmEsi)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the End System Identifier (ESI) of the ATM NSAP address used by this shelf. The full ATM address is constructed by prepending the *nodeprefix* (taken from the *ModuleData* component) to the *atmLocalEsi*. |

| | |
|---|---|
| Values | String (14, ASCII) |
| Default | No default |

### COMPONENT Usgsn Sh ConnectionToMaster (ConM)

| | |
|---|---|
| Groups | "GROUP Usgsn Sh ConM Provisioned (ConM)"<br>"GROUP Usgsn Sh ConM WlcCustomCounters (WlcCustomCntr)"<br>"GROUP Usgsn Sh ConM OsiState (State)" |
| Scope | Application |
| Description | *Sgsn Sh ConnectionToMaster*<br>*Usgsn Sh ConnectionToMaster*<br><br>This component represents a Slave shelf in a Multi Shelf SGSN configuration. This component is provisioned with the ATM Address (NSAP) of the Master Nodal Manager. |
| Dyn. Subcomp. | "COMPONENT Usgsn Sh ConM AtmConnection (AtmCon)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Usgsn Sh ConM Provisioned (ConM)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the *Shelf (Sh)* provisioning data for the slave shelf. |

### ATTRIBUTE Usgsn Sh ConM masterAddress (mAddr)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Module |
| Description | This attribute specifies the full ATM NSAP Address of the Master shelf. It is constructed by prepending the *nodeprefix* |

| | |
|---|---|
| | (taken from the *ModuleData* component) to the *atmLocalEsi* (taken from the *Sgsn Shelf* component) of the Master Shelf.<br><br>Changing the value of this attribute causes a system reload on the shelf. |
| Values | String (40, NativeAESANsapAddress) |
| Default | No default |

### GROUP Usgsn Sh ConM WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Usgsn Sh ConM customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usgsn Sh ConM customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usgsn Sh ConM customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Usgsn Sh ConM OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Usgsn Sh ConM adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is |

administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Usgsn Sh ConM operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Usgsn Sh ConM usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values

idle
active (activ)
busy

Default

idle

### ATTRIBUTE Usgsn Sh ConM availabilityStatus (osiAvail)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.

The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.

The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is

unavailable. The *operationalState* is ***disabled***.

The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.

The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

| | |
|---|---|
| Set of | inTest<br>failed<br>dependency (depend)<br>powerOff (pwrOff)<br>offLine<br>offDuty<br>degraded (degrad)<br>notInstalled (notIn)<br>logFull<br>migrating |
| Default | No default |

### ATTRIBUTE Usgsn Sh ConM proceduralStatus (osiProc)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.<br><br>The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.<br><br>The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***. |

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

### ATTRIBUTE Usgsn Sh ConM controlStatus (osiCntrl)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

Set of

subjectToTest (subTst)
partOfServicesLocked (partLk)
reservedForTest (rsrvd)
suspended (suspnd)

Default

No default

### ATTRIBUTE Usgsn Sh ConM alarmStatus (osiAlarm)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of
underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default
No default

### ATTRIBUTE Usgsn Sh ConM standbyStatus (osiStby)

Access
Read only

Description
If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values
hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

| | |
|---|---|
| Default | notSet |

### ATTRIBUTE Usgsn Sh ConM unknownStatus (osiUnknw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Unknown status of the component.<br><br>The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.<br><br>The value ***true*** indicates that the actual state of the component is not known for sure. |
| Values | false<br>true |
| Default | false |

### COMPONENT Usgsn Sh ConM AtmConnection (AtmCon)

| | |
|---|---|
| Groups | "GROUP Usgsn Sh ConM AtmCon Operational (Oper)" |
| Scope | Device |
| Description | An AtmConnection component is created for each ATM connection established by an application. It shows where the data traffic for this connection is directed. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Usgsn Sh ConM AtmCon Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains the operational attributes for the *NapAtmConnection* component. |

### ATTRIBUTE Usgsn Sh ConM AtmCon nextHop

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute shows the component name of the *AtmIf Vcc Ep* or *AtmCon* component to which this switched connection is established. |
| Values | The name of the component |
| Default | No default |

## COMPONENT Usgsn Sh ConnectionToSlave (ConS)

| | |
|---|---|
| Instance | Decimal (1..15) |
| Groups | "GROUP Usgsn Sh ConS Provisioned (ConS)"<br>"GROUP Usgsn Sh ConS WlcCustomCounters (WlcCustomCntr)"<br>"GROUP Usgsn Sh ConS OsiState (State)" |
| Scope | Application |
| Description | *Sgsn Sh ConnectionToSlave/n*<br>*Usgsn Sh ConnectionToSlave/n*<br><br>This component represents a Master shelf in a Multi Shelf SGSN configuration. This component is provisioned with the ATM Address (NSAP) of all Slave Nodal Managers. The instance value of this component is used as the Shelf Id. |
| Dyn. Subcomp. | "COMPONENT Usgsn Sh ConS AtmConnection (AtmCon)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Usgsn Sh ConS Provisioned (ConS)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the *Shelf (Sh)* provisioning data for the Master shelf. |

### ATTRIBUTE Usgsn Sh ConS slaveAddress (sAddr)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the ATM NSAP Address of the Nodal Manager (NM) of the Remote Slave shelf. It is constructed by prepending the *nodeprefix* (taken from the *ModuleData* component) to the *atmLocalEsi* (taken from the *Sgsn Shelf* component) of this Slave Shelf. |
| Values | String (40, NativeAESANsapAddress) |
| Default | No default |

### GROUP Usgsn Sh ConS WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Usgsn Sh ConS customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usgsn Sh ConS customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usgsn Sh ConS customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Usgsn Sh ConS OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Usgsn Sh ConS adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it |

is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Usgsn Sh ConS operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Usgsn Sh ConS usageState (osiUsage)

Access
Read only

| | |
|---|---|
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### ATTRIBUTE Usgsn Sh ConS availabilityStatus (osiAvail)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.<br><br>The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is |

***disabled***.

The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.

The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.

The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

| | |
|---|---|
| Set of | inTest<br>failed<br>dependency (depend)<br>powerOff (pwrOff)<br>offLine<br>offDuty<br>degraded (degrad)<br>notInstalled (notIn)<br>logFull<br>migrating |
| Default | No default |

### ATTRIBUTE Usgsn Sh ConS proceduralStatus (osiProc)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.<br><br>The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.<br><br>The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***. |

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

### ATTRIBUTE Usgsn Sh ConS controlStatus (osiCntrl)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

| | |
|---|---|
| | The value ***suspended*** indicates that the service has been administratively suspended. |
| Set of | subjectToTest (subTst)<br>partOfServicesLocked (partLk)<br>reservedForTest (rsrvd)<br>suspended (suspnd) |
| Default | No default |

### ATTRIBUTE Usgsn Sh ConS alarmStatus (osiAlarm)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.<br><br>The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.<br><br>The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.<br><br>The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***. |

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE Usgsn Sh ConS standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values

hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

| | |
|---|---|
| Default | notSet |

### ATTRIBUTE Usgsn Sh ConS unknownStatus (osiUnknw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Unknown status of the component.<br><br>The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.<br><br>The value ***true*** indicates that the actual state of the component is not known for sure. |
| Values | false<br>true |
| Default | false |

### COMPONENT Usgsn Sh ConS AtmConnection (AtmCon)

| | |
|---|---|
| Groups | "GROUP Usgsn Sh ConS AtmCon Operational (Oper)" |
| Scope | Device |
| Description | An AtmConnection component is created for each ATM connection established by an application. It shows where the data traffic for this connection is directed. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Usgsn Sh ConS AtmCon Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains the operational attributes for the *NapAtmConnection* component. |

### ATTRIBUTE Usgsn Sh ConS AtmCon nextHop

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute shows the component name of the *AtmIf Vcc Ep* or *AtmCon* component to which this switched connection is established. |
| Values | The name of the component |
| Default | No default |

### COMPONENT Usgsn DnsAgent (DnsAg)

| | |
|---|---|
| Groups | "GROUP Usgsn DnsAg Provisioned (Prov)" |
| Scope | Application |
| Description | *Sgsn DnsAgent*<br><br>This component represents the Domain Name System (DNS) Agent. |
| Opt. Subcomp. | "COMPONENT Usgsn DnsAg StaticCacheEntry (Static)" |
| Common Verbs | Help<br>List<br>Display |

### GROUP Usgsn DnsAg Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the *DnsAgent* provisioning data of the Serving GPRS Support Node (SGSN). |

### ATTRIBUTE Usgsn DnsAg retryTimer (tRetry)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies how long the *DnsAgent* waits for a response from a Domain Name System (DNS) Server following the initial query. Intervals for subsequent retries if required, are computed using an algorithm based on this attribute.<br><br>The timer must be provisioned to a value that is greater than the |

| | |
|---|---|
| | maximum expected round trip delay of a Protocol Data Unit (PDU). |
| Values | Decimal (2..20) |
| Units | seconds |
| Default | 5 |

### ATTRIBUTE Usgsn DnsAg maxRetries (nRetry)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the maximum number of retries for a Domain Name System (DNS) query. After *maxRetries* expiry, if there is no response from the DNS Server, the *DnsAgent* sends an error indication to the application. |
| Values | Decimal (0..5) |
| Default | 2 |

### ATTRIBUTE Usgsn DnsAg refreshTime (tRefresh)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies how often a Domain Name System (DNS) cache table entries are refreshed. After the timer expires for a given entry, the next client query for that entry's Logical Name causes the DNS Name Server to be queried again to update the Logical Name information. |
| Values | Decimal (0..14400) |
| Units | minutes |
| Default | 10080 |

### ATTRIBUTE Usgsn DnsAg staleIpAddressReuse (staleIpReuse)

| | |
|---|---|
| Access | Read: All<br>Write: All |

| | |
|---|---|
| Description | This attribute specifies whether the last stale Internet Protocol (IP) address for a given Access Point Name (APN) is reused by the *DnsAgent* component when all Domain Name System (DNS) query retries fail.<br><br>If a value of ***enabled*** is specified, the *DnsAgent* cache table is not emptied even if the *DnsAgent refreshTime* or *ttl* attribute values have expired for the cache entries. If all DNS query retries fail, the last dynamic entry in the *DnsAgent* cache table is reused. If a value of ***disabled*** is specified, the *DnsAgent* cache table behavior is unaffected. |
| Values | disabled<br>enabled |
| Default | disabled |

## COMPONENT Usgsn DnsAg StaticCacheEntry (Static)

| | |
|---|---|
| Instance | virtualRouter (vr) [String (1..8, ASCII)]<br>entryNum [Decimal (0..1000)] |
| Groups | "GROUP Usgsn DnsAg Static Provisioned (Prov)" |
| Scope | Application |
| Description | *Sgsn DnsAg StaticCacheEntry/<vr>,n*<br><br>This component represents a Logical Name-IP Address mapping entry for the Serving GPRS Support Node (SGSN) in GPRS. An instance of this component is provisioned if a static Domain Name System (DNS) mapping is required. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Usgsn DnsAg Static Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |

| | |
|---|---|
| Description | This group contains a Logical Name-IP Address mapping entry for the Serving GPRS Support Node (SGSN) in GPRS. |

### ATTRIBUTE Usgsn DnsAg Static logicalName (lName)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the Logical Name for this static entry. |
| Values | String (1..253, ASCII) |
| Default | No default |

### ATTRIBUTE Usgsn DnsAg Static mappedIpAddr (ipAddr)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the IP addresses corresponding to a given Logical Name. One Logical Name can have up to ten IP addresses mapped to it. The order of the addresses is not important; successive queries of the Logical Name return the IP addresses in a round robin fashion.<br><br>This attribute must not specify the address ‘0.0.0.0’ or any address ending in ‘255’. |
| List of | IP address |
| List Size | 10 |
| Default | No default |

### COMPONENT Usgsn UmtsSubscriberControl (Usc)

| | |
|---|---|
| Groups | "GROUP Usgsn Usc SessionManagement (Sm)"<br>"GROUP Usgsn Usc GprsMobilityManagement (Gmm)"<br>"GROUP Usgsn Usc GtpC"<br>"GROUP Usgsn Usc HlrCache (HlrC)"<br>"GROUP Usgsn Usc MapClientProv (Mc)"<br>"GROUP Usgsn Usc Gsn"<br>"GROUP Usgsn Usc SsfGlobalProv (Ssf)"<br>"GROUP Usgsn Usc MobileSubscriberPurge (MsPurge)" |

Scope Application

Description *Usgsn/n UmtsSubscriberControl*

This component represents the control path layers of the UMTS Serving GPRS Support Node (USGSN).

Common Verbs
Help
List
Display
Add
DELete

### GROUP Usgsn Usc SessionManagement (Sm)

Properties Provisioned

Description This group contains the common provisionable attributes for the Session Management protocol layer of the UMTS Serving GPRS Support Node (USGSN) on this shelf.

### ATTRIBUTE Usgsn Usc nwkPdpDeactTimer (t3395)

Access Read: All
Write: All

Description This attribute specifies the timer value used in the UMTS Serving GPRS Support Node (USGSN) or in the Gateway GPRS Support Node (GGSN) initiated Packet Data Protocol (PDP) Context Deactivation procedures.

This timer is started when a DEACTIVATE PDP CONTEXT REQUEST message is sent to the Mobile Station (MS) and is stopped when a DEACTIVATE PDP CONTEXT ACCEPT message is received from the MS.

If this timer expires before the receipt of a DEACTIVATE PDP CONTEXT ACCEPT message, the USGSN or GGSN initiated PDP Context deactivation procedure is retried for a maximum of *nwkPdpDeactRetries.*

The timer must be provisioned to a value that is greater than the

| | |
|---|---|
| | maximum expected round trip delay of a Protocol Data Unit (PDU). |
| Values | Decimal (1..255) |
| Units | seconds |
| Default | 8 |

### ATTRIBUTE Usgsn Usc nwkPdpDeactRetries (n3395)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the number of retry attempts after the timer *nwkPdpDeactTimer(t3395)* expires during a UMTS Serving GPRS Support Node (USGSN) or Gateway GPRS Support Node (GGSN)-initiated PDP Context Deactivation procedure. |
| Values | Decimal (0..4) |
| Default | 4 |

### ATTRIBUTE Usgsn Usc defApnOperatorId (defApnOp)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the default Access Point Name (APN) Operator Identifier for this Public Land Mobile Network (PLMN). It is a fully qualified domain name according to the Domain Name System (DNS) naming conventions and consists of three labels (that is, <DNS-label>.<DNS-label>.gprs).<br><br>It is expected that the operator uses this attribute to fill in a human-readable format of the APN Operator Identifier (that is, an APN Operator Identifier not in the mnc<*MNC* digits>.mcc<*MCC* digits>.gprs format).<br><br>The selected APN Operator identifier for a particular session can be displayed as part of the *selectedApnOperatorId* attribute (defined in the component *Usgsn Imsi/n SessionContext)*. |
| Values | String (1..37, ASCII) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Usgsn Usc nwkPdpModifyTimer (t3386)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the timer value used in the UMTS Serving GPRS Support Node (USGSN) or in the Gateway GPRS Support Node (GGSN) initiated Packet Data Protocol (PDP) Context Modification procedures.<br><br>This timer is started when a MODIFY PDP CONTEXT REQUEST message is sent to the Mobile Station (MS) and is stopped when a MODIFY PDP CONTEXT ACCEPT message is received from the MS.<br><br>If this timer expires before the receipt of a MODIFY PDP CONTEXT ACCEPT message, the USGSN or GGSN initiated PDP Context modification procedure is retried for a maximum of *nwkPdpModifyRetries.*<br><br>The timer must be provisioned to a value that is greater than the maximum expected round trip delay of a Protocol Data Unit (PDU). |
| Values | Decimal (1..255) |
| Units | seconds |
| Default | 8 |

### ATTRIBUTE Usgsn Usc nwkPdpModifyRetries (n3386)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the number of retry attempts after the timer *nwkPdpModifyTimer(t3386)* expires during a UMTS Serving GPRS Support Node (USGSN) or Gateway GPRS Support Node (GGSN)-initiated PDP Context Modification procedure. |
| Values | Decimal (0..4) |

| | |
|---|---|
| Default | 4 |

### ATTRIBUTE Usgsn Usc tRabAssgtTimer

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the timer value used in the Radio Access Bearer (RAB) Assignment Request procedures.<br><br>This timer is started when a RAB ASSIGNMENT REQUEST message is sent to the Radio Network Controller (RNC) and is stopped when a RAB ASSIGNMENT ACCEPT message is received from the RNC.<br><br>If this timer expires before the receipt of a RAB ASSIGNMENT ACCEPT message, the USGSN or GGSN initiated RAB Assignment procedure is retried for a maximum of *tRabAssgtRetries*.<br><br>The timer must be provisioned to a value that is greater than the maximum expected round trip delay of a Protocol Data Unit (PDU). |
| Values | Decimal (1..50) |
| Units | seconds |
| Default | 4 |

### ATTRIBUTE Usgsn Usc tRabAssgtRetries

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the number of retry attempts after the timer *tRabAssgtTimer* expires during a Radio Access Bearer (RAB) Assignment Request procedure. |
| Values | Decimal (0..5) |
| Default | 1 |

## ATTRIBUTE Usgsn Usc defApnNetworkId (defApnNwk)

Access

Read: All
Write: All

Description

This attribute specifies the default Access Point Name (APN) Network Identifier for the Packet Data Protocol (PDP) types like X.25, IP and PPP.

The operator fills in the default network identifiers for each of these types, in the following manner:
x25 <string for X.25 address > ip <string for IP address> ppp <string for PPP address>.
The address used to identify the GGSN depends on which of these types of network is being connected to.

Each of the strings is a label (for example “corporation”) or a set of labels separated by dots, which is a fully qualified domain name according to the Domain Name System (DNS) naming conventions (for example, "company.com"). Only alphanumeric characters and ‘-’ character are allowed in the label.

The *defApnNetworkId* must not start with the strings “.”, “-”, “*rnc*”, "*rac*", "*lac*" or "*sgsn*" and it must not end in ".gprs". It must also not take the value "*". In order to guarantee uniqueness of the APN Network Identifier across all GPRS PLMNs, an APN Network Identifier containing more than one label corresponds to an Internet domain name. This name must only be allocated by the Public Land Mobile Network (PLMN) to an organization that has officially reserved this name in the Internet domain. Other types of APN Network Identifiers are not guaranteed to be unique within the GPRS PLMN(s).

This *defApnNetworkId* is used if the Mobile Station (MS) does not send the APN Network Identifier as part of the ACTIVATE PDP CONTEXT REQUEST and if its subscription record received from the HLR has a wildcard (*) APN. If the *defApnNetworkId* is not entered in such a case, the ACTIVATE PDP CONTEXT REQUEST message is rejected.

The selected APN Network Identifier for a particular session can

be displayed as part of the *apnNetworkIdentifier* attribute (defined in *Usgsn Imsi/<imsi> SessionContext).*

Vector of: String (1..63, ASCII)

Index: x25
ip
ppp

Default: No default

## GROUP Usgsn Usc GprsMobilityManagement (Gmm)

Properties: Provisioned

Description: This group contains the common provisionable attributes for the GPRS Mobility Management protocol layer of the UMTS Serving GPRS Support Node (USGSN) on this shelf.

## ATTRIBUTE Usgsn Usc resetTimer (t12)

Access: Read: All
Write: All

Description: This attribute specifies the reset timer used for a *UmtsSubscriberControl (Usc).*

This timer is started when an FP on which a *Usc* component is provisioned comes up. During the reset timer period, the USC is considered to have recently experienced a restart, and the GPRS Mobility Management (GMM) ignores and discards messages from the mobile (except ATTACH Requests and ROUTING AREA UPDATE Requests).

If the reset timer has expired, and the mobile subscriber has not performed a subsequent GPRS-Attach, any received messages are considered a protocol violation and responded to with the appropriate reject or a GMM STATUS message, until the mobile performs another GPRS-Attach.

Values: Decimal (0..255)

Units: minutes

Default: No default

### ATTRIBUTE Usgsn Usc mobileReachableTimer (tReachable)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the MOBILE REACHABLE Timer for the GPRS Mobility Management (GMM) state transition.<br><br>The timer value must be at least four minutes longer than the longest *periodicRaUpdateTimer (t3312)* (defined in component *Usgsn Mcc/n Mnc/n Lac/n RoutingAreaCode/n).*<br><br>The timer is started when the Mobile Station (MS) drops from PMM-CONNECTED state to PMM-IDLE state or when the MS is forced to PMM-IDLE state.<br><br>When the timer expires, the USGSN clears the Paging Proceed Flag (PPF) which causes the USGSN to stop paging the MS. The PPF is set when the next activity from the MS is detected. The MM and PDP contexts are kept in the USGSN.<br><br>The timer must be provisioned to a value that is greater than the maximum expected round trip delay of a Protocol Data Unit (PDU). |
| Values | Decimal (5..255) |
| Units | minutes |
| Default | 58 |

### ATTRIBUTE Usgsn Usc pagingTimer (t3313)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the timer used for the GPRS Paging procedure.<br><br>Upon expiry of the *pagingTimer*, if the Paging procedure is not completed, the GPRS Paging procedure is restarted for a maximum of *pagingRetries (*n3313). |

| | |
|---|---|
| | The timer must be provisioned to a value that is greater than the maximum expected round trip delay of a Protocol Data Unit (PDU). |
| Values | Decimal (1..255) |
| Units | seconds |
| Default | 8 |

### ATTRIBUTE Usgsn Usc pagingRetries (n3313)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the number of retry attempts after the *pagingTimer (t3313)* expires. |
| Values | Decimal (0..4) |
| Default | 1 |

### ATTRIBUTE Usgsn Usc nwkInitiatedDetachTimer (t3322)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the timer used in the Network-Initiated Detach procedure. Upon expiry of *nwkInitiatedDetach*Timer, if the Detach procedure is not completed, the Network-Initiated Detach procedure is restarted for a maximum of *nwkInitDetachRetries (n3322).*<br><br>If the maximum number of retries is exceeded, the mobile goes to the PMM_DETACHED state.<br><br>The timer must be provisioned to a value that is greater than the maximum expected round trip delay of a Protocol Data Unit (PDU). |
| Values | Decimal (1..255) |
| Units | seconds |
| Default | No default |

### ATTRIBUTE Usgsn Usc nwkInitDetachRetries (n3322)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the number of retry attempts after the *nwkInitiatedDetachTimer (t3322)* expires. |
| Values | Decimal (0..8) |
| Default | 4 |

### ATTRIBUTE Usgsn Usc idRequestTimer (t3370)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the timer used in Identification procedure. Upon expiry of the i*dRequestTimer*, if the Identification procedure is not finished, the identification procedure is restarted for a maximum of *idRequestRetries* (n3370).<br><br>The timer must be provisioned to a value that is greater than the maximum expected round trip delay of a Protocol Data Unit (PDU). |
| Values | Decimal (1..255) |
| Units | seconds |
| Default | 6 |

### ATTRIBUTE Usgsn Usc idRequestRetries (n3370)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the number of retry attempts after the *idRequestTimer (t3370)* expires. |
| Values | Decimal (0..8) |
| Default | 4 |

### ATTRIBUTE Usgsn Usc ptmsiReallocTimer (t3350)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the timer used in the Packet-Temporary Mobile Subscriber Identity (P-TMSI) Reallocation procedure. The P-TMSI reallocation procedure can also be performed within the Attach or Routing Area Update procedures, as well. Upon expiry of the *ptmsiReallocTimer*, if the P-TMSI Reallocation procedure is not finished, P-TMSI Reallocation procedure is restarted for a maximum of *ptmsiReallocationRetries (n3350)*. |
| Values | Decimal (1..255) |
| Units | seconds |
| Default | 6 |

### ATTRIBUTE Usgsn Usc ptmsiReallocationRetries (n3350)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the number of retry attempts after the *ptmsiReallocTimer (t3350)* expires. |
| Values | Decimal (0..8) |
| Default | 4 |

### ATTRIBUTE Usgsn Usc authCipheringTimer (t3360)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the timer used in Authentication and Ciphering procedure. Upon expiry of the *t3360* timer, if the Authentication and Ciphering procedure is not finished, this procedure is restarted for a maximum of *authCipheringRetries (n3360)*.<br><br>The timer must be provisioned to a value that is greater than the maximum expected round trip delay of a Protocol Data Unit (PDU). |

| | |
|---|---|
| Values | Decimal (1..255) |
| Units | seconds |
| Default | 6 |

### ATTRIBUTE Usgsn Usc authCipheringRetries (n3360)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the number of retry attempts after the *authCipheringTimer (t3360)* expires. |
| Values | Decimal (0..8) |
| Default | 4 |

### ATTRIBUTE Usgsn Usc authEvents

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the number, N, which indicates that at every Nth event requiring authentication, the Authentication procedure is initiated with the mobile subscriber.<br><br>For example, when this value is set to never, the Authentication procedure is never performed, when the value is set to 1, the Authentication procedure is performed every time an event that triggers authentication occurs.<br><br>The provisioning of any other value N for this attribute indicates that every Nth event that can be authenticated undergoes this Authentication procedure. This parameter is not per Mobile Station (MS); rather, it is used to count events over all the affected procedures per *UmtsSubscriberControl (Usc).* |
| Values | Decimal (1..255)<br>never |
| Default | 20 |

### ATTRIBUTE Usgsn Usc subsRegisterRecoveryUpdateTimer (tSubsReg)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the maximum recovery delay time used by the UMTS Serving GPRS Support Node (USGSN) to re-create the association between the Home Location Register (HLR), in the case of the HLR Reset, and a Mobile Station (MS). The timer is started on a receipt of a valid MS message following the HLR Reset. When the timer expires the appropriate procedure is initiated by the GPRS Mobility Management (GMM).<br><br>The actual timer used is a randomized value less than this value in order to distribute the traffic to HLR after an HLR Reset when a MAP-UPDATE GPRS LOCATION (UGL) is performed.<br><br>If the value of this attribute is set to ***0***, the timer is not started. |
| Values | Decimal (0..10) |
| Units | seconds |
| Default | 5 |

### ATTRIBUTE Usgsn Usc t3TunnelTimer (t3Tunnel)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the time that the old USGSN will continue to forward packets to the new USGSN during an Inter SGSN Routing Area Update (IRAU).<br><br>The timer is started in the old SGSN when it receives a GTP SGSN CONTEXT REQUEST message and there is at least one active Packet Data Protocol (PDP) context. Upon timer expiry, the packets are no longer forwarded to the new USGSN. |
| Values | Decimal (1..40) |
| Units | seconds |
| Default | 20 |

### ATTRIBUTE Usgsn Usc iuReleaseTimer (iuRt)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the amount of time the network waits for an IuReleaseComplete message once the IuReleaseCommand message is sent. |
| Values | Decimal (1..15) |
| Units | seconds |
| Default | 5 |

### ATTRIBUTE Usgsn Usc cipheringAlgorithms (ciphAlgo)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the Ciphering Algorithms supported on this UMTS Serving GPRS Support Node (USGSN) in descending order of preference.<br><br>The mobile provides a list of the ciphering algorithms it supports to the USGSN. The USGSN compares the mobile provided values with the values listed in this attribute. The first value provisioned in this attribute that is also in the mobile provided list is chosen as the ciphering algorithm for use in communicating with this mobile.<br><br>The possible values for the attribute are:<br>***noCiphering***: No Ciphering is used.<br>***geav1***: GPRS Encryption Algorithm Version 1. |
| Vector of | noCiphering<br>geav1 |
| Index | Decimal (1..2) |
| Default | (noCiphering, noCiphering) |

### GROUP Usgsn Usc GtpC

| | |
|---|---|
| Properties | Provisioned |

| | |
|---|---|
| Description | This group contains the common provisionable attributes for the signalling part of the GPRS Tunneling Protocol layer (GtpC) of the UMTS Serving GPRS Support Node (USGSN) on this shelf. |

### ATTRIBUTE Usgsn Usc t3ResponseTimer (t3Resp)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute defines the time that the UMTS Serving GPRS Support Node (USGSN) will wait for a response to a GTP signalling request on the interface to a GPRS Support Node (GSN).<br><br>Upon expiry of this timer, the request is resent for a maximum of *requestRetries t*imes. If this number is exceeded, a failure notification is sent back to the application invoking the request.<br><br>The attribute must be provisioned to a value that is greater than the maximum expected round trip delay of a Protocol Data Unit (PDU). |
| Values | Decimal (1..25) |
| Units | seconds |
| Default | 3 |

### ATTRIBUTE Usgsn Usc n3Request (n3Req)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute defines the number of times that the UMTS Serving GPRS Support Node (USGSN) will attempt to send a GTP signalling request to the GPRS Support Node (GSN).<br><br>If this number is exceeded, a failure notification is sent back to the application invoking the request. |
| Values | Decimal (1..20) |
| Default | 4 |

### ATTRIBUTE Usgsn Usc echoRequest (echoReq)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies if the ECHO REQUEST message is to be sent out for signaling path to the GPRS Support Node (GSN). |
| Values | disabled<br>enabled |
| Default | enabled |

### ATTRIBUTE Usgsn Usc echoTimeInterval (echoInt)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the time interval at which ECHO REQUESTS are sent on a signaling path in use from the UMTS Serving GPRS Support Node (USGSN) to the GPRS Support Node (GSN). |
| Values | Decimal (1..300) |
| Units | minutes |
| Default | 2 |

### ATTRIBUTE Usgsn Usc pathHistoryExpireTimeInterval (pathHistExpInt)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies time interval at which the path history is reset. When the value is set to ***disabled,*** it is never reset. |
| Values | Decimal (1..300)<br>disabled |
| Units | minutes |
| Default | 10 |

### ATTRIBUTE Usgsn Usc strictPathSupervision (stPathSup)

Access
Read: All
Write: All

Description
This attribute specifies whether GTP-C will declare path failure if a response to any message to a GSN is not received, or if an echo-request goes unanswered. When a link failure is detected between the USGSN and a GSN, the GSN is marked as unreachable.

If the value of the attribute is set to ***enabled,*** failure of the remote end to respond to any GTP request will result in path failure being declared.

If the value of this attribute is set to ***disabled***, then failure of the remote end to respond to an echo request will be marked as a path failure, but all other failures will not be detected.

The number of link failures detected is indicated by the attribute *pathFailures*, in the *Usc GtpC* component.

Values
enabled
disabled

Default
disabled

### ATTRIBUTE Usgsn Usc gtpV0Version (gtpVer)

Access
Read: All
Write: All

Description
This attribute specifies the version of 3GPP specification 09.60 GPRS Tunnelling Protocol (GTP) across the Gn and Gp interfaces that the UMTS Serving GPRS Support Node (USGSN) is compliant with.

This attribute is applicable only to GTP version 0, which is used if the Release 99 compliant GTP version 1 cannot be negotiated with a neighboring Gprs Support Node (GSN). This attribute is important for network operators because USGSNs that support v7.6 cannot perform Inter USGSN Routing Area Updates (IRAUs) with USGSNs that support version v7.3 due to non-

backwards compatible changes present in the GTP specification.

If the value of this attribute is set to ***ver7-3,*** this USGSN supports version 7.3 of 09.60 and can perform IRAUs with other USGSNs supporting this same version of the specification.

If the value of this attribute is set to ***ver7-6***, this USGSN supports version 7.6 of 09.60 and can perform IRAUs with other USGSNs supporting this same version of the specification.

Values
ver7-3
ver7-6

Default
ver7-6

### GROUP Usgsn Usc HlrCache (HlrC)

Properties
Provisioned

Description
This group contains the common provisionable attributes for all the *UmtsSubscriberControl/n HlrCache* instances on this shelf.

### ATTRIBUTE Usgsn Usc authTripletsReuse (authTrip)

Access
Read: All
Write: All

Description
This attribute specifies the number of times an Authentication Triplet can be reused when authenticating a subscriber. The reuse of the Authentication Triplets is done only in abnormal situations, when new triplets cannot be received from the Home Location Register (HLR) due to connectivity breakdown between the UMTS Serving GPRS Support Node (USGSN) and the HLR.

Values
Decimal (0..5000)

Default
5000

### GROUP Usgsn Usc MapClientProv (Mc)

Properties
Provisioned

Description
This group contains the common provisionable attributes for the *MapClient* subcomponents of *UmtsSubscriberControl* on the FPs. The *MapClient* subcomponent provides Mobile Application Part

(MAP) over SS7 to interact with the Home Location Register (HLR) via the SS7-IP Gateway.

### ATTRIBUTE Usgsn Usc mcTimer (tMc)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the amount of time the *MapClient* allows for a response from the Home Location Register (HLR). The timer is started when messages MAP-SEND AUTHENTICATION INFO, stand-alone MAP-INSERT SUBSCRIBER DATA, MAP-UPDATE GPRS LOCATION, MAP-PURGE MS, or READY-FOR-SMS are sent to the HLR.<br><br>The timer must be provisioned to a value that is greater than the maximum expected round trip delay of a Protocol Data Unit (PDU) and greater than the longest timer provisioned in the *MapStack* component for messages sent to the HLR. |
| Values | Decimal (1..32) |
| Units | seconds |
| Default | 27 |

### ATTRIBUTE Usgsn Usc uglRetries (nUgl)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the times the Serving GPRS Support Node (SGSN) can send the MAP-UPDATE GPRS LOCATION to the Home Location Register (HLR) upon no reception of the MAP-UPDATE GPRS LOCATION ACK. |
| Values | Decimal (0..4) |
| Default | 1 |

### ATTRIBUTE Usgsn Usc saiRetries (nSai)

| | |
|---|---|
| Access | Read: All<br>Write: All |

| | |
|---|---|
| Description | This attribute specifies the times the Serving GPRS Support Node (SGSN) can send the MAP-SEND AUTHENTICATION INFO to the Home Location Register (HLR) upon no reception of the MAP-SEND AUTHENTICATION INFO ACK. |
| Values | Decimal (0..4) |
| Default | 1 |

### ATTRIBUTE Usgsn Usc afrRetries (nAfr)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the times the Serving GPRS Support Node (SGSN) can send the MAP Authentication Failure Report to the Home Location Register (HLR) upon no reception of the MAP Authentication Failure Report Acknowledge. |
| Values | Decimal (0..4) |
| Default | 1 |

### ATTRIBUTE Usgsn Usc mcFallbackTimer (tFbMc)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the amount of time the MAP Client allows to reset the MAP Client Fallback Table. The Fallback Table is used by the MAP Client to track the messaging version supported by each Home Location Register (HLR). If the *mcFallbackTimer* attribute changes or the timer expires, the Fallback Table is deleted and the messaging version is renegotiated with each HLR. The timer is also restarted with either the existing timeout value if the timer expired or the modified value if the value was modified.<br><br>If the timer is set to ***disabled***, the timer is not started and the Fallback Table is not deleted. Message version renegotiation with the HLR does not take place until the timer is set to a value other than ***disabled***. |

| | |
|---|---|
| Values | Decimal (1..365)<br>disabled |
| Units | days |
| Default | 30 |

### ATTRIBUTE Usgsn Usc mscEmulationMode (mscEmMode)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies whether the SGSN should emulate an MSC when messaging with the Short Message Service Center (SMSC). Currently the MAP specification requires that the MSC SSN be used in the Calling Party Address (CgPA) when the SGSN addresses an entity that does not support inter-working with the SGSN.<br><br>When this attribute is set to ***on***, the SGSN emulates an MSC when messaging with the SMSC. The SMSC is either the Short Message Service Interworking MSC (SMS-IWMSC) or the Short Message Service Gateway MSC (SWS-GMSC).<br><br>When this attribute is set to ***off***, the SGSN's SSN is used when messaging with the SMSC. |
| Values | off<br>on |
| Default | off |

### ATTRIBUTE Usgsn Usc mscSubsystemNumber (mscSubsysNum)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the MAP SGSN SubSystem Number (SSN). This SSN is only used if the *mscEmulationMode* attribute is set to ***on***. Otherwise this attribute is ignored.<br><br>If this attribute is changed after the MAP Client has registered with the MAP Stack, any outstanding MAP transactions will be lost. |

| | |
|---|---|
| Values | Decimal (1..255) |
| Default | 8 |

### GROUP Usgsn Usc Gsn

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the common provisionable attributes for all of the UmtsSubscirberContro/n Gsn instances on this shelf. |

### ATTRIBUTE Usgsn Usc maxIncomingRequests (maxInReq)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the maximum number of outstanding incoming Gn requests. Increasing the value causes more memory to be allocated for these requests. |
| Values | Decimal (10..100) |
| Default | 56 |

### GROUP Usgsn Usc SsfGlobalProv (Ssf)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains general provisioning data for all *Ssf* components on the shelf. |

### ATTRIBUTE Usgsn Usc tssfTimer (tssf)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the amount of time the SSF will wait for an SCP response while in the Waiting for Instructions state.<br><br>Each new CAP (CAMEL Application Part) message from an SCP stops the Tssf timer. The timer is started when the SSF enters the Waiting for Instructions state. If a response is not received in the amount of time specified by this attribute, the SSF will give up and use the Default GPRS Handling field of the related mobile's CAMEL Subscriber Info (CSI) to determine the appropriate action to take. |

| | |
|---|---|
| Values | Decimal (1..20) |
| Units | seconds |
| Default | 3 |

### ATTRIBUTE Usgsn Usc ssfChargingGuardTimer (ssfCGuardTimer)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the amount of time the SSF will wait for a reply from an SCP once an ApplyChargingReportGPRS CAP message has been sent and successfully received by the SCP. Valid responses from the SCP are the ApplyCharging, ReleaseGPRS or CancelGPRS messages. If a response if not received in the amount of time specified by this attribute, the SSF will give up and used the Default GPRS Handling field of the related mobile's CAMEL Subscriber Info (CSI) to determine the appropriate action to take.<br><br>This attribute also specifies the amount of time the SSF will wait for a reply from an SCP indicating that one of the following SGSN initiated messages has been received: ApplyChargingReportGPRS, EventReportGPRS, EntityReleasedGPRS, and InitialDPGPRS.<br><br>If an acknowledgement is not received from the SCP in the amount of time specified by this attribute for any of the messages listed above, the message is sent again to the SCP. The SSF will continue to retransmit the previous CAP message after each timeout until the number of consecutive timeouts reaches the value specified by the *ssfCGuardRetryAtt* attribute. If the maximum number of timeouts is reached, the SSF will give up and use the DefaultGprsHandling field of the related mobile's CAMEL Subscriber Info (CSI) to determine the appropriate action to take. |
| Values | Decimal (1..20) |
| Units | seconds |
| Default | 3 |

### ATTRIBUTE Usgsn Usc ssfTcapStackRegistrationTimer (ssfTcapRegTmr)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the amount of time the SSF will wait for a registration response from the TCAP Stack after sending a registration request. If the timer expires, the SSF sends another registration request. The SSF continues to send registration requests whenever the timer expires until registration is successful. |
| Values | Decimal (0..60) |
| Units | seconds |
| Default | 10 |

### ATTRIBUTE Usgsn Usc ssfChargingGuardRetryAttempts (ssfCGuardRetryAtt)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the maximum number of retry attempts after the *ssfChargingGuardTimer* expires. |
| Values | Decimal (0..5) |
| Default | 0 |

### ATTRIBUTE Usgsn Usc ssfCgpaRoutingIndicator (ssfCgpaRtInd)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the SCCP routing indicator used for SGSN Calling Party Addresses (CgPA). Two methods are supported.<br><br>***globalTitle***- CAP subsystem sets the CgPA routing Indicator to route on Global Title and supplies Global Title information.<br><br>***pointCode*** - CAP subsystem sets the CgPA routing Indicator to route on Point Code and supplies the Subsystem Number and Point Code in the CgPA. |

| | |
|---|---|
| Values | globalTitle (gt)<br>pointCode (pc) |
| Default | globalTitle |

### ATTRIBUTE Usgsn Usc ssfCapSsn (ssfSsn)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the CAP (CAMEL Application Part) SGSN SubSystem Number (SSN). This SSN is used by SCCP for subsystem routing. The value of this attribute must match the value the corresponding subsystem number specified on the SS7 IP Gateway (SIG). |
| Values | Decimal (1..255) |
| Default | 146 |

### ATTRIBUTE Usgsn Usc ssfRoamerService (ssfRoamServ)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies if CAMEL roaming subscribers are supported.<br><br>If *ssfRoamerService* is set to ***disabled*** and a CAMEL subscriber roams into an area served by this SGSN, active PDP (Packet Data Protocol) contexts are dropped and new contexts cannot be created.<br><br>If *ssfRoamerService* is set to ***enabled*** and a CAMEL subscriber roams into an area served by this SGSN, existing PDP Contexts are maintained and new contexts are created when requested.<br><br>***enabled***- enable roamer service, allowing roaming subscribers.<br><br>***disabled-*** disable roamer service, refusing roaming subscribers. |
| Values | enabled<br>disabled |

| | |
|---|---|
| Default | enabled |

### ATTRIBUTE Usgsn Usc ssfSupportedCamelPhase (ssfSupportedPhase)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the highest phase of CAMEL supported by the SGSN or USGSN.<br><br>If ***notSupported*** is specified, it indicates to all *Ssf* components that CAMEL is not supported by the network. |
| Values | Decimal (3)<br>notSupported |
| Default | notSupported |

### GROUP Usgsn Usc MobileSubscriberPurge (MsPurge)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisionable attributes for the Mobile Subscriber (MS) Purge functionality on the (UMTS) Serving GPRS Support Node (USGSN or SGSN). |

### ATTRIBUTE Usgsn Usc msPurgeFunction (msPurge)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies whether Mobile Subscriber Purge function is enabled or disabled. If this attribute is set to ***disabled,*** then no purge shall be sent out of the (UMTS) Serving GPRS Support Node (USGSN or SGSN). |
| Values | disabled<br>enabled |
| Default | disabled |

### ATTRIBUTE Usgsn Usc purgeOnExplicitDetach (purgeExplicit)

| | |
|---|---|
| Access | Read: All<br>Write: All |

| | |
|---|---|
| Description | This attribute specifies whether Mobile Subscribers are purged immediately upon an explicit detach.<br><br>The *msPurgeFunction* attribute must be set to ***enabled*** for this attribute to have an effect. |
| Values | disabled<br>enabled |
| Default | disabled |

### ATTRIBUTE Usgsn Usc purgeMinimumInactiveMobileAge (purgeMinAge)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the minimum time that a detached Mobile Subscriber's Data is kept on the (UMTS) Serving GPRS Support Node (USGSN or SGSN). Once a Mobile Subscriber remains detached beyond the specified value, the Mobile Subscriber becomes a candidate for purge during an audit.<br><br>The *msPurgeFunction* attribute must be set to ***enabled*** for this attribute to have an effect. |
| Values | Decimal (1..744)<br>disabled |
| Units | hours |
| Default | disabled |

### COMPONENT Usgsn TieredSubscription (Ts)

| | |
|---|---|
| Groups | "GROUP Usgsn Ts Provisioned (Prov)" |
| Scope | Application |
| Description | *Sgsn TieredSubscription*<br>*Usgsn TieredSubscription*<br><br>This component represents the differentiated tiers of service on the (UMTS) Serving GPRS Support Node (SGSN or USGSN) on a per Packet Data Protocol (PDP) context basis for downlink traffic. The maximum average bandwidth associated with each |

tier is not guaranteed at all times but indicates the upper bound on the average data rate for the service. If this component is not provisioned, the data rate for every context will be best effort.

Common Verbs

Help
List
Display
Add
DELete

## GROUP Usgsn Ts Provisioned (Prov)

Properties: Provisioned

Description: This group contains the *Tiered Subscription (Ts)* provisioning data of the (UMTS) Serving GPRS Support Node (SGSN or USGSN).

## ATTRIBUTE Usgsn Ts roamerTier

Access: Read: All
Write: All

Description: This attribute specifies the peak bit rate (tier) that can be assigned to a PDP context for mobiles that are not in their Home PLMN. Tier 0 through Tier 9 map to peak throughput classes 0 through 9. Peak throughput class 0 represents the subscribed peak throughput class for a PDP context. Peak throughput classes 1 through 9 represent peak bit rates of 8 kbit/s, 16 kbit/s, 32 kbit/s, 64 kbit/s, 128 kbit/s, 256 kbit/s, 512 kbit/s, 1024 kbit/s and 2048 kbit/s respectively. The Tiered Subscription service uses this information during a PDP context activation for a roamer to determine the maximum average throughput for the context.
If the *roamerTier* is provisioned as ***0***, then the peak throughput for the context is the lower of the peak throughput class of the mobile requested QoS and the mobile's subscribed QoS.
If the *roamerTier* is a value between ***1*** and ***9***, then the peak throughput class for the context is the peak throughput associated with that tier.

Values: 0
1

| | |
|---|---|
| | 2<br>3<br>4<br>5<br>6<br>7<br>8<br>9 |
| Default | 0 |

### ATTRIBUTE Usgsn Ts averagingWindow (avgWin)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the size of the averaging window used to compute the average bandwidth used by a PDP context.<br><br>User traffic is policed per context using the peak throughput rate. In order to police the average peak data rate per context in the down link direction, Tiered Subscription (TS) monitors the amount of data passed over a specified period of time, which is defined by the *averagingWindow*. In other words, the user data rate is throttled in terms of how many bytes are passed over the averaging Window time frame.<br>Tiered Subscription (TS) limits the data transfer to the data rate (bits/s) multiplied by the *averagingWindow* (s). The larger the *averagingWindow*, the more burst size is accommodated. |
| Values | Decimal (1..10) |
| Units | seconds |
| Default | 5 |

### COMPONENT Usgsn PlmnImsiEntry (PlmnImsi)

| | |
|---|---|
| Instance | Decimal (1..1000) |
| Groups | "GROUP Usgsn PlmnImsi PlmnImsi" |
| Scope | Application |

Description *Usgsn PlmnImsiEntry/n*

This component represents an entry in a table of the International Mobile Subscriber Identity (IMSI) digits ranges. If a particular IMSI has a digit range that does not match any entry in the table, then it does not belong to this Public Land Mobile Network (PLMN).

Common Verbs

Help
List
Display
Add
DELete

## GROUP Usgsn PlmnImsi PlmnImsi

Properties Provisioned

Description This group contains the Mobile Country Code (MCC), Mobile Network Code (MNC) range for this Public Land Mobile Network (PLMN). All Mobile Stations (MS) whose MCC and MNC do not belong to the current PLMN are considered roamers.

The *fromPrefix* and *toPrefix* attributes represent decimal number value ranges that fit the IMSI specification of 15 digits. All digits must be 0 through 9 inclusive. When the *fromPrefix* or the *toPrefix* value is less than 15 digits, the value in attribute *fromPrefix* is always extended with 0's, and the value in attribute *toPrefix* is always extended with 9's.

A complete range (*fromPrefix* and *toPrefix* forming a range of IMSI digits) must not overlap any previously entered range.

## ATTRIBUTE Usgsn PlmnImsi fromPrefix (frPrefix)

Access Read: All
Write: All

Description This attribute specifies the lower limit of the range of the International Mobile Subscriber Identity (IMSI) digits which are

| | |
|---|---|
| | considered as home subscribers. The value in attribute *fromPrefix* is always extended with 0's. |
| Values | BCD (1..15) |
| Default | No default |

### ATTRIBUTE Usgsn Plmnlmsi toPrefix

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the upper limit of the range of the International Mobile Subscriber Identity (IMSI) digits which are considered as home subscribers. The value in attribute *toPrefix* is always extended with 9's. |
| Values | BCD (1..15) |
| Default | No default |

### COMPONENT Usgsn MobileCountryCode (Mcc)

| | |
|---|---|
| Instance | BCD (3) |
| Scope | Application |
| Description | *Usgsn MobileCountryCode/<mcc>*<br><br>This component represents a Mobile Country Code (MCC) supported by the UMTS Serving GPRS Support Node (USGSN). The instance value is the 3 digit MCC. |
| Opt. Subcomp. | "COMPONENT Usgsn Mcc MobileNetworkCode (Mnc)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### COMPONENT Usgsn Mcc MobileNetworkCode (Mnc)

| | |
|---|---|
| Instance | BCD (2..3) |

| | |
|---|---|
| Groups | "GROUP Usgsn Mcc Mnc Provisioned (Prov)" |
| Scope | Application |
| Description | *Usgsn Mcc/<mcc> MobileNetworkCode/<mcc>*<br><br>This component represents a Mobile Network Code (MNC) supported by the UMTS Serving GPRS Support Node (USGSN). The instance value is the 2 or 3 digit MNC. |
| Opt. Subcomp. | "COMPONENT Usgsn Mcc Mnc LocationAreaCode (Lac)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Usgsn Mcc Mnc Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the E.212 to E.214 Translation Table provisionable attributes. |

## ATTRIBUTE Usgsn Mcc Mnc countryCode (cc)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies a specific country, countries in an integrated number plan, or a specific geographic area as defined by the ITU-T international public telecommunication numbering plan. The associated MCC (Mobile Country Code) gets translated to this CC (Country Code) during a E.212 to E.214 number translation used for global title addressing for the HLR. |
| Values | BCD (1..3) |
| Default | No default |

## ATTRIBUTE Usgsn Mcc Mnc networkCode (nc)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the PLMN or HLR within the PLMN as defined by the ITU-T international public telecommunication numbering plan. The associated MNC (Mobile Network Code) gets translated to this NC (Network Code) during a E.212 to E.214 number translation used for global title addressing for the HLR. |
| Values | BCD (1..9) |
| Default | No default |

## COMPONENT Usgsn Mcc Mnc LocationAreaCode (Lac)

| | |
|---|---|
| Instance | String (2, Hex) |
| Scope | Application |
| Description | *Usgsn Mcc/<mcc> Mnc/<mcc> LocationAreaCode/<lac>*<br><br>This component represents a Location Area Code (LAC) supported by the UMTS Serving GPRS Support Node (USGSN). The instance value is the 4 digit LAC.<br><br>At least one *Rac* subcomponent must be provisioned for each *Lac*. |
| Opt. Subcomp. | "COMPONENT Usgsn Mcc Mnc Lac RoutingAreaCode (Rac)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## COMPONENT Usgsn Mcc Mnc Lac RoutingAreaCode (Rac)

| | |
|---|---|
| Instance | String (1, Hex) |
| Groups | "GROUP Usgsn Mcc Mnc Lac Rac Rac" |

| | |
|---|---|
| Scope | Application |
| Description | *Usgsn Mcc/<mcc> Mnc/<mnc> Lac/<lac> RoutingAreaCode/ <rac>*<br><br>This component represents a Routing Area Code (RAC) supported by the UMTS Serving GPRS Support Node (USGSN). The instance value is the 2 digit RAC. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Usgsn Mcc Mnc Lac Rac Rac

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes associated with the routing areas supported by the UMTS Serving GPRS Support Node (USGSN). |

### ATTRIBUTE Usgsn Mcc Mnc Lac Rac periodicRaUpdateTimer (t3312)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the Periodic Routing Area Update Timer (T3312) for be used by the Mobile Station (MS). The MS receives this timer from the network during GPRS Attach Accept and during Periodic Routing Area Update Accepts.<br><br>When this timer expires, the MS notifies the UMTS Serving GPRS Support Node (USGSN) of the current routing area of the MS. This timer value is per Routing Area. The value ***deactivate*** means that no periodic messages are sent.<br><br>The *mobileReachableTimer* provisioned in the *Usgsn UmtsSubscriberControl* component must be at least four minutes longer than the longest *periodicRaUpdateTimer*.<br><br>The timer must be provisioned to a value that is greater than the |

| | |
|---|---|
| | maximum expected round trip delay of a Protocol Data Unit (PDU). |
| Values | Decimal (1..31; 36; 42; 48; 54; 60; 66; 72; 78; 84; 90; 96; 102; 108; 114; 120; 126; 132; 138; 144; 150; 156; 162; 168; 174; 180; 186)<br>deactivate |
| Units | minutes |
| Default | deactivate |

### ATTRIBUTE Usgsn Mcc Mnc Lac Rac ptmsiEvents

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the number, N, which indicates that at every Nth event requiring Packet-Temporary Mobile Subscriber Identity (P-TMSI) reallocation, the P-TMSI Reallocation procedure is initiated with the mobile subscriber. |
| Values | Decimal (1..255)<br>never |
| Default | 10 |

### ATTRIBUTE Usgsn Mcc Mnc Lac Rac rncIds

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the *rncId*s of the Radio Network Controller (RNC) that are provisioned on the *Sg/n Rncif* components associated with this Routing Area.<br><br>The *rncid* is a field of the Global RNC-ID defined in 3G TS 25.413, that uniquely identifies an RNC. Since each Signalling Gateway talks to exactly one RNC, this attribute uniquely identifies the Signalling Gateways associated with this Routing Area. |
| List of | Decimal (1..4095) |
| Default | No default |

## COMPONENT Usgsn InternationalMobileSubscriberId (Imsi)

| | |
|---|---|
| Instance | BCD (5..15) |
| Groups | "GROUP Usgsn Imsi Operational (Oper)" |
| Scope | Application |
| Description | *Usgsn InternationalMobileSubscriberId/<imsi>*<br><br>This component represents an instance of the International Mobile Subscriber Identity (IMSI). The information includes subscription context, mobility management context, session contexts, and logical<br>link context.<br><br>The instance value is the IMSI of the mobile subscriber. A list of all the current Imsi instances is not possible, but it is possible to display a specific instance of *Imsi*. |
| Dyn. Subcomp. | "COMPONENT Usgsn Imsi MobilityContext (Mc)"<br>"COMPONENT Usgsn Imsi SessionContext (Sc)"<br>"COMPONENT Usgsn Imsi SubscriptionRecord (Sr)" |
| Common Verbs | Help<br>List<br>Display |

## VERB Clear Usgsn Imsi

| | |
|---|---|
| Impact | Service |
| Description | *Clear InternationMobileSubscriberId/<imsi>*<br><br>This command clears the specified *Imsi* component.<br><br>If the *msPurgeFuncion* provisionable attribute is ***enabled*** in USGSN USC MsPurge, it will cause a Mobile Subscriber Purge request to be sent to the Home Location Register. |

## GROUP Usgsn Imsi Operational (Oper)

| | |
|---|---|
| Properties | Operational |

| | |
|---|---|
| Description | This group contains subscription information downloaded from the Home Location Register (HLR). |

### ATTRIBUTE Usgsn Imsi internationalMobileSubscriberId (imsi)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the International Mobile Subscriber Identity (IMSI) of the Mobile Station (MS). |
| Values | BCD (5..15) |
| Default | No default |

### ATTRIBUTE Usgsn Imsi hlrNumber (hlrNo)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the HLR Number of the Home Location Register (HLR) to which the *HlrCache* record is currently associated. It is used to retrieve the *HlrCache* records to be restored after receipt of the RESET message from the HLR. |
| Values | String (1..17, NativeAddress) |
| Default | No default |

### ATTRIBUTE Usgsn Imsi msIsdnNumber (msIsdn)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the Integrated Service Digital Network (ISDN) number of the mobile subscriber. This is represented as an E.164 number in international format. |
| Values | String (1..17, NativeAddress) |
| Default | No default |

### ATTRIBUTE Usgsn Imsi subscriptionConfirmedByHlr (subsCByHlr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute indicates whether the subscription information in the Serving GPRS Support Node (SGSN) is known to be in agreement with the Home Location Register (HLR) when the SGSN successfully performs an UPDATE GPRS LOCATION to the HLR. |
| Values | no<br>yes |
| Default | No default |

### ATTRIBUTE Usgsn Imsi locationInfoConfirmedInHlr (locCInHlr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates whether the Home Location Register (HLR) record of the Serving GPRS Support Node (SGSN) address for the Mobile Station (MS) has been confirmed by radio contact.<br><br>It is initially set to, ***no***, when the SGSN receives a ROUTING AREA UPDATE REQUEST, or an IMSI and a GPRS ATTACH-REQUEST, or if a RESET message is received from the HLR with which the MS is registered. The indicator is set to, ***yes***, when a successful UPDATE GPRS LOCATION is performed for the MS. |
| Values | no<br>yes |
| Default | No default |

### COMPONENT Usgsn Imsi MobilityContext (Mc)

| | |
|---|---|
| Groups | "GROUP Usgsn Imsi Mc MobilityContext (Mc)" |
| Scope | Application |
| Description | *Usgsn Imsi/<imsi> MobilityContext*<br><br>This component represents the GPRS Mobility Management (GMM) context created for each mobile subscriber that is GPRS- |

Attached.

Common Verbs

Help
List
Display

## GROUP Usgsn Imsi Mc MobilityContext (Mc)

Properties: Operational

Description: This group displays the Mobility Context information of a subscriber.

## ATTRIBUTE Usgsn Imsi Mc gmmState (gmmSt)

Access: Read: All
Write: Illegal

Description: This attribute indicates the GPRS Mobility Management (GMM) state for a mobile. Upon initialization, this attribute value is in ***pmmIdle*** state.

The states have the following meaning:

***pmmDetached*** - There is no communication between the Mobile Station (MS) and the UMTS Serving GPRS Support Node (USGSN). The MS and the USGSN contexts hold no valid location or routing area information for the mobile.

***pmmIdle*** - The MS location is known in the UMTS Serving GPRS Support Node (USGSN) with an accuracy of a routing area. Paging is required in order to reach the MS.

***pmmConnected*** - The PS signalling connection has been established between the MS and the UMTS Serving GPRS Support Node (USGSN). The MS can send or receive the Point To Point Protocol Data Units (PTP PDUs) in this state.

Values: pmmDetached
pmmIdle
pmmConnected

Default No default

### ATTRIBUTE Usgsn Imsi Mc routingAreaIdentifier (rai)

Access
Read: All
Write: Illegal

Description
This attribute indicates the current routing area of the Mobile Station (MS). The routing area is transmitted to the UMTS Serving GPRS Support Node (USGSN) during a Routing Area Update procedure or Attach procedure.

The routing area identifier includes the Mobile Country Code (MCC) in BCD format in the first 3 digits, the Mobile Network Code (MNC) in BCD format in the next 3 digits, the Location Area Code (LAC) in the next 2 octets, and the Routing Area Code (RAC) in the last octet.

For a 2 digit MNC, a padding of F is used in place of the first digit so that it always occupies 3 digits. For the MNC and the MCC, the order of digits is reversed in every byte.

For example, the RAI consisting of :
208 (MCC), 12 (MNC), 34 (LAC), 15 (RAC) will be encoded as, 02F821003415.

Values String (6, Hex)

Default No default

### ATTRIBUTE Usgsn Imsi Mc ptmsi

Access
Read: All
Write: Illegal

Description
This attribute indicates the P-TMSI used to identify the context of the Mobile Station (MS) within the UMTS Serving GPRS Support Node (USGSN). This is one of the main reference keys that is used to identify an MS in the USGSN.

Values String (4, Hex)

Default No default

### ATTRIBUTE Usgsn Imsi Mc serviceAreaCode (sac)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the last known Service Area Code (SAC) when an INITIAL UE message was received from the Radio Network Controller (RNC), or when a Location Reporting procedure was executed. |
| Values | String (2, Hex) |
| Default | No default |

### ATTRIBUTE Usgsn Imsi Mc msNetworkCapability (msNwkCap)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the network portion of the Mobile Station (MS) classmark. The classmark contains specific information about a Mobile Station (MS). |
| Values | String (6..20, Hex) |
| Default | No default |

### COMPONENT Usgsn Imsi SessionContext (Sc)

| | |
|---|---|
| Instance | Decimal (5..15) |
| Groups | "GROUP Usgsn Imsi Sc SessionContextl (Sc)" |
| Scope | Application |
| Description | *Usgsn Imsi/<imsi> SessionContext/<nsapi>*<br><br>This component represents the session context information for a subscriber. The session contexts are created for each activated Packet Data Protocol (PDP) context of a subscriber. The instance value identifies a session for a mobile subscriber. |

| | |
|---|---|
| Dyn. Subcomp. | "COMPONENT Usgsn Imsi Sc RequestedQos (ReqQos)"<br>"COMPONENT Usgsn Imsi Sc NegotiatedQos (NegQos)" |
| Common Verbs | Help<br>List<br>Display |

### GROUP Usgsn Imsi Sc SessionContextl (Sc)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes associated with this component |

### ATTRIBUTE Usgsn Imsi Sc dataPathGgsnAddress (dGgsnAddr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the IP address of the Gateway GPRS Support Node (GGSN) for the data path that is currently used by the activated Packet Data Protocol (PDP) context. |
| Values | IP address |
| Default | No default |

### ATTRIBUTE Usgsn Imsi Sc signalingGgsnAddress (sGgsnAddr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the IP address of the Gateway GPRS Support Node (GGSN) for the signaling path that is currently used by the activated Packet Data Protocol (PDP) context. |
| Values | IP address |
| Default | No default |

### ATTRIBUTE Usgsn Imsi Sc dataPathRncAddress (dRncAddr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the IP address of the Radio Network Controller (RNC) for the data path that is currently used by the activated Packet Data Protocol (PDP) context. |
| Values | IP address |
| Default | No default |

### ATTRIBUTE Usgsn Imsi Sc remoteTeid (remTeid)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the Tunnel End point Identifier that is associated with a tunnel leg that originates at the UMTS Serving GPRS Support Node (USGSN) and terminates at the Radio Network Controller (RNC). |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usgsn Imsi Sc localTeid (locTeid)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the Tunnel End point Identifier that is associated with a tunnel leg that originates at the Radio Network Controller (RNC) and terminates at the UMTS Serving GPRS Support Node (USGSN). |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usgsn Imsi Sc ggsnRemoteTeid (ggsnRemTeid)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute indicates the Tunnel End point Identifier that is associated with a tunnel leg that originates at the UMTS Serving GPRS Support Node (USGSN) and terminates at the GGSN. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usgsn Imsi Sc ggsnLocalTeid (ggsnLocTeid)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the Tunnel End point Identifier that is associated with a tunnel leg that originates at the GGSN and terminates at the UMTS Serving GPRS Support Node (USGSN). |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usgsn Imsi Sc signallingGgsnTeid (sGgsnTeid)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the Tunnel End point Identifier that is associated with a tunnel leg end point of the control tunnel that runs between the UMTS Serving GPRS Support Node (USGSN) and the GGSN. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Usgsn Imsi Sc rabid

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the Radio Access Bearer ID, which uniquely identifies the radio access bearer being used in the Radio Network Controller (RNC). |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### COMPONENT Usgsn Imsi Sc RequestedQos (ReqQos)

| | |
|---|---|
| Groups | "GROUP Usgsn Imsi Sc ReqQos QosProfile (Qos)" |
| Scope | Application |
| Description | *Usgsn Imsi/<imsi> SessionContext/<nsapi> RequestedQos*<br>This component represents the Quality of Service requested by a mobile subscriber for this session. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Usgsn Imsi Sc ReqQos QosProfile (Qos)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the QOS profile. It contains either the requested Qos, the negotiated Qos, or the subscribed QOS based on which component contains this group. |

### ATTRIBUTE Usgsn Imsi Sc ReqQos deliveryOrder (delOrd)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates whether the Signalling Data Units (SDUs) order of delivery is guaranteed. |
| Values | withDeliveryOrder<br>withoutDeliveryOrder |
| Default | No default |

### ATTRIBUTE Usgsn Imsi Sc ReqQos deliveryOfErroneousSdus (delErrSdus)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates how erroneous Signaling Data Units (SDUs) are handled by the network. |

The erroneous SDUs can be handled in one of the following ways:

***subDeliveryOfSdus***: The Signalling Data Units (SDUs) are delivered according to the Subscriber's profile.

***noDetect:*** The Signalling Data Units (SDUs) are delivered without considering error detection.

***errSdusDelivered:*** The erroneous Signalling Data Units (SDUs) are delivered together with an error indication.

***errSdusNotDelivered:*** The erroneous Signalling Data Units (SDUs) are discarded.

Values

subDeliveryOfSdus
noDetect
errSdusDelivered
errSdusNotDelivered

Default

No default

## ATTRIBUTE Usgsn Imsi Sc ReqQos trafficClass (traffClass)

Access

Read: All
Write: Illegal

Description

This attribute indicates the type of application for which the UMTS bearer service is optimized. By including the traffic class itself as an attribute, the UMTS Sgsn can make assumptions about the traffic source and optimize the transport for that traffic type.

The different traffic classes are:

***subscribed*** - This value specifies that the traffic class to be optimized is that indicated by the "subscribed traffic class" field of the user's HLR record.

***conversational*** - This class includes real time conversation, characterized by low transfer delay and a strict preservation of the time relation between information entities of the stream. Examples of this class are telephony speech and video

conferencing.

***streaming -*** This class consists of real time video/audio applications, characterized by a strict preservation of the time relation between the information entities of the stream, but not necessarily a low transfer delay.

***interactive -*** This class includes applications where a man or machine requests data from remote equipment, characterized by a request-response pattern of the end-user and the preservation of payload content.

***background -*** This class includes applications where the end-user, typically a computer, sends and receives data files in the background, for eg., emails, SMS and database downloads. This is characterized by the destination not expecting the data within a certain time.

| | |
|---|---|
| Values | subscribed (sub)<br>conversational (conv)<br>streaming (strm)<br>interactive (int)<br>background (bkgr) |
| Default | No default |

### ATTRIBUTE Usgsn Imsi Sc ReqQos maxSduSize (maxSduSize)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the maximum allowed size of the Signalling Data Unit (SDUs). It is used for admission control and policing. |
| Values | Decimal (1..1502) |
| Units | octets |
| Default | No default |

### ATTRIBUTE Usgsn Imsi Sc ReqQos maxUplinkBitRate (maxUpBr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the maximum number of bits delivered to UMTS in the uplink direction within a period of time, divided by the duration of the period. |
| Values | Decimal (0..8640) |
| Units | kbit/s |
| Default | No default |

### ATTRIBUTE Usgsn Imsi Sc ReqQos maxDownlinkBitRate (maxDnBr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the maximum number of bits delivered by UMTS in the downlink direction within a period of time, divided by the duration of the period. |
| Values | Decimal (0..8640) |
| Units | kbit/s |
| Default | No default |

### ATTRIBUTE Usgsn Imsi Sc ReqQos residualBitErrorRate (resBer)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the undetected bit error ratio in the delivered Signalling Data Units (SDUs). If no error detection is requested, this attribute indicates the bit error ratio in the delivered Signalling Data Units (SDUs).<br><br>This attribute can take up values ranging from 1 through 9, representing:<br><br>1 -> 5*10 -2<br>2 -> 1*10 -2<br>3 -> 5*10 -3 |

4 -> 4*10 -3
5 -> 1*10 -3
6 -> 1*10 -4
7 -> 1*10 -5
8 -> 1*10 -6
9 -> 6*10 -8

Values: Decimal (1..9)

Default: No default

### ATTRIBUTE Usgsn Imsi Sc ReqQos sduErrorRatio (sduErrRatio)

Access: Read: All
Write: Illegal

Description: This attribute indicates the fraction of SDUs lost or detected as erroneous. It is defined only for conforming traffic.

This attribute can take up values between the numbers 1 - 7 representing the following:
1 -> 1*10 -2
2 -> 7*10 -3
3 -> 1*10 -3
4 -> 1*10 -4
5 -> 1*10 -5
6 -> 1*10 -6
7 -> 1*10 -1

Values: Decimal (1..7)

Default: No default

### ATTRIBUTE Usgsn Imsi Sc ReqQos trafficHandlingPriority (traffHndlPr)

Access: Read: All
Write: Illegal

Description: This attribute indicates the traffic handling priority. The traffic handling priority attribute is used to prioritize the traffic when the *trafficClass* attribute has the values ***interactive.***

Values: Decimal (0..3)

Default: No default

### ATTRIBUTE Usgsn Imsi Sc ReqQos transferDelay (transfDelay)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the maximum delay for 95th percentile of the distribution of delay for all delivered Signalling Data Units (SDUs) during the lifetime of a bearer service, where delay for an SDU is defined as the time from a request to transfer data from one Service Access Point (SAP) to another SAP. |
| Values | Decimal (10..4100) |
| Default | No default |

### ATTRIBUTE Usgsn Imsi Sc ReqQos guaranteedUplinkBitRate (guarUpBr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the guaranteed number of bits delivered at a Service Access Point (SAP) in the uplink (Mobile Station to network) direction within a period of time, divided by the duration of the period.<br><br>The value of this attribute is ignored if the *trafficClass* attribute has one of the following values: ***interactive*** or ***background***, or if the *maxUplinkBitRate* is set to ***0*** kbits/s. |
| Values | Decimal (0..8640) |
| Default | No default |

### ATTRIBUTE Usgsn Imsi Sc ReqQos guaranteedDownlinkBitRate (guarDnBr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the guaranteed number of bits delivered at a Service Access Point (SAP) in the downlink (network to Mobile Station) direction within a period of time, divided by the duration of the period.<br><br>The value of this attribute is ignored if the *trafficClass* attribute |

has one of the following values: ***interactive*** or ***background***, or if the *maxDownlinkBitRate* is set to ***0*** kbits/s.

Values: Decimal (0..8640)

Default: No default

### COMPONENT Usgsn Imsi Sc NegotiatedQos (NegQos)

Groups: "GROUP Usgsn Imsi Sc NegQos QosProfile (Qos)"

Scope: Application

Description: *Usgsn Imsi/<imsi> SessionContext/<nsapi> NegotiatedQos*
This component represents the negotiated Quality of Service received by the mobile subscriber for this session.

Common Verbs:
Help
List
Display

### GROUP Usgsn Imsi Sc NegQos QosProfile (Qos)

Properties: Operational

Description: This group contains the QOS profile. It contains either the requested Qos, the negotiated Qos, or the subscribed QOS based on which component contains this group.

### ATTRIBUTE Usgsn Imsi Sc NegQos deliveryOrder (delOrd)

Access: Read: All
Write: Illegal

Description: This attribute indicates whether the Signalling Data Units (SDUs) order of delivery is guaranteed.

Values: withDeliveryOrder
withoutDeliveryOrder

Default: No default

### ATTRIBUTE Usgsn Imsi Sc NegQos deliveryOfErroneousSdus (delErrSdus)

Access: Read: All
Write: Illegal

Description

This attribute indicates how erroneous Signaling Data Units (SDUs) are handled by the network.

The erroneous SDUs can be handled in one of the following ways:

***subDeliveryOfSdus***: The Signalling Data Units (SDUs) are delivered according to the Subscriber's profile.

***noDetect:*** The Signalling Data Units (SDUs) are delivered without considering error detection.

***errSdusDelivered:*** The erroneous Signalling Data Units (SDUs) are delivered together with an error indication.

***errSdusNotDelivered:*** The erroneous Signalling Data Units (SDUs) are discarded.

Values

subDeliveryOfSdus
noDetect
errSdusDelivered
errSdusNotDelivered

Default

No default

### ATTRIBUTE Usgsn Imsi Sc NegQos trafficClass (traffClass)

Access

Read: All
Write: Illegal

Description

This attribute indicates the type of application for which the UMTS bearer service is optimized. By including the traffic class itself as an attribute, the UMTS Sgsn can make assumptions about the traffic source and optimize the transport for that traffic type.

The different traffic classes are:

***subscribed*** - This value specifies that the traffic class to be optimized is that indicated by the "subscribed traffic class" field of the user's HLR record.

***conversational*** - This class includes real time conversation,

characterized by low transfer delay and a strict preservation of the time relation between information entities of the stream. Examples of this class are telephony speech and video conferencing.

***streaming -*** This class consists of real time video/audio applications, characterized by a strict preservation of the time relation between the information entities of the stream, but not necessarily a low transfer delay.

***interactive -*** This class includes applications where a man or machine requests data from remote equipment, characterized by a request-response pattern of the end-user and the preservation of payload content.

***background -*** This class includes applications where the end-user, typically a computer, sends and receives data files in the background, for eg., emails, SMS and database downloads. This is characterized by the destination not expecting the data within a certain time.

| | |
|---|---|
| Values | subscribed (sub)<br>conversational (conv)<br>streaming (strm)<br>interactive (int)<br>background (bkgr) |
| Default | No default |

### ATTRIBUTE Usgsn Imsi Sc NegQos maxSduSize (maxSduSize)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the maximum allowed size of the Signalling Data Unit (SDUs). It is used for admission control and policing. |
| Values | Decimal (1..1502) |
| Units | octets |
| Default | No default |

### ATTRIBUTE Usgsn Imsi Sc NegQos maxUplinkBitRate (maxUpBr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the maximum number of bits delivered to UMTS in the uplink direction within a period of time, divided by the duration of the period. |
| Values | Decimal (0..8640) |
| Units | kbit/s |
| Default | No default |

### ATTRIBUTE Usgsn Imsi Sc NegQos maxDownlinkBitRate (maxDnBr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the maximum number of bits delivered by UMTS in the downlink direction within a period of time, divided by the duration of the period. |
| Values | Decimal (0..8640) |
| Units | kbit/s |
| Default | No default |

### ATTRIBUTE Usgsn Imsi Sc NegQos residualBitErrorRate (resBer)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the undetected bit error ratio in the delivered Signalling Data Units (SDUs). If no error detection is requested, this attribute indicates the bit error ratio in the delivered Signalling Data Units (SDUs).<br><br>This attribute can take up values ranging from 1 through 9, representing:<br><br>1 -> 5*10 -2<br>2 -> 1*10 -2<br>3 -> 5*10 -3 |

4 -> 4*10 -3
5 -> 1*10 -3
6 -> 1*10 -4
7 -> 1*10 -5
8 -> 1*10 -6
9 -> 6*10 -8

Values: Decimal (1..9)

Default: No default

### ATTRIBUTE Usgsn Imsi Sc NegQos sduErrorRatio (sduErrRatio)

Access: Read: All
Write: Illegal

Description: This attribute indicates the fraction of SDUs lost or detected as erroneous. It is defined only for conforming traffic.

This attribute can take up values between the numbers 1 - 7 representing the following:
1 -> 1*10 -2
2 -> 7*10 -3
3 -> 1*10 -3
4 -> 1*10 -4
5 -> 1*10 -5
6 -> 1*10 -6
7 -> 1*10 -1

Values: Decimal (1..7)

Default: No default

### ATTRIBUTE Usgsn Imsi Sc NegQos trafficHandlingPriority (traffHndlPr)

Access: Read: All
Write: Illegal

Description: This attribute indicates the traffic handling priority. The traffic handling priority attribute is used to prioritize the traffic when the *trafficClass* attribute has the values ***interactive.***

Values: Decimal (0..3)

Default: No default

### ATTRIBUTE Usgsn Imsi Sc NegQos transferDelay (transfDelay)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the maximum delay for 95th percentile of the distribution of delay for all delivered Signalling Data Units (SDUs) during the lifetime of a bearer service, where delay for an SDU is defined as the time from a request to transfer data from one Service Access Point (SAP) to another SAP. |
| Values | Decimal (10..4100) |
| Default | No default |

### ATTRIBUTE Usgsn Imsi Sc NegQos guaranteedUplinkBitRate (guarUpBr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the guaranteed number of bits delivered at a Service Access Point (SAP) in the uplink (Mobile Station to network) direction within a period of time, divided by the duration of the period.<br><br>The value of this attribute is ignored if the *trafficClass* attribute has one of the following values: ***interactive*** or ***background***, or if the *maxUplinkBitRate* is set to ***0*** kbits/s. |
| Values | Decimal (0..8640) |
| Default | No default |

### ATTRIBUTE Usgsn Imsi Sc NegQos guaranteedDownlinkBitRate (guarDnBr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the guaranteed number of bits delivered at a Service Access Point (SAP) in the downlink (network to Mobile Station) direction within a period of time, divided by the duration of the period.<br><br>The value of this attribute is ignored if the *trafficClass* attribute |

has one of the following values: ***interactive*** or ***background***, or if the *maxDownlinkBitRate* is set to ***0*** kbits/s.

Values: Decimal (0..8640)

Default: No default

## COMPONENT Usgsn Imsi SubscriptionRecord (Sr)

Scope: Application

Description: *Usgsn Imsi/<imsi> SubscriptionRecord*

This component represents the subscription information downloaded from the Home Location Register (HLR). The *HlrCache* on the *UmtsSubscriberControl* (*Usc*) contains the active subscriber data. A *SubscriptionRecord* instance is created to represent an active subscriber tuple of an HLR Cache in the UMTS Subscriber Control (Usc).

Dyn. Subcomp.: "COMPONENT Usgsn Imsi Sr PdpContext (PdpC)"

Common Verbs:
- Help
- List
- Display

## COMPONENT Usgsn Imsi Sr PdpContext (PdpC)

Instance: Decimal (1..20)

Groups: "GROUP Usgsn Imsi Sr PdpC Operational (PdpCOper)"

Scope: Application

Description: *Usgsn Imsi/<imsi> SubscriptionRecord PdpContext/<nsapi>*

This component represents the Packet Data Protocol (PDP) context data downloaded from the Home Location Register (HLR).

There is one instance of this component for each PDP profile the subscriber has.

| | |
|---|---|
| Dyn. Subcomp. | "COMPONENT Usgsn Imsi Sr PdpC SubscribedQos (SubsQos)" |
| Common Verbs | Help<br>List<br>Display |

## GROUP Usgsn Imsi Sr PdpC Operational (PdpCOper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for *Usgsn Imsi SubscriptionRecord PdpContext* |

## ATTRIBUTE Usgsn Imsi Sr PdpC pdpType (pdpT)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the end user protocol to be used between the external packet data network and the Mobile Station (MS) such as<br>X.25, IP and PPP.<br><br>For ***x25***, the currently defined address format is X.121.<br><br>For ***ip*** protocol, the currently defined address formats are IPV4 and IPV6.<br><br>The *pdpAddressFormat* attribute does not apply if *pdpType* is set to ***ppp.*** |
| Values | x25<br>ip<br>ppp |
| Default | No default |

## ATTRIBUTE Usgsn Imsi Sr PdpC ipv4PdpAddress (ipv4Addr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute indicates the network layer address of the packet data network. This attribute is displayed when the Packet Data Protocol (PDP) address is an IPv4 address. The address conforms to the standard addressing scheme of the IP version 4 address. |
| Values | IP address |
| Default | No default |

### ATTRIBUTE Usgsn Imsi Sr PdpC x121PdpAddress (x121Addr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the network layer address of the packet data network. This attribute is displayed when the Packet Data Protocol (PDP) address is X.121. |
| Values | BCD (1..14) |
| Default | No default |

### ATTRIBUTE Usgsn Imsi Sr PdpC otherPdpAddress (otherAddr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the network layer address of the packet data network. The Packet Data Protocol (PDP) protocol type for the *otherPdpAddress* can be obtained from the attribute *pdpType* and the addressing type from *pdpAddressFormat*. |
| Values | String (1..16, Hex) |
| Default | No default |

### ATTRIBUTE Usgsn Imsi Sr PdpC pdpAddressFormat (pdpAddrFormat)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the addressing type, such as X.121, IPv4, or IPv6. |
| Values | x121<br>ipv4<br>ipv6 |

Default — No default

### ATTRIBUTE Usgsn Imsi Sr PdpC apnNetworkIdentifier (apnNwkId)

Access — Read: All
Write: Illegal

Description — This attribute indicates the Access Point Name (APN), or the Logical Name, or the network address of the packet data network, with which this Packet Data Protocol (PDP) context is associated.

The APN Network Identifier can be the one received from the mobile as part of the ACTIVATE PDP CONTEXT REQUEST message, can be selected from the subscription record against which this session has been activated, or it can be the *defaultApnNetworkId* (defined in *Usgsn UmtsSubscriberControl*)

Values — String (1..63, ASCII)

Default — No default

### ATTRIBUTE Usgsn Imsi Sr PdpC vplmnAddressAllowed (vplmnAddr)

Access — Read: All
Write: Illegal

Description — This attribute indicates whether the Mobile Station (MS) is allowed to use the Access Point Name (APN) in the domain of the Visiting Public Land Mobile Network (VPLMN).

Values — no
yes

Default — No default

### COMPONENT Usgsn Imsi Sr PdpC SubscribedQos (SubsQos)

Groups — "GROUP Usgsn Imsi Sr PdpC SubsQos QosProfile (Qos)"

Scope — Application

Description — *Usgsn Imsi/<imsi> SubscriptionRecord PdpContext/<nsapi> SubscribedQos*
This component represents the Quality of Service (QOS) profile

of the subscriber downloaded from the Home Location Register (HLR).

Common Verbs

Help
List
Display

## GROUP Usgsn Imsi Sr PdpC SubsQos QosProfile (Qos)

Properties: Operational

Description: This group contains the QOS profile. It contains either the requested Qos, the negotiated Qos, or the subscribed QOS based on which component contains this group.

## ATTRIBUTE Usgsn Imsi Sr PdpC SubsQos deliveryOrder (delOrd)

Access: Read: All
Write: Illegal

Description: This attribute indicates whether the Signalling Data Units (SDUs) order of delivery is guaranteed.

Values: withDeliveryOrder
withoutDeliveryOrder

Default: No default

## ATTRIBUTE Usgsn Imsi Sr PdpC SubsQos deliveryOfErroneousSdus (delErrSdus)

Access: Read: All
Write: Illegal

Description: This attribute indicates how erroneous Signaling Data Units (SDUs) are handled by the network.

The erroneous SDUs can be handled in one of the following ways:

***subDeliveryOfSdus***: The Signalling Data Units (SDUs) are delivered according to the Subscriber's profile.

***noDetect:*** The Signalling Data Units (SDUs) are delivered without considering error detection.

***errSdusDelivered:*** The erroneous Signalling Data Units (SDUs) are delivered together with an error indication.

***errSdusNotDelivered:*** The erroneous Signalling Data Units (SDUs) are discarded.

Values

subDeliveryOfSdus
noDetect
errSdusDelivered
errSdusNotDelivered

Default

No default

## ATTRIBUTE Usgsn Imsi Sr PdpC SubsQos trafficClass (traffClass)

Access

Read: All
Write: Illegal

Description

This attribute indicates the type of application for which the UMTS bearer service is optimized. By including the traffic class itself as an attribute, the UMTS Sgsn can make assumptions about the traffic source and optimize the transport for that traffic type.

The different traffic classes are:

***subscribed*** - This value specifies that the traffic class to be optimized is that indicated by the "subscribed traffic class" field of the user’s HLR record.

***conversational*** **-** This class includes real time conversation, characterized by low transfer delay and a strict preservation of the time relation between information entities of the stream. Examples of this class are telephony speech and video conferencing.

***streaming*** **-** This class consists of real time video/audio applications, characterized by a strict preservation of the time relation between the information entities of the stream, but not necessarily a low transfer delay.

***interactive*** **-** This class includes applications where a man or machine requests data from remote equipment, characterized by a

| | |
|---|---|
| | request-response pattern of the end-user and the preservation of payload content.<br><br>***background*** **-** This class includes applications where the end-user, typically a computer, sends and receives data files in the background, for eg., emails, SMS and database downloads. This is characterized by the destination not expecting the data within a certain time. |
| Values | subscribed (sub)<br>conversational (conv)<br>streaming (strm)<br>interactive (int)<br>background (bkgr) |
| Default | No default |

### ATTRIBUTE Usgsn Imsi Sr PdpC SubsQos maxSduSize (maxSduSize)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the maximum allowed size of the Signalling Data Unit (SDUs). It is used for admission control and policing. |
| Values | Decimal (1..1502) |
| Units | octets |
| Default | No default |

### ATTRIBUTE Usgsn Imsi Sr PdpC SubsQos maxUplinkBitRate (maxUpBr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the maximum number of bits delivered to UMTS in the uplink direction within a period of time, divided by the duration of the period. |
| Values | Decimal (0..8640) |
| Units | kbit/s |
| Default | No default |

### ATTRIBUTE Usgsn Imsi Sr PdpC SubsQos maxDownlinkBitRate (maxDnBr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the maximum number of bits delivered by UMTS in the downlink direction within a period of time, divided by the duration of the period. |
| Values | Decimal (0..8640) |
| Units | kbit/s |
| Default | No default |

### ATTRIBUTE Usgsn Imsi Sr PdpC SubsQos residualBitErrorRate (resBer)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the undetected bit error ratio in the delivered Signalling Data Units (SDUs). If no error detection is requested, this attribute indicates the bit error ratio in the delivered Signalling Data Units (SDUs).<br><br>This attribute can take up values ranging from 1 through 9, representing:<br><br>1 -> 5*10 -2<br>2 -> 1*10 -2<br>3 -> 5*10 -3<br>4 -> 4*10 -3<br>5 -> 1*10 -3<br>6 -> 1*10 -4<br>7 -> 1*10 -5<br>8 -> 1*10 -6<br>9 -> 6*10 -8 |
| Values | Decimal (1..9) |
| Default | No default |

### ATTRIBUTE Usgsn Imsi Sr PdpC SubsQos sduErrorRatio (sduErrRatio)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute indicates the fraction of SDUs lost or detected as erroneous. It is defined only for conforming traffic.<br><br>This attribute can take up values between the numbers 1 - 7 representing the following:<br>1 -> 1*10 -2<br>2 -> 7*10 -3<br>3 -> 1*10 -3<br>4 -> 1*10 -4<br>5 -> 1*10 -5<br>6 -> 1*10 -6<br>7 -> 1*10 -1 |
| Values | Decimal (1..7) |
| Default | No default |

### ATTRIBUTE Usgsn Imsi Sr PdpC SubsQos trafficHandlingPriority (traffHndlPr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the traffic handling priority. The traffic handling priority attribute is used to prioritize the traffic when the *trafficClass* attribute has the values ***interactive.*** |
| Values | Decimal (0..3) |
| Default | No default |

### ATTRIBUTE Usgsn Imsi Sr PdpC SubsQos transferDelay (transfDelay)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the maximum delay for 95th percentile of the distribution of delay for all delivered Signalling Data Units (SDUs) during the lifetime of a bearer service, where delay for an SDU is defined as the time from a request to transfer data from one Service Access Point (SAP) to another SAP. |
| Values | Decimal (10..4100) |
| Default | No default |

### ATTRIBUTE Usgsn Imsi Sr PdpC SubsQos guaranteedUplinkBitRate (guarUpBr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the guaranteed number of bits delivered at a Service Access Point (SAP) in the uplink (Mobile Station to network) direction within a period of time, divided by the duration of the period.<br><br>The value of this attribute is ignored if the *trafficClass* attribute has one of the following values: ***interactive*** or ***background***, or if the *maxUplinkBitRate* is set to ***0*** kbits/s. |
| Values | Decimal (0..8640) |
| Default | No default |

### ATTRIBUTE Usgsn Imsi Sr PdpC SubsQos guaranteedDownlinkBitRate (guarDnBr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the guaranteed number of bits delivered at a Service Access Point (SAP) in the downlink (network to Mobile Station) direction within a period of time, divided by the duration of the period.<br><br>The value of this attribute is ignored if the *trafficClass* attribute has one of the following values: ***interactive*** or ***background***, or if the *maxDownlinkBitRate* is set to ***0*** kbits/s. |
| Values | Decimal (0..8640) |
| Default | No default |

### COMPONENT Usgsn Accounting (Acct)

| | |
|---|---|
| Groups | "GROUP Usgsn Acct Provisioned (Prov)" |
| Scope | Application |
| Description | *Sgsn Accounting*<br>*Usgsn Accounting* |

This component represents the Billing functionality of the (UMTS) Serving GPRS Support Node (SGSN or USGSN).

Common Verbs

Help
List
Display
Add
DELete

## GROUP Usgsn Acct Provisioned (Prov)

Properties: Provisioned

Description: This group contains the Accounting (Acct) provisioning data of the Serving GPRS Support Node (SGSN).

## ATTRIBUTE Usgsn Acct cdrCapture (cdrCap)

Access: Read: All
Write: All

Description: This attribute specifies which of the following Call Detail Records (CDRs) are generated:

***scdr:*** SGSN Packet Data Protocol (PDP) CDRs
***mcdr*** Mobility CDRs
***smoCdr***: SGSN Short Message Origination CDRs
***smtCdr***: SGSN Short Message Termination CDRs

Set of: sgsn
mobility
smo
smt

Default: No default

## ATTRIBUTE Usgsn Acct locationBasedBilling (lbb)

Access: Read: All
Write: All

Description: This attribute specifies whether location based billing for the generation of partial SGSN Packet Data Protocol (PDP) Call Detail Records (S-CDRs) upon routing area changes is ***enabled***

or ***disabled***. When ***enabled***, every S-CDR will contain only the traffic data volume counts for a single routing area, allowing the operator to bill based on geographic location.

Values
disabled
enabled

Default
disabled

### ATTRIBUTE Usgsn Acct transferInterval (trInt)

Access
Read: All
Write: All

Description
This attribute specifies the interval at which currently spooled closed Call Detail Records (CDRs) are to be transferred to the Charging Gateway Functionality (CGF).

When set to ***noDelay,*** closed CDRs are transferred to the CGF with minimal delay. When set to a value between 15 and 1440 (minutes), the SGSN Accounting Server (SAS) starts a timer upon startup. At every expiration of this timer, closed CDRs on the hard disk are sent to the CGF.

The values that can be set are ***noDelay*** and multiples of 15 minutes.

Values
Decimal (15..1440)
noDelay

Units
minutes

Default
30

### ATTRIBUTE Usgsn Acct updateInterval (updateInt)

Access
Read: All
Write: All

Description
This attribute specifies the interval at which Session Management (SM) is queried for traffic data volume for all open SGSN Packet Data Protocol (PDP) Call Detail Records (S-CDRs). It also specifies the interval at which GPRS Mobility Management (GMM) is queried to find out if the mobile is still attached for all

open Mobility Call Detail Records (M-CDRs).

The *updateInterval* must be less than the *scdrPartialRecordInterval*.

Only values that are multiples of 15 minutes can be set for this attribute.

| | |
|---|---|
| Values | Decimal (15..1440) |
| Units | minutes |
| Default | 60 |

### ATTRIBUTE Usgsn Acct scdrPartialRecordInterval (scdrInt)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the interval at which the partial SGSN Packet Data Protocol (PDP) Call Detail Records (S-CDRs) are generated.<br><br>When set to a value other than ***noPartialRecords***, S-CDRs that have been open longer than *scdrPartialRecordInterval* are closed with a partial record reason of “time (duration) limit”.<br><br>The *scdrPartialRecordInterval* must be greater than or equal to the *updateInterval*.<br><br>The values that can be set are ***noPartialRecords*** and multiples of 15 minutes. |
| Values | Decimal (15..1440)<br>noPartialRecords |
| Units | minutes |
| Default | noPartialRecords |

### ATTRIBUTE Usgsn Acct mcdrPartialRecordInterval (mcdrInt)

| | |
|---|---|
| Access | Read: All<br>Write: All |

| | |
|---|---|
| Description | This attribute specifies the interval at which the partial Mobility Call Detail Records (M-CDRs) are generated.<br><br>When set to a value other than ***noPartialRecords***, M-CDRs that have been open longer than *mcdrPartialRecordInterval* are closed with a partial record reason of “time (duration) limit”.<br><br>The *mcdrPartialRecordInterval* must be greater than or equal to the *updateInterval*.<br><br>The values that can be set are ***noPartialRecords*** and multiples of 15 minutes. |
| Values | Decimal (15..1440)<br>noPartialRecords |
| Units | minutes |
| Default | noPartialRecords |

### ATTRIBUTE Usgsn Acct mcdrMaxContainers (mcdrMaxC)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the maximum number of Change of Location Containers allowed in an Mobility Call Detail Record (M-CDR). Once this number of Containers is exceeded, a partial M-CDR is generated with a partial record reason of “maximum number mobility changes”. |
| Values | Decimal (1..10) |
| Default | 5 |

### ATTRIBUTE Usgsn Acct echoRequestInterval (echoReqInt)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the interval at which ECHO REQUEST messages are to be sent to the Charging Gateway Functionality (CGF). |
| Values | Decimal (1..60) |

| | |
|---|---|
| Units | minutes |
| Default | 5 |

### ATTRIBUTE Usgsn Acct primaryCgfIpAddress (priCgfIp)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the Primary Charging Gateway Functionality (CGF) IP address for the SGSN. This is the address used by the SGSN Accounting Server (SAS) when transferring closed Call Detail Records (CDRs) to the CGF. If the primary CGF is not in service, the SGSN uses the provisioned Secondary CGF IP<br>Address. |
| Values | IP address |
| Default | 0.0.0.0 |

### ATTRIBUTE Usgsn Acct secondaryCgfIpAddress (secCgfIp)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the Secondary Charging Gateway Functionality (CGF) IP address for the SGSN. In the event of failure of the primary provisioned CGF, the SGSN tries to send Call Detail Records (CDRs) to the secondary provisioned CGF. |
| Values | IP address |
| Default | 0.0.0.0 |

### ATTRIBUTE Usgsn Acct cdrTransferTime (tCdrTr)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the initial waiting time in seconds for the response message for a Call Detail Record (CDR) transfer request. The request message can contain one or more CDRs.<br><br>The timer doubles after each successive retransmission of the |

same CDR.

| | |
|---|---|
| Values | Decimal (1..30) |
| Units | seconds |
| Default | 5 |

### ATTRIBUTE Usgsn Acct cdrRetries (nCdr)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the number of times the SGSN tries to resend a billing record to the Charging Gateway Functionality (CGF) when the SGSN does not get the acknowledgment before the *tCdrXfer* expires.<br><br>If maximum value of *nCdrRetries* is reached and there is no secondary CGF, the CDRs will be sent to the CGF whenever the CGF is back in service. The SGSN knows that the CGF is alive either by the ECHO REQUEST message or the NODE ALIVE message. |
| Values | Decimal (1..3) |
| Default | 1 |

### ATTRIBUTE Usgsn Acct primaryCgfAsn1Encoding (priCgfAsn1Enc)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the encoding for the GPRS Tunnelling Protocol (GTP) communications between the SGSN and the primary Charging Gateway Functionality (CGF). The following are the encodings supported:<br>***ber***: Basic Encoding Rules<br>***per***: Packed Encoding Rules<br><br>The encoding selected must match the encoding used by the CGF. |
| Values | ber<br>per |

| | |
|---|---|
| Default | ber |

### ATTRIBUTE Usgsn Acct secondaryCgfAsn1Encoding (secCgfAsn1Enc)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the encoding for the GPRS Tunnelling Protocol (GTP) communications between the SGSN and the secondary Charging Gateway Functionality (CGF). The following are the encodings supported:<br>***ber***: Basic Encoding Rules<br>***per***: Packed Encoding Rules<br><br>The encoding selected must match the encoding used by the CGF. |
| Values | ber<br>per |
| Default | ber |

### ATTRIBUTE Usgsn Acct timeOffset (to)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the time difference between the local time and the Universal time. The time is represented as minutes.<br>Eg. 105 represents an offset of 1 hr 45 min. |
| Values | Signed (-720..900) |
| Units | minutes |
| Default | 0 |

### ATTRIBUTE Usgsn Acct genAuditFiles (genAf)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies whether the generation of CDR audit files is ***enabled*** or ***disabled***. When ***enabled***, files are created which can be used to audit the closed CDRs that were generated by this SGSN and transferred to a CGF. |

| | |
|---|---|
| Values | disabled<br>enabled |
| Default | disabled |

### ATTRIBUTE Usgsn Acct auditFileLife (afLife)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the number of days the CDR audit file will remain on the 2pGPDsk before being deleted. |
| Values | Decimal (1..10) |
| Units | days |
| Default | 5 |

### ATTRIBUTE Usgsn Acct roamerCapture (roamCap)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies whether CDRs should be generated for all subscribers or only Roamers.<br><br>When set to ***all***, CDRs are captured without regard to the mobiles home GGSN. When set to ***roamers***, CDRs are only captured for mobile stations that are roaming outside their home GGSN.<br><br>The values that can be set are ***all*** and ***roamers***. |
| Values | all<br>roamers |
| Default | all |

### ATTRIBUTE Usgsn Acct asn1EncoderVersion (asn1EncoderVer)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the ASN.1 Encoder Version used by all *Sas* components on the shelf. |

Modifying this attribute after the component is initially activated causes the new encoder version to be used on the next set of spooled and closed Call Data Records (CDR) to be transferred to the Call Gateway Function (CGF). If a *Sas* component is processing a set of CDRs when this attribute is changed the new encoder version does not take effect until the processing of the current set of CDRs is complete.

The version of the ASN1 Encoder should be changed to 3.6 when the downstream CGF is upgraded to handle the decoding of version 3.6 encoded CDRs.

Values: 3dot2
3dot6

Default: 3dot2

### ATTRIBUTE Usgsn Acct scdrMaxContainers (scdrMaxC)

Access: Read: All
Write: All

Description: This attribute specifies the maximum number of Change of Charging Condition Containers allowed in an SGSN Packet Data Protocol Call Detail Record (S-CDR). Once this number of containers is exceeded, a partial S-CDR is generated with a partial record reason of “maximum number of charging condition changes”.

Values: Decimal (1..10)

Default: 5

### COMPONENT Usgsn DifferentiatedService (Ds)

Groups: "GROUP Usgsn Ds Provisioned (Prov)"

Scope: Application

Description: *Sgsn DifferentiatedService*
*Usgsn DifferentiatedService*

This component represents the differentiated service (QOS) on the (UMTS) Serving GPRS Support Node (SGSN or USGSN),

that governs the behavior of packets and contexts that pass through this node. If this component is not provisioned, the data rate for every context will be best effort.

Subcomponents "COMPONENT Usgsn Ds AllocationRetention (Ar)"

Common Verbs

Help
List
Display
Add
DELete

## GROUP Usgsn Ds Provisioned (Prov)

Properties Provisioned

Description This group contains the *Differentiated Service (Ds)* provisioning data of the (UMTS) Serving GPRS Support Node (SGSN or USGSN).

## ATTRIBUTE Usgsn Ds signalingDscpMark

Access
Read: All
Write: All

Description This attribute specifies the Differentiated Service (DS) Code Point (DSCP) value for signalling traffic. It is used for all signaling traffic.

The Expedited Forwarding (EF) Per Hop Behaviors (PHB) can be used to build an assured bandwidth end-to-end service through DS domains with low loss, low latency and low jitter.
Assured Forwarding (AF) PHB group allows a DS domain to offer different levels of forwarding assurances for IP packets received. Four AF classes and three drop Precedences are defined.
A DEfault (DE) PHB defined in [DS Field] is the common, best-effort forwarding behavior available in existing routers as standardized in [RFC1812].
The Class Selector (CS) PHB and associated code points are used to support legacy (non-DS-compliant) routers and switches in a DiffServ-compliant network.

| | |
|---|---|
| Values | de<br>cs0<br>cs1<br>cs2<br>cs3<br>cs4<br>cs5<br>cs6<br>cs7<br>ef<br>af11<br>af12<br>af13<br>af21<br>af22<br>af23<br>af31<br>af32<br>af33<br>af41<br>af42<br>af43 |
| Default | de |

### ATTRIBUTE Usgsn Ds defaultRoamerAr

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the allocation and retention priority assigned to a mobile that is a roamer.<br><br>The actual allocation and retention priority of a roamer will be limited to the value of this attribute. The roamer's subscribed QOS value will be used if it does not exceed the value of this attribute; otherwise the attribute value will be used. |
| Values | Decimal (1..3) |
| Default | 3 |

## COMPONENT Usgsn Ds AllocationRetention (Ar)

| | |
|---|---|
| Instance | Decimal (1..3) |
| Scope | Application |
| Description | *Sgsn Ds AllocationRetention/n*<br>*Usgsn Ds AllocationRetention/n*<br><br>This component represents the allocation and retention priority on the SGSN or USGSN.<br><br>This allocation and retention levels are the relative importance compared to other Radio access bearers for allocation and retention of the Radio access bearer. The most important level has the value of ***1***. The allocation is larger and retention is longer for buffers under the most important level. |
| Subcomponents | "COMPONENT Usgsn Ds Ar TrafficClass (Tc)" |
| Common Verbs | Help<br>List<br>Display<br>Add |

## COMPONENT Usgsn Ds Ar TrafficClass (Tc)

| | |
|---|---|
| Instance | conversational (conv)<br>streaming (str)<br>interactive (int)<br>background (bkgr) |
| Groups | "GROUP Usgsn Ds Ar Tc Provisioned (Prov)" |
| Scope | Application |
| Description | *Sgsn Ds Ar TrafficClass*<br>*Usgsn Ds Ar TrafficClass*<br><br>This component represents the traffic class on the SGSN or USGSN.<br><br>The Traffic Class distinguishes the delay sensitivity, error rate. |

Conversational class is meant for traffic which is very delay sensitive while Background class is the most delay insensitive traffic class. Interactive class and Background class provide better error rate. The main difference between Interactive and Background class is that Interactive class is mainly used by interactive applications while Background class is meant for background traffic. Background applications use transmission resources only when interactive applications do not need them.

This component provides a mapping from "allocation and retention priority" and "traffic class" to a DS codepoint.

Common Verbs

Help
List
Display
Add

## GROUP Usgsn Ds Ar Tc Provisioned (Prov)

Properties: Provisioned

Description: This group contains the *TrafficClass (Tc)* provisioning data of the (UMTS) Serving GPRS Support Node (SGSN or USGSN).

## ATTRIBUTE Usgsn Ds Ar Tc dataDscpMark

Access: Read: All
Write: All

Description: This attribute specifies the Differentiated Service Code Point (DSCP) mark for the data traffic of the corresponding service level (allocation, retention, and traffic class combination).

Values:
de
cs0
cs1
cs2
cs3
cs4
cs5
cs6
cs7
ef

af11
af12
af13
af21
af22
af23
af31
af32
af33
af41
af42
af43

Default de

## COMPONENT Usgsn EquivalentPlmn (EquivPlmn)

Instance Decimal (1..5)

Groups "GROUP Usgsn EquivPlmn Provisioned (Prov)"

Scope Application

Description Usgsn EquivalentPlmn/n

This component collectively represents all Public Land Mobile Networks (PLMNs) that must be considered equivalent by the mobile station at PLMN selection, handover, cell re-selection, and so on.

Common Verbs
- Help
- List
- Display
- Add
- DELete

## GROUP Usgsn EquivPlmn Provisioned (Prov)

Properties Provisioned

Description This group contains the provisionable attributes for one of the Public Land Mobile Network codes that must be considered equivalent.

PLMN codes consist of a Mobile Country Code (MCC) and a Mobile Network Code (MNC).

### ATTRIBUTE Usgsn EquivPlmn mobileCountryCode (mcc)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the three-digit Mobile Country Code (MCC) of a PLMN. |
| Values | BCD (3) |
| Default | No default |

### ATTRIBUTE Usgsn EquivPlmn mobileNetworkCode (mnc)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the two- or three-digit Mobile Network Code (MNC) of a PLMN. |
| Values | BCD (2..3) |
| Default | No default |

Passport 7400, 15000, 20000

# Component Usgsn

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component Vct

241-5701-060

Passport 7400, 15000, 20000

# Component Vct

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT VcTester (Vct)

| | |
|---|---|
| Instance | Decimal (1..16) |
| Groups | "GROUP Vct Provisioned (Prov)" |
| Scope | Application |
| Description | This is the VcTester: a tool designed to test the Passport Virtual Circuit System (vcs).. |
| Subcomponents | "COMPONENT Vct DataNetworkAddress (Dna)" |
| Opt. Subcomp. | "COMPONENT Vct DirectCall (Dc)" |
| Dyn. Subcomp. | "COMPONENT Vct Vc"<br>"COMPONENT Vct Vcfr" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP Vct Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group provides the set of parameters for theVcTester component |

### ATTRIBUTE Vct logicalProcessor (lp)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the logical processor on which the VcTester will run |
| Values | Link (Hardware, linkToApplications) |
| Default | No default |

### ATTRIBUTE Vct vcName (vcn)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the type of vc (fvc or gvc) which will be used by VcTester. |
| Values | gvc<br>fvc |
| Default | gvc |

### COMPONENT Vct DataNetworkAddress (Dna)

| | |
|---|---|
| Groups | "GROUP Vct Dna Address"<br>"GROUP Vct Dna OutgoingOptions"<br>"GROUP Vct Dna IncomingOptions"<br>"GROUP Vct Dna CallOptions" |
| Scope | Application |
| Description | *Fruni/n Dna*<br>This is the description of the generic application *Dna* component. It includes the superset of all attributes which may apply to a *Vc*. Particular applications will typically offer only a subset of these attributes by providing a definition of their own *Dna* subcomponent. |

| | |
|---|---|
| Opt. Subcomp. | "COMPONENT Vct Dna ClosedUserGroup (Cug)"<br>"COMPONENT Vct Dna HuntGroupMember (HgM)" |
| Common Verbs | Help<br>List<br>Display |

## GROUP Vct Dna Address

| | |
|---|---|
| Properties | Provisioned |
| Description | *Address* group contains attributes common to all *Dna's*. Every *Dna* used in the network is defined with this group of 2 attributes. String of address digits is complemented by type of address and Npi. These attributes are used to interpret format of the address digits. |

## ATTRIBUTE Vct Dna numberingPlanIndicator (npi)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute indicates the Numbering Plan Indicator (NPI) of the *Dna* that is entered. Address may belong to X.121 or E.164 plans. X.121 is used in packet switched data networks. |
| Values | x121<br>e164 |
| Default | x121 |

## ATTRIBUTE Vct Dna dataNetworkAddress (dna)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | *Dna* attribute contains digits which form unique identifier of the customer interface. It can be compared (approximation only) to telephone number where phone number identifies unique |

telephone set. *Dna* digits are selected and assigned by network operators.

Values: BCD (1..15)

Default: No default

### GROUP Vct Dna OutgoingOptions

Properties: Provisioned

Description: *OutgoingOptions* group defines call options of a *Dna* for calls which are made out of the interface represented by *Dna*. All these options are not used for calls arriving to the interface represented by *Dna*.

### ATTRIBUTE Vct Dna outCalls (ouc)

Access: Read and write

Description: This attribute, if set to a value of ***allowed*** indicates that outgoing calls (from the DTE to the network) can be made using this particular *D*na. If set to a value of ***disallowed***, then outgoing calls cannot be made using this *Dna* - such calls will be cleared by the local DCE. This attribute corresponds to the ITU-T 'Outgoing Calls Barred' feature for *Dnas* in that outgoing calls are barred if this attribute is set to a value of ***disallowed***. Either *outCalls*, or *incCalls* (or both) must be set to a value of ***allowed*** for this *Dna* to be usable.

Values: disallowed
allowed

Default: allowed

### ATTRIBUTE Vct Dna outNormalCharge (onc)

Access: Read and write

Description: This attribute, if set to a value of ***allowed*** indicates that outgoing normal charged calls (from the DTE to the network) can be made using this particular *Dna*. If set to a value of ***disallowed***, then such calls cannot be made using this *Dna* - such calls will be cleared by the local DCE. This attribute is ignored if the corresponding attribute, *outCalls* is set to a value of ***disallowed***.

| | |
|---|---|
| Values | disallowed<br>allowed |
| Default | allowed |

### ATTRIBUTE Vct Dna outReverseCharge (orc)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute, if set to a value of ***allowed*** indicates that outgoing reverse charged calls (from the DTE to the network) can be made using this particular *Dna*. If set to a value of ***disallowed***, then such calls cannot be made using this *Dna* - such calls will be cleared by the local DCE. This attribute is ignored if the corresponding attribute, outCalls is set to a value of ***disallowed***. |
| Values | disallowed<br>allowed |
| Default | allowed |

### ATTRIBUTE Vct Dna outForceReverseCharge (ofr)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether to force outgoing reverse charged calls. This attribute, if set to a value of ***yes*** forces reverse charging on all outgoing calls (from the DTE to the network) using this particular *Dna* unless the caller specifies a NUI in which case the call is charged to the NUI. If set to a value of ***no*** then reverse charging is not forced for outgoing calls.<br>This attribute is ignored if the corresponding attribute, *outCalls* is set to a value of ***disallowed***.This attribute must be semantically consistent with the corresponding attribute, *outReverseChargeCalls*. |
| Values | no<br>yes |
| Default | no |

### ATTRIBUTE Vct Dna outNormalPriority (onp)

| | |
|---|---|
| Access | Read and write |

Description

This attribute, if set to a value of ***allowed*** indicates that outgoing normal priority calls (from the DTE to the network) can be made using this particular *Dna*. If set to a value of ***disallowed***, then such calls cannot be made using this *Dna* - such calls will be cleared by the local DCE. This attribute is ignored if the corresponding attribute, *outCalls* is set to a value of ***disallowed***.

This option can be also included in X.25 signaling, in such case it will be overruled.

Values

disallowed
allowed

Default

allowed

### ATTRIBUTE Vct Dna outHighPriority (ohp)

Access

Read and write

Description

This attribute, if set to a value of ***allowed*** indicates that outgoing high priority calls (from the DTE to the network) can be made using this particular *Dna*. If set to a value of ***disallowed***, then such calls cannot be made using this *Dna* - such calls will be cleared by the local DCE. This attribute is ignored if the corresponding attribute, *outCalls* is set to a value of ***disallowed***.

This option can be also included in X.25 signaling, in such case it will be overruled.

Values

disallowed
allowed

Default

allowed

### ATTRIBUTE Vct Dna outDefaultPriority (odf)

Access

Read and write

Description

This attribute, if set to ***normal*** indicates that the default priority for outgoing calls (from the DTE to the network) using this particular *Dna* is normal priority - if the priority is not specified by the DTE. If this attribute is set to ***high*** then the default priority for outgoing calls using this particular *Dna* is high priority.

It can be overridden by the discardPriority under DLCI Direct Call subcomponent.

This option can be also included in X.25 signaling, in such case it will be overruled.

Values
normal
high

Default
normal

### ATTRIBUTE Vct Dna outIntl (oic)

Access
Read and write

Description
This attribute, if set to a value of ***allowed*** indicates that outgoing international calls (from the DTE to the network) can be made using this particular *Dna*. If set to a value of ***disallowed***, then such calls cannot be made using this *Dna* - such calls will be cleared by the local DCE.

This attribute also currently controls access to the E.164 numbering plan, and if set to a value of ***allowed***, then cross-numbering plan calls are allowed.

This attribute is ignored if the corresponding attribute, *outCalls* is set to a value of ***disallowed***.

Values
disallowed
allowed

Default
disallowed

### ATTRIBUTE Vct Dna outFsRestrictedResponse (ofrc)

Access
Read and write

Description
This attribute, if set to a value of ***allowed*** indicates that outgoing fast select calls (from the DTE to the network) with a restricted response can be made using this particular *Dna*. If set to a value of ***disallowed***, then such calls cannot be made using this *Dna* - such calls will be cleared by the local DCE. This attribute is ignored if the corresponding attribute, *outCalls* is set to a value of ***disallowed***.

| | |
|---|---|
| Values | disallowed<br>allowed |
| Default | disallowed |

### ATTRIBUTE Vct Dna outFsUnrestrictedResponse (ofu)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute, if set to a value of ***allowed*** indicates that outgoing fast select calls (from the DTE to the network) with an unrestricted response can be made using this particular *Dna*. If set to a value of ***disallowed***, then such calls cannot be made using this *Dna* - such calls will be cleared by the local DCE.<br>This attribute is ignored if the corresponding attribute, *outCalls* is set to a value of ***disallowed***. |
| Values | disallowed<br>allowed |
| Default | disallowed |

### ATTRIBUTE Vct Dna outPathSensitivitySignal (oss)

| | |
|---|---|
| Access | Read and write |
| Description | This is the sensitivity signaling. If this attribute is set to ***allowed***, the signaled value on sensitivity will be used. |
| Values | allowed<br>disallowed |
| Default | disallowed |

### ATTRIBUTE Vct Dna outDefaultPathReliability (opr)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the default class of routing for reliability routing for all outgoing calls (from the DTE to the network) using this particular *Dna*. The chosen default class of routing applies to all outgoing calls established using this *Dna*, and applies to the packets travelling in both directions on all outgoing calls (local to remote, and remote to local). For incoming calls, the default class of routing is chosen by the calling party (as |

opposed to DPN, where either end of the call can choose the default routing class).
This attribute, if set to a value of ***normal***, indicates that the default class of routing is normal reliability routing. If set to a value of ***high***, then the default class of routing is high reliability routing.
High reliability is the standard choice for most DPN and Passport services. It usually indicates that packets are overflowed or retransmitted at various routing levels. Typically high reliability results in duplication and disordering of packets in the network when errors are detected or during link congestion. However, the *Vc* handles the duplication and disordering to ensure that packets are delivered to the DTE properly.
For the Frame Relay service, duplication of packets is not desired, in which case, ***normal*** reliability may be chosen as the preferred class of routing.

| | |
|---|---|
| Values | normal<br>high |
| Default | high |

### ATTRIBUTE Vct Dna outPathReliabilityOverRide (oro)

| | |
|---|---|
| Access | Read and write |
| Description | If outReliabilityOverRide set in the call request, the called end will use the calling end provisioning data on reliability to override his provisioning data. |
| Values | yes<br>no |
| Default | no |

### ATTRIBUTE Vct Dna outPathReliabilitySignal (ores)

| | |
|---|---|
| Access | Read and write |
| Description | *outPathReliabilitySignal* is reliability routing signaling. If this attribute is set to ***allowed***, the signaled value on reliability will be used. |

| | |
|---|---|
| Values | allowed<br>disallowed |
| Default | disallowed |

### ATTRIBUTE Vct Dna outAccess (oua)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is an extension of the Closed User Group (CUG) facility, as follows:<br>This attribute, if set to a value of ***allowed*** indicates that outgoing calls (from the DTE to the network) to the open (non-CUG) part of the network are permitted. It also permits outgoing calls to DTE's that have Incoming Access capabilities. If set to a value of ***disallowed***, then such calls cannot be made using this *Dna* - such calls will be cleared by the local DCE.<br>This attribute corresponds to the ITU-T 'Closed User Group with Outgoing Access' feature for *Dna's* in that outgoing access is granted if this attribute is set to a value of ***allowed***. |
| Values | disallowed<br>allowed |
| Default | disallowed |

### ATTRIBUTE Vct Dna defaultTransferPriority (dtp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the default transfer priority to network for all outgoing calls using this particular *Dna*. It is overRidden by the *transferPriority* provisioned in the *DLCI* Direct Call sub-component.<br><br>The transfer priority is a preference specified by an application according to its delay-sensitivity requirement. Frames with high transfer priority are served by the network before the frames with normal priority.<br><br>Each transfer priority contains a predetermined setting for trunk queue (interrupting, delay or throughput), and routing metric (delay or throughput). |

When the transfer priority is set at ***high***, the trunk queue is set to high, the routing metric is set to delay.

When the transfer priority is set at ***normal***, the trunk queue is set to normal, the routing metric is set to throughput.

The default of *defaultTransferPriority* is ***normal.***

Values
normal
high

Default
normal

### ATTRIBUTE Vct Dna transferPriorityOverRide (tpor)

Access
Read and write

Description
When this attribute is set to ***yes***, the called end will use the calling end provisioning data on transfer priority to override its own provisioning data. If it is set ***no***, the called end will use its own provisioning data on transfer priority.

For more information about transfer priority, please refer to the previous attribute *defaultTransferPriority.*

The default of *transferPriorityOverRide* is ***no***.

Values
yes
no

Default
no

### GROUP Vct Dna IncomingOptions

Properties
Provisioned

Description
*IncomingOptions* defines set of options for incoming calls. These options are used for calls arriving to the interface represented by *Dna*. For calls originated from the interface, *IncomingOptions* attributes are not used.

### ATTRIBUTE Vct Dna incCalls (inc)

Access
Read and write

Description

This attribute, if set to a value of ***allowed*** indicates that incoming calls (from the network to the DTE) can be made to this *Dna*. If set to a value of ***disallowed***, then incoming calls cannot be made to this *Dna* - such calls will be cleared by the local DCE. This attribute corresponds to the ITU-T 'Incoming Calls Barred' feature for *Dna's* in that incoming calls are barred if this attribute is set to a value of ***disallowed***.

Either *outCalls*, or *incCalls* (or both) must be set to a value of ***allowed*** for this *Dna* to be usable.

Values

disallowed
allowed

Default

allowed

### ATTRIBUTE Vct Dna incHighPriorityReverseCharge (ihp)

Access

Read and write

Description

This attribute, if set to a value of ***allowed*** indicates that incoming high priority, reverse charged calls (from the network to the DTE) can be made to this *Dna*. If set to a value of ***disallowed***,then such calls cannot be made to this *Dna* - such calls will be cleared by the local DCE.
This attribute, together with *the incNormalPriorityReverseChargeCalls* attribute corresponds to the ITU-T 'Reverse Charging Acceptance' feature for *Dna's* in that reverse charged calls are accepted if both attributes are set to a value of ***allowed***.
This attribute is ignored if the corresponding attribute, *incCalls* is set to a value of ***disallowed***.

Values

disallowed
allowed

Default

allowed

### ATTRIBUTE Vct Dna incNormalPriorityReverseCharge (inp)

Access

Read and write

Description

This attribute, if set to a value of ***allowed*** indicates that incoming normal priority, reverse charged calls (from the network to the

DTE) can be made to this *Dna*. If set to a value of ***disallowed***, then such calls cannot be made to this *Dna* - such calls will be cleared by the local DCE.
This attribute, together with th*e* *incHighPriorityReverseChargeCalls* attribute corresponds to the ITU-T 'Reverse Charging Acceptance' feature for *Dna's* in that reverse charged calls are accepted if both attributes are set to a value of ***allowed***.
This attribute is ignored if the corresponding attribute, *incCalls* is set to a value of ***disallowed***.

Values: disallowed
allowed

Default: allowed

### ATTRIBUTE Vct Dna incIntlNormalCharge (iin)

Access: Read and write

Description: This attribute, if set to a value of ***allowed*** indicates that incoming international normal charged calls (from the network to the DTE) can be made to this *Dna*. If set to a value of ***disallowed***, then such calls cannot be made to this *Dna* - such calls will be cleared by the local DCE.
This attribute also currently controls access to/from the E.164 numbering plan, and if set to a value of ***allowed***, then cross-numbering plan calls (also normal charged) are allowed.
This attribute is ignored if the corresponding attribute, ***incCalls*** is set to a value of ***disallowed***.

Values: disallowed
allowed

Default: allowed

### ATTRIBUTE Vct Dna incIntlReverseCharge (iir)

Access: Read and write

Description: This attribute, if set to a value of ***allowed*** indicates that incoming international reverse charged calls (from the network to the DTE) can be made to this *Dna*. If set to a value of ***disallowed***, then such calls cannot be made to this *Dna* - such calls will be cleared by

the local DCE.
This attribute also currently controls access to/from the E.164 numbering plan, and if set to a value of ***allowed***, then cross-numbering plan calls (also normal charged) are allowed.
This attribute is ignored if the corresponding attribute, *incCalls* is set to a value of ***disallowed***.

Values: disallowed
allowed

Default: allowed

### ATTRIBUTE Vct Dna incFastSelect (ifs)

Access: Read and write

Description: This attribute specifies whether fast select calls may be received. This attribute, if set to a value of ***allowed*** indicates that incoming fast select calls (from the network to the DTE) can be made to this *Dna*. If set to a value of ***disallowed***, then such calls cannot be made to this *Dna* - such calls will be cleared by the local DCE.
This attribute corresponds to the ITU-T 'Fast Select Acceptance' feature for *Dnas* in that incoming fast select calls are accepted if this attribute is set to a value of ***allowed***.
This attribute is ignored if the corresponding attribute, *incCalls* is set to a value of ***disallowed***.

Values: disallowed
allowed

Default: disallowed

### ATTRIBUTE Vct Dna incSameService (iss)

Access: Read and write

Description: This attribute, if set to a value of ***allowed*** indicates that incoming calls from the same service type (eg: X.25, ITI, SNA) (from the network to the DTE) can be made to this *Dna*. If set to a value of ***disallowed***, then such calls cannot be made to this *Dna* - such calls will be cleared by the local DCE.
This attribute is ignored if the corresponding attribute, *incCalls* is set to a value of ***disallowed***.

| | |
|---|---|
| Values | disallowed<br>allowed |
| Default | allowed |

### ATTRIBUTE Vct Dna incChargeTransfer (ict)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute, if set to a value of ***yes*** indicates that the charges for incoming normal charged calls from a DTE with the same DNIC (calls from the network to the DTE) will be transferred to the called DTE. If set to a value of ***no***, then charges will not be transferred.<br>This attribute is ignored if the corresponding attribute, *incCalls* is set to a value of ***disallowed***. |
| Values | no<br>yes |
| Default | no |

### ATTRIBUTE Vct Dna incAccess (ina)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is an extension of the Closed User Group (CUG) facility, as follows:<br>This attribute, if set to a value of ***allowed*** indicates that incoming calls (from the network to the DTE) from the open (non-CUG) part of the network are permitted. It also permits incoming calls from DTE's that have Outgoing Access capabilities. If set to a value of ***disallowed***, then such calls cannot be made to this *Dna* - such calls will be cleared by the local DCE.<br>This attribute corresponds to the ITU-T 'Closed User Group with Incoming Access' feature for *Dnas* in that incoming access is granted if this attribute is set to a value of ***allowed***. |
| Values | disallowed<br>allowed |
| Default | disallowed |

## GROUP Vct Dna CallOptions

| | |
|---|---|
| Properties | Provisioned |
| Description | *CallOptions* group defines additional options for calls not related directly to direction of a call. |

## ATTRIBUTE Vct Dna serviceCategory (cat)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is assigned for each different type of service within which this *Dna* is configured. It is placed into the Service Category attribute in the accounting record by both ends of the *Vc*. |
| Values | gsp<br>x25<br>enhancedIti<br>ncs<br>mlti<br>sm<br>ici<br>dsp3270<br>iam<br>mlhi<br>term3270<br>iti<br>bsi<br>hostIti<br>x75<br>hdsp3270<br>api3201<br>sdlc<br>snaMultiHost<br>redirectionServ<br>trSnaTpad<br>offnetNui<br>gasServer<br>vapServer<br>vapAgent<br>frameRelay |

| | |
|---|---|
| | ipiVc<br>gvcIf |
| Default | frameRelay |

### ATTRIBUTE Vct Dna packetSizes (pks)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates the allowable packet sizes supported for call setup using this *Dna*. ITU-T recommends that packet size ***128*** always be supported. Attributes defaultRecvFrmNetworkPacketSize and defaultSendToNetworkPacketSize are related to this attribute. |
| Set of | 16<br>32<br>64<br>128<br>256<br>512<br>1024<br>2048<br>4096 |
| Default | (128, 256, 512) |

### ATTRIBUTE Vct Dna defaultRecvFrmNetworkPacketSize (rps)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates the default local receive packet size from network to DTE for all calls using this particular *Dna*. Attribute packetSizes has to be set with corresponding value. |
| Values | 16<br>32<br>64<br>128<br>256<br>512<br>1024<br>2048<br>4096 |

| | |
|---|---|
| Default | 128 |

### ATTRIBUTE Vct Dna defaultSendToNetworkPacketSize (sps)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates the default local send packet size from DTE to network for all calls using this particular *Dna*. Attribute packetSizes has to be set with corresponding value. |
| Values | 16<br>32<br>64<br>128<br>256<br>512<br>1024<br>2048<br>4096 |
| Default | 128 |

### ATTRIBUTE Vct Dna defaultRecvFrmNetworkThruputClass (drt)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates the default receive throughput class for all calls using this particular *Dna*. |
| Values | Decimal (3..15) |
| Default | 10 |

### ATTRIBUTE Vct Dna defaultSendToNetworkThruputClass (dst)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates the default send throughput class for all calls using this particular *Dna*. |
| Values | Decimal (0..15) |
| Default | 10 |

### ATTRIBUTE Vct Dna defaultRecvFrmNetworkWindowSize (rws)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates the default number of data packets that can be received by the DTE from the DCE before more packets can be received. This view is oriented with respect to the DTE. |
| Values | Decimal (1..7) |
| Default | 2 |

### ATTRIBUTE Vct Dna defaultSendToNetworkWindowSize (sws)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates the number of data packets that can be transmitted from the DTE to the DCE and must be acknowledged before more packets can be transmitted. |
| Values | Decimal (1..7) |
| Default | 2 |

### ATTRIBUTE Vct Dna packetSizeNegotiation (psn)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute, if set to ***local*** indicates that packet sizes can be negotiated locally at the interface irrespective of the remote interface. If set to ***endtoEnd***, then local negotiation is not permitted and packet sizes are negotiated between 2 ends of *Vc*. |
| Values | endToEnd<br>local |
| Default | endToEnd |

### ATTRIBUTE Vct Dna cugFormat (cft)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies which cug format is used when DTE signals CUG indices, basic or extended.<br>This attribute, if set to ***extended*** indicates that the DTE signals and receives CUG indices in extended CUG format. If set to a |

value of ***basic***, then the DTE signals and receives CUG indices in the basic CUG format.

Values
basic
extended

Default
basic

### ATTRIBUTE Vct Dna cug0AsNonCugCall (cnc)

Access
Read and write

Description
This attribute, if set to ***allowed*** indicates that when a CUG index of 0 is signaled in a call request packet, the call is treated as a non-CUG call. If this attribute is set to ***disallowed***, then a CUG index of 0 is treated as an index, and an attempt is made to find the particular CUG corresponding with the *Dna*.

Values
disallowed
allowed

Default
disallowed

### ATTRIBUTE Vct Dna signalPreferentialCugToLink (spc)

Access
Read and write

Description
This attribute, if set to ***no***, indicates that, at the destination (called) DTE, when a CUG call is received using the called DTE's preferential CUG, the preferential CUG's index is not signaled to the called DTE in the incoming call request packet. Otherwise, the preferential CUG's index is signaled to the link in the incoming call request packet.

Values
no
yes

Default
no

### ATTRIBUTE Vct Dna signalIntlAddressToLink (sia)

Access
Read and write

Description
This attribute, if set to ***yes***, indicates that all addresses presented by the network (DCE) to the link (DTE) within incoming call request., call connected and clear packets are presented in

international format with no prefix digit. International format includes DNIC in the address.

Values
no
yes

Default
no

### ATTRIBUTE Vct Dna fastSelectCallsOnly (fso)

Access
Read and write

Description
This attribute, if set to ***yes***, indicates that the service is permitted restricted fast select calls in both the incoming and the outgoing directions using this *Dna*. If set to ***no***, then non fast select calls are permitted as well.

Values
no
yes

Default
no

### ATTRIBUTE Vct Dna preselectRpoa (prp)

Access
Read and write

Description
This attribute, if set to ***yes***, indicates that this *Dna* subscribes to a pre-selected RPOA, in which case, the pre-selected RPOA is contained in the *rpoa* attribute described below. If set to ***no***, then a pre-selected RPOA is not subscribed.

Values
no
yes

Default
no

### ATTRIBUTE Vct Dna accountClass (acl)

Access
Read and write

Description
This attribute specifies the accounting class which is reserved for network operations usage. Its value is returned in the accounting record in the local and remote service type attributes. Use of this attribute is decided by network operator and it is an arbitrary number.

| | |
|---|---|
| Values | Decimal (0..255) |
| Default | 0 |

### ATTRIBUTE Vct Dna accountCollection (aco)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates that accounting records are to be collected by the network for the various reasons: billing, test, study, auditing. The last of the parameters, force, indicates that accounting records are to be collected irrespective of other collection reasons. If none of these reasons are set, then accounting will be suppressed. |
| Set of | bill<br>test<br>study<br>audit<br>force |
| Default | (bill) |

### ATTRIBUTE Vct Dna serviceExchange (sre)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is an arbitrary number, entered by the network operator. The value of *serviceExchange* is included in the accounting record generated by *Vc*. |
| Values | Decimal (0..255) |
| Default | 0 |

### ATTRIBUTE Vct Dna egressAccounting (ega)

| | |
|---|---|
| Access | Read and write |
| Description | *egressAccounting* specifies if Egress accounting is enabled by Frame Relay service. Disabling of Egress accounting means that only segment counts are collected by VC and there are no frame relay counts in accounting records for Frame Relay service. |

Enabling of Egress accounting means that the accounting records for Frame Relay contain frame relay specific counts.

Values
yes
no

Default
no

### ATTRIBUTE Vct Dna rpoa

Access
Read and write

Description
*rpoa* - Recognized Private Operating Agency is a ITU-T specified facility which allows the user to specify--at call setup time--the next transit network the call should use. The *rpoa* can override all routing decisions.
If *Dna* subscribes to *preselectRpoa* as indicated by the previously described attribute, (*preselectRpoa* set to ***yes***) then this attribute contains preselected *rpoa*. If the *preselectRpoa* attribute is set to ***no***, then this attribute can be left at its default.
This preselected *rpoa* will be used for all outgoing call request packets using this *Dna* if an *rpoa* is not explicitly specified in the call request. The *rpoa* represents the *dnic* of the directly connected network through which the call will be routed in the presence of the *rpoa*.

Values
BCD (4)

Default
0000

### ATTRIBUTE Vct Dna dataPath (dpa)

Access
Read and write

Description
This attribute specifies the data path to be used by Virtual Circuits on this interface. If the connection has a *DirectCall* component then the value can be overridden by the *dataPath* attribute of the *DirectCall* component.

This value applies to the connection after data transfer state is reached. All the data and control traffic will be sent using this data path. If the provisioned *dataPath* is not available the connection is not established.

The value of the *dataPath* is signaled by both ends of the connection. If this value is not the same at both ends ***dprsOnly*** is used for the duration of the connection.

A virtual circuit connection is always established using ***dprsOnly*** even if this attribute is provisioned as some other value.

***dprsOnly*** - dynamic packet routing system is used

***dprsMcsOnly*** - dprs Multi-Service Cut-Through Switching path is used.

***dprsMcsFirst*** - dprs Multi-Service Cut-Through Switching path is used if it is available. If it is not available ***dprsOnly*** is used.

Values
dprsOnly
dprsMcsOnly
dprsMcsFirst

Default
dprsOnly

## COMPONENT Vct Dna ClosedUserGroup (Cug)

Instance
Decimal (0..255)

Groups
"GROUP Vct Dna Cug CugOptions"

Scope
Application

Description
*Fruni/n Dna Cug*
*ClosedUserGroup* options defines options associated with national or international *Cug* Identifier. Other *Dna's* in the network can have *Cug's* defined which groups these *Dna's* by *Cug interlockCode*. If *Dna's* are defined with *Cugs*, calls from *Dna's* which do not have the same *interlockCode* defined are refused. Attributes *incAccess* and *outAccess* can override this rule.

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

### GROUP Vct Dna Cug CugOptions

| | |
|---|---|
| Properties | Provisioned |
| Description | This group defines options for. Attributes in this group defines *ClosedUserGroup* options associated with *interlockCode*. *Dna's* with the same *Cug* (*interlockCode*) can make calls within this group. Various combinations which permit or prevent calls in the same *Cug* group are defined here. |

### ATTRIBUTE Vct Dna Cug type

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the Cug type - the Cug is either a national Cug, or an international Cug. International closed user groups are usually established between DTE's for which there is an X.75 Gateway between; whereas national closed user groups are usually established between DTE's for which there is no X.75 Gateway between. (National Cugs cannot normally traverse an X.75 Gateway).<br>If this attribute is set to ***national***, then the *Cug* is a national *Cug*, in which case, the *dnic* should be left at its default value since it is not part of a national *Cug*. If this attribute is set to ***international***, then the *Cug* is an international *Cug*, in which case, the *dnic* should be set appropriately as part of the *Cug interlockCode*. |
| Values | national<br>international |
| Default | national |

### ATTRIBUTE Vct Dna Cug dnic

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the *dnic* (Data Network ID Code) of the *Cug* by which packet networks are identified. This attribute is not applicable if the *Cug* is a ***national*** *Cug*, as specified by the Cug *type* attribute. There are usually 1 or 2 *dnics* assigned per country, for public networks. The U.S. is an exception where each BOC has a *dnic*. Also, a group of private networks can have its own *dnic*.<br><br>*dnic* value is not an arbitrary number. It is assigned by international agreement and controlled by ITU-T. |
| Values | BCD (4) |
| Default | 0000 |

### ATTRIBUTE Vct Dna Cug interlockCode (ilc)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the *Cug* identifier of a national or international *Cug* call. It is an arbitrary number and it also can be called Cug in some descriptions. Interfaces (*Dna's*) defined with this number can make calls to *Dna's* with the same *interlockCode*. |
| Values | Decimal (0..65535) |
| Default | 0 |

### ATTRIBUTE Vct Dna Cug preferential (pre)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute, if set to ***yes*** indicates that this *Cug* is the preferential *Cug*, in which case it will be used during the call establishment phase if the DTE has not explicitly specified a *Cug* index in the call request packet. If set to ***no***, then this *Cug* is not the preferential *Cug*.<br>Only one of the *Cugs* associated with a particular *Dna* can be the preferential *Cug* - only one *Cug* can have this attribute set to ***yes***. |

| | |
|---|---|
| Values | no<br>yes |
| Default | no |

### ATTRIBUTE Vct Dna Cug outCalls (ouc)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute, if set to ***allowed*** indicates that outgoing calls (from the DTE into the network) can be made using this particular *Cug*. If set to a value of ***disallowed***, then outgoing calls cannot be made using this *Cug* - such calls will be cleared by the local DCE.<br>This attribute corresponds to the ITU-T 'Outgoing Calls Barred' feature for *cugs* in that outgoing calls are barred if this attribute is set to a value of ***disallowed***. |
| Values | disallowed<br>allowed |
| Default | allowed |

### ATTRIBUTE Vct Dna Cug incCalls (inc)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute, if set to ***allowed*** indicates that incoming calls (from the network to the DTE) can be made using this particular *Cug*. If set to ***disallowed***, then incoming calls cannot be made using this *Cug* - such calls will be cleared by the local DCE.<br>This attribute corresponds to the ITU-T 'Incoming Calls Barred' feature for *Cugs* in that incoming calls are barred if this attribute is set to a value of ***disallowed***. |
| Values | disallowed<br>allowed |
| Default | allowed |

### ATTRIBUTE Vct Dna Cug privileged (pri)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute, if set to ***yes*** indicates that this *Cug* is a privileged *Cug*. In DPN, at least one side of a call setup within a *Cug* must have the *Cug* as a privileged *Cug*. If set to ***no***, then the *Cug* is not privileged.<br>If both the local DTE and the remote DTE subscribe to the *Cug*, but it is not privileged, then the call will be cleared. This attribute is typically used for a host DTE which must accept calls from many other DTE's in which case the other DTE's cannot call one another, but can call the host. In this example, the host would have the privileged *Cug*, and the other DTE's would belong to the same *Cug*, but it would not be privileged. |
| Values | no<br>yes |
| Default | yes |

## COMPONENT Vct Dna HuntGroupMember (HgM)

| | |
|---|---|
| Groups | "GROUP Vct Dna HgM Interface (If)"<br>"GROUP Vct Dna HgM Operational (Op)" |
| Scope | Application |
| Description | *GvcIf/n Dna/n HgMember*<br>This component specifies the Hunt Groups to which this member belongs. A hunt group member subscribes to at least one hunt group. |
| Subcomponents | "COMPONENT Vct Dna HgM HuntGroupAddress (HgAddr)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Vct Dna HgM Interface (If)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the interface parameters between the *HuntGroupMember* and the Hunt Group server. |

### ATTRIBUTE Vct Dna HgM availabilityUpdateThreshold (aut)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates the number of channels that have to be freed or occupied before the Availability Message Packet (AMP) is sent to the Hunt Group Server informing it of the status of this interface. |
| Values | Decimal (0..4096) |
| Default | 1 |

### GROUP Vct Dna HgM Operational (Op)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes of the *HuntGroupMember* component. |

### ATTRIBUTE Vct Dna HgM maxAvailableChannels (maxAc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the maximum number of available channels for this *HuntGroupMember.* |
| Values | Decimal (0..4096) |
| Default | No default |

### ATTRIBUTE Vct Dna HgM availableChannels (ac)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of available channels reported to the hunt group in the Availability Message Packet (AMP). It is modified by adding 1 by the application when a channel is freed and subtracting 1 when a channel is occupied. |
| Values | Decimal (0..4096) |
| Default | No default |

### ATTRIBUTE Vct Dna HgM availabilityDelta (ad)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the net change in the available channels since the last Availability Message Packet (AMP) was sent to the Hunt Group. Once the absolute value of this attribute reaches the *availabilityUpdateThreshold* an AMP is sent to the host and the *availabilityDelta* is reset to 0.<br>If this attribute is positive it means an increase of the number of available channels. If it is negative it means a decrease in the number of available channels. |
| Values | Signed (-4096..4096) |
| Default | No default |

### COMPONENT Vct Dna HgM HuntGroupAddress (HgAddr)

| | |
|---|---|
| Instance | Decimal (0..1) |
| Groups | "GROUP Vct Dna HgM HgAddr Address (Addr)" |
| Scope | Application |
| Description | *GvcIf/n Dna/n HgM HuntGroupAddress/n*<br>This component specifies the Hunt Group address to which this member belongs. A hunt group member belongs to at least one hunt group. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Vct Dna HgM HgAddr Address (Addr)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains attributes common to all DNAs. Every DNA used in the network is defined with this group of 2 attributes.<br>String of address digits complemented by the NPI. |

### ATTRIBUTE Vct Dna HgM HgAddr numberingPlanIndicator (npi)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute indicates the Numbering Plan Indicator (NPI) the *Dna* that is entered. Address may belong to X.121 or E.164 plans. |
| Values | x121<br>e164 |
| Default | x121 |

### ATTRIBUTE Vct Dna HgM HgAddr dataNetworkAddress (dna)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute contains digits which form unique identifier of the customer interface. It can be compared (approximation only) telephone number where phone number identifies unique telephone set. *Dna* digits are selected and assigned by network operators. |
| Values | BCD (1..15) |
| Default | No default |

### COMPONENT Vct DirectCall (Dc)

| | |
|---|---|
| Instance | Decimal (1..10) |
| Groups | "GROUP Vct Dc Options" |
| Scope | Application |
| Description | *Fruni/n Dlc*i/n dc<br>This component defines direct call options for calls issued without operator intervention. Connection is complete and can be initiated automatically. Frequency of connection tries is controlled by retry timer. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Vct Dc Options

| | |
|---|---|
| Properties | Provisioned |

| | |
|---|---|
| Description | *Options* group defines attributes associated with direct call. It defines complete connection in terms of path and call options. This connection can be permanent (pvc) or switched (svc). It can have facilities. The total number of bytes of facilities including the facility codes, and all of the facility data from all of the four classes of facilities:<br>ITU-T_Facilities<br>DTE_Facilities<br>National_Facilities<br>International_Facilities<br>must not exceed maximum subnet packet size defined for the whole network in ModuleData Vcs component. |

### ATTRIBUTE Vct Dc localNpi (lnpi)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the Numbering Plan Indicator (NPI) of the *localDna*. |
| Values | x121<br>e164 |
| Default | x121 |

### ATTRIBUTE Vct Dc localDna (ldna)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the Data Network Address (*Dna*) of the local DTE. This address is used in formatting of call request to *remoteDna*. |
| Values | BCD (0..15) |
| Default | No default |

### ATTRIBUTE Vct Dc remoteNpi (rnpi)

| | |
|---|---|
| Access | Read and write |
| Description | Remote numbering Plan Indicator (Npi) indicates the numbering plan used in the *remoteDna*. |

| | |
|---|---|
| Values | x121<br>e164 |
| Default | x121 |

### ATTRIBUTE Vct Dc remoteDna (rdna)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the Data Network Address (*Dna*) of the remote. This is the called (destination) DTE address (*Dna*) to which this direct call will be sent. Initially, the called DTE address attribute must be present, that is, there must be a valid destination address. However, it may be possible in the future to configure the direct call with a mnemonic address, in which case, this attribute will contain a zero-length *Dna*, and the mnemonic address will be carried as one of the facilities. |
| Values | BCD (1..15) |
| Default | No default |

### ATTRIBUTE Vct Dc remoteLcn (rlcn)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute provides the remote LCN (Logical Channel Number) - it is used only for PVCs, where attribute *type* is set to ***permanentMaster*** or ***permanentSlave*** or ***permanentBackupSlave***.<br>In ***switched*** case, value of *remoteLcn* is not known when call request is made. |
| Values | Decimal (0..4095) |
| Default | 0 |

### ATTRIBUTE Vct Dc type

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the type of *Vc* call:<br>***switched,***<br>***permanentMaster***, |

***permanentSlave***,
***permanentSlaveWithBackup,***
***permanentBackupSlave***,
***spvcMaster***,
***spvcSlave***,
***spvcSlaveWithBackup,***
***spvcBackupSlave***.

If the value of this attribute is set to ***switched*** then the remote end must also be provisioned as ***switched***. No information at the remote
end is defined about this switched interface.

If the value is set to ***permanentMaster,*** then a permanent connection will be established between 2 ends. The remote end must be defined as a ***permanentSlave***, ***permanentBackupSlave*** or ***permanentSlaveWithBackup***. The connection cannot be established if the remote end is defined as anything else. The end defined as ***permanentMaster*** always initiates the calls. It will attempt to call once per minute.

If the value is set to ***permanentSlave*** then a permanent connection will be established between 2 ends. The remote end must be defined as a ***permanentMaster.*** The connection cannot be established if the remote end is defined as anything else. The ***permanentSlave*** *end* will attempt to call once per minute.

If the value is set to ***permanentSlaveWithBackup*** then a permanent connection will be established between the two ends. The remote end must be defined as a ***permanentMaster.*** The connection cannot be established if the remote interface end is defined as anything else. The ***permanentSlaveWithBackup*** *end* will attempt to call once per minute. When *type* is set to ***permanentSlaveWithBackup*** connection will be cleared if interface becomes unavailable. This enables a retry of the connection which can be redirected to ***permanentBackupSlave***.

If the value is set to ***permanentBackupSlave*** then a permanent connection will be established between the 2 ends only if the ***permanentMaster*** end is disconnected from the ***permanentSlaveWithBackup*** end and a backup call is established

by the redirection system. If the ***permanentSlaveWithBackup*** interface becomes visible again, the ***permanentBackupSlave*** end is disconnected and the ***permanentSlaveWithBackup*** end is reconnected to the ***permanentMaster*** end. The ***permanentBackupSlave*** end does not try to establish pvc call.

Values
switched (svc)
permanentMaster (master)
permanentSlave (slave)
permanentBackupSlave (backSl)
permanentSlaveWithBackup (slavWB)
spvcMaster (spvcM)
spvcSlave (spvcS)
spvcBackupSlave (spvcBackS)
spvcSlaveWithBackup (spvcSWBack)

Default
switched

### ATTRIBUTE Vct Dc svcAutoCallRetry (acr)

Access
Read and write

Description
*svcAutoCallRetry* is used only for ***switched*** calls, in which case the attribute *type* is set to ***switched***. Otherwise, this attribute is ignored by the *Vc*s.
This attribute, if set to ***yes*** for Svc, indicates that the *Vc* will continually try to establish the SVC rather than clearing the *Vc* after the first unsuccessful call attempt. Further, if the call fails while in data transfer phase, then the *Vc* will automatically attempt to reconnect. The call attempts are made by the *Vc* once per time provisioned in *InterfaceOptions* as *callRetryTimer*, repeatedly. If set to ***no*** for SVCs, then the *Vc* behaves in the standard mode, making a single call attempt.

Values
no
yes

Default
no

### ATTRIBUTE Vct Dc userData (usd)

Access
Read and write

Description

This attribute contains the user data, if present. *userData* is a 0 to 16 length string which is appended to the call request packet that is presented to the called (destination) DTE.

User data can be a 0 to 128 byte string for fast select calls; otherwise it is 0 to 16 byte string.

Fast select calls are indicated as such using the X.25 ITU-T facility for 'Reverse Charging'.

The length of the user data attribute is not verified during service provisioning. If more than 16 bytes of user data is specified on a call without the fast select option, then the call is cleared with a clear cause of 'local procedure error', and a diagnostic code of 39 (as defined in the ITU-T X.25 Recommendation).

Values

String (0..128, Hex)

Default

No default

### ATTRIBUTE Vct Dc discardPriority (dp)

Access

Read and write

Description

This attribute specifies the discard priority for outgoing call using this *DLCI*.

The discard priority has three provisioning values: ***normal, high,*** and ***useDnaDefPriority***. Traffic with ***normal*** priority are discarded first than the traffic with ***high*** priority. The *Dna* default value (provisioned by *outDefaultPriority*) is taken if this attribute is set to the value ***useDnaDefPriority***.

The default of *discardPriority* is ***useDnaDefPriority***.

Values

normal
high
useDnaDefPriority

Default

useDnaDefPriority

### ATTRIBUTE Vct Dc dataPath (dpa)

Access

Read and write

Description

This attribute specifies the data path to be used by Virtual Circuits on this interface. The value of the *dataPath* attribute in the *Dna* component is overridden by this attribute if the value is not ***useDnaValue***.

This value applies to the connection after data transfer state is reached. All the data and control traffic will be sent using this data path. If the provisioned *dataPath* is not available the connection is not established.

The value of the *dataPath* is signaled by both ends of the connection. If this value is not the same at both ends ***dprsOnly*** is used for the duration of the connection.

A virtual circuit connection is always established using ***dprsOnly*** even if this attribute is provisioned as some other value.

***dprsOnly*** - dynamic packet routing system is used

***dprsMcsOnly*** - dprs Multi-Service Cut-Through Switching path is used.

***dprsMcsFirst*** - dprs Multi-Service Cut-Through Switching path is used if it is available. If it is not available ***dprsOnly*** is used.

***useDnaValue*** - use the value provisioned in *Dna* component.

Values

dprsOnly (dpOnly)
dprsMcsOnly (mcOnly)
dprsMcsFirst (mcFrst)
useDnaValue (dnaVal)

Default

dprsOnly

## ATTRIBUTE Vct Dc cugIndex (ci)

Access

Read and write

Description

This attribute specifies the CUG index which is to be signaled in PVC call requests to the remote end.

The type of CUG signaling is defined in attribute *cugType* in this component.

Values: Decimal (0..255)

Default: 0

### ATTRIBUTE Vct Dc cugType (ct)

Access: Read and write

Description: This attribute specifies the type of CUG signaling to be used in PVC call request. Index of CUG to be used is defined in attribute *cugIndex* in this component.

Possible values are:
*cug* - signal cug
*cugOa* - signal cug with outgoing access
*doNotSignal* - no CUG in call request

Values:
cug
cugOa
doNotSignal

Default: doNotSignal

### ATTRIBUTE Vct Dc ccittFax (cfa)

Access: Read and write

Description: This is the i'th ITU-T facility required for this direct call. Within the provisioning system, the user specifies the facility code along with the facility parameters. The facility is represented internally as a hexadecimal string following the X.25 ITU-T representation for facility data.
The user specifies the facility code when adding, changing or deleting a facility. The upper two bits of the facility code indicate the class of facility. From the class of the facility, one can derive the number of bytes of facility data, as follows:
Class A - 1 byte of fax data
Class B - 2 bytes of fax data
Class C - 3 bytes of fax data
Class D - variable length of fax data.

| | |
|---|---|
| Values | String (0..128, Hex) |
| Replication | Hex (H.1; H.2; H.3; H.4; H.9; H.42; H.43; H.44; H.47; H.48; H.49; H.c4; H.c6) |
| Default | No default |

### ATTRIBUTE Vct Dc dteFax (dfa)

| | |
|---|---|
| Access | Read and write |
| Description | This is the i'th DTE facility required for this direct call. Within the provisioning system, the user specifies the facility code along with the facility parameters. The facility is represented internally as a hexadecimal string following the X.25 ITU-T representation for facility data. |
| Values | String (0..128, Hex) |
| Replication | Hex (H.a; H.b; H.c9; H.ca; H.cb; H.d2; H.d3) |
| Default | No default |

### ATTRIBUTE Vct Dc intlFax (ifa)

| | |
|---|---|
| Access | Read and write |
| Description | This is the i'th International facility required for this direct call. Within the provisioning system, the user specifies the facility code along with the facility parameters. The facility is represented internally as a hexadecimal string following the X.25 ITU-T representation for facility data. |
| Values | String (0..128, Hex) |
| Replication | Hex (H.1..H.ff) |
| Default | No default |

## COMPONENT Vct Vc

| | |
|---|---|
| Groups | "GROUP Vct Vc CallData (Cad)"<br>"GROUP Vct Vc IntervalData (Intd)"<br>"GROUP Vct Vc Statistics (Stats)" |
| Scope | Application |
| Description | ... *Vc()*<br>This component defines display of general Vc dynamic attributes |
| Common Verbs | Help<br>List<br>Display |

## GROUP Vct Vc CallData (Cad)

| | |
|---|---|
| Properties | Operational |
| Description | This group represents operational call data related to General *Vc*. It can be displayed only for General *Vc* which is created by application. |

## ATTRIBUTE Vct Vc type

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the type of call, ***pvc*** or ***svc***. *type* is provided at provisioning time. |
| Values | pvc<br>svc |
| Default | No default |

## ATTRIBUTE Vct Vc state

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the state of call control. P5 state is not supported but is listed for completeness. Transitions from one state to another take very short time. *state* most often displayed is ***dataTransferP4***. |

| | |
|---|---|
| Values | creating<br>readyP1<br>dteWaitingP2<br>dceWaitingP3<br>dataTransferP4<br>unsupportedP5<br>dteClearRequestP6<br>dceClearIndicationP7<br>termination |
| Default | No default |

### ATTRIBUTE Vct Vc previousState

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the previous state of call control. This is a valuable field to determine how the processing is progressing. |
| Values | creating<br>readyP1<br>dteWaitingP2<br>dceWaitingP3<br>dataTransferP4<br>unsupportedP5<br>dteClearRequestP6<br>dceClearIndicationP7<br>termination |
| Default | No default |

### ATTRIBUTE Vct Vc diagnosticCode

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the internal substate of call control. It is used to further refine *state* of call processing. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE Vct Vc previousDiagnosticCode

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute displays the internal substate of call control. It is used to further refine *state* of call processing. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE Vct Vc calledNpi

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the Numbering Plan Indicator (NPI) of the called end. |
| Values | x121<br>e164 |
| Default | No default |

### ATTRIBUTE Vct Vc calledDna

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the Data Network Address (*Dna*) of the called (destination) DTE to which this call is sent. This address if defined at receiving end will complete *Vc* connection. |
| Values | BCD (1..15) |
| Default | No default |

### ATTRIBUTE Vct Vc calledLcn

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the Logical Channel Number of the called end. It is valid only after both ends of *Vc* exchanged relevant information. |
| Values | Decimal (1..65535) |
| Default | No default |

### ATTRIBUTE Vct Vc callingNpi

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute displays the Numbering Plan Indicator (NPI) of the calling end. |
| Values | x121<br>e164 |
| Default | No default |

### ATTRIBUTE Vct Vc callingDna

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the Data Network Address (*Dna*) of the calling end. |
| Values | BCD (1..15) |
| Default | No default |

### ATTRIBUTE Vct Vc callingLcn

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the Logical Channel Number of the calling end. |
| Values | Decimal (1..65535) |
| Default | No default |

### ATTRIBUTE Vct Vc accountingEnabled

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates that this optional section of accounting record is suppressed or permitted. If *accountingEnabled* is ***yes***, conditions for generation of accounting record were met. These conditions include billing options, vc recovery conditions and Module wide accounting data options. |
| Values | yes<br>no |
| Default | No default |

### ATTRIBUTE Vct Vc fastSelectCall

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays that this is a fast select call. |
| Values | yes<br>no |
| Default | No default |

### ATTRIBUTE Vct Vc localRxPktSize

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the locally negotiated size of send packets. |
| Values | unknown<br>16<br>32<br>64<br>128<br>256<br>512<br>1024<br>2048<br>4096 |
| Default | No default |

### ATTRIBUTE Vct Vc localTxPktSize

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the locally negotiated size of send packets. |
| Values | unknown<br>16<br>32<br>64<br>128<br>256<br>512<br>1024 |

| | |
|---|---|
| | 2048<br>4096 |
| Default | No default |

### ATTRIBUTE Vct Vc localTxWindowSize

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the send window size provided on incoming call packets or the default when a call request packet does not explicitly provide the window size. |
| Values | Decimal (0..127) |
| Default | No default |

### ATTRIBUTE Vct Vc localRxWindowSize

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the receive window size provided on incoming call packets or the default when a call request does not explicitly provide the window sizes. |
| Values | Decimal (0..127) |
| Default | No default |

### ATTRIBUTE Vct Vc pathReliability

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the path reliability. |
| Values | high<br>normal |
| Default | No default |

### ATTRIBUTE Vct Vc accountingEnd

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates if this end should generate an accounting record. Normally, ***callingEnd*** is the end to generate an accounting record. |

| | |
|---|---|
| Values | callingEnd<br>calledEnd |
| Default | No default |

### ATTRIBUTE Vct Vc priority

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays whether the call is a ***normal*** or a ***high*** priority call. |
| Values | normal<br>high |
| Default | No default |

### ATTRIBUTE Vct Vc segmentSize

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the segment size (in bytes) used on the call. It is used to calculate the number of segments transmitted and received. |
| Values | Decimal (0..4096) |
| Default | No default |

### ATTRIBUTE Vct Vc subnetTxPktSize

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the locally negotiated size of the data packets on this *Vc*. |
| Values | unknown<br>16<br>32<br>64<br>128<br>256<br>512<br>1024<br>2048<br>4096 |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Vct Vc subnetTxWindowSize

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the current send window size of *Vc*. |
| Values | Decimal (0..4096) |
| Default | No default |

### ATTRIBUTE Vct Vc subnetRxPktSize

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the locally negotiated size of receive packets. |
| Values | unknown<br>16<br>32<br>64<br>128<br>256<br>512<br>1024<br>2048<br>4096 |
| Default | No default |

### ATTRIBUTE Vct Vc subnetRxWindowSize

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the receive window size provided on incoming call packets and to the default when a call request does not explicitly provide the window sizes. |
| Values | Decimal (0..4096) |
| Default | No default |

### ATTRIBUTE Vct Vc maxSubnetPktSize

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the maximum packet size allowed on *Vc*. |
| Values | Decimal (0..4096) |
| Default | No default |

### ATTRIBUTE Vct Vc transferPriorityToNetwork

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the priority in which data is transferred to the network.<br><br>The transfer priority is a preference specified by an application according to its delay-sensitivity requirement. Frames with high transfer priority are served by the network before the frames with normal priority.<br><br>Each transfer priority contains a predetermined setting for trunk queue (interrupting, delay or throughput), and routing metric (delay or throughput).<br><br>When the transfer priority is set at ***high***, the trunk queue is set to high, the routing metric is set to delay.<br><br>When the transfer priority is set at ***normal***, the trunk queue is set to normal, the routing metric is set to throughput. |
| Values | normal<br>high |
| Default | No default |

### ATTRIBUTE Vct Vc transferPriorityFromNetwork

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the priority in which data is transferred from the network.<br><br>The transfer priority is a preference specified by an application |

according to its delay-sensitivity requirement. Frames with high transfer priority are served by the network before the frames with normal priority.

Each transfer priority contains a predetermined setting for trunk queue (interrupting, delay or throughput), and routing metric (delay or throughput).

When the transfer priority is set at ***high***, and the trunk queue is set to high, the routing metric is set to delay.

When the transfer priority is set at ***normal***, the trunk queue is set to normal, and the routing metric is set to throughput.

Values: normal
high

Default: No default

### GROUP Vct Vc IntervalData (Intd)

Properties: Operational

Description: This group defines display of interval data collected by *Vc*. Data in this group is variable and may depend on time when this *display* command is issued.

### ATTRIBUTE Vct Vc elapsedTimeTillNow

Access: Read only

Description: This attribute displays the elapsed time representing the period of this interval data. It is elapsed time in 0.1 second increments since *Vc* started.

Values: Decimal (0..16777215)

Default: No default

### ATTRIBUTE Vct Vc segmentsRx

Access: Read only

Description: This attribute displays the number of segments received at the time command was issued. This is the segment received count

maintained by accounting at each end of the *Vc*. This counter is updated only when the packet cannot be successfully delivered out of the sink *Vc* and to the sink AP Conditions in which packets may be discarded by the sink *Vc* include: missing packets due to subnet discards, segmentation protocol violations due to subnet discard, duplicated and out-of-ranged packets and packets that arrive while *Vc* is in path recovery state.

Values Decimal (0..16777215)

Default No default

### ATTRIBUTE Vct Vc segmentsSent

Access Read only

Description This attribute displays the number of segments sent at the time command was issued. This is the segment sent count maintained by accounting at the source *Vc*. *Vc* only counts packets that *Vc* thinks can be delivered successfully into the subnet. In reality, these packets may be dropped by trunking, for instance. This counter is not updated when splitting fails, when *Vc* is in a path recovery state, when packet forwarding fails to forward this packet and when subsequent packets have to be discarded as we want to minimize the chance of out-of-sequence and do not intentionally send out-of-sequenced packets into the subnet.

Values Decimal (0..16777215)

Default No default

### ATTRIBUTE Vct Vc startTime

Access Read only

Description This attribute displays the start time of this interval period. If *Vc* spans 12 hour time or time of day change *startTime* reflects new time as recorded at 12 hour periods or time of day changes.

Values Time (DHMS)

Default No default

### ATTRIBUTE Vct Vc callReferenceNumber

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the call reference number which is a unique number generated by the switch.The same Call Reference Number is stored in the interval data (accounting record) at both ends of the call. It can be used as one of the attributes in matching duplicate records generated at each end of the call. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Vct Vc Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | ... *Statistics(Stats)*<br>This group defines general attributes collected by general *Vc*. The purpose of *Vc* attributes is to aid end users and verification people to understand the *Vc* internal behavior. This is particularly useful when the network has experienced abnormality and we want to isolate problems and pinpoint trouble spots.<br>Attributes are collected on a per *Vc* basis. Until a need is identified, statistics are not collected at a processor level. Each attribute is stored in a 32 bit field and is initialized to zero when a *Vc* enters into the data transfer state. When a PVC is disconnected and then connected again, the attributes will be reset. Attributes cannot be reset through other methods. |

### ATTRIBUTE Vct Vc ackStackingTimeouts

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of ack stacking timer expiries. It is used as an indicator of the acknowledgment behavior across the subnet when ack stacking is in effect. If it expires often, usually this means end users will experience longer delay.<br>The ack stacking timer specifies how long the *Vc* will wait before finally sending the subnet acknowledgment. if this attribute is set to a value of 0, then the *Vc* will automatically return acknowledgment packets without delay. If this attribute is set to a value other than zero, then the *Vc* will wait for this amount of |

time in an attempt to piggyback the acknowledgment packet on another credit or data packet. If the *Vc* cannot piggyback the acknowledgment packet within this time, then the packet is returned without piggybacking.

Values: Decimal (0..5000)

Default: No default

### ATTRIBUTE Vct Vc outOfRangeFrmFromSubnet

Access: Read only

Description: This attribute counts the number of subnet frames discarded due to the sequence number being out of range.
Two Categories apply for the General *Vc*
1) lost Acks (previous Range)
2) unexpected Packets (next Range)
*Vc* internally maintains its own sequence number of packet order and sequencing. Due to packet retransmission, *Vc* may receive duplicate packets that have the same *Vc* internal sequence number. Only 1 copy is accepted by the *Vc* and other copies of the same packets are detected through this count. This attribute can be used to record the frequency of packet retransmission due to *Vc* and other part of the subnet.

Values: Decimal (0..5000)

Default: No default

### ATTRIBUTE Vct Vc duplicatesFromSubnet

Access: Read only

Description: This attribute counts the number of subnet packets discarded due to duplication. It is used to detect software error fault or duplication caused by retransmitting.

Values: Decimal (0..5000)

Default: No default

### ATTRIBUTE Vct Vc frmRetryTimeouts

Access: Read only

| | |
|---|---|
| Description | This attribute counts the number of frames which have retransmission time-out.<br>If packets from *Vc* into the subnet are discarded by the subnet, the source *Vc* will not receive any acknowledgment. The retransmission timer then expires and packets will be retransmitted again. Note that the *Vc* idle probe may be retransmitted and is included in this count. This statistics does not show the distribution of how many times packets are retransmitted (e.g. first retransmission results in successful packet forwarding). |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE Vct Vc peakRetryQueueSize

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the peak size of the retransmission queue. This attribute is used as an indicator of the acknowledgment behavior across the subnet. It records the largest body of unacknowledged packets. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE Vct Vc peakOoSeqQueueSize

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the peak size of the out of sequence queue.<br>This attribute is used as an indicator of the sequencing behavior across the subnet. It records the largest body of out of sequence packets. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE Vct Vc peakOoSeqFrmForwarded

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the peak size of the sequence packet queue.<br>This attribute is used as an indicator of the sequencing behavior across the subnet. It records the largest body of out of sequence packets, which by the receipt of an expected packet have been transformed to expected packets. The number of times this peak is reached is not recorded as it is traffic dependent. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE Vct Vc peakStackedAcksRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the peak size of wait acks.<br>This attribute is used as an indicator of the acknowledgment behavior across the subnet. It records the largest collective acknowledgment. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE Vct Vc subnetRecoveries

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of successful *Vc* recovery attempts.<br>This attribute is used as an indicator of how many times the *Vc* path is broken but can be recovered. This attribute is useful to record the number of network path failures. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE Vct Vc windowClosuresToSubnet

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of window closures to subnet. A packet may have been sent into the subnet but its acknowledgment from the remote *Vc* has not yet been received. |

| | |
|---|---|
| | This is a 8 bit sequence number.This number is useful in detecting whether the *Vc* is sending any packet into the subnet. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE Vct Vc windowClosuresFromSubnet

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of window closures from subnet. This attribute is useful in detecting whether the *Vc* is receiving any packet from the subnet. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE Vct Vc wrTriggers

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of times the *Vc* stays within the W-R region. The W-R region is a value used to determined the timing of credit transmission. Should the current window size be beneath this value, the credits will be transmitted immediately. Otherwise, they will be transmitted later with actual data. The wrTriggers statistic is therefore used to analyze the flow control and credit mechanism. |
| Values | Decimal (0..5000) |
| Default | No default |

### COMPONENT Vct Vcfr

| | |
|---|---|
| Groups | "GROUP Vct Vcfr CallData (Cad)"<br>"GROUP Vct Vcfr IntervalData (Intd)"<br>"GROUP Vct Vcfr FrameRelayData (Frd)" |
| Scope | Application |

Description

This component defines the statistics collected by Frame Relay Vc. It is needed for lightweight vc.

Common Verbs

Help
List
Display

## VERB Ping Vct Vcfr

Impact

Passive

Description

*Ping [-roundTripDelay] [-sendPktDataSize(octets)] [-returnPktDataSize(octets)] FrUni/<n> Dlci/<n> Vc*

*Ping* causes a query packet to be sent to the destination module where the Frame Relay DLCI VC terminates. It can be used to either display the path of the VC being used by the Frame Relay DLCI or to measure the round trip delay of the Frame Relay DLCI connection. Since the query packet carries the same path selector as the Frame Relay data packets and the Frame Relay VC's transfer priority (TP) is used to set the RCOS, reliability and emission priority of the query packet, the path taken by the *ping* query packet will be the same as that of the Frame Relay data except at the source and destination module. The *ping* packets originate from the CP rather than the Frame Relay DLCI's FP. At the far end, it is also the CP that receives the ping packets and returns them, rather than the Frame Relay FP.

Note that this command does not provide any information regarding the status of the far end VC process. If, however, the destination module is unreachable or the VC path is congested, the operator will be notified.

The *ping* command can be issued with or without options. If no options are specified, the command reports the path of the VC associated with the Frame Relay DLCI. When the command is used to find the VC path, it displays the RID and MID of each module that the query packet passes through on its way to the destination. If the *roundTripDelay* option is specified, the command reports the time taken to reach the destination and back. For the *roundTripDelay* option, the path taken by the query

packets in both directions (from the source to the destination and from the destination back to the source) is the same as that of the Frame Relay data except at the source and destination where the *ping* packets are generated and bounced back by the CP rather than the Frame Relay DLCI's FP.

The *ping* command supports the following options:

*-roundTripDelay (-rtd):* If this option is selected, the round trip delay time to reach the destination and back will be reported. The round trip delay is calculated by timing how long it takes to send five packets to the destination node and back. The packet size can be specified using the *sendPktSize* and *returnPktSize* options. The minimum, maximum and average time taken by the returned packets are reported. If this option is not selected, the path taken to the destination is displayed.

*-sendPktDataSize:* This option specifies the number of data octets to be included in the round trip delay query packet. The rtd query packet consists of the Passport common header (2 octets), the subnet header (11 octets), plus the data. The minimum data size is 12, since 12 octets are required to carry the ping control information. If the value specified for this option is less than 12, 12 octets are sent to the destination. The actual number of data octets sent is displayed in the ping response. Note that the total packet size (headers plus data) is identical to that of a Frame Relay packet carrying the same number of octets of data.

If this option is not selected the default packet data size, 128 octets, will be used. This option is ignored if the *-rtd* option is not specified. If the specified packet data size exceeds the capability of some facilities on the path, the packet will be discarded and the operator will get the timeout response.

*-returnPktDataSize:* This option specifies the number of data octets to be included in the round trip delay acknowledge packet. The rtd acknowledge packet consists of the Passport common header (2 octets), the subnet header (11 octets), plus the data. The minimum data size is 12, since 12 octets are required to carry the

ping control information. If the value specified for this option is less than 12, 12 octets are returned to the source. The actual number of data octets returned is displayed in the ping response. Note that the total packet size (headers plus data) is identical to that of a Frame Relay packet carrying the same number of octets of data.

If this option is not selected the default packet data size, 128 octets, will be used. This option is ignored if the *-rtd* option is not specified. If the specified packet data size exceeds the capability of some facilities on the path, the packet will be discarded and the operator will get the timeout response.

## GROUP Vct Vcfr CallData (Cad)

Properties: Operational

Description: This group represents operational call data related to Frame Relay *Vc*. It can be displayed only for Frame Relay *Vc* which is created by application.

## ATTRIBUTE Vct Vcfr type

Access: Read only

Description: This attribute displays the type of call, ***pvc***, ***svc, spvc*** or ***frf10spvc***.

Values:
pvc
svc
spvc
frf10spvc

Default: No default

## ATTRIBUTE Vct Vcfr state

Access: Read only

Description: This attribute displays the state of call control. P5 state is not supported but is listed for completeness. Transitions from one state to another take very short time. *state* most often displayed is ***dataTransferP4***.

| | |
|---|---|
| Values | creating<br>readyP1<br>dteWaitingP2<br>dceWaitingP3<br>dataTransferP4<br>unsupportedP5<br>dteClearRequestP6<br>dceClearIndicationP7<br>termination |
| Default | No default |

### ATTRIBUTE Vct Vcfr previousState

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the previous state of call control. This is a valuable field to determine how the processing is progressing. |
| Values | creating<br>readyP1<br>dteWaitingP2<br>dceWaitingP3<br>dataTransferP4<br>unsupportedP5<br>dteClearRequestP6<br>dceClearIndicationP7<br>termination |
| Default | No default |

### ATTRIBUTE Vct Vcfr diagnosticCode

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the internal substate of call control. It is used to further refine *state* of call processing. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE Vct Vcfr previousDiagnosticCode

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute displays the internal substate of call control. It is used to further refine *state* of call processing. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE Vct Vcfr calledNpi

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the Numbering Plan Indicator (NPI) of the called end. |
| Values | x121<br>e164 |
| Default | No default |

### ATTRIBUTE Vct Vcfr calledDna

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the Data Network Address (*Dna*) of the called (destination) DTE to which this call is sent. This address if defined at receiving end will complete *Vc* connection. |
| Values | BCD (1..15) |
| Default | No default |

### ATTRIBUTE Vct Vcfr calledLcn

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the Logical Channel Number of the called end. It is valid only after both ends of *Vc* exchanged relevant information. |
| Values | Decimal (1..65535) |
| Default | No default |

### ATTRIBUTE Vct Vcfr callingNpi

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute displays the Numbering Plan Indicator (NPI) of the calling end. |
| Values | x121<br>e164 |
| Default | No default |

### ATTRIBUTE Vct Vcfr callingDna

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the Data Network Address (*Dna*) of the calling end. |
| Values | BCD (1..15) |
| Default | No default |

### ATTRIBUTE Vct Vcfr callingLcn

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the Logical Channel Number of the calling end. |
| Values | Decimal (1..65535) |
| Default | No default |

### ATTRIBUTE Vct Vcfr accountingEnabled

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates that this optional section of accounting record is suppressed or permitted. If *accountingEnabled* is ***yes***, conditions for generation of accounting record were met. These conditions include billing options, vc recovery conditions and Module wide accounting data options. |
| Values | yes<br>no |
| Default | No default |

### ATTRIBUTE Vct Vcfr fastSelectCall

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays that this is a fast select call. |
| Values | yes<br>no |
| Default | No default |

### ATTRIBUTE Vct Vcfr pathReliability

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the path reliability. |
| Values | high<br>normal |
| Default | No default |

### ATTRIBUTE Vct Vcfr accountingEnd

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates if this end should generate an accounting record. Normally, ***callingEnd*** is the end to generate an accounting record. |
| Values | callingEnd<br>calledEnd |
| Default | No default |

### ATTRIBUTE Vct Vcfr priority

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays whether the call is a ***normal*** or a ***high*** priority call. |
| Values | normal<br>high |
| Default | No default |

### ATTRIBUTE Vct Vcfr segmentSize

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the segment size (in bytes) used on the call. It is used to calculate the number of segments transmitted and received. |
| Values | Decimal (0..4096) |
| Default | No default |

### ATTRIBUTE Vct Vcfr maxSubnetPktSize

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the maximum packet size allowed on the *Vc*. |
| Values | Decimal (0..4096) |
| Default | No default |

### ATTRIBUTE Vct Vcfr rcosToNetwork (rcosto)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the routing metric routing class of service to<br>the network. |
| Values | throughput<br>delay<br>multimedia |
| Default | No default |

### ATTRIBUTE Vct Vcfr rcosFromNetwork (rcosfrom)

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the routing metric Routing Class of Service from the Network. |
| Values | throughput<br>delay<br>multimedia |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Vct Vcfr emissionPriorityToNetwork (epto)

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the network internal emission priority to the<br>network. |
| Values | normal<br>high<br>interrupting |
| Default | No default |

### ATTRIBUTE Vct Vcfr emissionPriorityFromNetwork (epfrom)

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the network internal emission priority from the network. |
| Values | normal<br>high<br>interrupting |
| Default | No default |

### ATTRIBUTE Vct Vcfr dataPath (dapa)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the data path used by the connection. The data path is provisioned in *Dna* and *DirectCall* components. The displayed value of this attribute can be different from the provisioned value.<br><br>If the connection is using ***dprsOnly*** data path, the string ***dprsOnly*** is displayed. (dynamic packet routing system)<br><br>If the connection is using ***dprsMcsOnly*** data path, the string ***dprsMcsOnly*** is displayed. |

If the connection is using ***dprsMcsFirst*** data path, the string ***dprsMcsFirst*** is displayed.

Values: String (0..32, ASCII)

Default: No default

### ATTRIBUTE Vct Vcfr dprsMcsEndPoint (dmep)

Access: Read only

Description: This attribute displays the data path used by the connection. Data path is provisioned in *Dna* and *DirectCall* components.

If the connection is using ***dprsOnly*** data path, this attribute is empty.

If the connection is using ***dprsMcsOnly*** or ***dprsMcsFirst*** data path, this attribute displays component name of the dprsMcsEndPoint.

List of: The name of the component

Default: No default

### GROUP Vct Vcfr IntervalData (Intd)

Properties: Operational

Description: This group defines display of interval data collected by *Vc*. Data in this group is variable and may depend on time when this *display* command is issued.

### ATTRIBUTE Vct Vcfr elapsedTimeTillNow

Access: Read only

Description: This attribute displays the elapsed time representing the period of this interval data. It is elapsed time in 0.1 second increments since *Vc* started.

Values: Decimal (0..16777215)

Default: No default

### ATTRIBUTE Vct Vcfr segmentsRx

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of segments received at the time command was issued. This is the segment received count maintained by accounting at each end of the *Vc*. This counter is updated only when the packet cannot be successfully delivered out of the sink *Vc* and to the sink AP Conditions in which packets may be discarded by the sink *Vc* include: missing packets due to subnet discards, segmentation protocol violations due to subnet discard, duplicated and out-of-ranged packets and packets that arrive while *Vc* is in path recovery state. |
| Values | Decimal (0..16777215) |
| Default | No default |

### ATTRIBUTE Vct Vcfr segmentsSent

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of segments sent at the time command was issued. This is the segment sent count maintained by accounting at the source *Vc*. *Vc* only counts packets that *Vc* thinks can be delivered successfully into the subnet. In reality, these packets may be dropped by trunking, for instance. This counter is not updated when splitting fails, when *Vc* is in a path recovery state, when packet forwarding fails to forward this packet and when subsequent packets have to be discarded as we want to minimize the chance of out-of-sequence and do not intentionally send out-of-sequenced packets into the subnet. |
| Values | Decimal (0..16777215) |
| Default | No default |

### ATTRIBUTE Vct Vcfr startTime

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the start time of this interval period. If *Vc* spans 12 hour time or time of day change *startTime* reflects new time as recorded at 12 hour periods or time of day changes. |

| | |
|---|---|
| Values | Time (DHMS) |
| Default | No default |

### ATTRIBUTE Vct Vcfr callReferenceNumber

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the call reference number which is a unique number generated by the switch.The same Call Reference Number is stored in the interval data (accounting record) at both ends of the call. It can be used as one of the attributes in matching duplicate records generated at each end of the call. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Vct Vcfr FrameRelayData (Frd)

| | |
|---|---|
| Properties | Operational |
| Description | This group defines Frame Relay attributes collected by Frame Relay *Vc*.<br>The purpose of *Vc* attributes is to aid end users and verification people to understand the *Vc* internal behavior. This is particularly useful when the network has experienced abnormality and we want to isolate problems and pinpoint trouble spots.<br>Attributes are collected on a per *Vc* basis. Until a need is identified, statistics are not collected at a processor level. Each attribute is stored in a 32 bit field and is initialized to zero when a *Vc* enters into the data transfer state. When a PVC is disconnected and then connected again, the attributes will be reset. Attributes cannot be reset through other methods.<br>Frame Relay *Vc* uses a best effort data packet delivery protocol and a different packet segmentation and combination methods from the General *Vc*. The Frame Relay *Vc* uses the same call setup and control mechanism (e.g. the support of non-flow control data packets) as in a General *Vc*. Most General *Vc* statistics and internal variables are used in a Frame Relay *Vc* and are displayed by software developers |

### ATTRIBUTE Vct Vcfr frmCongestedToSubnet

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of frames from link discarded due to lack of resources. It keeps track of the number of frames from link that have to be discarded. The discard reasons include insufficient memory for splitting the frame into smaller subnet packet size. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE Vct Vcfr cannotForwardToSubnet

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of discarded packets that can not be forwarded into the subnet because of subnet congestion. Number of frames from link discarded due to failure in forwarding a packet from *Vc* into the subnet.- This attribute is increased when packet forwarding fails to forward a packet into the subnet. If a frame is split into multiple subnet packets and a partial packet has to be discarded, all subsequent partial packets that have not yet been delivered to the subnet will be discarded as well. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE Vct Vcfr notDataXferToSubnet

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the number of frames from link discarded when the *Vc* tries to recover from internal path failure. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE Vct Vcfr outOfRangeFrmFromSubnet

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute displays the number of frames from subnet discarded due to out of sequence range for arriving too late. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE Vct Vcfr combErrorsFromSubnet

| | |
|---|---|
| Access | Read only |
| Description | This attribute records the number of subnet packets discarded at the sink *Vc* due to the *Vc* segmentation and combination protocol error. Usually, this occurs when the subnet discards packets and thus this statistics can be used to guest the number of subnet packets that are not delivered to the *Vc*. It cannot be used as an actual measure because some subnet packets may have been delivered to *Vc* but have to be discarded because these are partial packets to a frame in which some other partial packets have not been properly delivered to *Vc* |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE Vct Vcfr duplicatesFromSubnet

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of subnet packets discarded due to duplication. Although packets are not retransmitted by the Frame Relay *Vc*, it is possible for the subnet to retransmit packets. When packets are out-of-sequenced and copies of the same packets arrive, then this attribute is increased. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE Vct Vcfr notDataXferFromSubnet

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of subnet packets discarded when data transfer is suspended in *Vc* recovery. |

| | |
|---|---|
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE Vct Vcfr frmLossTimeouts

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of lost frame timer expiries. When this count is excessive, the network is very congested and packets have been discarded in the subnet. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE Vct Vcfr ooSeqByteCntExceeded

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number times that the out of sequence byte threshold is exceeded. When the threshold is exceeded, this condition is treated as if the loss frame timer has expired and all frames queued at the sink *Vc* are delivered to the AP. We need to keep this count to examine if the threshold is engineered properly. This should be used in conjunction with the peak value of out-of-sequenced queue and the number of times the loss frame timer has expired. This count should be relatively small when compared with loss frame timer expiry count. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE Vct Vcfr peakOoSeqPktCount

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the frame relay peak packet count of the out of sequence queue. This attribute records the maximum queue length of the out-of-sequenced queue. The counter can be used to deduce the message buffer requirement on a *Vc*. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE Vct Vcfr peakOoSeqFrmForwarded

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the frame relay peak size of the sequence packet queue. The subnet may deliver packets out-of-sequenced. These packets are then queued in an out-of-sequenced queue, waiting for a packet with the expected sequence number to come. When that packet arrives, this attribute records the maximum number of packets that were out-of-sequenced, but now have become in-sequenced. The statistics is used to measure expected queue size due to normal subnet packet disorder (not due to subnet packet discard). Current implementation also uses this statistics to set a maximum size for the out-of-sequenced queue. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE Vct Vcfr sendSequenceNumber

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the Vc internal packet's send sequence number. Note that a "packet" in this context, may be either a user data packet, or an OAM frame. |
| Values | Decimal (0..1048575) |
| Default | No default |

### ATTRIBUTE Vct Vcfr pktRetryTimeouts

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of packets which have retransmission time-outs. When this count is excessive, the network is very congested and packets have been discarded in the subnet. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE Vct Vcfr peakRetryQueueSize

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the peak size of retransmission queue. This attribute is used as an indicator of the acknowledgment behavior across the subnet. Records the largest body of unacknowledged packets. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE Vct Vcfr subnetRecoveries

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number of successful *Vc* recovery attempts. |
| Values | Decimal (0..5000) |
| Default | No default |

### ATTRIBUTE Vct Vcfr ooSeqPktCntExceeded

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays the number times that the out of sequence packet threshold is exceeded. When the threshold is exceeded, this condition is treated as if the loss frame timer has expired and all frames queued at the sink *Vc* are delivered to the AP. We need to keep this count to examine if the threshold is engineered properly. This should be used in conjunction with the peak value of out-of-sequenced queue and the number of times the loss frame timer has expired. This count should be relatively small when compared with loss frame timer expiry count. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE Vct Vcfr peakOoSeqByteCount

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute displays the frame relay peak byte count of the out of sequence queue. This attribute records the maximum queue length of the out-of-sequenced queue. The counter can be used to deduce the message buffer requirement on a *Vc*. |
| Values | Decimal (0..50000) |
| Default | No default |

Passport 7400, 15000, 20000

# Component Vct

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component Vmg

241-5701-060

Passport 7400, 15000, 20000

# Component Vmg

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT VirtualMediaGateway (Vmg)

| | |
|---|---|
| Instance | Decimal (0..255) |
| Groups | "GROUP Vmg Provisioned (Prov)"<br>"GROUP Vmg OsiState (State)"<br>"GROUP Vmg Stats"<br>"GROUP Vmg WlcCustomCounters (WlcCustomCntr)" |

"COLLECTED STATS VirtualMediaGateway"

| | |
|---|---|
| Scope | Application |
| Description | *VirtualMediaGateway/n*<br><br>The Virtual Media Gateway component represents a pool of Media Gateway resources managed by a Signalling Gateway. |
| Subcomponents | "COMPONENT Vmg MediaGatewayInterface (MgIf)"<br>"COMPONENT Vmg Mtp3Connection (Mtp3Conn)"<br>"COMPONENT Vmg MemoryPoolManager (Mpm)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Vmg Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes of the *Vmg* component. |

### ATTRIBUTE Vmg linkToLogicalProcessor (lp)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the Logical Processor that this component and its subcomponents are associated with. |
| Values | Link (Hardware, linkToApplications) |
| Default | No default |

### ATTRIBUTE Vmg linkToPort (lToPort)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies a link to a *Gips IpAddress Udp Port* component. This determines the IP Address and UDP port that the Media Gateways use to address this Virtual Media Gateway. The *linkToPort* attribute must be set.<br><br>Changing this value will cause all the Media Gateway interfaces associated with this component to be restarted. |
| Values | Link (Service, linkToApplication) |
| Default | No default |

### ATTRIBUTE Vmg relTimer

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the amount of time that Q.2630 will wait for a RLC (release confirm) from the RNC in response to a Q2630 release message.<br>The timer is started when a REL message is sent.<br>The timer is stopped when an RLC message is received.<br>Upon timer expiration, the resource is released and a reset procedure is initiated. |
| Values | Decimal (2..60) |

| | |
|---|---|
| Units | seconds |
| Default | 4 |

### ATTRIBUTE Vmg relRetries

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the number of times that Q.2630 will retry the REL (release) command and wait for a RLC (release confirm) command from the RNC. |
| Values | Decimal (0..5) |
| Default | 0 |

### ATTRIBUTE Vmg linkToCsDomain

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attributes specifies the signalling gateway that utilizes the Virtual Media Gateway (VMG) represented by this component to create bearer connections between an RNC and a Call Server.<br><br>Changing this value will cause all the Media Gateway interfaces associated with this component to be restarted.<br><br>This attribute must be set to *Sg/n CsDomain.* |
| Values | Link (Service, linkToVirtualMediaGateway) |
| Default | No default |

### ATTRIBUTE Vmg usageSetThresh (setThr)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the threshold at which the Virtual Media Gateway (VMG) High Usage alarm is set.<br><br>The alarm is set when the percentage of call channels used in the |

VMG exceeds the threshold value of the *usageSetThresh* attribute. This value must be greater than or equal to the threshold value of the *usageClrThresh* attribute.

It is recommended that there is a reasonable gap between the value of usageSetThresh and usageClrThresh to avoid continuous setting and clearing of alarm.

Values: Decimal (50..90)

Units: %

Default: 75

### ATTRIBUTE Vmg usageClrThresh (clrThr)

Access: Read: All
Write: All

Description: This attribute specifies the threshold at which the Virtual Media Gateway (VMG) High Usage alarm is cleared.

If the High Usage alarm is active and the percentage of call channels used in the VMG drops below the threshold value of the *usageClrThresh* attribute, the VMG High Usage alarm is cleared. The value of this threshold must be less than or equal to the value of the *usageSetThresh* attribute.

It is recommended that there is a reasonable gap between the value of usageSetThresh and usageClrThresh to avoid continuous setting and clearing of alarm.

Values: Decimal (1..90)

Units: %

Default: 70

### GROUP Vmg OsiState (State)

Properties: Operational

Description: This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state

combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Vmg adminState (osiAdmin)

Access: Read only

Description: This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values: locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default: unlocked

### ATTRIBUTE Vmg operationalState (osiOper)

Access: Read only

Description: This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available

for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Vmg usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Vmg Stats

Properties
Operational

Description
This group contains the operational attributes of this component.

### ATTRIBUTE Vmg estReqMsgs (erm)

Access
Read: All
Write: Illegal

Description
This attribute counts Q.2630 ERQ (establish request) messages that were received from the RNC.

The counter wraps to 0 when it exceeds its maximum value.

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vmg connectedCalls (connCalls)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of calls that are in the connected state.<br><br>The value of this attribute should be equal to the sum of the *connectedCalls* attribute of all the *Vmg/n MgIf/n* subcomponents. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vmg rejectedCalls (rejCalls)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of calls rejected by the Media Gateways controlled by this component.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vmg resets

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts Q.2630 RES (reset) messages that were received from the RNC.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vmg blocks

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts Q.2630 BLK (block) messages that were received from the RNC.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vmg unknownMsgs (unkMsgs)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts messages of unknown type that were received from the RNC.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vmg peakUsedPercentage (pkPct)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the peak percentage of the provisioned DS0s for this component that are in a non-idle state. |
| Values | Decimal (0..100) |
| Default | No default |

### ATTRIBUTE Vmg totalChannels (totChnl)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute indicates the number of DS0s provisioned for this component. This value is the summation of all Tdm resources under the VMG component. The value is updated when provisioning changes. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vmg unavailableChannels (unavailChnl)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of DS0s provisioned for this component that is unavailable. This includes unequipped, resource conflict and Out of Service DS0s. The value is updated when resource status changes or provisioning changes. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Vmg WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Vmg customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vmg customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vmg customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## COLLECTED STATS VirtualMediaGateway

| | |
|---|---|
| Description | The statistics record generated by the VirtualMediaGateway component. |

### ATTRIBUTE Vmg estReqMsgs (erm)

| | |
|---|---|
| Description | This attribute counts Q.2630 ERQ (establish request) messages that were received from the RNC.<br><br>The counter counts the events in the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Vmg rejectedCalls (rejCalls)

| | |
|---|---|
| Description | This attribute counts the number of calls rejected by the Media Gateways controlled by this component. |

The counter counts the events in the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Vmg peakUsedPercentage (pkPct)

Description This attribute indicates the peak percentage of provisioned DS0s for this component that are in a non-idle state.

The value is set to the current percentage at the beginning of the collection interval.

Values Decimal (0..100)

### COMPONENT Vmg MediaGatewayInterface (MgIf)

Instance Decimal (0..255)

Groups "GROUP Vmg MgIf Provisioned (Prov)"
"GROUP Vmg MgIf OsiState (State)"
"GROUP Vmg MgIf Operational (Oper)"
"GROUP Vmg MgIf WlcCustomCounters (WlcCustomCntr)"

"COLLECTED STATS VirtualMediaGateway MediaGatewayInterface"

Scope Application

Description *Vmg/n MediaGatewayInterface/n*

This component represents an interface to a single Media Gateway, a Voice Services Processor (VSP) card, controlled by the *VirtualMediaGateway/n* component. The Media Gateway Interface manages resources associated with the Media Gateway and initiates connection requests and releases.

Opt. Subcomp. "COMPONENT Vmg MgIf TdmResource (Tdm)"
"COMPONENT Vmg MgIf AtmResource (AtmRsrc)"

Common Verbs
Help
List
Display
Add
DELete

## GROUP Vmg MgIf Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes of this component. |

## ATTRIBUTE Vmg MgIf mgAtmAddress (mgAtmAddr)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the ATM Address of the Media Gateway associated with this component. |
| Values | String (1..44, AESANsapAddress) |
| Default | No default |

## ATTRIBUTE Vmg MgIf mgIPAddr (ip)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the IP Address of the Media Gateway associated with this component. This value must match the IP Address specified by the attribute *ipAddress* provisioned in the *Nsta Vgs Control* component.<br><br>Changing the value of this attribute will cause outstanding transactions to be affected. |
| Values | IP address |
| Default | No default |

## ATTRIBUTE Vmg MgIf mgUdpPort (port)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the UDP port of the Media Gateway associated with this component. This value must match the UDP port specified by the instance value of the *Nsta Vgs Control UdpPort* component associated with the Media Gateway. |

| | |
|---|---|
| | Changing this value will cause outstanding transactions to be affected. |
| Values | Decimal (0..65535) |
| Default | No default |

### ATTRIBUTE Vmg MgIf mediaGatewayName (mgName)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the name of the Media Gateway associated with this component.<br><br>This value must be the same as the value of the *hostname* attribute of the *Nsta/n Vgs* component associated with the corresponding Media Gateway. |
| Values | String (1..255, ASCII) |
| Default | No default |

### ATTRIBUTE Vmg MgIf crcxAckTimer (crcxT)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the value of the ASPEN connection request timer.<br><br>The timer is started when the Media Gateway Interface sends a Create Connection (CRCX) message to the Media Gateway.<br><br>The timer is stopped when either an ACK or a NACK is received from the Media Gateway.<br><br>If the timer expires, and the number of retries exceeds *crcxRetries*, the call is taken down, the ASPEN state machine goes to the Beat state, and a heartbeat message is sent to the Media Gateway. If the number of timer expiries exceeds *crcxRetries*, the attribute *crcxRetriesExhausted* is incremented.<br><br>The product of *crcxTimer* and *crcxRetries* - 1, that is, the total |

| | |
|---|---|
| | delay for a connection establishment, should not exceed 30 seconds. |
| Values | Decimal (1..15) |
| Units | seconds |
| Default | 2 |

### ATTRIBUTE Vmg MgIf crcxRetries (crcxR)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the number of retries for the *crcxAckTimer.* |
| Values | Decimal (1..5) |
| Default | 2 |

### ATTRIBUTE Vmg MgIf dlcxAckTimer (dlcxAckT)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the value of the ASPEN Delete Connection Timer.<br><br>This timer is started when the VMG sends an ASPEN DLCX message to the Media Gateway.<br><br>The timer is stopped when it receives either an ACK or a NACK from the Media Gateway.<br><br>If the timer expires, and the number of retries exceeds *crcxRetries*, the call is taken down, the ASPEN state machine goes to the Beat state, and a heartbeat message is sent to the Media Gateway. If the number of timer expiries exceeds *dlcxRetries*, the attribute *dlcxRetriesExhausted* is incremented.<br><br>The product of *dlcxAckTimer* and *dlcxRetries* - 1, that is, the total delay for a connection deletion, should not exceed 30 seconds. |
| Values | Decimal (1..15) |

| | |
|---|---|
| Units | seconds |
| Default | 1 |

### ATTRIBUTE Vmg MgIf dlcxRetries (dlcxR)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the number of retries for the *dlcxAckTimer.* |
| Values | Decimal (1..5) |
| Default | 2 |

### ATTRIBUTE Vmg MgIf rinfAckTimer (rinfAckT)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the value of the ASPEN Request for Information (RINF) Timer.<br><br>The timer is started when the Media Gateway Interface sends an ASPEN Request for Information (RINF) message to the Media Gateway.<br><br>The timer is stopped when an ACK or a NACK is received from the Media Gateway.<br><br>Upon timer expiry, the RINF message is resent one time to the Media Gateway. If no response is received for the second message, the ASPEN state machine goes to the Beat state, and a heart beat message is sent to the Media Gateway. The number of times no response is received for the resent message is indicated by the attribute *rinfRetriesExhausted.* |
| Values | Decimal (1..15) |
| Units | seconds |
| Default | 1 |

## ATTRIBUTE Vmg MgIf svidAckTimer (svidAckT)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the value of the ASPEN Server Identification (SVID) timer.<br><br>The timer is started when the VMG sends an ASPEN Server Identification (SVID) message to the Media Gateway.<br><br>When an ACK is received from the Media Gateway, the timer is stopped, and the ASPEN layer goes to the Active state.<br><br>Upon timer expiry, the message is resent an unlimited number of timer until an ACK is received from the Media Gateway.<br><br>The number of timeouts of this timer is indicated by the attribute *svidTimeouts*. |
| Values | Decimal (1..30) |
| Units | seconds |
| Default | 5 |

## ATTRIBUTE Vmg MgIf beatAckTimer (beatAckT)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This timer is started when the VMG sends an ASPEN BEAT message to the Media Gateway.<br><br>The timer is stopped in either of the two cases:<br>An ACK is received from the Media Gateway: In this case, the ASPEN protocol layer goes to the Active State.<br><br>A Restart In Progress (RSIP) message is received from the Media Gateway: In this case, the ASPEN protocol goes to the Inactive state because the reception of this message indicates that the Media gateway just got restarted. |

The ASPEN protocol state for the Media Gateway corresponding to this component is indicated by the state attribute.

Upon timer expiry, the message is resent an unlimited number of times until an ACK is received from the Media Gateway.

Values: Decimal (1..30)

Units: seconds

Default: 1

### ATTRIBUTE Vmg MgIf mdcxAckTimer (mdcxAckT)

Access: Read: All
Write: All

Description: This attribute specifies the value of the ASPEN Modify Connection (MDCX) timer.

The MDCX timer is started when the Virtual Media Gateway (VMG) sends an ASPEN Modify Connection (MDCX) message to the Media Gateway (MG). Upon timer expiry, the MDCX message is resent once to the MG. If no response is received after this retry, the ASPEN state machine transitions to the Beat state, and a heart beat message is sent to the MG.

Values: Decimal (1..15)

Units: seconds

Default: 1

### ATTRIBUTE Vmg MgIf rlrsAckTimer (rlrsAckT)

Access: Read: All
Write: All

Description: This attribute specifies the value of the ASPEN Release Resources (RLRS) timer.

The RLRS timer is started when the Virtual Media Gateway (VMG) sends an ASPEN Release Resource (RLRS) message to the Media Gateway (MG). If this timer expires before either an ACK or NACK is received from the MG, the RLRS message is

| | |
|---|---|
| | resent MG. If no response if received after this retry, the ASPEN state machine transitions to the Beat state, and a heart beat message is sent to the MG. |
| Values | Decimal (1..15) |
| Units | seconds |
| Default | 1 |

### GROUP Vmg MgIf OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Vmg MgIf adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |

| | |
|---|---|
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Vmg MgIf operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Vmg MgIf usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |

| | |
|---|---|
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Vmg MgIf Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes of this component. |

### ATTRIBUTE Vmg MgIf state (st)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the state of the Media gateway Interface.<br><br>The different states mean the following:<br>***inactive***: The ASPEN protocol is trying to establish a connection to the Media Gateway that has just restarted.<br>***active***: The connection with the Media Gateway has been established.<br>***beat:*** After going to the active state, connection to the Media Gateway was lost, and heart beat messages are being sent to the Media Gateway. |
| Values | inactive<br>active<br>beat |
| Default | No default |

### ATTRIBUTE Vmg MgIf connectedCalls (connCalls)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of calls in the connected state. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vmg MgIf callsPending (callsPend)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of calls being setup which have not yet reached the connected state. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vmg MgIf idleResources (idleRsrc)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of DS0s that are available for new call attempts. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vmg MgIf crcxRetriesExhausted (crcxRetrEx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of times the maximum retries for the CRCX Timer, specified by the attribute *crcxRetries* is exhausted.<br><br>The counter wraps to 0 when it exceeds its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vmg MgIf dlcxRetriesExhausted (dlcxRetEx)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of times the maximum retries for the DLCX Timer, specified by the attribute *dlcxRetries* is |

exhausted.

The counter wraps to 0 when it exceeds its maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Vmg MgIf rinfRetriesExhausted (rinfRetrEx)

Access: Read: All
Write: Illegal

Description: This attribute counts the number of times the maximum retries of the RINF Timer, that is, one retry, is exhausted.

The counter wraps to 0 when it exceeds its maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Vmg MgIf svidTimeouts

Access: Read: All
Write: Illegal

Description: This attribute counts the number of timeouts of the *svidTimer*.

The counter wraps to zero when it reaches the maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Vmg MgIf beatTimeouts

Access: Read: All
Write: Illegal

Description: This attribute counts the number of timeouts of the *beatAckTimer*.

The counter wraps to zero when it reaches the maximum value.

Values: Decimal (0..4294967295)

| | |
|---|---|
| Default | No default |

### GROUP Vmg MgIf WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Vmg MgIf customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vmg MgIf customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vmg MgIf customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |

Values Decimal (0..4294967295)

Default No default

## COLLECTED STATS VirtualMediaGateway MediaGatewayInterface

Description The statistics record generated by the VirtualMediaGateway MediaGatewayInterface component.

### ATTRIBUTE Vmg MgIf crcxMsgs (crcxMsgs)

Description This attribute indicates the number of CONNECTION REQUEST messages sent to the Media Gateway over the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Vmg MgIf dlcxMsgs (dlcxMsgs)

Description This attribute indicates the number of DELETE REQUEST messages sent to the Media Gateway over the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Vmg MgIf rinfMsgs (rinfMsgs)

Description This attribute indicates the number of REQUEST FOR INFORMATION messages sent to the Media Gateway over the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Vmg MgIf resetMsgs (resetMsgs)

Description This attribute indicates the total number of RESET messages sent in either direction over the collection interval.

Values Decimal (0..4294967295)

### ATTRIBUTE Vmg MgIf crcxAckMsgs (crcxAckMsgs)

Description This attribute indicates the number of CONNECTION REQUEST ACKNOWLEDGE messages received from the Media Gateway over the collection interval.

| | |
|---|---|
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Vmg MgIf dlcxAckMsgs (dlcxAckMsgs)

| | |
|---|---|
| Description | This attribute indicates the number of DELETE REQUEST ACKNOWLEDGE messages received from the Media Gateway over the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Vmg MgIf updateCicInfo (updateCicInfo)

| | |
|---|---|
| Description | This attribute indicates the number of UPDATE CIC INFO messages received from the Media Gateway over the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Vmg MgIf sigFailMsgs (sigFailMsgs)

| | |
|---|---|
| Description | This attribute indicates the number of SIGNALLING FAILURE messages received from the Media Gateway over the collection interval. |
| Values | Decimal (0..4294967295) |

### ATTRIBUTE Vmg MgIf sigOkMsgs (sigOkMsgs)

| | |
|---|---|
| Description | This attribute indicates the number of SIGNALLING OK messages received from the Media Gateway over the collection interval. |
| Values | Decimal (0..4294967295) |

### COMPONENT Vmg MgIf TdmResource (Tdm)

| | |
|---|---|
| Instance | Decimal (0..200) |
| Groups | "GROUP Vmg MgIf Tdm Provisioned (Prov)"<br>"GROUP Vmg MgIf Tdm OsiState (State)"<br>"GROUP Vmg MgIf Tdm WlcCustomCounters (WlcCustomCntr)" |
| Scope | Device |

Description *Vmg/n MgIf/n TdmResource/n*

This component represents a TDM resource used by a Media Gateway, an E1 or T1 span.

Dyn. Subcomp. "COMPONENT Vmg MgIf Tdm DS0Resource (DS0)"

Common Verbs
Help
List
Display
Add
DELete
LOCK
Unlock

## GROUP Vmg MgIf Tdm Provisioned (Prov)

Properties Provisioned

Description This group contains the provisionable attributes of this component.

## ATTRIBUTE Vmg MgIf Tdm startingCic (startcic)

Access Read: All
Write: All

Criticality Component

Description The *startingCic* attribute provides a unique logical identifier for a particular E1 resource. The Signalling System Number 7 (SS7) Circuit Identification Codes (CICs) associated with the Digital Signal Level 0 (DS0s) managed by this resource are numbered beginning with the *startingCic* attribute value and ending with *startingCic* + 30, inclusive. CIC numbers are assigned to all 31 DS0s in the *timeslots* attribute whether they are in use or not on this *TdmResource* component.

The *startingCic* attribute value for an E1 resource must not fall between the *startingCic* and *startingCic*+30 of any other E1 resource under the same Virtual Media Gatway.

If a CCS channel exists on the E1 resource, the DS0 for that

channel will be assigned a CIC, however this CIC will never be allocated for use by the Call Server.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Vmg Mglf Tdm bearerType

Access: Read: All
Write: All

Criticality: Component

Description: This attribute specifies the bearer type supported by this *TdmResource* component. The value specified by the *bearerRate* attribute must correspond to a rate supported by the bearer type specified.

***speech*** - speech is supported at the following rates: 4.75 kbit/s, 5.15 kbit/s, 5.9 kbit/s, 6.7 kbit/s, 7.4 kbit/s, 7.95 kbit/s, 10.2 kbit/s, and 12.2 kbit/s
***data*** - data is supported at the following rates: 14.4 kbit/s and 64 kbit/s

Values: speech
data

Default: speech

### ATTRIBUTE Vmg Mglf Tdm timeslots (ts)

Access: Read: All
Write: All

Criticality: Component

Description: This attribute specifies the block of timeslots controlled by this *TdmResource* component. There are 31 timeslots within an E1 span that can be controlled. Since this component is used to represent an E1 or T1 span, a maximum of 31 timeslots is used in this attribute.

One timeslot may be reserved for signalling.

More than one *MgIf* component can utilize a single E1/T1 span specified by the *interfaceName* attributes of a *TdmResource* subcomponent. The *timeslots* attribute allows the operator to divide up the timeslots of a given E1/T1 span among multiple *MgIf* components. Two *MgIf* components cannot control the same timeslot; so, the operator must ensure that no two *MgIf* components using a *TdmResource* attribute with the same *interfaceName* attribute specify any of the same values for this attribute. If more than one *TdmResource* component specifies the same timeslots, an alarm is generated when the components are activated, and only one of the *TdmResource* components is enabled. This will be the component that has registered first with the Voice Services Processor (VSP) card for reservation of the timeslots.

By default, this attribute specifies 30 timeslots omitting timeslot 31 for signalling. If a VSP is controlled by two different *MgIf* components, this attribute must be set to specify only the timeslots that this *MgIf* component controls as described above.

There may be no more than one timeslot omitted from the sequence of timeslots specified by this attribute. The timeslot blocks (1,2,3,4) and (1,2,3,5) are valid, but the timeslot block (1,2,4,6) is not valid because two timeslots are omitted from the sequence. The omitted timeslot must be used for signalling and cannot be specified by the *timeslots* attribute of another *TdmResource* component using this span. In addition, the *AmrBrag* component on the VSP represented by this *TdmResource* component must have an *Mtp2* subcomponent with an instance value equal to the number of the omitted timeslot.

Not every E1 span uses a timeslot for signalling. If the *AmrBrag* component or *CsdBrag* component associated with the span represented by this *TdmResource* does not have an *Mtp2* subcomponent, there is no need to omit a timeslot on any of the *TdmResource* components that divide up this span. Additionally in this case, the *timeslots* attribute of the *Chan* component associated with the VSP's *AmrBrag* component or *CsdBrag* component must be set to specify timeslots 1 through 30 inclusive.

In the case when this *TdmResource* component is controlling a T1 (DS1) resource on a VSP this attribute will not allow the use of timeslots 25 through 31 inclusive.

Set of — Decimal (1..31)

Default — (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30)

### ATTRIBUTE Vmg Mglf Tdm interfaceName (ifName)

Access — Read: All
Write: All

Criticality — Component

Description — This attribute specifies the Time Division Multiplexing (TDM) connection component hierarchy on the Voice Services Processor (VSP) associated with this *TdmResource* component.

The value specified depends on the TDM interface card type in use on the Media Gateway. For the 32pE1Aal card type, this attribute is set to the value specified by the *Nsta/n Vgs AmrBrag/n interfaceName* attribute or *Nsta/n Vgs CsdBrag/n interfaceName* attribute. For the 4pOc3ChSmIr card type, this attribute is set to the component hierarchy provisioned for this TDM resource on the Media Gateway. The first two format examples below illustrate how this attribute should be set when the 4pOc3ChSmIr card type is in use on the Media Gateway.

If Line Automatic Protection Switching (LAPS) is configured, then in the case of a switchover, this attribute may not match the attribute on the Media Gateway (MG) as discussed above. In this case, changes are not required to this attribute value. The VSP card on the MG ensures that the resource names are interpreted correctly when a LAPS switchover occurs.

The *interfaceName* attribute must have one of the following formats:

*Lp/n Sdh/n Vc4/j Vc12/k,l,m E1 Chan/n*
*Lp/n Sonet/n Sts/j Vt12/l,m DS1 Chan/n*
*Lp/n E1/n Chan/n*

| | |
|---|---|
| Values | String (1..80, ASCII) |
| Default | No default |

### GROUP Vmg Mglf Tdm OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Vmg Mglf Tdm adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Vmg Mglf Tdm operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Vmg Mglf Tdm usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Vmg Mglf Tdm WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Vmg Mglf Tdm customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vmg Mglf Tdm customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vmg Mglf Tdm customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

## COMPONENT Vmg MgIf Tdm DS0Resource (DS0)

| | |
|---|---|
| Instance | Decimal (0..31) |
| Groups | "GROUP Vmg MgIf Tdm DS0 Operational (Oper)"<br>"GROUP Vmg MgIf Tdm DS0 WlcCustomCounters (WlcCustomCntr)" |
| Scope | Device |
| Description | Vmg/n MgIf/n TdmResource/n DS0Resource/n<br><br>This operational component represents a DS0 Resource that is controlled by the Media Gateway. |
| Common Verbs | Help<br>List<br>Display |

## GROUP Vmg MgIf Tdm DS0 Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes of the *DS0Resource* component. |

## ATTRIBUTE Vmg MgIf Tdm DS0 cic (cic)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the SS7 Circuit Identifier Code (CIC) associated with this DS0. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## ATTRIBUTE Vmg MgIf Tdm DS0 state (st)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

Description

This attribute indicates the current state of the DS0.
The states of the DS0 are:
***unknown*** - This DS0 is not controlled by this Virtual Media Gateway (VMG).
***regPending*** - Registration to the Media Gateway is pending.
***oos*** - The Media Gateway reports the DS0 as being out of service.
***idle*** - No call is active, and the DS0 is ready to be used in a new call.
***connectionSetup*** - A connection has been requested and bearer signalling establishment is being awaited.
***connectionPending*** - A connection is established and Media Gateway acknowledgment is being awaited.
***connected*** - The call is active.
***releasing*** - The call is disconnecting.

Values

unknown
regPending
oos
idle
connectionSetup
connectionPending
connected
releasing

Default

No default

## ATTRIBUTE Vmg Mglf Tdm DS0 blockState (bst)

Access

Read: All
Write: Illegal

Description

This attribute indicates the current blocking state of the DS0 circuit.
The local blocking states of the DS0 circuit are:
***locallyBlocked*** - The DS0 circuit is blocked at the local node and may be blocked at the remote node at the same time.
***remotelyBlocked*** - The DS0 circuit is blocked at the remote node.
***unblocked*** - The DS0 circuit is unblocked at both the local and remote nodes.

Values

locallyBlocked
remotelyBlocked
unblocked

| | |
|---|---|
| Default | No default |

### GROUP Vmg Mglf Tdm DS0 WlcCustomCounters (WlcCustomCntr)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the spare counters that can be dynamically patched. |

### ATTRIBUTE Vmg Mglf Tdm DS0 customCounter1 (customCntr1)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vmg Mglf Tdm DS0 customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vmg Mglf Tdm DS0 customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

## COMPONENT Vmg MgIf AtmResource (AtmRsrc)

| | |
|---|---|
| Instance | Decimal (0..32767) |
| Scope | Device |
| Description | *Vmg/n MgIf/n AtmResource/<vcci.>*<br><br>This component represents an ATM trunk that provides connectivity to the Media Gateway identified by the *mgAtmAddr*, *mgIpAddr*, and *mgUdpPort* attributes of the parent *MgIf* component.<br><br>The instance value indicates the VCCI used by the ATM trunk. It must match the value of the *vcci* attribute of some *AtmTConn* component provisioned on the remote Media Gateway.<br><br>Within any *Vmg* component hierarchy, *AtmResource* component instance values must be unique across all *MgIf* components. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## COMPONENT Vmg Mtp3Connection (Mtp3Conn)

| | |
|---|---|
| Groups | "GROUP Vmg Mtp3Conn Provisioned (Prov)"<br>"GROUP Vmg Mtp3Conn WlcCustomCounters (WlcCustomCntr)" |
| Scope | Application |
| Description | Vmg/n Mtp3Connection<br>Sccp/n Mtp3Connection |

This component represents a connection to an MTP3 layer.

Common Verbs

Help
List
Display

## GROUP Vmg Mtp3Conn Provisioned (Prov)

Properties: Provisioned

Description: This group contains the provisionable attributes of the *Mtp3Connection*component.

## ATTRIBUTE Vmg Mtp3Conn linkToServiceIndicator (lToSI)

Access: Read: All
Write: All

Criticality: Process

Description: This attribute specifies a link to an *Mtp3/n ServiceIndicator/n* component for MTP 3 services.

Changing this attribute will cause the application using the MTP3 layer's services to be restarted.

Values: Link (Service, linkToMtp3Connection)

Default: No default

## GROUP Vmg Mtp3Conn WlcCustomCounters (WlcCustomCntr)

Properties: Operational

Description: This group contains the spare counters that can be dynamically patched.

## ATTRIBUTE Vmg Mtp3Conn customCounter1 (customCntr1)

Access: Read: All
Write: Illegal

Description: This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a

| | |
|---|---|
| | mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vmg Mtp3Conn customCounter2 (customCntr2)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vmg Mtp3Conn customCounter3 (customCntr3)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute does not count anything and is not displayed under normal operating circumstances. It is included here to provide a mechanism by which custom counters can be set up at runtime through a patch. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT Vmg MemoryPoolManager (Mpm)

| | |
|---|---|
| Scope | Application |
| Description | *Gsc/n MemoryPoolManager*<br>*Gsd/n MemoryPoolManager*<br>*Gtl/n MemoryPoolManager*<br>*DnsAgent/<vr>,n MemoryPoolManager* |

This component represents the memory resources of a given GPRS application that are managed as pools of objects.

Dyn. Subcomp. "COMPONENT Vmg Mpm MemoryPoolClient (Mpc)"

Common Verbs
Help
List
Display

## COMPONENT Vmg Mpm MemoryPoolClient (Mpc)

Instance String (1..30, ASCII)

Scope Application

Description *Gsc/n Mpm MemoryPoolClient/<name>*
*Gsd/n Mpm MemoryPoolClient/<name>*
*SgGtl/n Mpm MemoryPoolClient/<name>*
*DnsAgent/<vr>,n Mpm MemoryPoolClient/<name>*

This component represents a pool of objects of a particular class that a GPRS application currently owns as well as all the objects that could be owned by that application. All the objects in the pool are of the same class. The instance value of this component is a string which is the class name of the objects in the pool.

Common Verbs
Help
List
Display

Passport 7400, 15000, 20000

# Component Vmg

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component Vm

241-5701-060

Passport 7400, 15000, 20000

# Component Vm

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT VirtualMedia (Vm)

| | |
|---|---|
| Instance | Decimal (0..15) |
| Scope | Application |
| Description | *VirtualMedia/n*<br>The *VirtualMedia* component represents an instance of a logical media. *VirtualMedia* provides IP connectivity between virtual routers on the same module, and supports an ‘always-up IP interface’ concept; i.e interface stays up unless it is administratively disabled or the hardware goes down. *VirtualMedia* can be used to support inter-VR communication, or by BGP-4 to establish an ‘always-up IP interface’. |
| Subcomponents | "COMPONENT Vm Interface (If)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## COMPONENT Vm Interface (If)

| | |
|---|---|
| Instance | Decimal (0..15) |
| Groups | "GROUP Vm If MediaProv (Mp)"<br>"GROUP Vm If CustomerIdentifierData (CidData)"<br>"GROUP Vm If IfEntryProv (IfEntry)"<br>"GROUP Vm If OperationalStatus (OperStatus)"<br>"GROUP Vm If OsiState (State)"<br>"GROUP Vm If Provisioned (Prov)" |

| | |
|---|---|
| Scope | Application |
| Description | *Vm/n Interface/n*<br>This component represents a logical interface to the *VirtualMedia*. The given *VirtualMedia* instance can have at most one *Interface* linked to a *ProtocolPort* of a given *VirtualRouter.* |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

### GROUP Vm If MediaProv (Mp)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the base provisioning data for the media base component. |

### ATTRIBUTE Vm If linkToProtocolPort (pp)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the *ProtocolPort* to which this interface is linked to. The protocol port is the logical interface to the network. The protocol port component describes the logical characteristics of this interface. |
| Values | Link (Service, linkToMedia) |
| Default | No default |

### GROUP Vm If CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

### ATTRIBUTE Vm If customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.<br><br>Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.<br><br>An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to "basic CIDs" in DPN) may be assigned to specific customers. |
| Values | Decimal (0; 1..8191) |
| Default | 0 |

### GROUP Vm If IfEntryProv (IfEntry)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the ifEntry. |

### ATTRIBUTE Vm If ifAdminStatus (ifState)

| | |
|---|---|
| Access | Read and write |
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |

| | |
|---|---|
| Default | up |

### ATTRIBUTE Vm If ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP Vm If OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

### ATTRIBUTE Vm If snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### GROUP Vm If OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state |

combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Vm If adminState (osiAdmin)

Access: Read only

Description: This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values: locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default: unlocked

### ATTRIBUTE Vm If operationalState (osiOper)

Access: Read only

Description: This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available

for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Vm If usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Vm If Provisioned (Prov)

Properties
Provisioned

Description
This group contains the provisionable attributes for the *If* component.

### ATTRIBUTE Vm If mode

Access
Read and write

Criticality
Component

Description
This attribute specifies the mode of operation of the *Vm If*. The following modes are supported: ***alwaysUpInterface***,

***alwaysUpSummaryInterface*** and ***interVrConnection***.

***alwaysUpInterface***: This mode limits the *Vm If* to provide the functionality of an 'always up interface' only. Inter-VR communcation is not possible when this mode is selected. Memory consumption by the *Vm If* is significantly less on the FP when this mode is selected. Hence this mode should be used when the sole purpose of the *Vm If* is to provide an always up interface for an application like BGP4.

***alwaysUpSummaryInterface***: This mode limits the *Vm If* to provide the functionality of an 'always up interface' in which more than one host can be sumarized. Inter-VR communcation is not possible when this mode is selected. Memory consumption by the *Vm If* is significantly less on the FP when this mode is selected. Hence this mode should be used when the sole purpose of the *Vm If* is to provide an always up interface for an application like VPN in which specific host information is configured by the user.

***interVrConnection***: This mode provides the full capability of VirtualMedia, that is, 'always up interface' and inter-VR communication.

| | |
|---|---|
| Values | alwaysUpInterface<br>interVrConnection<br>alwaysUpSummaryInterface |
| Default | alwaysUpInterface |

Passport 7400, 15000, 20000

# Component Vm

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component Vncs

241-5701-060

Passport 7400, 15000, 20000

# Component Vncs

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT VoiceNetworkingCallServer (Vncs)

| | |
|---|---|
| Instance | Decimal (1..16) |
| Groups | "GROUP Vncs Provisioned (Prov)"<br>"GROUP Vncs Statistics (Stats)" |

"COLLECTED STATS VoiceNetworkingCallServer"

| | |
|---|---|
| Scope | Network |
| Description | *Vncs/n*<br>The *Vncs* component provides the information to the Path Oriented Routing System (PORS) required during switched voice call establishment. It translates the directory number prefix into the routing information and the voice service profile parameters. Each instance of this component represents one numbering plan. |
| Subcomponents | "COMPONENT Vncs DiallingPlan (DP)"<br>"COMPONENT Vncs VoiceProfile (Vp)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Vncs Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group represents the provisionable attributes of the VNCS server. |

### ATTRIBUTE Vncs commentText

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the name of the customer that is using this VNCS server. Typical use of this attribute is to store customer name. |
| Values | String (0..40, ASCII) |
| Default | No default |

### ATTRIBUTE Vncs voiceRoutes (vRoutes)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates which *VoiceRoute* components are using this *Vncs*. |
| List of | Link (Service, voiceNetworkingCallServer) |
| Default | No default |

### GROUP Vncs Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group provides data for the *Vncs* component. |

### ATTRIBUTE Vncs totalTranslations

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of translation requests received by VNCS. This counter wraps to zero when it reaches its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## COLLECTED STATS VoiceNetworkingCallServer

| | |
|---|---|
| Description | The statistics record generated by the VoiceNetworkingCallServer component. |

### ATTRIBUTE Vncs totalTranslations

| | |
|---|---|
| Description | This spooled statistic counts the number of translation requests received by *Vncs* in the last statistics collection interval. |
| Values | Decimal (0..65535) |

### ATTRIBUTE Vncs completeTranslations

| | |
|---|---|
| Description | This spooled statistic counts the number of completed translations handled under each *DiallingPlan* component in the last statistics collection interval. The complete translations are the one that resulted in the return by VNCS server of the reply message with the routing information and *VoiceProfile* parameters associated with the directory number prefix supplied in the translation request message. |
| Vector of | Decimal (0..65535) |
| Index | Decimal (0..2) |

### ATTRIBUTE Vncs incompleteTranslations

| | |
|---|---|
| Description | This spooled statistic counts the number of incomplete translations handled under each *DiallingPlan* component in the last statistics collection interval. The incomplete translations are the one that require more digits in the directory number prefix to uniquely identify routing attributes. |
| Vector of | Decimal (0..65535) |
| Index | Decimal (0..2) |

### ATTRIBUTE Vncs failedTranslations

| | |
|---|---|
| Description | This spooled statistic counts the number of failed translations handled under this *DiallingPlan* component in the last statistics collection interval. The failed translations are the one for which the directory number prefix could not be found in the database. |
| Vector of | Decimal (0..65535) |
| Index | Decimal (0..2) |

## ATTRIBUTE Vncs usageCount

| | |
|---|---|
| Description | This spooled statistic counts the number of times each *VoiceProfile* useage count is accessed to set up a connection in the last statistics collection interval. |
| Vector of | Decimal (0..65535) |
| Index | Decimal (1..16) |

## COMPONENT Vncs DiallingPlan (DP)

| | |
|---|---|
| Instance | Decimal (0..2) |
| Groups | "GROUP Vncs DP Statistics (Stats)" |
| Scope | Network |
| Description | *Vncs/n diallingPlan/x*<br>The *DiallingPlan* subcomponent contains part of the Voice Networking Call Server database that belongs under one dialling plan. There are three dialling plans supported, dialling plan 0, dialling plan 1 and dialling plan 2. |
| Opt. Subcomp. | "COMPONENT Vncs DP DirectoryNumber (Dn)" |
| Common Verbs | Help<br>List<br>Display<br>Add |

## GROUP Vncs DP Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group provides the operational components for the *AccessCode* component. It displays total DirectoryNumber components under this access code, total translation requests received and total requests failed under this access code. |

## ATTRIBUTE Vncs DP completeTranslations

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the total number of complete translations handled under this *AccessCode* component. The complete translations are the one that resulted in the return by VNCS server of the reply message with the routing information and voice profile parameters associated with the directory number prefix supplied in the translation request message. This counter wraps to zero when it reaches its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vncs DP incompleteTranslations

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of incomplete translations handled under this *AccessCode* component. The incomplete translations are the one that require more digits in the directory number prefix to uniquely identify routing attributes. This counter wraps to zero when it reaches its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vncs DP failedTranslations

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of failed translations handled under this *AccessCode* component. The failed translations are the one for which the directory number prefix could not be found in the database. the value wraps up when it reaches maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT Vncs DP DirectoryNumber (Dn)

| | |
|---|---|
| Instance | BCD (1..40, Wildcarded) |

| | |
|---|---|
| Groups | "GROUP Vncs DP Dn Provisioned (Prov)" |
| Scope | Network |
| Description | *Vncs/n DP/x DirectoryNumber/x*<br>The *DirectoryNumber* subcomponent represents a prefix directory number excluding the access code. The instance value must be 1 to 40 digits each of value 0 through 9 or wildcard digit. The wildcard digit is represented by “?”. It is used to indicate to VNCS that the digit in that position should be ignored for routing purposes. Wildcard inconsistencies must not exist. If a prefix directory number already exists with a digit in a particular position, a new prefix may not be added with a wild card in that position and if the prefix already exists with a wild card in the particular position, a new prefix may not be added with a specific digit in the same position. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Vncs DP Dn Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group represents attributes that the prefix directory number maps to. |

## ATTRIBUTE Vncs DP Dn destinationNodeId (nodeId)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute in conjunction with the *destinationComponentId* attribute identifies the destination of a voice connection.<br>The *destinationNodeId* and the *destinationComponentId* attributes are being replaced by the *DataNetworkAddress (Dna)* attribute.<br>For the migration procedure consult NTP 241-7001-410 “Passport Voice Networking User Guide”.<br>If the *destinationComponentId*, the *destinationNodeId* and the |

*Dna* attributes are all set, the call routing is based on the *destinationNodeId* and the *destinationComponentId*, unless the call is initiated from the Magellan Passport Access (MPA) module, which will use the *Dna* attribute.
The valid destination call identifier settings are:
1. *destinationNodeId* and *destinationNodeId* attributes set
2. *destinationNodeId*, *destinationNodeId* and *Dna* attributes set
3. *Dna* attribute set
For calls initiated from the MPA, only options 2 and 3 are valid.

Values: Decimal (0..4095)

Default: 0

### ATTRIBUTE Vncs DP Dn destinationComponentId (dci)

Access: Read: All
Write: All

Description: This attribute in conjunction with the *destinationNodeId* attribute identifies the destination of a voice connection. The only valid component name for this attribute value is *vroute*.
The *destinationNodeId* and the *destinationComponentId* attributes are being replaced by the *DataNetworkAddress (Dna)* attribute.
For the migration procedure consult NTP 241-7001-410 “Passport Voice Networking User Guide”.
If the *destinationComponentId*, the *destinationNodeId* and the *Dna* attributes are all set, the call routing is based on the *destinationNodeId* and the *destinationComponentId*, unless the call is initiated from the Magellan Passport Access (MPA) module, which will use the *Dna* attribute.
The valid destination call identifier settings are:
1. *destinationNodeId* and *destinationNodeId* attributes set
2. *destinationNodeId*, *destinationNodeId* and *Dna* attributes set
3. *Dna* attribute set
For calls initiated from the MPA, only options 2 and 3 are valid.

Values: The name of the component

Default: No default

### ATTRIBUTE Vncs DP Dn voiceProfileNumber (vpn)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute identifies the voice profile number. |
| Values | Decimal (1..16) |
| Default | 1 |

### ATTRIBUTE Vncs DP Dn numberingPlanIndicator (npi)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates the Numbering Plan Indicator (NPI) of the *Dna* of the destination component. An address may belong to the X.121 or E.164 numbering plans. X.121 is used in packet switched data networks. |
| Values | x121<br>e164 |
| Default | e164 |

### ATTRIBUTE Vncs DP Dn dataNetworkAddress (dna)

| | |
|---|---|
| Access | Read and write |
| Description | The *Dna* attribute contains digits which form a unique identifier of the destination of a voice connection.<br>This attribute is used instead of the *destinationNodeId* and *destinationComponentId* attributes to identify the destination of the voice connection.<br>This attribute is only used if the *destinationNodeId* and the *destinationComponentId* attributes are not set or if the call is initiated from the Magellan Passport Access (MPA) module. |
| Values | BCD (0..15) |
| Default | No default |

### COMPONENT Vncs VoiceProfile (Vp)

| | |
|---|---|
| Instance | Decimal (1..16) |

| | |
|---|---|
| Groups | "GROUP Vncs Vp LogicalConnectionOptions (LCOps)"<br>"GROUP Vncs Vp FramerOptions (FrOps)"<br>"GROUP Vncs Vp Statistics (Stats)" |
| Scope | Network |
| Description | *Vncs/n VoiceProfile/n*<br>A *VoiceProfile* component contains all provisionable logical connection attributes and framer attributes used to set up a virtual circuit. Directory-number prefixes are mapped to *VoiceProfile* instances by the *Vncs Dp Dn* component. Many directory-number prefixes use the same profile. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Vncs Vp LogicalConnectionOptions (LCOps)

| | |
|---|---|
| Properties | Provisioned |
| Description | The attributes of this group collectively form part of a template used to describe and set up a switched logical connection. The attributes of a switched logical connection are similar to the attributes of a permanent logical connection. |

## ATTRIBUTE Vncs Vp setupPriority (spri)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the priority at which a path is established. Zero is the highest priority and four is the lowest. When PORS establishes a path through the network, it uses the *setupPriority* attribute to determine its potential for bumping established paths to acquire their bandwidth. The *holdingPriority*, a complementary attribute of this attribute, indicates the priority a path maintains once it is established. A new path can bump an existing path if the new path's *setupPriority* is higher (numerically less) than the existing path's *holdingPriority.* |
| Values | Decimal (0..4) |

Default 2

### ATTRIBUTE Vncs Vp holdingPriority (hpri)

Access Read and write

Description This attribute specifies the priority that a path holds once it is established. Zero is the highest priority and four is the lowest. A path's *holdingPriority* determines its likelihood of being bumped by a new path to acquire its bandwidth. The *setupPriority*, a complementary attribute, indicates the priority of a path at establishment time. A new path can bump an existing path if the new path's *setupPriority* is higher (numerically less) than the existing path's *holdingPriority.*

Values Decimal (0..4)

Default 2

### ATTRIBUTE Vncs Vp bumpPreference (bpref)

Access Read and write

Description This attribute specifies when bumping occurs in the route selection process. A connection with higher (numerically less) *setupPriority* may bump a connection with lower (numerically higher) *setupPriority* in order to acquire its bandwidth and be established. By default, bumping occurs only when it is necessary. That is, a connection will bump another connection only if there is no other way for the connection to be established. A connection may be set to bump in order to use the best available route it may have.

Values bumpWhenNecessary
bumpToObtainBestRoute

Default bumpWhenNecessary

### ATTRIBUTE Vncs Vp requiredTrafficType (rttyp)

Access Read and write

Description This attribute specifies the type of traffic transmitted over the path. There are eight possible traffic types, and the path can transmit only one of them. The originating end of the connection

determines the type. These are arbitrary designations for traffic type. The ***voice***, ***data*** and ***video*** traffic types are defined, and five other arbitrary traffic types can be defined by the network administration. This attribute is used in the route selection process to restrict the route to trunks that support this traffic type. The *supportedTrafficType* trunk attribute lists all the types of traffic allowed on the trunk. For example, if *requiredTrafficType* is specified as ***trafficType1,*** then only trunks that include ***trafficType1*** in *supportedTrafficType* will be candidates for this connection.

Values

voice
data
video
trafficType1 (tt1)
trafficType2 (tt2)
trafficType3 (tt3)
trafficType4 (tt4)
trafficType5 (tt5)

Default

voice

## ATTRIBUTE Vncs Vp permittedTrunkTypes (pttyp)

Access

Read and write

Description

This attribute specifies up to eight types of trunks that can be used on the route. The ***terrestrial*** and ***satellite*** trunk types have been defined, leaving six remaining arbitrary types that can be defined by the network administration. The trunk's type is indicated in the *trunkType* attribute of the Trunk component. When selecting a route, PORS chooses only trunks whose *trunkType*s are in the *permittedTrunkTypes* for the path.

Set of

terrestrial
satellite
trunkType1 (tt1)
trunkType2 (tt2)
trunkType3 (tt3)
trunkType4 (tt4)
trunkType5 (tt5)
trunkType6 (tt6)

| | |
|---|---|
| Default | (terrestrial, satellite, trunkType1, trunkType2, trunkType3) |

### ATTRIBUTE Vncs Vp requiredSecurity (rsec)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the required minimum level of security of the trunks on the route. Zero represents the most secure and seven represents the least secure. The trunk's security is indicated by the *trunkSecurity* attribute of the Trunk component, and has values identical in range and meaning to the *requiredSecurity* attribute. PORS ensures that any route selected does not contain a trunk whose *trunkSecurity* attribute is numerically greater than the *requiredSecurity.* |
| Values | Decimal (0..7) |
| Default | 4 |

### ATTRIBUTE Vncs Vp requiredCustomerParm (rcparm)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the allowed customer defined parameter of the trunks on the route. Its value, a number from zero to seven, is chosen by network administration to have a meaning specific to their network, thus allowing them to customize the use of their trunks. A complementary trunk attribute, *customerParameter*, also has a value from zero to seven. The route selection process does not consider trunks whose *customerParameter* is greater than the *requiredCustomerParameter* of the path. |
| Values | Decimal (0..7) |
| Default | 4 |

### ATTRIBUTE Vncs Vp pathAttributeToMinimize (pamin)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether a route is selected on the basis of minimizing the cost or the delay. Each trunk has a cost and a delay metric associated with it. The cost of a selected route is the sum of the trunk cost metrics for all trunks included in the route. |

The delay of a selected route is the sum of the trunk delay metric for all trunks included in the route.

Values
cost
delay

Default
cost

### ATTRIBUTE Vncs Vp maximumAcceptableCost (maxCost)

Access
Read and write

Description
This attribute specifies an upper bound on the cost metric of a route, which is the sum of the cost metrics of all trunks on the route. The cost metric is the *trunkCost* attribute of the Trunk component. If for any trunk the *trunkCost* is larger than the *maximumAcceptableCost*, then that trunk is not considered during the route selection. While a shortest route is being selected, the route cost is being compared with the *maximumAcceptableCost* attribute, and this is done for any minimization criterion. No route is selected if the cost metric of the shortest route is larger than the *maximumAcceptableCost*.

Values
Decimal (0..65535)

Default
1280

### ATTRIBUTE Vncs Vp maximumAcceptableDelay (maxDelay)

Access
Read and write

Description
This attribute specifies an upper bound on the delay of a route, which is the sum of the delays of all trunks on the route. It should be provisioned with a reasonable maximum acceptable delay for the end to end one way delay of a 512-byte packet. Remember, that the trunk during its staging measures a *measuredRoundTripDelay.* This delay is divided by two and truncated to an integer number of milliseconds to provide a one way delay which is used to populate the delay in this trunk object in the topological database. The value includes emission, propagation, and queuing delays. A 512-byte packet is used to perform the measurement.
If for any trunk the half of the trunk's *measuredRoundTripDelay* is larger than the *maximumAcceptableDelay*, then that trunk is not

| | |
|---|---|
| | considered during the route selection.<br>While a shortest route is being selected, the route delay is being compared with the *maximumAcceptableDelay* attribute, and this is done for any minimization criterion. No route is selected if the delay metric of the shortest route is larger than the *maximumAcceptableDelay.* |
| Values | Decimal (0..100000) |
| Units | msec |
| Default | 100000 |

### ATTRIBUTE Vncs Vp emissionPriority (epri)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the urgency with which packets on the path are emitted by the trunks on the route. *EmissionPriority* of zero indicates the highest emission priority, while two indicates the lowest emission priority. Packets with a higher *emissionPriority* (or numerically less) are serviced and sent out before the packets of lower *emissionPriority* (or numerically higher). |
| Values | Decimal (0..2) |
| Default | 0 |

### ATTRIBUTE Vncs Vp discardPriority (dpri)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the importance of the packets on the path. One is used for paths carrying the most important traffic, and three is used for paths carrying the least important traffic. Packets with lower *discardPriority*(numerically) are discarded after packets with a higher *discardPriority*(numerically). |
| Values | Decimal (1..3) |
| Default | 1 |

### ATTRIBUTE Vncs Vp pathFailureAction (pfa)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute specifies whether the application can tolerate momentary interruption of a path while a new path is selected. If ***disconnectConnection*** is chosen, the application is informed as soon as possible about a failure by disconnection. If the attribute is set to ***reRoutePath***, the path may attempt an immediate reroute, provided the failure is a recoverable failure. If rerouting fails, the application is informed of the failure.<br>With this option set to ***reRoutePath***, the LCo may wait up to 30 seconds before informing the service of complete disconnection in order to allow both ends to attempt to reconnect. Note that if PLC components are different at both ends only the calling end is allowed to reconnect.<br>All *pathTypes* respect this attribute. Also on a *manualPath* with both ends provisioned with independent paths (at least with respect to the failure) this option will have the desired effect that the path is rerouted without complete disconnection at both ends. |
| Values | reRoutePath<br>disconnectConnection |
| Default | reRoutePath |

### ATTRIBUTE Vncs Vp optimization (opt)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether this connection should attempt to optimize its path when requested by the *Rtg Pors* component. Every path is optimal when it is established, but as network traffic patterns and configurations change this path may no longer be optimal. The PORS connection manager on a module requests circuits to optimize at the *optimizationInterval*. |
| Values | disabled<br>enabled |
| Default | enabled |

### ATTRIBUTE Vncs Vp maximumAcceptableGatewayCost (maxGateCost)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates an upper bound on the gateway cost metric of a route, which is the sum of the gateway cost metrics of |

all gateway links on the route. It has the same semantics as the *maximumAcceptableCost* except that gateway cost metrics are used instead of trunk cost metrics. Gateway cost metrics are provisioned under *Trunk Address* component of a gateway link specifying a gateway costs of reaching an address through the link.

Values: Decimal (0..65535)

Default: 2048

## GROUP Vncs Vp FramerOptions (FrOps)

Properties: Provisioned

Description: This group contains attributes which define how audio data is carried across the Passport network.

## ATTRIBUTE Vncs Vp silenceSuppression

Access: Read and write

Description: This attribute specifies when silence suppression is desired during voice traffic on an audio call.

If *silenceSuppression* is ***off***, silence suppression is never desired.
If *silenceSuppression* is ***on***, silence suppression is always desired.
If *silenceSuppression* is ***congested***, silence suppression is desired only when the network is congested.
If *silenceSuppression* is ***slow***, silence suppression is desired only after 20 seconds without audio.
If *silenceSuppression* is ***slowAndCongested***, both the ***slow*** and ***congested*** options are desired.

The negotiated silence suppression is available in *Vsr Svs Framer negotiatedSilenceSuppression*.

Values:
off
on
congested
slow
slowAndCongested

Default: on

### ATTRIBUTE Vncs Vp silenceSuppressionFactor

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the expected savings (percent reduction) in required bandwidth if silence suppression is used. If silence suppression is used, the bandwidth required for the connection will be lower than if silence suppression is not used. However, the routing system will not be aware of the unused bandwidth unless that bandwidth is specified by this attribute.<br>If the value specified for the expected savings is too low, then some bandwidth made available by the use of silence suppression will be wasted. If the value specified for the expected savings is too high, then some connections may fail to set up because the routing system will over-calculate the amount of bandwidth available.<br>The effectiveness of silence suppression can be influenced by language related speech patterns. |
| Values | Decimal (0..60) |
| Units | % |
| Default | 40 |

### ATTRIBUTE Vncs Vp dataCallsAccepted (dca)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether data calls are allowed if this profile is used. |
| Values | no<br>yes |
| Default | yes |

### ATTRIBUTE Vncs Vp faxIdleSuppressionG711G726

| | |
|---|---|
| Access | Read: Passive<br>Write: Service |
| Description | This attribute specifies the fax idle suppression parameter used during negotiation with the remote end across the subnet. It applies only to fax traffic, not voice or modem traffic. |

The negotiated G.711/G.726 fax idle suppression is available in *Vsr Svs Framer negotiatedFisG711G726.*

Values
off
on

Default
on

## ATTRIBUTE Vncs Vp insertedOutputDelay

Access
Read: Passive
Write: Service

Description
This attribute specifies the amount of added output delay used to compensate for cross network delay variations. It applies to voice, modem and fax traffic. It is required to add output delay so that the statistical variation in the transit time of cells crossing the network does not cause gaps in speech. Backbone networks where high priority traffic consumes a high percentage of trunk bandwidth will require a higher *insertedOutputDelay* to compensate for the greater cell delay variation (CDV).

This attribute is ignored if this call runs on a ***1pDS1V*** or ***1pE1V*** card.

Values
5
15
22
30
35
40
45
50
75
100
125
150

Units
msec

Default
22

### ATTRIBUTE Vncs Vp dtmfRegeneration (detGen)

| | |
|---|---|
| Access | Read: Passive<br>Write: Service |
| Description | This attribute specifies the DTMF regeneration parameter used during negotiation with the remote end across the subnet.<br><br>If *dtmfRegeneration* is ***on***, it is desired that DTMF tones received from the link are first converted to digits before being sent to the subnet. When a digit is received from the subnet, its respective DTMF tone is desired to be generated before being sent to the link.<br><br>If *dtmfRegeneration* is ***off***, it is desired that DTMF tones are transported transparently as audio.<br><br>DTMF regeneration is not supported on ***1pDS1V***, ***1pE1V***, and ***J2MV*** cards. On these cards, the value of *dtmfRegeneration* is ignored.<br><br>The negotiated DTMF regeneration is available in *Vsr Svs Framer negotiatedDtmfRegeneration*. |
| Values | off<br>on |
| Default | off |

### ATTRIBUTE Vncs Vp v17EncodedAsG711G726

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies how services using this *VoiceProfile* negotiate with V.17 fax machines. This attribute is not used unless the negotiated ***fax*** encoding, available in *Vsr Svs Framer negotiatedEncoding*, is ***v29V27Relay*** and the negotiated ***modemFax*** encoding, available in *Vsr Svs Framer negotiatedEncoding*, is ***g711***, ***g726*** or ***g711G726***.<br><br>If *v17EncodedAsG711G726* is ***no,*** it is desired that V.17 fax |

machines be instructed to use V.29 so that V.29 fax traffic sent by fax machines can be demodulated and encoded using fax relay.

If *v17EncodedAsG711G726* is ***yes***, it is desired that V.17 fax machines be permitted to use V.17 so that V.17 fax traffic sent by fax machines can be encoded using G.711 or G.726. The actual encoding performed depends on the negotiated minimum and maximum ***modemFax*** rates, available in *Vsr Svs Framer negotiatedRates*.

The actual negotiation between services using this *VoiceProfile* and V.17 fax machines is available in *Vsr Svs Framer* ***negotiatedV17AsG711G726***.

Values
no
yes

Default
no

## ATTRIBUTE Vncs Vp voiceRates

Access
Read: Passive
Write: Service

Description
This attribute specifies the minimum and maximum ***voice*** rate parameters used during negotiation with the remote end across the subnet. For ***g711G726*** encoding, rates can change during voice traffic due to congestion in the network. Therefore, you can have differing minimum and maximum rates for ***g711G726*** encoding. All other encodings have a fixed rate for the duration of voice traffic and so their minimum and maximum rates can not be modified.

The negotiated minimum and maximum ***voice*** rates are available in *Vsr Svs Framer negotiatedRates*.

Array of
Decimal (8.0; 16.0; 24.0; 32.0; 64.0)

| | |
|---|---|
| Units | kbit/s |
| Row | encoding [g711Only<br>g711G726<br>g728Only<br>g729Only] |
| Column | rate [min<br>max] |
| Default | (64.0, 64.0, 24.0, 64.0, 16.0, 16.0, 8.0, 8.0) |

### ATTRIBUTE Vncs Vp voiceEncodingChoice

| | |
|---|---|
| Access | Read: Passive<br>Write: Service |
| Description | This attribute specifies preferences regarding the encoding of voice traffic. During the setup of an audio call, the local and remote ends negotiate a common encoding to use. The local end's ordered list of preferred encodings is given by all *voiceEncodingChoice* elements that are not set to *none*. Prior to negotiation, the local end removes encodings from its list that it cannot use for a particular call. For example, the card for a particular call may not support certain encodings. After this local check, the local end sends its voice encoding preferences to the remote end. The remote end chooses the most preferred encoding that it can support from the list and this encoding is the one used during voice traffic. If the remote end cannot support any encodings on the local end's list, a call does not proceed and an alarm is issued.<br><br>The current encoding and encoding rate are available in *Vsr Svs currentEncoding* and *Vsr Svs currentRate*.<br><br>The encoding choice ***g711Only*** specifies that pulse code modulation (PCM) defined by ITU-T G.711 should be performed to encode voice traffic for calls using this profile. In this case, all voice traffic is carried uncompressed at 64 kbit/s.<br><br>The encoding choice ***g711G726*** specifies that either pulse code modulation (PCM) defined by ITU-T G.711 or adaptive differential pulse code modulation (ADPCM) defined by ITU-T |

G.726 should be performed to encode voice traffic for calls using this profile. The actual encoding performed depends on congestion in the network and the settings of the ***g711G726*** row of the *voiceRates* attribute.

The encoding choice of ***g728Only*** specifies that the Low Delay Coded Excited Linear Predictive Coder (LD-CELP) algorithm defined by ITU-T G.728 should be performed to encode voice traffic for calls using this profile. In this case, all voice traffic is carried at 16 kbit/s.

The encoding choice of ***g729Only*** specifies that the Conjugated Structure Algebraic Code Excited Linear Predictive Coder (CS-ACELP) algorithm defined by ITU-T G.729 should be performed to encode voice traffic for calls using this profile. In this case, all voice traffic is carried at 8 kbit/s.

The encoding choice of ***none*** specifies the end of the encoding choice list. No other encoding choice can appear after ***none***, and ***none*** cannot appear as the first choice. The only encoding choice that can appear more than once in *voiceEncodingChoice* is ***none***.

G.728 and G.729 encoding cannot be performed on a ***1pDS1V***, ***1pE1V*** or ***J2MV*** card.

The negotiated ***voice*** encoding is available in *Vsr Svs Framer negotiatedEncoding*.

| | |
|---|---|
| Vector of | none<br>g711Only<br>g711G726<br>g728Only<br>g729Only |
| Index | first<br>second<br>third |
| Default | (g729Only, g728Only, g711G726) |

## ATTRIBUTE Vncs Vp modemFaxRates

| | |
|---|---|
| Access | Read: Passive<br>Write: Service |
| Description | This attribute specifies the minimum and maximum modemFax and fax rate parameters used during negotiation with the remote end across the subnet.<br><br>For ***g711Only*** encoding, all modem/fax traffic is carried uncompressed at 64 kbit/s, so this row of *modemFaxRates* cannot be changed.<br><br>For ***g711G726*** encoding, rates can change during modemFax and fax traffic due to congestion in the network. The minimum and maximum rates that can occur during the ***modemFax*** traffic are specified by the ***g711G726*** row of *modemFaxRates*.<br><br>The ***relay*** row of *modemFaxRates* specifies the minimum and maximum rates of sending fax machines that are allowed for fax relay. ***relay*** does not apply to modem calls.<br><br>The negotiated minimum and maximum ***modemFax*** and ***fax*** rates are available in *Vsr Svs Framer negotiatedRates*. |
| Array of | Decimal (0.0; 0.3; 1.2; 2.4; 4.8; 7.2; 9.6; 12.0; 14.4; 16.0; 24.0; 32.0; 64.0) |
| Units | kbit/s |
| Row | encoding [g711Only<br>g711G726<br>relay] |
| Column | rate [min<br>max] |
| Default | (64.0, 64.0, 32.0, 64.0, 0.0, 14.4) |

## ATTRIBUTE Vncs Vp modemFaxEncodingChoice

| | |
|---|---|
| Access | Read: Passive<br>Write: Service |

Description

This attribute specifies preferences regarding the encoding of modemFax and fax traffic. During the setup of an audio call, the local and remote ends negotiate one common encoding to use during modemFax traffic and one common encoding to use during fax traffic. The local end's ordered list of preferred encodings is given by all *modemFaxEncodingChoice* elements that are not set to ***none***. Prior to negotiation, the local end removes encodings from its list that it cannot use for a particular call. For example, the card for a particular call may not be able to support certain encodings, or in the case of ***relay***, the rate of the sending machine may not be supported. After this local check, the local end sends its modem/fax encoding preferences to the remote end. The remote end uses the two most preferred encodings that it can support from the list to determine the encoding used during modemFax traffic and the encoding used during fax traffic. If the remote end cannot support any encodings on the local end's list, a call does not proceed and an alarm is issued.

The current encoding and encoding rate are available in *Vsr Svs currentEncoding* and *Vsr Svs currentRate*.

The encoding choice ***g711Only*** specifies that pulse code modulation (PCM) defined by ITU-T G.711 should be performed to encode modem/fax traffic for calls using this profile. In this case, all modem/fax traffic is carried uncompressed at 64 kbit/s.

The encoding choice ***g711G726*** specifies that either pulse code modulation (PCM) defined by ITU-T G.711 or adaptive differential pulse code modulation (ADPCM) defined by ITU-T G.726 should be performed to encode modem/fax traffic for calls using this profile. The actual encoding performed depends on congestion in the network and the settings of the ***g711G726*** row of the *modemFaxRates* attribute.

The encoding choice of ***relay*** specifies that modulated modem/fax traffic is demodulated and sent through the network as Passport cells at the base rate of the sending machine. The types of modulation/demodulation supported are V.29 up to 9.6 kbit/s and V.27 up to 4.8 kbit/s. Only fax traffic can use ***relay***.

If *modemFaxEncodingChoice* is ***relay, none, none***, modem traffic is not supported. If *modemFaxEncodingChoice* is ***none, none, none***, all traffic is treated like voice traffic.

Fax relay cannot be performed on ***1pDS1V, 1pE1V*** or ***J2MV*** cards.

The negotiated ***modemFax*** and ***fax*** encodings are available in *Vsr Svs Framer negotiatedEncoding*.

| | |
|---|---|
| Vector of | none<br>g711Only<br>g711G726<br>relay |
| Index | first<br>second<br>third |
| Default | (relay, g711G726, none) |

## GROUP Vncs Vp Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational statistics data for a Voice Networking profile component. |

## ATTRIBUTE Vncs Vp usageCount

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times this *VoiceProfile* is accessed to set up a connection. This counter wraps to 0 when it reaches its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

Passport 7400, 15000, 20000

# Component Vncs

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component VRoute

241-5701-060

Passport 7400, 15000, 20000

# Component VRoute

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT VoiceRoute (VRoute)

| | |
|---|---|
| Instance | Decimal (1..153) |
| Groups | "GROUP VRoute Provisioned (Prov)"<br>"GROUP VRoute CustomerIdentifierData (CidData)"<br>"GROUP VRoute IfEntryProv (IfEntry)"<br>"GROUP VRoute OsiState (State)"<br>"GROUP VRoute OperationalStatus (OperStatus)"<br>"GROUP VRoute Statistics (Stats)"<br>"GROUP VRoute Operational (Oper)" |

"COLLECTED STATS VoiceRoute"

| | |
|---|---|
| Scope | Application |
| Description | *VoiceRoute/n*<br>A *VoiceRoute* component defines the common characteristics of the connections to a Private Branch Exchange (PBX). There is normally one *VoiceRoute* per attached PBX. |

| | |
|---|---|
| Subcomponents | "COMPONENT VRoute Interface"<br>"COMPONENT VRoute DataNetworkAddress (Dna)"<br>"COMPONENT VRoute VoiceAccounting (Acct)" |
| Opt. Subcomp. | "COMPONENT VRoute IgDigitManipulation (Idm)"<br>"COMPONENT VRoute EgDigitManipulation (Edm)" |
| Dyn. Subcomp. | "COMPONENT VRoute VnetRouteDebug (Debug)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP VRoute Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes of a Voice Networking *VoiceRoute* component. |

## ATTRIBUTE VRoute commentText

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | Use of this attribute is at the discretion of the system administrator. Typically, it specifies the name of the customer that is using this *VoiceRoute*. |
| Values | String (0..40, ASCII) |
| Default | No default |

## ATTRIBUTE VRoute typeOfRoute (tor)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the type of calls (either voice, data, or both voice and data) that this *VoiceRoute* will accept from the Passport subnet and the local PBX. If *typeOfRoute* is set to ***voice***, then all data calls from the subnet and the local PBX will be rejected. If *typeOfRoute* is set to ***data***, then all voice calls from the subnet and the local PBX will be rejected. If *typeOfRoute* is set to ***voiceData***, then all data and voice calls will be accepted from the subnet and the local PBX. |
| Values | voice<br>data<br>voiceData |
| Default | voiceData |

## ATTRIBUTE VRoute diallingPlan0 (dp0)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies how to map the numbering plan indication and the type of number into the *Vncs* database *diallingPlan0*. For more information refer to NTP 241-7001-4xx Voice Networking Users Guide. There are three numbering plans that are allowed, unknown, E.164, and private. Within each of these, there are eight possible type of numbers. Since the name for the type of numbers for the private numbering plans varies from protocol to protocol, a generic scheme has been adopted.<br>***unknown*** means that the sending and receiving switches have no knowledge of the numbering plan.<br>***international*** means that the sending switch has identified the number format as matching the E.164 international dialling.<br>***national*** means that the sending switch has identified the number as conforming to the E.164 national dialling plan<br>***subscriber*** means that the number is the address of a customer |

conforming to the local public network.
***p0***, ***p1***, ***p2***, ***p3***, ***p4***, ***p5***, ***p6*** and ***p7*** are private numbering plans, with a type of number zero to seven.
***casUnknown*** means any number received from a Channel Associated Signalling (CAS) trunk.

Set of

unknown
international
national
subscriber
p0
p1
p2
p3
p4
p5
p6
p7
casUnknown

Default

(unknown, international, national, subscriber, p0, p1, p2, p3, p4, p5, p6, p7, casUnknown)

## ATTRIBUTE VRoute diallingPlan1 (dp1)

Access

Read: All
Write: All

Criticality

Process

Description

This attribute specifies how to map the numbering plan indication and the type of number into the *Vncs* database *diallingPlan1*. For more information refer to NTP 241-7001-4xx Voice Networking Users Guide. There are three numbering plans that are allowed, unknown, E.164, and private. Within each of these, there are eight possible type of numbers. Since the name for the type of numbers for the private numbering plans varies from protocol to protocol, a generic scheme has been adopted.
***unknown*** means that the sending and receiving switches have no knowledge of the numbering plan.
***international*** means that the sending switch has identified the number format as matching the E.164 international dialling plan.
***national*** means that the sending switch has identified the number

| | |
|---|---|
| | as conforming to the E.164 national dialling plan<br>***subscriber*** means that the number is the address of a customer conforming to the local public network.<br>***p0***, ***p1***, ***p2***, ***p3***, ***p4***, ***p5***, ***p6*** and ***p7*** are private numbering plans, with a type of number zero to seven.<br>***casUnknown*** means any number received from a Channel Associated Signalling (CAS) trunk. |
| Set of | unknown<br>international<br>national<br>subscriber<br>p0<br>p1<br>p2<br>p3<br>p4<br>p5<br>p6<br>p7<br>casUnknown |
| Default | No default |

### ATTRIBUTE VRoute diallingPlan2 (dp2)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies how to map the numbering plan indication and the type of number into the *Vncs* database *diallingPlan2*. For more information refer to NTP 241-7001-4xx Voice Networking Users Guide. There are three numbering plans that are allowed, unknown, E.164, and private. Within each of these, there are eight possible type of numbers. Since the name for the type of numbers for the private numbering plans varies from protocol to protocol, a generic scheme has been adopted.<br>***unknown*** means that the sending and receiving switches have no knowledge of the numbering plan.<br>***international*** means that the sending switch has identified the number format as matching the E.164 international dialling plan. |

***national*** means that the sending switch has identified the number as conforming to the E.164 national dialling plan
***subscriber*** means that the number is the address of a customer conforming to the local public network.
***p0***, ***p1***, ***p2***, ***p3***, ***p4***, ***p5***, ***p6*** and ***p7*** are private numbering plans, with a type of number zero to seven.
***casUnknown*** means any number received from a Channel Associated Signalling (CAS) trunk.

Set of

unknown
international
national
subscriber
p0
p1
p2
p3
p4
p5
p6
p7
casUnknown

Default

No default

## ATTRIBUTE VRoute huntingAlgorithm (rha)

Access

Read: All
Write: All

Criticality

Process

Description

This attribute specifies the type of hunting algorithm that should be used by the *VoiceRoute* and *VoiceSubroutes* when selecting a channel to make an outgoing call.
***bottomUpLinear*** means that a call from the subnet will be passed to the lowest instance of the *VoiceSubroute*s, which in turn will pass the call to the lowest instance of *SwitchedVoiceService*. If there are no available *SwitchedVoiceService*s in that *VoiceSubroute* then the process will be repeated for the next lowest instance of *VoiceSubroute.*
***topDownLinear*** means that a call from the subnet will be passed to the highest instance of the *VoiceSubroutes*, which in turn will

| | |
|---|---|
| | pass the call to the highest instance of *SwitchedVoiceService*. If there are no available *SwitchedVoiceService*s in that *VoiceSubroute* then the process will be repeated for the next highest instance of *VoiceSubroute*. |
| Values | bottomUpLinear<br>topDownLinear |
| Default | bottomUpLinear |

### ATTRIBUTE VRoute minimumDigitsToRoute (mdtr)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the number of digits that must be received before an address resolution request will be sent to the *VoiceNetworkingCallServer*. Once this level has been exceeded an address resolution request will be sent for every digit received until the dialled number has been resolved in the database.<br>This number should be set to a value which represents the average number of digits that will allow for a unique end-point to be identified. If the number is set too low, then the number of simultaneous calls that can be handled by the *VoiceNetworkingCallServer* will be reduced since the number of address resolution requests sent for each call will be increased. If it is set too high then address resolution request messages will not be sent to the *VoiceNetworkingCallServer* until the end-of-dial timer has expired (approximately 12 seconds after the last digit has been received). This can result in very long call setup times. |
| Values | Decimal (1..16) |
| Default | 3 |

### ATTRIBUTE VRoute voiceNetworkingCallServer (vncs)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |

| | |
|---|---|
| Description | This attribute specifies which *Vncs* instance should be used by all calls into this *VoiceRoute* from the PBX. |
| Values | Link (Service, voiceRoutes) |
| Default | No default |

### ATTRIBUTE VRoute overrideDirectoryNumber (odn)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | The number specified here will be used in place of the dialled number to lookup the destination in the *VoiceNetworkingCallServer*. A null string means that the routing decision should be based on the dialled number.<br>The numbering plan type that will be used will be *noAccessCode*. |
| Values | BCD (0..24) |
| Default | "" |

### ATTRIBUTE VRoute privateNetworkIdentifer (pni)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the private network identifier (PNI) value. If the value is zero then connectionless supplementary service transport for TCAP formatted FACILITY messages is not supported. |
| Values | Decimal (0..32700) |
| Default | 0 |

### ATTRIBUTE VRoute subroutes

| | |
|---|---|
| Access | Read: All<br>Write: All |

| | |
|---|---|
| Description | This attribute specifies all of the *VoiceSubroutes* which are associated with this *VoiceRoute*. There is a maximum of 16 *VoiceSubroutes* allowed per *VoiceRoute*. |
| List of | Link (Service, voiceRoute) |
| List Size | 16 |
| Default | No default |

### GROUP VRoute CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

### ATTRIBUTE VRoute customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.<br><br>Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.<br><br>An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to "basic CIDs" in DPN) may be assigned to specific customers. |
| Values | Decimal (0; 1..8191) |
| Default | 0 |

## GROUP VRoute IfEntryProv (IfEntry)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the ifEntry. |

## ATTRIBUTE VRoute ifAdminStatus (ifState)

| | |
|---|---|
| Access | Read and write |
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

## ATTRIBUTE VRoute ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

## GROUP VRoute OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE VRoute adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE VRoute operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |

| | |
|---|---|
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE VRoute usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP VRoute OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

### ATTRIBUTE VRoute snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |

| | |
|---|---|
| Values | up<br>down<br>testing |
| Default | up |

### GROUP VRoute Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group provides the operational attributes for the *VoiceRoute* component. It contains information relating to calls that originate from the network. |

### ATTRIBUTE VRoute totalCallsFromSubnet

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of calls that have been received from the Passport subnet, including calls that fail.<br>The value wraps to zero when it reaches its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE VRoute callsClearedNoChannel

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of calls from the subnet that were rejected when all of the in-service channels were busy. When a call is rejected for this reason, the cause code sent to the originator is 34, no circuit/channel available.<br>The value wraps to zero when it reaches its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE VRoute callsClearedOutOfService

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the total number of calls from the subnet that were rejected because all of the channels were out-of-service. A channel is considered out-of-service if it is unavailable for any reason other than it is being engaged in handling a call. That is, an operator lock of any of the components required for the channel's operation, or problems which interfere with the connection to the PBX, will cause the channel to be considered out-of-service. When a call is rejected for this reason, the cause code sent back to the originator is 27, destination out-of-service. The value wraps to zero when it reaches its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE VRoute callsRejected

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the total number of calls from the subnet that were rejected because they were:<br>1) voice calls to a *typeOfRoute* which is set *to* ***data***,<br>2) data calls to a *typeOfRoute* which is set to ***voice***,<br>3) using a signalling protocol which is incompatible with this end.<br>The value wraps to zero when it reaches its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### GROUP VRoute Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group provides the operational attributes for the *VoiceRoute* component. It displays information relating to calls that originate from the Passport subnet. |

### ATTRIBUTE VRoute degradedSubroutes

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute indicates all of the *VoiceSubroute*s that have at least one *SwitchedVoiceService* whose *operationalState* is ***disabled***. |
| List of | The name of the component |
| List Size | 16 |
| Default | No default |

# COLLECTED STATS VoiceRoute

| | |
|---|---|
| Description | The statistics record generated by the VoiceRoute component. |

### ATTRIBUTE VRoute totalCallsFromSubnet

| | |
|---|---|
| Description | This spooled statistic counts the number of calls that have been received from the Passport subnet in the last statistics collection interval, including calls that fail. |
| Values | Decimal (0..65535) |

### ATTRIBUTE VRoute callsClearedNoChannel

| | |
|---|---|
| Description | This spooled statistic counts the number of calls from the subnet that were rejected when all of the in-service channels were busy in the last statistics collection interval. When a call is rejected for this reason, the cause code sent to the originator is 34, no circuit/ channel available. |
| Values | Decimal (0..65535) |

### ATTRIBUTE VRoute callsClearedOutOfService

| | |
|---|---|
| Description | This spooled statistic counts the number of calls from the subnet that were rejected because all of the channels were out-of-service in<br>the last statistics collection interval. A channel is considered out-of-service if it is unavailable for any reason other than it is being engaged in handling a call. That is, an operator lock of any of the components required for the channel's operation, or problems which interfere with the connection to the PBX, will cause the channel to be considered out-of-service. When a call is rejected for this reason, the cause code sent back to the originator is 27, destination out-of-service. |

Values Decimal (0..65535)

### ATTRIBUTE VRoute callsRejected

Description This spooled statistic counts the number of calls from the subnet that were rejected in the last statistics collection interval because they were:
1) voice calls to a *typeOfRoute* which is set *to* ***data***,
2) data calls to a *typeOfRoute* which is set to ***voice***,
3) using a signalling protocol which is incompatible with this end.

Values Decimal (0..65535)

### COMPONENT VRoute VnetRouteDebug (Debug)

Scope Application

Description *VRoute/n Debug*
The *Debug* component defines the debug operational characteristics of the *VoiceRoute* component.

Common Verbs
Help
List
Display

### COMPONENT VRoute Interface

Groups "GROUP VRoute Interface Provisioned (Prov)"

Scope Application

Description *VoiceRoute/n Interface*
This component defines the interface between a voice route and a PBX. It is ignored for calls running on ***1pDS1V*** or ***1pE1V*** cards.

Common Verbs
Help
List
Display

### GROUP VRoute Interface Provisioned (Prov)

Properties Provisioned

| | |
|---|---|
| Description | This group contains attributes specifying the interface to a PBX. |

### ATTRIBUTE VRoute Interface ingressAudioGain

| | |
|---|---|
| Access | Read: Passive<br>Write: Service |
| Criticality | Process |
| Description | This attribute specifies the gain in dB that is applied to data coming from outside the network before it is transferred across the network. It applies to voice, modem and fax traffic. For example, ingress gain is applied to audio data coming from a PBX. If *ingressAudioGain* is negative, a loss is applied.<br><br>*ingressAudioGain* and *egressAudioGain* are used in loss planning, which is the configuration of the devices in a network to ensure that the signal level from any point in the network to any other point is correct.<br><br>*ingressAudioGain* is ignored for calls on ***1pDS1V*** and ***1pE1V*** cards. For calls running on these cards, ingress audio gain is not under the user's control and egress audio gain is determined by the *audioGain* attribute in the appropriate *Vncs/m VoiceProfile/n*. |
| Values | Signed (-12..12) |
| Units | dB |
| Default | 0 |

### ATTRIBUTE VRoute Interface egressAudioGain

| | |
|---|---|
| Access | Read: Passive<br>Write: Service |
| Criticality | Process |
| Description | This attribute specifies the gain in dB that is applied to data leaving the network. It applies to voice, modem and fax traffic. For example, egress gain is applied to audio data going to a PBX. If *egressAudioGain* is negative, a loss is applied.<br><br>*ingressAudioGain* and *egressAudioGain* are used in loss |

planning, which is the configuration of the devices in the network to ensure that the signal level from any point in the network to any other point is correct.

*egressAudioGain* is ignored for calls running on ***1pDS1V*** and ***1pE1V*** cards. For calls running on these cards, egress audio gain is determined by the *audioGain* attribute in the appropriate *Vncs/m VoiceProfile/n*.

| | |
|---|---|
| Values | Signed (-12..12) |
| Units | dB |
| Default | 0 |

### ATTRIBUTE VRoute Interface tandemPassThrough (tpt)

| | |
|---|---|
| Access | Read: Passive<br>Write: Service |
| Criticality | Process |
| Description | This attribute specifies whether tandem pass through is desired. If *tandemPassThrough* is ***enabled***, tandem pass through is used if possible. If *tandemPassThrough* is ***disabled***, tandem pass through is not used under any circumstances. The actual state of tandem pass through is indicated in *Vsr Svs Framer tptStatus*.<br><br>The negotiated tandem pass through is available in *Vsr Svs Framer negotiatedTandemPassThrough*.<br><br>Tandem pass through is not supported on ***1pDS1V*** and ***1pE1V*** cards, so *tandemPassThrough* is ignored on these cards. |
| Values | enabled<br>disabled |
| Default | disabled |

### ATTRIBUTE VRoute Interface comfortNoiseCap

| | |
|---|---|
| Access | Read: Passive<br>Write: Service |
| Criticality | Process |

| | |
|---|---|
| Description | This attribute specifies the maximum level at which comfort noise is generated. The comfort noise is limited by *comfortNoiseCap* before *egressAudioGain* is applied. The default value of ***-40*** dBm0 equates to the maximum level of comfort noise available and effectively disables the *comfortNoiseCap*. |
| Values | Signed (-78; -65; -60; -54; -52; -50; -48; -46; -44; -42; -40) |
| Units | dBm0 |
| Default | -40 |

### ATTRIBUTE VRoute Interface speechHangoverTime

| | |
|---|---|
| Access | Read: Passive<br>Write: Service |
| Criticality | Process |
| Description | This attribute specifies the time after the end of speech before silence suppression starts. It applies only to voice traffic. It is not used unless *Vsr Svs Framer negotiatedSilenceSuppression* is ***on***, ***congested*** or ***slowAndCongested***.<br><br>Higher values of *speechHangoverTime* reduce undesirable clipping but increase bandwidth usage.<br><br>*speechHangoverTime* is not used on ***DS1V***, ***E1V***, ***1pDS1V***, ***1pE1V*** and ***J2MV*** cards. |
| Values | Decimal (10..500) |
| Units | msec |
| Default | 150 |

### ATTRIBUTE VRoute Interface faxHangoverTimeG711G726

| | |
|---|---|
| Access | Read: Passive<br>Write: Service |
| Criticality | Process |
| Description | This attribute specifies the time after the end of fax traffic before G.711/G.726 fax idle suppression starts. It applies only if the |

negotiated fax encoding, available in *Vsr Svs Framer negotiatedEncoding*, is ***g711***, ***g726*** or ***g711G726*** and *Vsr Svs Framer negotiatedFisG711G726* is ***on***.

Higher values of *faxHangoverTimeG711G726* reduce undesirable clipping but increase bandwidth usage.

*faxHangoverTimeG711G726* is not used on ***DS1V***, ***E1V***, ***1pDS1V***, ***1pE1V*** and ***J2MV*** cards.

Values: Decimal (300..20000)

Units: msec

Default: 1000

### ATTRIBUTE VRoute Interface modemFaxSpeechDiscrim (fsd)

Access: Read: Passive
Write: Service

Criticality: Process

Description: This attribute specifies whether this *VoiceRoute* differentiates between modemFax traffic and speech. If *modemFaxSpeechDiscrim* is ***on*** and a false 2100 Hz tone is detected, any *Svs* using this route reverts to speech mode when speech is detected.

*modemFaxSpeechDiscrim* is not used on ***DS1V***, ***E1V***, ***1pDS1V***, ***1pE1V*** and ***J2MV*** cards.

Values: on
off

Default: on

### ATTRIBUTE VRoute Interface echoTailDelay

Access: Read and write

Criticality: Process

Description: This attribute specifies the maximum echo canceller tail delay coverage. It should be selected higher than the summation of the

| | |
|---|---|
| | round trip delay of echo and hybrid response time. A ***32*** msec setting is good for a radius of 2700 km, assuming that the signal is going through 4 exchanges and the hybrid response time is 6 msec. A ***64*** msec setting offers even greater coverage (more distance or more switches), with comparable convergence time. The recommended setting is ***64*** msec. This attribute is not used on ***DS1V***, ***E1V***, ***1pDS1V***, ***1pE1V***, ***J2MV***, ***1pE1Mvp***, ***1pDS1Mvp,*** or ***1pTTC2mMvp*** card. |
| Values | Decimal (32; 64) |
| Units | msec |
| Default | 64 |

### ATTRIBUTE VRoute Interface echoReturnLoss

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the echo return loss parameter of the echo canceller. If the line quality is poor, in terms of echo, selecting a higher value may allow the echo canceller to perform better. A side effect is that the voice level is attenuated by the same amount, which may not always be acceptable. This attribute is not used on ***DS1V***, ***E1V***, ***1pDS1V***, ***1pE1V***, ***J2MV***, ***1pE1Mvp***, ***1pDS1Mvp,*** or ***1pTTC2mMvp*** card. |
| Values | Decimal (0; 3; 6) |
| Units | dB |
| Default | 6 |

### ATTRIBUTE VRoute Interface ecanBypassMode

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies when version 2 internal echo cancellers are placed in bypass mode on this *VoiceRoute*. This attribute only applies if ***v2*** of *echoCancellation* is ***on***. If *ecanBypassMode* is ***g165***, the internal echo canceller is placed in bypass mode as |

per ITU-T G.165. If *ecanBypassMode* is ***g164***, the internal echo canceller is placed in bypass mode as per ITU-T G.164. If *ecanBypassMode* is ***never***, the internal echo canceller is never placed in bypass mode. This mode should only be used for debugging.

This attribute does not apply to ***1pE1V***, ***1pDS1V***, ***J2MV***, ***1pE1Mvp***, ***1pDS1Mvp,*** or ***1pTTC2mMvp*** cards.

Values
g164
g165
never

Default
g165

## ATTRIBUTE VRoute Interface echoCancellation

Access
Read and write

Criticality
Process

Description
This attribute specifies whether echo cancellation is performed on this *VoiceRoute*. ***v1*** specifies whether echo cancellation is performed by version 1 internal echo cancellers. ***v2*** specifes whether echo cancellation is performed by version 2 echo cancellers. If *echoCancellation* is ***on***, the internal echo canceller is enabled and echo cancellation is performed. If *echoCancellation* is ***off***, the internal echo canceller is placed in transparent bypass mode and echo cancellation is never performed.

Vector of
off
on

Index
v1
v2

Default
(on, on)

## COMPONENT VRoute DataNetworkAddress (Dna)

Groups
"GROUP VRoute Dna Address"

Scope
Application

| | |
|---|---|
| Description | *vroute/n Dna*<br>This is the description of the VRoute *Dna* component. It offers a subset of the generic *Dna* component attributes. |
| Opt. Subcomp. | "COMPONENT VRoute Dna HuntGroupMember (Hgm)" |
| Common Verbs | Help<br>List<br>Display |

## GROUP VRoute Dna Address

| | |
|---|---|
| Properties | Provisioned |
| Description | *Address* group contains attributes common to all *Dna's*. Every *Dna* used in the network is defined with this group of 2 attributes. String of address digits is complemented by type of address and Npi. These attributes are used to interpret format of the address digits. |

## ATTRIBUTE VRoute Dna numberingPlanIndicator (npi)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute indicates the Numbering Plan Indicator (NPI) of the *Dna* that is entered. Address may belong to X.121 or E.164 plans. X.121 is used in packet switched data networks. |
| Values | x121<br>e164 |
| Default | e164 |

## ATTRIBUTE VRoute Dna dataNetworkAddress (dna)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | *Dna* attribute contains digits which form unique identifier of the customer interface. It can be compared (approximation only) to telephone number where phone number identifies unique |

telephone set. *Dna* digits are selected and assigned by network operators.

Values: BCD (0..15)

Default: No default

## COMPONENT VRoute Dna HuntGroupMember (Hgm)

Groups: "GROUP VRoute Dna Hgm Provisioned (Prov)"
"GROUP VRoute Dna Hgm Operational (Op)"

Scope: Application

Description: *Vroute/n Dna/n HuntGroupMember*
When present under a DNA component, this component specifies that the DNA is a member of a hunt group. Each hunt group member subscribes to at least one hunt group. The hunt group server's DNA must be added to the VnetHuntGroupAddress which is the sub-component of VnetHuntGroupMember. By adding the DNA correct availability of the vroute will be reported to the hunt group to process calls.

Subcomponents: "COMPONENT VRoute Dna Hgm HuntGroupAddress (HgAddr)"

Common Verbs:
- Help
- List
- Display
- Add
- DELete

## GROUP VRoute Dna Hgm Provisioned (Prov)

Properties: Provisioned

Description: This group contains the interface parameters between the *HuntGroupMember* and the hunt group server.

## ATTRIBUTE VRoute Dna Hgm usageDeltaUpdateThreshold (aut)

Access: Read and write

| | |
|---|---|
| Description | This attribute specifies by how much the availability of a hunt group member must change before the member's availability is updated to the hunt group server. A value of zero ensures that an update will be sent if the value of the availability changes. The attribute that reports the availability is *currentAvailability.* |
| Values | Decimal (0..4096) |
| Default | 1 |

### GROUP VRoute Dna Hgm Operational (Op)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes of the *HuntGroupMember* component. |

### ATTRIBUTE VRoute Dna Hgm maxAvailableChannels (maxAc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the maximum number of available channels for this *HuntGroupMember.* |
| Values | Decimal (0..4096) |
| Default | No default |

### ATTRIBUTE VRoute Dna Hgm availableChannels (ac)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of available channels reported to the hunt group in the Availability Message Packet (AMP). It is incremented by the application when a channel is freed and decremented when a channel is active. |
| Values | Decimal (0..4096) |
| Default | No default |

### ATTRIBUTE VRoute Dna Hgm availabilityDelta (ad)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the delta between the actual availability of a hunt group member and the hunt group member's |

*currentAvailability.* Once the absolute value of this attribute reaches the *usageDeltaUpdateThreshold*, the *currentAvailability* of the hunt group member is updated with the actual availability and the *availabilityDelta* is reset to 0.

If this attribute is positive, the number of available channels has increased since the last Availability Message Packet was sent. If it is negative, the number of available channels has decreased since the last AMP was sent.

Values: Signed (-4096..4096)

Default: No default

## COMPONENT VRoute Dna Hgm HuntGroupAddress (HgAddr)

Instance: Decimal (0..1)

Groups: "GROUP VRoute Dna Hgm HgAddr Address (Addr)"

Scope: Application

Description: *Vroute/n Dna/n HgM HuntGroupAddress/n*
This component specifies the hunt group address to which this member belongs. A hunt group member belongs to at least one hunt group.

Common Verbs:
- Help
- List
- Display
- Add
- DELete

## GROUP VRoute Dna Hgm HgAddr Address (Addr)

Properties: Provisioned

Description: This group contains DNA attributes common to all DNAs.

## ATTRIBUTE VRoute Dna Hgm HgAddr numberingPlanIndicator (npi)

Access: Read and write

| | |
|---|---|
| Description | This attribute specifies the Numbering Plan Indicator (NPI) of the *DNA* that is entered. The address may belong to the X.121 or E.164 numbering plans. |
| Values | x121<br>e164 |
| Default | x121 |

### ATTRIBUTE VRoute Dna Hgm HgAddr dataNetworkAddress (dna)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the digits that form the unique identifier of the customer interface. It can be compared to a telephone number where phone number identifies unique telephone set. DNA digits are selected and assigned by network operators. |
| Values | BCD (1..15) |
| Default | No default |

### COMPONENT VRoute VoiceAccounting (Acct)

| | |
|---|---|
| Groups | "GROUP VRoute Acct Provisioned (Prov)" |
| Scope | Application |
| Description | *Vroute/n VoiceAccounting*<br>The *VoiceAccounting* component defines the operational characteristics of the accounting system of the *Vroute* component. Accounting record generation for calls on the *Vroute* is managed by this component. |
| Common Verbs | Help<br>List<br>Display |

### GROUP VRoute Acct Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes of a *VoiceAccounting* component. |

### ATTRIBUTE VRoute Acct accountCollection (aco)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies that accounting records are to be collected for the various reasons: ***bill***, ***test***, ***study***, ***audit***. The last of the parameters, ***force***, specifies that accounting records are to be collected irrespective of other collection reasons. If none of these reasons is set, then accounting will be suppressed. |
| Set of | bill<br>test<br>study<br>audit<br>force |
| Default | No default |

### ATTRIBUTE VRoute Acct accountClass (acl)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the accounting class which is reserved for network operations usage. Its value is returned in the accounting record in the local and remote service type attributes. The use of this attribute is decided by the network operator. |
| Values | Decimal (0..255) |
| Default | 0 |

### ATTRIBUTE VRoute Acct serviceExchange (sre)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |

| | |
|---|---|
| Description | This attribute specifies a user defined value, Data Service Exchange, as entered by the network operator and reported in the accounting record. |
| Values | Decimal (0..255) |
| Default | 0 |

### ATTRIBUTE VRoute Acct digitsSuppressed (ds)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the number of trailing digits which will be suppressed in the *calledNumber* in the accounting records. Each of the specified number of trailing digits are replaced with an "X". This option exists to satisfy privacy requirements in a number of countries. |
| Values | Decimal (0..8) |
| Default | 0 |

### ATTRIBUTE VRoute Acct accountingOptions (ao)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies optional settings for the voice networking accounting system. The options are:<br>***suppressTerminatingEndRecords*** - setting this option suppresses the generation of accounting records at the destination node. This reduces the volume of accounting data. This option has local significance only. It only suppresses the generation of accounting records for calls received by this node. |
| Set of | suppressTerminatingEndRecords (ster) |
| Default | No default |

## COMPONENT VRoute IgDigitManipulation (Idm)

| | |
|---|---|
| Groups | "GROUP VRoute Idm Provisioned (Prov)" |
| Scope | Application |
| Description | *VRoute/n IgDigitManipulation*<br>This component specifies ingress digit manipulation properties. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP VRoute Idm Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the *IgDigitManipulation* component. |

## ATTRIBUTE VRoute Idm variant (var)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the variant of ingress digit manipulation to perform. Selecting ***blindLeading*** specifies ingress digit manipulation is performed on the leading end of the called number. Selecting ***none*** disables ingress digit manipulation. A warning is generated if ***none*** is selected and *digitsToInsert* is not empty or *numDigitsToDelete* is not 0. |
| Values | none<br>blindLeading |
| Default | blindLeading |

## ATTRIBUTE VRoute Idm digitsToInsert (dti)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |

| | |
|---|---|
| Description | This attribute specifies the digits to insert and only applies when *variant* is ***blindLeading***. There can be up to 16 digits inserted. Acceptable values are the digits 0 through 9 and the characters # (octothorpe) and * (star). An error is generated if any of the digits are not in the acceptable range. A warning is generated if *digitsToInsert* is not empty and the *variant* selection is ***none***. |
| Values | String (0..16, ASCII) |
| Default | No default |

### ATTRIBUTE VRoute Idm numDigitsToDelete (ndtd)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the number of leading digits to delete and only applies when *variant* is ***blindLeading***. There can be up to 16 digits deleted. A warning is generated if *numDigitsToDelete* is not 0 and the *variant* selection is ***none***. |
| Values | Decimal (0..16) |
| Default | 0 |

### ATTRIBUTE VRoute Idm callRouting (cr)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies whether calls are routed before or after performing digit manipulation and only applies when *variant* is ***blindLeading***. Selecting ***routeOnDialledDigits*** specifies that calls are routed prior to performing ingress digit manipulation. Selecting ***routeOnModifiedDigits*** specifies that calls are routed after performing ingress digit manipulation. |
| Values | routeOnDialledDigits<br>routeOnModifiedDigits |
| Default | routeOnModifiedDigits |

## COMPONENT VRoute EgDigitManipulation (Edm)

| | |
|---|---|
| Groups | "GROUP VRoute Edm Provisioned (Prov)" |
| Scope | Application |
| Description | *VRoute/n EgDigitManipulation*<br>This component specifies egress digit manipulation properties. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP VRoute Edm Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the *EgDigitManipulation* component. |

## ATTRIBUTE VRoute Edm variant (var)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the variant of egress digit manipulation to perform. Selecting ***blindLeading*** specifies egress digit manipulation is performed on the leading end of the called number. Selecting ***none*** disables egress digit manipulation. A warning is generated if ***none*** is selected and *digitsToInsert* is not empty or *numDigitsToDelete* is not 0. |
| Values | none<br>blindLeading |
| Default | blindLeading |

## ATTRIBUTE VRoute Edm digitsToInsert (dti)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |

| | |
|---|---|
| Description | This attribute specifies the digits to insert and only applies when *variant* is ***blindLeading***. There can be up to 16 digits inserted. Acceptable values are the digits 0 through 9 and the characters # (octothorpe) and * (star). An error is generated if any of the digits are not in the acceptable range. A warning is generated if *digitsToInsert* is not empty and the *variant* selected is ***none***. |
| Values | String (0..16, ASCII) |
| Default | No default |

### ATTRIBUTE VRoute Edm numDigitsToDelete (ndtd)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the number of leading digits to delete and only applies when *variant* is ***blindLeading***. There can be up to 16 digits deleted. A warning is generated if *numDigitsToDelete* is not 0 and the *variant* selected is ***none***. |
| Values | Decimal (0..16) |
| Default | 0 |

### ATTRIBUTE VRoute Edm callHandlingWhenNoDigits (chwnd)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies how calls are handled when no digits remain following egress digit manipulation and only applies when *variant* is ***blindLeading***. Selecting ***releaseCall*** specifies the call is released if no digits remain following egress digit manipulation. Selecting ***attemptCompletion*** specifies that call completion is attempted if no digits remain upon following egress digit manipulation. |
| Values | attemptCompletion<br>releaseCall |
| Default | releaseCall |

Passport 7400, 15000, 20000

# Component VRoute

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component Vr

241-5701-060

Passport 7400, 15000, 20000

# Component Vr

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT VirtualRouter (Vr)

| | |
|---|---|
| Instance | String (1..16, ASCII) |
| Groups | "GROUP Vr AdministrativeControl (AdminContorl)"<br>"GROUP Vr CustomerIdentifierData (CidData)"<br>"GROUP Vr OperationalStatus (OperStatus)"<br>"GROUP Vr OsiState (State)"<br>"GROUP Vr IfNumberOper" |
| Scope | Application |
| Description | *Vr/<string>*<br>The *VirtualRouter* component represents an instance of a Router on the platform. *Vr* provides a mechanism to segregate router traffic and maintenance activities based on a logical separation of ports into separate *VirtualRouters*.<br><br>At any time the number of *VirtualRouter* components existing in the current view plus the number of newly created *VirtualRouter* components in the edit view must be less than the maximum allowed number of virtual routers. This is regardless of how many *VirtualRouter* components may have been deleted in the edit view. Any *VirtualRouter* which, when created in the edit view, results in a total count greater than the maximum allowed, is labelled as invalid and must be deleted.<br><br>It is recommended that the deletion of any *VirtualRouter* components existing in the current view should be activated using the *Activate Prov* command before creating any new *VirtualRouter* components. |

| | |
|---|---|
| Subcomponents | "COMPONENT Vr MemoryManagement (Mm)" |
| Opt. Subcomp. | "COMPONENT Vr DifferentiatedServicesDomain (Dsd)"<br>"COMPONENT Vr MultiprotocolLabelSwitching (Mpls)"<br>"COMPONENT Vr ProtocolPort (Pp)"<br>"COMPONENT Vr NetSentry (Ns)"<br>"COMPONENT Vr Bridge (Br)"<br>"COMPONENT Vr Ip"<br>"COMPONENT Vr Ipx"<br>"COMPONENT Vr Snmp"<br>"COMPONENT Vr SourceRouteEndStation (Sres)"<br>"COMPONENT Vr CustomizationSpecification (CustSpec)" |
| Dyn. Subcomp. | "COMPONENT Vr IfTableEntry" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## VERB TELNET Vr

| | |
|---|---|
| Impact | Passive |
| Description | *Telnet -ipAddress(<IP address>) Vr/<string>*<br><br>This command allows access to the Telnet client, attempting to set up a connection from this Passport to the specified IP address within the specified VR's address space.<br><br>Options:<br>*ipAddress* - This mandatory option specifies the IP address of the remote node to which the user wants to Telnet within this VR's address space. |

## GROUP Vr AdministrativeControl (AdminContorl)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group includes the Administrative Control attribute. This attribute defines the current administrative state of this component. |

## ATTRIBUTE Vr snmpAdminStatus

| | |
|---|---|
| Access | Read and write |
| Description | This sets the desired state of this VirtualRouter. The ***up*** state indicates the Vr is operational. The ***down*** state indicates the Vr is not operational. |
| Values | up<br>down<br>testing |
| Default | up |

## ATTRIBUTE Vr managementAccess

| | |
|---|---|
| Access | Read and write |
| Description | This attributes defines the routing capabilities of this Virtual Router |
| Values | disabled<br>enabled |
| Default | No default |

## ATTRIBUTE Vr virtualPrivateIntranetIdentifier (vpiId)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the Virtual Private Intranet (VPI) associated with this Virtual Router.<br><br>If this attribute is not set to the default value, it must be unique on the Passport.<br><br>Virtual Routers on different Passports which are interconnected with each other should have the same VPI value. |

| | |
|---|---|
| | Note that this attribute will be obsoleted in the near future. It's functionality is replaced by the *virtualPrivateNetworkIdentifier* attribute. Any affected tools using this attribute should be converted to use the *vpnId* attribute instead. |
| Values | Decimal (0..2047) |
| Default | 0 |

### ATTRIBUTE Vr vpnMode (vpnm)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies if the virtual router behaves as a carrier Virtual Router or a customer Virtual Router. |
| Values | customer<br>carrier |
| Default | customer |

### ATTRIBUTE Vr virtualPrivateNetworkIdentifier (vpnId)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the Virtual Private Network (VPN) associated with this Virtual Router.<br>This is a globally unique identifier composed of a three-octet long Organizationally Unique Identifier (OUI) followed by a four-octet long VPN index.<br>The value "00-00-00-00-00-00-00" identifies an unspecified vpnId and should be set to other non-zero values when the autoDiscovery attribute under same virtual router ***vr***/x ***ip tunnel msep/***y is enabled. |
| Values | String (7, Dashed Hex) |
| Default | 00-00-00-00-00-00-00 |

### ATTRIBUTE Vr virtualRouterProcessor (vrp)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |

| | |
|---|---|
| Description | This attribute specifies the *LogicalProcessor* on which this *VirtualRouter* resides.<br><br>The Management Virtual Router must reside on ***Lp/0***.<br><br>The following card types may support a Virtual Router:<br>***CP***<br>***CPeD***<br>***CPeE***<br>***VpnXc*** |
| Values | Link (Hardware, linkToApplications) |
| Default | No default |

### GROUP Vr CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

### ATTRIBUTE Vr customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.<br><br>Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.<br><br>An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of |

| | |
|---|---|
| | any component. Values 1 to 8191 inclusive (equivalent to “basic CIDs” in DPN) may be assigned to specific customers. |
| Values | Decimal (0; 1..8191) |
| Default | 0 |

### GROUP Vr OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

### ATTRIBUTE Vr snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### GROUP Vr OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Vr adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |

Description

This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values

locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default

unlocked

### ATTRIBUTE Vr operationalState (osiOper)

Access

Read only

Description

This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values

enabled (ena)
disabled (dis)

Default

disabled

### ATTRIBUTE Vr usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Vr IfNumberOper

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the ifNumber attribute. |

### ATTRIBUTE Vr ifNumber (ifN)

| | |
|---|---|
| Access | Read only |
| Description | This attribute defines the number of *IfEntries* in the *IfTable*. |
| Values | Decimal (0..65535) |
| Default | No default |

### COMPONENT Vr DifferentiatedServicesDomain (Dsd)

| | |
|---|---|
| Instance | passport (pp)<br>classSelector (cs)<br>assuredForwarding (af)<br>packetVoice (pv)<br>wirelessUmts (umts)<br>custom (cu) |

| | |
|---|---|
| Groups | "GROUP Vr Dsd LocalSourcePackets (Local)" |
| Scope | Application |
| Description | *Vr/<string> DifferentiatedServicesDomain/<domainType>*<br><br>This component defines a Differentiated Services administration domain for traffic management and congestion control.<br><br>The *DifferentiatedServicesDomain* component instance identifies the domain type. Six domain types are available:<br><br>*Passport (pa)*<br>*ClassSelector (cs)*<br>*AssuredForwarding (af)*<br>*PacketVoice (pv)*<br>*WirelessUmts (umts)*<br>*Custom (cu)*<br><br>The *DifferentiatedServicesDomain* component is an optional subcomponent of the *VirtualRouter* and *VirtualRouterForwarder* components. It is a mandatory subcomponent of the *Router* component; however, a *DifferentiatedServicesDomain* component instance must be added manually after the *Router* component is created.<br><br>The *VirtualRouter*, *VirtualRouterForwarder*, and *Router* components can have at most one *DifferentiatedServicesDomain* subcomponent.<br><br>If a *VirtualRouterForwarder* component does not have a *DifferentiatedServicesDomain* subcomponent, then the *VirtualRouterForwarder* component uses the *Router DifferentiatedServicesDomain* component. |

| | |
|---|---|
| Opt. Subcomp. | "COMPONENT Vr Dsd MplsServiceMap (MplsMap)"<br>"COMPONENT Vr Dsd AtmServiceMap (AtmSM)"<br>"COMPONENT Vr Dsd PerHopBehavior (Phb)"<br>"COMPONENT Vr Dsd TrafficClass (Tc)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Vr Dsd LocalSourcePackets (Local)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisioned attributes of the *DifferentiatedServicesDomain* component. |

## ATTRIBUTE Vr Dsd phbGeneralSource (phbG)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates the *PerHopBehavior* component instance that controls the forwarding behavior of each locally generated packet that is not used for network routing control.<br><br>For a locally generated IP packet that is not used for network routing control, the Differentiated Services Code Point (DSCP) field of the packet is set equal to this attribute value.<br><br>For a locally generated ICMP echo request packet, the DSCP field is overridden by the *-tos* or *-dscp* option of the *Ping* command. For a locally generated ICMP echo reply packet, the DSCP field is set to the DSCP value contained in the IP header of the received request packet. In any case, the forwarding behavior of the ICMP packet controlled by the *PerHopBehavior* component instance that is equal to value of the DSCP field. |

| | |
|---|---|
| Values | Decimal (0..63)<br>df<br>ef<br>af11<br>af12<br>af13<br>af21<br>af22<br>af23<br>af31<br>af32<br>af33<br>af41<br>af42<br>af43<br>cs0<br>cs1<br>cs2<br>cs3<br>cs4<br>cs5<br>cs6<br>cs7 |
| Default | df |

### ATTRIBUTE Vr Dsd phbRoutingSource (phbR)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates the *PerHopBehavior* component instance that controls the forwarding behavior of each locally generated packet that is used for network routing control.<br><br>For a locally generated IP packet that is used for network routing control, the Differentiated Services Code Point (DSCP) field of the packet is set equal to this attribute value. |
| Values | Decimal (0..63)<br>df |

ef
af11
af12
af13
af21
af22
af23
af31
af32
af33
af41
af42
af43
cs0
cs1
cs2
cs3
cs4
cs5
cs6
cs7

Default cs6

## COMPONENT Vr Dsd MplsServiceMap (MplsMap)

Instance 0

Scope Application

Description *Vr/<string> Dsd/<domainType> MplsServiceMap/<n>*

The subcomponents of the *MplsServiceMap* component specify mappings used to control how MPLS packets are forwarded over a Label Switched Path (LSP) where the *MplsServiceMap* component is applied.

The *MpslServiceMap/0* subcomponent instance is mandatory under a *DifferentiatedServicesDomain* component whose parent is either a *Router* component, or a *VirtualRouter* component that has an *Mpls* subcomponent.

An *MpslServiceMap* subcomponent cannot be added to a *DifferentiatedServicesDomain* component whose parent does not have a *Mpls* subcomponent.

Opt. Subcomp.

"COMPONENT Vr Dsd MplsMap ExperimentalBitsMap (ExpMap)"
"COMPONENT Vr Dsd MplsMap PerHopBehaviorMap (PhbMap)"
"COMPONENT Vr Dsd MplsMap MarkingPerformance"

Common Verbs

Help
List
Display
Add
DELete

## COMPONENT Vr Dsd MplsMap ExperimentalBitsMap (ExpMap)

Instance

0
1
2
3
4
5
6
7

Groups

"GROUP Vr Dsd MplsMap ExpMap Provisioned (Prov)"
"GROUP Vr Dsd MplsMap ExpMap Operational (Oper)"

Scope

Application

Description

*Vr/<string> Dsd/<domainType> MplsMap/<> ExperimentalBitsMap/<>*

This component specifies a mapping from a three-bit Experimental (EXP) field value in an MPLS label to a *DifferentiatedServicesDomain PerHopBehavior* component instance value.

This mapping controls how an MPLS packet whose three-bit

Experimental (EXP) field value is equal to the *ExperimentalBitsMap* component instance value is treated when the packet is forwarded by a Label Switched Router (LSR) over a Label Switched Path (LSP) where the *MplsServiceMap* component is applied.

The *MplsServiceMap* component must have eight *ExperimentalBitMap* subcomponents, each with a unique instance value in the range from **0** to **7**. These subcomponents are added automatically when the *MplsServiceMap* component is created.

Common Verbs

Help
List
Display
Add
DELete

## GROUP Vr Dsd MplsMap ExpMap Provisioned (Prov)

Properties: Provisioned

Description: This group contains the provisioned attributes of the *ExperimentalBitsMap* component.

## ATTRIBUTE Vr Dsd MplsMap ExpMap perHopBehavior (phb)

Access: Read and write

Description: This attribute specifies the *DifferentiatedServicesDomain PerHopBehavior* component instance used to treat an MPLS packet whose three-bit Experimental (EXP) field value is equal to the *ExperimentalBitsMap* component instance value when the packet is forwarded by a Label Switch Router (LSR) over an Label Switched Path (LSP) where the *MplsServiceMap* component is applied.

The value of this attribute must be equal to an exisiting *DifferentiatedServicesDomain PerHopBehavior* component instance value. A default value is set automatically according to a function of the *ExperimentalBitsMap* and

*DifferentiatedServicesDomain* component instance values when the *ExperimentalBitsMap* component is created.

| | |
|---|---|
| Values | Decimal (0..63)<br>df<br>ef<br>af11<br>af12<br>af13<br>af21<br>af22<br>af31<br>af23<br>af32<br>af33<br>af41<br>af42<br>af43<br>cs0<br>cs1<br>cs2<br>cs3<br>cs4<br>cs5<br>cs6<br>cs7 |
| Default | No default |

## GROUP Vr Dsd MplsMap ExpMap Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes of the *ExperimentalBitsMap* component. |

## ATTRIBUTE Vr Dsd MplsMap ExpMap operPerHopBehavior (operPhb)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the *DifferentiatedServicesDomain PerHopBehavior* component instance used to treat an MPLS |

packet whose three-bit Experimental (EXP) field value is equal to the *ExperimentalBitsMap* component instance value when the packet is forwarded by a Label Switch Router (LSR) over an Label Switched Path (LSP) where the *MplsServiceMap* component is applied.

The value of this attribute is equal to the *perHopBehavior* provisioned attribute value.

Values

Decimal (0..63)
df
ef
af11
af12
af13
af21
af22
af31
af23
af32
af33
af41
af42
af43
cs0
cs1
cs2
cs3
cs4
cs5
cs6
cs7

Default

No default

## ATTRIBUTE Vr Dsd MplsMap ExpMap trafficClass (tc)

Access

Read only

Description

This attribute indicates the *TrafficClass* component instance used to treat an MPLS packet whose three-bit Experimental (EXP) field value is equal to the *ExperimentalBitsMap* component

instance value when the packet is forwarded by a Label Switch Router (LSR) over a Label Switched Path (LSP) where the *MplsServiceMap* component is applied.

The value of this attribute is equal to the *trafficClass* provisioned attribute value of the *DifferentiatedServices PerHopBehavior* component instance that is equal to the *ExperimentalBitsMap perHopBehavior* provisioned attribute value.

Values
critical
network
premium
platinum
gold
silver
bronze
standard

Default
No default

### ATTRIBUTE Vr Dsd MplsMap ExpMap dropPrecedence (dp)

Access
Read only

Description
This attribute indicates the drop precedence value used to treat an MPLS packet whose three-bit Experimental (EXP) field value is equal to the *ExperimentalBitsMap* component instance value when the packet is forwarded by a Label Switch Router (LSR) over an LSP where the *MplsServiceMap* component is applied.

The value of this attribute is equal to the *dropPrecedence* provisioned attribute value of *DifferentiatedServices PerHopBehavior* component instance that is equal to the *ExperimentalBitsMap perHopBehavior* provisioned attribute value.

Values
low
medium
high

Default
No default

## COMPONENT Vr Dsd MplsMap PerHopBehaviorMap (PhbMap)

| | |
|---|---|
| Instance | 0 |
| | 1 |
| | 2 |
| | 3 |
| | 4 |
| | 5 |
| | 6 |
| | 7 |
| | 8 |
| | 9 |
| | 10 |
| | 11 |
| | 12 |
| | 13 |
| | 14 |
| | 15 |
| | 16 |
| | 17 |
| | 18 |
| | 19 |
| | 20 |
| | 21 |
| | 22 |
| | 23 |
| | 24 |
| | 25 |
| | 26 |
| | 27 |
| | 28 |
| | 29 |
| | 30 |
| | 31 |
| | 32 |
| | 33 |
| | 34 |
| | 35 |
| | 36 |
| | 37 |
| | 38 |

39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
df
ef
af11
af12
af13
af21
af22
af31
af23
af32

af33
af41
af42
af43
cs0
cs1
cs2
cs3
cs4
cs5
cs6
cs7

Groups

"GROUP Vr Dsd MplsMap PhbMap Provisioned (Prov)"
"GROUP Vr Dsd MplsMap PhbMap Operational (Oper)"

Scope

Application

Description

*Vr/<string> Dsd/<domainType> MplsMap/<n> PerHopBehaviorMap/<phb>*

This component specifies a mapping from a *PerHopBehavior* component instance value to a three-bit Experimental (EXP) field value.

This mapping controls how the EXP field in an MPLS label is marked when a packet is forwarded by a Label Edge Router (LER) over a Label Switched Path (LSP) where the *MplsServiceMap* component is applied.

The *DifferentiatedServicesDomain PerHopBehavior* component instance used to treat the packet prior to label encapsulation is used to select the EXP value for the label. If the *PerHopBehavior* component instance value used to treat the packet is not included among the existing *PerHopBehaviorMap* component instances, then the EXP value indicated by the *PerHopBehaviorMap* component whose instance is equal to 0 is used.

Each *PerHopBehaviorMap* component instance is equal to a decimal value in the range from 0 to 63. The following pairs of *PerHopBehaviorMap* component instances values are equal:
*AF11 = 10,*

*AF12 =12,*
*AF13 =14,*
*AF31 = 26,*
*AF32 = 28,*
*AF33 = 30,*
*AF21 = 18,*
*AF22 = 20,*
*AF23 = 22,*
*AF41 = 34,*
*AF42 =36,*
*AF43 = 38*
*CS0 = 0,*
*CS1 = 8,*
*CS2 =16,*
*CS3 = 24,*
*CS4 =32 ,*
*CS5 = 40,*
*CS6 = 48,*
*CS7 = 56,*
*DF = 0,*
*EF = 46.*

The first item in each pair above is a Per Hop Behavior designation identified in one of following IETF standards: RFC 2764 (“DiffServ Field Definition in IPv4 and IPv6 Headers”), RFC 2597 (“Assured Forwarding PHB Group”) or RFC 3246 (“An Expedited Forwarding PHB”). The the second item in each pair is the IETF recommended Differentiated Services Code Point (DSCP) value.

Each *PerHopBehaviorMap* subcomponent of the *MplsServiceMap* must have a unique instance value. A *PerHopBehaviorMap* subcomponent whose instance value is equal to 0 must exist.

A set of *PerHopBehaviorMap* subcomponents with instance values equal to the *DifferentiatedServicesDomain PerHopBehavior* subcomponent instance values is added automatically when the *MplsServiceMap* component is created.

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Vr Dsd MplsMap PhbMap Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioned attributes of the *PerHopBehaviorMap* component. |

## ATTRIBUTE Vr Dsd MplsMap PhbMap experimentalBits (exp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies a three-bit Experimental (EXP) field value in the range from ***0*** to ***7*** that is marked into the MPLS label when a packet is forwarded by a Label Edge Router (LER) over a Label Switched Path (LSP) where the *MplsServiceMap* component is applied.<br><br>The EXP value is selected according to the *PerHopBehaviorMap* component whose instance value is equal to the instance value of the *DifferentiatedServicesDomain PerHopBehavior* component used to treat the packet prior to label encapsulation.<br><br>This attribute is set automatically to a default value according to a function of the *PerHopBehaviorMap* and *DifferentiatedServicesDomain* component instance values when the *PerHopBehaviorMap* component is created. |
| Values | Decimal (0..7) |
| Default | No default |

## GROUP Vr Dsd MplsMap PhbMap Operational (Oper)

| | |
|---|---|
| Properties | Operational |

Description — This group contains the operational attributes of the *PerHopBehaviorMap* component.

### ATTRIBUTE Vr Dsd MplsMap PhbMap operExperimentalBits (operExp)

Access — Read only

Description — This attribute indicates a three-bit Experimental (EXP) field value in the range from ***0*** to ***7*** that is marked into the MPLS label when a packet is forwarded by a Label Edge Router (LER) over a Label Switched Path (LSP) where the *MplsServiceMap* component is applied.

The EXP value is selected according to the *PerHopBehaviorMap* component whose instance value is equal to the instance value of the *DifferentiatedServicesDomain PerHopBehavior* component used to treat the packet prior to label encapsulation.

The value of this attribute is equal to the *experimentalBits* provisioned attribute.

Values — Decimal (0..7)

Default — No default

### ATTRIBUTE Vr Dsd MplsMap PhbMap operExperimentalBitsAlternative (operExpAlt)

Access — Read only

Description — This attribute is similar to the *operExperimentalBits* operational attribute, except that it used only on PQC-based access FPs with ASIC Version 2.0 in RFC 2547 networks when an IP packet is forwarded by a Label Edge Router (LER) over a Label Switched Path (LSP) via a PQC-based trunk FP. In such situations only, the value of this attribute, instead of the *operExperimentalBits* operational attribute value, is used to mark the Experimental (EXP) field of the MPLS label.

If the *MplsServiceMap* does not have a *MarkingPerformance* subcomponent, then the value of this attribute is equal to the *experimentalBits* provisioned attribute; otherwise the value of this attribute is determined as explained in the next paragraph.

If "***x***" is the *schedulingClass4Queues* operational attribute value of the *DifferentiatedServicesDomain PerHopBehavior* component whose instance value is equal to the *PerHopBehaviorMap* component instance value, then the *PerHopBehaviorMap experimentalBitsAlternative* operational attribute value is equal to the "***x***th" element of the *MarkingPerformance experimentalBitsAlternative* provisioned attribute.

Values — Decimal (0..7)

Default — No default

## COMPONENT Vr Dsd MplsMap MarkingPerformance

Groups — "GROUP Vr Dsd MplsMap MarkingPerformance Provisioned (Prov)"

Scope — Application

Description — *Vr/<string> Dsd/<domainType> MplsMap/<n> MarkingPerformance*

This subcomponent is added to the *MplsServiceMap* component to enable high performance MPLS label encapsulation on some PQC-based ingress access FPs in RFC 2547 networks.

IP packets that are forwarded from access FPs with PQC-ASIC Version 2.0 via PQC-based trunk FPs (any ASIC version) over an MPLS Label Switched Path (LSP) where the *MplsServiceMap* is applied are affected.

Adding this component to the *MplsServiceMap* improves IP packet throughput on the affected access FPs but restricts how the three-bit Experimental (EXP) field of MPLS labels are marked, as explained in the description of the *operExperiementalBitsAlternative* operational attribute of the *MplsServiceMap PerHopBehaviorMap* component.

Without the *MarkingPerformance* subcomponent, IP packets are encapsulated with MPLS labels by a hardware-routed software assisted datapath that does not restrict how the EXP field of

MPLS labels are marked.

The *MarkingPerformance* component can only be added to an *MplsServiceMap* component where the parent of the *DifferentiatedServicesDomain* is a *Router* component.

Common Verbs

Help
List
Display
Add
DELete

## GROUP Vr Dsd MplsMap MarkingPerformance Provisioned (Prov)

Properties: Provisioned

Description: This group contains the provisioned attributes of the *MarkingPerformance* component.

## ATTRIBUTE Vr Dsd MplsMap MarkingPerformance expermentalBitsAlternative (expAlt)

Access: Read and write

Description: This attribute is an array of four values that specifies a mapping of scheduling class values for four queues to three-bit Experimental (EXP) field values for marking MPLS labels.

This array controls the value of the *operExperimentalBitsAlternative* operational attribute of the *MplsServiceMap PerHopBehaviorMap* components, as explained in the description of that attribute.

Each element of this attribute is set automatically to a default value according to a function of the *DifferentiatedServicesDomain* component instance value and the element index when the *MarkingPerformance* component is created.

Vector of: Decimal (0..7)

Index: Decimal (0..3)

| | |
|---|---|
| Default | No default |

## COMPONENT Vr Dsd AtmServiceMap (AtmSM)

| | |
|---|---|
| Instance | 0 |
| Groups | "GROUP Vr Dsd AtmSM Provisioned (Prov)" |
| Scope | Application |
| Description | *Vr/<string> DifferentiatedServicesDomain/<domain> AtmServiceMap*<br>This component specifies a mapping of Atm Service Class values (UBR, NRTVBR, RTVBR, and CBR) and Cell Loss Priority values (CLP 0 and CLP 1) to *PerHopBehavior* component instance values.<br><br>This mapping controls what *PerHopBehavior* component instance is assigned to each packet received on an *AtmConnection* in a Layer 2 Virtual Private Network (VPN) when the packet forwarded over an MPLS Label Switched path (LSP). |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Vr Dsd AtmSM Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioned attributes of the *AtmServiceMap* component. |

## ATTRIBUTE Vr Dsd AtmSM ubrClp0ToPhb (ubr0)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates the *PerHopBehavior* component instance that is assigned to each packet received on an UBR connection with Cell Loss Priority (CLP) bit = 0 that will be forwarded over an MPLS Label Switched path (LSP) in a Layer 2 Virtual Private Network (VPN). |

This attribute is set automatically according to a function of the *DifferentiatedServicesDomain* component instance value when the *AtmServiceMap* component is created. It must match an existing *DifferentiatedServicesDomain PerHopBehavior* component instance value.

The *TrafficClass* assigned to the *PerHopBehavior* component instance that matches the *ubrClp0ToPhb* attribute value should be equal to the *TrafficClass* assigned to the *PerHopBehavior* component instance that matches the *ubrClp1ToPhb* attribute value.

The *dropPrecedence* assigned to the *PerHopBehavior* component instance that matches the *ubrClp0ToPhb* attribute value should be equal to or less than *dropPrecedence* assigned to the *PerHopBehavior* component instance that matches the *ubrClp0ToPhb* attribute value.

Values

Decimal (0..63)
df
ef
af11
af12
af13
af21
af22
af23
af31
af32
af33
af41
af42
af43
cs0
cs1
cs2
cs3
cs4
cs5

cs6
cs7

Default df

## ATTRIBUTE Vr Dsd AtmSM ubrClp1ToPhb (ubr1)

Access Read and write

Description This attribute indicates the *PerHopBehavior* component instance that is assigned to each packet received on an UBR connection with Cell Loss Priority (CLP) bit = 1 that will be forwarded over an MPLS Label Switched path (LSP) in a Layer 2 Virtual Private Network (VPN).

This attribute is set automatically according to a function of the *DifferentiatedServicesDomain* component instance value when the *AtmServiceMap* component is created. It must match an existing *DifferentiatedServicesDomain PerHopBehavior* component instance value.

The *TrafficClass* assigned to the *PerHopBehavior* component instance that matches the *ubrClp0ToPhb* attribute value should be equal to the *TrafficClass* assigned to the *PerHopBehavior* component instance that matches the *ubrClp1ToPhb* attribute value.

The *dropPrecedence* assigned to the *PerHopBehavior* component instance that matches the *ubrClp0ToPhb* attribute value should be equal to or less than *dropPrecedence* assigned to the *PerHopBehavior* component instance that matches the *ubrClp0ToPhb* attribute value.

Values Decimal (0..63)
df
ef
af11
af12
af13
af21
af22
af23

af31
af32
af33
af41
af42
af43
cs0
cs1
cs2
cs3
cs4
cs5
cs6
cs7

Default df

### ATTRIBUTE Vr Dsd AtmSM nrtVbrClp0ToPhb (nrtVbr0)

Access Read and write

Description This attribute indicates the *PerHopBehavior* component instance that is assigned to each packet received on an NRTVBR connection with Cell Loss Priority (CLP) bit = 0 that will be forwarded over an MPLS Label Switched path (LSP) in a Layer 2 Virtual Private Network (VPN).

This attribute is set automatically according to a function of the *DifferentiatedServicesDomain* component instance value when the *AtmServiceMap* component is created. It must match an existing *DifferentiatedServicesDomain PerHopBehavior* component instance value.

The *TrafficClass* assigned to the *PerHopBehavior* component instance that matches the *nrtVbrClp0ToPhb* attribute value should be equal to the *TrafficClass* assigned to the *PerHopBehavior* component instance that matches the *nrtVbrClp1ToPhb* attribute value.

The *dropPrecedence* assigned to the *PerHopBehavior* component instance that matches the *nrtVbrClp0ToPhb* attribute value should be equal to or less than *dropPrecedence* assigned to the

*PerHopBehavior* component instance that matches the *nrtVbrClp0ToPhb* attribute value.

Values

Decimal (0..63)
df
ef
af11
af12
af13
af21
af22
af23
af31
af32
af33
af41
af42
af43
cs0
cs1
cs2
cs3
cs4
cs5
cs6
cs7

Default

df

## ATTRIBUTE Vr Dsd AtmSM nrtVbrClp1ToPhb (nrtVbr1)

Access

Read and write

Description

This attribute indicates the *PerHopBehavior* component instance that is assigned to each packet received on a NRTVBR connection with Cell Loss Priority (CLP) bit = 1 that will be forwarded over an MPLS Label Switched path (LSP) in a Layer 2 Virtual Private Network (VPN).

This attribute is set automatically according to a function of the *DifferentiatedServicesDomain* component instance value when the *AtmServiceMap* component is created. It must match an

existing *DifferentiatedServicesDomain PerHopBehavior* component instance value.

The *TrafficClass* assigned to the *PerHopBehavior* component instance that matches the *nrtVbrClp0ToPhb* attribute value should be equal to the *TrafficClass* assigned to the *PerHopBehavior* component instance that matches the *nrtVbrClp1ToPhb* attribute value.

The *dropPrecedence* assigned to the *PerHopBehavior* component instance that matches the *nrtVbrClp0ToPhb* attribute value should be equal to or less than *dropPrecedence* assigned to the *PerHopBehavior* component instance that matches the *nrtVbrClp0ToPhb* attribute value.

Values

Decimal (0..63)
df
ef
af11
af12
af13
af21
af22
af23
af31
af32
af33
af41
af42
af43
cs0
cs1
cs2
cs3
cs4
cs5
cs6
cs7

Default

df

## ATTRIBUTE Vr Dsd AtmSM rtVbrClp0ToPhb (rtVbr0)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates the *PerHopBehavior* component instance that is assigned to each packet received on a RTVBR connection with Cell Loss Priority (CLP) bit = 0 that will be forwarded over an MPLS Label Switched path (LSP) in a Layer 2 Virtual Private Network (VPN).<br><br>This attribute is set automatically according to a function of the *DifferentiatedServicesDomain* component instance value when the *AtmServiceMap* component is created. It must match an existing *DifferentiatedServicesDomain PerHopBehavior* component instance value.<br><br>The *TrafficClass* assigned to the *PerHopBehavior* component instance that matches the *rtVbrClp0ToPhb* attribute value should be equal to the *TrafficClass* assigned to the *PerHopBehavior* component instance that matches the *rtVbrClp1ToPhb* attribute value.<br><br>The *dropPrecedence* assigned to the *PerHopBehavior* component instance that matches the *rtVbrClp0ToPhb* attribute value should be equal to or less than *dropPrecedence* assigned to the *PerHopBehavior* component instance that matches the *rtVbrClp0ToPhb* attribute value. |
| Values | Decimal (0..63)<br>df<br>ef<br>af11<br>af12<br>af13<br>af21<br>af22<br>af23<br>af31<br>af32<br>af33<br>af41<br>af42 |

af43
cs0
cs1
cs2
cs3
cs4
cs5
cs6
cs7

Default df

### ATTRIBUTE Vr Dsd AtmSM rtVbrClp1ToPhb (rtVbr1)

Access Read and write

Description This attribute indicates the *PerHopBehavior* component instance that is assigned to each packet received on an RTVBR connection with Cell Loss Priority (CLP) bit = 1 that will be forwarded over an MPLS Label Switched path (LSP) in a Layer 2 Virtual Private Network (VPN).

This attribute is set automatically according to a function of the *DifferentiatedServicesDomain* component instance value when the *AtmServiceMap* component is created. It must match an existing *DifferentiatedServicesDomain PerHopBehavior* component instance value.

The *TrafficClass* assigned to the *PerHopBehavior* component instance that matches the *rtVbrClp0ToPhb* attribute value should be equal to the *TrafficClass* assigned to the *PerHopBehavior* component instance that matches the *rtVbrClp1ToPhb* attribute value.

The *dropPrecedence* assigned to the *PerHopBehavior* component instance that matches the *rtVbrClp0ToPhb* attribute value should be equal to or less than *dropPrecedence* assigned to the *PerHopBehavior* component instance that matches the *rtVbrClp0ToPhb* attribute value.

Values Decimal (0..63)
df

ef
af11
af12
af13
af21
af22
af23
af31
af32
af33
af41
af42
af43
cs0
cs1
cs2
cs3
cs4
cs5
cs6
cs7

Default df

### ATTRIBUTE Vr Dsd AtmSM cbrClp0ToPhb (cbr0)

Access Read and write

Description This attribute indicates the *PerHopBehavior* component instance that is assigned to each packet received on a CBR connection with Cell Loss Priority (CLP) bit = 0 that will be forwarded over an MPLS Label Switched path (LSP) in a Layer 2 Virtual Private Network (VPN).

This attribute is set automatically according to a function of the *DifferentiatedServicesDomain* component instance value when the *AtmServiceMap* component is created. It must match an existing *DifferentiatedServicesDomain PerHopBehavior* component instance value.

The *TrafficClass* assigned to the *PerHopBehavior* component instance that matches the *cbrClp0ToPhb* attribute value should be

equal to the *TrafficClass* assigned to the *PerHopBehavior* component instance that matches the *cbrClp1ToPhb* attribute value.

The *dropPrecedence* assigned to the *PerHopBehavior* component instance that matches the *cbrClp0ToPhb* attribute value should be equal to or less than *dropPrecedence* assigned to the *PerHopBehavior* component instance that matches the *cbrClp0ToPhb* attribute value.

Values

Decimal (0..63)
df
ef
af11
af12
af13
af21
af22
af23
af31
af32
af33
af41
af42
af43
cs0
cs1
cs2
cs3
cs4
cs5
cs6
cs7

Default

df

### ATTRIBUTE Vr Dsd AtmSM cbrClp1ToPhb (cbr1)

Access

Read and write

Description

This attribute indicates the *PerHopBehavior* component instance that is assigned to each packet received on a CBR connection

with Cell Loss Priority (CLP) bit = 1 that will be forwarded over an MPLS Label Switched path (LSP) in a Layer 2 Virtual Private Network (VPN).

This attribute is set automatically according to a function of the *DifferentiatedServicesDomain* component instance value when the *AtmServiceMap* component is created. It must match an existing *DifferentiatedServicesDomain PerHopBehavior* component instance value.

The *TrafficClass* assigned to the *PerHopBehavior* component instance that matches the *cbrClp0ToPhb* attribute should be equal to the *TrafficClass* assigned to the *PerHopBehavior* component instance that matches the *cbrClp1ToPhb* attribute.

The *dropPrecedence* assigned to the *PerHopBehavior* component instance that matches the *cbrClp0ToPhb* attribute should be equal to or less than *dropPrecedence* assigned to the *PerHopBehavior* component instance that matches the *cbrClp0ToPhb* attribute.

Values

Decimal (0..63)
df
ef
af11
af12
af13
af21
af22
af23
af31
af32
af33
af41
af42
af43
cs0
cs1
cs2
cs3
cs4
cs5

| | |
|---|---|
| | cs6 |
| | cs7 |
| Default | df |

## COMPONENT Vr Dsd PerHopBehavior (Phb)

| | |
|---|---|
| Instance | 0 |
| | 1 |
| | 2 |
| | 3 |
| | 4 |
| | 5 |
| | 6 |
| | 7 |
| | 8 |
| | 9 |
| | 10 |
| | 11 |
| | 12 |
| | 13 |
| | 14 |
| | 15 |
| | 16 |
| | 17 |
| | 18 |
| | 19 |
| | 20 |
| | 21 |
| | 22 |
| | 23 |
| | 24 |
| | 25 |
| | 26 |
| | 27 |
| | 28 |
| | 29 |
| | 30 |
| | 31 |
| | 32 |
| | 33 |
| | 34 |

35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
df
ef
af11
af12
af13
af21
af22
af23
af31
af32

af33
af41
af42
af43
cs0
cs1
cs2
cs3
cs4
cs5
cs6
cs7

Groups

"GROUP Vr Dsd Phb Provisioned (Prov)"
"GROUP Vr Dsd Phb Operational (Oper)"
"GROUP Vr Dsd Phb IpOperational (IpOper)"

Scope

Application

Description

*Vr/<string> Dsd/<domainType> PerHopBehavior/<phb>*

The attributes of the *PerHopBehavior* component specify per-packet traffic management parameters that control how individual packets are forwarded.

A packet is associated with a *PerHopBehavior* component instance by a packet classification mechanism. For IP packets, the associated *PerHopBehavior* component instance is equal to the value of the six-bit Differentiated Services Code Point (DSCP) field in the IP header. For MPLS packets forwarded by a Label Switched Router (LSR) over a Label Switched Path (LSP) where an MplsServiceMap component is appied, the associated *PerHopBehavior* component instance is equal to value of the *perHopBehavior* attribute of the *MplsServiceMap ExperimentalBitsMap* component whose instance is equal to the value of the three-bit Experimental (EXP) field of the MPLS label.
If the *PerHopBehavior* component instance associated with a packet is not included among the existing *PerHopBehavior* subcomponents of the *DifferentiatedServicesDomain*, then the packet is treated according to the *PerHopBehavior* component whose instance is equal to 0.

Each *PerHopBehavior* component instance is equal to a decimal value in the range from 0 to 63. The following pairs of *PerHopBehavior* component instances values are equal:
*AF11 = 10,*
*AF12 =12,*
*AF13 =14,*
*AF31 = 26,*
*AF32 = 28,*
*AF33 = 30,*
*AF21 = 18,*
*AF22 = 20,*
*AF23 = 22,*
*AF41 = 34,*
*AF42 =36,*
*AF43 = 38*
*CS0 = 0,*
*CS1 = 8,*
*CS2 =16,*
*CS3 = 24,*
*CS4 =32 ,*
*CS5 = 40,*
*CS6 = 48,*
*CS7 = 56,*
*DF = 0,*
*EF = 46.*

The first item in each pair above is a Per Hop Behavior designation identified in one of following IETF standards: RFC 2764 (“DiffServ Field Definition in IPv4 and IPv6 Headers”), RFC 2597 (“Assured Forwarding PHB Group”) or RFC 3246 (“An Expedited Forwarding PHB”). The the second item in each pair is the IETF recommended Differentiated Services Code Point (DSCP) value.

Each *PerHopBehavior* subcomponent of the *DifferentiatedServicesDomain* must have a unique instance value. A *PerHopBehavior* subcomponent whose instance value is equal to 0 must exist.

A set of *PerHopBehavior* subcomponents is added automatically

when the *DifferentiatedServicesDomain* component is created. The members of this set is a function of the *DifferentiatedServicesDomain* component instance as indicated below.

*Passport (pp):*
***CS7, CS6, CS5, CS4, CS3, CS2, CS1, EF, AF41, AF42, AF43, AF31, AF32, AF33, AF21, AF22, AF23, AF11, AF12, AF13, DF***

*ClassSelector (cs):*
***CS7, CS6, CS5, CS4, CS3, CS2, CS1, CS0***

*AssuredForwarding(af) :*
***CS6, AF41, AF42, AF43, AF31, AF32, AF33, AF21, AF22 AF23, AF11, AF12, AF13, DF***

*Packet Voice (pv):*
***CS7, CS6, CS5, CS1, EF, AF11, AF12, AF13, DF***

*WirelessUmts (umts):*
***CS7, CS6, CS1, EF, AF31, AF32, AF33, AF21, AF22, AF23, DF***

*Custom (cu):*
***CS6, DF***

Common Verbs

Help
List
Display
Add
DELete

## GROUP Vr Dsd Phb Provisioned (Prov)

Properties: Provisioned

Description: This group contains the provisioned attributes of the *PerHopBehavior* component.

## ATTRIBUTE Vr Dsd Phb trafficClass (tc)

Access: Read and write

Description: This attribute specifies the *TrafficClass* component instance associated with the *PerHopBehavior* component instance. This attribute allows *PerHopBehavior* component instances to be aggregated into groups that specify the same packet scheduling attribute values.

This attribute is set automatically to a default value according to a function of the *PerHopBehavior* component instance value when the *PerHopBehavior* component is created. The default values are listed below.

| *PeHopBehavior* | *trafficClass* |
|---|---|
| *CS7 ( 56 )* | ***critical*** |
| *CS6 ( 48 )* | ***network*** |
| *EF ( 46 )* | ***premium*** |
| *CS5 ( 40 )* | ***premium*** |
| *CS4 ( 32 )* | ***platinum*** |
| *AF41 ( 34 )* | ***platinum*** |
| *AF42 ( 36 )* | ***platinum*** |
| *AF43 ( 38 )* | ***platinum*** |
| *CS3 ( 24 )* | ***gold*** |
| *AF31 ( 26 )* | ***gold*** |
| *AF32 ( 28 )* | ***gold*** |
| *AF33 ( 30 )* | ***gold*** |
| *CS2 ( 16 )* | ***silver*** |
| *AF21 ( 18 )* | ***silver*** |
| *AF22 ( 20 )* | ***silver*** |
| *AF23 ( 22 )* | ***silver*** |
| *CS1 ( 8 )* | ***bronze*** |
| *AF11 ( 10 )* | ***bronze*** |
| *AF12 ( 12 )* | ***bronze*** |
| *AF13 ( 14 )* | ***bronze*** |
| *CS0, DF ( 0 )* | ***standard*** |
| all others | ***standard*** |

The value of this attribute must be equal to an existing *TrafficClass* subcomponent instance of the *DifferentiatedServicesDomain*.

If the *PerHopBehavior* component instance is ***0***, ***cs0***, or ***df***, then the value of this attribute must be ***standard***.

Values

critical
network
premium
platinum
gold
silver
bronze
standard

Default

No default

### ATTRIBUTE Vr Dsd Phb dropPrecedence (dp)

Access

Read and write

Description

This attribute specifies the drop precedence value given to a packet that uses the *PerHopBehavior* component instance. This value is used to select a congestion threshold when the packet is placed on a queue that supports multiple congestion thresholds.

A drop precedence is assigned to a packet to control its loss sensitivity relative to other packets when the packets are placed into the same queue. Generally, the value ***low*** indicates the packet is less likely to be discarded when the queue is congested. This traffic has a higher probability of being forwarded. The value ***high*** indicates the packet is more likely to be discarded when the queue is congested. This traffic has a lower probability of being forwarded. The actual loss sensitivity of packets depends on the discarding mechanism at the queue.

This attribute is set automatically to a default value according to a function of the *PerHopBehavior* component instance value when the *PerHopBehavior* component is created. The default values are

listed below.

| *PerHopBehavior* | *dropPrecedence* |
|---|---|
| *--CS7 ( 56 )* | ***low*** |
| *CS6 ( 48 )* | ***low*** |
| *EF ( 46 )* | ***low*** |
| *CS5 ( 40 )* | ***low*** |
| *CS4 ( 32 )* | ***low*** |
| *AF41 ( 34 )* | ***low*** |
| *AF42 ( 36 )* | ***medium*** |
| *AF43 ( 38 )* | ***high*** |
| *CS3 ( 24 )* | ***low*** |
| *AF31 ( 26 )* | ***low*** |
| *AF32 ( 28 )* | ***medium*** |
| *AF33 ( 30 )* | ***high*** |
| *CS2 ( 16 )* | ***low*** |
| *AF21 ( 18 )* | ***low*** |
| *AF22 ( 20 )* | ***medium*** |
| *AF23 ( 22 )* | ***high*** |
| *CS1 ( 8 )* | ***low*** |
| *AF11 ( 10 )* | ***low*** |
| *AF12 ( 12 )* | ***medium*** |
| *AF13 ( 14 )* | ***high*** |
| *CS0, DF ( 0 )* | ***high*** |
| all others | ***high*** |

Values
low
medium
high

Default
No default

## GROUP Vr Dsd Phb Operational (Oper)

Properties
Operational

Description — This group contains the operational attributes of the *PerHopBehavior* component that control the relative forwarding behaviors of packets.

### ATTRIBUTE Vr Dsd Phb operTrafficClass (operTc)

Access — Read only

Description — This attribute indicates the *TrafficClass* component instance associated with the *PerHopBehavior* component instance. This attribute allows *PerHopBehavior* component instances to be aggregated into groups that indicate the same packet scheduling attribute values.

The value of this attribute is equal to value of the *trafficClass* provisioned attribute of the *PerHopBehavior* component.

Values
- critical
- network
- premium
- platinum
- gold
- silver
- bronze
- standard

Default — No default

### ATTRIBUTE Vr Dsd Phb schedulingClass8Queues (sc8q)

Access — Read only

Description — This attribute indicates a logical scheduling class value in the range from ***0*** to ***7*** given to a packet that uses the *PerHopBehavior* component instance. This value is used to select a queue when the packet is transmitted at an interface that supports eight queues per connection.

A scheduling class is assigned to a packet to control its scheduling behavior relative to other packets at the interface where the packets are transmitted. Generally, a numerically

higher value indicates the packet is less likely to be delayed. This traffic is considered more urgent and less delay tolerant. A numerically lower value indicates the packet is more likely to be delayed. This traffic is considered less urgent and more delay tolerant. The actual scheduling behavior of packets depends on the scheduling mechanism at the interface.

The value of this attribute is equal to value of the *schedulingClass8Queues* provisioned attribute of the *TrafficClass* component whose instance is equal to the *PerHopBehavior trafficClass* provisioned attribute value.

Values: Decimal (0..7)

Default: No default

### ATTRIBUTE Vr Dsd Phb schedulingClass4Queues (sc4q)

Access: Read only

Description: This attribute indicates a logical scheduling class value in the range from ***0*** to ***3*** given to a packet that uses the *PerHopBehavior* component.instance. This value is used to select a queue when the packet is transmitted at an interface that supports four queues per connection.

A scheduling class is assigned to a packet to control its scheduling behavior relative to other packets at the interface where the packets are transmitted. Generally, a numerically higher value indicates the packet is less likely to be delayed. This traffic is considered more urgent and less delay tolerant. A numerically lower value indicates the packet is more likely to be delayed. This traffic is considered less urgent and more delay tolerant. The actual scheduling behavior of packets depends on the scheduling mechanism at the interface.

The value of this attribute is equal to value of the *schedulingClass4Queues* provisioned attribute of the *TrafficClass* component whose instance is equal to the *PerHopBehavior trafficClass* provisioned attribute value.

| | |
|---|---|
| Values | Decimal (0..3) |
| Default | No default |

### ATTRIBUTE Vr Dsd Phb schedulingClass3Queues (sc3q)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates a logical scheduling class value in the range from ***0*** to ***2*** given to a packet that uses the *PerHopBehavior* component.instance. This value is used to select a queue when the packet is transmitted at an interface that supports three queues per connection.<br><br>A scheduling class is assigned to a packet to control its scheduling behavior relative to other packets at the interface where the packets are transmitted. Generally, a numerically higher value indicates the packet is less likely to be delayed. This traffic is considered more urgent and less delay tolerant. A numerically lower value indicates the packet is more likely to be delayed. This traffic is considered less urgent and more delay tolerant. The actual scheduling behavior of packets depends on the scheduling mechanism at the interface.<br><br>The value of this attribute is equal to value of the *schedulingClass3Queues* operational attribute of the *TrafficClass* component whose instance is equal to the *PerHopBehavior trafficClass* provisioned attribute value. |
| Values | Decimal (0..2) |
| Default | No default |

### ATTRIBUTE Vr Dsd Phb schedulingClass2Queues (sc2q)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates a logical scheduling class value in the range from ***0*** to ***1*** given to a packet that uses the *PerHopBehavior* component.instance. This value is used to select a queue when the packet is transmitted at an interface that supports two queues per connection. |

A scheduling class is assigned to a packet to control its scheduling behavior relative to other packets at the interface where the packets are transmitted. Generally, a numerically higher value indicates the packet is less likely to be delayed. This traffic is considered more urgent and less delay tolerant. A numerically lower value indicates the packet is more likely to be delayed. This traffic is considered less urgent and more delay tolerant. The actual scheduling behavior of packets depends on the scheduling mechanism at the interface.

The value of this attribute is equal to value of the *schedulingClass2Queues* operational attribute of the *TrafficClass* component whose instance is equal to the *PerHopBehavior trafficClass* provisioned attribute value.

Values: Decimal (0..1)

Default: No default

### ATTRIBUTE Vr Dsd Phb connectionClass (cos)

Access: Read only

Description: This attribute indicates the connection class value in the range from ***0*** to ***3*** given to a packet that uses the *PerHopBehavior* component instance. This value is used to select a one of up to four link layer connections at the interface where the packet is transmitted. Per-packet selection of egress connections is supported only if these conditions are all true:

i) the egress media is *FrDte*, *AtmMpe*, *IpDlciGroup*, or *IpoDlci*, and
ii) more than one link layer connection is configured to the next hop IP router, and
iii) each connection is configured with a different connection class value.

Normally the packet is transmitted on the connection whose connection class is equal to the connection class given to the packet. If that connection does not exist, then the connection having the next lower connection class is used. If that connection

does not exist also, then the connection having the next higher connection class is used.

Locally generated IP multicast and IP broadcast packets are not eligible for per-packet selection of egress connections. Each of these packets is copied and transmitted individually on each of the available connections to the next hop IP router.

For *AtmMpe* the connection class is specified by the *ipCos* attribute of the *AtmConnection* subcomponent. For *FrDte* the connection class is specified by the *ipCoS* attribute of the *StaticDlci* and *DynamicDlciDef* subcomponents. For *IpDlciGroup* and *IpoDlci* the connection class is specified by the *ipCos* attribute of the *FrConnection* subcomponent.

If each link layer connection is configured to provide different policing and scheduling characteristics, then the forwarding behaviors of IP packets are differentiated as they transit through the link layer network. In general, the scheduling characteristics of the connections should be configured to be better for numerically greater connection class values. For example, if four *AtmConnection* components are associated with *AtmIf* components configured for ATM service classes ***UBR***, ***nrtVBR***, ***rtVBR***, and ***CBR***, then the *ipCos* attributes of the *AtmConnection* components should be either ***0***, ***1***, ***2*** and ***3***, respectively, or ***0***, ***1***, ***3*** and ***2*** respectively.

The value of this attribute is equal to value of the *schedulingClass4Queues* operational attribute of the *TrafficClass* component whose instance is equal to the *PerHopBehavior trafficClass* provisioned attribute value.

| | |
|---|---|
| Values | Decimal (0..3) |
| Default | No default |

### ATTRIBUTE Vr Dsd Phb operDropPrecedence (operDp)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the drop precedence value given to a packet that uses the *PerHopBehavior* component instance. This value is used to select a congestion threshold when the packet is placed on a queue that supports multiple congestion thresholds.<br><br>A drop precedence is assigned to a packet to control its loss sensitivity relative to other packets when the packets are placed into the same queue. Generally, the value ***low*** indicates the packet is less likely to be discarded when the queue is congested. This traffic has a higher probability of being forwarded. The value ***high*** indicates the packet is more likely to be discarded when the queue is congested. This traffic has a lower probability of being forwarded. The actual loss sensitivity of packets depends on the discarding mechanism at the queue.<br><br>The value of this attribute is equal to value of the *dropPrecedence* provisioned attribute of the *PerHopBehavior* component. |
| Values | low<br>medium<br>high |
| Default | No default |

### GROUP Vr Dsd Phb IpOperational (IpOper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains *PerHopBehavior* operational attributes that pertain to IP packets only. |

### ATTRIBUTE Vr Dsd Phb dscpDecimal (dscp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the decimal value of the six-bit Differentiated Services Code Point (DSCP) field of an IP packet that uses the *PerHopBehavior* component instance. |
| Values | Decimal (0..63) |

Default No default

### ATTRIBUTE Vr Dsd Phb tosDecimal (tos)

Access Read only

Description This attribute indicates the decimal value of the eight-bit Type Of Service (ToS) field of an IP packet that uses the *PerHopBehavior* component instance when the two least significant bits are set to zero. The six most significant bits of the ToS field are the same six bits of the Differentiated Services Code Point (DSCP) field. Only these six bits are used to select the *PerHopBehavior* component instance for treating the packet.

Values Decimal (0..255)

Default No default

### ATTRIBUTE Vr Dsd Phb typeOfServiceFieldHex (hex)

Access Read only

Description This attribute indicates the hexadecimal value of the eight-bit Type Of Service (ToS) field of an IP packet that uses the *PerHopBehavior* component instance when the two least significant bits are set to zero. The six most significant bits of the ToS field are the same six bits of the Differentiated Services Code Point (DSCP) field. Only these six bits are used to select the *PerHopBehavior* component instance for treating the packet.

Values Hex (H.0..H.ff)

Default No default

### COMPONENT Vr Dsd TrafficClass (Tc)

Instance critical
network
premium
platinum
gold
silver
bronze
standard

| | |
|---|---|
| Groups | "GROUP Vr Dsd Tc Provisioned (Prov)"<br>"GROUP Vr Dsd Tc Operational (Oper)" |
| Scope | Application |
| Description | *Vr/<string> Dsd/<domainType> TrafficClass/<tc>*<br><br>The attributes of the *TrafficClass* component specify per-packet traffic management parameters that control how individual packets are forwarded.<br><br>A packet is associated with a *TrafficClass* component instance according to the *trafficClass* provisioned attribute of the *PerHopBehavior* component instance the packet is using. See the description of the *PerHopBehavior* component for an explanation of how *PerHopBehavior* component instances are associated with packets.<br><br>The *DifferentiatedServicesDomain* must have a *TrafficClass/standard* subcomponent instance.<br><br>Each of the *TrafficClass* component instances should be referenced by at least one of the *DifferentiatedServicesDomain PerHopBehavior* component instances. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Vr Dsd Tc Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioned attributes of the *TrafficClass* component. |

## ATTRIBUTE Vr Dsd Tc schedulingClass8Queues (sc8q)

| | |
|---|---|
| Access | Read and write |

Description

This attribute specifies a logical scheduling class value in the range from ***0*** to ***7*** given to a packet that uses the *TrafficClass* component instance. This value is used to select a queue when the packet is transmitted at an interface that supports eight queues per connection.

A scheduling class is assigned to a packet to control its scheduling behavior relative to other packets at the interface where the packets are transmitted. Generally, a numerically higher value indicates the packet is less likely to be delayed. This traffic is considered more urgent and less delay tolerant. A numerically lower value indicates the packet is more likely to be delayed. This traffic is considered less urgent and more delay tolerant. The actual scheduling behavior of packets depends on the scheduling mechanism at the interface.

This attribute is set automatically to a default value according to a function of the *TrafficClass*component instance value when the *TrafficClass* component is created. The default values are listed below. If the *TrafficClass* component instance is ***standard***, then this attribute must be set to ***0***.

| *TrafficClass* | *schedulingClass8Queues* |
|---|---|
| *--critical* | ***7*** |
| *premium* | ***6*** |
| *network* | ***5*** |
| *platinum* | ***4*** |
| *gold* | ***3*** |
| *silver* | ***2*** |
| *bronze* | ***1*** |
| *standard* | ***0*** |

Values

Decimal (0..7)

Default

No default

## ATTRIBUTE Vr Dsd Tc schedulingClass4Queues (sc4q)

Access: Read and write

Description: This attribute specifies a logical scheduling class value in the range from ***0*** to ***3*** given to a packet that uses the *TrafficClass* component instance. This value is used to select a queue when the packet is transmitted at an interface that supports four queues per connection. It may also be used to select one of up to four link layer connections at interfaces where per-packet selection of egress connections is supported.

A scheduling class is assigned to a packet to control its scheduling behavior relative to other packets at the interface where the packets are transmitted. Generally, a numerically higher value indicates the packet is less likely to be delayed. This traffic is considered more urgent and less delay tolerant. A numerically lower value indicates the packet is more likely to be delayed. This traffic is considered less urgent and more delay tolerant. The actual scheduling behavior of packets depends on the scheduling mechanism at the interface.

This attribute is set automatically to a default value according to a function of the *TrafficClass*component instance value when the *TrafficClass* component is created. The default values are listed below. If the *TrafficClass* component instance is ***standard***, then this attribute must be set to ***0***.

Default values for all domains, except *assuredForwarding (af)* :

| *TrafficClass* | *schedulingClass4Queues* |
|---|---|
| *critical* | ***2*** |
| *premium* | ***3*** |
| *network* | ***2*** |
| *platinum* | ***1*** |
| *gold* | ***1*** |
| *silver* | ***1*** |
| *bronze* | ***1*** |
| *standard* | ***0*** |

Default values for *assuredForwarding (af)* domain only:

| *TrafficClass* | *schedulingClass4Queues* |
|---|---|
| *--critical* | ***3*** |
| *premium* | ***3*** |
| *network* | ***3*** |
| *platinum* | ***3*** |
| *gold* | ***2*** |
| *silver* | ***1*** |
| *bronze* | ***0*** |
| *standard* | ***0*** |

Values — Decimal (0..3)

Default — No default

## GROUP Vr Dsd Tc Operational (Oper)

Properties — Operational

Description — This group contains the operational attributes of the *TrafficClass* component.

## ATTRIBUTE Vr Dsd Tc operSchedulingClass8Queues (operSc8q)

Access — Read only

Description — This attribute indicates a logical scheduling class value in the range from ***0*** to ***7*** given to a packet that uses the *TrafficClass* component instance. This value is used to select a queue when the packet is transmitted at an interface that supports eight queues per connection.

A scheduling class is assigned to a packet to control its scheduling behavior relative to other packets at the interface where the packets are transmitted. Generally, a numerically higher value indicates the packet is less likely to be delayed. This traffic is considered more urgent and less delay tolerant. A

numerically lower value indicates the packet is more likely to be delayed. This traffic is considered less urgent and more delay tolerant. The actual scheduling behavior of packets depends on the scheduling mechanism at the interface.

The value of this attribute is equal to value of the *schedulingClass8Queues* provisioned attribute of the *TrafficClass* component.

Values: Decimal (0..7)

Default: No default

### ATTRIBUTE Vr Dsd Tc operSchedulingClass4Queues (operSc4q)

Access: Read only

Description: This attribute indicates a logical scheduling class value in the range from ***0*** to ***3*** given to a packet that uses the *TrafficClass* component instance. This value is used to select a queue when the packet is transmitted at an interface that supports four queues per connection. It may also be used to select one of up to four link layer connections at interfaces where per-packet selection of egress connections is supported.

A scheduling class is assigned to a packet to control its scheduling behavior relative to other packets at the interface where the packets are transmitted. Generally, a numerically higher value indicates the packet is less likely to be delayed. This traffic is considered more urgent and less delay tolerant. A numerically lower value indicates the packet is more likely to be delayed. This traffic is considered less urgent and more delay tolerant. The actual scheduling behavior of packets depends on the scheduling mechanism at the interface.

The value of this attribute is equal to value of the *schedulingClass4Queues* provisioned attribute of the *TrafficClass* component.

Values: Decimal (0..3)

Default: No default

### ATTRIBUTE Vr Dsd Tc operSchedulingClass3Queues (operSc3q)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates a logical scheduling class value in the range from ***0*** to ***2*** given to a packet that uses the *TrafficClass* component instance. This value is used to select a queue when the packet is transmitted at an interface that supports three queues per connection.<br><br>A scheduling class is assigned to a packet to control its scheduling behavior relative to other packets at the interface where the packets are transmitted. Generally, a numerically higher value indicates the packet is less likely to be delayed. This traffic is considered more urgent and less delay tolerant. A numerically lower value indicates the packet is more likely to be delayed. This traffic is considered less urgent and more delay tolerant. The actual scheduling behavior of packets depends on the scheduling mechanism at the interface.<br><br>The value of this attribute is controlled by the *schedulingClass4Queues* provisioned attribute of the *TrafficClass* component. If the *schedulingClass4Queues* attribute value is ***3 or 2***, then the *operSchedulingClass3Queues* attribute value is ***2***; otherwise both values are equal. |
| Values | Decimal (0..2) |
| Default | No default |

### ATTRIBUTE Vr Dsd Tc operSchedulingClass2Queues (operSc2q)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates a logical scheduling class value in the range from ***0*** to ***1*** given to a packet that uses the *TrafficClass* component instance. This value is used to select a queue when the packet is transmitted at an interface that supports two queues per connection.<br><br>A scheduling class is assigned to a packet to control its scheduling behavior relative to other packets at the interface |

where the packets are transmitted. Generally, a numerically higher value indicates the packet is less likely to be delayed. This traffic is considered more urgent and less delay tolerant. A numerically lower value indicates the packet is more likely to be delayed. This traffic is considered less urgent and more delay tolerant. The actual scheduling behavior of packets depends on the scheduling mechanism at the interface.

The value of this attribute is controlled by the *schedulingClass4Queues* provisioned attribute of the *TrafficClass* component. If the *schedulingClass4Queues* attribute value is ***3***, then the *operSchedulingClass2Queues* attribute value is ***1***; otherwise it is ***0***.

Values: Decimal (0..1)

Default: No default

## COMPONENT Vr MultiprotocolLabelSwitching (Mpls)

Groups:
"GROUP Vr Mpls Provisioned (Prov)"
"GROUP Vr Mpls Operational (Oper)"
"GROUP Vr Mpls OsiState (State)"
"GROUP Vr Mpls OperationalStatus (OperStatus)"

Scope: Application

Description:
*Vr/<s> MultiprotocolLabelSwitching*
*Rtr/<s> MultiprotocolLabelSwitching*
This component and its subcomponents define a Virtual Router or Router capable of supporting Multiprotocol Label Switching (MPLS). The switch is referred to as a Label Switching Router (LSR) and it supports the MPLS Label Distribution Protocol (LDP).

| | |
|---|---|
| Opt. Subcomp. | "COMPONENT Vr Mpls Ldp (Ldp)"<br>"COMPONENT Vr Mpls Path"<br>"COMPONENT Vr Mpls LspGroup (LspG)"<br>"COMPONENT Vr Mpls TrafficEngineering (Te)" |
| Dyn. Subcomp. | "COMPONENT Vr Mpls XcMap"<br>"COMPONENT Vr Mpls RouteSelector (Rs)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

### GROUP Vr Mpls Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains generic provisionable attributes for MPLS. |

### ATTRIBUTE Vr Mpls lsrIdProv

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the IP address for the MPLS Label Switch Router (LSR) and is known as the LSR identifier. A value of 0 indicates that the switch router ID is to be used. This is defined by an IP routing protocol such as OSPF under the same *Vr* component. |
| Values | IP address |
| Default | 0.0.0.0 |

### ATTRIBUTE Vr Mpls lspGroupPolicy

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute defines the limitations of *LspGroups* going through this LSR.<br><br>A value of ***restrictive*** means that this LSR will only accept LSPs for those *LspGroup*s defined on this LSR;<br><br>A value of ***liberal*** means that this LSR will not accept LSPs for those *LspGroup*s that are administratively disabled but will accept all others. |
| Values | restrictive<br>liberal |
| Default | restrictive |

### ATTRIBUTE Vr Mpls mplsRoutePreference (mplsRtePref)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the route preference of all MPLS LSPs. It is used by IP RTM to select the most preferred route from multiple available routes discovered by different protocols such as OSPF, RIP, BGP, and MPLS. More specifically, when an incoming IP packet has more than one best-destAddress-match routes (provided by different protocols) in the IP RTM, the route with higher preference (smaller route preference value) wins.. |
| Values | Decimal (1..63) |
| Default | 10 |

### GROUP Vr Mpls Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational attributes for MPLS. |

### ATTRIBUTE Vr Mpls lsrId

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the IP address for this Label Switch Router (LSR). It is either the provisioned attribute *lsrIdProv* or the default IP address of 0.0.0.0. |

| | |
|---|---|
| Values | IP address |
| Default | No default |

### GROUP Vr Mpls OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Vr Mpls adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

## ATTRIBUTE Vr Mpls operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

## ATTRIBUTE Vr Mpls usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

## GROUP Vr Mpls OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

## ATTRIBUTE Vr Mpls snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

## COMPONENT Vr Mpls Ldp (Ldp)

| | |
|---|---|
| Groups | "GROUP Vr Mpls Ldp LdpPolicy (LdpPolicy)"<br>"GROUP Vr Mpls Ldp Loop (Loop)"<br>"GROUP Vr Mpls Ldp Statistics (Stats)" |
| Scope | Application |
| Description | *Vr/<s> Mpls Ldp*<br>*Rtr/<s> Mpls Ldp*<br>This component represents the Label Distribution Protocol (LDP). LDP is a signaling protocol used by Label Switched Routers (LSRs) to establish Label Switched Paths (LSPs) through a network by mapping network-layer routing information directly to data-link layer switched paths.<br><br>There is only one instance of *Ldp* component for each *Mpls* component. |

| | |
|---|---|
| Dyn. Subcomp. | "COMPONENT Vr Mpls Ldp Binding (Bind)"<br>"COMPONENT Vr Mpls Ldp Peer"<br>"COMPONENT Vr Mpls Ldp Neighbor (Nbr)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Vr Mpls Ldp LdpPolicy (LdpPolicy)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group of attributes describes the characteristics of remote LSRs that are allowed to establish LDP Peers with this LSR. |

### ATTRIBUTE Vr Mpls Ldp keepAliveHoldTimer (kaTimer)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the interval for keep alive hold timer in seconds for a session. |
| Values | Decimal (1..600) |
| Units | seconds |
| Default | 10 |

### ATTRIBUTE Vr Mpls Ldp helloTimer (helloTimer)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the interval for hello timer in seconds for a given LDP adjacency. |
| Values | Decimal (1..600) |
| Units | seconds |
| Default | 15 |

### ATTRIBUTE Vr Mpls Ldp failedInitThreshold

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies that the *failedInitSessionThresholdExceeded* notification is generated whenever the value is exceeded. |
| Values | Decimal (1..20) |
| Default | 10 |

### ATTRIBUTE Vr Mpls Ldp signaledPenultimateHopPop (php)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to indicate whether Penultimate Hop Pop is signaled out from this node.<br><br>When the attribute value is ***on***, this LSR will assign and distribute "Implicit Null Label (3)" for its own loopback address to all neighboring LSRs.<br><br>When the attribute value is ***off***, this LSR will distribute label values outside the reserved label values.<br><br>Default is ***on***. |
| Values | on<br>off |
| Default | on |

### GROUP Vr Mpls Ldp Loop (Loop)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains parameters that handle loop detection. |

### ATTRIBUTE Vr Mpls Ldp loopDetection (loopDet)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute enables a mechanism for finding looping LSPs. When the attribute value is ***on***, messages related to the set up of LSPs are checked to see if the path being setup has a loop. There |

| | |
|---|---|
| | is also a limit on the length of a path which is used when loop detection is ***on***. This length is specified in the *hopCountLimit* attribute. |
| Values | on<br>off |
| Default | No default |

### ATTRIBUTE Vr Mpls Ldp hopCountLimit (hcLimit)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies a limit on the number of hops allowed for each LSP. It is used when setting up LSPs to detect loops. When enabling detection of loops with the *loopDetection* attribute, this attribute should be specified. |
| Values | Decimal (2..40) |
| Default | 10 |

### GROUP Vr Mpls Ldp Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational statistics for the *Mpls Ldp* component. |

### ATTRIBUTE Vr Mpls Ldp establishedPeers (estPeers)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of LDP peers currently established between this LSR and other LSRs in the network. |
| Values | Decimal (0..500) |
| Default | No default |

### ATTRIBUTE Vr Mpls Ldp establishedSessions (estSessions)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts number of sessions that have been established between LDP peers. This counter wraps to zero when it exceeds the maximum value. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Mpls Ldp attemptedSessions (as)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total attempted sessions between LDP peers. This counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT Vr Mpls Ldp Binding (Bind)

| | |
|---|---|
| Instance | fecString (fec) [String (9..19, ASCII)]<br>ldpIdString (ldpId) [String (9..21, ASCII)] |
| Groups | "GROUP Vr Mpls Ldp Bind InOperational (In)"<br>"GROUP Vr Mpls Ldp Bind OutOperational (Out)" |
| Scope | Application |
| Description | *Rtr/<s> Ldp Binding/<s>,<s>*<br>This component indicates an LSP through a unique Fec and remote Ldp identifier binding. The LSP in question is always referenced in terms of the relationship to the data path. The *Binding* component is recommended as a good way to view the Transport level LSPs.<br><br>The instance identifier of the *Binding* components is the Fec and the remote Ldp identifier, where the Fec is “IP Address[Fec Prefix Length]”, and the remote Ldp identifier is “IP Address-Label Space Identifier”. |
| Common Verbs | Help<br>List<br>Display |

## GROUP Vr Mpls Ldp Bind InOperational (In)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the attributes bound to a unique Fec and Ldp identifier for the labels generated locally. |

## ATTRIBUTE Vr Mpls Ldp Bind inLabel

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the transport label bound to the unique pairing of Fec and remote Ldp identifier. This is the locally generated label. |
| Values | Decimal (0..1048575) |
| Default | No default |

## ATTRIBUTE Vr Mpls Ldp Bind inUsageState (inUsage)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the usage state of the *inLabel* attribute under the *Binding* component. The three possible states are: ***idle***, ***active***, and ***busy***.<br><br>***idle***: Indicates labels that are supplied but are not used to represent the LSP.<br><br>***active***: Indicates labels that are supplied and are selected for use to represent the LSP. Active labels can accept more users.<br><br>***busy***: Indicates labels that are supplied and are selected for use to represent the LSP. Busy labels cannot accept more users. |
| Values | idle<br>active<br>busy |
| Default | No default |

### ATTRIBUTE Vr Mpls Ldp Bind inOperationalState (inOp)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the operational state of the *inLabel* attribute under the *Binding* component. The two possible states are: ***enabled*** and ***disabled***.<br><br>***enabled***: Indicates labels that are installed in the hardware for data path use.<br><br>***disabled***: Indicates labels that are not installed in the hardware. |
| Values | disabled<br>enabled |
| Default | No default |

### GROUP Vr Mpls Ldp Bind OutOperational (Out)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the attributes bound to a unique Fec and Ldp identifier for the labels supplied by the downstream neighbor. |

### ATTRIBUTE Vr Mpls Ldp Bind outLabel

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the transport label bound to the unique pairing of Fec and remote Ldp identifier. This label value is supplied by the downstream neighbor. |
| Values | Decimal (0..1048575) |
| Default | No default |

### ATTRIBUTE Vr Mpls Ldp Bind outUsageState (outUsage)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the usage state of the *outLabel* attribute under the *Binding* component. The three possible states are: ***idle***, |

***active***, and ***busy***.

***idle***: Indicates labels that are supplied but are not used to represent the LSP.

***active***: Indicates labels that are supplied and are selected for use to represent the LSP. Active labels can accept more users.

***busy***: Indicates labels that are supplied and are selected for use to represent the LSP. Busy labels cannot accept more users.

Values
idle
active
busy

Default
No default

## ATTRIBUTE Vr Mpls Ldp Bind outOperationalState (outOp)

Access
Read: All
Write: Illegal

Description
This attribute indicates the operational state of the *outLabel* attribute under the *Binding* component. The two possible states are: ***enabled*** and ***disabled***.

***enabled***: Indicates labels that are installed in the hardware for data path use.

***disabled***: Indicates labels that are not installed in the hardware.

Values
disabled
enabled

Default
No default

## COMPONENT Vr Mpls Ldp Peer

Instance
IP address

Groups
"GROUP Vr Mpls Ldp Peer Operational (Oper)"

Scope
Application

| | |
|---|---|
| Description | *Vr/<s> Mpls Ldp Peer/x*<br>This component represents an LDP peer instance on this LSR. |
| Dyn. Subcomp. | "COMPONENT Vr Mpls Ldp Peer Session (Session)" |
| Common Verbs | Help<br>List<br>Display |

## GROUP Vr Mpls Ldp Peer Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains attributes relevant to an LDP peer relationship. |

## ATTRIBUTE Vr Mpls Ldp Peer helloMode (hm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether the LDP peer relationship is maintained over a direct link, or is more than one hop away.<br><br>A value of ***linkHello*** indicates that the peer is directly across an interface on this LSR. Discovery of that peer is initiated using an LDP Link Hello message.<br><br>A value of ***targetedHello*** indicates that the peer is not directly connected. Discovery of that peer is initiated using an LDP Targeted Hello message. |
| Values | linkHello<br>targetedHello |
| Default | No default |

## ATTRIBUTE Vr Mpls Ldp Peer establishedSession (es)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the sessions that have been established to the LDP peer. This counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..32767) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Vr Mpls Ldp Peer attemptedSession (as)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the attempted sessions to the LDP peer. This counter wraps to zero when it exceeds the maximum value. |
| Values | Decimal (0..32767) |
| Default | No default |

### COMPONENT Vr Mpls Ldp Peer Session (Session)

| | |
|---|---|
| Instance | localIpAddress (ipAddr) [IP address]<br>localPort (port) [Decimal (0..65535)] |
| Groups | "GROUP Vr Mpls Ldp Peer Session Operational (Oper)" |
| Scope | Application |
| Description | *Vr/<s> Mpls Ldp Peer/x Session/y*<br>This component represents an LDP session between two peers. Existence of a session indicates that at least one successful Hello adjacency has been established between the two MPLS peers. |
| Dyn. Subcomp. | "COMPONENT Vr Mpls Ldp Peer Session Adjacency (Adj)" |
| Common Verbs | Help<br>List<br>Display |

### GROUP Vr Mpls Ldp Peer Session Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains attributes related to a session between two LDP peers. |

### ATTRIBUTE Vr Mpls Ldp Peer Session state

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current state of the session. |

A value of ***nonExistent*** indicates that the LSR is waiting for an adjacency to exist between itself and a potential LDP peer.

A value o***f initialized*** indicates that a TCP connection has been established between the peers. The passive peer is waiting to receive an Initialization message and if received, goes to the ***openRec*** state. The active peer sends an Initialization message and then goes to the ***openSent*** state.

A value of ***openRec*** indicates that the peer is waiting to receive a KeepAlive message. If received, it goes to the ***operational*** state.

A value of ***openSent*** indicates that the LSR is waiting for an Initialization message from the peer in reply to the one it sent. If received, it goes to the ***openRec*** state.

A value of ***operational*** indicates that the peers have exchanged successful Initialization messages and are able to set up label switched paths between them.

| | |
|---|---|
| Values | nonExistent<br>initialized<br>openRec<br>openSent<br>operational |
| Default | No default |

### ATTRIBUTE Vr Mpls Ldp Peer Session remoteLdpId (remId)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the remote LDP identifier and represents a label space. It consists of an IP address assigned to the remote LSR, and a decimal number. Together, this uniquely identifies a label space on that LSR. |
| Values | Decimal (0..65535) |
| Default | No default |

### ATTRIBUTE Vr Mpls Ldp Peer Session transportAddress (transpAddr)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the IPv4 address to be used as the source IP address by this LSR when opening an LDP session to its peer over a TCP connection. |
| Values | IP address |
| Default | No default |

### ATTRIBUTE Vr Mpls Ldp Peer Session ldpIfName

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the LDP interface component name associated with the media over which the LDP session occurs. |
| Values | The name of the component |
| Default | No default |

### ATTRIBUTE Vr Mpls Ldp Peer Session protocolVersion (ver)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the version of the LDP protocol being used in this session. |
| Values | Decimal (0..5) |
| Default | No default |

### COMPONENT Vr Mpls Ldp Peer Session Adjacency (Adj)

| | |
|---|---|
| Instance | Decimal (0..65535) |
| Groups | "GROUP Vr Mpls Ldp Peer Session Adj Operational (Oper)" |
| Scope | Application |
| Description | *Vr/<s> Mpls Ldp Peer/x Session/y Adj/z*<br>This component represents a Hello adjacency for an MPLS LDP session. There can be multiple adjacencies per session and as long as one adjacency exists, a session can be maintained. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Vr Mpls Ldp Peer Session Adj Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains attributes for a Hello adjacency between two LDP peers. |

### ATTRIBUTE Vr Mpls Ldp Peer Session Adj ldpIfName

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the LDP interface component name associated with the media over which the LDP adjacency occurs. |
| Values | The name of the component |
| Default | No default |

### COMPONENT Vr Mpls Ldp Neighbor (Nbr)

| | |
|---|---|
| Instance | String (9..21, ASCII) |
| Groups | "GROUP Vr Mpls Ldp Nbr NbrOp (Op)"<br>"GROUP Vr Mpls Ldp Nbr Statistics (Stats)" |
| Scope | Application |
| Description | *Rtr/s Ldp Neighbor/s*<br>This component represents a view of the remote neighbor for the *LDP* component under the *InwRouter* component. There is a 1:1 mapping between the *Neighbor* component and an LDP session.<br><br>The instance identifier of the *Neighbor* component is the remote Ldp identifier, where the remote Ldp identifier is “IP Address-Label Space Identifier”. |
| Dyn. Subcomp. | "COMPONENT Vr Mpls Ldp Nbr Adjacency (Adj)"<br>"COMPONENT Vr Mpls Ldp Nbr LabelIn"<br>"COMPONENT Vr Mpls Ldp Nbr LabelOut" |
| Common Verbs | Help<br>List<br>Display |

## GROUP Vr Mpls Ldp Nbr NbrOp (Op)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes of the *Neighbor* component. |

## ATTRIBUTE Vr Mpls Ldp Nbr sessionId

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the session identifier for the *Neighbor* component. The session identifier is formed by concatenating the local LDP identifier with the remote LDP identifier. |
| Values | String (22..46, ASCII) |
| Default | No default |

## ATTRIBUTE Vr Mpls Ldp Nbr sessionState

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the current state of the session represented by the *Neighbor* component. The session can be in any of the following five states:<br><br>***Non-existent - No Adjacencies***: Indicates that there are no adjacencies for this session.<br><br>***Non Existent - Throttling:*** Indicates that a session has at least one adjacency, but is currently throttling it is session setup with exponential back-off.<br><br>***Non Existent - Establishing TCP***: Indicates that the session is currently attempting to setup a TCP connection (either active or passive).<br><br>***Initialized***: Indicates the transmission of an initialization message in the active role, or the receiving of an acceptable initialization message in the passive role. In the passive role, receiving any other LDP message will cause a state change to ***Non Existent***. |

***Opensent***: Indicates that an acceptable initialization message was received and a KeepAlive message is sent in response. Receiving any other LDP message will cause the value of the *sessionState* attribute to change to ***Non-Existent.***

***Openrecv***: Indicates that an acceptable KeepAlive message has been received. Receiving any other LDP message will cause the value of the *sessionState* attribute to change to ***Non-Existent***.

***Operational***: Indicates that the session is operational and is receiving other LDP messages.

Values
nonExistent-NoAdjacencies
nonExistent-Throttling
nonExistent-EstablishingTCP
initialized
opensent
openrecv
operational

Default
No default

### ATTRIBUTE Vr Mpls Ldp Nbr ldpMode

Access
Read: All
Write: Illegal

Description
This attribute indicates the negotiated LDP Mode. The attribute can have a value of Downstream Unsolicited (***du***) or Downstream On Demand (***dod***).

Values
dod
du

Default
No default

### ATTRIBUTE Vr Mpls Ldp Nbr keepAliveHoldTime

Access
Read: All
Write: Illegal

Description
This attribute indicates the current hold time (in seconds) for the session.

| | |
|---|---|
| Values | Decimal (0..65535) |
| Units | seconds |
| Default | No default |

### ATTRIBUTE Vr Mpls Ldp Nbr nextKeepAlive

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the time (in seconds) left before the next keep alive message is sent to its remote neighbor. |
| Values | Decimal (0..65535) |
| Units | seconds |
| Default | No default |

### ATTRIBUTE Vr Mpls Ldp Nbr keepAliveInterval

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates (in seconds) the keep alive interval time. The interval represents how often a keep alive message is sent to its remote neighbor. |
| Values | Decimal (0..65535) |
| Units | seconds |
| Default | No default |

### ATTRIBUTE Vr Mpls Ldp Nbr tcpUpTime

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates when the TCP connection first became active. |
| Values | Time (DHMS) |
| Default | No default |

### ATTRIBUTE Vr Mpls Ldp Nbr numberOfAdjacencies

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of adjacencies managed by the *Neighbor* component. |
| Values | Decimal (1..8) |
| Default | No default |

### ATTRIBUTE Vr Mpls Ldp Nbr remoteTcpAddress

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the remote transport address coupled with the TCP port. If the neighbor fails to provide a value for the *remoteTcpAddress* attribute, then the source address from the Hello message is used in its place.<br><br>The port number will be zero until the TCP session is operational. |
| Values | String (9..21, ASCII) |
| Default | No default |

### ATTRIBUTE Vr Mpls Ldp Nbr localTcpAddress

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the local transport address coupled with the TCP port.<br><br>The port number will be zero until the TCP session is operational. |
| Values | String (9..21, ASCII) |
| Default | No default |

### ATTRIBUTE Vr Mpls Ldp Nbr localLdpId

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute indicates the local Ldp identifier. |
| Values | String (9..21, ASCII) |
| Default | No default |

### ATTRIBUTE Vr Mpls Ldp Nbr lastFailureReason

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the last failure reason of the session.<br>The value of this attribute is only displayed in case of a failure event.<br>The ***rxNot*** failure reasons mean that the session received a critical teardown notification from the remote end. |
| Values | noError<br>internalError<br>userClear<br>userLock<br>userCriticalProvChange<br>localTcpSocketFailure<br>remoteTcpSocketClosure<br>tcpSocketConnectionTimeout<br>tcpSocketCreationFailed<br>unexpectedTcpSocket<br>txOverTcpFailed<br>lastAdjacencyDownHoldTimeExpired<br>lastAdjacencyDown<br>noAdjacency<br>bothSessionsActive<br>rxInitializationMsgInWrongState<br>rxKeepAliveMessageInWrongState<br>rxUnexpectedMessageInWrongState<br>rxPduWithInvalidLength<br>tlvLengthMismatchWithMsgSize<br>msgLengthMismatchWithPduSize<br>rejectPduWithBadProtocolVersion<br>rejectPduWithBadRemoteLdpId<br>rejectInitMsgWithBadLocalLdpId<br>rejectInitMsgMaxPduLength<br>sessionInitialisationTimeout |

keepAliveTimeOutForRxTraffic
rxNot-BadLdpIdentifier
rxNot-BadProtocolVersion
rxNot-BadPduLength
rxNot-BadMessageLength
rxNot-BadTlvLength
rxNot-MalformedTlvValue
rxNot-HoldTimeExpired
rxNot-Shutdown
rxNot-Reject-NoHello
rxNot-Reject-ParamAdvMode
rxNot-Reject-ParamMaxPdu
rxNot-Reject-ParamLabelRange
rxNot-KeepAliveTimeOut
rxNot-Reject-BadKeepAliveTime
rxNot-RemoteInternalError
rxNot-UnrecognizedStatusCode
anInvalidTlvValueWasReceived
rejectInitMsgWithBadLabelRange

Default: No default

### ATTRIBUTE Vr Mpls Ldp Nbr nextHopAddressReceived

Access: Read: All
Write: Illegal

Description: This attribute indicates a complete list of the next hop addresses received on the session.

List of: IP address

Default: No default

### GROUP Vr Mpls Ldp Nbr Statistics (Stats)

Properties: Operational

Description: This group contains the message statistics related to the neighbor component

### ATTRIBUTE Vr Mpls Ldp Nbr initializationMessages (init)

Access: Read: All
Write: Illegal

| | |
|---|---|
| Description | This attribute counts the number of Initialization messages sent and received. The value of the counter is a snapshot of the real time counter and can be off by up to 5 seconds. This counter wraps to zero when it exceeds the maximum value. |
| Vector of | Decimal (0..4294967295) |
| Index | sent<br>received (rcvd) |
| Default | No default |

### ATTRIBUTE Vr Mpls Ldp Nbr keepAliveMessages (keepAlive)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of Keep Alive messages sent and received. The value of the counter is a snapshot of the real time counter and can be off by up to 5 seconds. This counter wraps to zero when it exceeds the maximum value. |
| Vector of | Decimal (0..4294967295) |
| Index | sent<br>received (rcvd) |
| Default | No default |

### ATTRIBUTE Vr Mpls Ldp Nbr notificationMessages (notif)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of Notification messages sent and received. The value of the counter is a snapshot of the real time counter and can be off by up to 5 seconds. This counter wraps to zero when it exceeds the maximum value. |
| Vector of | Decimal (0..4294967295) |
| Index | sent<br>received (rcvd) |
| Default | No default |

### ATTRIBUTE Vr Mpls Ldp Nbr addressMessages (addr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of Address messages sent and received. The value of the counter is a snapshot of the real time counter and can be off by up to 5 seconds. This counter wraps to zero when it exceeds the maximum value. |
| Vector of | Decimal (0..4294967295) |
| Index | sent<br>received (rcvd) |
| Default | No default |

### ATTRIBUTE Vr Mpls Ldp Nbr addressWithdrawMessages (addrWith)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of Address Withdraw messages sent and received. The value of the counter is a snapshot of the real time counter and can be off by up to 5 seconds. This counter wraps to zero when it exceeds the maximum value. |
| Vector of | Decimal (0..4294967295) |
| Index | sent<br>received (rcvd) |
| Default | No default |

### ATTRIBUTE Vr Mpls Ldp Nbr labelMappingMessages (labelMap)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of Label Mapping messages sent and received. The value of the counter is a snapshot of the real time counter and can be off by up to 5 seconds. This counter wraps to zero when it exceeds the maximum value. |

| | |
|---|---|
| Vector of | Decimal (0..4294967295) |
| Index | sent<br>received (rcvd) |
| Default | No default |

### ATTRIBUTE Vr Mpls Ldp Nbr labelRequestMessages (labelReq)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of Label Request messages sent and received. The value of the counter is a snapshot of the real time counter and can be off by up to 5 seconds. This counter wraps to zero when it exceeds the maximum value. |
| Vector of | Decimal (0..4294967295) |
| Index | sent<br>received (rcvd) |
| Default | No default |

### ATTRIBUTE Vr Mpls Ldp Nbr labelWithdrawMessages (labelWith)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of Label Withdraw messages sent and received. The value of the counter is a snapshot of the real time counter and can be off by up to 5 seconds. This counter wraps to zero when it exceeds the maximum value. |
| Vector of | Decimal (0..4294967295) |
| Index | sent<br>received (rcvd) |
| Default | No default |

### ATTRIBUTE Vr Mpls Ldp Nbr labelReleaseMessages (labelRel)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of Label Release messages sent and received. The value of the counter is a snapshot of the real time counter and can be off by up to 5 seconds. This counter wraps to zero when it exceeds the maximum value. |
| Vector of | Decimal (0..4294967295) |
| Index | sent<br>received (rcvd) |
| Default | No default |

### ATTRIBUTE Vr Mpls Ldp Nbr labelAbortMessages (labelAbort)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the number of Label Abort messages sent and received. The value of the counter is a snapshot of the real time counter and can be off by up to 5 seconds. This counter wraps to zero when it exceeds the maximum value. |
| Vector of | Decimal (0..4294967295) |
| Index | sent<br>received (rcvd) |
| Default | No default |

### COMPONENT Vr Mpls Ldp Nbr Adjacency (Adj)

| | |
|---|---|
| Instance | localIfAddress (local) [IP address]<br>remoteIfAddress (remote) [IP address] |
| Groups | "GROUP Vr Mpls Ldp Nbr Adj Operational (Op)" |
| Scope | Application |
| Description | *Rtr/<s> Ldp Neighbor/<s> Adjacency/<s>,<s>*<br>This component represents a Hello Adjacency for an *InwRouter Ldp Neighbor* component. There can be multiple adjacencies per |

*Neighbor* component. The *Neighbor* component instance is maintained for as long as there is one adjacency.

Common Verbs

Help
List
Display

### GROUP Vr Mpls Ldp Nbr Adj Operational (Op)

Properties: Operational

Description: This group contains the operational attributes for the *Adjacency* component.

### ATTRIBUTE Vr Mpls Ldp Nbr Adj ldpIfName

Access: Read: All
Write: Illegal

Description: This attribute indicates the interface that the adjacency is currently active on. It relates to the LDP interface component name which is associated with the media over which the LDP adjacency occurs.

Values: The name of the component

Default: No default

### ATTRIBUTE Vr Mpls Ldp Nbr Adj timeStamp (time)

Access: Read: All
Write: Illegal

Description: This attribute indicates when the adjacency was first created.

Values: Time (DHMS)

Default: No default

### COMPONENT Vr Mpls Ldp Nbr LabelIn

Instance: Decimal (0..1048575)

Groups: "GROUP Vr Mpls Ldp Nbr LabelIn Operational (Op)"

Scope: Application

| | |
|---|---|
| Description | *Rtr/<s> Ldp Neighbor/<s> LabelIn/<n>*<br>This component indicates the label received for a given *Neighbor* component. The “In” in the component name reflects the data path direction. In this case, it represents the label that is generated locally. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Vr Mpls Ldp Nbr LabelIn Operational (Op)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for the *LabelIn* dynamic component. |

### ATTRIBUTE Vr Mpls Ldp Nbr LabelIn fec

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the Fec associated to the *Label* component. |
| Values | String (9..19, ASCII) |
| Default | No default |

### ATTRIBUTE Vr Mpls Ldp Nbr LabelIn timeStamp

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates when the label was allocated by the session. |
| Values | Time (DHMS) |
| Default | No default |

### ATTRIBUTE Vr Mpls Ldp Nbr LabelIn adjacencyList

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute indicates a list of interfaces associated with the adjacency that the incoming label is configured on. It relates to the *LDP* interface component name associated with the media over which the LDP adjacency occurs.<br><br>This attribute includes the usage state and operational state information associated with the *Label* component, to highlight the interface that the label is currently active on.<br><br>The usage state information in the attribute indicates the usage state of the *Label* component. The three possible states are: ***idle***, ***active***, and ***busy***.<br><br>***idle***: Indicates labels that are supplied but are not used to represent the LSP.<br><br>***active***: Indicates labels that are supplied and are selected for use to represent the LSP. Active labels can accept more users.<br><br>***busy***: Indicates labels that are supplied and are selected for use to represent the LSP. Busy labels cannot accept more users.<br><br>The operational state information in the attribute indicates the operational state of the *Label*. The two possible states are: ***enabled*** and ***disabled***.<br><br>***enabled***: Indicates labels that are installed in the hardware for data path use.<br><br>***disabled***: Indicates labels that are not installed in the hardware. |
| List of | String (30..76, ASCII) |
| List Size | 8 |
| Default | No default |

## COMPONENT Vr Mpls Ldp Nbr LabelOut

| | |
|---|---|
| Instance | Decimal (0..1048575) |
| Groups | "GROUP Vr Mpls Ldp Nbr LabelOut Operational (Op)" |

| | |
|---|---|
| Scope | Application |
| Description | *Rtr/<s> Ldp Neighbor/<s> LabelOut/<n>*<br>This component indicates the label sent for a given session. “Out” in the component name reflects the data path direction. In this case it represents the label received from the remote peer. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Vr Mpls Ldp Nbr LabelOut Operational (Op)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for the *LabelOut* dynamic component. |

### ATTRIBUTE Vr Mpls Ldp Nbr LabelOut fec

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the Fec associated to the *Label* component. |
| Values | String (9..19, ASCII) |
| Default | No default |

### ATTRIBUTE Vr Mpls Ldp Nbr LabelOut timeStamp

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates when the label was allocated by the session. |
| Values | Time (DHMS) |
| Default | No default |

### ATTRIBUTE Vr Mpls Ldp Nbr LabelOut adjacencyList

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute indicates the list of interfaces associated with the adjacency that the outgoing label can be active on. It relates to the LDP interface component name associated with the media over which the LDP adjacency occurs.<br><br>This attribute includes the usage state and operational state information associated with the *Label* component, to highlight the interface that the label is currently active on.<br><br>The usage state information in the attribute indicates the usage state of the *Label* component. The three possible states are: ***idle***, ***active***, and ***busy***.<br><br>***idle***: Indicates labels that are supplied but are not used to represent the LSP.<br><br>***active***: Indicates labels that are supplied and are selected for use to represent the LSP. Active labels can accept more users.<br><br>***busy***: Indicates labels that are supplied and are selected for use to represent the LSP. Busy labels cannot accept more users.<br><br>The operational state information in the attribute indicates the operational state of the *Label*. The two possible states are: ***enabled*** and ***disabled***.<br><br>***enabled***: Indicates labels that are installed in the hardware for data path use.<br><br>***disabled***: Indicates labels that are not installed in the hardware. |
| List of | String (30..76, ASCII) |
| List Size | 8 |
| Default | No default |

## COMPONENT Vr Mpls XcMap

| | |
|---|---|
| Instance | segPpName (segPp) [String (1..20, ASCII)]<br>segLabel (segLbl) [String (1..10, ASCII)]<br>segDirection (segDir) [inSeg<br>outSeg] |
| Scope | Application |
| Description | *Vr/<vrName> Mpls XcMap/<ppName>,<label>,<direction>*<br>An *XcMap* component represents the cross-connect switching entry reflecting the interconnection of in-segments to out-segments for one or more LSPs. Each in-segment is represented by an *InSegment* subcomponent, and each out-segment is represented by an *OutSegment* subcomponent.<br><br>Originating LSPs are represented by having a single *OutSegment* subcomponent and no *InSegment* subcomponents.<br><br>Terminating LSPs are represented by having a single *InSegment* subcomponent and no *OutSegment* subcomponents.<br><br>Tandeming LSP entries are represented by having both *InSegment* and *OutSegment* subcomponents. An *XcMap* instance for a merging LSP has multiple *InSegment* subcomponents and a single *OutSegment* subcomponent.<br><br>A list of all current *XcMap* instances is not possible. An *XcMap* instance can be displayed by using the instance identifier of any of its subcomponents. |
| Dyn. Subcomp. | "COMPONENT Vr Mpls XcMap InSegment (InSeg)"<br>"COMPONENT Vr Mpls XcMap OutSegment (OutSeg)" |
| Common Verbs | Help<br>List<br>Display |

## COMPONENT Vr Mpls XcMap InSegment (InSeg)

| | |
|---|---|
| Instance | ppName (pp) [String (1..20, ASCII)]<br>label (lbl) [String (1..10, ASCII)] |

| | |
|---|---|
| Groups | "GROUP Vr Mpls XcMap InSeg Operational (Oper)" |
| Scope | Application |
| Description | *Vr/<vrName> Mpls XcMap/<ppName>,<label>,<direction> InSegment/<inPpName>,<inLabel>*<br>An *InSegment* component represents an LSP in-segment connection of the cross-connect switching entry.<br><br>The *InSegment* indexed instance identifier is composed of the instance identifiers of the corresponding *Vr/<vrName> Pp/ <inPpName> MplsPort InSegment/<inLabel>* component. |
| Common Verbs | Help<br>List<br>Display |

## GROUP Vr Mpls XcMap InSeg Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational attributes for the *InSegment* and *OutSegment* subcomponents of *XcMap* representing an LSP segment connection. |

## ATTRIBUTE Vr Mpls XcMap InSeg protocolType

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the MPLS signalling protocol used to set up this connection.<br><br>A value of ***ldp*** indicates that LDP (Label Distribution Protocol) was used to set up the LSP.<br><br>A value of ***crLdp*** indicates that CR-LDP (Constraint-Based Routing using Label Distribution Protocol) was used to set up the LSP.<br><br>A value of ***rsvpTe*** indicates that RSVP-TE (Resource Reservation Protocol with Traffic Engineering) was used to set up the LSP. |

| | |
|---|---|
| Values | ldp<br>crLdp<br>rsvpTe |
| Default | No default |

### ATTRIBUTE Vr Mpls XcMap InSeg uniqueLspId

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the unique identifier for the LSP associated with this connection.<br><br>The availability and content of the LSP identifier varies with the signalling protocol.<br><br>When *protocolType* is ***crLdp***, this attribute contains the ingress LSR identifier and the LSP number.<br>Example: *uniqueLspId* = ***"47.35.1.150,159"***<br><br>When *protocolType* is ***rsvpTe***, this attribute contains the source and destination IP addresses, the tunnel identifier, and the LSP number.<br>Example: *uniqueLspId* = ***"47.35.1.150, 47.43.3.100, 5, 2"***<br><br>When *protocolType* is ***ldp***, there is no unique LSP identifier, so this attribute is not displayed. |
| Values | String (0..255, ASCII) |
| Default | No default |

### ATTRIBUTE Vr Mpls XcMap InSeg lspName

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the *Vr/<vrName> Mpls LspGroup/ <lspGroupName> Lsp/<lspName>* for the LSP associated with this connection if the node is the originating LSR for that LSP.<br><br>If the LSP is not originating on the node, this attribute is not displayed. |
| Values | The name of the component |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Vr Mpls XcMap InSeg segmentName

| | |
|---|---|
| Access | Read only |
| Description | For *InSegment* components, this attribute indicates the *Vr/<vrName> Pp/<ppName> MplsPort InSegment/<label>* component representing the LSP in-segment connection.<br><br>For *OutSegment* components, this attribute indicates the *Vr/<vrName> Pp/<ppName> MplsPort OutSegment/<label>* component representing the LSP out-segment connection. |
| Values | The name of the component |
| Default | No default |

### ATTRIBUTE Vr Mpls XcMap InSeg mediaConnection

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the media connection associated with this component.<br>Example: ***AtmIf/33 Vcc/0.400*** |
| Values | The name of the component |
| Default | No default |

### COMPONENT Vr Mpls XcMap OutSegment (OutSeg)

| | |
|---|---|
| Instance | ppName (pp) [String (1..20, ASCII)]<br>label (lbl) [String (1..10, ASCII)] |
| Groups | "GROUP Vr Mpls XcMap OutSeg Operational (Oper)" |
| Scope | Application |
| Description | *Vr/<s> Mpls XcMap/<ppName>,<label>,<direction> OutSegment/<outPpName>,<outLabel>*<br>An *OutSegment* component represents the LSP out-segment connection of the cross-connect switching entry.<br><br>The *OutSegment* indexed instance identifier is composed of the |

instance identifiers of the corresponding *Vr/<vrName> Pp/<outPpName> MplsPort OutSeg/<outLabel>* component.

Common Verbs

Help
List
Display

## GROUP Vr Mpls XcMap OutSeg Operational (Oper)

Properties: Operational

Description: This group contains operational attributes for the *InSegment* and *OutSegment* subcomponents of *XcMap* representing an LSP segment connection.

## ATTRIBUTE Vr Mpls XcMap OutSeg protocolType

Access: Read only

Description: This attribute indicates the MPLS signalling protocol used to set up this connection.

A value of ***ldp*** indicates that LDP (Label Distribution Protocol) was used to set up the LSP.

A value of ***crLdp*** indicates that CR-LDP (Constraint-Based Routing using Label Distribution Protocol) was used to set up the LSP.

A value of ***rsvpTe*** indicates that RSVP-TE (Resource Reservation Protocol with Traffic Engineering) was used to set up the LSP.

Values:
ldp
crLdp
rsvpTe

Default: No default

## ATTRIBUTE Vr Mpls XcMap OutSeg uniqueLspId

Access: Read only

Description: This attribute indicates the unique identifier for the LSP associated with this connection.

The availability and content of the LSP identifier varies with the signalling protocol.

When *protocolType* is ***crLdp***, this attribute contains the ingress LSR identifier and the LSP number.
Example: *uniqueLspId* = ***"47.35.1.150,159"***

When *protocolType* is ***rsvpTe***, this attribute contains the source and destination IP addresses, the tunnel identifier, and the LSP number.
Example: *uniqueLspId* = ***"47.35.1.150, 47.43.3.100, 5, 2"***

When *protocolType* is ***ldp***, there is no unique LSP identifier, so this attribute is not displayed.

Values: String (0..255, ASCII)

Default: No default

### ATTRIBUTE Vr Mpls XcMap OutSeg lspName

Access: Read only

Description: This attribute indicates the *Vr/<vrName> Mpls LspGroup/<lspGroupName> Lsp/<lspName>* for the LSP associated with this connection if the node is the originating LSR for that LSP.

If the LSP is not originating on the node, this attribute is not displayed.

Values: The name of the component

Default: No default

### ATTRIBUTE Vr Mpls XcMap OutSeg segmentName

Access: Read only

Description: For *InSegment* components, this attribute indicates the *Vr/<vrName> Pp/<ppName> MplsPort InSegment/<label>* component representing the LSP in-segment connection.

For *OutSegment* components, this attribute indicates the *Vr/*

| | |
|---|---|
| | *<vrName> Pp/<ppName> MplsPort OutSegment/<label>* component representing the LSP out-segment connection. |
| Values | The name of the component |
| Default | No default |

### ATTRIBUTE Vr Mpls XcMap OutSeg mediaConnection

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the media connection associated with this component.<br>Example: ***AtmIf/33 Vcc/0.400*** |
| Values | The name of the component |
| Default | No default |

### COMPONENT Vr Mpls Path

| | |
|---|---|
| Instance | Decimal (1..10000) |
| Scope | Application |
| Description | *Vr/<s> Mpls Path/n*<br>This component represents a list of hops that specifies a route to be taken by the Label Switched Path. Multiple *TrafficEngineering* components can use the same path specified by this component.<br><br>A *Path* component must have at least one *Hop* subcomponent provisioned.<br><br>The maximum total number of *Path* components allowed per *Mpls* component is 3081. |
| Opt. Subcomp. | "COMPONENT Vr Mpls Path Hop" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## COMPONENT Vr Mpls Path Hop

| | |
|---|---|
| Instance | Decimal (1..50) |
| Groups | "GROUP Vr Mpls Path Hop Provisioned (Prov)" |
| Scope | Application |
| Description | *Vr/<s> Mpls Path/m Hop/n*<br>This component represents an IP address that a traffic engineered path must go through. This component is used to define a specific *Hop* in a *Path*. The order of these components within a *Path* component instance is the order which is used to set up the path.<br><br>The *Ipv4address* attribute of a *Hop* component must be a valid class A, B or C non-reserved address.<br><br>The maximum total number of *Hop* components allowed per *Mpls* is 61620. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Vr Mpls Path Hop Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisionable attributes for MPLS Path *Hop* component. The *Hop* component can be provisioned as ***strict*** or ***loose***. A *Hop* can be an Ipv4 address. |

## ATTRIBUTE Vr Mpls Path Hop ipv4Address (ipv4)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the Ipv4 address of this *Hop* component. |
| Values | IP address |
| Default | No default |

### ATTRIBUTE Vr Mpls Path Hop ipv4PrefixLen

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies prefix length of Ipv4 address for this *Hop* component. If the length is 32, then the Ipv4 address is treated as a host address, otherwise it is treated as a network prefix. |
| Values | Decimal (8..32) |
| Default | No default |

### ATTRIBUTE Vr Mpls Path Hop hopMode (mode)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies if the *Hop* component is treated as ***strict*** or ***loose***. The value ***strict*** means that The value ***strict*** means that the address specified in the *Ipv4Address* attribute of this *Hop* component must be adjacent to the node on which Ipv4Address of the previous *Hop* component resides. For a single ***strict*** hop, the originating node must be adjacent to the Ipv4 address specified in the *Ipv4Address* attribute of the *Hop* component. The value ***loose*** means that *Ipv4Address* attribute of this hop is not necessarily adjacent to the previous hop. The LSR should determine a next hop which is in the same ***direction*** as the specified hop. |
| Values | strict<br>loose |
| Default | strict |

### COMPONENT Vr Mpls LspGroup (LspG)

| | |
|---|---|
| Instance | String (1..18, ASCII) |
| Groups | "GROUP Vr Mpls LspG Operational (Oper)" |
| Scope | Application |
| Description | *Vr/<s> Mpls LspGroup/<s>*<br>An *LspGroup* component represents a group of Label Switched Paths that have a common data flow end point addresses. The multiple Label Switched Paths within an *LspGroup* allow different paths to the destination based on Quality of Service or |

back-up recovery requirements.

The *LspGroup* component instance value is a string that must translate to a numerical value between 1 and 65,535. An *LspGroup* component must have either a *ForwardingEquivalenceClass* or a *AtmSap* subcomponent provisioned.

An *LspGroup* component can be provisioned to supply up to 8 unique MPLS service categories numbered 0 through 7. An MPLS service category is specified by:
-provisioning the *Lspg/<s> Lsp/n Msc serviceCategory* attribute to be a value between ***0*** and ***7.***
-provisioning one or more *PcElspSc/n* subcomponents of the *Lspg/<s> Lsp/n Msc* component. The instance value of the *PcElspSc* component represents one MPLS service category.

No MPLS service category may be repeated under an *LspGroup* component.

Opt. Subcomp. "COMPONENT Vr Mpls LspG AtmServiceAccessPoint (AtmSap)"
"COMPONENT Vr Mpls LspG LspGroupDescriptor (Lgd)"

Opt. Subcomp. "COMPONENT Vr Mpls LspG LabelSwitchedPath (Lsp)"
"COMPONENT Vr Mpls LspG ForwardingEquivalenceClass (Fec)"

Common Verbs
Help
List
Display
Add
DELete

## GROUP Vr Mpls LspG Operational (Oper)

Properties Operational

Description This group contains operational attributes for an MPLS *LspGroup*.

## ATTRIBUTE Vr Mpls LspG numActiveLsps

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of LSPs that are currently used to carry traffic for the LSP group. These LSPs have the *Lsp* component *usageState* attribute value of ***busy***. |
| Values | Decimal (0..65535) |
| Default | No default |

## COMPONENT Vr Mpls LspG AtmServiceAccessPoint (AtmSap)

| | |
|---|---|
| Groups | "GROUP Vr Mpls LspG AtmSap Provisioned (Prov)"<br>"GROUP Vr Mpls LspG AtmSap AAL5Provisioned (AAL5Prov)"<br>"GROUP Vr Mpls LspG AtmSap Operational (Oper)"<br>"GROUP Vr Mpls LspG AtmSap EgressCellBundlingProvisioned (ECBProv)" |
| Scope | Application |
| Description | *Vr/<s> Mpls LspG/<s> AtmServiceAccessPoint*<br>The *AtmServiceAccessPoint* component represents an ATM service access point within the *LspGroup*. It is used to bind one ATM interface (*AtmIf*) to one or more MPLS LSPs. |
| Description | "COMPONENT Vr Mpls LspG AtmSap ConnectionIdentifier (ConnId)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Vr Mpls LspG AtmSap Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group of attributes provides the provisioned attributes of the *AtmSap* component. |

### ATTRIBUTE Vr Mpls LspG AtmSap applicationFramerName (framer)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the ATM application using the *AtmSap*. |
| Values | Link (Service, interfaceName) |
| Default | No default |

### ATTRIBUTE Vr Mpls LspG AtmSap atmServiceCategoryToMsc (ascToMsc)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the ATM service category to MSC mappings. All ATM service categories must be mapped to the same<br>MSC value. Changing the value of this attribute will disrupt service for the linked ATM application. |
| Vector of | Decimal (0..7) |
| Index | constantBitRate (cbr)<br>rtVariableBitRate (rtVbr)<br>nrtVariableBitRate (nrtVbr)<br>unspecifiedBitRate (ubr) |
| Default | (0, 0, 0, 0) |

### GROUP Vr Mpls LspG AtmSap AAL5Provisioned (AAL5Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attribute *egressAAL5Detection*. |

### ATTRIBUTE Vr Mpls LspG AtmSap aal5EgressReassembly (aal5EgRe)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the egress AAL5 dection mode of the MPLS datapath for all connections owned by the *AtmSap* |

component. If the value is ***none***, then AAL5 auto-dection is not performed on the connection and no reassembly is done. If the value is ***autoDetect***, the AAL5 data streams are automatically detected and reassembled into frames.

Values: none (n)
autoDetect (a)

Default: none

### GROUP Vr Mpls LspG AtmSap Operational (Oper)

Properties: Operational

Description: This group of attributes provides the operational attributes of the *AtmSap* component.

### ATTRIBUTE Vr Mpls LspG AtmSap serviceConnections (conn)

Access: Read only

Description: This attribute counts the service connections that are currently activated by the *AtmSap* component. An activated service connection is one where the ATM datapath for a VC or VP has been configured to use the receive and transmit service labels.

Values: Decimal (0..4294967295)

Default: No default

### GROUP Vr Mpls LspG AtmSap EgressCellBundlingProvisioned (ECBProv)

Properties: Provisioned

Description: This group contains the provisionable attribute *egressCellBundling*.

### ATTRIBUTE Vr Mpls LspG AtmSap egressCellBundling (egCellBund)

Access: Read: All
Write: All

Description: This attribute specifies the default egress cell bundling mode of the MPLS datapath for all connections owned by the *AtmSap* component. If the value is ***enabled***, the default is to perform bundling on the associated connections. If the value is ***disabled***,

the default is to not perform bundling on the associated connections.

The default egress cell bundling mode can be overridden, per connection, using the *egressCellBundling* attribute of the *ConnId/<x> Labels* component.

If the *aal5EgressReassembly* attribute for this SAP is set to ***autoDetect*** and *egressCellBundling* is ***enabled***, AAL5 reassembly will be performed on connections carrying AAL5 frames, otherwise cell bundling will be performed.

| | |
|---|---|
| Values | disabled (d)<br>enabled (e) |
| Default | disabled |

## COMPONENT Vr Mpls LspG AtmSap ConnectionIdentifier (ConnId)

| | |
|---|---|
| Instance | Integer Sequence |
| Groups | "GROUP Vr Mpls LspG AtmSap ConnId Operational (Oper)" |
| Scope | Application |
| Description | *Vr/<s> Mpls LspG/<s> AtmSap ConnectionIdentifier/vpi.vci*<br>*Vr/<s> Mpls LspG/<s> AtmSap ConnectionIdentifier/vpi*<br>A *ConnectionIdentifier* component identifies the labels used for a specific connection. For a VC connection, the *ConnectionIdentifier* component instance value indicates the VPI and VCI (in the form “VPI.VCI”). The *ConnectionIdentifier* component instance value must not specify a VCI value of 0 or 1. For a VP connection, the *ConnectionIdentifier* component instance value indicates the VPI (in the form “*ConnId*/VPI”). There must be a *ConnectionIdentifier* component for each corresponding *VirtualChannelConnection* and *VirtualPathConnection* component. The *ConnectionIdentifier* component requires an instance of the *Labels* subcomponent. |

| | |
|---|---|
| Opt. Subcomp. | "COMPONENT Vr Mpls LspG AtmSap ConnId Labels (Lbls)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Vr Mpls LspG AtmSap ConnId Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group of attributes contains the MPLS receive and transmit service labels used by an ATM connection. The VPI and VCI of the ATM connection are indicated by the instance value of the *ConnectionIdentifier* component. |

### ATTRIBUTE Vr Mpls LspG AtmSap ConnId receiveLabel (rxLbl)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the Ms service label used by an ATM connection to receive data. The VPI and VCI of the ATM connection are indicated by the instance value of the *ConnectionIdentifier* component. |
| Values | Decimal (0..1048575)<br>undefined |
| Default | No default |

### ATTRIBUTE Vr Mpls LspG AtmSap ConnId transmitLabel (txLbl)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the MPLS service label used by an ATM connection to transmit data. The VPI and VCI of the ATM connection are indicated by the instance value of the *ConnectionIdentifier* component. |

| | |
|---|---|
| Values | Decimal (0..1048575)<br>undefined |
| Default | No default |

### COMPONENT Vr Mpls LspG AtmSap ConnId Labels (Lbls)

| | |
|---|---|
| Groups | "GROUP Vr Mpls LspG AtmSap ConnId Lbls Provisioned (Prov)"<br>"GROUP Vr Mpls LspG AtmSap ConnId Lbls AAL5Provisioned (AAL5Prov)"<br>"GROUP Vr Mpls LspG AtmSap ConnId Lbls EgressCellBundlingProvisioned (ECGProv)" |
| Scope | Application |
| Description | *Vr/String Mpls LspG/String AtmSap ConnId/n Labels*<br>The *Labels* component represents the MPLS service labels used by an ATM connection to receive and transmit data. The VPI and VCI of the ATM connection are identified by the instance value of the *ConnectionIdentifier* component. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Vr Mpls LspG AtmSap ConnId Lbls Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the MPLS service labels used by an ATM connection to transmit and receive data. The VPI and VCI of the ATM connection are identified by the instance value of the *ConnectionIdentifier* component. |

### ATTRIBUTE Vr Mpls LspG AtmSap ConnId Lbls receiveLabel (rxLbl)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |

| | |
|---|---|
| Description | This attribute specifies the MPLS service label used by an ATM connection to receive data. The VPI and VCI of the ATM connection are identified by the instance value of the *ConnectionIdentifier* component. The ATM connection does not operate if the value of this attribute is ***undefined***. When this attribute is copied, the value is defaulted to ***undefined***.<br><br>For the ***1pOC48SmSrPos*** and ***1pOC48SmIrPos*** FPs, this attribute also selects which card datapath will process the received data. Connections with an even receive service label are assigned to card datapath 0, connections with an odd receive service label are assigned to card datapath 1. The bandwidth currently available on the ingress datapath is visible in *igAvailBwDataPath*. |
| Values | Decimal (65539..98303)<br>undefined |
| Default | undefined |

### ATTRIBUTE Vr Mpls LspG AtmSap ConnId Lbls transmitLabel (txLbl)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the MPLS service label used by an ATM connection to transmit data. The VPI and VCI of the ATM connection are identified by the instance value of the *ConnectionIdentifier* component. The ATM connection does not operate if the value of this attribute is ***undefined***.<br><br>For the ***1pOC48SmSrPos*** and ***1pOC48SmIrPos*** FPs, this attribute also selects which card datapath will process the transmitted data. Connections with an even transmit service label are assigned to card datapath 0, connections with an odd transmit service label are assigned to card datapath 1. The bandwidth currently available on the egress datapath is visible in *egAvailBwDataPath*. |
| Values | Decimal (0..1048575)<br>undefined |

| | |
|---|---|
| Default | undefined |

### GROUP Vr Mpls LspG AtmSap ConnId Lbls AAL5Provisioned (AAL5Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attribute *egressAAL5Detection*. |

### ATTRIBUTE Vr Mpls LspG AtmSap ConnId Lbls aal5EgressReassembly (aal5EgRe)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |
| Description | This attribute specifies the egress AAL5 detection mode of the MPLS datapath for the connection specified by the instance value of the parent *ConnectionIdentifier* component. If the value is ***none***, then AAL5 auto-dection is not performed on the connection and no reassembly is done. If the value is ***autoDetect***, the AAL5 data stream is automatically detected and reassembled into frames. If the value is ***sameAsAtmSap,*** the AAL5 detection mode is determined by the *aal5EgressReassembly* attribute in the *AtmServiceAccessPoint* component. |
| Values | none (n)<br>autoDetect (a)<br>sameAsAtmSap (sa) |
| Default | sameAsAtmSap |

### GROUP Vr Mpls LspG AtmSap ConnId Lbls EgressCellBundlingProvisioned (ECGProv)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attribute *egressCellBundling*. |

### ATTRIBUTE Vr Mpls LspG AtmSap ConnId Lbls egressCellBundling (egCellBund)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Component |

| | |
|---|---|
| Description | This attribute specifies the egress cell bundling mode of the MPLS datapath for the connection specified by the instance value of the parent *ConnectionIdentifier* component. If the value is ***disabled***, then egress cell bundling is not performed on the connection. If the value is ***enabled***, the data stream is bundled for non-realtime data types (UBR, nrtVbr). If the value is ***sameAsAtmSap,*** the egress cell bundling mode is determined by the ***egressCellBundling*** attribute in the *AtmServiceAccessPoint* component. |
| Values | disabled (d)<br>enabled (e)<br>sameAsAtmSap (sa) |
| Default | sameAsAtmSap |

## COMPONENT Vr Mpls LspG LabelSwitchedPath (Lsp)

| | |
|---|---|
| Instance | Decimal (1..65535) |
| Groups | "GROUP Vr Mpls LspG Lsp OsiState (State)"<br>"GROUP Vr Mpls LspG Lsp Operational (Oper)" |
| Scope | Application |
| Description | *Vr/<s> Mpls LspG/<s> LabelSwitchedPath/n*<br>This component represents a Label Switched Path (LSP) that originates from this Label Switching Router (LSR). Each LSP must have an *MplsServiceCategory* component and one of *LdpQos*, *CrLdpQos* or *RsvpQos* components provisioned. A *TrafficEngineering* component is required if *CrLdpQos* or *RsvpQos* components are provisioned. |

| | |
|---|---|
| Opt. Subcomp. | "COMPONENT Vr Mpls LspG Lsp TrafficEngineering (Te)"<br>"COMPONENT Vr Mpls LspG Lsp CrLdpQos (CrQos)"<br>"COMPONENT Vr Mpls LspG Lsp MplsServiceCategory (Msc)"<br>"COMPONENT Vr Mpls LspG Lsp LdpQos (Ldpq)"<br>"COMPONENT Vr Mpls LspG Lsp StaticRoute (StRt)"<br>"COMPONENT Vr Mpls LspG Lsp RsvpQos (RsvpQ)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

### GROUP Vr Mpls LspG Lsp OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Vr Mpls LspG Lsp adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is |

administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Vr Mpls LspG Lsp operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Vr Mpls LspG Lsp usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

## GROUP Vr Mpls LspG Lsp Operational (Oper)

Properties
Operational

Description
This group contains the attributes of an MPLS label switched path.

## ATTRIBUTE Vr Mpls LspG Lsp operStatus

Access
Read only

Description
This attribute indicates the state of an LSP. In the description that follows, “upstream” refers to a peer LSR from which an LDP Request message is received and from which traffic is received. “Downstream” refers to a peer LSR to which traffic will be sent from this LSR.

The values of this attribute are states in the Label Distribution Protocol.

In the ***idle*** state, the LSR has not set up the LSP.

In the ***responseAwaited*** state, the LSR has received and processed an LDP Request message from an upstream LSR or it has received an internal setup request. It has sent a new LDP Request message towards a downstream LSR. The LSR is waiting for the LDP Mapping message from the downstream LSR.

In the ***established*** state, the LSR has received the LDP Mapping message from the downstream LSR and the LSP is up and operational.

In the ***releaseAwaited*** state, the LSR has sent an LDP Withdraw message upstream and is waiting for the LDP Release message before freeing up the label resource.

Values
idle
responseAwaited
established
releaseAwaited

Default
No default

### ATTRIBUTE Vr Mpls LspG Lsp direction (dir)

Access
Read only

Description
This attribute indicates the direction of an LSP. If the attribute value is ***uniDirectionalIn***, then the LSP is terminating to this LSR. If the attribute value is ***uniDirectionalOut***, then the LSP is originating from this LSR toward its endpoint and traffic only flows in that direction.If it is ***biDirectional***, the LSP is both originating and terminating traffic on this LSR.

Values
unidirectionalIn
unidirectionalOut
bidirectional

Default
No default

### ATTRIBUTE Vr Mpls LspG Lsp crossConnectMapName (xcMap)

Access
Read only

Description
This attribute indicates the cross connect map component for this LSP. For LSPs originating from this LSR, the map indicates the outgoing interface and for LSPs terminating on this LSR, the map indicates the incoming interface. LSPs that tandem through this LSR have an incoming and outgoing interface.

Values
The name of the component

Default
No default

### ATTRIBUTE Vr Mpls LspG Lsp retryCount (rCount)

Access
Read only

| | |
|---|---|
| Description | This attribute counts the attempts to set up an originating LSP. This counter wraps around to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Mpls LspG Lsp pathFailureCount (pfCount)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the times an LSP fails to establish. This counter wraps around to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Mpls LspG Lsp lastTearDownReason (tearDown)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates why an originating LSP was torn down. |
| Values | notApplicable<br>badLDPIdentifier<br>badProtocolVersion<br>badPDULength<br>unknownMessageType<br>badMessageLength<br>unknownTLV<br>badTLVLength<br>malFormedTLVValue<br>holdTimerExpired<br>shutdown<br>loopDetected<br>unknownFEC<br>noRoute<br>noLabelResources<br>labelRourcesAvailable<br>sessRejNoHello<br>sessRejParaAdvertMode<br>sessRejParaMaxPDULength |

sessRejParaLabelRange
keepAliveTimerExpired
labelRequestAbort
ldpNak
badExplicitRoutingTLV
badStrictNode
badLooseNode
badInitialERHop
resourceUnavailable
trafficParaUnavailable
setupAbort
locked
peerDown
linkDown
rsvpNextHopFail
rsvpPathSetupTimeout
rsvpLocked
rsvpLostPeer
rsvpLostLabel
rsvpRcvUnsupportedStyle
rsvpRcvResvTear
rsvpRcvPathError
rsvpResourceUnavailable
rsvpUnspecifiedFailure
rsvpRcvIncorrectBandwidth

Default: No default

### ATTRIBUTE Vr Mpls LspG Lsp pathUpDateTime (uTime)

Access: Read only

Description: This attribute indicates the time when the current LSP was established.

Values: Time (DHMS)

Default: No default

### ATTRIBUTE Vr Mpls LspG Lsp alarmControlOper (alarmControlOper)

Access: Read only

Description

This attribute indicates the severity of alarms generated or failure of the LSP. If the value is ***none***, no alarms are generated. If the value is ***major*** or ***critical***, the LSP alarms are generated with the specified severity. The value reflects the provisionable *alarmControl* attribute under the *Te* component.

Values

none
critical (crit)
major (maj)

Default

none

## ATTRIBUTE Vr Mpls LspG Lsp lspProtocolType (protocol)

Access

Read only

Description

This attribute indicates the method used to set up the given LSP: static, LDP protocol, CR-LDP protocol, RSVP-TE protocol.

A value of ***ldp*** indicates that LDP (Label Distribution Protocol) was used to set up the LSP.

A value of ***crLdp*** indicates that CR-LDP (Constraint-Based Routing using Label Distribution Protocol) was used to set up the LSP.

A value of ***rsvpTe*** indicates that RSVP-TE (Resource Reservation Protocol with Traffic Engineering) was used to set up the LSP.

A value of ***static*** indicates that static provisioning was used to set up the LSP.

Values

ldp
crLdp
rsvpTe
static

Default

No default

## ATTRIBUTE Vr Mpls LspG Lsp maxTransmissionUnit (mtu)

Access

Read only

| | |
|---|---|
| Description | This attribute indicates the actual maximum packet size parameter (MTU) supported on this particular LSP Tunnel. This is the smallest common denominator MTU of all mpls capable interfaces involved in this LSP Tunnel establishment. The value of this attribute is expressed in octet units. |
| Values | Decimal (1..4294967295) |
| Units | octets |
| Default | No default |

## COMPONENT Vr Mpls LspG Lsp TrafficEngineering (Te)

| | |
|---|---|
| Groups | "GROUP Vr Mpls LspG Lsp Te Provisioned (Prov)" |
| Scope | Application |
| Description | *Vr/<s> Mpls LspG/<s> Lsp/n TrafficEngineering*<br>This component is used to represent the Traffic Engineering information for this *Lsp*.<br><br>The *Pathname* attribute of the *TrafficEngineering* component must be provisioned to point to an existing MPLS *Path* component.<br><br>When the *PathOnDemand* attribute is set to ***enabled***, the LSP must be a primary CR-LDP LSP with no LSP instances provisioned under the *Msc standbyLsp* attribute.<br><br>If the *Lsp* component has an *LdpQos* component provisioned, the *Pathname* attribute value is ignored. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Vr Mpls LspG Lsp Te Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |

| | |
|---|---|
| Description | This group contains parameters for the creation of an LSP between this LSR and a remote endpoint. |

### ATTRIBUTE Vr Mpls LspG Lsp Te pathName

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the path *Vr/<s> Mpls Path/n* to be used by this LSP. The *pathName* attribute must point to a valid *Path* component. |
| Values | The name of the component |
| Default | No default |

### ATTRIBUTE Vr Mpls LspG Lsp Te pathOnDemand (pod)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether to set up this LSP as soon as its provisioning is activated or to wait until an LDP request is received which triggers the establishment of the LSP. For LDP to CR-LDP interworking this involves the triggering of a CR-LDP LSP to continue an LDP segment.<br><br>A value of ***enabled*** means that the LSP is ready to be set up when the Ipv4Address in the fec tlv of a received LDP request message matches the address represented by the *StIpv4Address* component.<br><br>A value of disabled means that the LSP set up is attempted as soon as the provisioning is activated. |
| Values | disabled<br>enabled |
| Default | disabled |

### ATTRIBUTE Vr Mpls LspG Lsp Te alarmControl (alarmControl)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the control of the generation of LSP alarms. If the value is ***none***, no alarms are generated. If the value |

is ***major*** or ***critical***, the LSP alarms are generated with the specified severity. The value is reflected in the operational *alarmControlOper* attribute under the *Vr/<s> Mpls LspG/<s> Lsp/n* component.

Values
none
critical (crit)
major (maj)

Default
none

## COMPONENT Vr Mpls LspG Lsp CrLdpQos (CrQos)

Groups
"GROUP Vr Mpls LspG Lsp CrQos Bandwidth (Bw)"
"GROUP Vr Mpls LspG Lsp CrQos Scheduling (Sched)"

Scope
Application

Description
*Vr/<s> Mpls LspG/<s> Lsp/n CrLdpQos*
This component represents the MPLS Quality of Service (QoS) for a Label Switched Path (LSP) using the CR-LDP signaling protocol.

The *CrLdpQos* component, the *LdpQos* component and the *RsvpQos* component are mutually exclusive: only one of the *LdpQos*, *CrLdpQos* or the *RsvpQos* component may be created under the *Vr/<s>Mpls LspG/<s> Lsp/n* component.

The *peakDataRate* and *peakBurstSize* attributes must each be greater than or equal to their corresponding *committedDataRate* and *committedBurstSize* attributes.

When the *frequency* attribute is set to ***veryFrequent***, the *peakDataRate* must equal the *committedDataRate* and the *peakBurstSize* must equal the *committedBurstSize*.

Common Verbs
Help
List
Display
Add
DELete

### GROUP Vr Mpls LspG Lsp CrQos Bandwidth (Bw)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisioned attributes for MPLS CR-LDP Quality of Service (QOS) bandwidth parameters. |

### ATTRIBUTE Vr Mpls LspG Lsp CrQos peakDataRate (pdr)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum rate at which traffic should be sent to the path. |
| Values | Decimal (0..4294967295) |
| Units | octet/s |
| Default | 0 |

### ATTRIBUTE Vr Mpls LspG Lsp CrQos peakBurstSize (pbs)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum burst size. |
| Values | Decimal (0..4294967295) |
| Units | bytes |
| Default | 0 |

### ATTRIBUTE Vr Mpls LspG Lsp CrQos committedDataRate (cdr)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the committed data rate. |
| Values | Decimal (0..4294967295) |
| Units | octet/s |
| Default | 0 |

### ATTRIBUTE Vr Mpls LspG Lsp CrQos committedBurstSize (cbs)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the committed burst size. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Units | bytes |
| Default | 0 |

### GROUP Vr Mpls LspG Lsp CrQos Scheduling (Sched)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisioned attributes for MPLS CR-LDP Quality of Service (QoS) scheduling parameters. |

### ATTRIBUTE Vr Mpls LspG Lsp CrQos frequency (freq)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies at what granularity the Committed Data Rate (CDR) allocation will be made available to a path. A value of ***veryFrequent*** means that available rate should average at least the CDR when measured over any time interval equal to or longer than the shortest packet time at the CDR. The value ***frequent*** means that the available rate should average at least the CDR when measured over any time interval equal to or longer than a small number of shortest packet times at the CDR. The value ***unspecified*** means that the CDR may be provided at any granularity. |
| Values | unspecified<br>frequent<br>veryFrequent |
| Default | unspecified |

### COMPONENT Vr Mpls LspG Lsp MplsServiceCategory (Msc)

| | |
|---|---|
| Groups | "GROUP Vr Mpls LspG Lsp Msc Provisioned (Prov)"<br>"GROUP Vr Mpls LspG Lsp Msc Operational (Oper)" |
| Scope | Application |
| Description | *Vr/<s> Mpls LspG/<s> Lsp/n MplsServiceCategory*<br>The *MplsServiceCategory* subcomponent determines the emission priority that this LSP uses.<br><br>Only an LSP that has been provisioned to be a primary LSP by |

setting its *serviceCategory* attribute value to be a unique non-standby number between ***0*** and ***7*** may have a list of standby LSPs.

Each standby LSP instance value must be specified in exactly one *standbyLsp* attribute and only standby LSPs instance value may be specified in *standbyLsp* attribute. Any LSP appearing on a *standbyLsp* must be already provisioned.

Opt. Subcomp. "COMPONENT Vr Mpls LspG Lsp Msc PreconfigElspSc (PcElspSc)"

Common Verbs
Help
List
Display
Add
DELete

## GROUP Vr Mpls LspG Lsp Msc Provisioned (Prov)

Properties Provisioned

Description This group contains parameters for the LSP MPLS Service Category.

## ATTRIBUTE Vr Mpls LspG Lsp Msc serviceCategory (sC)

Access Read and write

Description This attribute specifies the MPLS Service Category of an LSP.

A value of ***pcElspSc***, or ***0*** to ***7***, or ***diffServDomainElsp*** indicates a primary LSP. A primary LSP that has a *serviceCategory* value from ***0*** to ***7*** can have up to seven standby LSPs.

A value of ***pcElspSc*** indicates this LSP can have multiple service category values as identified by the instance values of *PreconfigElspSc* subcomponents.

A value of ***diffServDomainElsp*** indicates this LSP can support multiple QoS as configured by the default *mplsServiceMap* instance under *differentiatedServiceDomain* subcomponent.

A value of ***standby*** indicates this LSP is acting as a standby LSP for a primary LSP.

Values: Decimal (0..7)
diffServDomainElsp
pcElspSc
standby

Default: standby

### ATTRIBUTE Vr Mpls LspG Lsp Msc standbyLsp (sLsp)

Access: Read and write

Description: This attribute specifies the ordered list of the *Lsp* component instance(s) assigned as standby to this primary LSP (with *serviceCategory* attribute value of ***0*** to ***7***). The first *Lsp* component instance in the list becomes operational if the primary LSP fails, the second *Lsp* component instance in the list becomes operational if the primary and first standby fails, and so on.

The *standbyLsp* of an *Lsp* component with *serviceCategory* attribute value of value of ***standBy,*** must not be set.

List of: Decimal (0..65535)

List Size: 7

Default: No default

### GROUP Vr Mpls LspG Lsp Msc Operational (Oper)

Properties: Operational

Description: This group contains the operational attributes for the *Msc*.

### ATTRIBUTE Vr Mpls LspG Lsp Msc activeLsp (aLsp)

Access: Read only

Description: This attribute indicates the active Lsp component instance value of a corresponding non standby MPLS service category. For an active primary and standby LSP, this attribute displays its own LSP instance. For an inactive LSP, this attribute displays its active LSP instance.

| | |
|---|---|
| Values | Decimal (0..65535)<br>none |
| Default | No default |

### COMPONENT Vr Mpls LspG Lsp Msc PreconfigElspSc (PcElspSc)

| | |
|---|---|
| Instance | Decimal (0..7) |
| Groups | "GROUP Vr Mpls LspG Lsp Msc PcElspSc Provisioned (Prov)" |
| Scope | Application |
| Description | *Vr/<s> Mpls Lspg/<s> Lsp/n Msc PreconfigElspSc/n*<br>This component represents a Diff-Serv Per Hop Behavior Scheduling Class (PSC) supplied by a Preconfigured E-LSP.<br><br>The instance value of the *PreconfigElspSc* subcomponent is an MPLS service category for this LSP.<br><br>The same *psc* attribute value cannot be defined in more than one *PreconfigElspSc* subcomponent under an *Msc* component. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Vr Mpls LspG Lsp Msc PcElspSc Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the Per Hop Behavior Scheduling Class (PSC) parameter for a preconfigured E-LSP. |

### ATTRIBUTE Vr Mpls LspG Lsp Msc PcElspSc phbSchedulingClass (psc)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies a Per Hop Behavior Scheduling Class (PSC) for this preconfigured E-LSP. |

| | |
|---|---|
| Values | af1<br>af2<br>af3<br>af4 |
| Default | af1 |

## COMPONENT Vr Mpls LspG Lsp LdpQos (Ldpq)

| | |
|---|---|
| Scope | Application |
| Description | *Vr/<s> Mpls LspG/<s> Lsp/n LdpQos*<br>This component represents the MPLS Quality of Service (QoS) for a Label Switched Path (LSP) using the LDP signaling protocol.<br><br>The *LdpQos* component, the *CrLdpQos* component and the *RsvpQos* component are mutually exclusive: only one of the *LdpQos*, *CrLdpQos* or the *RsvpQos* component may be created under the *Vr/<s> Mpls LspG/<s> Lsp/n* component.<br><br>An *LspGroup* component is permitted to have only one *Lsp* subcomponent provisioned with an *LdpQos* subcomponent.<br><br>An *Lsp* component with *LdpQos* subcomponent is not permitted to have the *serviceCategory* attribute of the *Msc* subcomponent set to ***standby***. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## COMPONENT Vr Mpls LspG Lsp StaticRoute (StRt)

| | |
|---|---|
| Groups | "GROUP Vr Mpls LspG Lsp StRt Provisioned (Prov)" |
| Scope | Application |
| Description | *Vr/<s> Mpls LspG/<s> Lsp/n StaticRoute*<br>The *StaticRoute* component represents a static Label Switched |

Path (LSP) that originates at this edge Label Switching Router (LSR).

Common Verbs

Help
List
Display
Add
DELete

## GROUP Vr Mpls LspG Lsp StRt Provisioned (Prov)

Properties: Provisioned

Description: This group contains parameters required for the creation of a static route that originates at this Label Edge Router (LER).

## ATTRIBUTE Vr Mpls LspG Lsp StRt outStaticPoint (osp)

Access: Read and write

Criticality: Component

Description: This attribute specifies the *OutSegment* component to be used by this *StaticRoute* component.

Values: Link (Service, inStaticPoint)

Default: No default

## COMPONENT Vr Mpls LspG Lsp RsvpQos (RsvpQ)

Scope: Application

Description: *Vr/<s> Mpls LspG/<s> Lsp/n RsvpQos*
This component represents the MPLS Quality of Service (QoS) for a Label Switched Path (LSP) using the RSVP-TE signaling protocol.

The *LdpQos*, *CrLdpQos* and *RsvpQos* components are mutually exclusive. Only one of the *LdpQos*, *CrLdpQos* or the *RsvpQos* component may be created under the *Vr/<s> Mpls LspG/<s>*

*Lsp/n* component.

Opt. Subcomp. "COMPONENT Vr Mpls LspG Lsp RsvpQ NullService (Ns)"
"COMPONENT Vr Mpls LspG Lsp RsvpQ ControlledLoadService (Cls)"

Common Verbs
Help
List
Display
Add
DELete

## COMPONENT Vr Mpls LspG Lsp RsvpQ NullService (Ns)

Scope Application

Description *Vr/<s> Mpls LspG/<s> Lsp/n RsvpQ NullService*
This component represents the IntServ Null Service service (RFC 2997) level. Accordingly, an LSP tunnel with no bandwidth (best effort) is established.

The *NullService* and *ControlledLoadService* components are mutually exclusive.

Common Verbs
Help
List
Display
Add
DELete

## COMPONENT Vr Mpls LspG Lsp RsvpQ ControlledLoadService (Cls)

Groups "GROUP Vr Mpls LspG Lsp RsvpQ Cls Provisioned (Prov)"

Scope Application

Description *Vr/<s> Mpls LspG/<s> Lsp/n RsvpQ ControlledLoadService*
This component represents the IntServ Controlled-Load service (RFC 2211) level in a simple form. This provides a simple approach to requesting QoS by bandwidth designation only. The rest of the IntServ QoS parameters are set in accordance with

RFC 2215. The *bandwidth* attribute is translated into the IntServ token bucket rate parameter.

The *ControlledLoadService* and *NullService* components are mutually exclusive.

Opt. Subcomp. "COMPONENT Vr Mpls LspG Lsp RsvpQ Cls ClsDef (Def)"

Common Verbs
Help
List
Display
Add
DELete

### GROUP Vr Mpls LspG Lsp RsvpQ Cls Provisioned (Prov)

Properties Provisioned

Description This group contains provisionable parameters for the *ControlledLoadService* component.

### ATTRIBUTE Vr Mpls LspG Lsp RsvpQ Cls bandwidth (bw)

Access Read and write

Criticality Component

Description This attribute specifies the bandwidth (token bucket rate) to be reserved for this LSP tunnel, expressed in units of kbit/s. The attribute value is ignored if the *ClsDef* subcomponent of the*ControlledLoadService* component has been added.

Values Decimal (0..4294967295)

Units kbit/s

Default 0

### COMPONENT Vr Mpls LspG Lsp RsvpQ Cls ClsDef (Def)

Groups "GROUP Vr Mpls LspG Lsp RsvpQ Cls Def Provisioned (Prov)"

Scope Application

Description *Vr/<s> Mpls LspG/<s> Lsp/n RsvpQ Cls ClsDef*
This component represents the IntServ Controlled-Load service

(RFC 2211) level in a detailed form. It provides attributes for individual IntServ QoS parameter manipulation.

Provisioning this component overrides the bandwidth selected under *ControlledLoadService* component.

Common Verbs

Help
List
Display
Add
DELete

## GROUP Vr Mpls LspG Lsp RsvpQ Cls Def Provisioned (Prov)

Properties: Provisioned

Description: This group contains provisionable parameters for the *ClsDef* component.

## ATTRIBUTE Vr Mpls LspG Lsp RsvpQ Cls Def rsvpSenderTSpecRate (rate)

Access: Read and write

Criticality: Component

Description: This attribute specifies the average (sustained) rate of traffic. This is referred to in specifications (RFC 2215) as the average or token rate portion of the token bucket specification. It is set to reflect the sender's view of its generated traffic.

Values: Decimal (0..4294967295)

Units: kbit/s

Default: 0

## ATTRIBUTE Vr Mpls LspG Lsp RsvpQ Cls Def rsvpSenderTSpecPeakRate (pkRate)

Access: Read and write

Criticality: Component

Description: This attribute specifies the maximum rate at which traffic should be sent to the path. This is referred to in specifications (RFC 2210) as the peak rate portion of the RSVP Sender TSpec object.

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Units | kbit/s |
| Default | 0 |

### ATTRIBUTE Vr Mpls LspG Lsp RsvpQ Cls Def rsvpSenderTSpecBurst (burst)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the length of traffic burst. This is referred to in specifications (RFC 2215) as the bucket depth portion of the token bucket specification (token bucket size). This attribute is set to reflect the sender's view of its traffic. |
| Values | Decimal (0..4294967295) |
| Units | octets |
| Default | 100000 |

### ATTRIBUTE Vr Mpls LspG Lsp RsvpQ Cls Def rsvpSenderTSpecMinTU (minTU)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the minimum policed unit parameter and should generally be set equal to the size of the smallest packet generated by the application. This is referred to in specifications (RFC 2210) as the minimum policed unit portion of the RSVP Sender TSpec object. This packet size includes the application data and all protocol headers at or above the IP level (IP, TCP, UDP, RTP, etc.). The size given does not include any link-level headers, because these headers will change as the packet crosses different portions of the internetwork.<br><br>Note that an *rsvpSenderTSpecMinTU* value of ***0*** is illegal. A value of ***0*** would indicate that no data or IP headers are present, and would give an infinite amount of link-level overhead. |
| Values | Decimal (1..4294967295) |
| Units | octets |

| | |
|---|---|
| Default | 40 |

### ATTRIBUTE Vr Mpls LspG Lsp RsvpQ Cls Def rsvpSenderTSpecMaxTU (maxTU)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the maximum packet size parameter and should be set to the size of the largest packet the application might wish to generate. This is referred to in specifications (RFC 2210) as the maximum policed unit portion of the RSVP Sender TSpec object. This value must, by definition, be equal to or larger than the value of *rsvpSenderTSpecMinTU*. |
| Values | Decimal (1..4294967295) |
| Units | octets |
| Default | 64000 |

### COMPONENT Vr Mpls LspG LspGroupDescriptor (Lgd)

| | |
|---|---|
| Groups | "GROUP Vr Mpls LspG Lgd Provisioned (Prov)" |
| Scope | Application |
| Description | *Vr/<s> Mpls LspG/<s> LspGroupDescriptor*<br>The *LspGroupDescriptor* component represents provisioning information for its parent *LspGroup* component. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Vr Mpls LspG Lgd Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisionable parameters used by the parent *LspGroup* component. |

### ATTRIBUTE Vr Mpls LspG Lgd logicalProcessor (lp)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the logical processor *Lp* on which the *LspGroup* resides. If the *LspGroupDescriptor* component does not exist, the *LspGroup* resides on *Lp*/0. |
| Values | Link (Service, linkToApplications) |
| Default | No default |

### COMPONENT Vr Mpls LspG ForwardingEquivalenceClass (Fec)

| | |
|---|---|
| Scope | Application |
| Description | *Vr/<s> Mpls LspGroup/<s> ForwardingEquivalenceClass*<br>This component describes the FEC used by this *LspGroup* to carry IP traffic over an MPLS network.<br><br>A *Fec* component must have one and only one *IpV4Epa* subcomponent provisioned. |
| Opt. Subcomp. | "COMPONENT Vr Mpls LspG Fec CosMscMapping (MscMap)"<br>"COMPONENT Vr Mpls LspG Fec Ipv4EndPointAddr (Ipv4Epa)" |
| Opt. Subcomp. | "COMPONENT Vr Mpls LspG Fec Ipv4ReachableAddr (Ipv4RA)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### COMPONENT Vr Mpls LspG Fec CosMscMapping (MscMap)

| | |
|---|---|
| Groups | "GROUP Vr Mpls LspG Fec MscMap MscMapProv (Prov)" |
| Scope | Application |

Description *Vr/<s> Mpls LspGroup/<s> Fec CosMscMapping*

This component specifies how to translate IP Quality Of Service into MPLS Quality Of Service when IP traffic is carried over MPLS.

IP QoS is represented by an IP COS value that is derived from an IP packet. MPLS QoS is implemented using MPLS MSC (MPLS Service Category) values that are related to different queueing, emission, discarding treatment on MPLS switches/routers.

The mapping data provisioned under this component determines how IP COS values are mapped into MPLS MSC values. Each IP COS must be mapped to a unique MPLS MSC value.

Common Verbs

Help
List
Display
Add
DELete

## GROUP Vr Mpls LspG Fec MscMap MscMapProv (Prov)

Properties Provisioned

Description This group contains provisionable attribute(s) for the *CosMscMapping* component.

## ATTRIBUTE Vr Mpls LspG Fec MscMap cosToMsc

Access Read and write

Description This attribute specifies the MPLS MSC (MPLS Service Category) values that IP COS 0 to 3 map to.

Vector of Decimal (0..7)

Index Decimal (0; 1; 2; 3)

Default (0, 1, 2, 3)

## COMPONENT Vr Mpls LspG Fec Ipv4ReachableAddr (Ipv4RA)

Instance
ipv4Element (ipv4Elem) [IP address]
ipv4Prefix (ipv4Pref) [Decimal (1..32)]

Scope
Application

Description
*Vr/<s> Mpls LspG/<s> Fec Ipv4ReachableAddr/<IP address>, <IP address length>*

The *Ipv4ReachableAddr* component represents a destination (an IPv4 address) reachable beyond the *Ipv4EndPointAddr* for LSPs in this *LspGroup*. It may be provisioned or signalled. There may be multiple instances of the *Ipv4ReachableAddr* component per LSP group.

1) The *<IP address>* index indicates the destination address. It is a host address if the second index *<IP address length>* has the value 32; otherwise it is a network address.

2) The *<IP address length>* index represents the length of the IP address given in the first index *<IP address>*.

Common Verbs
Help
List
Display
Add
DELete

## COMPONENT Vr Mpls LspG Fec Ipv4EndPointAddr (Ipv4Epa)

Instance
ipv4Element (ipv4Elem) [IP address]
ipv4Prefix (ipv4Pref) [Decimal (1..32)]

Groups
"GROUP Vr Mpls LspG Fec Ipv4Epa Ipv4Prov (Prov)"

Scope
Application

Description
*Vr/<s> Mpls LspGroup/<s> Fec Ipv4EndPointAddr/<IP address>, <IP address length>*
The *Ipv4Epa* component specifies a common endpoint for the data

flow of all LSPs in this *LspGroup* component. In case of LDP and RSVP-TE, the data flow endpoint is the same as the destination address of the LSP but that may or may not be the case for CRLDP. Only one of these is allowed per LSP group, and the actual address must be a valid, non-reserved Class A, B, or C address that is unique among the LSP groups on the node.

1) The *<IP address>* index indicates the destination address. It is a host address if the second index *<IP address length>* has the value 32; otherwise, the address is a network address.

2) The *<IP address length>* index represents the length of the IP address given in the first index *<IP address>*.

Common Verbs

Help
List
Display
Add
DELete

## GROUP Vr Mpls LspG Fec Ipv4Epa Ipv4Prov (Prov)

Properties: Provisioned

Description: This group contains provisionable attribute(s) for the *Ipv4EndPointAddr* component.

## ATTRIBUTE Vr Mpls LspG Fec Ipv4Epa bestMatchOverride

Access: Read and write

Description: This attribute specifies if an MPLS LSP in *LspGroup* component should subsume more specific routes to carry IP traffic.

What IP normally does when making next-hop route decision for incoming IP packets is to find the longest match on destination address in the routing table and use such a route. If multiple routes (from different protocols) are found to have same best destination address match, other criteria (such as route preference, metric) are used for further selection.

The best-match on destination address is the most important factor in traditional IP route selection. On Passport, the

"*bestMatchOverride*" attribute allows network operators to override this IP tradition by enabling MPLS forced subsume functionality. In many situations, using subsume can help to achieve better traffic engineering goals.

Setting this attribute to ***enabled*** instructs IP to select this MPLS LSP or LSP group to forward IP packets that matches the FEC of the LSP or LSP group, even though other routes have a better/ longer destination address match for these IP packets.

The value ***disabled*** is used when traditional IP route selection behavior (longest address match first) is chosen.

For example, say OSPF has different routes to 2 sets of destinations (100.200.100.0/24 and 100.200.200.0/24). Now We have setup an MPLS LSP and set the FEC to be 100.200.0.0/16. If we set this attribute to "disabled", IP traffic for destination 100.200.100.xxx and 100.200.200.xxx will take the corresponding OSPF routes due to better address match than the MPLS LSP. However, if the value of this attribute is "enabled", all IP traffic for destination 100.200.xxx.xxx (including 100.200.100.xxx and 100.200.200.xxx) will take the MPLS LSP. In such a situation, the two OSPF routes have been subsumed by the more generic route - MPLS LSP and the IP best-match rule has been overridden.

| | |
|---|---|
| Values | disabled<br>enabled |
| Default | disabled |

## COMPONENT Vr Mpls TrafficEngineering (Te)

| | |
|---|---|
| Instance | String (1..12, ASCII) |
| Groups | "GROUP Vr Mpls Te Provisioned (Prov)"<br>"GROUP Vr Mpls Te Operational (Oper)" |
| Scope | Application |
| Description | *Vr/<String> Mpls TrafficEngineering/<String>*<br>This component represents the MPLS Traffic Engineering capabilities. Provisioning the *TrafficEngineering* component |

under the *Mpls* component indicates that this *Vr* has MPLS TE capabilities.

Subcomponents "COMPONENT Vr Mpls Te Topology (Top)"

Common Verbs
Help
List
Display
Add
DELete

### GROUP Vr Mpls Te Provisioned (Prov)

Properties Provisioned

Description This group contains generic provisionable attributes for MPLS Traffic Engineering.

### ATTRIBUTE Vr Mpls Te ospfAreaId (ospfArea)

Access Read: All
Write: All

Criticality Component

Description This attribute specifies the OSPF area in which the MPLS traffic engineering information is flooded.

Values IP address

Default No default

### ATTRIBUTE Vr Mpls Te bwProportionalMultiplier (bwPm)

Access Read: All
Write: All

Description This attribute is used to determine a threshold by multiplying it with the previously advertised *bandwidth*. The maximum of this threshold value and the threshold value computed by the *bwMinimumThreshold* is used. Any bandwidth change greater than the threshold used causes the bandwidth value to be advertised by an OSPF flood into the network.

| | |
|---|---|
| | Increasing the value of this attribute increases the range of insignificance and reduces the amount of traffic engineering LSAs flooded due to changes in resource availability. |
| Values | Decimal (1..100) |
| Units | % |
| Default | 50 |

### ATTRIBUTE Vr Mpls Te bwMinimumThreshold (bwMt)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute is used to determine a threshold by multiplying it with the *maximumReserveableBandwidth*. The maximum of this threshold value and the threshold value computed by the *bwProportionalMultiplier* is used. Any bandwidth change greater than the threshold used causes the bandwidth value to be advertised by an OSPF flood into the network.<br><br>Increasing the value of this attribute increases the range of insignificance and reduces the amount of traffic engineering LSAs flooded due to changes in resource availability |
| Values | Decimal (1..100) |
| Units | % |
| Default | 3 |

### GROUP Vr Mpls Te Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational attributes for the *MplsTe* component. |

### ATTRIBUTE Vr Mpls Te routerId

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the OSPF Router ID of this node. |

| | |
|---|---|
| Values | IP address |
| Default | No default |

### ATTRIBUTE Vr Mpls Te teUpdatesSent

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the local traffic engineering updates originated by this node and transmitted throughout the network.<br>The counter wraps to 0 when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Mpls Te teUpdatesReceived

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the traffic engineering updates received from the remote MPLS nodes.<br>The counter wraps to 0 when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT Vr Mpls Te Topology (Top)

| | |
|---|---|
| Groups | "GROUP Vr Mpls Te Top Operational (Oper)" |
| Scope | Application |
| Description | *Vr/<s> Mpls Te<s>Topology*<br>This component is responsible for maintaining a topological database describing the MPLS network topology in terms of nodes and connectivity between them.<br>It is automatically created when the *Mpls TrafficEngineering* component is provisioned under the *Vr Mpls* component. |

| | |
|---|---|
| Dyn. Subcomp. | "COMPONENT Vr Mpls Te Top Node" |
| Common Verbs | Help<br>List<br>Display |

### GROUP Vr Mpls Te Top Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes of the MPLS Topology component. |

### ATTRIBUTE Vr Mpls Te Top nodeCount (nodes)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of nodes in the topology database. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Mpls Te Top linkCount (links)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of links in the topology database. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT Vr Mpls Te Top Node

| | |
|---|---|
| Instance | IP address |
| Groups | "GROUP Vr Mpls Te Top Node Operational (Oper)" |

| | |
|---|---|
| Scope | Application |
| Description | *Vr/<s> Mpls Te<s> Top Node/<routerId>*<br>This component represents the information stored about a single node in the network in this node's toplogy database.<br><br>All advertised MPLS links associated with the node can be listed through the *Link* subcomponent instances, which are indexed by their local interface IP address. |
| Dyn. Subcomp. | "COMPONENT Vr Mpls Te Top Node Link (Lk)" |
| Common Verbs | Help<br>List<br>Display |

## GROUP Vr Mpls Te Top Node Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes of the *Mpls Te Topology Node* component. |

## ATTRIBUTE Vr Mpls Te Top Node linkCount (links)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of MPLS links that originate from this node. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## ATTRIBUTE Vr Mpls Te Top Node neighborCount (neighbors)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of neighbours of this node. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## COMPONENT Vr Mpls Te Top Node Link (Lk)

| | |
|---|---|
| Instance | IP address |
| Groups | "GROUP Vr Mpls Te Top Node Lk Operational (Oper)" |
| Scope | Application |
| Description | *Vr/<s> Mpls Te<s> Top Node/<routerId> Link/<linkId>*<br>This component represents the link information stored in this node's MPLS topology database.<br><br>All advertised links associated with the parent *Node* component can be listed through the *Link* component instances which are indexed by the link Id. For point-to-point links, the link Id is the remote Router Id. |
| Common Verbs | Help<br>List<br>Display |

## GROUP Vr Mpls Te Top Node Lk Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes of the *Mpls Te Topology Node Link* component. |

## ATTRIBUTE Vr Mpls Te Top Node Lk linkType

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the type of the link. |
| Values | pointToPoint |
| Default | No default |

## ATTRIBUTE Vr Mpls Te Top Node Lk localInterfaceAddress

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the IP address of the local interface corresponding to this link. |

| | |
|---|---|
| Values | IP address |
| Default | No default |

### ATTRIBUTE Vr Mpls Te Top Node Lk remoteInterfaceAddress

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the IP address of the neighbor's interface corresponding to this link. |
| Values | IP address |
| Default | No default |

### ATTRIBUTE Vr Mpls Te Top Node Lk linkAdministrativeWeight (lkAw)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the link metric for traffic engineering purposes. A lower value for this attribute makes the link more desirable in route selection. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Mpls Te Top Node Lk maximumBandwidth (maxBw)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the maximum advertised physical bandwdith that may be reserved on this link. |
| Values | Long Integer |
| Units | bit/s |
| Default | No default |

### ATTRIBUTE Vr Mpls Te Top Node Lk maximumReservableBandwidth (maxReserveBw)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute indicates the maximum reservable bandwidth that may be reserved on this link in this direction.<br><br>This value may be greater than the *maximumBandwidth* in which case the link may be oversubscribed. |
| Values | Long Integer |
| Units | bit/s |
| Default | No default |

### ATTRIBUTE Vr Mpls Te Top Node Lk colors

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the colors associated with this link. |
| Values | String (0..200, ASCII) |
| Default | No default |

### ATTRIBUTE Vr Mpls Te Top Node Lk bandwidth (bw)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the bandwidth available on the link. |
| Values | Long Integer |
| Units | bit/s |
| Default | No default |

### COMPONENT Vr Mpls RouteSelector (Rs)

| | |
|---|---|
| Groups | "GROUP Vr Mpls Rs SelectedRoute (SelectedRoute)"<br>"GROUP Vr Mpls Rs Constraints (Constraints)"<br>"GROUP Vr Mpls Rs Statistics (Stats)" |
| Scope | Application |
| Description | *Vr/<String> Mpls RouteSelector*<br>This component provides information about the MPLS Traffic |

Engineering Route Selector. It only appears if the MPLS TE component is provisioned under MPLS.

Common Verbs

Help
List
Display

## GROUP Vr Mpls Rs SelectedRoute (SelectedRoute)

Properties: Operational

Description: This group contains selected route operational attributes for the MPLS Route Selector component.

## ATTRIBUTE Vr Mpls Rs routeMetric

Access: Read only

Description: This attribute indicates the metric of the last computed route. A lower values indicates a better route.

Values: Decimal (0..4294967295)

Default: No default

## ATTRIBUTE Vr Mpls Rs routeSelectionFailureReason

Access: Read only

Description: This attribute indicates the reason for the last computed route failure, if any.

***none*** indicates that the last route computation was successful in finding a route to the destination that matched the constraints.

***destinationNotFound*** indicates that the route computation failed because the destination of the route requrest was not found in the database.

***routeNotFound*** indicates that the route computation failed because a route to the desination could not be found because one or more link contraints could not be met.

| | |
|---|---|
| Values | none<br>destinationNotFound (destNotFound)<br>routeNotFound |
| Default | No default |

### ATTRIBUTE Vr Mpls Rs routeSelectionTime

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the time at which the last route was computed. |
| Values | Time (DHMS) |
| Default | No default |

### ATTRIBUTE Vr Mpls Rs routeDescription

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the last computed route. The route is displayed as a list of pairs (router id, local interface IP address), one pair for each hop in the path. |
| List of | String (0..40, ASCII) |
| List Size | 20 |
| Default | No default |

### GROUP Vr Mpls Rs Constraints (Constraints)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains route constraint operational attributes for the MPLS Route Selector component. |

### ATTRIBUTE Vr Mpls Rs destinationAddress

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the destination IP address of the last computed route. |
| Values | IP address |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Vr Mpls Rs requiredBandwidth (reqBw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the required bandwidth constraint of the last computed route. |
| Values | Decimal (0..4294967295) |
| Units | bit/s |
| Default | No default |

### ATTRIBUTE Vr Mpls Rs includedColors

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the included colors constraint of the last computed route. |
| Values | String (0..200, ASCII) |
| Default | No default |

### ATTRIBUTE Vr Mpls Rs excludedColors

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the excluded colors constraint of the last computed route. |
| Values | String (0..200, ASCII) |
| Default | No default |

### GROUP Vr Mpls Rs Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistic operational attributes for the MPLS Route Selector component. |

### ATTRIBUTE Vr Mpls Rs routeRequests (routeReq)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the route requests processed by the MPLS constraint based routing algorithm. This value includes the *failedRouteRequests*.<br>The counter wraps to 0 when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Mpls Rs failedRouteRequests (failedReq)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the failed route computations processed by the constraint-based routing algorithm.<br>The counter wraps to 0 when it exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT Vr MemoryManagement (Mm)

| | |
|---|---|
| Groups | "GROUP Vr Mm Provisioned (Prov)"<br>"GROUP Vr Mm Operational (Oper)" |
| Scope | Application |
| Description | *Vr/<string> MemoryManagement*<br>*Rtr/<string> MemoryManagement*<br>*Rtr/<string> Vrf/<string> MemoryManagement*<br><br>This component represents a mechanism to control and monitor dynamic memory usage within a *VirtualRouter*, *Router*, or *VpnRouteForwarder*. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Vr Mm Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |

| | |
|---|---|
| Description | This group contains all provisioned attributes for the *MemoryManagement* component. |

### ATTRIBUTE Vr Mm vrMaxHeapSpace (vrMax)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum percentage of the total system heap space that is allowed for use by this *VirtualRouter*, *Router*, or *VpnRouteForwarder*. Attempted memory allocation beyond this limit will cause a *VirtualRouter* or *VpnRouteForwarder* to automatically lock. If memory allocation for a *Router* exceeds this limit, an alarm is raised but the component is not locked. |
| Values | Decimal (0..100) |
| Units | % |
| Default | 100 |

### GROUP Vr Mm Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all operational attributes for the *MemoryManagement* component. |

### ATTRIBUTE Vr Mm vrHeapSpaceBytesAllocated (vrBytesAlloc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of bytes of system dynamic memory which has been allocated to this *VirtualRouter*, *Router*, or *VpnRouteForwarder* component. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Mm vrHeapSpaceAllocated (vrAlloc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the percentage of the maximum permitted heap space for this *VirtualRouter*, *Router*, or *VpnRouteForwarder* |

| | |
|---|---|
| | component (as specified by *vrMaxHeapSpace* attribute) which is currently allocated. |
| Values | Decimal (0..100) |
| Units | % |
| Default | No default |

## COMPONENT Vr ProtocolPort (Pp)

| | |
|---|---|
| Instance | String (1..20, ASCII) |
| Groups | "GROUP Vr Pp AdministrativeControl (AdminControl)"<br>"GROUP Vr Pp Provisioned (Prov)"<br>"GROUP Vr Pp OperationalStatus (OperStatus)"<br>"GROUP Vr Pp OsiState (State)"<br>"GROUP Vr Pp Operational (Oper)"<br>"GROUP Vr Pp NbmaAddress"<br>"GROUP Vr Pp ProtocolPortAcct (PpAcct)" |
| Scope | Application |
| Description | *Vr/<string> Pp/<string>*<br>This component represents a logical interface to the network. Protocol Ports are associated with physical or logical media via a linkage attribute. Protocol Ports allow for individual upper layer protocols to be enabled or disabled. |

| | |
|---|---|
| Opt. Subcomp. | "COMPONENT Vr Pp MplsPort"<br>"COMPONENT Vr Pp ClusterTbBridgePort (Tbcl)"<br>"COMPONENT Vr Pp FddiEncapTbPort (FddiETB)"<br>"COMPONENT Vr Pp TransparentBridgePort (Tbp)"<br>"COMPONENT Vr Pp IpPort"<br>"COMPONENT Vr Pp IpxPort (IpxP)"<br>"COMPONENT Vr Pp SourceRouteBridgePort (SrBp)"<br>"COMPONENT Vr Pp SourceRouteTransparentBridgePort (SrtBp)"<br>"COMPONENT Vr Pp SrseBridgePort (Srse)"<br>"COMPONENT Vr Pp TbseBridgePort (Tbse)"<br>"COMPONENT Vr Pp SrsgBridgePort (Srsg)"<br>"COMPONENT Vr Pp TbsgBridgePort (Tbsg)"<br>"COMPONENT Vr Pp ClusterSrBridgePort (Srcl)" |
| Dyn. Subcomp. | "COMPONENT Vr Pp ShortcutConnection (Sc)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

### GROUP Vr Pp AdministrativeControl (AdminControl)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group includes the Administrative Control attribute. This attribute defines the current administrative state of this component. |

### ATTRIBUTE Vr Pp snmpAdminStatus

| | |
|---|---|
| Access | Read and write |
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational and packet forwarding is allowed. The ***down*** state indicates the interface is not operational and packet |

forwarding is unavailable. The ***testing*** state indicates that no operational packets can be passed.

Values
up
down
testing

Default
up

### GROUP Vr Pp Provisioned (Prov)

Properties
Provisioned

Description
This group includes provisioned attributes specific to the ProtocolPort component.

### ATTRIBUTE Vr Pp linkToMedia (media)

Access
Read and write

Description
This attribute defines the Media Application which this Protocol Port is using as an interface to the network.

Values
Link (Service, linkToProtocolPort)

Default
No default

### GROUP Vr Pp OperationalStatus (OperStatus)

Properties
Operational

Description
This group includes the Operational Status attribute. This attribute defines the current operational state of this component.

### ATTRIBUTE Vr Pp snmpOperStatus

Access
Read only

Description
The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed.

| | |
|---|---|
| Values | up<br>down<br>testing |
| Default | up |

### GROUP Vr Pp OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Vr Pp adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Vr Pp operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Vr Pp usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Vr Pp Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes operational attributes specific to the ProtocolPort component. |

### ATTRIBUTE Vr Pp ifIndex

| | |
|---|---|
| Access | Read only |
| Description | This represents the SNMP ifIndex which is associated with this PP. This ifIndex can be used to extract detailed information about the PP from the ifTable. |
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP Vr Pp NbmaAddress

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes of the ProtocolPort component specific to NHRP. |

### ATTRIBUTE Vr Pp atmAddress

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the ATM address which is associated with this protocol port. NHRP uses this address to establish shortcut connections. This attribute is not displayed if NHRP is not provisioned on this protocol port. |
| Values | String (0..20, Hex) |
| Default | No default |

### GROUP Vr Pp ProtocolPortAcct (PpAcct)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group includes the protocol port Accounting options for the *ProtocolPort* component. |

## ATTRIBUTE Vr Pp accountingControl (acc)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to control accounting for the protocol port. ***disable*** signifies that accounting is disabled unconditionally with this option for the *ProtocolPort*.<br><br>***sameAsProtocol*** signifies that accounting for the *ProtocolPort* is controlled by the attribute *accountCollection* in the *Vr Ip* component. |
| Values | sameAsProtocol<br>disabled |
| Default | sameAsProtocol |

## COMPONENT Vr Pp MplsPort

| | |
|---|---|
| Groups | "GROUP Vr Pp MplsPort OsiState (State)"<br>"GROUP Vr Pp MplsPort Operational (Oper)"<br>"GROUP Vr Pp MplsPort InStatistics (InStats)"<br>"GROUP Vr Pp MplsPort OutStatistics (OutStats)"<br>"GROUP Vr Pp MplsPort Provisioned (Prov)" |
| Scope | Application |
| Description | *Vr/<s> Pp/<s> MplsPort*<br>This component represents a group of label switched path (LSP) MPLS traffic that use a specific *ProtocolPort*.<br><br>Each MPLS Port uses the media which is associated with its parent component *ProtocolPort*.<br><br>Each LSP corresponds to an *InSegment* (in the egress case), to an *OutSegment* (in the ingress case), or a combination of them (for example tandem or merge points). The statistics for individual LSPs are viewed through the *InSegment* and *OutSegment* subcomponents of the *MplsPort* component. Consolidated statistics for all LSPs on an MPLS Port are viewed through this *MplsPort* component. |

| | |
|---|---|
| Opt. Subcomp. | "COMPONENT Vr Pp MplsPort LabelDistributionProtocolIf (LdpIf)"<br>"COMPONENT Vr Pp MplsPort RsvpTeIf" |
| Dyn. Subcomp. | "COMPONENT Vr Pp MplsPort InSegment (InSeg)" |
| Dyn. Subcomp. | "COMPONENT Vr Pp MplsPort OutSegment (OutSeg)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP Vr Pp MplsPort OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

## ATTRIBUTE Vr Pp MplsPort adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is |

administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Vr Pp MplsPort operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Vr Pp MplsPort usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

| | |
|---|---|
| | The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Vr Pp MplsPort Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains summary information about the labels used in the media associated with this *MplsPort*. |

### ATTRIBUTE Vr Pp MplsPort inLabelsUsed (inUse)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of labels that are in use on the interface in the incoming direction (LSPs terminating on the LSR or tandeming LSPs arriving at the LSR). |
| Values | Decimal (0..65535) |
| Default | No default |

### ATTRIBUTE Vr Pp MplsPort outLabelsUsed (outUse)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of labels that are in use in the outgoing direction (LSPs originating on the LSR or tandeming LSPs exiting LSR). |
| Values | Decimal (0..65535) |
| Default | No default |

### ATTRIBUTE Vr Pp MplsPort mediaName (media)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the media component name for the MPLS Port which its traffic is running through. |
| Values | The name of the component |
| Default | No default |

### GROUP Vr Pp MplsPort InStatistics (InStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational statistics for incoming traffic of the *MplsPort* component on the ingress side of a tandem or destination switch. |

### ATTRIBUTE Vr Pp MplsPort inOctets

| | |
|---|---|
| Access | Read only |
| Description | The attribute counts the number of octets received from terminating or incoming tandem MPLS data traffic. The counter wraps to zero when its maximum value is exceeded. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Vr Pp MplsPort inDiscards

| | |
|---|---|
| Access | Read only |
| Description | The attribute counts the number of octets received but discarded from terminating or incoming tandem MPLS data traffic. The counter wraps to zero when its maximum value is exceeded. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Vr Pp MplsPort inFrames

| | |
|---|---|
| Access | Read only |
| Description | The attribute counts the number of frames received from terminating or incoming tandem MPLS data traffic. The counter wraps to zero when its maximum value is exceeded. |

| | |
|---|---|
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Vr Pp MplsPort inFramesDiscards

| | |
|---|---|
| Access | Read only |
| Description | The attribute counts the number of frames received but discarded from terminating or incoming tandem MPLS data traffic. The counter wraps to zero when its maximum value is exceeded. |
| Values | Long Integer |
| Default | No default |

### GROUP Vr Pp MplsPort OutStatistics (OutStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational statistics for outgoing traffic of *MplsPort* on the egress side of an originating or tandem switch. |

### ATTRIBUTE Vr Pp MplsPort outOctets

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of octets transmitted for originating or outgoing transit MPLS data. The counter wraps to zero when its maximum value is exceeded. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Vr Pp MplsPort outDiscards

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of packets transmitted that were discarded. The counter wraps to zero when its maximum value is exceeded. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Vr Pp MplsPort outFrames

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames transmitted for originating or outgoing transit MPLS data. The counter wraps to zero when its maximum value is exceeded. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Vr Pp MplsPort outFramesDiscards

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames transmitted that were discarded. The counter wraps to zero when its maximum value is exceeded. |
| Values | Long Integer |
| Default | No default |

### GROUP Vr Pp MplsPort Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisionable attributes for *InwMplsPort* subcomponent. |

### ATTRIBUTE Vr Pp MplsPort lspCacScalingFactor (sf)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to calculate the portion of the requested bandwidth that will be reserved for the out segments of LSP connections. It provides a mean to overbook the link as the actual reserved bandwidth for the LSP connection is the multiplication of the scaling factor with the requested bandwidth.<br><br>For example: A value of 0% means that the out segments of LSP connections on this port are reserving 0% (none) of the requested bandwidth. A value of 100% (no overbooking) means that the out segments of LSP connections on this port are reserving 100% of the requested bandwidth. |

| | |
|---|---|
| Values | Decimal (0..100) |
| Units | % |
| Default | 100 |

## COMPONENT Vr Pp MplsPort LabelDistributionProtocolIf (LdpIf)

| | |
|---|---|
| Groups | "GROUP Vr Pp MplsPort LdpIf Provisioned (Prov)"<br>"GROUP Vr Pp MplsPort LdpIf OsiState (State)" |
| Scope | Application |
| Description | *Vr/<s> Pp/<s> MplsPort LdpIf*<br>*Rtr/<s> Pp/<s> MplsPort LdpIf*<br>This component represents the fact that the Label Distribution Protocol is to run over the interface associated with this protocol port.<br><br>An *IpPort* component must be provisioned under the same *ProtocolPort* component.<br><br>An *LdpIf* component may have an *AtmConnection* subcomponent provisioned. An *AtmConnection* subcomponent is required when the *LdpIf* component runs on top of ATM media<br><br>A provisioning check is made to ensure that an *MplsPort* component exists under the same *ProtocolPort* as this *LdpIf* component. |
| Opt. Subcomp. | "COMPONENT Vr Pp MplsPort LdpIf AtmConnection (AtmConn)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

### GROUP Vr Pp MplsPort LdpIf Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains attributes for configuring LDP use over the interface. |

### ATTRIBUTE Vr Pp MplsPort LdpIf ldpInterworking (ldpInw)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies if interworking between LDP and CR-LDP can occur over this interface. If ***True***, then a hop-by-hop LDP peer can interwork with this CR-LDP LSR. |
| Values | true<br>false |
| Default | false |

### ATTRIBUTE Vr Pp MplsPort LdpIf adminStatus (admin)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the administrative status of this LDP Interface. It is used to maintain “locks” and “unlocks” over FP and nodal restarts. |
| Values | null<br>enabled<br>disabled<br>testing |
| Default | enabled |

### GROUP Vr Pp MplsPort LdpIf OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component |

which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Vr Pp MplsPort LdpIf adminState (osiAdmin)

Access: Read only

Description: This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values:
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default: unlocked

### ATTRIBUTE Vr Pp MplsPort LdpIf operationalState (osiOper)

Access: Read only

Description: This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the

component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Vr Pp MplsPort LdpIf usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### COMPONENT Vr Pp MplsPort LdpIf AtmConnection (AtmConn)

Groups
"GROUP Vr Pp MplsPort LdpIf AtmConn Provisioned (Prov)"

Scope
Application

Description
*Vr/<string> Pp/<string> MplsPort LdpIf AtmConnection*
This component represents the connection to an ATM VCC used by the LDP protocol on this *MplsPort* component.

Common Verbs
Help
List
Display
Add
DELete

### GROUP Vr Pp MplsPort LdpIf AtmConn Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains attributes for configuring LDP over the ATM interface. |

### ATTRIBUTE Vr Pp MplsPort LdpIf AtmConn mediaName (mname)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the component name of the media over which LDP is run. |
| Values | The name of the component |
| Default | No default |

### ATTRIBUTE Vr Pp MplsPort LdpIf AtmConn atmLabelMin

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the minimum value of the MPLS ATM label that this LSR is willing to receive on this interface. |
| Values | Integer Sequence (0..254; 0..16127) |
| Default | No default |

### ATTRIBUTE Vr Pp MplsPort LdpIf AtmConn atmLabelMax

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the maximum value of the MPLS ATM label that this LSR is willing to receive on this interface. |
| Values | Integer Sequence (0..254; 0..16127) |
| Default | No default |

## COMPONENT Vr Pp MplsPort RsvpTeIf

| | |
|---|---|
| Groups | "GROUP Vr Pp MplsPort RsvpTeIf Provisioned (Prov)"<br>"GROUP Vr Pp MplsPort RsvpTeIf OsiState (State)"<br>"GROUP Vr Pp MplsPort RsvpTeIf Statistics (Stats)" |
| Scope | Application |
| Description | *Vr/<s> Pp/<s> MplsPort RsvpTeIf*<br>This component represents an instance of the RSVP-TE protocol running over the interface associated with this *MplsPort*.<br><br>An *IpPort* component must be provisioned under the same *ProtocolPort*.<br><br>An *RsvpTeIf* component can have an *AtmConnection* subcomponent provisioned. If an *AtmConnection* subcomponent is provisioned and its parent *ProtocolPort* component must be linked to an ATM media via the *linkToMedia* attribute. |
| Opt. Subcomp. | "COMPONENT Vr Pp MplsPort RsvpTeIf AtmConnection (AtmConn)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Vr Pp MplsPort RsvpTeIf Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group of attributes specifies MPLS RSVP-TE optional capability on a per interface basis. |

## ATTRIBUTE Vr Pp MplsPort RsvpTeIf refreshInterval (refresh)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the interval between PATH or RESV refresh messages sent out this interface by this LSR.<br><br>Setting this attribute to a smaller value increases the control |

traffic overhead in the network. Setting this attribute to a larger number may increase the reaction time of the originating LER to apply a global fault recovery mechanism when control packets are repeatedly lost.

Values: Decimal (1..1800)

Units: seconds

Default: 30

### ATTRIBUTE Vr Pp MplsPort RsvpTelf refreshMultiple (rm)

Access: Read and write

Description: This attribute specifies the minimum number of refresh intervals that must elapse before a PATH or a RESV state which is not being refreshed is aged out. Refer to Resource Reservation Protocol Version 1 Functional Specification (RFC 2205) for detailed explanation of this value (referred to as K).

Setting this attribute to a smaller value might cause a premature loss of the related state block, especially in a lossy network. Setting this attribute to a higher value results in the similar effect as a high *refreshInterval* value in that it may increase the reaction time of the originating LER to apply a global fault recovery mechanism.

Values: Decimal (1..50)

Default: 3

### ATTRIBUTE Vr Pp MplsPort RsvpTelf slewMax (slewMax)

Access: Read and write

Description: This attribute specifies a limit on the rate of dynamic change S for *rsvpIfRefreshInterval* value, R.

When the *refreshInterval* value is set to a larger value on an enabled *RsvpTeIf*, the refresh interval is increased at *slewMax* percentage of the previous interval at each PATH/RESV cycle. In another words, the ratio of two successive values of R2/R1 does not exceed 1 + (*SlewMax*/100). Refer to Resource Reservation

Protocol Version 1 Functional Specification (RFC 2205) for a detailed explanation of this value.

Values: Decimal (1..200)

Units: %

Default: 30

### GROUP Vr Pp MplsPort RsvpTelf OsiState (State)

Properties: Operational

Description: This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Vr Pp MplsPort RsvpTelf adminState (osiAdmin)

Access: Read only

Description: This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values: locked (lck)
unlocked (unlck)
shuttingDown (shut)

| | |
|---|---|
| Default | unlocked |

### ATTRIBUTE Vr Pp MplsPort RsvpTelf operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Vr Pp MplsPort RsvpTelf usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

## GROUP Vr Pp MplsPort RsvpTeIf Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | These attributes comprise the control statistics collected by the *RsvpTeIf* component. |

## ATTRIBUTE Vr Pp MplsPort RsvpTeIf txPathErrors (txPErr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts PATH ERROR messages sent out this interface since its creation. This value wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## ATTRIBUTE Vr Pp MplsPort RsvpTeIf lastTxPathErrorCode (lastTxPErrC)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the error code of the last PATH ERROR message sent out this interface. Refer to “Resource Reservation Protocol Version 1 Functional Specification (RFC 2205)” and “RSVP-TE: Extensions to RSVP for LSP Tunnels (draft-ietf-mpls-lsp-tunnel-08.txt)” for the applicable PATH Error Codes.<br><br>A value of ***notApplicable*** indicates that the *RsvpTeIf* has not sent any PATH error messages since its creation. |
| Values | admissionControlFailure<br>policyControlFailure<br>conflictingDestPorts<br>conflictingSenderPorts<br>unknownObjectClass<br>unknownObjectCType<br>reservedForAPI<br>trafficControlError<br>trafficControlSystemError<br>rsvpSystemError<br>routingProblem<br>notifyError<br>notApplicable |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Vr Pp MplsPort RsvpTeIf lastTxPathErrorValue (lastTxPErrV)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the error value supplementing the error code of the last PATH ERROR message sent out this interface. Refer to “Resource Reservation Protocol Version 1 Functional Specification (RFC 2205)” and “RSVP-TE: Extensions to RSVP for LSP Tunnels (draft-ietf-mpls-lsp-tunnel-08.txt)” for the PATH error values and corresponding Error Codes.<br><br>If the *lastTxPathErrorCode* value is ***notApplicable*** then the value of this attribute is ***0***. |
| Values | Decimal (0..65536) |
| Default | No default |

### ATTRIBUTE Vr Pp MplsPort RsvpTeIf rxPathErrors (rxPErr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts PATH ERROR messages received on this interface since its creation. This value wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Pp MplsPort RsvpTeIf lastRxPathErrorCode (lastRxPErrC)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the error code of the last PATH ERROR message received on this interface. Refer to “Resource Reservation Protocol Version 1 Functional Specification (RFC 2205)” and “RSVP-TE: Extensions to RSVP for LSP Tunnels (draft-ietf-mpls-lsp-tunnel-08.txt)” for the applicable PATH Error Codes.<br><br>A value of ***notApplicable*** indicates that the *RsvpTeIf* has not received any PATH error messages since its creation. |

| | |
|---|---|
| Values | admissionControlFailure<br>policyControlFailure<br>conflictingDestPorts<br>conflictingSenderPorts<br>unknownObjectClass<br>unknownObjectCType<br>reservedForAPI<br>trafficControlError<br>trafficControlSystemError<br>rsvpSystemError<br>routingProblem<br>notifyError<br>notApplicable |
| Default | No default |

### ATTRIBUTE Vr Pp MplsPort RsvpTelf lastRxPathErrorValue (lastRxPErrV)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the error value supplementing the error code of the last PATH ERROR message received on this interface. Refer to “Resource Reservation Protocol Version 1 Functional Specification (RFC 2205)” and “RSVP-TE: Extensions to RSVP for LSP Tunnels (draft-ietf-mpls-lsp-tunnel-08.txt)” for the PATH error values and corresponding Error Codes.<br><br>If the *lastRxPathErrorCode* value is ***notApplicable*** then the value of this attribute is ***0***. |
| Values | Decimal (0..65536) |
| Default | No default |

### ATTRIBUTE Vr Pp MplsPort RsvpTelf txResvErrors (txRErr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts RESV ERROR messages sent on this interface since its creation. This value wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4294967295) |

Default No default

### ATTRIBUTE Vr Pp MplsPort RsvpTeIf lastTxResvErrorCode (lastTtxRErrC)

Access Read only

Description This attribute indicates the error code of the last RESV ERROR message sent out this interface. Refer to “Resource Reservation Protocol Version 1 Functional Specification (RFC 2205)” and “RSVP-TE: Extensions to RSVP for LSP Tunnels (draft-ietf-mpls-lsp-tunnel-08.txt)” for the applicable RESV Error Codes.

A value of ***notApplicable*** indicates that the *RsvpTeIf* has not sent any RESV error messages since its creation.

Values
admissionControlFailure
policyControlFailure
noPathInfo
noSenderInfo
conflictingResvStyle
unknownResvStyle
conflictingDestPorts
conflictingSenderPorts
servicePreempted
unknownObjectClass
unknownObjectCType
reservedForAPI
trafficControlError
trafficControlSystemError
rsvpSystemError
routingProblem
notifyError
notApplicable

Default No default

### ATTRIBUTE Vr Pp MplsPort RsvpTeIf lastTxResvErrorValue (lastTxRErrV)

Access Read only

Description This attribute indicates the error value supplementing the error code of the last RESV ERROR message sent out this interface. Refer to “Resource Reservation Protocol Version 1 Functional Specification (RFC 2205)” and “RSVP-TE: Extensions to RSVP

for LSP Tunnels (draft-ietf-mpls-lsp-tunnel-08.txt)" for the RESV error values and corresponding Error Codes.

If the *lastTxResvErrorCode* value is ***notApplicable*** then the value of this attribute is ***0***.

Values: Decimal (0..65536)

Default: No default

### ATTRIBUTE Vr Pp MplsPort RsvpTeIf rxResvErrors (rxRErr)

Access: Read only

Description: This attribute counts RESV ERROR messages received on this interface since its creation. This value wraps to zero when the maximum value is exceeded.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Vr Pp MplsPort RsvpTeIf lastRxResvErrorCode (rxRErrCode)

Access: Read only

Description: This attribute indicates the error code of the last RESV ERROR message received on this interface. Refer to "Resource Reservation Protocol Version 1 Functional Specification (RFC 2205)" and "RSVP-TE: Extensions to RSVP for LSP Tunnels (draft-ietf-mpls-lsp-tunnel-08.txt)" for the applicable RESV Error Codes.

A value of ***notApplicable*** indicates that the *RsvpTeIf* has not received any RESV error messages since its creation.

Values:
admissionControlFailure
policyControlFailure
noPathInfo
noSenderInfo
conflictingResvStyle
unknownResvStyle
conflictingDestPorts
conflictingSenderPorts
servicePreempted

unknownObjectClass
unknownObjectCType
reservedForAPI
trafficControlError
trafficControlSystemError
rsvpSystemError
routingProblem
notifyError
notApplicable

Default — No default

### ATTRIBUTE Vr Pp MplsPort RsvpTeIf lastRxResvErrorValue (lastRxRErrV)

Access — Read only

Description — This attribute indicates the error value supplementing the error code of the last RESV ERROR message received on this interface. Refer to “Resource Reservation Protocol Version 1 Functional Specification (RFC 2205)” and “RSVP-TE: Extensions to RSVP for LSP Tunnels (draft-ietf-mpls-lsp-tunnel-08.txt)” for the RESV error values and corresponding Error Codes.

If the *lastRxResvErrorCode* value is ***notApplicable*** then the value of this attribute is ***0***.

Values — Decimal (0..65536)

Default — No default

### COMPONENT Vr Pp MplsPort RsvpTeIf AtmConnection (AtmConn)

Groups — "GROUP Vr Pp MplsPort RsvpTeIf AtmConn Provisioned (Prov)"

Scope — Application

Description — *Vr/<string> Pp/<string> MplsPort RsvpTeIf AtmConnection*
This component represents the connection to an ATM VCC used by the RSVP-TE protocol on this *MplsPort*.

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Vr Pp MplsPort RsvpTelf AtmConn Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains attributes for configuring RSVP-TE over the ATM interface. |

## ATTRIBUTE Vr Pp MplsPort RsvpTelf AtmConn minInLabel (minIn)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the minimum value of the ATM VPI/VCI field to encode the MPLS label that this LSR accepts for incoming LSP connections on this interface.<br><br>If not set, a default escape sets the VPI field of this label to ***0***, and the VCI field to the value specified in the *minAutoSelectedVciForVpiZero* attribute under the *AtmIf Ca* subcomponent.<br><br>If the value of the VPI field is set to ***0***, the VCI field must be in the range specified by the *minAutoSelectedVciForVpiZero* and *maxAutoSelectedVciForVpiZero* attributes under the *AtmIf Ca* subcomponent.<br><br>If the VPI field is set to a value that is not ***0***, the value of the VCI field must be in the range specified by the *minAutoSelectedVciForNonZeroVpi* and *maxAutoSelectedVciForNonZeroVpi* attributes under the *AtmIf Ca* subcomponent.<br><br>If set to a value that is not ***0***, the value of the VPI field should be in the range specified by the *minAutoSelectedVpi* and *maxAutoSelectedVpi* attributes under the *AtmIf Ca* subcomponent |

| | |
|---|---|
| Values | Integer Sequence (0..254; 0..65535) |
| Default | No default |

### ATTRIBUTE Vr Pp MplsPort RsvpTelf AtmConn maxInLabel (maxIn)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum value of the ATM VPI/VCI field to encode the MPLS label that this LSR accepts for incoming LSP connections on this interface.<br><br>If not set, a default escape sets the VPI field of this label to ***0***, and the VCI field to the value specified in the *maxAutoSelectedVciForVpiZero* attribute under the *AtmIf Ca* subcomponent.<br><br>The value of this attribute must be greater than or equal to the *minInLabel* attribute.<br><br>If the value of the VPI field is set to ***0***, the VCI field must be in the range specified by the *minAutoSelectedVciForVpiZero* and *maxAutoSelectedVciForVpiZero* attributes under the *AtmIf Ca* subcomponent.<br><br>If the VPI field is set to a value that is not ***0***, the value of the VCI field must be in the range specified by the *minAutoSelectedVciForNonZeroVpi* and *maxAutoSelectedVciForNonZeroVpi* attributes under the *AtmIf Ca* subcomponent.<br><br>If set to a value that is not ***0***, the value of the VPI field should be in the range specified by the *minAutoSelectedVpi* and *maxAutoSelectedVpi* attributes under the *AtmIf Ca* subcomponent. |
| Values | Integer Sequence (0..254; 0..65535) |
| Default | No default |

### ATTRIBUTE Vr Pp MplsPort RsvpTelf AtmConn minOutLabel (minOut)

| | |
|---|---|
| Access | Read and write |

Description

This attribute specifies the minimum value of the ATM VPI/VCI field to encode the MPLS label that this LSR may select for outgoing LSP connections on this interface.

If not set, a default escape sets the VPI field of this label to ***0***, and the VCI field to the value specified in the *minAutoSelectedVciForVpiZero* attribute under the *AtmIf Ca* subcomponent.

If the value of the VPI field is set to ***0***, the VCI field must be in the range specified by the *minAutoSelectedVciForVpiZero* and *maxAutoSelectedVciForVpiZero* attributes under the *AtmIf Ca* subcomponent.

If the VPI field is set to a value that is not ***0***, the value of the VCI field must be in the range specified by the *minAutoSelectedVciForNonZeroVpi* and *maxAutoSelectedVciForNonZeroVpi* attributes under the *AtmIf Ca* subcomponent.

If set to a value that is not ***0***, the value of the VPI field should be in the range specified by the *minAutoSelectedVpi* and *maxAutoSelectedVpi* attributes under the *AtmIf Ca* subcomponent.

Values

Integer Sequence (0..254; 0..65535)

Default

No default

### ATTRIBUTE Vr Pp MplsPort RsvpTelf AtmConn maxOutLabel (maxOut)

Access

Read and write

Description

This attribute defines the maximum value of the ATM VPI/VCI field to encode the MPLS label that this LSR selects for outgoing LSP connections on this interface.

If not set, a default escape sets the VPI field of this label to ***0***, and the VCI field to the value specified in the *maxAutoSelectedVciForVpiZero* attribute under the *AtmIf Ca* subcomponent.

If the value of the VPI field is set to ***0***, the VCI field must be in

the range specified by the *minAutoSelectedVciForVpiZero* and *maxAutoSelectedVciForVpiZero* attributes under the *AtmIf Ca* subcomponent.

If the VPI field is set to a value that is not ***0***, the value of the VCI field must be in the range specified by the *minAutoSelectedVciForNonZeroVpi* and *maxAutoSelectedVciForNonZeroVpi* attributes under the *AtmIf Ca* subcomponent.

If set to a value that is not ***0***, the value of the VPI field should be in the range specified by the *minAutoSelectedVpi* and *maxAutoSelectedVpi* attributes under the *AtmIf Ca* subcomponent

| | |
|---|---|
| Values | Integer Sequence (0..254; 0..65535) |
| Default | No default |

## COMPONENT Vr Pp MplsPort InSegment (InSeg)

| | |
|---|---|
| Instance | String (1..10, ASCII) |
| Groups | "GROUP Vr Pp MplsPort InSeg OsiState (State)"<br>"GROUP Vr Pp MplsPort InSeg Operational (Oper)"<br>"GROUP Vr Pp MplsPort InSeg Statistics (Stats)" |
| Scope | Application |
| Description | *Vr/<s> Pp/<s> MplsPort InSegment/<s>*<br>This component contains operational information related to a label switched path (LSP) going over the media associated with the *MplsPort*. The information applies if the LSP is either terminating on the LSR or tandeming through the LSR in the incoming direction. |
| Dyn. Subcomp. | "COMPONENT Vr Pp MplsPort InSeg PathRroHop (PathRro)"<br>"COMPONENT Vr Pp MplsPort InSeg ResvRroHop (ResvRro)" |
| Common Verbs | Help<br>List<br>Display |

## GROUP Vr Pp MplsPort InSeg OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

## ATTRIBUTE Vr Pp MplsPort InSeg adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

## ATTRIBUTE Vr Pp MplsPort InSeg operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component. |

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

## ATTRIBUTE Vr Pp MplsPort InSeg usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

## GROUP Vr Pp MplsPort InSeg Operational (Oper)

Properties
Operational

Description
This group contains operational attributes of an *MplsPort InSegment* component.

### ATTRIBUTE Vr Pp MplsPort InSeg protocolType (prot)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the MPLS protocol using this segment. |
| Values | ldp<br>crLdp<br>rsvpTe<br>static |
| Default | No default |

### ATTRIBUTE Vr Pp MplsPort InSeg lspType (lsp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the level of diff-serv support provided by this segment. Value *regular-lsp* indicates a segment not providing diff-serv support |
| Values | eLsp<br>lLsp<br>regularLsp |
| Default | No default |

### GROUP Vr Pp MplsPort InSeg Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational statistics data for each ingress connection on terminating or incoming tandem traffic. Each connection (*InSegment* instance) corresponds to an LSP. |

### ATTRIBUTE Vr Pp MplsPort InSeg inDe0Octets (de0Oct)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of the received and successfully passed through octets for the ingress traffic on this segment. The octets reflect the non discard-eligible traffic. The counter wraps to zero when its maximum value is exceeded. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Vr Pp MplsPort InSeg inDe1Octets (de1Oct)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of octets that are received and successfully passed through for the ingress traffic on this segment. The octets reflect the discard-eligible traffic. The counter wraps to zero when its maximum value is exceeded. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Vr Pp MplsPort InSeg inDe0OctetsDiscarded (de0OctDsc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of the received but discarded octets for the ingress traffic on this segment. The octets reflect the non discard-eligible traffic. The counter wraps to zero when its maximum value is exceeded. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Vr Pp MplsPort InSeg inDe1OctetsDiscarded (de1OctDsc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of the received but discarded octets for the ingress traffic on this segment. The octets reflect the discard-eligible traffic. The counter wraps to zero when its maximum value is exceeded. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Vr Pp MplsPort InSeg inFrames

| | |
|---|---|
| Access | Read only |
| Description | The attribute counts the number of frames received from terminating or incoming tandem MPLS data traffic. The counter wraps to zero when its maximum value is exceeded. |

| | |
|---|---|
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Vr Pp MplsPort InSeg inFramesDiscards

| | |
|---|---|
| Access | Read only |
| Description | The attribute counts the number of frames received but discarded from terminating or incoming tandem MPLS data traffic. The counter wraps to zero when its maximum value is exceeded. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Vr Pp MplsPort InSeg inOctets

| | |
|---|---|
| Access | Read only |
| Description | The attribute counts the number of octets received from terminating or incoming tandem MPLS data traffic. The counter wraps to zero when its maximum value is exceeded. |
| Values | Long Integer |
| Default | No default |

### COMPONENT Vr Pp MplsPort InSeg PathRroHop (PathRro)

| | |
|---|---|
| Instance | Decimal (1..255) |
| Groups | "GROUP Vr Pp MplsPort InSeg PathRro RsvpTeRro" |
| Scope | Application |
| Description | *Vr/<s> Pp/<s> MplsPort OutSeg/<s> PathRroHop*<br>This component represents a single hop of the Record Route Object (RRO) of the PATH message used to set up this LSP Tunnel Segment. The instance number specifies the relative position of the hop as it appears in the RRO of the PATH message. Displaying this component with a wildcard provides the information on all the upstream hops leading from the originating ingress LSR for the LSP to this interface. |

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display |

### GROUP Vr Pp MplsPort InSeg PathRro RsvpTeRro

| | |
|---|---|
| Properties | Operational |
| Description | The group contains the hop information in the corresponding *RsvpTePathRroHop* component or *RsvpTeResvRroHop* component for this LSP tunnel segment. |

### ATTRIBUTE Vr Pp MplsPort InSeg PathRro hopAddress

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the IPv4 address of the RSVP-TE interface on which the corresponding PATH or RESV messages was sent. |
| Values | IP address |
| Default | No default |

### ATTRIBUTE Vr Pp MplsPort InSeg PathRro hopLabel

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the MPLS label associated with the IPv4 address of the RSVP-TE interface on which the corresponding PATH or RESV message was sent. |
| Values | Integer Sequence (0..254; 0..65535) |
| Default | No default |

### COMPONENT Vr Pp MplsPort InSeg ResvRroHop (ResvRro)

| | |
|---|---|
| Instance | Decimal (1..255) |
| Groups | "GROUP Vr Pp MplsPort InSeg ResvRro RsvpTeRro" |
| Scope | Application |

| | |
|---|---|
| Description | *Vr/<s> Pp/<s> MplsPort OutSeg/<s> ResvRroHop*<br>This component represents a single hop of the Record Route Object (RRO) of the RESV message used to set up this LSP Tunnel Segment. The instance number specifies the relative position of the hop as it appears in the RRO of the RESV message. Displaying this component with a wildcard provides the information on all the downstream hops leading from the destination egress LSR for the LSP to this interface. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Vr Pp MplsPort InSeg ResvRro RsvpTeRro

| | |
|---|---|
| Properties | Operational |
| Description | The group contains the hop information in the corresponding *RsvpTePathRroHop* component or *RsvpTeResvRroHop* component for this LSP tunnel segment. |

### ATTRIBUTE Vr Pp MplsPort InSeg ResvRro hopAddress

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the IPv4 address of the RSVP-TE interface on which the corresponding PATH or RESV messages was sent. |
| Values | IP address |
| Default | No default |

### ATTRIBUTE Vr Pp MplsPort InSeg ResvRro hopLabel

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the MPLS label associated with the IPv4 address of the RSVP-TE interface on which the corresponding PATH or RESV message was sent. |
| Values | Integer Sequence (0..254; 0..65535) |
| Default | No default |

## COMPONENT Vr Pp MplsPort OutSegment (OutSeg)

| | |
|---|---|
| Instance | String (1..10, ASCII) |
| Groups | "GROUP Vr Pp MplsPort OutSeg OsiState (State)"<br>"GROUP Vr Pp MplsPort OutSeg Operational (Oper)"<br>"GROUP Vr Pp MplsPort OutSeg Statistics (Stats)" |
| Scope | Application |
| Description | *Vr/<s> Pp/<s> MplsPort OutSegment/<s>*<br>This component contains operational information related to a label switched paths (LSP) going out of the media associated with the *MplsPort*. The information applies if the LSP is either originating on the LSR or tandeming through the LSR in the outgoing direction. |
| Subcomponents | "COMPONENT Vr Pp MplsPort OutSeg StaticPoint (StPt)"<br>"COMPONENT Vr Pp MplsPort OutSeg StaticQos (StQos)" |
| Dyn. Subcomp. | "COMPONENT Vr Pp MplsPort OutSeg PathRroHop (PathRro)"<br>"COMPONENT Vr Pp MplsPort OutSeg ResvRroHop (ResvRro)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP Vr Pp MplsPort OutSeg OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Vr Pp MplsPort OutSeg adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Vr Pp MplsPort OutSeg operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |

| | |
|---|---|
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Vr Pp MplsPort OutSeg usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Vr Pp MplsPort OutSeg Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes of an *MplsPort OutSegment* component. |

### ATTRIBUTE Vr Pp MplsPort OutSeg protocolType (prot)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the MPLS protocol using this segment. |
| Values | ldp<br>crLdp<br>rsvpTe<br>static |
| Default | No default |

### ATTRIBUTE Vr Pp MplsPort OutSeg lspType (lsp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the level of diff-serv support provided by this segment.<br><br>Value *eLsp* indicates a segment providing exp inferred diff-serv support.<br><br>Value *lLsp* indicates a segment providing label inferred diff-serv support.<br><br>Value *regularLsp* indicates a segment not providing diff-serv support. |
| Values | eLsp<br>lLsp<br>regularLsp |
| Default | No default |

### ATTRIBUTE Vr Pp MplsPort OutSeg normalizedEffectiveBandwidth (nebw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the amount of bandwidth allocated for this segment from a media bandwidth pool. |
| Values | Decimal (0..4294967295) |
| Units | kbit/s |
| Default | No default |

### ATTRIBUTE Vr Pp MplsPort OutSeg bandwidthPool (pool)

| | |
|---|---|
| Access | Read only |
| Description | This attribute identifies the media bandwidth pool from which bandwidth is allocated for this segment. A value is displayed only when PPP media is in use. |
| Values | Decimal (1..4) |
| Default | No default |

## GROUP Vr Pp MplsPort OutSeg Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational statistics data for each egress connection on originating or outgoing tandem traffic. Each connection (*OutSegment* instance) corresponds to an LSP. |

## ATTRIBUTE Vr Pp MplsPort OutSeg outFrames

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames transmitted for originating or outgoing transit MPLS data. The counter wraps to zero when its maximum value is exceeded. |
| Values | Long Integer |
| Default | No default |

## ATTRIBUTE Vr Pp MplsPort OutSeg outDe0Octets (de0Oct)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of the received traffic and successfully transmitted octets for the egress traffic on this segment. The octets reflect the non discard-eligible traffic. The counter wraps to zero when its maximum value is exceeded. |
| Values | Long Integer |
| Default | No default |

## ATTRIBUTE Vr Pp MplsPort OutSeg outDe1Octets (de1Oct)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of the received traffic and successfully transmitted octets for the egress traffic on this segment. The octets reflect the discard-eligible traffic. The counter wraps to zero when its maximum value is exceeded. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Vr Pp MplsPort OutSeg outDe0OctetsDiscarded (de0OctDsc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of the discarded octets before transmission for the egress traffic on this segment. The octets reflect the non discard-eligible traffic. The counter wraps to zero when its maximum value is exceeded. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Vr Pp MplsPort OutSeg outDe1OctetsDiscarded (de1OctDsc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of the discarded octets before transmission for the egress traffic on this segment. The octets reflect the discard-eligible traffic. The counter wraps to zero when its maximum value is exceeded. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Vr Pp MplsPort OutSeg outFramesDiscards

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of frames transmitted that were discarded. The counter wraps to zero when its maximum value is exceeded. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Vr Pp MplsPort OutSeg outOctets

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of octets transmitted for originating or outgoing transit MPLS data. The counter wraps to zero when its maximum value is exceeded. |
| Values | Long Integer |

| | |
|---|---|
| Default | No default |

### COMPONENT Vr Pp MplsPort OutSeg PathRroHop (PathRro)

| | |
|---|---|
| Instance | Decimal (0..255) |
| Groups | "GROUP Vr Pp MplsPort OutSeg PathRro RsvpTeRro" |
| Scope | Application |
| Description | *Vr/<s> Pp/<s> MplsPort OutSeg/<s> PathRroHop*<br>This component represents a single hop of the Record Route Object (RRO) of the PATH message used to set up this LSP Tunnel Segment. The instance number specifies the relative position of the hop as it appears in the RRO of the PATH message. Displaying this component with a wildcard provides the information on all the upstream hops leading from the originating ingress LSR for the LSP to this interface. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Vr Pp MplsPort OutSeg PathRro RsvpTeRro

| | |
|---|---|
| Properties | Operational |
| Description | The group contains the hop information in the corresponding *RsvpTePathRroHop* component or *RsvpTeResvRroHop* component for this LSP tunnel segment. |

### ATTRIBUTE Vr Pp MplsPort OutSeg PathRro hopAddress

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the IPv4 address of the RSVP-TE interface on which the corresponding PATH or RESV messages was sent. |
| Values | IP address |
| Default | No default |

### ATTRIBUTE Vr Pp MplsPort OutSeg PathRro hopLabel

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the MPLS label associated with the IPv4 address of the RSVP-TE interface on which the corresponding PATH or RESV message was sent. |
| Values | Integer Sequence (0..254; 0..65535) |
| Default | No default |

### COMPONENT Vr Pp MplsPort OutSeg ResvRroHop (ResvRro)

| | |
|---|---|
| Instance | Decimal (0..255) |
| Groups | "GROUP Vr Pp MplsPort OutSeg ResvRro RsvpTeRro" |
| Scope | Application |
| Description | *Vr/<s> Pp/<s> MplsPort OutSeg/<s> ResvRroHop*<br>This component represents a single hop of the Record Route Object (RRO) of the RESV message used to set up this LSP Tunnel Segment. The instance number specifies the relative position of the hop as it appears in the RRO of the RESV message. Displaying this component with a wildcard provides the information on all the downstream hops leading from the destination egress LSR for the LSP to this interface. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Vr Pp MplsPort OutSeg ResvRro RsvpTeRro

| | |
|---|---|
| Properties | Operational |
| Description | The group contains the hop information in the corresponding *RsvpTePathRroHop* component or *RsvpTeResvRroHop* component for this LSP tunnel segment. |

### ATTRIBUTE Vr Pp MplsPort OutSeg ResvRro hopAddress

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the IPv4 address of the RSVP-TE interface on which the corresponding PATH or RESV messages was sent. |

| | |
|---|---|
| Values | IP address |
| Default | No default |

### ATTRIBUTE Vr Pp MplsPort OutSeg ResvRro hopLabel

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the MPLS label associated with the IPv4 address of the RSVP-TE interface on which the corresponding PATH or RESV message was sent. |
| Values | Integer Sequence (0..254; 0..65535) |
| Default | No default |

### COMPONENT Vr Pp MplsPort OutSeg StaticPoint (StPt)

| | |
|---|---|
| Groups | "GROUP Vr Pp MplsPort OutSeg StPt OutStaticPointProv (OutStPtProv)" |
| Scope | Application |
| Description | *Vr/<s> Pp/<s> MplsPort OutSeg/<s> OutStaticPoint*<br>This component provides a link to the ingress point of the LSP associated with a provisioned *OutSegment*. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Vr Pp MplsPort OutSeg StPt OutStaticPointProv (OutStPtProv)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attribute of the *OutStaticPoint* component. |

### ATTRIBUTE Vr Pp MplsPort OutSeg StPt inStaticPoint (isp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the ingress point of the LSP associated with a provisioned *OutSegment*.<br>The ingress point is a *Vr/<vr_name> LspGroup/ <lspgroup_name> Lsp/<lsp_name> StaticRoute*. |

| | |
|---|---|
| Values | Link (Service, outStaticPoint) |
| Default | No default |

### COMPONENT Vr Pp MplsPort OutSeg StaticQos (StQos)

| | |
|---|---|
| Groups | "GROUP Vr Pp MplsPort OutSeg StQos OutStaticBandwidth (OutStBw)" |
| Scope | Application |
| Description | *Vr/<s> Pp/<s> MplsPort OutSeg/<s> StaticQos*<br>This component represents the quality of service parameters associated with a provisioned *OutSegment*. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Vr Pp MplsPort OutSeg StQos OutStaticBandwidth (OutStBw)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable bandwidth requirement of the *StaticQos* component. |

### ATTRIBUTE Vr Pp MplsPort OutSeg StQos bandwidth (bw)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the amount of bandwidth requested for this segment. The *bandwidth* attribute is used to calculate the normalized effective bandwidth for this segment. |
| Values | Decimal (0..4294967295) |
| Units | kbit/s |
| Default | 64 |

### COMPONENT Vr Pp ClusterTbBridgePort (Tbcl)

| | |
|---|---|
| Groups | "GROUP Vr Pp Tbcl Provisioned (Prov)"<br>"GROUP Vr Pp Tbcl TbProvisioned (TbProv)"<br>"GROUP Vr Pp Tbcl StpProvisioned (StpProv)"<br>"GROUP Vr Pp Tbcl DomainInfoProvisioned (DIProv)" |

"GROUP Vr Pp Tbcl OsiState (State)"
"GROUP Vr Pp Tbcl OperationalStatus (OperStatus)"
"GROUP Vr Pp Tbcl Operational (Oper)"
"GROUP Vr Pp Tbcl TbOperational (TbOper)"
"GROUP Vr Pp Tbcl StpOperational (StpOper)"
"GROUP Vr Pp Tbcl Statistics (Stats)"

Scope: Application

Description: *Vr/<string> Pp/<string> ClusterTbBridgePort*
This component represents the functionality called Cluster Bridging. Cluster Bridging allows for MAC frames, carrying packets belonging a certain network protocol, to be bridged and routed at the same time. Also, it provides for a convenient way to manage the entire cluster of LANs, using a single attachment point to the cluster of LANs, the Cluster Bridge Port. To realize these features, the network protocol(s) should also be provisioned on same port as the Cluster Bridge Port. *ClusterTbBridgePort* represents a cluster of Tb LANs.

Opt. Subcomp.: "COMPONENT Vr Pp Tbcl NetSentry (Ns)"

Common Verbs:
Help
List
Display
Add
DELete
LOCK
Unlock

## GROUP Vr Pp Tbcl Provisioned (Prov)

Properties: Provisioned

Description: This group contains all the provisionable attributes that belong to this group. This group of attributes is applicable to all types of bridge ports and represent the common factor between them. These attributes influence the working of a bridge port.

## ATTRIBUTE Vr Pp Tbcl fragmentIp (fIp)

Access: Read and write

| | |
|---|---|
| Description | This attribute specifies if outbound frames carrying IP datagrams should be fragmented to conform to message transfer unit (*mtu*) sizes dictated by the media. |
| Values | off<br>on |
| Default | off |

### ATTRIBUTE Vr Pp Tbcl portNum (pNum)

| | |
|---|---|
| Access | Read only |
| Criticality | Component |
| Description | This attribute indicates the unique number assigned to the bridge port. It is used for SNMP management of this bridge port and in spanning tree as an identifier for this bridge port.<br>Notes:<br>Escape routines exist for initializing, copying, and deleting port numbers. This is necessary because SNMP requires a unique port instance identifier. The initPortNum escape routine sets the port number to a value in the range 1-255 for this purpose. The setCopiedPortNum escape routine exists to maintain the uniqueness of the port number in cases when one port is copied to another. When a bridge port is deleted, the releasePortNum escape routine places the port number being released into a pending deletion state. This is because the port number cannot be re-allocated until the port is truly deleted in the current view. This is necessary since there is no guarantee of order when processing changes to multiple protocol ports so without the pending deletion state, the same port number could be temporarily assigned to two ports for a short period of time.<br><br>The portNum is set as component critical since bridging also uses the port number as a key for indexing into its data structures. If a port is deleted then re-added under the same protocol port, CAS treats the change as a SET to the portNum attribute. |
| Values | Decimal (0..255) |
| Default | 0 |

### GROUP Vr Pp Tbcl TbProvisioned (TbProv)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all the port specific provisionable attributes that belong to the Tb group. These attributes in part influence the working of a bridge port operating in the transparent bridge mode. |

### ATTRIBUTE Vr Pp Tbcl secureOption (sos)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether the port secure feature is enabled. The secure feature, if enabled causes the following things to happen:<br>a) disallows dynamic learning,<br>b) disallows frames to be forwarded that do not satisfy the following condition: the MAC address of the source should be found in the forwarding table and the destination MAC address of the frame should also be found in the forwarding table. In addition to this, the port the frame was received on should figure as the in port, given the destination MAC address found in the frame.<br>c) disallows frames to be forwarded if the allowed to go port map for the destination MAC address is empty.<br>This feature in effect allows the user to choose the hosts that can generate traffic and the hosts that can receive traffic through this bridge unit. |
| Values | disabled<br>enabled |
| Default | disabled |

### GROUP Vr Pp Tbcl StpProvisioned (StpProv)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all port specific provisionable attributes that belong to the Stp group. The Stp group is applicable to all bridge ports that participate in the stp. These attributes influence the participation of the bridge port in the stp. |

### ATTRIBUTE Vr Pp Tbcl adminStatus (as)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the current administrative state for this component. ***enabled*** indicates that the component is available for operation. ***disabled*** indicates the component is unavailable for operation. |
| Values | up<br>down |
| Default | up |

### ATTRIBUTE Vr Pp Tbcl portStateStpControl (psstpc)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether or not stp state for this bridge port is controlled by the stp. In essence it indicates the participation of this bridge port in the stp by accepting and acting on received bridge protocol data units and by sending out the same.<br>***on*** signifies that this bridge port's spanning tree port state is controlled by the stp.<br>A value of ***off*** signifies that the spanning tree port state of this bridge port is unaffected by the stp. This in effect puts the bridge port out of reach of the stp decisions. Its stp state will be always ***forwarding***. Care should be taken while assigning a value of ***off*** to this attribute, as this might cause network loops. Please do not set this attribute to ***off*** unless you are absolutely sure about the effect of such an action on your network topology. |
| Values | off<br>on |
| Default | on |

### ATTRIBUTE Vr Pp Tbcl stpTypeProv (stptProv)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the type of the stp the port is participating in. A bridge port could participate in either the ***ieee8021*** stp or the ***dec*** stp. If the value of the attribute *protocolSpec* in the *SpanningTreeProtocol* component is in conflict with the value of |

this attribute, the value of the *protocolSpec* attribute will prevail. Prevailing stp type is reflected in the value of the attribute *stpTypeOper*.

Values: dec
ieee8021

Default: ieee8021

### ATTRIBUTE Vr Pp Tbcl portPriority (ppr)

Access: Read and write

Description: This attribute specifies the value for this bridge port priority which is contained in the first octet of the port identifier. Valid values are as follows:
1) 0-255 for stp type DEC and
2) 0-65535 for stp type IEEE.

Values: Decimal (0..65535)

Default: 128

### ATTRIBUTE Vr Pp Tbcl pathCost (pc)

Access: Read and write

Description: This attribute specifies the contribution of this port to all the paths to the root bridge that include this port. Please note that the value of the attribute *pathCost* is applied only when the value of the attribute *pathCostMethod* is set to ***on*** and is ignored if otherwise.

Values: Decimal (1..65535)

Default: 10

### ATTRIBUTE Vr Pp Tbcl pathCostMethod (pcm)

Access: Read and write

Description: This attribute specifies the method used by the bridging logic to calculate the path cost to the bridge considered to be the root bridge in the spanning tree topology. This attribute should be set to ***off*** before attempting to provision a value for *pathCost*.

| | |
|---|---|
| Values | off<br>dec<br>ieee8021 |
| Default | ieee8021 |

### GROUP Vr Pp Tbcl DomainInfoProvisioned (DIProv)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all the provisionable, domain specific attributes for a non-encapsulating bridge port. |

### ATTRIBUTE Vr Pp Tbcl domainNum (dn)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the domain number associated with this bridge port. Domain numbers are used for confining frames to a domain. Domain based filtering provides a complete segregation of traffic based on domain number associated with frames. There can exist only sixteen domains when a spanning tree is desired specific to each domain. When there is only a single spanning tree spanning all the domains the maximum number of domains possible are 4294967293.<br>This attribute is of no relevance when associated with backbone bridge port. Its value is ignored in such a situation. |
| Values | Decimal (1..4294967293) |
| Default | 1 |

### ATTRIBUTE Vr Pp Tbcl preserveDomain (pds)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies if the domain information should be preserved or embedded in the frame header. This attribute applies only to ***backbone*** ports and does not affect the ***access*** bridge ports. By setting this attribute to a value of ***on***, domain information could be preserved in frames being tunnelled across the backbone, so that this information can be deciphered at the other end of the backbone tunnel. This preserves the integrity of |

the domains thus preventing domain breaches while tunnelling frames across backbone network.
If the value of this attribute is set to ***off*** then domain information is not preserved in the header of the frames tunnelling through the backbone. This eliminates the overhead incurred to preserve domain information across the backbone while tunnelling frames across it.
Preserve domain is relevant only when used in conjunction with ATM MPE.

Values: off
on

Default: No default

### GROUP Vr Pp Tbcl OsiState (State)

Properties: Operational

Description: This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Vr Pp Tbcl adminState (osiAdmin)

Access: Read only

Description: This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Vr Pp Tbcl operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Vr Pp Tbcl usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Vr Pp Tbcl OperationalStatus (OperStatus)

Properties
Operational

Description
This group includes the Operational Status attribute. This attribute defines the current operational state of this component.

### ATTRIBUTE Vr Pp Tbcl snmpOperStatus

Access
Read only

Description
The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed.

Values
up
down
testing

Default
up

### GROUP Vr Pp Tbcl Operational (Oper)

Properties
Operational

Description
This group contains all the operational attributes belonging to the base group. These attributes in part, reflect the state of a bridge port.

### ATTRIBUTE Vr Pp Tbcl portName (pn)

Access
Read only

Description
The attribute *portName* is a string of the form ***"BridgePortName-i",*** where ***BridgePortName*** is the abbreviation of the

| | |
|---|---|
| | corresponding bridge port and ***i*** is the instance identifier of the *ProtocolPort* the bridge port is provisioned under. For example a *TransparentBridgePort* provisioned under *ProtocolPort/ETH100A* would have a name ***TBP-ETH100A.*** |
| Values | String (4..29, ASCII) |
| Default | No default |

### ATTRIBUTE Vr Pp Tbcl upTime (ut)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the accumulated up time of this bridge port since the last reset occurred. |
| Values | Decimal (0..4294967295) |
| Units | seconds |
| Default | 0 |

### ATTRIBUTE Vr Pp Tbcl downTime (dt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the accumulated down time of this bridge port since the last reset occurred. |
| Values | Decimal (0..4294967295) |
| Units | seconds |
| Default | 0 |

### ATTRIBUTE Vr Pp Tbcl bridgingMode (bm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the mode of bridging this port can support. The transparent bridge mode is the only mode supported. |
| Values | unknown<br>tb<br>sr<br>srt |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Vr Pp Tbcl bridgePortConfig (bpc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the bridge port's configuration. It indicates if the bridge port is operating as an ***access*** port or as a ***backbone*** port. An ***access*** bridge port does not encapsulate a MAC frame and does not preserve domain information in the encapsulation, whereas a ***backbone*** bridge port encapsulates the MAC frame and optionally preserves domain information in the encapsulated frame.A ***backbone*** bridge port is typically used to transport frames across a high bandwidth backbone network to another bridge unit for further processing/forwarding of the frame. |
| Values | access<br>backbone |
| Default | No default |

### ATTRIBUTE Vr Pp Tbcl bridgePortType (bpt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the type of the bridge port that was provisioned. It takes into consideration the *bridgingMode*, *bridgePortConfig* and the media the bridge port is linked to before branding a bridge port. |
| Values | ethernetBridgePort<br>tokenRingBridgePort<br>fddiBridgePort<br>tokenBusBridgePort<br>lanEmulationClientEthernet<br>fddiEncapsulatingBridgePort<br>vnsBridgePort<br>frameRelayBridgePort<br>pppBridgePort<br>smdsBridgePort<br>vcpBridgePort<br>x25BridgePort<br>atmMpeBridgePort |

srEncapSrBridgePort
srEncapTbBridgePort
sourceGateSrBridgePort
sourceGateTbBridgePort
srtbBridgePort
tbsrBridgePort
clusterSrBridgePort
clusterTbBridgePort
snaDlrBridgePort
unknown

Default: No default

### ATTRIBUTE Vr Pp Tbcl ifIndex (ifin)

Access: Read only

Description: This attribute indicates the index into the Interface Table where information about the media interface corresponding to this bridge port is maintained.

Values: Decimal (1..65535)

Default: No default

### ATTRIBUTE Vr Pp Tbcl mtuExceededDiscards (med)

Access: Read only

Description: This attribute counts the number of frames discarded because the size of the outbound frame exceeded the message transfer unit (mtu) allowed for the bridge port. Note that this counter only refers to the outbound frames for this bridge port. This counter wraps around its maximum value of 4294967295.
This counter is influenced by the attribute *fragmentIp*. This counter is incremented when a frame larger than the mtu allowed is encountered and cannot be fragmented. If this counter is increasing steadily, it might be useful to set the value of the attribute *fragmentIp* to a value of ***on***.

Values: Decimal (0..4294967295)

Default: 0

## GROUP Vr Pp Tbcl TbOperational (TbOper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all the port specific operational attributes that belong to the Tb group. This group also contains all the port specific statistical attributes that belong to the Tb group. These attributes reflect the state of a bridge port operating in the transparent bridge mode |

## ATTRIBUTE Vr Pp Tbcl maxInfo (mi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the maximum size of the information field in a transparent bridge frame. This excludes the header field. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## ATTRIBUTE Vr Pp Tbcl badVerifyDiscards (bvd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of incoming frames that were discarded because the value of the *secureOption* attribute was set to ***on*** and:<br>a) it is not allowed to receive frames originating from the MAC address found in the source address field of the frame (source MAC address lookup in the forwarding table failed) on this bridge port, or<br>b) for the destination MAC address found in the frame the port the frame was received on does not appear as in port in the corresponding static table entry.<br>Permission to receive frames from a MAC address is granted via the static table entries.<br>This attribute, *badVerifyDiscards*, is directly influenced by:<br>1. *secureOption* and<br>2. the static table entries.<br>This counter wraps around its maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |

Default 0

### ATTRIBUTE Vr Pp Tbcl staticEntryDiscards (sed)

Access Read only

Description This attribute counts the number of frames that were discarded because of the following three reasons:
a) there was no entry for the “allowed to go” field in the static table entry, where the input port is this bridge port.
b) the MAC destination address in the frame was not found in the forwarding table but the frame cannot be flooded because this bridge has not other ports in forwarding state.
c) for spanning tree bpdus that are locally processed.
This counter wraps around its maximum value of 4294967295.
It might prove useful to check the static table entry corresponding to the bridge port in question, if this counter consistently displays a high value.
Ideally this counter should be as low as possible.

Values Decimal (0..4294967295)

Default 0

### ATTRIBUTE Vr Pp Tbcl dynamicEntryDiscards (dend)

Access Read only

Description This attribute counts the number of incoming frames that:
a) were discarded because of the fact that the bridge port, the frame is to go out of matches the bridge port it came in from, or
b) if the stp port state of the out port is not ***forwarding***.
This counter wraps around its maximum value of 4294967295.

Values Decimal (0..4294967295)

Default 0

### ATTRIBUTE Vr Pp Tbcl learningDiscards (ld)

Access Read only

Description This attribute counts the number of frames that were discarded while this bridge port was in a state other than the ***forwarding*** state. While in ***learning*** state the frame is discarded after the

| | |
|---|---|
| | information from its header is learnt. This counter wraps around its maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Tbcl inDiscards (id)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames that were received by this bridge port and were discarded by the forwarding process. This includes frames that could have been discarded due to filtering. A rapidly increasing value for this attribute could indicate a shortage of resource in terms of memory needed to process the incoming frames. More memory can be provisioned through the *VirtualRouter*'s memory manager. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Tbcl inFrames (if)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames that have been received by this port from its segment. Note that a frame received on this bridge port is counted if and only if it can be processed by the bridge logic contained in this bridge unit. This counter wraps around its maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Tbcl outFrames (of)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames that have been transmitted out this bridge port. This also includes management frames.This counter wraps around its maximum value of 4294967295. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### GROUP Vr Pp Tbcl StpOperational (StpOper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all port specific operational attributes that belong to the Stp group. The Stp group is applicable to all bridge ports that participate in the stp. These attributes reflect the state of the bridge port's participation in the stp. |

### ATTRIBUTE Vr Pp Tbcl stpPortState (sps)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the stp state of the bridge port. |
| Values | disabled<br>blocking<br>listening<br>learning<br>forwarding<br>broken |
| Default | disabled |

### ATTRIBUTE Vr Pp Tbcl stpTypeOper (stptOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the type of the stp the port is participating in. A bridge port could participate in either the ***ieee8021*** stp or the ***dec*** stp. |
| Values | none<br>dec<br>ieee8021 |
| Default | ieee8021 |

### ATTRIBUTE Vr Pp Tbcl designatedCost (dc)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the path cost of the designated port of the lan segment the designated port is connected to. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Pp Tbcl pathCostOper (pco)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the contribution of this port to all the paths to the root bridge that include this port. This attribute *pathCostOper* will track the value of the attribute *pathCost* when the value of the attribute *pathCostMethod* is set of ***off***. |
| Values | Decimal (1..65535) |
| Default | No default |

### ATTRIBUTE Vr Pp Tbcl designatedBridge (db)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the identifier of the bridge that this port considers to be the designated bridge. |
| Values | String (8, Dashed Hex) |
| Default | No default |

### ATTRIBUTE Vr Pp Tbcl designatedPort (dp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the port identifier of the port on the designated bridge attached to the same LAN segment as this port is attached to. |
| Values | Hex (H.0..H.ffff) |
| Default | No default |

### ATTRIBUTE Vr Pp Tbcl forwardTransitions (ft)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the number of times this bridge port transitioned from the ***learning*** state to the ***forwarding*** state. This counter wraps around its maximum value of 4294967295.<br>A rapidly increasing value might be indicative of an unstable spanning tree topology. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Tbcl blockingDiscards (bd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of the incoming frames that were discarded because the bridge port was in the ***blocking*** state. This counter wraps around its maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Tbcl designatedRoot (dr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the bridge identifier of the bridge recorded as the root bridge in the configuration BPDUs sent out by the designated bridge on the segment this port is attached to. |
| Values | String (8, Dashed Hex) |
| Default | No default |

### GROUP Vr Pp Tbcl Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all the statistical attributes applicable to all types of bridge ports and represents the common factor between them. These attributes in part reflect the state of the bridge port. |

### ATTRIBUTE Vr Pp Tbcl badAbstractDiscards (bad)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the number of frames that were discarded because the data abstracted from the frames coming in through this bridge port did not conform to the format expected by the bridge logic.This counter wraps around its maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Tbcl tinygramFramesIn (tfi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames received on this bridge port that used the tinygram compression scheme. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Tbcl tinygramFramesOut (tfo)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames transmitted out this bridge port that used the tinygram compression scheme. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Tbcl inFilterDiscards (ifd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames discarded due to domain based filtering at the in filter point. This counter wraps around its maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Tbcl outFilterDiscards (ofd)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the number of frames discarded due to domain based filtering at the out filter point. This counter wraps around its maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT Vr Pp Tbcl NetSentry (Ns)

| | |
|---|---|
| Groups | "GROUP Vr Pp Tbcl Ns Provisioned (Prov)" |
| Scope | Application |
| Description | *Vr/<string> Pp/<string> TransparentBridgePort NetSentry* This component represents the *Ns* functionality that can be applied to a bridge port. It contains all the attribute groups (provisionable) that are necessary for the application of Ns functionality to a bridge port. In essence, it allows for the definition of filters, at the incoming and outgoing points, specific to the interface represented by this bridge port. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Vr Pp Tbcl Ns Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group houses all the port specific provisionable attributes associated with Ns. These attributes influence the application of filters to incoming and outgoing frames. |

### ATTRIBUTE Vr Pp Tbcl Ns incomingFilter (if)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the name of the filter to be applied at the incoming filter point. |
| Values | String (0..32, ASCII) |

Default No default

### ATTRIBUTE Vr Pp Tbcl Ns outgoingFilter (of)

Access Read and write

Description This attribute specifies the name of the filter to be applied at the out going filter point.

Values String (0..32, ASCII)

Default No default

### COMPONENT Vr Pp FddiEncapTbPort (FddiETB)

Groups
"GROUP Vr Pp FddiETB Provisioned (Prov)"
"GROUP Vr Pp FddiETB TbProvisioned (TbProv)"
"GROUP Vr Pp FddiETB StpProvisioned (StpProv)"
"GROUP Vr Pp FddiETB DomainInfoProvisioned (DIProv)"
"GROUP Vr Pp FddiETB OsiState (State)"
"GROUP Vr Pp FddiETB OperationalStatus (OperStatus)"
"GROUP Vr Pp FddiETB Operational (Oper)"
"GROUP Vr Pp FddiETB TbOperational (TbOper)"
"GROUP Vr Pp FddiETB StpOperational (StpOper)"
"GROUP Vr Pp FddiETB Statistics (Stats)"

Scope Application

Description *Vr/<string> Pp/<string> FddiEncapTbPort*
This component represents a FDDI encapsulated port, working in the TB mode. It contains all the attribute groups (provisionable and operational) necessary for the working of this bridge port. In this mode the domain information can optionally be preserved in the frames.
This bridge port is characterized as a backbone port and can be used to tunnel TB frames, through the backbone. It participates in the transparent bridge (man) spanning tree protocol. Backbone ports are not associated with any domain as multiple domains should be able to multiplex traffic through them and thus share the backbone's bandwidth.
Please note that when this bridge port is provisioned multiple instances of the component *SpanningTreeProtocol* exist, there should exist exactly one instance of the *SpanningTreeProtocol* component with its attribute *stpMode* set to a value of ***backbone***.

| | |
|---|---|
| Opt. Subcomp. | "COMPONENT Vr Pp FddiETB NetSentry (Ns)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP Vr Pp FddiETB Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all the provisionable attributes that belong to this group. This group of attributes is applicable to all types of bridge ports and represent the common factor between them. These attributes influence the working of a bridge port. |

## ATTRIBUTE Vr Pp FddiETB fragmentIp (fIp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies if outbound frames carrying IP datagrams should be fragmented to conform to message transfer unit (*mtu*) sizes dictated by the media. |
| Values | off<br>on |
| Default | off |

## ATTRIBUTE Vr Pp FddiETB portNum (pNum)

| | |
|---|---|
| Access | Read only |
| Criticality | Component |
| Description | This attribute indicates the unique number assigned to the bridge port. It is used for SNMP management of this bridge port and in spanning tree as an identifier for this bridge port. |

Notes:
Escape routines exist for initializing, copying, and deleting port numbers. This is necessary because SNMP requires a unique port instance identifier. The initPortNum escape routine sets the port number to a value in the range 1-255 for this purpose. The setCopiedPortNum escape routine exists to maintain the uniqueness of the port number in cases when one port is copied to another. When a bridge port is deleted, the releasePortNum escape routine places the port number being released into a pending deletion state. This is because the port number cannot be re-allocated until the port is truly deleted in the current view. This is necessary since there is no guarantee of order when processing changes to multiple protocol ports so without the pending deletion state, the same port number could be temporarily assigned to two ports for a short period of time.

The portNum is set as component critical since bridging also uses the port number as a key for indexing into its data structures. If a port is deleted then re-added under the same protocol port, CAS treats the change as a SET to the portNum attribute.

Values: Decimal (0..255)

Default: 0

### GROUP Vr Pp FddiETB TbProvisioned (TbProv)

Properties: Provisioned

Description: This group contains all the port specific provisionable attributes that belong to the Tb group. These attributes in part influence the working of a bridge port operating in the transparent bridge mode.

### ATTRIBUTE Vr Pp FddiETB secureOption (sos)

Access: Read and write

Description: This attribute specifies whether the port secure feature is enabled. The secure feature, if enabled causes the following things to happen:
a) disallows dynamic learning,
b) disallows frames to be forwarded that do not satisfy the

following condition: the MAC address of the source should be found in the forwarding table and the destination MAC address of the frame should also be found in the forwarding table. In addition to this, the port the frame was received on should figure as the in port, given the destination MAC address found in the frame.
c) disallows frames to be forwarded if the allowed to go port map for the destination MAC address is empty.
This feature in effect allows the user to choose the hosts that can generate traffic and the hosts that can receive traffic through this bridge unit.

Values: disabled
enabled

Default: disabled

## GROUP Vr Pp FddiETB StpProvisioned (StpProv)

Properties: Provisioned

Description: This group contains all port specific provisionable attributes that belong to the Stp group. The Stp group is applicable to all bridge ports that participate in the stp. These attributes influence the participation of the bridge port in the stp.

## ATTRIBUTE Vr Pp FddiETB adminStatus (as)

Access: Read and write

Description: This attribute defines the current administrative state for this component. ***enabled*** indicates that the component is available for operation. ***disabled*** indicates the component is unavailable for operation.

Values: up
down

Default: up

## ATTRIBUTE Vr Pp FddiETB portStateStpControl (psstpc)

Access: Read and write

Description

This attribute specifies whether or not stp state for this bridge port is controlled by the stp. In essence it indicates the participation of this bridge port in the stp by accepting and acting on received bridge protocol data units and by sending out the same.
***on*** signifies that this bridge port's spanning tree port state is controlled by the stp.
A value of ***off*** signifies that the spanning tree port state of this bridge port is unaffected by the stp. This in effect puts the bridge port out of reach of the stp decisions. Its stp state will be always ***forwarding***. Care should be taken while assigning a value of ***off*** to this attribute, as this might cause network loops. Please do not set this attribute to ***off*** unless you are absolutely sure about the effect of such an action on your network topology.

Values

off
on

Default

on

### ATTRIBUTE Vr Pp FddiETB stpTypeProv (stptProv)

Access

Read and write

Description

This attribute specifies the type of the stp the port is participating in. A bridge port could participate in either the ***ieee8021*** stp or the ***dec*** stp. If the value of the attribute *protocolSpec* in the *SpanningTreeProtocol* component is in conflict with the value of this attribute, the value of the *protocolSpec* attribute will prevail. Prevailing stp type is reflected in the value of the attribute *stpTypeOper*.

Values

dec
ieee8021

Default

ieee8021

### ATTRIBUTE Vr Pp FddiETB portPriority (ppr)

Access

Read and write

Description

This attribute specifies the value for this bridge port priority which is contained in the first octet of the port identifier. Valid values are as follows:

| | |
|---|---|
| | 1) 0-255 for stp type DEC and<br>2) 0-65535 for stp type IEEE. |
| Values | Decimal (0..65535) |
| Default | 128 |

### ATTRIBUTE Vr Pp FddiETB pathCost (pc)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the contribution of this port to all the paths to the root bridge that include this port. Please note that the value of the attribute *pathCost* is applied only when the value of the attribute *pathCostMethod* is set to ***on*** and is ignored if otherwise. |
| Values | Decimal (1..65535) |
| Default | 10 |

### ATTRIBUTE Vr Pp FddiETB pathCostMethod (pcm)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the method used by the bridging logic to calculate the path cost to the bridge considered to be the root bridge in the spanning tree topology. This attribute should be set to ***off*** before attempting to provision a value for *pathCost*. |
| Values | off<br>dec<br>ieee8021 |
| Default | ieee8021 |

### GROUP Vr Pp FddiETB DomainInfoProvisioned (DIProv)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all the provisionable, domain specific attributes for a non-encapsulating bridge port. |

### ATTRIBUTE Vr Pp FddiETB domainNum (dn)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute specifies the domain number associated with this bridge port. Domain numbers are used for confining frames to a domain. Domain based filtering provides a complete segregation of traffic based on domain number associated with frames. There can exist only sixteen domains when a spanning tree is desired specific to each domain. When there is only a single spanning tree spanning all the domains the maximum number of domains possible are 4294967293.<br>This attribute is of no relevance when associated with backbone bridge port. Its value is ignored in such a situation. |
| Values | Decimal (1..4294967293) |
| Default | 1 |

### ATTRIBUTE Vr Pp FddiETB preserveDomain (pds)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies if the domain information should be preserved or embedded in the frame header. This attribute applies only to ***backbone*** ports and does not affect the ***access*** bridge ports. By setting this attribute to a value of ***on***, domain information could be preserved in frames being tunnelled across the backbone, so that this information can be deciphered at the other end of the backbone tunnel. This preserves the integrity of the domains thus preventing domain breaches while tunnelling frames across backbone network.<br>If the value of this attribute is set to ***off*** then domain information is not preserved in the header of the frames tunnelling through the backbone. This eliminates the overhead incurred to preserve domain information across the backbone while tunnelling frames across it.<br>Preserve domain is relevant only when used in conjunction with ATM MPE. |
| Values | off<br>on |
| Default | No default |

## GROUP Vr Pp FddiETB OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

## ATTRIBUTE Vr Pp FddiETB adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

## ATTRIBUTE Vr Pp FddiETB operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component. |

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Vr Pp FddiETB usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Vr Pp FddiETB OperationalStatus (OperStatus)

Properties
Operational

Description
This group includes the Operational Status attribute. This attribute defines the current operational state of this component.

### ATTRIBUTE Vr Pp FddiETB snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### GROUP Vr Pp FddiETB Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all the operational attributes belonging to the base group. These attributes in part, reflect the state of a bridge port. |

### ATTRIBUTE Vr Pp FddiETB portName (pn)

| | |
|---|---|
| Access | Read only |
| Description | The attribute *portName* is a string of the form ***"BridgePortName-i",*** where ***BridgePortName*** is the abbreviation of the corresponding bridge port and ***i*** is the instance identifier of the *ProtocolPort* the bridge port is provisioned under. For example a *TransparentBridgePort* provisioned under *ProtocolPort/ETH100A* would have a name ***TBP-ETH100A.*** |
| Values | String (4..29, ASCII) |
| Default | No default |

### ATTRIBUTE Vr Pp FddiETB upTime (ut)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the accumulated up time of this bridge port since the last reset occurred. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Units | seconds |
| Default | 0 |

### ATTRIBUTE Vr Pp FddiETB downTime (dt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the accumulated down time of this bridge port since the last reset occurred. |
| Values | Decimal (0..4294967295) |
| Units | seconds |
| Default | 0 |

### ATTRIBUTE Vr Pp FddiETB bridgingMode (bm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the mode of bridging this port can support. The transparent bridge mode is the only mode supported. |
| Values | unknown<br>tb<br>sr<br>srt |
| Default | No default |

### ATTRIBUTE Vr Pp FddiETB bridgePortConfig (bpc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the bridge port's configuration. It indicates if the bridge port is operating as an ***access*** port or as a ***backbone*** port. An ***access*** bridge port does not encapsulate a MAC frame and does not preserve domain information in the encapsulation, whereas a ***backbone*** bridge port encapsulates the MAC frame and optionally preserves domain information in the encapsulated frame.A ***backbone*** bridge port is typically used to transport frames across a high bandwidth backbone network to |

| | |
|---|---|
| | another bridge unit for further processing/forwarding of the frame. |
| Values | access<br>backbone |
| Default | No default |

### ATTRIBUTE Vr Pp FddiETB bridgePortType (bpt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the type of the bridge port that was provisioned. It takes into consideration the *bridgingMode*, *bridgePortConfig* and the media the bridge port is linked to before branding a bridge port. |
| Values | ethernetBridgePort<br>tokenRingBridgePort<br>fddiBridgePort<br>tokenBusBridgePort<br>lanEmulationClientEthernet<br>fddiEncapsulatingBridgePort<br>vnsBridgePort<br>frameRelayBridgePort<br>pppBridgePort<br>smdsBridgePort<br>vcpBridgePort<br>x25BridgePort<br>atmMpeBridgePort<br>srEncapSrBridgePort<br>srEncapTbBridgePort<br>sourceGateSrBridgePort<br>sourceGateTbBridgePort<br>srtbBridgePort<br>tbsrBridgePort<br>clusterSrBridgePort<br>clusterTbBridgePort<br>snaDlrBridgePort<br>unknown |
| Default | No default |

### ATTRIBUTE Vr Pp FddiETB ifIndex (ifin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the index into the Interface Table where information about the media interface corresponding to this bridge port is maintained. |
| Values | Decimal (1..65535) |
| Default | No default |

### ATTRIBUTE Vr Pp FddiETB mtuExceededDiscards (med)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames discarded because the size of the outbound frame exceeded the message transfer unit (mtu) allowed for the bridge port. Note that this counter only refers to the outbound frames for this bridge port. This counter wraps around its maximum value of 4294967295.<br>This counter is influenced by the attribute *fragmentIp*. This counter is incremented when a frame larger than the mtu allowed is encountered and cannot be fragmented. If this counter is increasing steadily, it might be useful to set the value of the attribute *fragmentIp* to a value of ***on***. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### GROUP Vr Pp FddiETB TbOperational (TbOper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all the port specific operational attributes that belong to the Tb group. This group also contains all the port specific statistical attributes that belong to the Tb group. These attributes reflect the state of a bridge port operating in the transparent bridge mode |

### ATTRIBUTE Vr Pp FddiETB maxInfo (mi)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the maximum size of the information field in a transparent bridge frame. This excludes the header field. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp FddiETB badVerifyDiscards (bvd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of incoming frames that were discarded because the value of the *secureOption* attribute was set to ***on*** and:<br>a) it is not allowed to receive frames originating from the MAC address found in the source address field of the frame (source MAC address lookup in the forwarding table failed) on this bridge port, or<br>b) for the destination MAC address found in the frame the port the frame was received on does not appear as in port in the corresponding static table entry.<br>Permission to receive frames from a MAC address is granted via the static table entries.<br>This attribute, *badVerifyDiscards*, is directly influenced by:<br>1. *secureOption* and<br>2. the static table entries.<br>This counter wraps around its maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp FddiETB staticEntryDiscards (sed)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames that were discarded because of the following three reasons:<br>a) there was no entry for the “allowed to go” field in the static table entry, where the input port is this bridge port.<br>b) the MAC destination address in the frame was not found in the forwarding table but the frame cannot be flooded because this bridge has not other ports in forwarding state. |

c) for spanning tree bpdus that are locally processed.
This counter wraps around its maximum value of 4294967295.
It might prove useful to check the static table entry corresponding to the bridge port in question, if this counter consistently displays a high value.
Ideally this counter should be as low as possible.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE Vr Pp FddiETB dynamicEntryDiscards (dend)

Access: Read only

Description: This attribute counts the number of incoming frames that:
a) were discarded because of the fact that the bridge port, the frame is to go out of matches the bridge port it came in from, or
b) if the stp port state of the out port is not ***forwarding***.
This counter wraps around its maximum value of 4294967295.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE Vr Pp FddiETB learningDiscards (ld)

Access: Read only

Description: This attribute counts the number of frames that were discarded while this bridge port was in a state other than the ***forwarding*** state. While in ***learning*** state the frame is discarded after the information from its header is learnt. This counter wraps around its maximum value of 4294967295.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE Vr Pp FddiETB inDiscards (id)

Access: Read only

Description: This attribute counts the number of frames that were received by this bridge port and were discarded by the forwarding process. This includes frames that could have been discarded due to

filtering. A rapidly increasing value for this attribute could indicate a shortage of resource in terms of memory needed to process the incoming frames. More memory can be provisioned through the *VirtualRouter*'s memory manager.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE Vr Pp FddiETB inFrames (if)

Access: Read only

Description: This attribute counts the number of frames that have been received by this port from its segment. Note that a frame received on this bridge port is counted if and only if it can be processed by the bridge logic contained in this bridge unit. This counter wraps around its maximum value of 4294967295.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE Vr Pp FddiETB outFrames (of)

Access: Read only

Description: This attribute counts the number of frames that have been transmitted out this bridge port. This also includes management frames.This counter wraps around its maximum value of 4294967295.

Values: Decimal (0..4294967295)

Default: 0

### GROUP Vr Pp FddiETB StpOperational (StpOper)

Properties: Operational

Description: This group contains all port specific operational attributes that belong to the Stp group. The Stp group is applicable to all bridge ports that participate in the stp. These attributes reflect the state of the bridge port's participation in the stp.

### ATTRIBUTE Vr Pp FddiETB stpPortState (sps)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the stp state of the bridge port. |
| Values | disabled<br>blocking<br>listening<br>learning<br>forwarding<br>broken |
| Default | disabled |

### ATTRIBUTE Vr Pp FddiETB stpTypeOper (stptOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the type of the stp the port is participating in. A bridge port could participate in either the ***ieee8021*** stp or the ***dec*** stp. |
| Values | none<br>dec<br>ieee8021 |
| Default | ieee8021 |

### ATTRIBUTE Vr Pp FddiETB designatedCost (dc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the path cost of the designated port of the lan segment the designated port is connected to. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Pp FddiETB pathCostOper (pco)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the contribution of this port to all the paths to the root bridge that include this port. This attribute |

| | |
|---|---|
| | *pathCostOper* will track the value of the attribute *pathCost* when the value of the attribute *pathCostMethod* is set of ***off***. |
| Values | Decimal (1..65535) |
| Default | No default |

### ATTRIBUTE Vr Pp FddiETB designatedBridge (db)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the identifier of the bridge that this port considers to be the designated bridge. |
| Values | String (8, Dashed Hex) |
| Default | No default |

### ATTRIBUTE Vr Pp FddiETB designatedPort (dp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the port identifier of the port on the designated bridge attached to the same LAN segment as this port is attached to. |
| Values | Hex (H.0..H.ffff) |
| Default | No default |

### ATTRIBUTE Vr Pp FddiETB forwardTransitions (ft)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times this bridge port transitioned from the ***learning*** state to the ***forwarding*** state. This counter wraps around its maximum value of 4294967295.<br>A rapidly increasing value might be indicative of an unstable spanning tree topology. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp FddiETB blockingDiscards (bd)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the number of the incoming frames that were discarded because the bridge port was in the ***blocking*** state. This counter wraps around its maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp FddiETB designatedRoot (dr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the bridge identifier of the bridge recorded as the root bridge in the configuration BPDUs sent out by the designated bridge on the segment this port is attached to. |
| Values | String (8, Dashed Hex) |
| Default | No default |

### GROUP Vr Pp FddiETB Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all the statistical attributes applicable to all types of bridge ports and represents the common factor between them. These attributes in part reflect the state of the bridge port. |

### ATTRIBUTE Vr Pp FddiETB badAbstractDiscards (bad)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames that were discarded because the data abstracted from the frames coming in through this bridge port did not conform to the format expected by the bridge logic.This counter wraps around its maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp FddiETB tinygramFramesIn (tfi)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the number of frames received on this bridge port that used the tinygram compression scheme. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp FddiETB tinygramFramesOut (tfo)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames transmitted out this bridge port that used the tinygram compression scheme. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp FddiETB inFilterDiscards (ifd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames discarded due to domain based filtering at the in filter point. This counter wraps around its maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp FddiETB outFilterDiscards (ofd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames discarded due to domain based filtering at the out filter point. This counter wraps around its maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT Vr Pp FddiETB NetSentry (Ns)

| | |
|---|---|
| Groups | "GROUP Vr Pp FddiETB Ns Provisioned (Prov)" |
| Scope | Application |

| | |
|---|---|
| Description | *Vr/<string> Pp/<string> TransparentBridgePort NetSentry*<br>This component represents the *Ns* functionality that can be applied to a bridge port. It contains all the attribute groups (provisionable) that are necessary for the application of Ns functionality to a bridge port. In essence, it allows for the definition of filters, at the incoming and outgoing points, specific to the interface represented by this bridge port. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Vr Pp FddiETB Ns Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group houses all the port specific provisionable attributes associated with Ns. These attributes influence the application of filters to incoming and outgoing frames. |

### ATTRIBUTE Vr Pp FddiETB Ns incomingFilter (if)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the name of the filter to be applied at the incoming filter point. |
| Values | String (0..32, ASCII) |
| Default | No default |

### ATTRIBUTE Vr Pp FddiETB Ns outgoingFilter (of)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the name of the filter to be applied at the out going filter point. |
| Values | String (0..32, ASCII) |
| Default | No default |

## COMPONENT Vr Pp TransparentBridgePort (Tbp)

| | |
|---|---|
| Groups | "GROUP Vr Pp Tbp Provisioned (Prov)"<br>"GROUP Vr Pp Tbp TbProvisioned (TbProv)"<br>"GROUP Vr Pp Tbp StpProvisioned (StpProv)"<br>"GROUP Vr Pp Tbp DomainInfoProvisioned (DIProv)"<br>"GROUP Vr Pp Tbp OsiState (State)"<br>"GROUP Vr Pp Tbp OperationalStatus (OperStatus)"<br>"GROUP Vr Pp Tbp Operational (Oper)"<br>"GROUP Vr Pp Tbp TbOperational (TbOper)"<br>"GROUP Vr Pp Tbp StpOperational (StpOper)"<br>"GROUP Vr Pp Tbp Statistics (Stats)" |
| Scope | Application |
| Description | *Vr/<string> Pp/<string> TransparentBridgePort*<br>This component represents a transparent bridge port. It contains all the attribute groups (provisionable and operational) that are required for the operation of such a port. Transparent bridge ports participate in the transparent bridging spanning tree protocol. They also have associated with them a domain number. Domains are logical partitions of an extended network and each partition is completely segregated in terms of traffic. Each domain has an identifier that identifies it uniquely, called the domain number. |
| Opt. Subcomp. | "COMPONENT Vr Pp Tbp NetSentry (Ns)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP Vr Pp Tbp Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all the provisionable attributes that belong to this group. This group of attributes is applicable to all types of |

bridge ports and represent the common factor between them. These attributes influence the working of a bridge port.

### ATTRIBUTE Vr Pp Tbp fragmentIp (fIp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies if outbound frames carrying IP datagrams should be fragmented to conform to message transfer unit (*mtu*) sizes dictated by the media. |
| Values | off<br>on |
| Default | off |

### ATTRIBUTE Vr Pp Tbp portNum (pNum)

| | |
|---|---|
| Access | Read only |
| Criticality | Component |
| Description | This attribute indicates the unique number assigned to the bridge port. It is used for SNMP management of this bridge port and in spanning tree as an identifier for this bridge port.<br>Notes:<br>Escape routines exist for initializing, copying, and deleting port numbers. This is necessary because SNMP requires a unique port instance identifier. The initPortNum escape routine sets the port number to a value in the range 1-255 for this purpose. The setCopiedPortNum escape routine exists to maintain the uniqueness of the port number in cases when one port is copied to another. When a bridge port is deleted, the releasePortNum escape routine places the port number being released into a pending deletion state. This is because the port number cannot be re-allocated until the port is truly deleted in the current view. This is necessary since there is no guarantee of order when processing changes to multiple protocol ports so without the pending deletion state, the same port number could be temporarily assigned to two ports for a short period of time.<br><br>The portNum is set as component critical since bridging also uses the port number as a key for indexing into its data structures. If a |

port is deleted then re-added under the same protocol port, CAS treats the change as a SET to the portNum attribute.

Values: Decimal (0..255)

Default: 0

### GROUP Vr Pp Tbp TbProvisioned (TbProv)

Properties: Provisioned

Description: This group contains all the port specific provisionable attributes that belong to the Tb group. These attributes in part influence the working of a bridge port operating in the transparent bridge mode.

### ATTRIBUTE Vr Pp Tbp secureOption (sos)

Access: Read and write

Description: This attribute specifies whether the port secure feature is enabled. The secure feature, if enabled causes the following things to happen:
a) disallows dynamic learning,
b) disallows frames to be forwarded that do not satisfy the following condition: the MAC address of the source should be found in the forwarding table and the destination MAC address of the frame should also be found in the forwarding table. In addition to this, the port the frame was received on should figure as the in port, given the destination MAC address found in the frame.
c) disallows frames to be forwarded if the allowed to go port map for the destination MAC address is empty.
This feature in effect allows the user to choose the hosts that can generate traffic and the hosts that can receive traffic through this bridge unit.

Values: disabled
enabled

Default: disabled

### GROUP Vr Pp Tbp StpProvisioned (StpProv)

Properties: Provisioned

| | |
|---|---|
| Description | This group contains all port specific provisionable attributes that belong to the Stp group. The Stp group is applicable to all bridge ports that participate in the stp. These attributes influence the participation of the bridge port in the stp. |

### ATTRIBUTE Vr Pp Tbp adminStatus (as)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the current administrative state for this component. ***enabled*** indicates that the component is available for operation. ***disabled*** indicates the component is unavailable for operation. |
| Values | up<br>down |
| Default | up |

### ATTRIBUTE Vr Pp Tbp portStateStpControl (psstpc)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether or not stp state for this bridge port is controlled by the stp. In essence it indicates the participation of this bridge port in the stp by accepting and acting on received bridge protocol data units and by sending out the same.<br>***on*** signifies that this bridge port's spanning tree port state is controlled by the stp.<br>A value of ***off*** signifies that the spanning tree port state of this bridge port is unaffected by the stp. This in effect puts the bridge port out of reach of the stp decisions. Its stp state will be always ***forwarding***. Care should be taken while assigning a value of ***off*** to this attribute, as this might cause network loops. Please do not set this attribute to ***off*** unless you are absolutely sure about the effect of such an action on your network topology. |
| Values | off<br>on |
| Default | on |

### ATTRIBUTE Vr Pp Tbp stpTypeProv (stptProv)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute specifies the type of the stp the port is participating in. A bridge port could participate in either the ***ieee8021*** stp or the ***dec*** stp. If the value of the attribute *protocolSpec* in the *SpanningTreeProtocol* component is in conflict with the value of this attribute, the value of the *protocolSpec* attribute will prevail. Prevailing stp type is reflected in the value of the attribute *stpTypeOper*. |
| Values | dec<br>ieee8021 |
| Default | ieee8021 |

### ATTRIBUTE Vr Pp Tbp portPriority (ppr)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the value for this bridge port priority which is contained in the first octet of the port identifier. Valid values are as follows:<br>1) 0-255 for stp type DEC and<br>2) 0-65535 for stp type IEEE. |
| Values | Decimal (0..65535) |
| Default | 128 |

### ATTRIBUTE Vr Pp Tbp pathCost (pc)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the contribution of this port to all the paths to the root bridge that include this port. Please note that the value of the attribute *pathCost* is applied only when the value of the attribute *pathCostMethod* is set to ***on*** and is ignored if otherwise. |
| Values | Decimal (1..65535) |
| Default | 10 |

### ATTRIBUTE Vr Pp Tbp pathCostMethod (pcm)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the method used by the bridging logic to calculate the path cost to the bridge considered to be the root |

bridge in the spanning tree topology. This attribute should be set to ***off*** before attempting to provision a value for *pathCost*.

Values
off
dec
ieee8021

Default
ieee8021

### GROUP Vr Pp Tbp DomainInfoProvisioned (DIProv)

Properties
Provisioned

Description
This group contains all the provisionable, domain specific attributes for a non-encapsulating bridge port.

### ATTRIBUTE Vr Pp Tbp domainNum (dn)

Access
Read and write

Description
This attribute specifies the domain number associated with this bridge port. Domain numbers are used for confining frames to a domain. Domain based filtering provides a complete segregation of traffic based on domain number associated with frames. There can exist only sixteen domains when a spanning tree is desired specific to each domain. When there is only a single spanning tree spanning all the domains the maximum number of domains possible are 4294967293.
This attribute is of no relevance when associated with backbone bridge port. Its value is ignored in such a situation.

Values
Decimal (1..4294967293)

Default
1

### ATTRIBUTE Vr Pp Tbp preserveDomain (pds)

Access
Read and write

Criticality
Component

Description
This attribute specifies if the domain information should be preserved or embedded in the frame header. This attribute applies only to ***backbone*** ports and does not affect the ***access*** bridge ports. By setting this attribute to a value of ***on***, domain

information could be preserved in frames being tunnelled across the backbone, so that this information can be deciphered at the other end of the backbone tunnel. This preserves the integrity of the domains thus preventing domain breaches while tunnelling frames across backbone network.
If the value of this attribute is set to ***off*** then domain information is not preserved in the header of the frames tunnelling through the backbone. This eliminates the overhead incurred to preserve domain information across the backbone while tunnelling frames across it.
Preserve domain is relevant only when used in conjunction with ATM MPE.

Values: off
on

Default: No default

## GROUP Vr Pp Tbp OsiState (State)

Properties: Operational

Description: This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

## ATTRIBUTE Vr Pp Tbp adminState (osiAdmin)

Access: Read only

Description: This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users

only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Vr Pp Tbp operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Vr Pp Tbp usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has

spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Vr Pp Tbp OperationalStatus (OperStatus)

Properties
Operational

Description
This group includes the Operational Status attribute. This attribute defines the current operational state of this component.

### ATTRIBUTE Vr Pp Tbp snmpOperStatus

Access
Read only

Description
The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed.

Values
up
down
testing

Default
up

### GROUP Vr Pp Tbp Operational (Oper)

Properties
Operational

Description
This group contains all the operational attributes belonging to the base group. These attributes in part, reflect the state of a bridge port.

### ATTRIBUTE Vr Pp Tbp portName (pn)

Access
Read only

| | |
|---|---|
| Description | The attribute *portName* is a string of the form ***"BridgePortName-i",*** where ***BridgePortName*** is the abbreviation of the corresponding bridge port and ***i*** is the instance identifier of the *ProtocolPort* the bridge port is provisioned under. For example a *TransparentBridgePort* provisioned under *ProtocolPort/ETH100A* would have a name ***TBP-ETH100A.*** |
| Values | String (4..29, ASCII) |
| Default | No default |

### ATTRIBUTE Vr Pp Tbp upTime (ut)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the accumulated up time of this bridge port since the last reset occurred. |
| Values | Decimal (0..4294967295) |
| Units | seconds |
| Default | 0 |

### ATTRIBUTE Vr Pp Tbp downTime (dt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the accumulated down time of this bridge port since the last reset occurred. |
| Values | Decimal (0..4294967295) |
| Units | seconds |
| Default | 0 |

### ATTRIBUTE Vr Pp Tbp bridgingMode (bm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the mode of bridging this port can support. The transparent bridge mode is the only mode supported. |
| Values | unknown<br>tb |

| | |
|---|---|
| | sr<br>srt |
| Default | No default |

### ATTRIBUTE Vr Pp Tbp bridgePortConfig (bpc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the bridge port's configuration. It indicates if the bridge port is operating as an ***access*** port or as a ***backbone*** port. An ***access*** bridge port does not encapsulate a MAC frame and does not preserve domain information in the encapsulation, whereas a ***backbone*** bridge port encapsulates the MAC frame and optionally preserves domain information in the encapsulated frame.A ***backbone*** bridge port is typically used to transport frames across a high bandwidth backbone network to another bridge unit for further processing/forwarding of the frame. |
| Values | access<br>backbone |
| Default | No default |

### ATTRIBUTE Vr Pp Tbp bridgePortType (bpt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the type of the bridge port that was provisioned. It takes into consideration the *bridgingMode*, *bridgePortConfig* and the media the bridge port is linked to before branding a bridge port. |
| Values | ethernetBridgePort<br>tokenRingBridgePort<br>fddiBridgePort<br>tokenBusBridgePort<br>lanEmulationClientEthernet<br>fddiEncapsulatingBridgePort<br>vnsBridgePort<br>frameRelayBridgePort<br>pppBridgePort<br>smdsBridgePort |

vcpBridgePort
x25BridgePort
atmMpeBridgePort
srEncapSrBridgePort
srEncapTbBridgePort
sourceGateSrBridgePort
sourceGateTbBridgePort
srtbBridgePort
tbsrBridgePort
clusterSrBridgePort
clusterTbBridgePort
snaDlrBridgePort
unknown

Default: No default

### ATTRIBUTE Vr Pp Tbp ifIndex (ifin)

Access: Read only

Description: This attribute indicates the index into the Interface Table where information about the media interface corresponding to this bridge port is maintained.

Values: Decimal (1..65535)

Default: No default

### ATTRIBUTE Vr Pp Tbp mtuExceededDiscards (med)

Access: Read only

Description: This attribute counts the number of frames discarded because the size of the outbound frame exceeded the message transfer unit (mtu) allowed for the bridge port. Note that this counter only refers to the outbound frames for this bridge port. This counter wraps around its maximum value of 4294967295.
This counter is influenced by the attribute *fragmentIp*. This counter is incremented when a frame larger than the mtu allowed is encountered and cannot be fragmented. If this counter is increasing steadily, it might be useful to set the value of the attribute *fragmentIp* to a value of ***on***.

Values: Decimal (0..4294967295)

| | |
|---|---|
| Default | 0 |

### GROUP Vr Pp Tbp TbOperational (TbOper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all the port specific operational attributes that belong to the Tb group. This group also contains all the port specific statistical attributes that belong to the Tb group. These attributes reflect the state of a bridge port operating in the transparent bridge mode |

### ATTRIBUTE Vr Pp Tbp maxInfo (mi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the maximum size of the information field in a transparent bridge frame. This excludes the header field. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Tbp badVerifyDiscards (bvd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of incoming frames that were discarded because the value of the *secureOption* attribute was set to ***on*** and:<br>a) it is not allowed to receive frames originating from the MAC address found in the source address field of the frame (source MAC address lookup in the forwarding table failed) on this bridge port, or<br>b) for the destination MAC address found in the frame the port the frame was received on does not appear as in port in the corresponding static table entry.<br>Permission to receive frames from a MAC address is granted via the static table entries.<br>This attribute, *badVerifyDiscards*, is directly influenced by:<br>1. *secureOption* and<br>2. the static table entries.<br>This counter wraps around its maximum value of 4294967295. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Tbp staticEntryDiscards (sed)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames that were discarded because of the following three reasons:<br>a) there was no entry for the “allowed to go” field in the static table entry, where the input port is this bridge port.<br>b) the MAC destination address in the frame was not found in the forwarding table but the frame cannot be flooded because this bridge has not other ports in forwarding state.<br>c) for spanning tree bpdus that are locally processed.<br>This counter wraps around its maximum value of 4294967295.<br>It might prove useful to check the static table entry corresponding to the bridge port in question, if this counter consistently displays a high value.<br>Ideally this counter should be as low as possible. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Tbp dynamicEntryDiscards (dend)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of incoming frames that:<br>a) were discarded because of the fact that the bridge port, the frame is to go out of matches the bridge port it came in from, or<br>b) if the stp port state of the out port is not ***forwarding***.<br>This counter wraps around its maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Tbp learningDiscards (ld)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the number of frames that were discarded while this bridge port was in a state other than the ***forwarding*** state. While in ***learning*** state the frame is discarded after the information from its header is learnt. This counter wraps around its maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Tbp inDiscards (id)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames that were received by this bridge port and were discarded by the forwarding process. This includes frames that could have been discarded due to filtering. A rapidly increasing value for this attribute could indicate a shortage of resource in terms of memory needed to process the incoming frames. More memory can be provisioned through the *VirtualRouter*'s memory manager. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Tbp inFrames (if)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames that have been received by this port from its segment. Note that a frame received on this bridge port is counted if and only if it can be processed by the bridge logic contained in this bridge unit. This counter wraps around its maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Tbp outFrames (of)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames that have been transmitted out this bridge port. This also includes management |

| | |
|---|---|
| | frames.This counter wraps around its maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### GROUP Vr Pp Tbp StpOperational (StpOper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all port specific operational attributes that belong to the Stp group. The Stp group is applicable to all bridge ports that participate in the stp. These attributes reflect the state of the bridge port's participation in the stp. |

### ATTRIBUTE Vr Pp Tbp stpPortState (sps)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the stp state of the bridge port. |
| Values | disabled<br>blocking<br>listening<br>learning<br>forwarding<br>broken |
| Default | disabled |

### ATTRIBUTE Vr Pp Tbp stpTypeOper (stptOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the type of the stp the port is participating in. A bridge port could participate in either the ***ieee8021*** stp or the ***dec*** stp. |
| Values | none<br>dec<br>ieee8021 |
| Default | ieee8021 |

### ATTRIBUTE Vr Pp Tbp designatedCost (dc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the path cost of the designated port of the lan segment the designated port is connected to. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Pp Tbp pathCostOper (pco)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the contribution of this port to all the paths to the root bridge that include this port. This attribute *pathCostOper* will track the value of the attribute *pathCost* when the value of the attribute *pathCostMethod* is set of ***off***. |
| Values | Decimal (1..65535) |
| Default | No default |

### ATTRIBUTE Vr Pp Tbp designatedBridge (db)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the identifier of the bridge that this port considers to be the designated bridge. |
| Values | String (8, Dashed Hex) |
| Default | No default |

### ATTRIBUTE Vr Pp Tbp designatedPort (dp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the port identifier of the port on the designated bridge attached to the same LAN segment as this port is attached to. |
| Values | Hex (H.0..H.ffff) |
| Default | No default |

### ATTRIBUTE Vr Pp Tbp forwardTransitions (ft)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times this bridge port transitioned from the ***learning*** state to the ***forwarding*** state. This counter wraps around its maximum value of 4294967295. A rapidly increasing value might be indicative of an unstable spanning tree topology. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Tbp blockingDiscards (bd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of the incoming frames that were discarded because the bridge port was in the ***blocking*** state. This counter wraps around its maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Tbp designatedRoot (dr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the bridge identifier of the bridge recorded as the root bridge in the configuration BPDUs sent out by the designated bridge on the segment this port is attached to. |
| Values | String (8, Dashed Hex) |
| Default | No default |

### GROUP Vr Pp Tbp Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all the statistical attributes applicable to all types of bridge ports and represents the common factor between them. These attributes in part reflect the state of the bridge port. |

### ATTRIBUTE Vr Pp Tbp badAbstractDiscards (bad)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames that were discarded because the data abstracted from the frames coming in through this bridge port did not conform to the format expected by the bridge logic.This counter wraps around its maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Tbp tinygramFramesIn (tfi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames received on this bridge port that used the tinygram compression scheme. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Tbp tinygramFramesOut (tfo)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames transmitted out this bridge port that used the tinygram compression scheme. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Tbp inFilterDiscards (ifd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames discarded due to domain based filtering at the in filter point. This counter wraps around its maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Tbp outFilterDiscards (ofd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames discarded due to domain based filtering at the out filter point. This counter wraps around its maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT Vr Pp Tbp NetSentry (Ns)

| | |
|---|---|
| Groups | "GROUP Vr Pp Tbp Ns Provisioned (Prov)" |
| Scope | Application |
| Description | *Vr/<string> Pp/<string> TransparentBridgePort NetSentry* This component represents the *Ns* functionality that can be applied to a bridge port. It contains all the attribute groups (provisionable) that are necessary for the application of Ns functionality to a bridge port. In essence, it allows for the definition of filters, at the incoming and outgoing points, specific to the interface represented by this bridge port. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Vr Pp Tbp Ns Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group houses all the port specific provisionable attributes associated with Ns. These attributes influence the application of filters to incoming and outgoing frames. |

### ATTRIBUTE Vr Pp Tbp Ns incomingFilter (if)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute specifies the name of the filter to be applied at the incoming filter point. |
| Values | String (0..32, ASCII) |
| Default | No default |

### ATTRIBUTE Vr Pp Tbp Ns outgoingFilter (of)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the name of the filter to be applied at the out going filter point. |
| Values | String (0..32, ASCII) |
| Default | No default |

### COMPONENT Vr Pp IpPort

| | |
|---|---|
| Groups | "GROUP Vr Pp IpPort Provisioned (Prov)"<br>"GROUP Vr Pp IpPort SresProvisioned (SresProv)"<br>"GROUP Vr Pp IpPort AdministrativeControl (AdminControl)"<br>"GROUP Vr Pp IpPort Operational (Oper)"<br>"GROUP Vr Pp IpPort RelayBcOperational (RelayBcOper)"<br>"GROUP Vr Pp IpPort OsiState (State)"<br>"GROUP Vr Pp IpPort OperationalStatus (OperStatus)" |
| Scope | Application |

| | |
|---|---|
| Description | *Vr<string> Pp<string> IpPort*<br>The *IpPort* component contains IP attributes specific to this port. |
| Opt. Subcomp. | "COMPONENT Vr Pp IpPort IpLogicalInterface (LogicalIf)"<br>"COMPONENT Vr Pp IpPort NetSentry (Ns)"<br>"COMPONENT Vr Pp IpPort BootpPort (BootpP)"<br>"COMPONENT Vr Pp IpPort VrrpPort"<br>"COMPONENT Vr Pp IpPort CriticalIp" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

### GROUP Vr Pp IpPort Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisionable attributes for IP ports. |

### ATTRIBUTE Vr Pp IpPort maxTxUnit (mtu)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the IP MTU (Maximum Transmission Unit) supported by this *IpPort*. The specified MTU must be within the valid range for the *IpPort* media type. |
| Values | Decimal (0..0; 80..18944) |
| Default | 0 |

### ATTRIBUTE Vr Pp IpPort arpStatus

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether ARP is enabled or disabled on this *IpPort*. If ***auto*** is specified, an appropriate value will be selected based on the *IpPort* media type. |

| | |
|---|---|
| Values | enabled<br>disabled<br>auto |
| Default | auto |

### ATTRIBUTE Vr Pp IpPort proxyArpStatus

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether Proxy ARP is enabled or disabled for this *IpPort*. |
| Values | enabled<br>disabled |
| Default | disabled |

### ATTRIBUTE Vr Pp IpPort arpNoLearn

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether or not dynamic host entries will be installed in the ARP table when ARP packets are received on this *IpPort*. |
| Values | enabled<br>disabled |
| Default | disabled |

### ATTRIBUTE Vr Pp IpPort sendRedirect

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether or not ICMP host redirects will be sent out this *IpPort*. |
| Values | enabled<br>disabled |
| Default | enabled |

### ATTRIBUTE Vr Pp IpPort multicastStatus

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute specifies whether or not IP multicast packets can be sent out this *IpPort*. If ***auto*** is specified, an appropriate value will be selected based on the *IpPort* media type. |
| Values | enabled<br>disabled<br>auto |
| Default | auto |

### ATTRIBUTE Vr Pp IpPort relayAddress

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies a relay broadcast address for this *IpPort*. Each packet, received on this *IpPort*, meeting the relay broadcast criteria will be forwarded to the specified relay broadcast address. An relay address of all zero's indicates no relay broadcast address. |
| Values | IP address |
| Default | 0.0.0.0 |

### ATTRIBUTE Vr Pp IpPort relayBroadcast

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies how packets, received on other *IpPort*s, meeting the relay broadcast criteria, will be forwarded out this *IpPort*. The three options are described as follows:<br>***enabled***: packets will be forwarded out this *IpPort*.<br>***disabled***: packets will not be forwarded out this *IpPort*.<br>***auto***: packets will be forwarded out this *IpPort* only when the bridge state is forwarding. |
| Values | enabled<br>disabled<br>auto |
| Default | disabled |

## ATTRIBUTE Vr Pp IpPort linkModel

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the link model to use when the media type for this *IpPort* is ***PPP*** (Point to Point Protocol). A value of ***localAreaNetwork*** causes IP to treat this *IpPort* like a LAN. A value of ***pointToPoint*** causes IP to treat this *IpPort* like two directly connected IP hosts. |
| Values | localAreaNetwork (lan)<br>pointToPoint (ptop) |
| Default | localAreaNetwork |

## ATTRIBUTE Vr Pp IpPort lanModel

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the lan model to use for this *IpPort*. |
| Values | localAreaNetwork (lan)<br>nonBroadcastMultipleAccess (nbma) |
| Default | localAreaNetwork |

## ATTRIBUTE Vr Pp IpPort encap

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the encapsulation type to be used when sending packets out this *IpPort*. If ***auto*** is specified, an appropriate value is selected based on the *IpPort* media type. The values ***ieee8023*** and ***ethernet*** can only be specified if the media type is ethernet. Otherwise, ***auto*** must be specified. For ethernet media type, the default encapsulation is ***ethernet***. |
| Values | ieee8023<br>ethernet<br>auto |
| Default | auto |

### ATTRIBUTE Vr Pp IpPort icmpMaskReply

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether or not replies will be generated in response to ICMP Address Mask Requests received on this *IpPort.* |
| Values | enabled<br>disabled |
| Default | enabled |

### ATTRIBUTE Vr Pp IpPort directedBroadcast

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether or not directed broadcast to physical broadcast translation is enabled for incoming traffic on this *IpPort.* The IP router requirement (RFC1812) says this translation should be ***enabled***; however, in some network environments, setting this attribute to ***disabled*** may prevent operational problem such as broadcast storms. Note that in some configuration, setting this attribute to ***disabled*** may cause Bootp to fail. |
| Values | enabled<br>disabled |
| Default | enabled |

### ATTRIBUTE Vr Pp IpPort allowMcastMacDest (ammd)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether a multicast destination MAC address is valid on this *IpPort* or not. Setting this attribute to ***enabled*** results in non-standard behavior and is intended for applications such as transparent server backup. Multicast destination MAC address is only supported on LAN media. |
| Values | enabled<br>disabled |
| Default | disabled |

## ATTRIBUTE Vr Pp IpPort cosPolicyAssignment (policy)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the *CosPolicyGroup* the *IpPort* is using.<br><br>If this attribute is not set, then the *cosPolicyAssignment* attribute of the *Ip* specifies the *CosPolicyGroup* in use.<br><br>The assigned *CosPolicyGroup* controls the forwarding behavior of IP packets recieved and transmitted at the *IpPort*. See the description of *Vr Ip CosPolicyGroup* for more information.<br><br>If the *VirtualRouter* has a *DifferentiatedServicesDomain* subcomponent, then this attribute cannot be set.<br><br>The assigned *CosPolicyGroup* must be a subcomponent of the same *VirtualRouter.* |
| Values | Link (Service, linkToPolicyUsers) |
| Default | No default |

## ATTRIBUTE Vr Pp IpPort filterAssignment (filtAss)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the *Filter* the *IpPort* is using.<br><br>If this attribute is not set, then the *filterAssignment* attribute of the *Ip* specifies the *Filter* in use.<br><br>This attribute cannot be set if the *linkToMedia* attribute of the parent *ProtocolPort* is linked to *Vr Ip Tunnel Sep* or *Vr Ip Tunnel Msep*.<br><br>The assigned *Filter* must be a subcomponent of the same *Virtual Router.* |
| Values | Link (Service, linkToFilterUsers) |
| Default | No default |

## ATTRIBUTE Vr Pp IpPort ipCos

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the IP connection class value of the link layer connection used by the *IpPort* if the media linked to the *ProtocolPort* is not *AtmMpe*, *FrDte* or *IpDlciGroup*.<br><br>If the *VirtualRouter* does not have a *DifferentiatedServicesDomain* subcomponent, then *ipCos* specifies the initial Class of Service (CoS) value assigned to an IP packet received at the *IpPort* if the media linked to the *ProtocolPort* is not *AtmMpe*, *FrDte* or *IpDlciGroup*. See the description of *Vr Ip CosPolicyGroup* for more information. |
| Values | Decimal (0..3) |
| Default | 0 |

## ATTRIBUTE Vr Pp IpPort ipDscp (dscp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the value marked into the Differentiated Services Code Point (DSCP) field of an IP packet received at an *IpPort* if the media linked to the *ProtocolPort* is not *AtmMpe*, *FrDte* or *IpDlciGroup*. and if one of the following conditions is true:<br><br>1) the *IpPort* is linked to a *Vr Ip DifferentiatedServices* interface configuration where the *baMode* attribute of the *IngressServices* subcomponent is set to ***link***, or<br><br>2) the *Ip* is linked to a *Vr Ip DifferentiatedServices* interface configuration where the *baMode* attribute of the *IngressServices* subcomponent is set to ***link***, and the *IpPort* does not have the *diffServAssignment* attribute set.<br><br>If one of these conditions is true, then the *ipDscp* value must match a *VirtualRouter DifferentiatedServicesDomain PerHopBehavior* subcomponent instance value. See the description of *Vr Ip DifferentiatedServices* interface configuration |

for more information.

If the *VirtualRouter* does not have a *DifferentiatedServicesDomain* subcomponent, then *ipDscp* must be set to ***na***.

Values

Decimal (0..63)
df
ef
af11
af12
af13
af21
af22
af31
af23
af32
af33
af41
af42
af43
cs0
cs1
cs2
cs3
cs4
cs5
cs6
cs7
na

Default

na

## ATTRIBUTE Vr Pp IpPort diffServAssignment (ds)

Access

Read and write

Description

This attribute specifies the *DifferentiatedServices* interface configuration the *IpPort* is using.

If this attribute is not set, then the *diffServAssignment* attribute of

the *Ip* specifies the *DifferentiatedServices* interface configuration in use.

The assigned *DifferentiatedServices* interface configuration controls the forwarding behavior of IP packets recieved and transmitted at the *IpPort*. See the description of of *Vr Ip DifferentiatedServices* interface configuration for more information.

If the *VirtualRouter* does not have a *DifferentiatedServicesDomain* subcomponent, then this attribute cannot be set.

The assigned *DifferentiatedServices* interface configuration must be a subcomponent of the same *Virtual Router.*

| | |
|---|---|
| Values | Link (Service, linkToDiffServUsers) |
| Default | No default |

### ATTRIBUTE Vr Pp IpPort mcastDomain (mDomain)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the multicast domain index which all traffic coming in from this *IpPort* use. The numerical value of this attribute selects *Vr/<string> Ip Mcast Domain/n*. |
| Values | Decimal (0..3) |
| Default | 0 |

### ATTRIBUTE Vr Pp IpPort mcastPolicyAssignment (mPolicy)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the policyGroup component that this IpPort component is using. |
| Values | Link (Service, linkToPolicyUser) |
| Default | No default |

## GROUP Vr Pp IpPort SresProvisioned (SresProv)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioned attributes for *SourceRouteEndStation* support. |

## ATTRIBUTE Vr Pp IpPort sourceRouteEndStationSupport (sresSupport)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to ***enable*** or ***disable*** support for *SourceRouteEndStation (Sres)*. If set to ***enable***, *Sres* will be supported on this protocol on this *ProtocolPort (Pp)*. If set to ***disable***, it will not be supported. An *Sres* component must be provisioned under the VirtualRouter if this attribute is set to ***enable***. If this attribute is set to ***enable*** and this *Pp* has its *linkToMedia* attribute set, it must be linked to a *LanApplication* (*La*) that has its *Framer interfaceName* linked to a *Fddi* or *TokenRing* component. |
| Values | enable<br>disable |
| Default | disable |

## GROUP Vr Pp IpPort AdministrativeControl (AdminControl)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group includes the Administrative Control attribute. This attribute defines the current administrative state of this component. |

## ATTRIBUTE Vr Pp IpPort snmpAdminStatus

| | |
|---|---|
| Access | Read and write |
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational and packet forwarding is allowed. The ***down*** state indicates the interface is not operational and packet forwarding is unavailable. The ***testing*** state indicates that no operational packets can be passed. |

| | |
|---|---|
| Values | up<br>down<br>testing |
| Default | up |

### GROUP Vr Pp IpPort Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational attributes for an *IpPort*. |

### ATTRIBUTE Vr Pp IpPort mediaType

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the media type of this *IpPort*. |
| Values | ethernet<br>fddi<br>tokenRing<br>ppp<br>bnx<br>vcpEther<br>vcpToken<br>x25<br>frameRelay<br>clusterBridge<br>smds<br>atmMpeVcEncap<br>atmMpeLlcEncap<br>lecEther<br>lecToken<br>tunnel<br>virtual<br>locaMedia<br>invalid |
| Default | invalid |

### ATTRIBUTE Vr Pp IpPort operMtu

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the current operational IP MTU for this *IpPort*. Note that this value may be different than the provisioned *maxTxUnit*. |
| Values | Decimal (0..0; 80..18944) |
| Default | 0 |

### ATTRIBUTE Vr Pp IpPort operArpStatus

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current operational ARP status. If the provisioned *arpStatus* is set to ***auto***, then the IP application automatically determines the *operArpStatus* based on the *IpPort* media type. |
| Values | enabled<br>disabled |
| Default | disabled |

### ATTRIBUTE Vr Pp IpPort operMulticastStatus

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current operational Multicast status. If the provisioned *multicastStatus* is set to ***auto***, then the IP application automatically determines the *operMulticastStatus* based on the *IpPort* media type. |
| Values | enabled<br>disabled |
| Default | disabled |

### ATTRIBUTE Vr Pp IpPort operEncap

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current operational encapsulation type. If the provisioned *encap* is set to auto, then the IP application automatically determines the *operEncap* based on the *IpPort* media type. |

| | |
|---|---|
| Values | ieee8023<br>ethernet<br>notApplicable |
| Default | notApplicable |

### ATTRIBUTE Vr Pp IpPort operCosPolicyAssignment

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the *CosPolicyGroup* the *IpPort* is using. |
| Values | The name of the component |
| Default | No default |

### ATTRIBUTE Vr Pp IpPort operDiffServAssignment

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the *DifferentiatedServices* interface configuration the *IpPort* is using. |
| Values | The name of the component |
| Default | No default |

### ATTRIBUTE Vr Pp IpPort operFilterAssignment

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the *Filter* the *IpPort* is using. |
| Values | The name of the component |
| Default | No default |

### GROUP Vr Pp IpPort RelayBcOperational (RelayBcOper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational attributes for an *Interface*'s or *IpPort*'s RelayBc counters. |

### ATTRIBUTE Vr Pp IpPort relayAddressCount

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the number of frames received on this *Interface* or *IpPort* which were forwarded to the provisioned *relayAddress* for this port. This counter wraps to zero when it reaches it's maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp IpPort relayBcCount

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of frames received on this port which were forwarded to the *broadcastAddress* on other *IpPorts* or *Interfaces*. This counter is incremented once for every frame received on this port regardless of how many other ports it was sent on. This counter wraps to zero when it reaches it's maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### GROUP Vr Pp IpPort OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Vr Pp IpPort adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. |

When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values: locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default: unlocked

### ATTRIBUTE Vr Pp IpPort operationalState (osiOper)

Access: Read only

Description: This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values: enabled (ena)
disabled (dis)

Default: disabled

### ATTRIBUTE Vr Pp IpPort usageState (osiUsage)

Access: Read only

Description: This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Vr Pp IpPort OperationalStatus (OperStatus)

Properties
Operational

Description
This group includes the Operational Status attribute. This attribute defines the current operational state of this component.

### ATTRIBUTE Vr Pp IpPort snmpOperStatus

Access
Read only

Description
The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed.

Values
up
down
testing

Default
up

### COMPONENT Vr Pp IpPort IpLogicalInterface (LogicalIf)

Instance
IP address

Groups
"GROUP Vr Pp IpPort LogicalIf Provisioned (Prov)"
"GROUP Vr Pp IpPort LogicalIf ConnLink"

| | |
|---|---|
| Scope | Application |
| Description | *Vr/<string> PP/<string> IpPort IpLogicalInterface/<IP address>*<br>The *IpLogicalInterface* component defines a single *IpPort* address on a logical IP network. In general, *IpPort*'s can have multiple *IpLogicalInterface*'s. However, if the media type is ***PPP*** (Point to Point Protocol), then only one *IpLogicalInterface* is allowed for that *IpPort*. |
| Opt. Subcomp. | "COMPONENT Vr Pp IpPort LogicalIf IsisInterface (IsisIf)"<br>"COMPONENT Vr Pp IpPort LogicalIf OspfInterface (OspfIf)"<br>"COMPONENT Vr Pp IpPort LogicalIf RipInterface (RipIf)"<br>"COMPONENT Vr Pp IpPort LogicalIf NhrpInterface (NhrpIf)"<br>"COMPONENT Vr Pp IpPort LogicalIf IgmpInterface (IgmpIf)"<br>"COMPONENT Vr Pp IpPort LogicalIf PimSparseModeInterface (PimSmIf)" |
| Dyn. Subcomp. | "COMPONENT Vr Pp IpPort LogicalIf LocalHost (Host)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Vr Pp IpPort LogicalIf Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains attributes required to define an *IpLogicalInterface*. |

## ATTRIBUTE Vr Pp IpPort LogicalIf netMask

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the subnet mask for this *IpLogicalInterface*. This attribute must be specified because the IP application will not automatically provide a default value.<br><br>The value must be ***255.255.255.255*** if *linkModel* attribute of *IpPort* component is set to ***pointToPoint***. For example, when |

*linkToMedia* attribute is set to ***alwaysUpInterface*** *mode VirtualMedia Interface* or *PPP* (Point to Point Protocol), *linkModel* attribute of *IpPort* component will be ***pointToPoint***.

The value must be one of classA, classB or classC if the *linkModel* attribute of *ipPort* component is set to ***localAreaNetwork***.

Values: IP address

Default: 0.0.0.0

### ATTRIBUTE Vr Pp IpPort LogicalIf broadcastAddress

Access: Read and write

Description: This attribute specifies the broadcast address for this *IpLogicalInterface*. This attribute is ignored if the *IpPort mediaType* is ***ppp*** (Point to Point Protocol). If the value is 0.0.0.0, the actual broadcast address will be derived from the IP address of this *LogicalIf* and the *netmask* attribute.

Values: IP address

Default: 0.0.0.0

### ATTRIBUTE Vr Pp IpPort LogicalIf linkDestinationAddress

Access: Read and write

Description: This attribute specifies the address for the link destination for this *IpLogicalInterface*. This attribute is only required if the *IpPort* media type is ***PPP*** (Point to Point Protocol).

Values: IP address

Default: 0.0.0.0

### ATTRIBUTE Vr Pp IpPort LogicalIf linkToPimSmCandidateRp

Access: Read and write

Description: This attribute specifies a link to the *CandidateRendezvousPoint* component which uses this logicalIf as it's RendezvousPoint (*CRp*).

Values: Link (Service, address)

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Vr Pp IpPort LogicalIf linkToPimSmCandidateBsr

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies a link to the *CandidateBootstrapRouter* component which uses this logicalIf as it's BootstrapRouter Interface. |
| Values | Link (Service, address) |
| Default | No default |

### ATTRIBUTE Vr Pp IpPort LogicalIf linkToMulticastStaticGroup

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies a link to the component *RouteEntry* which uses this *LogicalIf* as its *outInterface*. There is a limit of up to 1000 *RouteEntry's* that could reference this *LogicalIf* as its *outInterface*. |
| List of | Link (Service, outInterfaces) |
| List Size | 1000 |
| Default | No default |

### GROUP Vr Pp IpPort LogicalIf ConnLink

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the links between this component and the associated media connections. |

### ATTRIBUTE Vr Pp IpPort LogicalIf linkToMediaConnection (conn)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the media connections, *AtmMpe/m Ac/n* or *FrDte/m staticDlci/n*, that are associated with this component. |
| List of | Link (Service, linkToIpLogicalInterface) |
| Default | No default |

## COMPONENT Vr Pp IpPort LogicalIf IsisInterface (IsisIf)

| | |
|---|---|
| Groups | "GROUP Vr Pp IpPort LogicalIf IsisIf Provisioned (Prov)"<br>"GROUP Vr Pp IpPort LogicalIf IsisIf Operational (Oper)"<br>"GROUP Vr Pp IpPort LogicalIf IsisIf Statistics (Stats)"<br>"GROUP Vr Pp IpPort LogicalIf IsisIf ErrorStatistics (Errors)" |
| Scope | Application |
| Description | *Rtr/<string> Interface/<Ip Address> IsisInterface*<br>An *IsisIf* component can be created under each *Interface* component to run the ISIS protocol.<br><br>This component requires an associated *Isis* component to be provisioned.<br><br>This component requires at least one *Level* subcomponent to be provisioned.<br><br>If the underlying media is ATM based, this component requires an *AtmConn* subcomponent to be provisioned. |
| Opt. Subcomp. | "COMPONENT Vr Pp IpPort LogicalIf IsisIf IsisIfLevel (Level)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Vr Pp IpPort LogicalIf IsisIf Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the set of attributes used to configure an ISIS Interface. |

## ATTRIBUTE Vr Pp IpPort LogicalIf IsisIf snmpAdminStatus

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the administrative status of this *IsisInterface* component on this *Router.* |

| | |
|---|---|
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE Vr Pp IpPort LogicalIf IsisIf passive

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies whether the *IsisInterface* should be passive. A passive interface is one whose IP address is advertised in the LSP, but is not involved in ISIS protocol activities (for example, transmitting LSPs and establishing adjacencies). |
| Values | no<br>yes |
| Default | no |

### ATTRIBUTE Vr Pp IpPort LogicalIf IsisIf lspInterval

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies, in milliseconds, the minimum time between transmission of successive LSPs on this interface. This minimum time applies to any LSP, whether it is the LSP of this *Router*, or another router's LSP that is being retransmitted. |
| Values | Decimal (33..65535) |
| Units | msec |
| Default | 100 |

### ATTRIBUTE Vr Pp IpPort LogicalIf IsisIf lspRetransmitInterval

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies, in seconds, the minimum time to wait before retransmitting this *Router's* LSP on this interface. An LSP retransmission occurs if a previously transmitted LSP is not acknowledged. Retransmissions only occur on point-to-point links. |

| | |
|---|---|
| Values | Decimal (1..300) |
| Units | seconds |
| Default | 5 |

### GROUP Vr Pp IpPort LogicalIf IsisIf Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes associated with the ISIS protocol running on this interface. |

### ATTRIBUTE Vr Pp IpPort LogicalIf IsisIf upTime

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the time, in seconds, that the ISIS protocol has been operational on this interface. |
| Values | Decimal (0..4294967295) |
| Units | seconds |
| Default | No default |

### ATTRIBUTE Vr Pp IpPort LogicalIf IsisIf adjacencyChanges (adjChanges)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of times that an adjacency on this interface has changed state. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Vr Pp IpPort LogicalIf IsisIf Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | The attributes in this group are statistics associated with the normal operation of this *IsisInterface* component. |

### ATTRIBUTE Vr Pp IpPort LogicalIf IsisIf txLsps

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of LSPs transmitted on this interface since the last time this *IsisIf* component became enabled. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Pp IpPort LogicalIf IsisIf rxLsps

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of LSPs received on this interface since the last time this *IsisIf* component became enabled. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Pp IpPort LogicalIf IsisIf txPtpHellos

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of point-to-point hellos transmitted on this interface since the last time this *IsisIf* component became enabled. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Pp IpPort LogicalIf IsisIf rxPtpHellos

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of point-to-point hellos received on this interface since the last time this *IsisIf* component became enabled. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Pp IpPort LogicalIf IsisIf txBroadcastHellos

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of broadcast hellos transmitted on this interface since the last time this *IsisIf* component became enabled. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Pp IpPort LogicalIf IsisIf rxBroadcastHellos

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of broadcast hellos received on this interface since the last time this *IsisIf* component became enabled. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Pp IpPort LogicalIf IsisIf txCsnps

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of Complete Sequence Number PDUs (CSNPs) transmitted on this interface since the last time this *IsisIf* component became enabled. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Pp IpPort LogicalIf IsisIf rxCsnps

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute indicates the number of Complete Sequence Number PDUs (CSNPs) received on this interface since the last time this *Isis*If component became enabled. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Pp IpPort LogicalIf IsisIf txPsnps

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of Partial Sequence Number PDUs (PSNPs) transmitted on this interface since the last time this *IsisIf* component became enabled. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Pp IpPort LogicalIf IsisIf rxPsnps

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of Partial Sequence Number PDUs (PSNPs) received on this interface since the last time this *IsisIf* component became enabled. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Pp IpPort LogicalIf IsisIf totalPacketsTxd

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the total number of packets transmitted on this interface since the last time this *IsisIf* component became enabled. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Pp IpPort LogicalIf IsisIf totalPacketsRxd

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the total number of packets received on this interface since the last time this *IsisIf* component became enabled. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Vr Pp IpPort LogicalIf IsisIf ErrorStatistics (Errors)

| | |
|---|---|
| Properties | Operational |
| Description | The attributes in this group are statistics associated with the operation of this *IsisInterface* component. Each attribute counts a specific abnormal event that has occurred since this component was last enabled. |

### ATTRIBUTE Vr Pp IpPort LogicalIf IsisIf initFails

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of times that initialization of this ISIS interface has failed. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Pp IpPort LogicalIf IsisIf adjRejects

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of times that an attempt to form an adjacency on this interface has failed. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Pp IpPort LogicalIf IsisIf rxUnknownPacketTypes

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of packets of unknown type that were received on this interface since the last time this *IsisIf* component became enabled. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT Vr Pp IpPort LogicalIf IsisIf IsisIfLevel (Level)

| | |
|---|---|
| Instance | Decimal (1..1) |
| Groups | "GROUP Vr Pp IpPort LogicalIf IsisIf Level Provisioned (Prov)"<br>"GROUP Vr Pp IpPort LogicalIf IsisIf Level Operational (Oper)" |
| Scope | Application |
| Description | *Rtr/<string> Interface/<Ip Address> IsisIf Level/<1..2>*<br>The ISIS routing protocol supports a two-level routing hierarchy. This component represents ISIS routing aspects that are specific to each routing level for this ISIS interface. In the current release, only *Level/1* is supported. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Vr Pp IpPort LogicalIf IsisIf Level Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attributes used to independently configure each ISIS interface routing level. |

### ATTRIBUTE Vr Pp IpPort LogicalIf IsisIf Level metric

| | |
|---|---|
| Access | Read: All<br>Write: All |

| | |
|---|---|
| Description | This attribute specifies the cost of this interface, which is used by the SPF algorithm in this and other routers. This value is advertised in the LSP. |
| Values | Decimal (0..63) |
| Default | 10 |

### ATTRIBUTE Vr Pp IpPort LogicalIf IsisIf Level helloInterval

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the time, in seconds, between transmission of successive hello messages (IIH PDU). |
| Values | Decimal (1..20000) |
| Units | seconds |
| Default | 10 |

### ATTRIBUTE Vr Pp IpPort LogicalIf IsisIf Level helloMultiplier

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the factor by which the *helloInterval* attribute is multiplied in order to create the hold time value transmitted in the hello packets (IIH PDU). The hold time value is used by the receiving router to determine how long it should maintain the adjacency if a subsequent hello packet is not received. |
| Values | Decimal (2..100) |
| Default | 3 |

### ATTRIBUTE Vr Pp IpPort LogicalIf IsisIf Level csnpInterval

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the time interval, in seconds, between successive transmissions of the CSNP PDUs. |
| Values | Decimal (1..600) |

| | |
|---|---|
| Units | seconds |
| Default | 10 |

### ATTRIBUTE Vr Pp IpPort LogicalIf IsisIf Level priority

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the DIS priority for this router. On a multi-access LAN, the router with the highest DIS priority is elected to represent the LAN. The elected router transmits an LSP for the pseudonode representing the LAN. |
| Values | Decimal (0..127) |
| Default | 64 |

### GROUP Vr Pp IpPort LogicalIf IsisIf Level Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains attributes representing the operational state of this *IsisIf Level* component. |

### ATTRIBUTE Vr Pp IpPort LogicalIf IsisIf Level disId

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the system ID of the ISIS router acting as DIS for the LAN to which this interface is attached. For non-LAN interfaces, the value of this attribute is ***N/A***. |
| Values | String (1..14, ASCII) |
| Default | No default |

### ATTRIBUTE Vr Pp IpPort LogicalIf IsisIf Level disChanges

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of DIS changes that have occurred on this interface for this level. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Vr Pp IpPort LogicalIf IsisIf Level adjacencies

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of active adjacencies that exist on this interface for this level. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Pp IpPort LogicalIf IsisIf Level timeToNextTxHello

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the time, in seconds, until the next Hello message is to be transmitted on this interface for this level. |
| Values | Decimal (0..600) |
| Units | seconds |
| Default | No default |

### COMPONENT Vr Pp IpPort LogicalIf OspfInterface (OspfIf)

| | |
|---|---|
| Groups | "GROUP Vr Pp IpPort LogicalIf OspfIf Provisioned (Prov)"<br>"GROUP Vr Pp IpPort LogicalIf OspfIf Operational (Oper)"<br>"GROUP Vr Pp IpPort LogicalIf OspfIf Metric" |
| Scope | Application |
| Description | *Vr/<string> Pp/<string> IpPort logicalIf/<Ip Address> ospfIf*<br>*Rtr/<string> Interface/<Ip Address> OspfIf*<br>*Rtr/<string> Vrf/<string> Interface/<Ip Address> OspfIf*<br>An OspfIf component can be created under each *logicalIf* or *Interface* to run OSPF protocol. |

| | |
|---|---|
| Opt. Subcomp. | "COMPONENT Vr Pp IpPort LogicalIf OspfIf TypeOfService (TOS)"<br>"COMPONENT Vr Pp IpPort LogicalIf OspfIf Neighbor (Nbr)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Vr Pp IpPort LogicalIf OspfIf Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group of attributes identifies a provisionable set of attributes. |

### ATTRIBUTE Vr Pp IpPort LogicalIf OspfIf areaId

| | |
|---|---|
| Access | Read and write |
| Description | The area Id this Ospf interface belongs to. |
| Values | IP address |
| Default | 0.0.0.0 |

### ATTRIBUTE Vr Pp IpPort LogicalIf OspfIf ifType

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the type of this *OspfInterface*. Neighbors are dynamically discovered using the Hello protocol for an *ifType* of ***broadcast***, ***pointToPoint***, or ***pointToMultipoint*** when *pointToMultiPointMode* is set to ***broadcast***. A *Neighbor* component must be configured for an *ifType of* ***nbma*** or ***pointToMultiPoint***, when *pointToMultiPointMode* is set to ***nonBroadcast***. When *ifType* is set to ***passive***, neighbors are not required. |
| Values | broadcast<br>nbma<br>pointToPoint |

| | |
|---|---|
| | passive<br>pointToMultiPoint (ptmp) |
| Default | No default |

### ATTRIBUTE Vr Pp IpPort LogicalIf OspfIf snmpAdminStatus

| | |
|---|---|
| Access | Read and write |
| Description | The administrative status of this Ospf interface. |
| Values | up<br>down |
| Default | up |

### ATTRIBUTE Vr Pp IpPort LogicalIf OspfIf rtrPriority (rtrPri)

| | |
|---|---|
| Access | Read and write |
| Description | The priority of this interface. Used in multi-access networks, this field is used in the designated router election algorithm. The value 0 signifies that the router is not eligible to become the designated router on this particular protocol port. In the event of a tie in this value, routers will use their *routerId* as a tie breaker. |
| Values | Decimal (0..255) |
| Default | 1 |

### ATTRIBUTE Vr Pp IpPort LogicalIf OspfIf transitDelay

| | |
|---|---|
| Access | Read and write |
| Description | The estimated number of seconds it takes to transmit a link-state update packet over this interface. |
| Values | Decimal (1..3600) |
| Units | seconds |
| Default | 1 |

### ATTRIBUTE Vr Pp IpPort LogicalIf OspfIf retransInterval (retransInt)

| | |
|---|---|
| Access | Read and write |
| Description | The number of seconds between link-state advertisements retransmissions, for adjacencies belonging to this interface. This |

| | |
|---|---|
| | value is also used when retransmitting database description and link-state request packets. |
| Values | Decimal (1..3600) |
| Units | seconds |
| Default | 5 |

### ATTRIBUTE Vr Pp IpPort LogicalIf OspfIf helloInterval (helloInt)

| | |
|---|---|
| Access | Read and write |
| Description | The length of time, in seconds, between the Hello packets that the router sends on the interface. This value must be the same for all routers attached to a common network. |
| Values | Decimal (1..3600) |
| Units | seconds |
| Default | 10 |

### ATTRIBUTE Vr Pp IpPort LogicalIf OspfIf rtrDeadInterval (rtrDeadInt)

| | |
|---|---|
| Access | Read and write |
| Description | The number of seconds that a router's hello packets have not been seen before it's neighbors declare the router down. This should be some multiple of the *helloIntereval*. This value must be the same for all routers attached to a common network. |
| Values | Decimal (1..3600) |
| Units | seconds |
| Default | 40 |

### ATTRIBUTE Vr Pp IpPort LogicalIf OspfIf pollInterval (pollInt)

| | |
|---|---|
| Access | Read and write |
| Description | The largest time interval, in seconds, between the hello packets sent to an inactive non-broadcast multi-access neighbor. |
| Values | Decimal (1..3600) |
| Units | seconds |

| | |
|---|---|
| Default | 120 |

### ATTRIBUTE Vr Pp IpPort LogicalIf Ospfif authKey

| | |
|---|---|
| Access | Write only |
| Description | The Authentication Key. If the value of the attribute *authType* of an *AreaEntry* is ***simplePassword***, and the *authKey* length is shorter than 8 octets, then the value of *authKey* will be left adjusted zero-filled to 8 octets. |
| Values | String (1..8, Hex) |
| Default | 0000000000000000 |

### ATTRIBUTE Vr Pp IpPort LogicalIf Ospfif multicastForwarding (multicastFwd)

| | |
|---|---|
| Access | Read and write |
| Description | The way multicasts should be forwarded on this interface; non forwarded, forwarded as data-link multicasts, or forwarded as data-link unicasts. Data-link multicasting is not meaningful on point-to-point and NBMA(No Broadcast Multi Access) interfaces, and setting this attribute to blocked effectively disables all multicast forwarding. |
| Values | blocked |
| Default | blocked |

### ATTRIBUTE Vr Pp IpPort LogicalIf Ospfif pointToMultiPointMode (ptmpmode)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the Point-to-Multipoint mode to use when the *ifType* of this *OspfInterface* is ***pointToMultipoint***. A value of ***nonBroadcast*** restricts this interface to only send unicast packets, Hence, a *Neighbor* component must be configured. A value of ***broadcast*** enables sending multicast OSPF Hello packets to dynamically discover neighbors. |
| Values | nonBroadcast (nbc)<br>broadcast (bc) |
| Default | nonBroadcast |

## GROUP Vr Pp IpPort LogicalIf OspfIf Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group of attributes identifies operational state that this interface is performing. |

## ATTRIBUTE Vr Pp IpPort LogicalIf OspfIf state

| | |
|---|---|
| Access | Read only |
| Description | The state of the OSPF interface. |
| Values | down<br>loopback<br>waiting<br>pointToPoint<br>designatedRouter<br>backupDesignatedRouter<br>otherDesignatedRouter |
| Default | designatedRouter |

## ATTRIBUTE Vr Pp IpPort LogicalIf OspfIf designatedRouter

| | |
|---|---|
| Access | Read only |
| Description | The Ip address of the designated router. |
| Values | IP address |
| Default | No default |

## ATTRIBUTE Vr Pp IpPort LogicalIf OspfIf backupDesignatedRouter

| | |
|---|---|
| Access | Read only |
| Description | The Ip address of the backup designated router |
| Values | IP address |
| Default | No default |

## ATTRIBUTE Vr Pp IpPort LogicalIf OspfIf events

| | |
|---|---|
| Access | Read only |
| Description | The number of times this OSPF interface has changed its state or an error has occurred. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Vr Pp IpPort LogicalIf OspfIf Metric

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational metric attribute of this interface. |

### ATTRIBUTE Vr Pp IpPort LogicalIf OspfIf metric

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the metric being used by this *OspfIf*. The metric is derived in one of two ways:<br>1. If there is a *TypeOfService* component provisioned under this *OspfIf* component, then the value of the *metric* attribute is copied from the provisionable attribute *tosMetric*.<br>2. Otherwise, the metric is computed based on the interface speed. If the interface speed is greater than 100 Mbit/s, then the *metric* is 1. If the interface speed is less than 100 Mbit/s, then the metric is 100 Mbit/s divided by the interface speed. If the interface speed is unknown, then it is treated as 1.54 Mbit/s during the calculation.<br>The value of interface speed is available by displaying the *ifSpeed* attribute of the corresponding *IfTableEntry* component. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT Vr Pp IpPort LogicalIf OspfIf TypeOfService (TOS)

| | |
|---|---|
| Instance | Decimal (0..0) |
| Groups | "GROUP Vr Pp IpPort LogicalIf OspfIf TOS Provisioned (Prov)" |
| Scope | Application |
| Description | *Vr/<string> Pp/<string> IpPort logicalIf/<Ip Address> ospfIf OspfIfTypeOfService/<Decimal>*<br>*Rtr/<string> If/<Ip Address> ospfIf OspfIfTypeOfService/ <Decimal>*<br>*Rtr/<string> Vrf/<string> If/<Ip Address> ospfIf* |

*OspfIfTypeOfService/<Decimal>*
This component describes the metrics to be advertised for a specified interface at various types-of-service.

Common Verbs

Help
List
Display
Add
DELete

### GROUP Vr Pp IpPort LogicalIf OspfIf TOS Provisioned (Prov)

Properties: Provisioned

Description: Identifies a provisionable set of attributes.

### ATTRIBUTE Vr Pp IpPort LogicalIf OspfIf TOS tosMetric

Access: Read and write

Description: The metric using this typeOfService on this interface.

Values: Decimal (0..65535)

Default: No default

### COMPONENT Vr Pp IpPort LogicalIf OspfIf Neighbor (Nbr)

Instance: IP address

Groups: "GROUP Vr Pp IpPort LogicalIf OspfIf Nbr Provisioned (Prov)"
"GROUP Vr Pp IpPort LogicalIf OspfIf Nbr Operational (Oper)"

Scope: Application

Description: *Vr/<string> Pp/<string> IpPort logicalIf/<Ip Address> ospfIf OspfIfNeighbor/<Ip Address>*
*Rtr/<string> If/<Ip Address> ospfIf OspfIfNeighbor/<Ip Address>*
*Rtr/<string> Vrf/<string> If/<Ip Address> ospfIf OspfIfNeighbor/<Ip Address>*
This component represents a neighbor on a multi-access non-broadcast *OspfInterface* configured with its *ifType* attribute set to one of the following:
- ***nbma*** and the *rtrPriority* attribute is set to non-zero or

- ***pointToMultiPoint*** and *pointToMultiPointMode* is set to ***nonBroadcast***.

The operational attributes for this component can also be viewed from:
*Vr/<string> Ip Ospf NbrEntry/<Ip Address>,<Decimal>* or
*Rtr/<string> Ospf NbrEntry/<Ip Address>,<Decimal>* or
*Rtr/<string> Vrf/<string> Ospf NbrEntry/<Ip Address>,<Decimal>*

Common Verbs

Help
List
Display
Add
DELete

## GROUP Vr Pp IpPort LogicalIf OspfIf Nbr Provisioned (Prov)

Properties: Provisioned

Description: Identifies a group of Provisionable attributes.

## ATTRIBUTE Vr Pp IpPort LogicalIf OspfIf Nbr priority

Access: Read and write

Description: The priority of this neighbor in the designated router election algorithm. The value 0 signifies that the neighbor is not eligible to become the designated router on this particular network. The higher the number, the better are the chances of being a designated router.

Values: Decimal (0..255)

Default: 1

## GROUP Vr Pp IpPort LogicalIf OspfIf Nbr Operational (Oper)

Properties: Operational

Description: Contains the Operational set of attributes for the Neighbor.

## ATTRIBUTE Vr Pp IpPort LogicalIf OspfIf Nbr rtrId

Access: Read only

| | |
|---|---|
| Description | An Ip Address uniquely identifying the neighboring router in the Autonomous System. |
| Values | IP address |
| Default | No default |

### ATTRIBUTE Vr Pp IpPort LogicalIf OspfIf Nbr options

| | |
|---|---|
| Access | Read only |
| Description | A bit mask corresponding to the neighbor's options field. Bit 0, if set, indicates that the area accepts and operates on external information, if zero, it is a stub area. Bit 1, if set, indicates that the system will operate on Type of Service metrics other than TOS 0. If zero, the neighbor will ignore all metrics except the TOS 0 metric. Bit 2, if set, indicates that the system is Network Multicast capable; i.e., that it implements OSPF Multicast Routing. |
| Values | Decimal (0..15) |
| Default | No default |

### ATTRIBUTE Vr Pp IpPort LogicalIf OspfIf Nbr state

| | |
|---|---|
| Access | Read only |
| Description | The state of the relationship with this neighbor. |
| Values | down<br>attempt<br>init<br>twoWay<br>exchangeStart<br>exchange<br>loading<br>full |
| Default | No default |

### ATTRIBUTE Vr Pp IpPort LogicalIf OspfIf Nbr events

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | The number of times this neighbor relationship has changed state, or an error has occurred. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Pp IpPort LogicalIf OspfIf Nbr lsRetransQlen

| | |
|---|---|
| Access | Read only |
| Description | The current length of the Retransmission queue. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Pp IpPort LogicalIf OspfIf Nbr exchangeStatus

| | |
|---|---|
| Access | Read only |
| Description | Indicates the exchange status for a neighbor Entry. |
| Values | master<br>slave |
| Default | No default |

### ATTRIBUTE Vr Pp IpPort LogicalIf OspfIf Nbr permanance

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays how the neighbor became an entry. |
| Values | permanent<br>dynamic |
| Default | permanent |

### COMPONENT Vr Pp IpPort LogicalIf RipInterface (RipIf)

| | |
|---|---|
| Groups | "GROUP Vr Pp IpPort LogicalIf RipIf Provisioned (Prov)"<br>"GROUP Vr Pp IpPort LogicalIf RipIf Operational (Stat)" |
| Scope | Application |
| Description | *Vr/<X> Pp/<X> IpPort LogicalIf/<Ip Address> RipInterface*<br>*Rtr/<X> Interface/<X> RipInterface* |

*Rtr/<X> Vrf/<X> Interface/<X> RipInterface*
This component is used to configure a *LogicalIf* or an *Interface* to run RIP protocol.

Opt. Subcomp. "COMPONENT Vr Pp IpPort LogicalIf RipIf Neighbor (Nbr)"

Common Verbs
Help
List
Display
Add
DELete

### GROUP Vr Pp IpPort LogicalIf RipIf Provisioned (Prov)

Properties Provisioned

Description This group contains the provisionable attributes of the *RipIf* component.

### ATTRIBUTE Vr Pp IpPort LogicalIf RipIf snmpAdminStatus

Access Read and write

Description Identifies the administrative status of this *RipInterface*. Setting this value to ***disabled*** will have the effect of rendering it inactive.

Values
up
down

Default up

### ATTRIBUTE Vr Pp IpPort LogicalIf RipIf metric

Access Read and write

Description This attribute is the RIP metric for this logical interface.

Values Decimal (1..16)

Default 1

### ATTRIBUTE Vr Pp IpPort LogicalIf RipIf poisonReverseFlag (poison)

Access Read and write

| | |
|---|---|
| Description | If the value of this attribute is set to ***true***, then poison reverse algorithm is used when sending out the updates otherwise use split horizon only. |
| Values | true<br>false |
| Default | false |

### ATTRIBUTE Vr Pp IpPort LogicalIf RipIf flashUpdateFlag

| | |
|---|---|
| Access | Read and write |
| Description | This attribute when set to ***true*** will send updates when updates are received; otherwise RIP will wait till the next update period. |
| Values | true<br>false |
| Default | true |

### ATTRIBUTE Vr Pp IpPort LogicalIf RipIf networkRouteStatus

| | |
|---|---|
| Access | Read and write |
| Description | This attribute determines what type of network routes will be sent and whether a default route will be generated for this *RipInterface*. Generated default routes will not go into the routing table, but are sent in the updates going out on the interface. The possible values for this<br>attribute are:<br><br>***naturalNetWithOutDefaultRoute*** - This value will cause normal RIP network routes to be put in the update. This means that the address of *logicalIf* or *Interface* pertaining to this *RipInterface* knowledge is taken into account in determining if the subnetted network or the natural network is sent for any route going into this update.<br><br>***naturalNetWithDefaultRoute*** - Selecting this value will cause a default route to be generated with the value of the metric selected for the attribute *defaultRouteMetric*.<br><br>***defaultRouteOnly*** - Selection of this value causes the default route to be generated with the value of the metric selected for the |

attribute *defaultRouteMetric*.
NOTE: No other routes will go in the update.

***subnetsOnly*** - selection of this value will cause only subnet information to be put in the update. No default routes will be generated or passed on. Only subnetted routes that are part of the same subnetted network that this *logicalInterface* or *Interface* is on will be put in the update.
NOTE: this also effects receiving of updates on this interface. Only subnetted routes that are part of the same subnetted network that this *logicalInterface* or *Interface* is on will be accepted on a received RIP update on this *RipInterface*.

Values: naturalNetWithOutDefaultRoute (noDefault)
naturalNetWithDefaultRoute (withDefault)
defaultRouteOnly (defaultOnly)
subnetsOnly (subnets)

Default: naturalNetWithOutDefaultRoute

### ATTRIBUTE Vr Pp IpPort LogicalIf RipIf defaultRouteMetric

Access: Read and write

Description: This attribute identifies the metric value for the default route. This value is only used if the attribute *networkRouteStatus* is configured with a value of either ***naturalNetWithDefaultRoute*** or ***defaultRouteOnly***

Values: Decimal (1..16)

Default: 1

### ATTRIBUTE Vr Pp IpPort LogicalIf RipIf acceptDefault

Access: Read and write

Description: If this attribute is set to true, then accept the default route from this interface.

Values: true
false

Default: true

### ATTRIBUTE Vr Pp IpPort LogicalIf RipIf ifConfSend

| | |
|---|---|
| Access | Read and write |
| Description | This attribute identifies what the router sends on this *RipIf*. ***ripVersion1*** implies sending RIP updates compliant with RFC 1058. ***rip1Compatible*** implies broadcasting RIP-2 updates according to RFC 1058. ***ripVersion2*** implies multicasting RIP-2 updates. |
| Values | doNotSend (silent)<br>ripVersion1 (v1)<br>rip1Compatible (v2b)<br>ripVersion2 (v2) |
| Default | rip1Compatible |

### ATTRIBUTE Vr Pp IpPort LogicalIf RipIf ifConfReceive

| | |
|---|---|
| Access | Read and write |
| Description | This attribute identifies which version of RIP updates are to be accepted on this *RipIf*. Note that ***rip2*** and ***rip1OrRip2*** implies reception of multicast packets. |
| Values | rip1 (v1)<br>rip2 (v2)<br>rip1OrRip2 (both)<br>doNotReceive (reject) |
| Default | rip1OrRip2 |

### GROUP Vr Pp IpPort LogicalIf RipIf Operational (Stat)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational attributes of the *RipIf* component. These attributes are statistical data corresponding to the RIP-2 standard MIB (rfc 1724) rip2Status table. |

### ATTRIBUTE Vr Pp IpPort LogicalIf RipIf ifBadPacketRcv

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of RIP response packets recieved by the RIP process which were subsequently discarded for any reason. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp IpPort LogicalIf RipIf ifBadRouteRcv

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts how many routes, in valid RIP packets, were ignored for any reason. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp IpPort LogicalIf RipIf ifTriggeredUpdates

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of triggered updates actually sent on this interface. This explicitly does NOT include full updates sent containing new information. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT Vr Pp IpPort LogicalIf RipIf Neighbor (Nbr)

| | |
|---|---|
| Instance | IP address |
| Scope | Application |
| Description | *Vr/<string> Pp/<string> IpPort logicalIf/<Ip Address> RipIf Neighbor/<Ip address>*<br>*Rtr/<string> Interface/<Ip Address> RipIf Neighbor/<Ip address>*<br>*Rtr/<string> Vrf/<string> Interface/<Ip Address> RipIf Neighbor/<Ip address>*<br><br>This component is used to configure the Ip Address of the non broadcast multi access (NBMA) neighbor. |

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## COMPONENT Vr Pp IpPort LogicalIf NhrpInterface (NhrpIf)

| | |
|---|---|
| Scope | Application |
| Description | *Vr/x Pp/x IpPort LogicalIf/<ipAddress> NhrpInterface*<br>This component is used to configure a *LogicalIf* to run NHRP protocol. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## COMPONENT Vr Pp IpPort LogicalIf LocalHost (Host)

| | |
|---|---|
| Instance | IP address |
| Groups | "GROUP Vr Pp IpPort LogicalIf Host Operational (Oper)" |
| Scope | Application |
| Description | *Vr/<n> Pp/<n> IpPort LogicalIf/<addr> LocalHost/<addr>*<br><br>This component represents an instance of *LocalHost* functionality, which is used by an application to access the IP forwarding capability of this *VirtualRouter.*<br><br>The instance value is the IP address used by the application, and is a member of the local subnet represented by the parent *LogicalIf* component. |

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display |

### GROUP Vr Pp IpPort LogicalIf Host Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational status information for this *LocalHost* component. |

### ATTRIBUTE Vr Pp IpPort LogicalIf Host hostName

| | |
|---|---|
| Access | Read only |
| Description | This attribute identifies the component name representing the application which is registered as this *LocalHost*. |
| Values | The name of the component |
| Default | No default |

### ATTRIBUTE Vr Pp IpPort LogicalIf Host hostStatus

| | |
|---|---|
| Access | Read only |
| Description | This attribute identifies the activity status of the application which is registered as this *LocalHost*.<br><br>A value of ***up*** means that the application is ready to accept IP traffic from and supply IP traffic to the *VirtualRouter*.<br><br>A value of ***down*** means that the application is not ready to accept IP traffic from the *VirtualRouter*, and is not supplying IP traffic to the *VirtualRouter*. |
| Values | up<br>down |
| Default | No default |

## COMPONENT Vr Pp IpPort LogicalIf IgmpInterface (IgmpIf)

| | |
|---|---|
| Groups | "GROUP Vr Pp IpPort LogicalIf IgmpIf Provisioned (Prov)"<br>"GROUP Vr Pp IpPort LogicalIf IgmpIf Operational (Oper)" |
| Scope | Application |
| Description | *Vr/<string> Pp/<string> IpPort LogicalIf/<Ip Address> IgmpIf*<br>This component is used to configure a *logicalIf* to run the Igmp protocol. The *Igmp* component must be added under multicast. Only 1 *logicalIf* that can have a *IgmpIf* under the same port. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Vr Pp IpPort LogicalIf IgmpIf Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the *IpIgmpIf* component. |

## ATTRIBUTE Vr Pp IpPort LogicalIf IgmpIf version (ver)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the IGMP protocol version running on this interface. v2 is the only supported version at this time. |
| Values | v2 |
| Default | v2 |

## ATTRIBUTE Vr Pp IpPort LogicalIf IgmpIf queryInterval

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the frequency at which IGMP Host-Query packets are transmitted on this interface. |
| Values | Decimal (1..3600) |
| Units | seconds |

| | |
|---|---|
| Default | 125 |

### ATTRIBUTE Vr Pp IpPort LogicalIf IgmpIf queryMaxRespTime

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum query response time advertised in IGMPv2 queries on this interface. The number of seconds represented by the *queryMaxRespTime* must be less than the Query Interval. |
| Values | Decimal (1..3600) |
| Units | seconds |
| Default | 10 |

### GROUP Vr Pp IpPort LogicalIf IgmpIf Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes of *IpIgmpIf* component. |

### ATTRIBUTE Vr Pp IpPort LogicalIf IgmpIf querier

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the address of the IGMP Querier on the IP subnet to which this interface is attached. |
| Values | IP address |
| Default | 0.0.0.0 |

### ATTRIBUTE Vr Pp IpPort LogicalIf IgmpIf wrongVersionQuery (wvq)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of queries received whose IGMP version does not match that configured for this interface. IGMP requires that all routers on a LAN be configured to run the same version of IGMP. |
| Values | Decimal (0..4292967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp IpPort LogicalIf IgmpIf joins

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of times a group membership has been added on this interface. |
| Values | Decimal (0..4292967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp IpPort LogicalIf IgmpIf groups

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current number of entries for this interface in the cache table. |
| Values | Decimal (0..4292967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp IpPort LogicalIf IgmpIf querierExpiryTime (qet)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the amount of time remaining before the other querier present timer expires. If the local system is the querier, the value of this attribute is zero. |
| Values | Decimal (0..3600) |
| Units | seconds |
| Default | 0 |

### COMPONENT Vr Pp IpPort LogicalIf PimSparseModeInterface (PimSmIf)

| | |
|---|---|
| Groups | "GROUP Vr Pp IpPort LogicalIf PimSmIf Porvisioned (Prov)"<br>"GROUP Vr Pp IpPort LogicalIf PimSmIf Operational (Oper)" |
| Scope | Application |
| Description | Vr/<string> Pp/<string> Ipport Logical/<addr> PimSmIf. This component is used to configure a logicalIf to run PIM-SM protocol. |

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Vr Pp IpPort LogicalIf PimSmIf Porvisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the *PimSmIf* component. |

### ATTRIBUTE Vr Pp IpPort LogicalIf PimSmIf helloInterval (hello)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the frequency at which PIM-SM hello messages are transmitted on this interface. |
| Values | Decimal (1..3600) |
| Units | seconds |
| Default | 30 |

### GROUP Vr Pp IpPort LogicalIf PimSmIf Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for the *PimSmIf* component. |

### ATTRIBUTE Vr Pp IpPort LogicalIf PimSmIf designatedRouter (dr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Designated Router on this PIM-SM interface. For non-broadcast media such as AtmMpe and FrDte, this attribute has the value 0.0.0.0. |
| Values | IP address |
| Default | No default |

## COMPONENT Vr Pp IpPort NetSentry (Ns)

| | |
|---|---|
| Groups | "GROUP Vr Pp IpPort Ns Provisioned (Prov)" |
| Scope | Application |
| Description | This component allows the configuration of *NetSentry* filters for this *IpPort*. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP Vr Pp IpPort Ns Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attributes required by *NetSentry* to be applied to all IP packets going through this *IpPort*. |

## ATTRIBUTE Vr Pp IpPort Ns incomingFilter

| | |
|---|---|
| Access | Read and write |
| Description | An ASCII string which provides the name of the *NetSentry* filter which will be applied to all IP datagrams arriving from this *IpPort*. |
| Values | String (0..32, ASCII) |
| Default | "" |

## ATTRIBUTE Vr Pp IpPort Ns outgoingFilter

| | |
|---|---|
| Access | Read and write |
| Description | An ASCII string which provides the name of *NetSentry* filter which will be applied to all IP datagrams sent to this *IpPort*. |
| Values | String (0..32, ASCII) |
| Default | "" |

## COMPONENT Vr Pp IpPort BootpPort (BootpP)

| | |
|---|---|
| Groups | "GROUP Vr Pp IpPort BootpP Provisioned (Prov)"<br>"GROUP Vr Pp IpPort BootpP AdministrativeControl (AdminControl)"<br>"GROUP Vr Pp IpPort BootpP OperationalStatus (OperStatus)"<br>"GROUP Vr Pp IpPort BootpP OsiState (State)"<br>"GROUP Vr Pp IpPort BootpP Statistics (Stats)" |
| Scope | Application |
| Description | *Vr/<string> Pp/<string> IpPort BootpPort*<br>*Rtr/<string> Interface/<string> BootpPort*<br>*Rtr/<string> Vrf/<string> Interface/<string> BootpPort*<br>An *BootpPort* component must be provisioned for each *IpPort* or *Interface* where BOOTP request messages will be received. Each *BootpPort* component can be provisioned with a set of relay addresses. Each BOOTP request message received on this port will be sent to the provisioned set of relay addresses. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP Vr Pp IpPort BootpP Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisionable attributes for the *BootpPort* component. |

## ATTRIBUTE Vr Pp IpPort BootpP relayForwardStatus (status)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute controls how BOOTP request packets, received on another port, will be flooded out this port. If *relayForwardStatus* is ***enabled***, BOOTP requests received on another port will be broadcast out this port. When *relayForwardStatus* is ***disabled***, |

BOOTP requests will not be broadcast out this port. If ***auto*** is used, the bridge spanning tree database is used to determine if BOOTP requests should be broadcast out this port.

Note that when using ***enabled***, it is possible to create misconfigurations which will result in broadcast storms. When using this feature with multiple routers, make sure there are no broadcast forwarding loops. Using ***auto*** with bridge spanning tree is safer to use if the network is running bridge spanning tree.

Note that for ***auto*** to have effect, bridge spanning tree must be running on the corresponding *VirtualRouter ProtocolPort* or *Rtr Interface* or *Rtr Vrf Interface*.

Values: enabled
disabled
auto

Default: disabled

### ATTRIBUTE Vr Pp IpPort BootpP bootpLogicalInterface (portIf)

Access: Read and write

Description: This attribute identifies the logical interface whose address is to be the GIADDR of this BOOTP port. If not set, the address of the first logical port or Interface is chosen.

Values: IP address

Default: 0.0.0.0

### ATTRIBUTE Vr Pp IpPort BootpP relayAddress (addr)

Access: Read and write

Description: This attribute identifies a list of relay addresses. When a BOOTP request message is received on this port, the request will be forwarded to the IP addresses provisioned in *relayAddress*. Note that BOOTP requests are also broadcast out all other *BootpPort*'s according to the *relayForwardStatus* of the outgoing port.

List of: IP address

List Size: 3

| | |
|---|---|
| Default | No default |

### GROUP Vr Pp IpPort BootpP AdministrativeControl (AdminControl)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group includes the Administrative Control attribute. This attribute defines the current administrative state of this component. |

### ATTRIBUTE Vr Pp IpPort BootpP snmpAdminStatus

| | |
|---|---|
| Access | Read and write |
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational and packet forwarding is allowed. The ***down*** state indicates the interface is not operational and packet forwarding is unavailable. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### GROUP Vr Pp IpPort BootpP OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

### ATTRIBUTE Vr Pp IpPort BootpP snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |

Default up

### GROUP Vr Pp IpPort BootpP OsiState (State)

Properties Operational

Description This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Vr Pp IpPort BootpP adminState (osiAdmin)

Access Read only

Description This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default unlocked

### ATTRIBUTE Vr Pp IpPort BootpP operationalState (osiOper)

Access Read only

| | |
|---|---|
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Vr Pp IpPort BootpP usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Vr Pp IpPort BootpP Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains *BootpPortEntry* component statistics. |

### ATTRIBUTE Vr Pp IpPort BootpP inRequests

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of BOOTP Request messages received on this port. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp IpPort BootpP inReplies

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of BOOTP Reply messages received on this port. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp IpPort BootpP outRequests

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts total the number of BOOTP Request messages broadcast out on this port. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp IpPort BootpP outReplies

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of BOOTP Reply messages sent out on this port. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp IpPort BootpP inRequestErrors

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the number of BOOTP Request messages received on this port but not forwarded due to an error. An error occurs if the BOOTP hop limit has been exceeded. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp IpPort BootpP inReplyErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of BOOTP Reply messages received on this port but not forwarded due to an error. An error occurs if the giaddr field in the BOOTP reply does not match an IP address assigned to this *VirtualRouter* or *Rtr* or *Rtr Vrf*, or if the output *IpPort* or *Interface* for the BOOTP reply is not provisioned for BOOTP. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT Vr Pp IpPort VrrpPort

| | |
|---|---|
| Instance | Decimal (1..255) |
| Groups | "GROUP Vr Pp IpPort VrrpPort Provisioned (Prov)"<br>"GROUP Vr Pp IpPort VrrpPort Operational (Oper)"<br>"GROUP Vr Pp IpPort VrrpPort AdministrativeControl (AdminControl)"<br>"GROUP Vr Pp IpPort VrrpPort OperationalStatus (OperStatus)"<br>"GROUP Vr Pp IpPort VrrpPort OsiState (State)" |
| Scope | Application |
| Description | Vr/<string> Pp/<string> IpPort VrrpPort/n<br>This component contains attributes that define a VRRP virtual router instance associated with this *IpPort*. The component instance (n) is the VRRP virtual router VRID. |

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

### GROUP Vr Pp IpPort VrrpPort Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the VrrpPort component. |

### ATTRIBUTE Vr Pp IpPort VrrpPort priority

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the priority of *VrrpPort* during election of a master VRRP virtual router. A priority of 0 (zero) is reserved for the master to indicate it is releasing responsibility for the VRRP virtual router. A priority of 255 is reserved for the VRRP virtual router that owns (has as real interfaces) the IP addresses associated with this *VrrpPort*. |
| Values | Decimal (1..255) |
| Default | 100 |

### ATTRIBUTE Vr Pp IpPort VrrpPort advertisementInterval

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time interval between VRRP advertisements which will be sent by the master VRRP virtual router. |
| Values | Decimal (1..255) |
| Units | seconds |

| | |
|---|---|
| Default | 1 |

### ATTRIBUTE Vr Pp IpPort VrrpPort linkToCriticalIp (linkToCIp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the *CriticalIp* instance to which this *VrrpPort* instance is linked. If the *IpPort* associated with this *CriticalIp* instance becomes disabled, the *VrrpPort* will transition to “backup” state. |
| Values | Link (Service, linkToVrrp) |
| Default | No default |

### ATTRIBUTE Vr Pp IpPort VrrpPort ipAddresses

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies one or more IP addresses associated with this *VrrpPort* instance (VRID). All VRRP virtual routers with this VRID must have the same set of IP addresses configured. Each of the IP addresses in the list must be on the same subnet as an *IpLogicalInterface* for the *IpPort*. All the IP addresses in the list must be owned by this VRRP virtual router or by other VRRP virtual routers but not a combination. |
| List of | IP address |
| Default | No default |

### GROUP Vr Pp IpPort VrrpPort Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for the *VrrpPort* component. |

### ATTRIBUTE Vr Pp IpPort VrrpPort virtualRouterState

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the state of this *VrrpPort* instance. It will be one of three states: initialize, backup and master. |

| | |
|---|---|
| Values | initialize<br>backup<br>master |
| Default | initialize |

### ATTRIBUTE Vr Pp IpPort VrrpPort virtualRouterPhysicalAddress

| | |
|---|---|
| Access | Read only |
| Description | This attributes indicates the physcial address of the *VrrpPort*. The address is a virtual physical address of the form “00-00-5e-00-01-VRID” where the VRID is the instance value of the *VrrpPort*. |
| Values | String (6, Dashed Hex) |
| Default | No default |

### GROUP Vr Pp IpPort VrrpPort AdministrativeControl (AdminControl)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group includes the Administrative Control attribute. This attribute defines the current administrative state of this component. |

### ATTRIBUTE Vr Pp IpPort VrrpPort snmpAdminStatus

| | |
|---|---|
| Access | Read and write |
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational and packet forwarding is allowed. The ***down*** state indicates the interface is not operational and packet forwarding is unavailable. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### GROUP Vr Pp IpPort VrrpPort OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |

Description — This group includes the Operational Status attribute. This attribute defines the current operational state of this component.

### ATTRIBUTE Vr Pp IpPort VrrpPort snmpOperStatus

Access — Read only

Description — The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed.

Values — up
down
testing

Default — up

### GROUP Vr Pp IpPort VrrpPort OsiState (State)

Properties — Operational

Description — This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Vr Pp IpPort VrrpPort adminState (osiAdmin)

Access — Read only

Description — This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it

is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Vr Pp IpPort VrrpPort operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Vr Pp IpPort VrrpPort usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

## COMPONENT Vr Pp IpPort CriticalIp

Instance
Decimal (1..255)

Groups
"GROUP Vr Pp IpPort CriticalIp Provisioned (Prov)"

Scope
Application

Description
*Vr/<string> Pp/<string> IpPort CriticalIp/n*
The *CriticalIp* component defines a critical *IpPort* for use by the VRRP virtual router with the same instance (VRID) as the *CriticalIp* instance. If the *IpPort* associated with this *CriticalIp* instance becomes disabled the *VrrpPort* linked to this *CriticalIp* will transition to “backup” state.

Common Verbs
Help
List
Display
Add
DELete
LOCK
Unlock

## GROUP Vr Pp IpPort CriticalIp Provisioned (Prov)

Properties
Provisioned

Description
This group contains the provisionable attributes for the *CriticalIp* component.

## ATTRIBUTE Vr Pp IpPort CriticalIp linkToVrrp

Access
Read and write

| | |
|---|---|
| Description | This attribute defines the *VrrpPort* to which this *CriticalIp* has been linked. When the *IpPort* associated with this *CriticalIp* becomes disabled, the linked *VrrpPort* will transition to “backup” state. |
| Values | Link (Service, linkToCriticalIp) |
| Default | No default |

## COMPONENT Vr Pp IpxPort (IpxP)

| | |
|---|---|
| Instance | link<br>ethernet<br>novell<br>sap<br>snap<br>vns<br>tunnel |
| Groups | "GROUP Vr Pp IpxP AdministrativeControl (AdminControl)"<br>"GROUP Vr Pp IpxP Provisioned (Prov)"<br>"GROUP Vr Pp IpxP SresProvisioned (SresProv)"<br>"GROUP Vr Pp IpxP OsiState (State)"<br>"GROUP Vr Pp IpxP OperationalStatus (OperStatus)"<br>"GROUP Vr Pp IpxP Operational (Oper)"<br>"GROUP Vr Pp IpxP Statistics (Stats)" |
| Scope | Application |
| Description | *Vr/<string> PP/<string> IpxP*<br>The IPX protocol specific information relating to this *ProtocolPort* instance. |

| | |
|---|---|
| Subcomponents | "COMPONENT Vr Pp IpxP RipPort (RipP)"<br>"COMPONENT Vr Pp IpxP SapPort (SapP)" |
| Opt. Subcomp. | "COMPONENT Vr Pp IpxP NetSentryPort (NetSentryP)" |
| Dyn. Subcomp. | "COMPONENT Vr Pp IpxP IpxWanPort (IWP)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

### GROUP Vr Pp IpxP AdministrativeControl (AdminControl)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group includes the Administrative Control attribute. This attribute defines the current administrative state of this component. |

### ATTRIBUTE Vr Pp IpxP snmpAdminStatus

| | |
|---|---|
| Access | Read and write |
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational and packet forwarding is allowed. The ***down*** state indicates the interface is not operational and packet forwarding is unavailable. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### GROUP Vr Pp IpxP Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | The Provisionable group for the *IpxPort* component. |

### ATTRIBUTE Vr Pp IpxP networkNumberProv (netP)

| | |
|---|---|
| Access | Read and write |
| Description | The Ipx network number of the network directly connected to this port. |
| Values | String (0..4, Dashed Hex) |
| Default | No default |

### ATTRIBUTE Vr Pp IpxP defaultType (defType)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates which protocol is to run on a protocol port.<br>In the case of a lan media it is to be set to broadcast.<br>In the case of WAN media the following choices are to be exercised:<br>For running Pre-IPXWAN RIP set value to *other*.<br>For running numbered RIP set value to *wanRip*.<br>For running un-numbered RIP set value to *unnumberedRip*.<br>Setting this value to *ppp* will signify unnumbered Rip running on a ppp port. |
| Values | other<br>broadcast<br>ppp<br>wanRip<br>unnumberedRip |
| Default | No default |

### ATTRIBUTE Vr Pp IpxP broadcastInhibit (bInh)

| | |
|---|---|
| Access | Read and write |
| Description | If this attribute is set, all outgoing periodic and triggered updates for RIP and SAP will be inhibited for the port. However the port |

will still accept incoming RIP and SAP packets on the port. This may be useful for ports with only a bank of servers on its network in order to limit the routing traffic, assuming that servers don't require routing information or other server information.

Values
enabled
disabled

Default
disabled

### GROUP Vr Pp IpxP SresProvisioned (SresProv)

Properties
Provisioned

Description
This group contains the provisioned attributes for *SourceRouteEndStation* support.

### ATTRIBUTE Vr Pp IpxP sourceRouteEndStationSupport (sresSupport)

Access
Read and write

Description
This attribute is used to ***enable*** or ***disable*** support for *SourceRouteEndStation (Sres)*. If set to ***enable***, *Sres* will be supported on this protocol on this *ProtocolPort (Pp)*. If set to ***disable***, it will not be supported. An *Sres* component must be provisioned under the VirtualRouter if this attribute is set to ***enable***. If this attribute is set to ***enable*** and this *Pp* has its *linkToMedia* attribute set, it must be linked to a *LanApplication* (*La*) that has its *Framer interfaceName* linked to a *Fddi* or *TokenRing* component.

Values
enable
disable

Default
disable

### GROUP Vr Pp IpxP OsiState (State)

Properties
Operational

Description
This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component

which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Vr Pp IpxP adminState (osiAdmin)

Access: Read only

Description: This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values: locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default: unlocked

### ATTRIBUTE Vr Pp IpxP operationalState (osiOper)

Access: Read only

Description: This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the

component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Vr Pp IpxP usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Vr Pp IpxP OperationalStatus (OperStatus)

Properties
Operational

Description
This group includes the Operational Status attribute. This attribute defines the current operational state of this component.

### ATTRIBUTE Vr Pp IpxP snmpOperStatus

Access
Read only

Description
The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed.

| | |
|---|---|
| Values | up<br>down<br>testing |
| Default | up |

### GROUP Vr Pp IpxP Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | The *IpxPort* Operational Attributes. |

### ATTRIBUTE Vr Pp IpxP type

| | |
|---|---|
| Access | Read only |
| Description | The type of the circuit. This would differ from the provisioned type when a different routing protocol is negotiated with the peer. |
| Values | other<br>broadcast<br>ppp<br>wanRip<br>unnumberedRip |
| Default | No default |

### ATTRIBUTE Vr Pp IpxP encapsulation (encapO)

| | |
|---|---|
| Access | Read only |
| Description | Packet encapsulation type that the router has determined to use on the port. There are seven encapsulation types used to identify IPX datagram as listed below.<br><br>1. ***link***: IPX encapsulation type for PPP, ATM MPE, and X25DTE media types.<br><br>2. ***ethernet*:** IPX encapsulation type for Ethernet and FrDte media types.<br><br>3. ***novell*:** IPX encapsulation type for Ethernet and FrDte media types.<br><br>4. ***sap*:** IPX encapsulation type for FDDI, Token Ring, |

Ethernet and FrDte media types.

5. ***snap*:** IPX encapsulation type for FDDI, Token Ring, Ethernet, and FrDte media types.

6. ***vns*:** IPX encapsulation type for VNS media type.

7. ***tunnel***: IPX encapsulation type for Tunnel media type.

| | |
|---|---|
| Values | link<br>ethernet<br>novell<br>sap<br>snap<br>vns<br>tunnel |
| Default | No default |

### ATTRIBUTE Vr Pp IpxP networkNumber (netO)

| | |
|---|---|
| Access | Read only |
| Description | The Ipx network number from the provisioned *networkNumberProv* value. |
| Values | String (0..4, Dashed Hex) |
| Default | No default |

### ATTRIBUTE Vr Pp IpxP node

| | |
|---|---|
| Access | Read only |
| Description | The Ipx node address of this *IpxPort*. |
| Values | String (1..6, Dashed Hex) |
| Default | No default |

### GROUP Vr Pp IpxP Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | The *IpxPort* Statistics group. |

### ATTRIBUTE Vr Pp IpxP stateChanges

| | |
|---|---|
| Access | Read only |
| Description | Number of times the port has changed state. This counter wraps around to zero after reaching the maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp IpxP inReceives

| | |
|---|---|
| Access | Read only |
| Description | Total number of packets received. This counter wraps around to zero after reaching the maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp IpxP forwarded

| | |
|---|---|
| Access | Read only |
| Description | Number of packets forwarded. This counter wraps around to zero after reaching the maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT Vr Pp IpxP RipPort (RipP)

| | |
|---|---|
| Groups | "GROUP Vr Pp IpxP RipP Statistics (Stats)" |
| Scope | Application |
| Description | *Vr/<string> PP/<string> IpxP RipP*<br>The RIP specific information pertaining to this *IpxPort* component. |
| Common Verbs | Help<br>List<br>Display |

## GROUP Vr Pp IpxP RipP Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | RIP specific statistics for this *IpxPort*. |

## ATTRIBUTE Vr Pp IpxP RipP inPackets (inPkts)

| | |
|---|---|
| Access | Read only |
| Description | The number of RIP packets received on this *IpxPort*. This counter wraps around to zero after reaching the maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## ATTRIBUTE Vr Pp IpxP RipP inRequests

| | |
|---|---|
| Access | Read only |
| Description | The number of RIP request packets received on this *IpxPort*. This counter wraps around to zero after reaching the maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## ATTRIBUTE Vr Pp IpxP RipP inResponses

| | |
|---|---|
| Access | Read only |
| Description | The number of RIP response packets received on this *IpxPort*. This counter wraps around to zero after reaching the maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## ATTRIBUTE Vr Pp IpxP RipP outPackets (outPkts)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | The number of RIP packets sent out on this *IpxPort*. This counter wraps around to zero after reaching the maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp IpxP RipP outRequests

| | |
|---|---|
| Access | Read only |
| Description | The number of RIP request packets sent out on this *IpxPort*. This counter wraps around to zero after reaching the maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp IpxP RipP outResponses

| | |
|---|---|
| Access | Read only |
| Description | The number of RIP response packets sent out on this *IpxPort*. This includes RIP periodic update packets. This counter wraps around to zero after reaching the maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp IpxP RipP incorrectPackets

| | |
|---|---|
| Access | Read only |
| Description | Number of times that an incorrectly formatted RIP packet was received on this *IpxPort*. This counter wraps around to zero after reaching the maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT Vr Pp IpxP SapPort (SapP)

| | |
|---|---|
| Groups | "GROUP Vr Pp IpxP SapP Statistics (Stats)" |

| | |
|---|---|
| Scope | Application |
| Description | *Vr/<string> PP/<string> IpxP SapP*<br>The SAP specific information pertaining to this *IpxPort* component. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Vr Pp IpxP SapP Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | SAP specific statistics for this *IpxPort*. |

### ATTRIBUTE Vr Pp IpxP SapP inPackets (inPkts)

| | |
|---|---|
| Access | Read only |
| Description | The total number of SAP packets received on this *IpxPort*. Includes SAP requests and responses. This counter wraps around to zero after reaching the maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp IpxP SapP inRequests

| | |
|---|---|
| Access | Read only |
| Description | The number of SAP Request packets received on this *IpxPort*. This counter wraps around to zero after reaching the maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp IpxP SapP inResponses

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | The number of SAP response packets received on this *IpxPort*. This counter wraps around to zero after reaching the maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp IpxP SapP outPackets (outPkts)

| | |
|---|---|
| Access | Read only |
| Description | The total number of SAP packets sent out this *IpxPort*. This counter wraps around to zero after reaching the maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp IpxP SapP outRequests

| | |
|---|---|
| Access | Read only |
| Description | The number of SAP request packets sent out on this *IpxPort*. This counter wraps around to zero after reaching the maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp IpxP SapP outResponses

| | |
|---|---|
| Access | Read only |
| Description | The number of SAP response packets sent out this *IpxPort*. This includes periodic SAP update packets. This counter wraps around to zero after reaching the maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp IpxP SapP incorrectPackets

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | Number of times an incorrectly formatted SAP packet was received on this *IpxPort*. This counter wraps around to zero after reaching the maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT Vr Pp IpxP IpxWanPort (IWP)

| | |
|---|---|
| Instance | String (1..8, Dashed Hex) |
| Groups | "GROUP Vr Pp IpxP IWP Operational (Oper)" |
| Scope | Application |
| Description | *Vr/<string> PP/<string> IpxP IWP*<br>This component contains information for this *IpxPort* that are specific to the IPXWAN protocol. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Vr Pp IpxP IWP Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains operational attributes that are specific for the IPXWAN protocol. |

### ATTRIBUTE Vr Pp IpxP IWP neighbourRouterName (neiName)

| | |
|---|---|
| Access | Read only |
| Description | The name of the neighboring router on a WAN circuit. |
| Values | String (0..48, ASCII) |
| Default | No default |

### ATTRIBUTE Vr Pp IpxP IWP neighbourInternalNetworkNumber (neiNet)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | The internal network number of the neighboring router on a WAN circuit. |
| Values | String (1..4, Dashed Hex) |
| Default | No default |

### ATTRIBUTE Vr Pp IpxP IWP initFails

| | |
|---|---|
| Access | Read only |
| Description | The number of times initialization has failed on this circuit. This counter wraps around to zero after reaching the maximum value of 4294967295 |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT Vr Pp IpxP NetSentryPort (NetSentryP)

| | |
|---|---|
| Groups | "GROUP Vr Pp IpxP NetSentryP Provisioned (Prov)" |
| Scope | Application |
| Description | *Vr/<string> Pp/<string> IpxP NetSentryPort*<br>This component contains the NetSentry attributes that specify the names of the NetSentry filters which will be applied to IPX packets as incoming and outgoing filters. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

### GROUP Vr Pp IpxP NetSentryP Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the NetSentry attributes that specify the names of the NetSentry filters which will be applied to IPX packets as incoming and outgoing filters. |

### ATTRIBUTE Vr Pp IpxP NetSentryP inComingFilter (inFilt)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the name of the NetSentry filter applied to incoming IPX packets on this port. |
| Values | String (0..32, ASCII) |
| Default | No default |

### ATTRIBUTE Vr Pp IpxP NetSentryP outGoingFilter (outFilt)

| | |
|---|---|
| Access | Read and write |
| Description | The name of the filter applied to outgoing IPX packets on this port. |
| Values | String (0..32, ASCII) |
| Default | No default |

### COMPONENT Vr Pp SourceRouteBridgePort (SrBp)

| | |
|---|---|
| Groups | "GROUP Vr Pp SrBp Provisioned (Prov)"<br>"GROUP Vr Pp SrBp StpProvisioned (StpProv)"<br>"GROUP Vr Pp SrBp DomainInfoProvisioned (DIProv)"<br>"GROUP Vr Pp SrBp OsiState (State)"<br>"GROUP Vr Pp SrBp OperationalStatus (OperStatus)"<br>"GROUP Vr Pp SrBp Operational (Oper)"<br>"GROUP Vr Pp SrBp StpOperational (StpOper)"<br>"GROUP Vr Pp SrBp Statistics (Stats)"<br>"GROUP Vr Pp SrBp SrProvisioned (SrProv)"<br>"GROUP Vr Pp SrBp SrStatistics (SrStats)" |
| Scope | Application |
| Description | *Vr/<string> Pp/<string> SourceRouteBridgePort*<br>This component represents a source route bridge port. It contains all the attributes (provisionable and operational attributes) necessary for the operation of this bridge port. The source route bridge port provides a way to facilitate source route bridging on a media interface. |

| | |
|---|---|
| Opt. Subcomp. | "COMPONENT Vr Pp SrBp NetSentry (Ns)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP Vr Pp SrBp Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all the provisionable attributes that belong to this group. This group of attributes is applicable to all types of bridge ports and represent the common factor between them. These attributes influence the working of a bridge port. |

## ATTRIBUTE Vr Pp SrBp fragmentIp (fIp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies if outbound frames carrying IP datagrams should be fragmented to conform to message transfer unit (*mtu*) sizes dictated by the media. |
| Values | off<br>on |
| Default | off |

## ATTRIBUTE Vr Pp SrBp portNum (pNum)

| | |
|---|---|
| Access | Read only |
| Criticality | Component |
| Description | This attribute indicates the unique number assigned to the bridge port. It is used for SNMP management of this bridge port and in spanning tree as an identifier for this bridge port. |

Notes:
Escape routines exist for initializing, copying, and deleting port numbers. This is necessary because SNMP requires a unique port instance identifier. The initPortNum escape routine sets the port number to a value in the range 1-255 for this purpose. The setCopiedPortNum escape routine exists to maintain the uniqueness of the port number in cases when one port is copied to another. When a bridge port is deleted, the releasePortNum escape routine places the port number being released into a pending deletion state. This is because the port number cannot be re-allocated until the port is truly deleted in the current view. This is necessary since there is no guarantee of order when processing changes to multiple protocol ports so without the pending deletion state, the same port number could be temporarily assigned to two ports for a short period of time.

The portNum is set as component critical since bridging also uses the port number as a key for indexing into its data structures. If a port is deleted then re-added under the same protocol port, CAS treats the change as a SET to the portNum attribute.

| | |
|---|---|
| Values | Decimal (0..255) |
| Default | 0 |

### GROUP Vr Pp SrBp StpProvisioned (StpProv)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all port specific provisionable attributes that belong to the Stp group. The Stp group is applicable to all bridge ports that participate in the stp. These attributes influence the participation of the bridge port in the stp. |

### ATTRIBUTE Vr Pp SrBp adminStatus (as)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the current administrative state for this component. ***enabled*** indicates that the component is available for operation. ***disabled*** indicates the component is unavailable for operation. |

Values
up
down

Default
up

### ATTRIBUTE Vr Pp SrBp portStateStpControl (psstpc)

Access
Read and write

Description
This attribute specifies whether or not stp state for this bridge port is controlled by the stp. In essence it indicates the participation of this bridge port in the stp by accepting and acting on received bridge protocol data units and by sending out the same.
***on*** signifies that this bridge port's spanning tree port state is controlled by the stp.
A value of ***off*** signifies that the spanning tree port state of this bridge port is unaffected by the stp. This in effect puts the bridge port out of reach of the stp decisions. Its stp state will be always ***forwarding***. Care should be taken while assigning a value of ***off*** to this attribute, as this might cause network loops. Please do not set this attribute to ***off*** unless you are absolutely sure about the effect of such an action on your network topology.

Values
off
on

Default
on

### ATTRIBUTE Vr Pp SrBp stpTypeProv (stptProv)

Access
Read and write

Description
This attribute specifies the type of the stp the port is participating in. A bridge port could participate in either the ***ieee8021*** stp or the ***dec*** stp. If the value of the attribute *protocolSpec* in the *SpanningTreeProtocol* component is in conflict with the value of this attribute, the value of the *protocolSpec* attribute will prevail. Prevailing stp type is reflected in the value of the attribute *stpTypeOper*.

Values
dec
ieee8021

Default
ieee8021

### ATTRIBUTE Vr Pp SrBp portPriority (ppr)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the value for this bridge port priority which is contained in the first octet of the port identifier. Valid values are as follows:<br>1) 0-255 for stp type DEC and<br>2) 0-65535 for stp type IEEE. |
| Values | Decimal (0..65535) |
| Default | 128 |

### ATTRIBUTE Vr Pp SrBp pathCost (pc)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the contribution of this port to all the paths to the root bridge that include this port. Please note that the value of the attribute *pathCost* is applied only when the value of the attribute *pathCostMethod* is set to ***on*** and is ignored if otherwise. |
| Values | Decimal (1..65535) |
| Default | 10 |

### ATTRIBUTE Vr Pp SrBp pathCostMethod (pcm)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the method used by the bridging logic to calculate the path cost to the bridge considered to be the root bridge in the spanning tree topology. This attribute should be set to ***off*** before attempting to provision a value for *pathCost*. |
| Values | off<br>dec<br>ieee8021 |
| Default | ieee8021 |

### GROUP Vr Pp SrBp DomainInfoProvisioned (DIProv)

| | |
|---|---|
| Properties | Provisioned |

| | |
|---|---|
| Description | This group contains all the provisionable, domain specific attributes for a non-encapsulating bridge port. |

### ATTRIBUTE Vr Pp SrBp domainNum (dn)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the domain number associated with this bridge port. Domain numbers are used for confining frames to a domain. Domain based filtering provides a complete segregation of traffic based on domain number associated with frames. There can exist only sixteen domains when a spanning tree is desired specific to each domain. When there is only a single spanning tree spanning all the domains the maximum number of domains possible are 4294967293.<br>This attribute is of no relevance when associated with backbone bridge port. Its value is ignored in such a situation. |
| Values | Decimal (1..4294967293) |
| Default | 1 |

### ATTRIBUTE Vr Pp SrBp preserveDomain (pds)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies if the domain information should be preserved or embedded in the frame header. This attribute applies only to ***backbone*** ports and does not affect the ***access*** bridge ports. By setting this attribute to a value of ***on***, domain information could be preserved in frames being tunnelled across the backbone, so that this information can be deciphered at the other end of the backbone tunnel. This preserves the integrity of the domains thus preventing domain breaches while tunnelling frames across backbone network.<br>If the value of this attribute is set to ***off*** then domain information is not preserved in the header of the frames tunnelling through the backbone. This eliminates the overhead incurred to preserve domain information across the backbone while tunnelling frames across it.<br>Preserve domain is relevant only when used in conjunction with ATM MPE. |

| | |
|---|---|
| Values | off<br>on |
| Default | No default |

### GROUP Vr Pp SrBp OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Vr Pp SrBp adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Vr Pp SrBp operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Vr Pp SrBp usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Vr Pp SrBp OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

### ATTRIBUTE Vr Pp SrBp snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### GROUP Vr Pp SrBp Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all the operational attributes belonging to the base group. These attributes in part, reflect the state of a bridge port. |

### ATTRIBUTE Vr Pp SrBp portName (pn)

| | |
|---|---|
| Access | Read only |
| Description | The attribute *portName* is a string of the form ***"BridgePortName-i",*** where ***BridgePortName*** is the abbreviation of the corresponding bridge port and ***i*** is the instance identifier of the *ProtocolPort* the bridge port is provisioned under. For example a *TransparentBridgePort* provisioned under *ProtocolPort/ETH100A* would have a name ***TBP-ETH100A.*** |
| Values | String (4..29, ASCII) |
| Default | No default |

### ATTRIBUTE Vr Pp SrBp upTime (ut)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the accumulated up time of this bridge port since the last reset occurred. |
| Values | Decimal (0..4294967295) |
| Units | seconds |
| Default | 0 |

### ATTRIBUTE Vr Pp SrBp downTime (dt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the accumulated down time of this bridge port since the last reset occurred. |
| Values | Decimal (0..4294967295) |
| Units | seconds |
| Default | 0 |

### ATTRIBUTE Vr Pp SrBp bridgingMode (bm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the mode of bridging this port can support. The transparent bridge mode is the only mode supported. |
| Values | unknown<br>tb<br>sr<br>srt |
| Default | No default |

### ATTRIBUTE Vr Pp SrBp bridgePortConfig (bpc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the bridge port's configuration. It indicates if the bridge port is operating as an ***access*** port or as a ***backbone*** port. An ***access*** bridge port does not encapsulate a |

MAC frame and does not preserve domain information in the encapsulation, whereas a ***backbone*** bridge port encapsulates the MAC frame and optionally preserves domain information in the encapsulated frame.A ***backbone*** bridge port is typically used to transport frames across a high bandwidth backbone network to another bridge unit for further processing/forwarding of the frame.

Values
access
backbone

Default
No default

### ATTRIBUTE Vr Pp SrBp bridgePortType (bpt)

Access
Read only

Description
This attribute indicates the type of the bridge port that was provisioned. It takes into consideration the *bridgingMode*, *bridgePortConfig* and the media the bridge port is linked to before branding a bridge port.

Values
ethernetBridgePort
tokenRingBridgePort
fddiBridgePort
tokenBusBridgePort
lanEmulationClientEthernet
fddiEncapsulatingBridgePort
vnsBridgePort
frameRelayBridgePort
pppBridgePort
smdsBridgePort
vcpBridgePort
x25BridgePort
atmMpeBridgePort
srEncapSrBridgePort
srEncapTbBridgePort
sourceGateSrBridgePort
sourceGateTbBridgePort
srtbBridgePort
tbsrBridgePort
clusterSrBridgePort
clusterTbBridgePort

| | |
|---|---|
| | snaDlrBridgePort<br>unknown |
| Default | No default |

### ATTRIBUTE Vr Pp SrBp ifIndex (ifin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the index into the Interface Table where information about the media interface corresponding to this bridge port is maintained. |
| Values | Decimal (1..65535) |
| Default | No default |

### ATTRIBUTE Vr Pp SrBp mtuExceededDiscards (med)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames discarded because the size of the outbound frame exceeded the message transfer unit (mtu) allowed for the bridge port. Note that this counter only refers to the outbound frames for this bridge port. This counter wraps around its maximum value of 4294967295.<br>This counter is influenced by the attribute *fragmentIp*. This counter is incremented when a frame larger than the mtu allowed is encountered and cannot be fragmented. If this counter is increasing steadily, it might be useful to set the value of the attribute *fragmentIp* to a value of ***on***. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### GROUP Vr Pp SrBp StpOperational (StpOper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all port specific operational attributes that belong to the Stp group. The Stp group is applicable to all bridge ports that participate in the stp. These attributes reflect the state of the bridge port's participation in the stp. |

### ATTRIBUTE Vr Pp SrBp stpPortState (sps)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the stp state of the bridge port. |
| Values | disabled<br>blocking<br>listening<br>learning<br>forwarding<br>broken |
| Default | disabled |

### ATTRIBUTE Vr Pp SrBp stpTypeOper (stptOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the type of the stp the port is participating in. A bridge port could participate in either the ***ieee8021*** stp or the ***dec*** stp. |
| Values | none<br>dec<br>ieee8021 |
| Default | ieee8021 |

### ATTRIBUTE Vr Pp SrBp designatedCost (dc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the path cost of the designated port of the lan segment the designated port is connected to. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Pp SrBp pathCostOper (pco)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the contribution of this port to all the paths to the root bridge that include this port. This attribute |

| | |
|---|---|
| | *pathCostOper* will track the value of the attribute *pathCost* when the value of the attribute *pathCostMethod* is set of ***off***. |
| Values | Decimal (1..65535) |
| Default | No default |

### ATTRIBUTE Vr Pp SrBp designatedBridge (db)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the identifier of the bridge that this port considers to be the designated bridge. |
| Values | String (8, Dashed Hex) |
| Default | No default |

### ATTRIBUTE Vr Pp SrBp designatedPort (dp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the port identifier of the port on the designated bridge attached to the same LAN segment as this port is attached to. |
| Values | Hex (H.0..H.ffff) |
| Default | No default |

### ATTRIBUTE Vr Pp SrBp forwardTransitions (ft)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times this bridge port transitioned from the ***learning*** state to the ***forwarding*** state. This counter wraps around its maximum value of 4294967295.<br>A rapidly increasing value might be indicative of an unstable spanning tree topology. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp SrBp blockingDiscards (bd)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the number of the incoming frames that were discarded because the bridge port was in the ***blocking*** state. This counter wraps around its maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp SrBp designatedRoot (dr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the bridge identifier of the bridge recorded as the root bridge in the configuration BPDUs sent out by the designated bridge on the segment this port is attached to. |
| Values | String (8, Dashed Hex) |
| Default | No default |

### GROUP Vr Pp SrBp Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all the statistical attributes applicable to all types of bridge ports and represents the common factor between them. These attributes in part reflect the state of the bridge port. |

### ATTRIBUTE Vr Pp SrBp badAbstractDiscards (bad)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames that were discarded because the data abstracted from the frames coming in through this bridge port did not conform to the format expected by the bridge logic.This counter wraps around its maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp SrBp tinygramFramesIn (tfi)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the number of frames received on this bridge port that used the tinygram compression scheme. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp SrBp tinygramFramesOut (tfo)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames transmitted out this bridge port that used the tinygram compression scheme. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp SrBp inFilterDiscards (ifd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames discarded due to domain based filtering at the in filter point. This counter wraps around its maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp SrBp outFilterDiscards (ofd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames discarded due to domain based filtering at the out filter point. This counter wraps around its maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### GROUP Vr Pp SrBp SrProvisioned (SrProv)

| | |
|---|---|
| Properties | Provisioned |

| | |
|---|---|
| Description | This group contains all port specific, provisionable attributes associated with *SourceRouteBridge* ports. |

### ATTRIBUTE Vr Pp SrBp hopCount (hc)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum number of hops allowed in Spanning Tree Explore and All Routes Explore frames. This value is one less than the maximum number of route descriptors allowed in a source route frame |
| Values | Decimal (1..7) |
| Default | 7 |

### ATTRIBUTE Vr Pp SrBp exploreFrameTreatment (eft)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether or not explore frames received from *SourceRouteBridge* ports will be sent to the SRTB-8209 translation or the encapsulated *SourceRouteBridge* logic. This option is used only when both the *TbsrBridgePort* and the *SrtbBridgePort* are provisioned and enabled.<br>A value of ***Xlate*** implies that the explore frames will be sent to the Srtb translation logic and a value of ***Encap*** implies that the frames will be sent to the Encapsulated source route bridging logic. |
| Values | encap<br>xlate |
| Default | encap |

### ATTRIBUTE Vr Pp SrBp lanId (lid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the identifier for the physical LAN that this port is attached. All *SourceRouteBridge* ports are assigned to a physical LAN and a logical internal LAN.<br>Current source route bridge implementations limit the lanId to a value in the range 0 to 4095. |

| | |
|---|---|
| Values | Decimal (0..4095) |
| Default | 0 |

### ATTRIBUTE Vr Pp SrBp internalLanId (ilid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the identifier for the internal logical LAN this port is attached. All *SourceRouteBridge* ports are assigned to a physical LAN and a logical internal LAN.<br>Current source route bridge implementations limit the lanId to a value in the range 0 to 4095. |
| Values | Decimal (0..4095) |
| Default | 0 |

### ATTRIBUTE Vr Pp SrBp bridgeNum (bid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the value that is used to identify this bridge when more than one bridge is used to span the same two LAN segments. |
| Values | Decimal (0..15) |
| Default | 7 |

### ATTRIBUTE Vr Pp SrBp largestFrame (lf)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum frame size (LLC and above) in octets, allowed by this *SourceRouteBridge* port. This field is used to determine whether a modification of the largest frame field of the routing control field of the routing information field is warranted. |
| Values | Decimal (516; 1470; 2052; 4399; 8130; 11407; 17749) |
| Units | octets |
| Default | No default |

### ATTRIBUTE Vr Pp SrBp steSpanMode (steSm)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute determines how this bridge port will react when presented with a Spanning Tree Explore frame.<br>If ***disabled,*** the Spanning Tree Explore frame is discarded regardless of the value of *stpPortState*.<br>If the value of this attribute is ***forced***, the Spanning Tree Explore frame is forwarded regardless of the value of *stpPortState*.<br>***autoSpan*** uses the *stpPortState* value to decide whether or not Spanning Tree Explore frames should be forwarded out this bridge port. If the port is in the ***forwarding*** state, the frame is received and transmitted otherwise the frame is discarded. |
| Values | autoSpan<br>disabled<br>forced |
| Default | autoSpan |

### ATTRIBUTE Vr Pp SrBp areRdLimit (arl)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the number of route descriptors allowed in an All Routes Explore frame received on a *SourceRouteBridgePort* or *SourceRouteTransparentBridgePort*. Current source route bridge implementations limit the *areRdLimit* to a value in the range 0 to 8. |
| Values | Decimal (0..8) |
| Default | 8 |

### ATTRIBUTE Vr Pp SrBp steRdLimit (srl)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the number of route descriptors allowed in a Spanning Tree Explore frame received on a *SourceRouteBridgePort* or *SourceRouteTransparentBridgePort*. Current source route bridge implementations limit the *steRdLimit* to a value in the range 0 to 8. |

| | |
|---|---|
| Values | Decimal (0..8) |
| Default | 8 |

### GROUP Vr Pp SrBp SrStatistics (SrStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all port specific statistical attributes associated with *SourceRouteBridge* ports. |

### ATTRIBUTE Vr Pp SrBp specInFrames (sif)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the number of specifically routed frames that were received by this bridge port. A specifically routed frame has a route descriptor, constructed by the originating host which details an explicit route to the destination host. This counter will wrap to zero when it exceeds its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp SrBp specOutFrames (srfof)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the number of specifically routed frames that were transmitted from this bridge port. This counter will wrap to zero when it exceeds its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp SrBp apeInFrames (apeif)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the number of All Path Explore frames received on this bridge port. The All Path Explore frames are forwarded to all *SourceRouteBridge* ports assigned to this bridge regardless of the port's *portStpState*s. This counter will wrap to zero when it exceeds its maximum. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp SrBp apeOutFrames (apeof)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the number of All Path Explore frames transmitted on this bridge port. The All Path Explore frames are forwarded to all *SourceRouteBridge* ports assigned to this bridge regardless of the port's *portStpState* state. This counter will wrap to zero when it exceeds its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp SrBp steInFrames (steif)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the number of Spanning Tree Explore frames received on this bridge port. The Spanning Tree Explore frames are only forwarded through bridge ports whose *portStpState* has a value of ***forwarding.*** This counter will wrap to zero when it exceeds its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp SrBp steOutFrames (steof)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the number of Spanning Tree Frames transmitted on this bridge port. This counter will wrap to zero when it exceeds its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp SrBp segmentMismatchDiscards (lidmd)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute specifies the number of All Routes Explore and Spanning Tree Explore frames that were discarded due to an invalid next segment value in the routing information field. This counter will wrap to zero when it exceeds its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp SrBp dupSegmentDiscards (dsd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the number of frames discarded due to the presence of a duplicate segment identifier in the route descriptor field which may indicate a loop in the network topology. This counter will wrap to zero when it exceeds its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp SrBp hopCountExceededDiscards (hced)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the number of All Routes Explore and Spanning Tree Explore frames discarded by this bridge port due to a frame exceeding the maximum size allowed for a route descriptor length. This counter will wrap to zero when it exceeds its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp SrBp dupLanIdOrTreeErrors (dlte)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the number frames received which contain duplicate LAN IDs or Tree errors. This attribute is helpful in debugging problems in networks which contain older IBM-SR bridges. This counter will wrap to zero when it exceeds its maximum. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp SrBp lanIdMismatches

| | |
|---|---|
| Access | Read only |
| Description | This attributes counts the number of All Routes Explore or Spanning Tree Explore frames that were discarded because the last LAN ID in the routing information field did not equal the LAN ID. This counter will wrap to zero when it exceeds its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp SrBp staticDiscards (sd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is indicative of the number of explorer frames discarded due to fact that the outbound *SourceRouteBridge* port was disabled or deleted. This counter will wrap to zero when it exceeds its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp SrBp dynamicDiscards (dd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the number of frames discarded due to receiving a frame with a target LAN ID which did not match the internal LAN ID of the receiving bridge port. This counter will wrap to zero when it exceeds its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT Vr Pp SrBp NetSentry (Ns)

| | |
|---|---|
| Groups | "GROUP Vr Pp SrBp Ns Provisioned (Prov)" |

| | |
|---|---|
| Scope | Application |
| Description | *Vr/<string> Pp/<string> TransparentBridgePort NetSentry*<br>This component represents the *Ns* functionality that can be applied to a bridge port. It contains all the attribute groups (provisionable) that are necessary for the application of Ns functionality to a bridge port. In essence, it allows for the definition of filters, at the incoming and outgoing points, specific to the interface represented by this bridge port. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Vr Pp SrBp Ns Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group houses all the port specific provisionable attributes associated with Ns. These attributes influence the application of filters to incoming and outgoing frames. |

### ATTRIBUTE Vr Pp SrBp Ns incomingFilter (if)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the name of the filter to be applied at the incoming filter point. |
| Values | String (0..32, ASCII) |
| Default | No default |

### ATTRIBUTE Vr Pp SrBp Ns outgoingFilter (of)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the name of the filter to be applied at the out going filter point. |
| Values | String (0..32, ASCII) |
| Default | No default |

## COMPONENT Vr Pp SourceRouteTransparentBridgePort (SrtBp)

| | |
|---|---|
| Groups | "GROUP Vr Pp SrtBp Provisioned (Prov)"<br>"GROUP Vr Pp SrtBp TbProvisioned (TbProv)"<br>"GROUP Vr Pp SrtBp StpProvisioned (StpProv)"<br>"GROUP Vr Pp SrtBp DomainInfoProvisioned (DIProv)"<br>"GROUP Vr Pp SrtBp OsiState (State)"<br>"GROUP Vr Pp SrtBp OperationalStatus (OperStatus)"<br>"GROUP Vr Pp SrtBp Operational (Oper)"<br>"GROUP Vr Pp SrtBp TbOperational (TbOper)"<br>"GROUP Vr Pp SrtBp StpOperational (StpOper)"<br>"GROUP Vr Pp SrtBp Statistics (Stats)"<br>"GROUP Vr Pp SrtBp SrProvisioned (SrProv)"<br>"GROUP Vr Pp SrtBp SrStatistics (SrStats)" |
| Scope | Application |
| Description | Vr/*<string>* *Pp/<string>* *SourceRouteTransparentBridgePort*<br>This component represents a Source Route Transparent (SRT) bridge port. It contains all the attributes (provisionable and operational attributes) necessary for the operation of the bridge port. The SRT bridge port provides a mechanism to transmit and receive both source route and transparent bridge frames. In essence, the SRT bridging scheme defines a method for TB bridges to handle SR frames. SRT bridge ports participate in the transparent bridging spanning tree protocol. |
| Opt. Subcomp. | "COMPONENT Vr Pp SrtBp NetSentry (Ns)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP Vr Pp SrtBp Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |

| | |
|---|---|
| Description | This group contains all the provisionable attributes that belong to this group. This group of attributes is applicable to all types of bridge ports and represent the common factor between them. These attributes influence the working of a bridge port. |

### ATTRIBUTE Vr Pp SrtBp fragmentIp (fIp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies if outbound frames carrying IP datagrams should be fragmented to conform to message transfer unit (*mtu*) sizes dictated by the media. |
| Values | off<br>on |
| Default | off |

### ATTRIBUTE Vr Pp SrtBp portNum (pNum)

| | |
|---|---|
| Access | Read only |
| Criticality | Component |
| Description | This attribute indicates the unique number assigned to the bridge port. It is used for SNMP management of this bridge port and in spanning tree as an identifier for this bridge port.<br>Notes:<br>Escape routines exist for initializing, copying, and deleting port numbers. This is necessary because SNMP requires a unique port instance identifier. The initPortNum escape routine sets the port number to a value in the range 1-255 for this purpose. The setCopiedPortNum escape routine exists to maintain the uniqueness of the port number in cases when one port is copied to another. When a bridge port is deleted, the releasePortNum escape routine places the port number being released into a pending deletion state. This is because the port number cannot be re-allocated until the port is truly deleted in the current view. This is necessary since there is no guarantee of order when processing changes to multiple protocol ports so without the pending deletion state, the same port number could be temporarily assigned to two ports for a short period of time.<br><br>The portNum is set as component critical since bridging also uses |

the port number as a key for indexing into its data structures. If a port is deleted then re-added under the same protocol port, CAS treats the change as a SET to the portNum attribute.

Values: Decimal (0..255)

Default: 0

### GROUP Vr Pp SrtBp TbProvisioned (TbProv)

Properties: Provisioned

Description: This group contains all the port specific provisionable attributes that belong to the Tb group. These attributes in part influence the working of a bridge port operating in the transparent bridge mode.

### ATTRIBUTE Vr Pp SrtBp secureOption (sos)

Access: Read and write

Description: This attribute specifies whether the port secure feature is enabled. The secure feature, if enabled causes the following things to happen:
a) disallows dynamic learning,
b) disallows frames to be forwarded that do not satisfy the following condition: the MAC address of the source should be found in the forwarding table and the destination MAC address of the frame should also be found in the forwarding table. In addition to this, the port the frame was received on should figure as the in port, given the destination MAC address found in the frame.
c) disallows frames to be forwarded if the allowed to go port map for the destination MAC address is empty.
This feature in effect allows the user to choose the hosts that can generate traffic and the hosts that can receive traffic through this bridge unit.

Values: disabled
enabled

Default: disabled

## GROUP Vr Pp SrtBp StpProvisioned (StpProv)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all port specific provisionable attributes that belong to the Stp group. The Stp group is applicable to all bridge ports that participate in the stp. These attributes influence the participation of the bridge port in the stp. |

## ATTRIBUTE Vr Pp SrtBp adminStatus (as)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the current administrative state for this component. ***enabled*** indicates that the component is available for operation. ***disabled*** indicates the component is unavailable for operation. |
| Values | up<br>down |
| Default | up |

## ATTRIBUTE Vr Pp SrtBp portStateStpControl (psstpc)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether or not stp state for this bridge port is controlled by the stp. In essence it indicates the participation of this bridge port in the stp by accepting and acting on received bridge protocol data units and by sending out the same.<br>***on*** signifies that this bridge port's spanning tree port state is controlled by the stp.<br>A value of ***off*** signifies that the spanning tree port state of this bridge port is unaffected by the stp. This in effect puts the bridge port out of reach of the stp decisions. Its stp state will be always ***forwarding***. Care should be taken while assigning a value of ***off*** to this attribute, as this might cause network loops. Please do not set this attribute to ***off*** unless you are absolutely sure about the effect of such an action on your network topology. |
| Values | off<br>on |
| Default | on |

### ATTRIBUTE Vr Pp SrtBp stpTypeProv (stptProv)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the type of the stp the port is participating in. A bridge port could participate in either the ***ieee8021*** stp or the ***dec*** stp. If the value of the attribute *protocolSpec* in the *SpanningTreeProtocol* component is in conflict with the value of this attribute, the value of the *protocolSpec* attribute will prevail. Prevailing stp type is reflected in the value of the attribute *stpTypeOper*. |
| Values | dec<br>ieee8021 |
| Default | ieee8021 |

### ATTRIBUTE Vr Pp SrtBp portPriority (ppr)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the value for this bridge port priority which is contained in the first octet of the port identifier. Valid values are as follows:<br>1) 0-255 for stp type DEC and<br>2) 0-65535 for stp type IEEE. |
| Values | Decimal (0..65535) |
| Default | 128 |

### ATTRIBUTE Vr Pp SrtBp pathCost (pc)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the contribution of this port to all the paths to the root bridge that include this port. Please note that the value of the attribute *pathCost* is applied only when the value of the attribute *pathCostMethod* is set to ***on*** and is ignored if otherwise. |
| Values | Decimal (1..65535) |
| Default | 10 |

### ATTRIBUTE Vr Pp SrtBp pathCostMethod (pcm)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the method used by the bridging logic to calculate the path cost to the bridge considered to be the root bridge in the spanning tree topology. This attribute should be set to ***off*** before attempting to provision a value for *pathCost*. |
| Values | off<br>dec<br>ieee8021 |
| Default | ieee8021 |

### GROUP Vr Pp SrtBp DomainInfoProvisioned (DIProv)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all the provisionable, domain specific attributes for a non-encapsulating bridge port. |

### ATTRIBUTE Vr Pp SrtBp domainNum (dn)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the domain number associated with this bridge port. Domain numbers are used for confining frames to a domain. Domain based filtering provides a complete segregation of traffic based on domain number associated with frames. There can exist only sixteen domains when a spanning tree is desired specific to each domain. When there is only a single spanning tree spanning all the domains the maximum number of domains possible are 4294967293.<br>This attribute is of no relevance when associated with backbone bridge port. Its value is ignored in such a situation. |
| Values | Decimal (1..4294967293) |
| Default | 1 |

### ATTRIBUTE Vr Pp SrtBp preserveDomain (pds)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |

| | |
|---|---|
| Description | This attribute specifies if the domain information should be preserved or embedded in the frame header. This attribute applies only to ***backbone*** ports and does not affect the ***access*** bridge ports. By setting this attribute to a value of ***on***, domain information could be preserved in frames being tunnelled across the backbone, so that this information can be deciphered at the other end of the backbone tunnel. This preserves the integrity of the domains thus preventing domain breaches while tunnelling frames across backbone network.<br>If the value of this attribute is set to ***off*** then domain information is not preserved in the header of the frames tunnelling through the backbone. This eliminates the overhead incurred to preserve domain information across the backbone while tunnelling frames across it.<br>Preserve domain is relevant only when used in conjunction with ATM MPE. |
| Values | off<br>on |
| Default | No default |

### GROUP Vr Pp SrtBp OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Vr Pp SrtBp adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. |

When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Vr Pp SrtBp operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Vr Pp SrtBp usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Vr Pp SrtBp OperationalStatus (OperStatus)

Properties
Operational

Description
This group includes the Operational Status attribute. This attribute defines the current operational state of this component.

### ATTRIBUTE Vr Pp SrtBp snmpOperStatus

Access
Read only

Description
The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed.

Values
up
down
testing

Default
up

### GROUP Vr Pp SrtBp Operational (Oper)

Properties
Operational

Description
This group contains all the operational attributes belonging to the base group. These attributes in part, reflect the state of a bridge port.

### ATTRIBUTE Vr Pp SrtBp portName (pn)

| | |
|---|---|
| Access | Read only |
| Description | The attribute *portName* is a string of the form ***"BridgePortName-i",*** where ***BridgePortName*** is the abbreviation of the corresponding bridge port and ***i*** is the instance identifier of the *ProtocolPort* the bridge port is provisioned under. For example a *TransparentBridgePort* provisioned under *ProtocolPort/ETH100A* would have a name ***TBP-ETH100A.*** |
| Values | String (4..29, ASCII) |
| Default | No default |

### ATTRIBUTE Vr Pp SrtBp upTime (ut)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the accumulated up time of this bridge port since the last reset occurred. |
| Values | Decimal (0..4294967295) |
| Units | seconds |
| Default | 0 |

### ATTRIBUTE Vr Pp SrtBp downTime (dt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the accumulated down time of this bridge port since the last reset occurred. |
| Values | Decimal (0..4294967295) |
| Units | seconds |
| Default | 0 |

### ATTRIBUTE Vr Pp SrtBp bridgingMode (bm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the mode of bridging this port can support. The transparent bridge mode is the only mode supported. |

| | |
|---|---|
| Values | unknown<br>tb<br>sr<br>srt |
| Default | No default |

### ATTRIBUTE Vr Pp SrtBp bridgePortConfig (bpc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the bridge port's configuration. It indicates if the bridge port is operating as an ***access*** port or as a ***backbone*** port. An ***access*** bridge port does not encapsulate a MAC frame and does not preserve domain information in the encapsulation, whereas a ***backbone*** bridge port encapsulates the MAC frame and optionally preserves domain information in the encapsulated frame.A ***backbone*** bridge port is typically used to transport frames across a high bandwidth backbone network to another bridge unit for further processing/forwarding of the frame. |
| Values | access<br>backbone |
| Default | No default |

### ATTRIBUTE Vr Pp SrtBp bridgePortType (bpt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the type of the bridge port that was provisioned. It takes into consideration the *bridgingMode*, *bridgePortConfig* and the media the bridge port is linked to before branding a bridge port. |
| Values | ethernetBridgePort<br>tokenRingBridgePort<br>fddiBridgePort<br>tokenBusBridgePort<br>lanEmulationClientEthernet<br>fddiEncapsulatingBridgePort<br>vnsBridgePort<br>frameRelayBridgePort |

pppBridgePort
smdsBridgePort
vcpBridgePort
x25BridgePort
atmMpeBridgePort
srEncapSrBridgePort
srEncapTbBridgePort
sourceGateSrBridgePort
sourceGateTbBridgePort
srtbBridgePort
tbsrBridgePort
clusterSrBridgePort
clusterTbBridgePort
snaDlrBridgePort
unknown

Default: No default

### ATTRIBUTE Vr Pp SrtBp ifIndex (ifin)

Access: Read only

Description: This attribute indicates the index into the Interface Table where information about the media interface corresponding to this bridge port is maintained.

Values: Decimal (1..65535)

Default: No default

### ATTRIBUTE Vr Pp SrtBp mtuExceededDiscards (med)

Access: Read only

Description: This attribute counts the number of frames discarded because the size of the outbound frame exceeded the message transfer unit (mtu) allowed for the bridge port. Note that this counter only refers to the outbound frames for this bridge port. This counter wraps around its maximum value of 4294967295.
This counter is influenced by the attribute *fragmentIp*. This counter is incremented when a frame larger than the mtu allowed is encountered and cannot be fragmented. If this counter is increasing steadily, it might be useful to set the value of the attribute *fragmentIp* to a value of ***on***.

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### GROUP Vr Pp SrtBp TbOperational (TbOper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all the port specific operational attributes that belong to the Tb group. This group also contains all the port specific statistical attributes that belong to the Tb group. These attributes reflect the state of a bridge port operating in the transparent bridge mode |

### ATTRIBUTE Vr Pp SrtBp maxInfo (mi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the maximum size of the information field in a transparent bridge frame. This excludes the header field. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp SrtBp badVerifyDiscards (bvd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of incoming frames that were discarded because the value of the *secureOption* attribute was set to ***on*** and:<br>a) it is not allowed to receive frames originating from the MAC address found in the source address field of the frame (source MAC address lookup in the forwarding table failed) on this bridge port, or<br>b) for the destination MAC address found in the frame the port the frame was received on does not appear as in port in the corresponding static table entry.<br>Permission to receive frames from a MAC address is granted via the static table entries.<br>This attribute, *badVerifyDiscards*, is directly influenced by:<br>1. *secureOption* and<br>2. the static table entries. |

This counter wraps around its maximum value of 4294967295.

Values Decimal (0..4294967295)

Default 0

### ATTRIBUTE Vr Pp SrtBp staticEntryDiscards (sed)

Access Read only

Description This attribute counts the number of frames that were discarded because of the following three reasons:
a) there was no entry for the “allowed to go” field in the static table entry, where the input port is this bridge port.
b) the MAC destination address in the frame was not found in the forwarding table but the frame cannot be flooded because this bridge has not other ports in forwarding state.
c) for spanning tree bpdus that are locally processed.
This counter wraps around its maximum value of 4294967295.
It might prove useful to check the static table entry corresponding to the bridge port in question, if this counter consistently displays a high value.
Ideally this counter should be as low as possible.

Values Decimal (0..4294967295)

Default 0

### ATTRIBUTE Vr Pp SrtBp dynamicEntryDiscards (dend)

Access Read only

Description This attribute counts the number of incoming frames that:
a) were discarded because of the fact that the bridge port, the frame is to go out of matches the bridge port it came in from, or
b) if the stp port state of the out port is not ***forwarding***.
This counter wraps around its maximum value of 4294967295.

Values Decimal (0..4294967295)

Default 0

### ATTRIBUTE Vr Pp SrtBp learningDiscards (ld)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames that were discarded while this bridge port was in a state other than the ***forwarding*** state. While in ***learning*** state the frame is discarded after the information from its header is learnt. This counter wraps around its maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp SrtBp inDiscards (id)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames that were received by this bridge port and were discarded by the forwarding process. This includes frames that could have been discarded due to filtering. A rapidly increasing value for this attribute could indicate a shortage of resource in terms of memory needed to process the incoming frames. More memory can be provisioned through the *VirtualRouter*'s memory manager. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp SrtBp inFrames (if)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames that have been received by this port from its segment. Note that a frame received on this bridge port is counted if and only if it can be processed by the bridge logic contained in this bridge unit. This counter wraps around its maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp SrtBp outFrames (of)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames that have been transmitted out this bridge port. This also includes management frames.This counter wraps around its maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### GROUP Vr Pp SrtBp StpOperational (StpOper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all port specific operational attributes that belong to the Stp group. The Stp group is applicable to all bridge ports that participate in the stp. These attributes reflect the state of the bridge port's participation in the stp. |

### ATTRIBUTE Vr Pp SrtBp stpPortState (sps)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the stp state of the bridge port. |
| Values | disabled<br>blocking<br>listening<br>learning<br>forwarding<br>broken |
| Default | disabled |

### ATTRIBUTE Vr Pp SrtBp stpTypeOper (stptOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the type of the stp the port is participating in. A bridge port could participate in either the ***ieee8021*** stp or the ***dec*** stp. |

| | |
|---|---|
| Values | none<br>dec<br>ieee8021 |
| Default | ieee8021 |

### ATTRIBUTE Vr Pp SrtBp designatedCost (dc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the path cost of the designated port of the lan segment the designated port is connected to. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Pp SrtBp pathCostOper (pco)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the contribution of this port to all the paths to the root bridge that include this port. This attribute *pathCostOper* will track the value of the attribute *pathCost* when the value of the attribute *pathCostMethod* is set of ***off***. |
| Values | Decimal (1..65535) |
| Default | No default |

### ATTRIBUTE Vr Pp SrtBp designatedBridge (db)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the identifier of the bridge that this port considers to be the designated bridge. |
| Values | String (8, Dashed Hex) |
| Default | No default |

### ATTRIBUTE Vr Pp SrtBp designatedPort (dp)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the port identifier of the port on the designated bridge attached to the same LAN segment as this port is attached to. |
| Values | Hex (H.0..H.ffff) |
| Default | No default |

### ATTRIBUTE Vr Pp SrtBp forwardTransitions (ft)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times this bridge port transitioned from the ***learning*** state to the ***forwarding*** state. This counter wraps around its maximum value of 4294967295.<br>A rapidly increasing value might be indicative of an unstable spanning tree topology. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp SrtBp blockingDiscards (bd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of the incoming frames that were discarded because the bridge port was in the ***blocking*** state. This counter wraps around its maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp SrtBp designatedRoot (dr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the bridge identifier of the bridge recorded as the root bridge in the configuration BPDUs sent out by the designated bridge on the segment this port is attached to. |
| Values | String (8, Dashed Hex) |
| Default | No default |

### GROUP Vr Pp SrtBp Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all the statistical attributes applicable to all types of bridge ports and represents the common factor between them. These attributes in part reflect the state of the bridge port. |

### ATTRIBUTE Vr Pp SrtBp badAbstractDiscards (bad)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames that were discarded because the data abstracted from the frames coming in through this bridge port did not conform to the format expected by the bridge logic.This counter wraps around its maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp SrtBp tinygramFramesIn (tfi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames received on this bridge port that used the tinygram compression scheme. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp SrtBp tinygramFramesOut (tfo)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames transmitted out this bridge port that used the tinygram compression scheme. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp SrtBp inFilterDiscards (ifd)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the number of frames discarded due to domain based filtering at the in filter point. This counter wraps around its maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp SrtBp outFilterDiscards (ofd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames discarded due to domain based filtering at the out filter point. This counter wraps around its maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### GROUP Vr Pp SrtBp SrProvisioned (SrProv)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all port specific, provisionable attributes associated with *SourceRouteBridge* ports. |

### ATTRIBUTE Vr Pp SrtBp hopCount (hc)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum number of hops allowed in Spanning Tree Explore and All Routes Explore frames. This value is one less than the maximum number of route descriptors allowed in a source route frame |
| Values | Decimal (1..7) |
| Default | 7 |

### ATTRIBUTE Vr Pp SrtBp exploreFrameTreatment (eft)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether or not explore frames received from *SourceRouteBridge* ports will be sent to the SRTB-8209 translation or the encapsulated *SourceRouteBridge* logic. This |

| | |
|---|---|
| | option is used only when both the *TbsrBridgePort* and the *SrtbBridgePort* are provisioned and enabled.<br>A value of ***Xlate*** implies that the explore frames will be sent to the Srtb translation logic and a value of ***Encap*** implies that the frames will be sent to the Encapsulated source route bridging logic. |
| Values | encap<br>xlate |
| Default | encap |

### ATTRIBUTE Vr Pp SrtBp lanId (lid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the identifier for the physical LAN that this port is attached. All *SourceRouteBridge* ports are assigned to a physical LAN and a logical internal LAN.<br>Current source route bridge implementations limit the lanId to a value in the range 0 to 4095. |
| Values | Decimal (0..4095) |
| Default | 0 |

### ATTRIBUTE Vr Pp SrtBp internalLanId (ilid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the identifier for the internal logical LAN this port is attached. All *SourceRouteBridge* ports are assigned to a physical LAN and a logical internal LAN.<br>Current source route bridge implementations limit the lanId to a value in the range 0 to 4095. |
| Values | Decimal (0..4095) |
| Default | 0 |

### ATTRIBUTE Vr Pp SrtBp bridgeNum (bid)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute specifies the value that is used to identify this bridge when more than one bridge is used to span the same two LAN segments. |
| Values | Decimal (0..15) |
| Default | 7 |

### ATTRIBUTE Vr Pp SrtBp largestFrame (lf)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum frame size (LLC and above) in octets, allowed by this *SourceRouteBridge* port. This field is used to determine whether a modification of the largest frame field of the routing control field of the routing information field is warranted. |
| Values | Decimal (516; 1470; 2052; 4399; 8130; 11407; 17749) |
| Units | octets |
| Default | No default |

### ATTRIBUTE Vr Pp SrtBp steSpanMode (steSm)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute determines how this bridge port will react when presented with a Spanning Tree Explore frame.<br>If ***disabled,*** the Spanning Tree Explore frame is discarded regardless of the value of *stpPortState*.<br>If the value of this attribute is ***forced***, the Spanning Tree Explore frame is forwarded regardless of the value of *stpPortState*.<br>***autoSpan*** uses the *stpPortState* value to decide whether or not Spanning Tree Explore frames should be forwarded out this bridge port. If the port is in the ***forwarding*** state, the frame is received and transmitted otherwise the frame is discarded. |
| Values | autoSpan<br>disabled<br>forced |
| Default | autoSpan |

### ATTRIBUTE Vr Pp SrtBp areRdLimit (arl)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the number of route descriptors allowed in an All Routes Explore frame received on a *SourceRouteBridgePort* or *SourceRouteTransparentBridgePort*. Current source route bridge implementations limit the *areRdLimit* to a value in the range 0 to 8. |
| Values | Decimal (0..8) |
| Default | 8 |

### ATTRIBUTE Vr Pp SrtBp steRdLimit (srl)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the number of route descriptors allowed in a Spanning Tree Explore frame received on a *SourceRouteBridgePort* or *SourceRouteTransparentBridgePort*. Current source route bridge implementations limit the *steRdLimit* to a value in the range 0 to 8. |
| Values | Decimal (0..8) |
| Default | 8 |

### GROUP Vr Pp SrtBp SrStatistics (SrStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all port specific statistical attributes associated with *SourceRouteBridge* ports. |

### ATTRIBUTE Vr Pp SrtBp specInFrames (sif)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the number of specifically routed frames that were received by this bridge port. A specifically routed frame has a route descriptor, constructed by the originating host which details an explicit route to the destination host. This counter will wrap to zero when it exceeds its maximum. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE Vr Pp SrtBp specOutFrames (srfof)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the number of specifically routed frames that were transmitted from this bridge port. This counter will wrap to zero when it exceeds its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp SrtBp apeInFrames (apeif)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the number of All Path Explore frames received on this bridge port. The All Path Explore frames are forwarded to all *SourceRouteBridge* ports assigned to this bridge regardless of the port's *portStpState*s. This counter will wrap to zero when it exceeds its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp SrtBp apeOutFrames (apeof)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the number of All Path Explore frames transmitted on this bridge port. The All Path Explore frames are forwarded to all *SourceRouteBridge* ports assigned to this bridge regardless of the port's *portStpState* state. This counter will wrap to zero when it exceeds its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp SrtBp steInFrames (steif)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute specifies the number of Spanning Tree Explore frames received on this bridge port. The Spanning Tree Explore frames are only forwarded through bridge ports whose *portStpState* has a value of ***forwarding.*** This counter will wrap to zero when it exceeds its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp SrtBp steOutFrames (steof)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the number of Spanning Tree Frames transmitted on this bridge port. This counter will wrap to zero when it exceeds its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp SrtBp segmentMismatchDiscards (lidmd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the number of All Routes Explore and Spanning Tree Explore frames that were discarded due to an invalid next segment value in the routing information field. This counter will wrap to zero when it exceeds its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp SrtBp dupSegmentDiscards (dsd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the number of frames discarded due to the presence of a duplicate segment identifier in the route descriptor field which may indicate a loop in the network topology. This counter will wrap to zero when it exceeds its maximum. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE Vr Pp SrtBp hopCountExceededDiscards (hced)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the number of All Routes Explore and Spanning Tree Explore frames discarded by this bridge port due to a frame exceeding the maximum size allowed for a route descriptor length. This counter will wrap to zero when it exceeds its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp SrtBp dupLanIdOrTreeErrors (dlte)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the number frames received which contain duplicate LAN IDs or Tree errors. This attribute is helpful in debugging problems in networks which contain older IBM-SR bridges. This counter will wrap to zero when it exceeds its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp SrtBp lanIdMismatches

| | |
|---|---|
| Access | Read only |
| Description | This attributes counts the number of All Routes Explore or Spanning Tree Explore frames that were discarded because the last LAN ID in the routing information field did not equal the LAN ID. This counter will wrap to zero when it exceeds its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp SrtBp staticDiscards (sd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is indicative of the number of explorer frames discarded due to fact that the outbound *SourceRouteBridge* port was disabled or deleted. This counter will wrap to zero when it exceeds its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp SrtBp dynamicDiscards (dd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the number of frames discarded due to receiving a frame with a target LAN ID which did not match the internal LAN ID of the receiving bridge port. This counter will wrap to zero when it exceeds its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT Vr Pp SrtBp NetSentry (Ns)

| | |
|---|---|
| Groups | "GROUP Vr Pp SrtBp Ns Provisioned (Prov)" |
| Scope | Application |
| Description | *Vr/<string> Pp/<string> TransparentBridgePort NetSentry* This component represents the *Ns* functionality that can be applied to a bridge port. It contains all the attribute groups (provisionable) that are necessary for the application of Ns functionality to a bridge port. In essence, it allows for the definition of filters, at the incoming and outgoing points, specific to the interface represented by this bridge port. |

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Vr Pp SrtBp Ns Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group houses all the port specific provisionable attributes associated with Ns. These attributes influence the application of filters to incoming and outgoing frames. |

### ATTRIBUTE Vr Pp SrtBp Ns incomingFilter (if)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the name of the filter to be applied at the incoming filter point. |
| Values | String (0..32, ASCII) |
| Default | No default |

### ATTRIBUTE Vr Pp SrtBp Ns outgoingFilter (of)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the name of the filter to be applied at the out going filter point. |
| Values | String (0..32, ASCII) |
| Default | No default |

### COMPONENT Vr Pp SrseBridgePort (Srse)

| | |
|---|---|
| Groups | "GROUP Vr Pp Srse Provisioned (Prov)"<br>"GROUP Vr Pp Srse StpProvisioned (StpProv)"<br>"GROUP Vr Pp Srse DomainInfoProvisioned (DIProv)"<br>"GROUP Vr Pp Srse OsiState (State)" |

"GROUP Vr Pp Srse OperationalStatus (OperStatus)"
"GROUP Vr Pp Srse Operational (Oper)"
"GROUP Vr Pp Srse StpOperational (StpOper)"
"GROUP Vr Pp Srse Statistics (Stats)"
"GROUP Vr Pp Srse SrProvisioned (SrProv)"
"GROUP Vr Pp Srse SrStatistics (SrStats)"

Scope: Application

Description: Vr/*<string> Pp/<string> SrseBridgePort*
This component represents the access point for source route frames destined for the source route encapsulating logic. Source route encapsulated bridging enables source routed frames to be tunneled through a transparent bridge/source route transparent cloud in order to reach a remote source route network. This mechanism provides for virtual connectivity of source route networks across non source route networks. The *SrseBridgePort* essentially provides an access point for source route frames into this virtual connectivity. Note that the *SrseBridgePort* and the *TbseBridgePort* must be provisioned in the same provisioning session. Enabling/disabling the *SrseBridgePort* automatically enables/disables the *TbseBridgePort*.

Common Verbs:
Help
List
Display
Add
DELete
LOCK
Unlock

## GROUP Vr Pp Srse Provisioned (Prov)

Properties: Provisioned

Description: This group contains all the provisionable attributes that belong to this group. This group of attributes is applicable to all types of bridge ports and represent the common factor between them. These attributes influence the working of a bridge port.

## ATTRIBUTE Vr Pp Srse fragmentIp (fIp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies if outbound frames carrying IP datagrams should be fragmented to conform to message transfer unit (*mtu*) sizes dictated by the media. |
| Values | off<br>on |
| Default | off |

## ATTRIBUTE Vr Pp Srse portNum (pNum)

| | |
|---|---|
| Access | Read only |
| Criticality | Component |
| Description | This attribute indicates the unique number assigned to the bridge port. It is used for SNMP management of this bridge port and in spanning tree as an identifier for this bridge port.<br>Notes:<br>Escape routines exist for initializing, copying, and deleting port numbers. This is necessary because SNMP requires a unique port instance identifier. The initPortNum escape routine sets the port number to a value in the range 1-255 for this purpose. The setCopiedPortNum escape routine exists to maintain the uniqueness of the port number in cases when one port is copied to another. When a bridge port is deleted, the releasePortNum escape routine places the port number being released into a pending deletion state. This is because the port number cannot be re-allocated until the port is truly deleted in the current view. This is necessary since there is no guarantee of order when processing changes to multiple protocol ports so without the pending deletion state, the same port number could be temporarily assigned to two ports for a short period of time.<br><br>The portNum is set as component critical since bridging also uses the port number as a key for indexing into its data structures. If a port is deleted then re-added under the same protocol port, CAS treats the change as a SET to the portNum attribute. |
| Values | Decimal (0..255) |

| | |
|---|---|
| Default | 0 |

### GROUP Vr Pp Srse StpProvisioned (StpProv)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all port specific provisionable attributes that belong to the Stp group. The Stp group is applicable to all bridge ports that participate in the stp. These attributes influence the participation of the bridge port in the stp. |

### ATTRIBUTE Vr Pp Srse adminStatus (as)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the current administrative state for this component. ***enabled*** indicates that the component is available for operation. ***disabled*** indicates the component is unavailable for operation. |
| Values | up<br>down |
| Default | up |

### ATTRIBUTE Vr Pp Srse portStateStpControl (psstpc)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether or not stp state for this bridge port is controlled by the stp. In essence it indicates the participation of this bridge port in the stp by accepting and acting on received bridge protocol data units and by sending out the same.<br>***on*** signifies that this bridge port's spanning tree port state is controlled by the stp.<br>A value of ***off*** signifies that the spanning tree port state of this bridge port is unaffected by the stp. This in effect puts the bridge port out of reach of the stp decisions. Its stp state will be always ***forwarding***. Care should be taken while assigning a value of ***off*** to this attribute, as this might cause network loops. Please do not set this attribute to ***off*** unless you are absolutely sure about the effect of such an action on your network topology. |
| Values | off<br>on |

| | |
|---|---|
| Default | on |

### ATTRIBUTE Vr Pp Srse stpTypeProv (stptProv)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the type of the stp the port is participating in. A bridge port could participate in either the ***ieee8021*** stp or the ***dec*** stp. If the value of the attribute *protocolSpec* in the *SpanningTreeProtocol* component is in conflict with the value of this attribute, the value of the *protocolSpec* attribute will prevail. Prevailing stp type is reflected in the value of the attribute *stpTypeOper*. |
| Values | dec<br>ieee8021 |
| Default | ieee8021 |

### ATTRIBUTE Vr Pp Srse portPriority (ppr)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the value for this bridge port priority which is contained in the first octet of the port identifier. Valid values are as follows:<br>1) 0-255 for stp type DEC and<br>2) 0-65535 for stp type IEEE. |
| Values | Decimal (0..65535) |
| Default | 128 |

### ATTRIBUTE Vr Pp Srse pathCost (pc)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the contribution of this port to all the paths to the root bridge that include this port. Please note that the value of the attribute *pathCost* is applied only when the value of the attribute *pathCostMethod* is set to ***on*** and is ignored if otherwise. |
| Values | Decimal (1..65535) |
| Default | 10 |

### ATTRIBUTE Vr Pp Srse pathCostMethod (pcm)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the method used by the bridging logic to calculate the path cost to the bridge considered to be the root bridge in the spanning tree topology. This attribute should be set to ***off*** before attempting to provision a value for *pathCost*. |
| Values | off<br>dec<br>ieee8021 |
| Default | ieee8021 |

### GROUP Vr Pp Srse DomainInfoProvisioned (DIProv)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all the provisionable, domain specific attributes for a non-encapsulating bridge port. |

### ATTRIBUTE Vr Pp Srse domainNum (dn)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the domain number associated with this bridge port. Domain numbers are used for confining frames to a domain. Domain based filtering provides a complete segregation of traffic based on domain number associated with frames. There can exist only sixteen domains when a spanning tree is desired specific to each domain. When there is only a single spanning tree spanning all the domains the maximum number of domains possible are 4294967293.<br>This attribute is of no relevance when associated with backbone bridge port. Its value is ignored in such a situation. |
| Values | Decimal (1..4294967293) |
| Default | 1 |

### ATTRIBUTE Vr Pp Srse preserveDomain (pds)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |

| | |
|---|---|
| Description | This attribute specifies if the domain information should be preserved or embedded in the frame header. This attribute applies only to ***backbone*** ports and does not affect the ***access*** bridge ports. By setting this attribute to a value of ***on***, domain information could be preserved in frames being tunnelled across the backbone, so that this information can be deciphered at the other end of the backbone tunnel. This preserves the integrity of the domains thus preventing domain breaches while tunnelling frames across backbone network.<br>If the value of this attribute is set to ***off*** then domain information is not preserved in the header of the frames tunnelling through the backbone. This eliminates the overhead incurred to preserve domain information across the backbone while tunnelling frames across it.<br>Preserve domain is relevant only when used in conjunction with ATM MPE. |
| Values | off<br>on |
| Default | No default |

### GROUP Vr Pp Srse OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Vr Pp Srse adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. |

When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Vr Pp Srse operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Vr Pp Srse usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Vr Pp Srse OperationalStatus (OperStatus)

Properties
Operational

Description
This group includes the Operational Status attribute. This attribute defines the current operational state of this component.

### ATTRIBUTE Vr Pp Srse snmpOperStatus

Access
Read only

Description
The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed.

Values
up
down
testing

Default
up

### GROUP Vr Pp Srse Operational (Oper)

Properties
Operational

Description
This group contains all the operational attributes belonging to the base group. These attributes in part, reflect the state of a bridge port.

### ATTRIBUTE Vr Pp Srse portName (pn)

| | |
|---|---|
| Access | Read only |
| Description | The attribute *portName* is a string of the form ***"BridgePortName-i",*** where ***BridgePortName*** is the abbreviation of the corresponding bridge port and ***i*** is the instance identifier of the *ProtocolPort* the bridge port is provisioned under. For example a *TransparentBridgePort* provisioned under *ProtocolPort/ETH100A* would have a name ***TBP-ETH100A.*** |
| Values | String (4..29, ASCII) |
| Default | No default |

### ATTRIBUTE Vr Pp Srse upTime (ut)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the accumulated up time of this bridge port since the last reset occurred. |
| Values | Decimal (0..4294967295) |
| Units | seconds |
| Default | 0 |

### ATTRIBUTE Vr Pp Srse downTime (dt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the accumulated down time of this bridge port since the last reset occurred. |
| Values | Decimal (0..4294967295) |
| Units | seconds |
| Default | 0 |

### ATTRIBUTE Vr Pp Srse bridgingMode (bm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the mode of bridging this port can support. The transparent bridge mode is the only mode supported. |

| | |
|---|---|
| Values | unknown<br>tb<br>sr<br>srt |
| Default | No default |

### ATTRIBUTE Vr Pp Srse bridgePortConfig (bpc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the bridge port's configuration. It indicates if the bridge port is operating as an ***access*** port or as a ***backbone*** port. An ***access*** bridge port does not encapsulate a MAC frame and does not preserve domain information in the encapsulation, whereas a ***backbone*** bridge port encapsulates the MAC frame and optionally preserves domain information in the encapsulated frame.A ***backbone*** bridge port is typically used to transport frames across a high bandwidth backbone network to another bridge unit for further processing/forwarding of the frame. |
| Values | access<br>backbone |
| Default | No default |

### ATTRIBUTE Vr Pp Srse bridgePortType (bpt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the type of the bridge port that was provisioned. It takes into consideration the *bridgingMode*, *bridgePortConfig* and the media the bridge port is linked to before branding a bridge port. |
| Values | ethernetBridgePort<br>tokenRingBridgePort<br>fddiBridgePort<br>tokenBusBridgePort<br>lanEmulationClientEthernet<br>fddiEncapsulatingBridgePort<br>vnsBridgePort<br>frameRelayBridgePort |

pppBridgePort
smdsBridgePort
vcpBridgePort
x25BridgePort
atmMpeBridgePort
srEncapSrBridgePort
srEncapTbBridgePort
sourceGateSrBridgePort
sourceGateTbBridgePort
srtbBridgePort
tbsrBridgePort
clusterSrBridgePort
clusterTbBridgePort
snaDlrBridgePort
unknown

Default — No default

### ATTRIBUTE Vr Pp Srse ifIndex (ifin)

Access — Read only

Description — This attribute indicates the index into the Interface Table where information about the media interface corresponding to this bridge port is maintained.

Values — Decimal (1..65535)

Default — No default

### ATTRIBUTE Vr Pp Srse mtuExceededDiscards (med)

Access — Read only

Description — This attribute counts the number of frames discarded because the size of the outbound frame exceeded the message transfer unit (mtu) allowed for the bridge port. Note that this counter only refers to the outbound frames for this bridge port. This counter wraps around its maximum value of 4294967295.
This counter is influenced by the attribute *fragmentIp*. This counter is incremented when a frame larger than the mtu allowed is encountered and cannot be fragmented. If this counter is increasing steadily, it might be useful to set the value of the attribute *fragmentIp* to a value of ***on***.

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### GROUP Vr Pp Srse StpOperational (StpOper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all port specific operational attributes that belong to the Stp group. The Stp group is applicable to all bridge ports that participate in the stp. These attributes reflect the state of the bridge port's participation in the stp. |

### ATTRIBUTE Vr Pp Srse stpPortState (sps)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the stp state of the bridge port. |
| Values | disabled<br>blocking<br>listening<br>learning<br>forwarding<br>broken |
| Default | disabled |

### ATTRIBUTE Vr Pp Srse stpTypeOper (stptOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the type of the stp the port is participating in. A bridge port could participate in either the ***ieee8021*** stp or the ***dec*** stp. |
| Values | none<br>dec<br>ieee8021 |
| Default | ieee8021 |

### ATTRIBUTE Vr Pp Srse designatedCost (dc)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the path cost of the designated port of the lan segment the designated port is connected to. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Pp Srse pathCostOper (pco)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the contribution of this port to all the paths to the root bridge that include this port. This attribute *pathCostOper* will track the value of the attribute *pathCost* when the value of the attribute *pathCostMethod* is set of ***off***. |
| Values | Decimal (1..65535) |
| Default | No default |

### ATTRIBUTE Vr Pp Srse designatedBridge (db)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the identifier of the bridge that this port considers to be the designated bridge. |
| Values | String (8, Dashed Hex) |
| Default | No default |

### ATTRIBUTE Vr Pp Srse designatedPort (dp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the port identifier of the port on the designated bridge attached to the same LAN segment as this port is attached to. |
| Values | Hex (H.0..H.ffff) |
| Default | No default |

### ATTRIBUTE Vr Pp Srse forwardTransitions (ft)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the number of times this bridge port transitioned from the ***learning*** state to the ***forwarding*** state. This counter wraps around its maximum value of 4294967295. A rapidly increasing value might be indicative of an unstable spanning tree topology. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Srse blockingDiscards (bd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of the incoming frames that were discarded because the bridge port was in the ***blocking*** state. This counter wraps around its maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Srse designatedRoot (dr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the bridge identifier of the bridge recorded as the root bridge in the configuration BPDUs sent out by the designated bridge on the segment this port is attached to. |
| Values | String (8, Dashed Hex) |
| Default | No default |

### GROUP Vr Pp Srse Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all the statistical attributes applicable to all types of bridge ports and represents the common factor between them. These attributes in part reflect the state of the bridge port. |

### ATTRIBUTE Vr Pp Srse badAbstractDiscards (bad)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the number of frames that were discarded because the data abstracted from the frames coming in through this bridge port did not conform to the format expected by the bridge logic.This counter wraps around its maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Srse tinygramFramesIn (tfi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames received on this bridge port that used the tinygram compression scheme. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Srse tinygramFramesOut (tfo)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames transmitted out this bridge port that used the tinygram compression scheme. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Srse inFilterDiscards (ifd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames discarded due to domain based filtering at the in filter point. This counter wraps around its maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Srse outFilterDiscards (ofd)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the number of frames discarded due to domain based filtering at the out filter point. This counter wraps around its maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### GROUP Vr Pp Srse SrProvisioned (SrProv)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all port specific, provisionable attributes associated with *SourceRouteBridge* ports. |

### ATTRIBUTE Vr Pp Srse hopCount (hc)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum number of hops allowed in Spanning Tree Explore and All Routes Explore frames. This value is one less than the maximum number of route descriptors allowed in a source route frame |
| Values | Decimal (1..7) |
| Default | 7 |

### ATTRIBUTE Vr Pp Srse exploreFrameTreatment (eft)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether or not explore frames received from *SourceRouteBridge* ports will be sent to the SRTB-8209 translation or the encapsulated *SourceRouteBridge* logic. This option is used only when both the *TbsrBridgePort* and the *SrtbBridgePort* are provisioned and enabled.<br>A value of ***Xlate*** implies that the explore frames will be sent to the Srtb translation logic and a value of ***Encap*** implies that the frames will be sent to the Encapsulated source route bridging logic. |
| Values | encap<br>xlate |
| Default | encap |

### ATTRIBUTE Vr Pp Srse lanId (lid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the identifier for the physical LAN that this port is attached. All *SourceRouteBridge* ports are assigned to a physical LAN and a logical internal LAN.<br>Current source route bridge implementations limit the lanId to a value in the range 0 to 4095. |
| Values | Decimal (0..4095) |
| Default | 0 |

### ATTRIBUTE Vr Pp Srse internalLanId (ilid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the identifier for the internal logical LAN this port is attached. All *SourceRouteBridge* ports are assigned to a physical LAN and a logical internal LAN.<br>Current source route bridge implementations limit the lanId to a value in the range 0 to 4095. |
| Values | Decimal (0..4095) |
| Default | 0 |

### ATTRIBUTE Vr Pp Srse bridgeNum (bid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the value that is used to identify this bridge when more than one bridge is used to span the same two LAN segments. |
| Values | Decimal (0..15) |
| Default | 7 |

### ATTRIBUTE Vr Pp Srse largestFrame (lf)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum frame size (LLC and above) in octets, allowed by this *SourceRouteBridge* port. This field is |

| | |
|---|---|
| | used to determine whether a modification of the largest frame field of the routing control field of the routing information field is warranted. |
| Values | Decimal (516; 1470; 2052; 4399; 8130; 11407; 17749) |
| Units | octets |
| Default | No default |

### ATTRIBUTE Vr Pp Srse steSpanMode (steSm)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute determines how this bridge port will react when presented with a Spanning Tree Explore frame.<br>If ***disabled,*** the Spanning Tree Explore frame is discarded regardless of the value of *stpPortState*.<br>If the value of this attribute is ***forced***, the Spanning Tree Explore frame is forwarded regardless of the value of *stpPortState*.<br>***autoSpan*** uses the *stpPortState* value to decide whether or not Spanning Tree Explore frames should be forwarded out this bridge port. If the port is in the ***forwarding*** state, the frame is received and transmitted otherwise the frame is discarded. |
| Values | autoSpan<br>disabled<br>forced |
| Default | autoSpan |

### ATTRIBUTE Vr Pp Srse areRdLimit (arl)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the number of route descriptors allowed in an All Routes Explore frame received on a *SourceRouteBridgePort* or *SourceRouteTransparentBridgePort*. Current source route bridge implementations limit the *areRdLimit* to a value in the range 0 to 8. |
| Values | Decimal (0..8) |
| Default | 8 |

### ATTRIBUTE Vr Pp Srse steRdLimit (srl)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the number of route descriptors allowed in a Spanning Tree Explore frame received on a *SourceRouteBridgePort* or *SourceRouteTransparentBridgePort*. Current source route bridge implementations limit the *steRdLimit* to a value in the range 0 to 8. |
| Values | Decimal (0..8) |
| Default | 8 |

### GROUP Vr Pp Srse SrStatistics (SrStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all port specific statistical attributes associated with *SourceRouteBridge* ports. |

### ATTRIBUTE Vr Pp Srse specInFrames (sif)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the number of specifically routed frames that were received by this bridge port. A specifically routed frame has a route descriptor, constructed by the originating host which details an explicit route to the destination host. This counter will wrap to zero when it exceeds its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Srse specOutFrames (srfof)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the number of specifically routed frames that were transmitted from this bridge port. This counter will wrap to zero when it exceeds its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Srse apeInFrames (apeif)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the number of All Path Explore frames received on this bridge port. The All Path Explore frames are forwarded to all *SourceRouteBridge* ports assigned to this bridge regardless of the port's *portStpState*s. This counter will wrap to zero when it exceeds its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Srse apeOutFrames (apeof)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the number of All Path Explore frames transmitted on this bridge port. The All Path Explore frames are forwarded to all *SourceRouteBridge* ports assigned to this bridge regardless of the port's *portStpState* state. This counter will wrap to zero when it exceeds its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Srse steInFrames (steif)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the number of Spanning Tree Explore frames received on this bridge port. The Spanning Tree Explore frames are only forwarded through bridge ports whose *portStpState* has a value of ***forwarding.*** This counter will wrap to zero when it exceeds its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Srse steOutFrames (steof)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute specifies the number of Spanning Tree Frames transmitted on this bridge port. This counter will wrap to zero when it exceeds its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Srse segmentMismatchDiscards (lidmd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the number of All Routes Explore and Spanning Tree Explore frames that were discarded due to an invalid next segment value in the routing information field. This counter will wrap to zero when it exceeds its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Srse dupSegmentDiscards (dsd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the number of frames discarded due to the presence of a duplicate segment identifier in the route descriptor field which may indicate a loop in the network topology. This counter will wrap to zero when it exceeds its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Srse hopCountExceededDiscards (hced)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the number of All Routes Explore and Spanning Tree Explore frames discarded by this bridge port due to a frame exceeding the maximum size allowed for a route descriptor length. This counter will wrap to zero when it exceeds its maximum. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE Vr Pp Srse dupLanIdOrTreeErrors (dlte)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the number frames received which contain duplicate LAN IDs or Tree errors. This attribute is helpful in debugging problems in networks which contain older IBM-SR bridges. This counter will wrap to zero when it exceeds its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Srse lanIdMismatches

| | |
|---|---|
| Access | Read only |
| Description | This attributes counts the number of All Routes Explore or Spanning Tree Explore frames that were discarded because the last LAN ID in the routing information field did not equal the LAN ID. This counter will wrap to zero when it exceeds its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Srse staticDiscards (sd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is indicative of the number of explorer frames discarded due to fact that the outbound *SourceRouteBridge* port was disabled or deleted. This counter will wrap to zero when it exceeds its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Srse dynamicDiscards (dd)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute specifies the number of frames discarded due to receiving a frame with a target LAN ID which did not match the internal LAN ID of the receiving bridge port. This counter will wrap to zero when it exceeds its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## COMPONENT Vr Pp TbseBridgePort (Tbse)

| | |
|---|---|
| Groups | "GROUP Vr Pp Tbse Provisioned (Prov)"<br>"GROUP Vr Pp Tbse TbProvisioned (TbProv)"<br>"GROUP Vr Pp Tbse StpProvisioned (StpProv)"<br>"GROUP Vr Pp Tbse DomainInfoProvisioned (DIProv)"<br>"GROUP Vr Pp Tbse OsiState (State)"<br>"GROUP Vr Pp Tbse OperationalStatus (OperStatus)"<br>"GROUP Vr Pp Tbse Operational (Oper)"<br>"GROUP Vr Pp Tbse TbOperational (TbOper)"<br>"GROUP Vr Pp Tbse StpOperational (StpOper)"<br>"GROUP Vr Pp Tbse Statistics (Stats)" |
| Scope | Application |
| Description | Vr/*<string> Pp/<string> TbseBridgePort*<br>This component represents the access point or TB/SRT frames carrying a payload of a SR frame, into the SR encapsulation logic. After the encapsulated frame is stripped and the SR frame extracted, the extracted frame is handed down to regular SR bridging logic for further forwarding. The *TbseBridgePort* is the end point in the remote bridge unit with a MAC address, the TB/SRT encapsulated SR frames are directed to. This MAC address of a *TbseBridgePort* in the remote bridge unit, is learned and stored in the Lan Id Table (*peerMACAddress)* of the local bridge unit. Please note that the *SrseBridgePort* and the *TbseBridgePort* are always to be provisioned together. Enabling/disabling the *SrseBridgePort* automatically enables/disables the *TbseBridgePort*. |

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

### GROUP Vr Pp Tbse Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all the provisionable attributes that belong to this group. This group of attributes is applicable to all types of bridge ports and represent the common factor between them. These attributes influence the working of a bridge port. |

### ATTRIBUTE Vr Pp Tbse fragmentIp (fIp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies if outbound frames carrying IP datagrams should be fragmented to conform to message transfer unit (*mtu*) sizes dictated by the media. |
| Values | off<br>on |
| Default | off |

### ATTRIBUTE Vr Pp Tbse portNum (pNum)

| | |
|---|---|
| Access | Read only |
| Criticality | Component |
| Description | This attribute indicates the unique number assigned to the bridge port. It is used for SNMP management of this bridge port and in spanning tree as an identifier for this bridge port.<br>Notes:<br>Escape routines exist for initializing, copying, and deleting port |

numbers. This is necessary because SNMP requires a unique port instance identifier. The initPortNum escape routine sets the port number to a value in the range 1-255 for this purpose. The setCopiedPortNum escape routine exists to maintain the uniqueness of the port number in cases when one port is copied to another. When a bridge port is deleted, the releasePortNum escape routine places the port number being released into a pending deletion state. This is because the port number cannot be re-allocated until the port is truly deleted in the current view. This is necessary since there is no guarantee of order when processing changes to multiple protocol ports so without the pending deletion state, the same port number could be temporarily assigned to two ports for a short period of time.

The portNum is set as component critical since bridging also uses the port number as a key for indexing into its data structures. If a port is deleted then re-added under the same protocol port, CAS treats the change as a SET to the portNum attribute.

| | |
|---|---|
| Values | Decimal (0..255) |
| Default | 0 |

### GROUP Vr Pp Tbse TbProvisioned (TbProv)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all the port specific provisionable attributes that belong to the Tb group. These attributes in part influence the working of a bridge port operating in the transparent bridge mode. |

### ATTRIBUTE Vr Pp Tbse secureOption (sos)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether the port secure feature is enabled. The secure feature, if enabled causes the following things to happen:<br>a) disallows dynamic learning,<br>b) disallows frames to be forwarded that do not satisfy the following condition: the MAC address of the source should be found in the forwarding table and the destination MAC address of |

the frame should also be found in the forwarding table. In addition to this, the port the frame was received on should figure as the in port, given the destination MAC address found in the frame.
c) disallows frames to be forwarded if the allowed to go port map for the destination MAC address is empty.
This feature in effect allows the user to choose the hosts that can generate traffic and the hosts that can receive traffic through this bridge unit.

Values
disabled
enabled

Default
disabled

### GROUP Vr Pp Tbse StpProvisioned (StpProv)

Properties
Provisioned

Description
This group contains all port specific provisionable attributes that belong to the Stp group. The Stp group is applicable to all bridge ports that participate in the stp. These attributes influence the participation of the bridge port in the stp.

### ATTRIBUTE Vr Pp Tbse adminStatus (as)

Access
Read and write

Description
This attribute defines the current administrative state for this component. ***enabled*** indicates that the component is available for operation. ***disabled*** indicates the component is unavailable for operation.

Values
up
down

Default
up

### ATTRIBUTE Vr Pp Tbse portStateStpControl (psstpc)

Access
Read and write

Description
This attribute specifies whether or not stp state for this bridge port is controlled by the stp. In essence it indicates the participation of this bridge port in the stp by accepting and acting on received

bridge protocol data units and by sending out the same.
***on*** signifies that this bridge port's spanning tree port state is controlled by the stp.
A value of ***off*** signifies that the spanning tree port state of this bridge port is unaffected by the stp. This in effect puts the bridge port out of reach of the stp decisions. Its stp state will be always ***forwarding***. Care should be taken while assigning a value of ***off*** to this attribute, as this might cause network loops. Please do not set this attribute to ***off*** unless you are absolutely sure about the effect of such an action on your network topology.

Values
off
on

Default
on

### ATTRIBUTE Vr Pp Tbse stpTypeProv (stptProv)

Access
Read and write

Description
This attribute specifies the type of the stp the port is participating in. A bridge port could participate in either the ***ieee8021*** stp or the ***dec*** stp. If the value of the attribute *protocolSpec* in the *SpanningTreeProtocol* component is in conflict with the value of this attribute, the value of the *protocolSpec* attribute will prevail. Prevailing stp type is reflected in the value of the attribute *stpTypeOper*.

Values
dec
ieee8021

Default
ieee8021

### ATTRIBUTE Vr Pp Tbse portPriority (ppr)

Access
Read and write

Description
This attribute specifies the value for this bridge port priority which is contained in the first octet of the port identifier. Valid values are as follows:
1) 0-255 for stp type DEC and
2) 0-65535 for stp type IEEE.

Values
Decimal (0..65535)

| | |
|---|---|
| Default | 128 |

### ATTRIBUTE Vr Pp Tbse pathCost (pc)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the contribution of this port to all the paths to the root bridge that include this port. Please note that the value of the attribute *pathCost* is applied only when the value of the attribute *pathCostMethod* is set to ***on*** and is ignored if otherwise. |
| Values | Decimal (1..65535) |
| Default | 10 |

### ATTRIBUTE Vr Pp Tbse pathCostMethod (pcm)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the method used by the bridging logic to calculate the path cost to the bridge considered to be the root bridge in the spanning tree topology. This attribute should be set to ***off*** before attempting to provision a value for *pathCost*. |
| Values | off<br>dec<br>ieee8021 |
| Default | ieee8021 |

### GROUP Vr Pp Tbse DomainInfoProvisioned (DIProv)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all the provisionable, domain specific attributes for a non-encapsulating bridge port. |

### ATTRIBUTE Vr Pp Tbse domainNum (dn)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the domain number associated with this bridge port. Domain numbers are used for confining frames to a domain. Domain based filtering provides a complete segregation of traffic based on domain number associated with frames. There can exist only sixteen domains when a spanning tree is desired |

specific to each domain. When there is only a single spanning tree spanning all the domains the maximum number of domains possible are 4294967293.
This attribute is of no relevance when associated with backbone bridge port. Its value is ignored in such a situation.

Values: Decimal (1..4294967293)

Default: 1

### ATTRIBUTE Vr Pp Tbse preserveDomain (pds)

Access: Read and write

Criticality: Component

Description: This attribute specifies if the domain information should be preserved or embedded in the frame header. This attribute applies only to ***backbone*** ports and does not affect the ***access*** bridge ports. By setting this attribute to a value of ***on***, domain information could be preserved in frames being tunnelled across the backbone, so that this information can be deciphered at the other end of the backbone tunnel. This preserves the integrity of the domains thus preventing domain breaches while tunnelling frames across backbone network.
If the value of this attribute is set to ***off*** then domain information is not preserved in the header of the frames tunnelling through the backbone. This eliminates the overhead incurred to preserve domain information across the backbone while tunnelling frames across it.
Preserve domain is relevant only when used in conjunction with ATM MPE.

Values: off
on

Default: No default

### GROUP Vr Pp Tbse OsiState (State)

Properties: Operational

Description: This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies

about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Vr Pp Tbse adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Vr Pp Tbse operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service. |

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values: enabled (ena)
disabled (dis)

Default: disabled

### ATTRIBUTE Vr Pp Tbse usageState (osiUsage)

Access: Read only

Description: This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values: idle
active (activ)
busy

Default: idle

### GROUP Vr Pp Tbse OperationalStatus (OperStatus)

Properties: Operational

Description: This group includes the Operational Status attribute. This attribute defines the current operational state of this component.

### ATTRIBUTE Vr Pp Tbse snmpOperStatus

Access: Read only

Description: The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable

| | |
|---|---|
| | to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### GROUP Vr Pp Tbse Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all the operational attributes belonging to the base group. These attributes in part, reflect the state of a bridge port. |

### ATTRIBUTE Vr Pp Tbse portName (pn)

| | |
|---|---|
| Access | Read only |
| Description | The attribute *portName* is a string of the form ***"BridgePortName-i",*** where ***BridgePortName*** is the abbreviation of the corresponding bridge port and ***i*** is the instance identifier of the *ProtocolPort* the bridge port is provisioned under. For example a *TransparentBridgePort* provisioned under *ProtocolPort/ETH100A* would have a name ***TBP-ETH100A.*** |
| Values | String (4..29, ASCII) |
| Default | No default |

### ATTRIBUTE Vr Pp Tbse upTime (ut)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the accumulated up time of this bridge port since the last reset occurred. |
| Values | Decimal (0..4294967295) |
| Units | seconds |
| Default | 0 |

### ATTRIBUTE Vr Pp Tbse downTime (dt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the accumulated down time of this bridge port since the last reset occurred. |
| Values | Decimal (0..4294967295) |
| Units | seconds |
| Default | 0 |

### ATTRIBUTE Vr Pp Tbse bridgingMode (bm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the mode of bridging this port can support. The transparent bridge mode is the only mode supported. |
| Values | unknown<br>tb<br>sr<br>srt |
| Default | No default |

### ATTRIBUTE Vr Pp Tbse bridgePortConfig (bpc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the bridge port's configuration. It indicates if the bridge port is operating as an ***access*** port or as a ***backbone*** port. An ***access*** bridge port does not encapsulate a MAC frame and does not preserve domain information in the encapsulation, whereas a ***backbone*** bridge port encapsulates the MAC frame and optionally preserves domain information in the encapsulated frame.A ***backbone*** bridge port is typically used to transport frames across a high bandwidth backbone network to another bridge unit for further processing/forwarding of the frame. |
| Values | access<br>backbone |
| Default | No default |

## ATTRIBUTE Vr Pp Tbse bridgePortType (bpt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the type of the bridge port that was provisioned. It takes into consideration the *bridgingMode*, *bridgePortConfig* and the media the bridge port is linked to before branding a bridge port. |
| Values | ethernetBridgePort<br>tokenRingBridgePort<br>fddiBridgePort<br>tokenBusBridgePort<br>lanEmulationClientEthernet<br>fddiEncapsulatingBridgePort<br>vnsBridgePort<br>frameRelayBridgePort<br>pppBridgePort<br>smdsBridgePort<br>vcpBridgePort<br>x25BridgePort<br>atmMpeBridgePort<br>srEncapSrBridgePort<br>srEncapTbBridgePort<br>sourceGateSrBridgePort<br>sourceGateTbBridgePort<br>srtbBridgePort<br>tbsrBridgePort<br>clusterSrBridgePort<br>clusterTbBridgePort<br>snaDlrBridgePort<br>unknown |
| Default | No default |

## ATTRIBUTE Vr Pp Tbse ifIndex (ifin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the index into the Interface Table where information about the media interface corresponding to this bridge port is maintained. |

| | |
|---|---|
| Values | Decimal (1..65535) |
| Default | No default |

### ATTRIBUTE Vr Pp Tbse mtuExceededDiscards (med)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames discarded because the size of the outbound frame exceeded the message transfer unit (mtu) allowed for the bridge port. Note that this counter only refers to the outbound frames for this bridge port. This counter wraps around its maximum value of 4294967295.<br>This counter is influenced by the attribute *fragmentIp*. This counter is incremented when a frame larger than the mtu allowed is encountered and cannot be fragmented. If this counter is increasing steadily, it might be useful to set the value of the attribute *fragmentIp* to a value of ***on***. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### GROUP Vr Pp Tbse TbOperational (TbOper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all the port specific operational attributes that belong to the Tb group. This group also contains all the port specific statistical attributes that belong to the Tb group. These attributes reflect the state of a bridge port operating in the transparent bridge mode |

### ATTRIBUTE Vr Pp Tbse maxInfo (mi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the maximum size of the information field in a transparent bridge frame. This excludes the header field. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Tbse badVerifyDiscards (bvd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of incoming frames that were discarded because the value of the *secureOption* attribute was set to ***on*** and:<br>a) it is not allowed to receive frames originating from the MAC address found in the source address field of the frame (source MAC address lookup in the forwarding table failed) on this bridge port, or<br>b) for the destination MAC address found in the frame the port the frame was received on does not appear as in port in the corresponding static table entry.<br>Permission to receive frames from a MAC address is granted via the static table entries.<br>This attribute, *badVerifyDiscards*, is directly influenced by:<br>1. *secureOption* and<br>2. the static table entries.<br>This counter wraps around its maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Tbse staticEntryDiscards (sed)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames that were discarded because of the following three reasons:<br>a) there was no entry for the “allowed to go” field in the static table entry, where the input port is this bridge port.<br>b) the MAC destination address in the frame was not found in the forwarding table but the frame cannot be flooded because this bridge has not other ports in forwarding state.<br>c) for spanning tree bpdus that are locally processed.<br>This counter wraps around its maximum value of 4294967295.<br>It might prove useful to check the static table entry corresponding to the bridge port in question, if this counter consistently displays a high value.<br>Ideally this counter should be as low as possible. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Tbse dynamicEntryDiscards (dend)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of incoming frames that:<br>a) were discarded because of the fact that the bridge port, the frame is to go out of matches the bridge port it came in from, or<br>b) if the stp port state of the out port is not ***forwarding***.<br>This counter wraps around its maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Tbse learningDiscards (ld)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames that were discarded while this bridge port was in a state other than the ***forwarding*** state. While in ***learning*** state the frame is discarded after the information from its header is learnt. This counter wraps around its maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Tbse inDiscards (id)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames that were received by this bridge port and were discarded by the forwarding process. This includes frames that could have been discarded due to filtering. A rapidly increasing value for this attribute could indicate a shortage of resource in terms of memory needed to process the incoming frames. More memory can be provisioned through the *VirtualRouter*'s memory manager. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE Vr Pp Tbse inFrames (if)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames that have been received by this port from its segment. Note that a frame received on this bridge port is counted if and only if it can be processed by the bridge logic contained in this bridge unit. This counter wraps around its maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Tbse outFrames (of)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames that have been transmitted out this bridge port. This also includes management frames.This counter wraps around its maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### GROUP Vr Pp Tbse StpOperational (StpOper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all port specific operational attributes that belong to the Stp group. The Stp group is applicable to all bridge ports that participate in the stp. These attributes reflect the state of the bridge port's participation in the stp. |

### ATTRIBUTE Vr Pp Tbse stpPortState (sps)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the stp state of the bridge port. |
| Values | disabled<br>blocking |

| | |
|---|---|
| | listening<br>learning<br>forwarding<br>broken |
| Default | disabled |

### ATTRIBUTE Vr Pp Tbse stpTypeOper (stptOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the type of the stp the port is participating in. A bridge port could participate in either the ***ieee8021*** stp or the ***dec*** stp. |
| Values | none<br>dec<br>ieee8021 |
| Default | ieee8021 |

### ATTRIBUTE Vr Pp Tbse designatedCost (dc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the path cost of the designated port of the lan segment the designated port is connected to. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Pp Tbse pathCostOper (pco)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the contribution of this port to all the paths to the root bridge that include this port. This attribute *pathCostOper* will track the value of the attribute *pathCost* when the value of the attribute *pathCostMethod* is set of ***off***. |
| Values | Decimal (1..65535) |
| Default | No default |

### ATTRIBUTE Vr Pp Tbse designatedBridge (db)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the identifier of the bridge that this port considers to be the designated bridge. |
| Values | String (8, Dashed Hex) |
| Default | No default |

### ATTRIBUTE Vr Pp Tbse designatedPort (dp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the port identifier of the port on the designated bridge attached to the same LAN segment as this port is attached to. |
| Values | Hex (H.0..H.ffff) |
| Default | No default |

### ATTRIBUTE Vr Pp Tbse forwardTransitions (ft)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times this bridge port transitioned from the ***learning*** state to the ***forwarding*** state. This counter wraps around its maximum value of 4294967295.<br>A rapidly increasing value might be indicative of an unstable spanning tree topology. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Tbse blockingDiscards (bd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of the incoming frames that were discarded because the bridge port was in the ***blocking*** state. This counter wraps around its maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE Vr Pp Tbse designatedRoot (dr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the bridge identifier of the bridge recorded as the root bridge in the configuration BPDUs sent out by the designated bridge on the segment this port is attached to. |
| Values | String (8, Dashed Hex) |
| Default | No default |

### GROUP Vr Pp Tbse Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all the statistical attributes applicable to all types of bridge ports and represents the common factor between them. These attributes in part reflect the state of the bridge port. |

### ATTRIBUTE Vr Pp Tbse badAbstractDiscards (bad)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames that were discarded because the data abstracted from the frames coming in through this bridge port did not conform to the format expected by the bridge logic.This counter wraps around its maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Tbse tinygramFramesIn (tfi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames received on this bridge port that used the tinygram compression scheme. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Tbse tinygramFramesOut (tfo)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames transmitted out this bridge port that used the tinygram compression scheme. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Tbse inFilterDiscards (ifd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames discarded due to domain based filtering at the in filter point. This counter wraps around its maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Tbse outFilterDiscards (ofd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames discarded due to domain based filtering at the out filter point. This counter wraps around its maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT Vr Pp SrsgBridgePort (Srsg)

| | |
|---|---|
| Groups | "GROUP Vr Pp Srsg Provisioned (Prov)"<br>"GROUP Vr Pp Srsg StpProvisioned (StpProv)"<br>"GROUP Vr Pp Srsg DomainInfoProvisioned (DIProv)"<br>"GROUP Vr Pp Srsg OsiState (State)"<br>"GROUP Vr Pp Srsg OperationalStatus (OperStatus)"<br>"GROUP Vr Pp Srsg Operational (Oper)"<br>"GROUP Vr Pp Srsg StpOperational (StpOper)"<br>"GROUP Vr Pp Srsg Statistics (Stats)" |

"GROUP Vr Pp Srsg SrProvisioned (SrProv)"
"GROUP Vr Pp Srsg SrStatistics (SrStats)"

Scope

Application

Description

Vr/*<string> Pp/<string> SrsgBridgePort*
This component represents a controlled method to allow exchange of explorer frames between source route (SR) and source route transparent (SRT) networks.The *SrsgBridgePort* provides a cross over point for explorer frames from the source route network into the source route gating logic and vice-versa. The source route gating performs required verification before forwarding the frames into the source route transparent network. The *SrsgBridgePort* participates in the source route spanning tree to eliminate possible loops caused by multiple active cross over points on multiple bridges and to provide for fault tolerance of these cross over points. While enabled, source route spanning tree BPDUs are sent across the source route transparent network, through this cross over point and the gating logic. Note that these explorer frames cross over based on the port's *stpPortState.*
All route explorer frames (ARE) are exchanged regardless of the *stpPortState*.
Spanning tree explorer frames (STE) are exchanged only if *stpPortState* has a value of ***Forwarding.***
If *stpPortState* has a value of ***Blocking*** STE frames will be sent out on bridge ports that are operating in the same mode, i.e. no exchange across SR and SRT networks takes place. Nevertheless, SR spanning tree BPDUs are still sent across the SRT network. Note that the *SrsgBridgePort* and the *TbsgBridgePort* must be provisioned during the same provisioning session as one cannot function without the other.

Common Verbs

Help
List
Display
Add
DELete
LOCK
Unlock

## GROUP Vr Pp Srsg Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all the provisionable attributes that belong to this group. This group of attributes is applicable to all types of bridge ports and represent the common factor between them. These attributes influence the working of a bridge port. |

## ATTRIBUTE Vr Pp Srsg fragmentIp (fIp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies if outbound frames carrying IP datagrams should be fragmented to conform to message transfer unit (*mtu*) sizes dictated by the media. |
| Values | off<br>on |
| Default | off |

## ATTRIBUTE Vr Pp Srsg portNum (pNum)

| | |
|---|---|
| Access | Read only |
| Criticality | Component |
| Description | This attribute indicates the unique number assigned to the bridge port. It is used for SNMP management of this bridge port and in spanning tree as an identifier for this bridge port.<br>Notes:<br>Escape routines exist for initializing, copying, and deleting port numbers. This is necessary because SNMP requires a unique port instance identifier. The initPortNum escape routine sets the port number to a value in the range 1-255 for this purpose. The setCopiedPortNum escape routine exists to maintain the uniqueness of the port number in cases when one port is copied to another. When a bridge port is deleted, the releasePortNum escape routine places the port number being released into a pending deletion state. This is because the port number cannot be re-allocated until the port is truly deleted in the current view. This is necessary since there is no guarantee of order when processing changes to multiple protocol ports so without the pending |

deletion state, the same port number could be temporarily assigned to two ports for a short period of time.

The portNum is set as component critical since bridging also uses the port number as a key for indexing into its data structures. If a port is deleted then re-added under the same protocol port, CAS treats the change as a SET to the portNum attribute.

Values: Decimal (0..255)

Default: 0

### GROUP Vr Pp Srsg StpProvisioned (StpProv)

Properties: Provisioned

Description: This group contains all port specific provisionable attributes that belong to the Stp group. The Stp group is applicable to all bridge ports that participate in the stp. These attributes influence the participation of the bridge port in the stp.

### ATTRIBUTE Vr Pp Srsg adminStatus (as)

Access: Read and write

Description: This attribute defines the current administrative state for this component. ***enabled*** indicates that the component is available for operation. ***disabled*** indicates the component is unavailable for operation.

Values: up
down

Default: up

### ATTRIBUTE Vr Pp Srsg portStateStpControl (psstpc)

Access: Read and write

Description: This attribute specifies whether or not stp state for this bridge port is controlled by the stp. In essence it indicates the participation of this bridge port in the stp by accepting and acting on received bridge protocol data units and by sending out the same.
***on*** signifies that this bridge port's spanning tree port state is controlled by the stp.

A value of ***off*** signifies that the spanning tree port state of this bridge port is unaffected by the stp. This in effect puts the bridge port out of reach of the stp decisions. Its stp state will be always ***forwarding***. Care should be taken while assigning a value of ***off*** to this attribute, as this might cause network loops. Please do not set this attribute to ***off*** unless you are absolutely sure about the effect of such an action on your network topology.

Values
off
on

Default
on

### ATTRIBUTE Vr Pp Srsg stpTypeProv (stptProv)

Access
Read and write

Description
This attribute specifies the type of the stp the port is participating in. A bridge port could participate in either the ***ieee8021*** stp or the ***dec*** stp. If the value of the attribute *protocolSpec* in the *SpanningTreeProtocol* component is in conflict with the value of this attribute, the value of the *protocolSpec* attribute will prevail. Prevailing stp type is reflected in the value of the attribute *stpTypeOper*.

Values
dec
ieee8021

Default
ieee8021

### ATTRIBUTE Vr Pp Srsg portPriority (ppr)

Access
Read and write

Description
This attribute specifies the value for this bridge port priority which is contained in the first octet of the port identifier. Valid values are as follows:
1) 0-255 for stp type DEC and
2) 0-65535 for stp type IEEE.

Values
Decimal (0..65535)

Default
128

### ATTRIBUTE Vr Pp Srsg pathCost (pc)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the contribution of this port to all the paths to the root bridge that include this port. Please note that the value of the attribute *pathCost* is applied only when the value of the attribute *pathCostMethod* is set to ***on*** and is ignored if otherwise. |
| Values | Decimal (1..65535) |
| Default | 10 |

### ATTRIBUTE Vr Pp Srsg pathCostMethod (pcm)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the method used by the bridging logic to calculate the path cost to the bridge considered to be the root bridge in the spanning tree topology. This attribute should be set to ***off*** before attempting to provision a value for *pathCost*. |
| Values | off<br>dec<br>ieee8021 |
| Default | ieee8021 |

### GROUP Vr Pp Srsg DomainInfoProvisioned (DIProv)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all the provisionable, domain specific attributes for a non-encapsulating bridge port. |

### ATTRIBUTE Vr Pp Srsg domainNum (dn)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the domain number associated with this bridge port. Domain numbers are used for confining frames to a domain. Domain based filtering provides a complete segregation of traffic based on domain number associated with frames. There can exist only sixteen domains when a spanning tree is desired specific to each domain. When there is only a single spanning tree spanning all the domains the maximum number of domains |

possible are 4294967293.
This attribute is of no relevance when associated with backbone bridge port. Its value is ignored in such a situation.

Values: Decimal (1..4294967293)

Default: 1

### ATTRIBUTE Vr Pp Srsg preserveDomain (pds)

Access: Read and write

Criticality: Component

Description: This attribute specifies if the domain information should be preserved or embedded in the frame header. This attribute applies only to ***backbone*** ports and does not affect the ***access*** bridge ports. By setting this attribute to a value of ***on***, domain information could be preserved in frames being tunnelled across the backbone, so that this information can be deciphered at the other end of the backbone tunnel. This preserves the integrity of the domains thus preventing domain breaches while tunnelling frames across backbone network.
If the value of this attribute is set to ***off*** then domain information is not preserved in the header of the frames tunnelling through the backbone. This eliminates the overhead incurred to preserve domain information across the backbone while tunnelling frames across it.
Preserve domain is relevant only when used in conjunction with ATM MPE.

Values: off
on

Default: No default

### GROUP Vr Pp Srsg OsiState (State)

Properties: Operational

Description: This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component

which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Vr Pp Srsg adminState (osiAdmin)

Access: Read only

Description: This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values: locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default: unlocked

### ATTRIBUTE Vr Pp Srsg operationalState (osiOper)

Access: Read only

Description: This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the

component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Vr Pp Srsg usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Vr Pp Srsg OperationalStatus (OperStatus)

Properties
Operational

Description
This group includes the Operational Status attribute. This attribute defines the current operational state of this component.

### ATTRIBUTE Vr Pp Srsg snmpOperStatus

Access
Read only

Description
The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed.

| | |
|---|---|
| Values | up<br>down<br>testing |
| Default | up |

### GROUP Vr Pp Srsg Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all the operational attributes belonging to the base group. These attributes in part, reflect the state of a bridge port. |

### ATTRIBUTE Vr Pp Srsg portName (pn)

| | |
|---|---|
| Access | Read only |
| Description | The attribute *portName* is a string of the form ***"BridgePortName-i",*** where ***BridgePortName*** is the abbreviation of the corresponding bridge port and ***i*** is the instance identifier of the *ProtocolPort* the bridge port is provisioned under. For example a *TransparentBridgePort* provisioned under *ProtocolPort/ETH100A* would have a name ***TBP-ETH100A.*** |
| Values | String (4..29, ASCII) |
| Default | No default |

### ATTRIBUTE Vr Pp Srsg upTime (ut)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the accumulated up time of this bridge port since the last reset occurred. |
| Values | Decimal (0..4294967295) |
| Units | seconds |
| Default | 0 |

### ATTRIBUTE Vr Pp Srsg downTime (dt)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the accumulated down time of this bridge port since the last reset occurred. |
| Values | Decimal (0..4294967295) |
| Units | seconds |
| Default | 0 |

### ATTRIBUTE Vr Pp Srsg bridgingMode (bm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the mode of bridging this port can support. The transparent bridge mode is the only mode supported. |
| Values | unknown<br>tb<br>sr<br>srt |
| Default | No default |

### ATTRIBUTE Vr Pp Srsg bridgePortConfig (bpc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the bridge port's configuration. It indicates if the bridge port is operating as an ***access*** port or as a ***backbone*** port. An ***access*** bridge port does not encapsulate a MAC frame and does not preserve domain information in the encapsulation, whereas a ***backbone*** bridge port encapsulates the MAC frame and optionally preserves domain information in the encapsulated frame.A ***backbone*** bridge port is typically used to transport frames across a high bandwidth backbone network to another bridge unit for further processing/forwarding of the frame. |
| Values | access<br>backbone |
| Default | No default |

### ATTRIBUTE Vr Pp Srsg bridgePortType (bpt)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the type of the bridge port that was provisioned. It takes into consideration the *bridgingMode*, *bridgePortConfig* and the media the bridge port is linked to before branding a bridge port. |
| Values | ethernetBridgePort<br>tokenRingBridgePort<br>fddiBridgePort<br>tokenBusBridgePort<br>lanEmulationClientEthernet<br>fddiEncapsulatingBridgePort<br>vnsBridgePort<br>frameRelayBridgePort<br>pppBridgePort<br>smdsBridgePort<br>vcpBridgePort<br>x25BridgePort<br>atmMpeBridgePort<br>srEncapSrBridgePort<br>srEncapTbBridgePort<br>sourceGateSrBridgePort<br>sourceGateTbBridgePort<br>srtbBridgePort<br>tbsrBridgePort<br>clusterSrBridgePort<br>clusterTbBridgePort<br>snaDlrBridgePort<br>unknown |
| Default | No default |

### ATTRIBUTE Vr Pp Srsg ifIndex (ifin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the index into the Interface Table where information about the media interface corresponding to this bridge port is maintained. |
| Values | Decimal (1..65535) |
| Default | No default |

### ATTRIBUTE Vr Pp Srsg mtuExceededDiscards (med)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames discarded because the size of the outbound frame exceeded the message transfer unit (mtu) allowed for the bridge port. Note that this counter only refers to the outbound frames for this bridge port. This counter wraps around its maximum value of 4294967295.<br>This counter is influenced by the attribute *fragmentIp*. This counter is incremented when a frame larger than the mtu allowed is encountered and cannot be fragmented. If this counter is increasing steadily, it might be useful to set the value of the attribute *fragmentIp* to a value of ***on***. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### GROUP Vr Pp Srsg StpOperational (StpOper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all port specific operational attributes that belong to the Stp group. The Stp group is applicable to all bridge ports that participate in the stp. These attributes reflect the state of the bridge port's participation in the stp. |

### ATTRIBUTE Vr Pp Srsg stpPortState (sps)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the stp state of the bridge port. |
| Values | disabled<br>blocking<br>listening<br>learning<br>forwarding<br>broken |
| Default | disabled |

### ATTRIBUTE Vr Pp Srsg stpTypeOper (stptOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the type of the stp the port is participating in. A bridge port could participate in either the ***ieee8021*** stp or the ***dec*** stp. |
| Values | none<br>dec<br>ieee8021 |
| Default | ieee8021 |

### ATTRIBUTE Vr Pp Srsg designatedCost (dc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the path cost of the designated port of the lan segment the designated port is connected to. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Pp Srsg pathCostOper (pco)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the contribution of this port to all the paths to the root bridge that include this port. This attribute *pathCostOper* will track the value of the attribute *pathCost* when the value of the attribute *pathCostMethod* is set of ***off***. |
| Values | Decimal (1..65535) |
| Default | No default |

### ATTRIBUTE Vr Pp Srsg designatedBridge (db)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the identifier of the bridge that this port considers to be the designated bridge. |
| Values | String (8, Dashed Hex) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Vr Pp Srsg designatedPort (dp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the port identifier of the port on the designated bridge attached to the same LAN segment as this port is attached to. |
| Values | Hex (H.0..H.ffff) |
| Default | No default |

### ATTRIBUTE Vr Pp Srsg forwardTransitions (ft)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times this bridge port transitioned from the ***learning*** state to the ***forwarding*** state. This counter wraps around its maximum value of 4294967295.<br>A rapidly increasing value might be indicative of an unstable spanning tree topology. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Srsg blockingDiscards (bd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of the incoming frames that were discarded because the bridge port was in the ***blocking*** state. This counter wraps around its maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Srsg designatedRoot (dr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the bridge identifier of the bridge recorded as the root bridge in the configuration BPDUs sent out by the designated bridge on the segment this port is attached to. |

| | |
|---|---|
| Values | String (8, Dashed Hex) |
| Default | No default |

### GROUP Vr Pp Srsg Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all the statistical attributes applicable to all types of bridge ports and represents the common factor between them. These attributes in part reflect the state of the bridge port. |

### ATTRIBUTE Vr Pp Srsg badAbstractDiscards (bad)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames that were discarded because the data abstracted from the frames coming in through this bridge port did not conform to the format expected by the bridge logic.This counter wraps around its maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Srsg tinygramFramesIn (tfi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames received on this bridge port that used the tinygram compression scheme. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Srsg tinygramFramesOut (tfo)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames transmitted out this bridge port that used the tinygram compression scheme. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Srsg inFilterDiscards (ifd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames discarded due to domain based filtering at the in filter point. This counter wraps around its maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Srsg outFilterDiscards (ofd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames discarded due to domain based filtering at the out filter point. This counter wraps around its maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### GROUP Vr Pp Srsg SrProvisioned (SrProv)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all port specific, provisionable attributes associated with *SourceRouteBridge* ports. |

### ATTRIBUTE Vr Pp Srsg hopCount (hc)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum number of hops allowed in Spanning Tree Explore and All Routes Explore frames. This value is one less than the maximum number of route descriptors allowed in a source route frame |
| Values | Decimal (1..7) |
| Default | 7 |

### ATTRIBUTE Vr Pp Srsg exploreFrameTreatment (eft)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute specifies whether or not explore frames received from *SourceRouteBridge* ports will be sent to the SRTB-8209 translation or the encapsulated *SourceRouteBridge* logic. This option is used only when both the *TbsrBridgePort* and the *SrtbBridgePort* are provisioned and enabled.<br>A value of ***Xlate*** implies that the explore frames will be sent to the Srtb translation logic and a value of ***Encap*** implies that the frames will be sent to the Encapsulated source route bridging logic. |
| Values | encap<br>xlate |
| Default | encap |

### ATTRIBUTE Vr Pp Srsg lanId (lid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the identifier for the physical LAN that this port is attached. All *SourceRouteBridge* ports are assigned to a physical LAN and a logical internal LAN.<br>Current source route bridge implementations limit the lanId to a value in the range 0 to 4095. |
| Values | Decimal (0..4095) |
| Default | 0 |

### ATTRIBUTE Vr Pp Srsg internalLanId (ilid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the identifier for the internal logical LAN this port is attached. All *SourceRouteBridge* ports are assigned to a physical LAN and a logical internal LAN.<br>Current source route bridge implementations limit the lanId to a value in the range 0 to 4095. |
| Values | Decimal (0..4095) |
| Default | 0 |

### ATTRIBUTE Vr Pp Srsg bridgeNum (bid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the value that is used to identify this bridge when more than one bridge is used to span the same two LAN segments. |
| Values | Decimal (0..15) |
| Default | 7 |

### ATTRIBUTE Vr Pp Srsg largestFrame (lf)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum frame size (LLC and above) in octets, allowed by this *SourceRouteBridge* port. This field is used to determine whether a modification of the largest frame field of the routing control field of the routing information field is warranted. |
| Values | Decimal (516; 1470; 2052; 4399; 8130; 11407; 17749) |
| Units | octets |
| Default | No default |

### ATTRIBUTE Vr Pp Srsg steSpanMode (steSm)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute determines how this bridge port will react when presented with a Spanning Tree Explore frame.<br>If ***disabled,*** the Spanning Tree Explore frame is discarded regardless of the value of *stpPortState*.<br>If the value of this attribute is ***forced***, the Spanning Tree Explore frame is forwarded regardless of the value of *stpPortState*.<br>***autoSpan*** uses the *stpPortState* value to decide whether or not Spanning Tree Explore frames should be forwarded out this bridge port. If the port is in the ***forwarding*** state, the frame is received and transmitted otherwise the frame is discarded. |

| | |
|---|---|
| Values | autoSpan<br>disabled<br>forced |
| Default | autoSpan |

### ATTRIBUTE Vr Pp Srsg areRdLimit (arl)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the number of route descriptors allowed in an All Routes Explore frame received on a *SourceRouteBridgePort* or *SourceRouteTransparentBridgePort*. Current source route bridge implementations limit the *areRdLimit* to a value in the range 0 to 8. |
| Values | Decimal (0..8) |
| Default | 8 |

### ATTRIBUTE Vr Pp Srsg steRdLimit (srl)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the number of route descriptors allowed in a Spanning Tree Explore frame received on a *SourceRouteBridgePort* or *SourceRouteTransparentBridgePort*. Current source route bridge implementations limit the *steRdLimit* to a value in the range 0 to 8. |
| Values | Decimal (0..8) |
| Default | 8 |

### GROUP Vr Pp Srsg SrStatistics (SrStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all port specific statistical attributes associated with *SourceRouteBridge* ports. |

### ATTRIBUTE Vr Pp Srsg specInFrames (sif)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute specifies the number of specifically routed frames that were received by this bridge port. A specifically routed frame has a route descriptor, constructed by the originating host which details an explicit route to the destination host. This counter will wrap to zero when it exceeds its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Srsg specOutFrames (srfof)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the number of specifically routed frames that were transmitted from this bridge port. This counter will wrap to zero when it exceeds its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Srsg apeInFrames (apeif)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the number of All Path Explore frames received on this bridge port. The All Path Explore frames are forwarded to all *SourceRouteBridge* ports assigned to this bridge regardless of the port's *portStpState*s. This counter will wrap to zero when it exceeds its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Srsg apeOutFrames (apeof)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the number of All Path Explore frames transmitted on this bridge port. The All Path Explore frames are forwarded to all *SourceRouteBridge* ports assigned to this bridge regardless of the port's *portStpState* state. This counter will wrap to zero when it exceeds its maximum. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Srsg steInFrames (steif)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the number of Spanning Tree Explore frames received on this bridge port. The Spanning Tree Explore frames are only forwarded through bridge ports whose *portStpState* has a value of ***forwarding.*** This counter will wrap to zero when it exceeds its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Srsg steOutFrames (steof)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the number of Spanning Tree Frames transmitted on this bridge port. This counter will wrap to zero when it exceeds its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Srsg segmentMismatchDiscards (lidmd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the number of All Routes Explore and Spanning Tree Explore frames that were discarded due to an invalid next segment value in the routing information field. This counter will wrap to zero when it exceeds its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Srsg dupSegmentDiscards (dsd)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute specifies the number of frames discarded due to the presence of a duplicate segment identifier in the route descriptor field which may indicate a loop in the network topology. This counter will wrap to zero when it exceeds its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Srsg hopCountExceededDiscards (hced)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the number of All Routes Explore and Spanning Tree Explore frames discarded by this bridge port due to a frame exceeding the maximum size allowed for a route descriptor length. This counter will wrap to zero when it exceeds its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Srsg dupLanIdOrTreeErrors (dlte)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the number frames received which contain duplicate LAN IDs or Tree errors. This attribute is helpful in debugging problems in networks which contain older IBM-SR bridges. This counter will wrap to zero when it exceeds its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Srsg lanIdMismatches

| | |
|---|---|
| Access | Read only |
| Description | This attributes counts the number of All Routes Explore or Spanning Tree Explore frames that were discarded because the last LAN ID in the routing information field did not equal the LAN ID. This counter will wrap to zero when it exceeds its maximum. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Srsg staticDiscards (sd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is indicative of the number of explorer frames discarded due to fact that the outbound *SourceRouteBridge* port was disabled or deleted. This counter will wrap to zero when it exceeds its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Srsg dynamicDiscards (dd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the number of frames discarded due to receiving a frame with a target LAN ID which did not match the internal LAN ID of the receiving bridge port. This counter will wrap to zero when it exceeds its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT Vr Pp TbsgBridgePort (Tbsg)

| | |
|---|---|
| Groups | "GROUP Vr Pp Tbsg Provisioned (Prov)"<br>"GROUP Vr Pp Tbsg TbProvisioned (TbProv)"<br>"GROUP Vr Pp Tbsg StpProvisioned (StpProv)"<br>"GROUP Vr Pp Tbsg DomainInfoProvisioned (DIProv)"<br>"GROUP Vr Pp Tbsg OsiState (State)"<br>"GROUP Vr Pp Tbsg OperationalStatus (OperStatus)"<br>"GROUP Vr Pp Tbsg Operational (Oper)"<br>"GROUP Vr Pp Tbsg TbOperational (TbOper)"<br>"GROUP Vr Pp Tbsg StpOperational (StpOper)"<br>"GROUP Vr Pp Tbsg Statistics (Stats)" |
| Scope | Application |

| | |
|---|---|
| Description | Vr/*<string>* *Pp/<string>* *TbsgBridgePort*<br>This component represents a controlled way to allow exchange of explorer frames between SR and SRT networks.The *TbsgBridgePort* provides a cross over point for explorer frames from the source route gating logic into a SRT network and vice-versa. This port can and should be enabled / disabled through the *SrsgBridgePort*. This bridge port does not participate in the SR spanning tree protocol. Nevertheless, SR spanning tree BPDUs are still sent out across into the SRT network. Note that the *SrsgBridgePort* and the *TbsgBridgePort* should always be provisioned together, as one of these bridge ports cannot function without the other. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP Vr Pp Tbsg Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all the provisionable attributes that belong to this group. This group of attributes is applicable to all types of bridge ports and represent the common factor between them. These attributes influence the working of a bridge port. |

## ATTRIBUTE Vr Pp Tbsg fragmentIp (fIp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies if outbound frames carrying IP datagrams should be fragmented to conform to message transfer unit (*mtu*) sizes dictated by the media. |
| Values | off<br>on |
| Default | off |

## ATTRIBUTE Vr Pp Tbsg portNum (pNum)

| | |
|---|---|
| Access | Read only |
| Criticality | Component |
| Description | This attribute indicates the unique number assigned to the bridge port. It is used for SNMP management of this bridge port and in spanning tree as an identifier for this bridge port.<br>Notes:<br>Escape routines exist for initializing, copying, and deleting port numbers. This is necessary because SNMP requires a unique port instance identifier. The initPortNum escape routine sets the port number to a value in the range 1-255 for this purpose. The setCopiedPortNum escape routine exists to maintain the uniqueness of the port number in cases when one port is copied to another. When a bridge port is deleted, the releasePortNum escape routine places the port number being released into a pending deletion state. This is because the port number cannot be re-allocated until the port is truly deleted in the current view. This is necessary since there is no guarantee of order when processing changes to multiple protocol ports so without the pending deletion state, the same port number could be temporarily assigned to two ports for a short period of time.<br><br>The portNum is set as component critical since bridging also uses the port number as a key for indexing into its data structures. If a port is deleted then re-added under the same protocol port, CAS treats the change as a SET to the portNum attribute. |
| Values | Decimal (0..255) |
| Default | 0 |

## GROUP Vr Pp Tbsg TbProvisioned (TbProv)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all the port specific provisionable attributes that belong to the Tb group. These attributes in part influence the working of a bridge port operating in the transparent bridge mode. |

### ATTRIBUTE Vr Pp Tbsg secureOption (sos)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether the port secure feature is enabled. The secure feature, if enabled causes the following things to happen:<br>a) disallows dynamic learning,<br>b) disallows frames to be forwarded that do not satisfy the following condition: the MAC address of the source should be found in the forwarding table and the destination MAC address of the frame should also be found in the forwarding table. In addition to this, the port the frame was received on should figure as the in port, given the destination MAC address found in the frame.<br>c) disallows frames to be forwarded if the allowed to go port map for the destination MAC address is empty.<br>This feature in effect allows the user to choose the hosts that can generate traffic and the hosts that can receive traffic through this bridge unit. |
| Values | disabled<br>enabled |
| Default | disabled |

### GROUP Vr Pp Tbsg StpProvisioned (StpProv)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all port specific provisionable attributes that belong to the Stp group. The Stp group is applicable to all bridge ports that participate in the stp. These attributes influence the participation of the bridge port in the stp. |

### ATTRIBUTE Vr Pp Tbsg adminStatus (as)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the current administrative state for this component. ***enabled*** indicates that the component is available for operation. ***disabled*** indicates the component is unavailable for operation. |

| | |
|---|---|
| Values | up<br>down |
| Default | up |

### ATTRIBUTE Vr Pp Tbsg portStateStpControl (psstpc)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether or not stp state for this bridge port is controlled by the stp. In essence it indicates the participation of this bridge port in the stp by accepting and acting on received bridge protocol data units and by sending out the same.<br>***on*** signifies that this bridge port's spanning tree port state is controlled by the stp.<br>A value of ***off*** signifies that the spanning tree port state of this bridge port is unaffected by the stp. This in effect puts the bridge port out of reach of the stp decisions. Its stp state will be always ***forwarding***. Care should be taken while assigning a value of ***off*** to this attribute, as this might cause network loops. Please do not set this attribute to ***off*** unless you are absolutely sure about the effect of such an action on your network topology. |
| Values | off<br>on |
| Default | on |

### ATTRIBUTE Vr Pp Tbsg stpTypeProv (stptProv)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the type of the stp the port is participating in. A bridge port could participate in either the ***ieee8021*** stp or the ***dec*** stp. If the value of the attribute *protocolSpec* in the *SpanningTreeProtocol* component is in conflict with the value of this attribute, the value of the *protocolSpec* attribute will prevail. Prevailing stp type is reflected in the value of the attribute *stpTypeOper*. |
| Values | dec<br>ieee8021 |
| Default | ieee8021 |

### ATTRIBUTE Vr Pp Tbsg portPriority (ppr)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the value for this bridge port priority which is contained in the first octet of the port identifier. Valid values are as follows:<br>1) 0-255 for stp type DEC and<br>2) 0-65535 for stp type IEEE. |
| Values | Decimal (0..65535) |
| Default | 128 |

### ATTRIBUTE Vr Pp Tbsg pathCost (pc)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the contribution of this port to all the paths to the root bridge that include this port. Please note that the value of the attribute *pathCost* is applied only when the value of the attribute *pathCostMethod* is set to ***on*** and is ignored if otherwise. |
| Values | Decimal (1..65535) |
| Default | 10 |

### ATTRIBUTE Vr Pp Tbsg pathCostMethod (pcm)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the method used by the bridging logic to calculate the path cost to the bridge considered to be the root bridge in the spanning tree topology. This attribute should be set to ***off*** before attempting to provision a value for *pathCost*. |
| Values | off<br>dec<br>ieee8021 |
| Default | ieee8021 |

### GROUP Vr Pp Tbsg DomainInfoProvisioned (DIProv)

| | |
|---|---|
| Properties | Provisioned |

| | |
|---|---|
| Description | This group contains all the provisionable, domain specific attributes for a non-encapsulating bridge port. |

### ATTRIBUTE Vr Pp Tbsg domainNum (dn)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the domain number associated with this bridge port. Domain numbers are used for confining frames to a domain. Domain based filtering provides a complete segregation of traffic based on domain number associated with frames. There can exist only sixteen domains when a spanning tree is desired specific to each domain. When there is only a single spanning tree spanning all the domains the maximum number of domains possible are 4294967293.<br>This attribute is of no relevance when associated with backbone bridge port. Its value is ignored in such a situation. |
| Values | Decimal (1..4294967293) |
| Default | 1 |

### ATTRIBUTE Vr Pp Tbsg preserveDomain (pds)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies if the domain information should be preserved or embedded in the frame header. This attribute applies only to ***backbone*** ports and does not affect the ***access*** bridge ports. By setting this attribute to a value of ***on***, domain information could be preserved in frames being tunnelled across the backbone, so that this information can be deciphered at the other end of the backbone tunnel. This preserves the integrity of the domains thus preventing domain breaches while tunnelling frames across backbone network.<br>If the value of this attribute is set to ***off*** then domain information is not preserved in the header of the frames tunnelling through the backbone. This eliminates the overhead incurred to preserve domain information across the backbone while tunnelling frames across it.<br>Preserve domain is relevant only when used in conjunction with ATM MPE. |

| | |
|---|---|
| Values | off<br>on |
| Default | No default |

### GROUP Vr Pp Tbsg OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Vr Pp Tbsg adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Vr Pp Tbsg operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Vr Pp Tbsg usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Vr Pp Tbsg OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

### ATTRIBUTE Vr Pp Tbsg snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### GROUP Vr Pp Tbsg Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all the operational attributes belonging to the base group. These attributes in part, reflect the state of a bridge port. |

### ATTRIBUTE Vr Pp Tbsg portName (pn)

| | |
|---|---|
| Access | Read only |
| Description | The attribute *portName* is a string of the form ***"BridgePortName-i",*** where ***BridgePortName*** is the abbreviation of the corresponding bridge port and ***i*** is the instance identifier of the *ProtocolPort* the bridge port is provisioned under. For example a *TransparentBridgePort* provisioned under *ProtocolPort/ETH100A* would have a name ***TBP-ETH100A.*** |
| Values | String (4..29, ASCII) |
| Default | No default |

### ATTRIBUTE Vr Pp Tbsg upTime (ut)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the accumulated up time of this bridge port since the last reset occurred. |
| Values | Decimal (0..4294967295) |
| Units | seconds |
| Default | 0 |

### ATTRIBUTE Vr Pp Tbsg downTime (dt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the accumulated down time of this bridge port since the last reset occurred. |
| Values | Decimal (0..4294967295) |
| Units | seconds |
| Default | 0 |

### ATTRIBUTE Vr Pp Tbsg bridgingMode (bm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the mode of bridging this port can support. The transparent bridge mode is the only mode supported. |
| Values | unknown<br>tb<br>sr<br>srt |
| Default | No default |

### ATTRIBUTE Vr Pp Tbsg bridgePortConfig (bpc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the bridge port's configuration. It indicates if the bridge port is operating as an ***access*** port or as a ***backbone*** port. An ***access*** bridge port does not encapsulate a |

MAC frame and does not preserve domain information in the encapsulation, whereas a ***backbone*** bridge port encapsulates the MAC frame and optionally preserves domain information in the encapsulated frame.A ***backbone*** bridge port is typically used to transport frames across a high bandwidth backbone network to another bridge unit for further processing/forwarding of the frame.

Values
access
backbone

Default
No default

### ATTRIBUTE Vr Pp Tbsg bridgePortType (bpt)

Access
Read only

Description
This attribute indicates the type of the bridge port that was provisioned. It takes into consideration the *bridgingMode*, *bridgePortConfig* and the media the bridge port is linked to before branding a bridge port.

Values
ethernetBridgePort
tokenRingBridgePort
fddiBridgePort
tokenBusBridgePort
lanEmulationClientEthernet
fddiEncapsulatingBridgePort
vnsBridgePort
frameRelayBridgePort
pppBridgePort
smdsBridgePort
vcpBridgePort
x25BridgePort
atmMpeBridgePort
srEncapSrBridgePort
srEncapTbBridgePort
sourceGateSrBridgePort
sourceGateTbBridgePort
srtbBridgePort
tbsrBridgePort
clusterSrBridgePort
clusterTbBridgePort

| | |
|---|---|
| | snaDlrBridgePort<br>unknown |
| Default | No default |

### ATTRIBUTE Vr Pp Tbsg ifIndex (ifin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the index into the Interface Table where information about the media interface corresponding to this bridge port is maintained. |
| Values | Decimal (1..65535) |
| Default | No default |

### ATTRIBUTE Vr Pp Tbsg mtuExceededDiscards (med)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames discarded because the size of the outbound frame exceeded the message transfer unit (mtu) allowed for the bridge port. Note that this counter only refers to the outbound frames for this bridge port. This counter wraps around its maximum value of 4294967295.<br>This counter is influenced by the attribute *fragmentIp*. This counter is incremented when a frame larger than the mtu allowed is encountered and cannot be fragmented. If this counter is increasing steadily, it might be useful to set the value of the attribute *fragmentIp* to a value of ***on***. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### GROUP Vr Pp Tbsg TbOperational (TbOper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all the port specific operational attributes that belong to the Tb group. This group also contains all the port specific statistical attributes that belong to the Tb group. These attributes reflect the state of a bridge port operating in the transparent bridge mode |

### ATTRIBUTE Vr Pp Tbsg maxInfo (mi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the maximum size of the information field in a transparent bridge frame. This excludes the header field. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Tbsg badVerifyDiscards (bvd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of incoming frames that were discarded because the value of the *secureOption* attribute was set to ***on*** and:<br>a) it is not allowed to receive frames originating from the MAC address found in the source address field of the frame (source MAC address lookup in the forwarding table failed) on this bridge port, or<br>b) for the destination MAC address found in the frame the port the frame was received on does not appear as in port in the corresponding static table entry.<br>Permission to receive frames from a MAC address is granted via the static table entries.<br>This attribute, *badVerifyDiscards*, is directly influenced by:<br>1. *secureOption* and<br>2. the static table entries.<br>This counter wraps around its maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Tbsg staticEntryDiscards (sed)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames that were discarded because of the following three reasons:<br>a) there was no entry for the “allowed to go” field in the static table entry, where the input port is this bridge port. |

b) the MAC destination address in the frame was not found in the forwarding table but the frame cannot be flooded because this bridge has not other ports in forwarding state.
c) for spanning tree bpdus that are locally processed.
This counter wraps around its maximum value of 4294967295.
It might prove useful to check the static table entry corresponding to the bridge port in question, if this counter consistently displays a high value.
Ideally this counter should be as low as possible.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE Vr Pp Tbsg dynamicEntryDiscards (dend)

Access: Read only

Description: This attribute counts the number of incoming frames that:
a) were discarded because of the fact that the bridge port, the frame is to go out of matches the bridge port it came in from, or
b) if the stp port state of the out port is not ***forwarding***.
This counter wraps around its maximum value of 4294967295.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE Vr Pp Tbsg learningDiscards (ld)

Access: Read only

Description: This attribute counts the number of frames that were discarded while this bridge port was in a state other than the ***forwarding*** state. While in ***learning*** state the frame is discarded after the information from its header is learnt. This counter wraps around its maximum value of 4294967295.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE Vr Pp Tbsg inDiscards (id)

Access: Read only

| | |
|---|---|
| Description | This attribute counts the number of frames that were received by this bridge port and were discarded by the forwarding process. This includes frames that could have been discarded due to filtering. A rapidly increasing value for this attribute could indicate a shortage of resource in terms of memory needed to process the incoming frames. More memory can be provisioned through the *VirtualRouter*'s memory manager. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Tbsg inFrames (if)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames that have been received by this port from its segment. Note that a frame received on this bridge port is counted if and only if it can be processed by the bridge logic contained in this bridge unit. This counter wraps around its maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Tbsg outFrames (of)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames that have been transmitted out this bridge port. This also includes management frames.This counter wraps around its maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### GROUP Vr Pp Tbsg StpOperational (StpOper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all port specific operational attributes that belong to the Stp group. The Stp group is applicable to all bridge |

ports that participate in the stp. These attributes reflect the state of the bridge port's participation in the stp.

### ATTRIBUTE Vr Pp Tbsg stpPortState (sps)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the stp state of the bridge port. |
| Values | disabled<br>blocking<br>listening<br>learning<br>forwarding<br>broken |
| Default | disabled |

### ATTRIBUTE Vr Pp Tbsg stpTypeOper (stptOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the type of the stp the port is participating in. A bridge port could participate in either the ***ieee8021*** stp or the ***dec*** stp. |
| Values | none<br>dec<br>ieee8021 |
| Default | ieee8021 |

### ATTRIBUTE Vr Pp Tbsg designatedCost (dc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the path cost of the designated port of the lan segment the designated port is connected to. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Pp Tbsg pathCostOper (pco)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the contribution of this port to all the paths to the root bridge that include this port. This attribute *pathCostOper* will track the value of the attribute *pathCost* when the value of the attribute *pathCostMethod* is set of ***off***. |
| Values | Decimal (1..65535) |
| Default | No default |

### ATTRIBUTE Vr Pp Tbsg designatedBridge (db)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the identifier of the bridge that this port considers to be the designated bridge. |
| Values | String (8, Dashed Hex) |
| Default | No default |

### ATTRIBUTE Vr Pp Tbsg designatedPort (dp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the port identifier of the port on the designated bridge attached to the same LAN segment as this port is attached to. |
| Values | Hex (H.0..H.ffff) |
| Default | No default |

### ATTRIBUTE Vr Pp Tbsg forwardTransitions (ft)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times this bridge port transitioned from the ***learning*** state to the ***forwarding*** state. This counter wraps around its maximum value of 4294967295.<br>A rapidly increasing value might be indicative of an unstable spanning tree topology. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Tbsg blockingDiscards (bd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of the incoming frames that were discarded because the bridge port was in the ***blocking*** state. This counter wraps around its maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Tbsg designatedRoot (dr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the bridge identifier of the bridge recorded as the root bridge in the configuration BPDUs sent out by the designated bridge on the segment this port is attached to. |
| Values | String (8, Dashed Hex) |
| Default | No default |

### GROUP Vr Pp Tbsg Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all the statistical attributes applicable to all types of bridge ports and represents the common factor between them. These attributes in part reflect the state of the bridge port. |

### ATTRIBUTE Vr Pp Tbsg badAbstractDiscards (bad)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames that were discarded because the data abstracted from the frames coming in through this bridge port did not conform to the format expected by the bridge logic.This counter wraps around its maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Tbsg tinygramFramesIn (tfi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames received on this bridge port that used the tinygram compression scheme. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Tbsg tinygramFramesOut (tfo)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames transmitted out this bridge port that used the tinygram compression scheme. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Tbsg inFilterDiscards (ifd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames discarded due to domain based filtering at the in filter point. This counter wraps around its maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Tbsg outFilterDiscards (ofd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames discarded due to domain based filtering at the out filter point. This counter wraps around its maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## COMPONENT Vr Pp ClusterSrBridgePort (Srcl)

| | |
|---|---|
| Groups | "GROUP Vr Pp Srcl Provisioned (Prov)"<br>"GROUP Vr Pp Srcl StpProvisioned (StpProv)"<br>"GROUP Vr Pp Srcl DomainInfoProvisioned (DIProv)"<br>"GROUP Vr Pp Srcl OsiState (State)"<br>"GROUP Vr Pp Srcl OperationalStatus (OperStatus)"<br>"GROUP Vr Pp Srcl Operational (Oper)"<br>"GROUP Vr Pp Srcl StpOperational (StpOper)"<br>"GROUP Vr Pp Srcl Statistics (Stats)"<br>"GROUP Vr Pp Srcl SrProvisioned (SrProv)"<br>"GROUP Vr Pp Srcl SrStatistics (SrStats)" |
| Scope | Application |
| Description | *Vr/<string> Pp/<string> ClusterSrBridgePort*<br>This component represents the functionality called Cluster Bridging. Cluster Bridging allows for MAC frames, carrying packets belonging a certain network protocol, to be bridged and routed at the same time. Also, it provides for a convenient way to manage the entire cluster of LANs, using a single attachment point to the cluster of LANs, the Cluster Bridge Port. To realize these features, the network protocol(s) should also be provisioned on same port as the Cluster Bridge Port. *ClusterSrBridgePort* represents a cluster of Sr LANs. |
| Opt. Subcomp. | "COMPONENT Vr Pp Srcl NetSentry (Ns)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP Vr Pp Srcl Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all the provisionable attributes that belong to this group. This group of attributes is applicable to all types of |

bridge ports and represent the common factor between them. These attributes influence the working of a bridge port.

### ATTRIBUTE Vr Pp Srcl fragmentIp (fIp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies if outbound frames carrying IP datagrams should be fragmented to conform to message transfer unit (*mtu*) sizes dictated by the media. |
| Values | off<br>on |
| Default | off |

### ATTRIBUTE Vr Pp Srcl portNum (pNum)

| | |
|---|---|
| Access | Read only |
| Criticality | Component |
| Description | This attribute indicates the unique number assigned to the bridge port. It is used for SNMP management of this bridge port and in spanning tree as an identifier for this bridge port.<br>Notes:<br>Escape routines exist for initializing, copying, and deleting port numbers. This is necessary because SNMP requires a unique port instance identifier. The initPortNum escape routine sets the port number to a value in the range 1-255 for this purpose. The setCopiedPortNum escape routine exists to maintain the uniqueness of the port number in cases when one port is copied to another. When a bridge port is deleted, the releasePortNum escape routine places the port number being released into a pending deletion state. This is because the port number cannot be re-allocated until the port is truly deleted in the current view. This is necessary since there is no guarantee of order when processing changes to multiple protocol ports so without the pending deletion state, the same port number could be temporarily assigned to two ports for a short period of time.<br><br>The portNum is set as component critical since bridging also uses the port number as a key for indexing into its data structures. If a |

port is deleted then re-added under the same protocol port, CAS treats the change as a SET to the portNum attribute.

Values: Decimal (0..255)

Default: 0

### GROUP Vr Pp Srcl StpProvisioned (StpProv)

Properties: Provisioned

Description: This group contains all port specific provisionable attributes that belong to the Stp group. The Stp group is applicable to all bridge ports that participate in the stp. These attributes influence the participation of the bridge port in the stp.

### ATTRIBUTE Vr Pp Srcl adminStatus (as)

Access: Read and write

Description: This attribute defines the current administrative state for this component. ***enabled*** indicates that the component is available for operation. ***disabled*** indicates the component is unavailable for operation.

Values:
up
down

Default: up

### ATTRIBUTE Vr Pp Srcl portStateStpControl (psstpc)

Access: Read and write

Description: This attribute specifies whether or not stp state for this bridge port is controlled by the stp. In essence it indicates the participation of this bridge port in the stp by accepting and acting on received bridge protocol data units and by sending out the same.
***on*** signifies that this bridge port's spanning tree port state is controlled by the stp.
A value of ***off*** signifies that the spanning tree port state of this bridge port is unaffected by the stp. This in effect puts the bridge port out of reach of the stp decisions. Its stp state will be always ***forwarding***. Care should be taken while assigning a value of ***off*** to this attribute, as this might cause network loops. Please do not

set this attribute to ***off*** unless you are absolutely sure about the effect of such an action on your network topology.

Values
off
on

Default
on

### ATTRIBUTE Vr Pp Srcl stpTypeProv (stptProv)

Access
Read and write

Description
This attribute specifies the type of the stp the port is participating in. A bridge port could participate in either the ***ieee8021*** stp or the ***dec*** stp. If the value of the attribute *protocolSpec* in the *SpanningTreeProtocol* component is in conflict with the value of this attribute, the value of the *protocolSpec* attribute will prevail. Prevailing stp type is reflected in the value of the attribute *stpTypeOper*.

Values
dec
ieee8021

Default
ieee8021

### ATTRIBUTE Vr Pp Srcl portPriority (ppr)

Access
Read and write

Description
This attribute specifies the value for this bridge port priority which is contained in the first octet of the port identifier. Valid values are as follows:
1) 0-255 for stp type DEC and
2) 0-65535 for stp type IEEE.

Values
Decimal (0..65535)

Default
128

### ATTRIBUTE Vr Pp Srcl pathCost (pc)

Access
Read and write

Description
This attribute specifies the contribution of this port to all the paths to the root bridge that include this port. Please note that the value

of the attribute *pathCost* is applied only when the value of the attribute *pathCostMethod* is set to ***on*** and is ignored if otherwise.

Values: Decimal (1..65535)

Default: 10

### ATTRIBUTE Vr Pp Srcl pathCostMethod (pcm)

Access: Read and write

Description: This attribute specifies the method used by the bridging logic to calculate the path cost to the bridge considered to be the root bridge in the spanning tree topology. This attribute should be set to ***off*** before attempting to provision a value for *pathCost*.

Values:
off
dec
ieee8021

Default: ieee8021

### GROUP Vr Pp Srcl DomainInfoProvisioned (DIProv)

Properties: Provisioned

Description: This group contains all the provisionable, domain specific attributes for a non-encapsulating bridge port.

### ATTRIBUTE Vr Pp Srcl domainNum (dn)

Access: Read and write

Description: This attribute specifies the domain number associated with this bridge port. Domain numbers are used for confining frames to a domain. Domain based filtering provides a complete segregation of traffic based on domain number associated with frames. There can exist only sixteen domains when a spanning tree is desired specific to each domain. When there is only a single spanning tree spanning all the domains the maximum number of domains possible are 4294967293.
This attribute is of no relevance when associated with backbone bridge port. Its value is ignored in such a situation.

Values: Decimal (1..4294967293)

Default 1

### ATTRIBUTE Vr Pp Srcl preserveDomain (pds)

Access Read and write

Criticality Component

Description This attribute specifies if the domain information should be preserved or embedded in the frame header. This attribute applies only to ***backbone*** ports and does not affect the ***access*** bridge ports. By setting this attribute to a value of ***on***, domain information could be preserved in frames being tunnelled across the backbone, so that this information can be deciphered at the other end of the backbone tunnel. This preserves the integrity of the domains thus preventing domain breaches while tunnelling frames across backbone network.
If the value of this attribute is set to ***off*** then domain information is not preserved in the header of the frames tunnelling through the backbone. This eliminates the overhead incurred to preserve domain information across the backbone while tunnelling frames across it.
Preserve domain is relevant only when used in conjunction with ATM MPE.

Values off
on

Default No default

### GROUP Vr Pp Srcl OsiState (State)

Properties Operational

Description This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Vr Pp Srcl adminState (osiAdmin)

Access Read only

Description

This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values

locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default

unlocked

### ATTRIBUTE Vr Pp Srcl operationalState (osiOper)

Access

Read only

Description

This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values

enabled (ena)
disabled (dis)

Default

disabled

### ATTRIBUTE Vr Pp Srcl usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Vr Pp Srcl OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

### ATTRIBUTE Vr Pp Srcl snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### GROUP Vr Pp Srcl Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all the operational attributes belonging to the base group. These attributes in part, reflect the state of a bridge port. |

### ATTRIBUTE Vr Pp Srcl portName (pn)

| | |
|---|---|
| Access | Read only |
| Description | The attribute *portName* is a string of the form ***"BridgePortName-i",*** where ***BridgePortName*** is the abbreviation of the corresponding bridge port and ***i*** is the instance identifier of the *ProtocolPort* the bridge port is provisioned under. For example a *TransparentBridgePort* provisioned under *ProtocolPort/ETH100A* would have a name ***TBP-ETH100A.*** |
| Values | String (4..29, ASCII) |
| Default | No default |

### ATTRIBUTE Vr Pp Srcl upTime (ut)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the accumulated up time of this bridge port since the last reset occurred. |
| Values | Decimal (0..4294967295) |
| Units | seconds |
| Default | 0 |

### ATTRIBUTE Vr Pp Srcl downTime (dt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the accumulated down time of this bridge port since the last reset occurred. |
| Values | Decimal (0..4294967295) |
| Units | seconds |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE Vr Pp SrcI bridgingMode (bm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the mode of bridging this port can support. The transparent bridge mode is the only mode supported. |
| Values | unknown<br>tb<br>sr<br>srt |
| Default | No default |

### ATTRIBUTE Vr Pp SrcI bridgePortConfig (bpc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the bridge port's configuration. It indicates if the bridge port is operating as an ***access*** port or as a ***backbone*** port. An ***access*** bridge port does not encapsulate a MAC frame and does not preserve domain information in the encapsulation, whereas a ***backbone*** bridge port encapsulates the MAC frame and optionally preserves domain information in the encapsulated frame.A ***backbone*** bridge port is typically used to transport frames across a high bandwidth backbone network to another bridge unit for further processing/forwarding of the frame. |
| Values | access<br>backbone |
| Default | No default |

### ATTRIBUTE Vr Pp SrcI bridgePortType (bpt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the type of the bridge port that was provisioned. It takes into consideration the *bridgingMode*, *bridgePortConfig* and the media the bridge port is linked to before branding a bridge port. |

| | |
|---|---|
| Values | ethernetBridgePort<br>tokenRingBridgePort<br>fddiBridgePort<br>tokenBusBridgePort<br>lanEmulationClientEthernet<br>fddiEncapsulatingBridgePort<br>vnsBridgePort<br>frameRelayBridgePort<br>pppBridgePort<br>smdsBridgePort<br>vcpBridgePort<br>x25BridgePort<br>atmMpeBridgePort<br>srEncapSrBridgePort<br>srEncapTbBridgePort<br>sourceGateSrBridgePort<br>sourceGateTbBridgePort<br>srtbBridgePort<br>tbsrBridgePort<br>clusterSrBridgePort<br>clusterTbBridgePort<br>snaDlrBridgePort<br>unknown |
| Default | No default |

### ATTRIBUTE Vr Pp SrcI ifIndex (ifin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the index into the Interface Table where information about the media interface corresponding to this bridge port is maintained. |
| Values | Decimal (1..65535) |
| Default | No default |

### ATTRIBUTE Vr Pp SrcI mtuExceededDiscards (med)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames discarded because the size of the outbound frame exceeded the message transfer unit |

(mtu) allowed for the bridge port. Note that this counter only refers to the outbound frames for this bridge port. This counter wraps around its maximum value of 4294967295.
This counter is influenced by the attribute *fragmentIp*. This counter is incremented when a frame larger than the mtu allowed is encountered and cannot be fragmented. If this counter is increasing steadily, it might be useful to set the value of the attribute *fragmentIp* to a value of ***on***.

Values: Decimal (0..4294967295)

Default: 0

### GROUP Vr Pp Srcl StpOperational (StpOper)

Properties: Operational

Description: This group contains all port specific operational attributes that belong to the Stp group. The Stp group is applicable to all bridge ports that participate in the stp. These attributes reflect the state of the bridge port's participation in the stp.

### ATTRIBUTE Vr Pp Srcl stpPortState (sps)

Access: Read only

Description: This attribute indicates the stp state of the bridge port.

Values:
disabled
blocking
listening
learning
forwarding
broken

Default: disabled

### ATTRIBUTE Vr Pp Srcl stpTypeOper (stptOper)

Access: Read only

Description: This attribute indicates the type of the stp the port is participating in. A bridge port could participate in either the ***ieee8021*** stp or the ***dec*** stp.

| | |
|---|---|
| Values | none<br>dec<br>ieee8021 |
| Default | ieee8021 |

### ATTRIBUTE Vr Pp Srcl designatedCost (dc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the path cost of the designated port of the lan segment the designated port is connected to. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Pp Srcl pathCostOper (pco)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the contribution of this port to all the paths to the root bridge that include this port. This attribute *pathCostOper* will track the value of the attribute *pathCost* when the value of the attribute *pathCostMethod* is set of ***off***. |
| Values | Decimal (1..65535) |
| Default | No default |

### ATTRIBUTE Vr Pp Srcl designatedBridge (db)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the identifier of the bridge that this port considers to be the designated bridge. |
| Values | String (8, Dashed Hex) |
| Default | No default |

### ATTRIBUTE Vr Pp Srcl designatedPort (dp)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the port identifier of the port on the designated bridge attached to the same LAN segment as this port is attached to. |
| Values | Hex (H.0..H.ffff) |
| Default | No default |

### ATTRIBUTE Vr Pp Srcl forwardTransitions (ft)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times this bridge port transitioned from the ***learning*** state to the ***forwarding*** state. This counter wraps around its maximum value of 4294967295.<br>A rapidly increasing value might be indicative of an unstable spanning tree topology. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Srcl blockingDiscards (bd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of the incoming frames that were discarded because the bridge port was in the ***blocking*** state. This counter wraps around its maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Srcl designatedRoot (dr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the bridge identifier of the bridge recorded as the root bridge in the configuration BPDUs sent out by the designated bridge on the segment this port is attached to. |
| Values | String (8, Dashed Hex) |
| Default | No default |

### GROUP Vr Pp Srcl Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all the statistical attributes applicable to all types of bridge ports and represents the common factor between them. These attributes in part reflect the state of the bridge port. |

### ATTRIBUTE Vr Pp Srcl badAbstractDiscards (bad)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames that were discarded because the data abstracted from the frames coming in through this bridge port did not conform to the format expected by the bridge logic.This counter wraps around its maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Srcl tinygramFramesIn (tfi)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames received on this bridge port that used the tinygram compression scheme. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Srcl tinygramFramesOut (tfo)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames transmitted out this bridge port that used the tinygram compression scheme. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Srcl inFilterDiscards (ifd)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the number of frames discarded due to domain based filtering at the in filter point. This counter wraps around its maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Srcl outFilterDiscards (ofd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames discarded due to domain based filtering at the out filter point. This counter wraps around its maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### GROUP Vr Pp Srcl SrProvisioned (SrProv)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all port specific, provisionable attributes associated with *SourceRouteBridge* ports. |

### ATTRIBUTE Vr Pp Srcl hopCount (hc)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum number of hops allowed in Spanning Tree Explore and All Routes Explore frames. This value is one less than the maximum number of route descriptors allowed in a source route frame |
| Values | Decimal (1..7) |
| Default | 7 |

### ATTRIBUTE Vr Pp Srcl exploreFrameTreatment (eft)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether or not explore frames received from *SourceRouteBridge* ports will be sent to the SRTB-8209 translation or the encapsulated *SourceRouteBridge* logic. This |

| | |
|---|---|
| | option is used only when both the *TbsrBridgePort* and the *SrtbBridgePort* are provisioned and enabled.<br>A value of ***Xlate*** implies that the explore frames will be sent to the Srtb translation logic and a value of ***Encap*** implies that the frames will be sent to the Encapsulated source route bridging logic. |
| Values | encap<br>xlate |
| Default | encap |

### ATTRIBUTE Vr Pp Srcl lanId (lid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the identifier for the physical LAN that this port is attached. All *SourceRouteBridge* ports are assigned to a physical LAN and a logical internal LAN.<br>Current source route bridge implementations limit the lanId to a value in the range 0 to 4095. |
| Values | Decimal (0..4095) |
| Default | 0 |

### ATTRIBUTE Vr Pp Srcl internalLanId (ilid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the identifier for the internal logical LAN this port is attached. All *SourceRouteBridge* ports are assigned to a physical LAN and a logical internal LAN.<br>Current source route bridge implementations limit the lanId to a value in the range 0 to 4095. |
| Values | Decimal (0..4095) |
| Default | 0 |

### ATTRIBUTE Vr Pp Srcl bridgeNum (bid)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute specifies the value that is used to identify this bridge when more than one bridge is used to span the same two LAN segments. |
| Values | Decimal (0..15) |
| Default | 7 |

### ATTRIBUTE Vr Pp SrcI largestFrame (lf)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum frame size (LLC and above) in octets, allowed by this *SourceRouteBridge* port. This field is used to determine whether a modification of the largest frame field of the routing control field of the routing information field is warranted. |
| Values | Decimal (516; 1470; 2052; 4399; 8130; 11407; 17749) |
| Units | octets |
| Default | No default |

### ATTRIBUTE Vr Pp SrcI steSpanMode (steSm)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute determines how this bridge port will react when presented with a Spanning Tree Explore frame.<br>If ***disabled,*** the Spanning Tree Explore frame is discarded regardless of the value of *stpPortState*.<br>If the value of this attribute is ***forced***, the Spanning Tree Explore frame is forwarded regardless of the value of *stpPortState*.<br>***autoSpan*** uses the *stpPortState* value to decide whether or not Spanning Tree Explore frames should be forwarded out this bridge port. If the port is in the ***forwarding*** state, the frame is received and transmitted otherwise the frame is discarded. |
| Values | autoSpan<br>disabled<br>forced |
| Default | autoSpan |

### ATTRIBUTE Vr Pp Srcl areRdLimit (arl)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the number of route descriptors allowed in an All Routes Explore frame received on a *SourceRouteBridgePort* or *SourceRouteTransparentBridgePort*. Current source route bridge implementations limit the *areRdLimit* to a value in the range 0 to 8. |
| Values | Decimal (0..8) |
| Default | 8 |

### ATTRIBUTE Vr Pp Srcl steRdLimit (srl)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the number of route descriptors allowed in a Spanning Tree Explore frame received on a *SourceRouteBridgePort* or *SourceRouteTransparentBridgePort*. Current source route bridge implementations limit the *steRdLimit* to a value in the range 0 to 8. |
| Values | Decimal (0..8) |
| Default | 8 |

### GROUP Vr Pp Srcl SrStatistics (SrStats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all port specific statistical attributes associated with *SourceRouteBridge* ports. |

### ATTRIBUTE Vr Pp Srcl specInFrames (sif)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the number of specifically routed frames that were received by this bridge port. A specifically routed frame has a route descriptor, constructed by the originating host which details an explicit route to the destination host. This counter will wrap to zero when it exceeds its maximum. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE Vr Pp Srcl specOutFrames (srfof)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the number of specifically routed frames that were transmitted from this bridge port. This counter will wrap to zero when it exceeds its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Srcl apeInFrames (apeif)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the number of All Path Explore frames received on this bridge port. The All Path Explore frames are forwarded to all *SourceRouteBridge* ports assigned to this bridge regardless of the port's *portStpState*s. This counter will wrap to zero when it exceeds its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Srcl apeOutFrames (apeof)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the number of All Path Explore frames transmitted on this bridge port. The All Path Explore frames are forwarded to all *SourceRouteBridge* ports assigned to this bridge regardless of the port's *portStpState* state. This counter will wrap to zero when it exceeds its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Srcl steInFrames (steif)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute specifies the number of Spanning Tree Explore frames received on this bridge port. The Spanning Tree Explore frames are only forwarded through bridge ports whose *portStpState* has a value of ***forwarding.*** This counter will wrap to zero when it exceeds its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Srcl steOutFrames (steof)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the number of Spanning Tree Frames transmitted on this bridge port. This counter will wrap to zero when it exceeds its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Srcl segmentMismatchDiscards (lidmd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the number of All Routes Explore and Spanning Tree Explore frames that were discarded due to an invalid next segment value in the routing information field. This counter will wrap to zero when it exceeds its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Srcl dupSegmentDiscards (dsd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the number of frames discarded due to the presence of a duplicate segment identifier in the route descriptor field which may indicate a loop in the network topology. This counter will wrap to zero when it exceeds its maximum. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE Vr Pp Srcl hopCountExceededDiscards (hced)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the number of All Routes Explore and Spanning Tree Explore frames discarded by this bridge port due to a frame exceeding the maximum size allowed for a route descriptor length. This counter will wrap to zero when it exceeds its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Srcl dupLanIdOrTreeErrors (dlte)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the number frames received which contain duplicate LAN IDs or Tree errors. This attribute is helpful in debugging problems in networks which contain older IBM-SR bridges. This counter will wrap to zero when it exceeds its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Srcl lanIdMismatches

| | |
|---|---|
| Access | Read only |
| Description | This attributes counts the number of All Routes Explore or Spanning Tree Explore frames that were discarded because the last LAN ID in the routing information field did not equal the LAN ID. This counter will wrap to zero when it exceeds its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Srcl staticDiscards (sd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is indicative of the number of explorer frames discarded due to fact that the outbound *SourceRouteBridge* port was disabled or deleted. This counter will wrap to zero when it exceeds its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Pp Srcl dynamicDiscards (dd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the number of frames discarded due to receiving a frame with a target LAN ID which did not match the internal LAN ID of the receiving bridge port. This counter will wrap to zero when it exceeds its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT Vr Pp Srcl NetSentry (Ns)

| | |
|---|---|
| Groups | "GROUP Vr Pp Srcl Ns Provisioned (Prov)" |
| Scope | Application |
| Description | *Vr/<string> Pp/<string> TransparentBridgePort NetSentry*<br>This component represents the *Ns* functionality that can be applied to a bridge port. It contains all the attribute groups (provisionable) that are necessary for the application of Ns functionality to a bridge port. In essence, it allows for the definition of filters, at the incoming and outgoing points, specific to the interface represented by this bridge port. |

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Vr Pp Srcl Ns Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group houses all the port specific provisionable attributes associated with Ns. These attributes influence the application of filters to incoming and outgoing frames. |

### ATTRIBUTE Vr Pp Srcl Ns incomingFilter (if)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the name of the filter to be applied at the incoming filter point. |
| Values | String (0..32, ASCII) |
| Default | No default |

### ATTRIBUTE Vr Pp Srcl Ns outgoingFilter (of)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the name of the filter to be applied at the out going filter point. |
| Values | String (0..32, ASCII) |
| Default | No default |

### COMPONENT Vr Pp ShortcutConnection (Sc)

| | |
|---|---|
| Instance | Decimal (0..1023) |
| Groups | "GROUP Vr Pp Sc Operational (Oper)"<br>"GROUP Vr Pp Sc Statistics (Stats)" |

| | |
|---|---|
| Scope | Application |
| Description | *Vr/<string> Pp/<string> ShortcutConnection/n*<br>This component represents a shortcut connection (SVC) for use by NHRP. |
| Dyn. Subcomp. | "COMPONENT Vr Pp Sc AtmConnection (AtmCon)" |
| Common Verbs | Help<br>List<br>Display |

### VERB Clear Vr Pp Sc

| | |
|---|---|
| Impact | Service |
| Description | Clear Vr/<string> Pp/<string> ShortcutConnection/n<br>This command clears the specified *ShortcutConnection*. The connection associated with this component is released. |

### GROUP Vr Pp Sc Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational status attributes of the *ShortcutConnection* component. |

### ATTRIBUTE Vr Pp Sc remoteNbmaAddress

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the NBMA address of the far (remote) end. |
| Values | String (0..20, Hex) |
| Default | No default |

### ATTRIBUTE Vr Pp Sc age

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates how long the connection has been up. |
| Values | Decimal (0..4292967295) |

| | |
|---|---|
| Units | seconds |
| Default | No default |

### ATTRIBUTE Vr Pp Sc mtu

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Layer 2 MTU (that is, CPCS-SDU for ATM) of this connection. |
| Values | Decimal (0..0; 576..18944) |
| Units | octets |
| Default | No default |

### ATTRIBUTE Vr Pp Sc connSource

| | |
|---|---|
| Access | Read only |
| Description | This attributes indicates which end originated the connect request for this connection. |
| Values | local<br>remote |
| Default | No default |

### ATTRIBUTE Vr Pp Sc type

| | |
|---|---|
| Access | Read only |
| Description | This attributes indicates the type of this connection. |
| Values | unidirectional<br>bidirectional |
| Default | No default |

### GROUP Vr Pp Sc Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the statistical attributes of the *ShortcutConnection* component. |

### ATTRIBUTE Vr Pp Sc txFrames

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the frames transmitted over this connection. This counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Vr Pp Sc rxFrames

| | |
|---|---|
| Access | Read only |
| Description | This attributes counts the frames received over this connection. This counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### COMPONENT Vr Pp Sc AtmConnection (AtmCon)

| | |
|---|---|
| Groups | "GROUP Vr Pp Sc AtmCon Operational (Oper)" |
| Scope | Device |
| Description | An AtmConnection component is created for each ATM connection established by an application. It shows where the data traffic for this connection is directed. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Vr Pp Sc AtmCon Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This attribute group contains the operational attributes for the *NapAtmConnection* component. |

### ATTRIBUTE Vr Pp Sc AtmCon nextHop

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute shows the component name of the *AtmIf Vcc Ep* or *AtmCon* component to which this switched connection is established. |
| Values | The name of the component |
| Default | No default |

## COMPONENT Vr NetSentry (Ns)

| | |
|---|---|
| Groups | "GROUP Vr Ns Provisioned (Prov)"<br>"GROUP Vr Ns Statistics (Stats)" |
| Scope | Application |
| Description | *Vr/<string> NetSentry*<br>This is the top-level component for NetSentry. It exists to hold global NetSentry data, and the subcomponents. |
| Opt. Subcomp. | "COMPONENT Vr Ns File"<br>"COMPONENT Vr Ns Engine"<br>"COMPONENT Vr Ns IPStatistics (IPStats)"<br>"COMPONENT Vr Ns IPXStatistics (IPXStats)"<br>"COMPONENT Vr Ns AppletalkStatistics (ATStats)"<br>"COMPONENT Vr Ns DECnetStatistics (DNStats)"<br>"COMPONENT Vr Ns BridgingStatistics (BrStats)" |
| Dyn. Subcomp. | "COMPONENT Vr Ns Filter" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Vr Ns Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This contains the global *NetSentry* control flags. |

## ATTRIBUTE Vr Ns dropConditions

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute controls under what circumstances *NetSentry* drops packets. It is possible for *NetSentry* to drop packets when: There is no memory to contain statistics for this packet (statsNoMem), it is for whatever reason impossible to clone, copy, or log a copy of the packet via the clone_to copy_to or log_to actions respectively (cantCloneTo, cantCopyTo and cantLogTo), and if the packet encounters a filter which is provisioned at a filter point within a protocol component, but not defined in any of the files defined by *File* components within *NetSentry* (this is a Null filter). |
| Set of | statsNoMem<br>cantCloneTo<br>cantLogTo<br>cantCopyTo<br>cantMacCloneTo<br>nullFilter |
| Default | No default |

### GROUP Vr Ns Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This contains the global *NetSentry* (in particular, non-protocol specific) statistics. |

### ATTRIBUTE Vr Ns packetsProcessed (packets)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of packets processed through *NetSentry*. This counter will wrap around to zero when it exceeds its maximum value, 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ns packetsFailed (failed)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of packets processed through *NetSentry* which ended with a fail disposition. This |

counter will wrap around to zero when it exceeds its maximum value, 4294967295.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE Vr Ns statsNoMem (mem)

Access: Read only

Description: This attribute counts the total number of packets processed through *NetSentry* for which statistic should have been gathered, but for which statistics were not gathered due to a failure to allocate memory. Such packets may or may not be dropped according to the values provisioned in *dropConditions* under the *NetSentry* component. If this attribute is being incremented, the system is suffering from memory shortfalls, and some operator action is advised. Perhaps memory allocations should be re-provisioned, *NetSentry* statistics gathering should be reduced, or *NetSentry* statistics tables should be cleared to temporarily free memory. This counter will wrap around to zero when it exceeds its maximum value, 4294967295.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE Vr Ns hsaOkayFailed (hsaokfailed)

Access: Read only

Description: This attribute counts the total number of packets processed through *NetSentry* which encountered, and did not match, an hsa_okay pattern. Such packets are likely to be generated from misconfigured hosts. Some operator action to track down these hosts is advised. This counter will wrap around to zero should it ever exceed its maximum value, 4294967295.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE Vr Ns depthExceeded (depth)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of times a *NetSentry* filter was executed which referenced too many layers of indirect filters. If this count is non-zero, the filter definitions the unit is using are incorrect, and some operator action to track down the erroneous filter definitions is advised. Filters will not be behaving correctly if this counter is increasing, and security could be compromised. This count should always be zero, and it will wrap around to zero should it ever exceed its maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ns droppedStatsNoMem (dropSNM)

| | |
|---|---|
| Access | Read only |
| Description | This counts the total number of packets that were actually dropped due to an inability to allocate memory to hold statistics for the packet. Such a packet must have had a *NetSentry* statistics gathering action applied to it, in order for the attempt to gather statistics to be made, and the *dropConditions* attribute must include the ***statsNoMem*** value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ns droppedCantCloneTo (dropCCloneT)

| | |
|---|---|
| Access | Read only |
| Description | This counts the total number of packets that were dropped due to the failure of a clone_to action applied to the packet. This counter will only increment if the *dropConditions* attribute includes the ***cantCloneTo*** value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ns droppedCantLogTo (dropCLogT)

| | |
|---|---|
| Access | Read only |
| Description | This counts the total number of packets that were dropped due to the failure of a log_to action applied to the packet. This counter will only increment if the *dropConditions* attribute includes the ***cantLogTo*** value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ns droppedCantCopyTo (dropCCopyT)

| | |
|---|---|
| Access | Read only |
| Description | This counts the total number of packets that were dropped due to the failure of a copy_to action applied to the packet. This counter will only increment if the *dropConditions* attribute includes the ***cantCopyTo*** value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ns droppedNullFilter (dropNF)

| | |
|---|---|
| Access | Read only |
| Description | This counts the total number of packets that were dropped because the packet passed through a filter point into which was provisioned a filter which was never defined in a file loaded into *NetSentry.* Such filter points have atached to the the so-call Null Filter, which will either succeed or fail all packets passing through it, depending on whether or not the *dropConditions* attribute includes the ***nullFilter*** value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## COMPONENT Vr Ns File

| | |
|---|---|
| Instance | String (1..64, ASCII) |
| Groups | "GROUP Vr Ns File Operational (Oper)" |
| Scope | Application |
| Description | *Vr/<string> NetSentry File/<filename>*<br>This component's instance value is a single filename to be compiled. The file must reside in<br>/provisioning/netsentry/prov<br>in order to be compiled at provisioning activate time, but in<br>/provisioning/netsentry/oper<br>to be recompiled with the *ReLoad* verb. This is to provide the same sort of protections that the provisioning system gives with its activate-confirm-commit sequence. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## VERB RELoad Vr Ns File

| | |
|---|---|
| Impact | Configuration |
| Description | *RELoad VR/<string> NS File/<filename>*<br>This verb compiles the file to which the *File* component the verb applies to refers, searching for the named file in the /provisioning /netsentry/oper subdirectory. This is in contrast to the provisioning-time load, which searches the /provisioning/netsentry/prov subdirectory. This provides some measure of safety in the event of misconfigured filters, since rebooting the unit will cause *NetSentry* to fall back to the filters defined in files in the prov subdirectory. Presently, the operator must manually 'commit' a file of filter definitions by moving or copying it from the oper subdirectory to the prov subdirectory. This verb will return either success or failure, with a detailed error message both returned in the failure, and set in the *File* component itself. |

### GROUP Vr Ns File Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This holds hold a single compiler error message. |

### ATTRIBUTE Vr Ns File compilerErrorMsg

| | |
|---|---|
| Access | Read only |
| Description | This attribute contains a single string holding the compiler error which caused the compile to fail. In the event that the file is recompiled (using the *RELoad* verb), the value of this will change, to reflect the new error, if any was encountered, or no error, if the compile was successful. |
| Values | String (1..80, ASCII) |
| Default | "No Error" |

### COMPONENT Vr Ns Engine

| | |
|---|---|
| Instance | Decimal (0..15) |
| Scope | Application |
| Description | *Vr/<string> NetSentry Engine/n*<br>The existence of this component represents the presence of NetSentry on a particular Logical Processor. Each *Engine* component must correspond to a matching *Lp* component. If *NetSentry* filtering is needed on some *Lp*, a corresponding *Engine* must be provisioned. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### COMPONENT Vr Ns IPStatistics (IPStats)

| | |
|---|---|
| Scope | Application |
| Description | *Vr/<string> NetSentry IPStats*<br>This component holds all the statistics gathered for the IP |

protocol. If *IPStatistics* is provisioned, *NetSentry* statistics gathering actions will gather statistics for all IP packets to which they apply.

Dyn. Subcomp. "COMPONENT Vr Ns IPStats AddressStatistic (AddrStat)"

Common Verbs

Help
List
Display
Add
DELete

## VERB CLEAR Vr Ns IPStats

Impact System_admin

Description *CLEAR Vr/<string> Ns IPStats*
This clears statistics gathered for IP, deleting all the allocated resources, and discarding gathered data.

## COMPONENT Vr Ns IPStats AddressStatistic (AddrStat)

Instance sourceAddress (sa) [String (1..32, ASCII)]
destinationAddress (da) [String (1..32, ASCII)]

Groups "GROUP Vr Ns IPStats AddrStat Statistics (Stats)"

Scope Application

Description *Vr/<string> NetSentry IPStats AddrStat/128.12.3.7,-*
This component holds statistics for a source address, a destination address, or a source address/destination address pair. This component may reside in one of a variety of by-protocol tables, each with a double index for rows. One index is the source address, one is the destination address. One of the indices may be a “-”, which indicates that the other index is the relevent one. That is, a statistic referred to with source address “128.12.3.7” and destination address “-” is a statistic for packets originating from 128.12.3.7 alone.

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display |

### GROUP Vr Ns IPStats AddrStat Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This is the basic statistic used throughout *NetSentry* by-protocol statistics gathering. It contains counters for total packets, total octets in packets, and two user counters, counter_1 and counter_2. |

### ATTRIBUTE Vr Ns IPStats AddrStat packetCount

| | |
|---|---|
| Access | Read only |
| Description | This is the number of packets which caused the enclosing *Statistics* group to to be incremented. This counter will wrap around to zero when it exceeds its maximum value, 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ns IPStats AddrStat byteCount

| | |
|---|---|
| Access | Read only |
| Description | This is the number of bytes in all the packets which caused the enclosing *Statistics* group to be incremented. This counter will wrap around to zero when it exceeds its maximum value, 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ns IPStats AddrStat counter1

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This is the number of times a packet caused a counter_1 action to be applied with reference to the enclosing *Statistics* group. This counter will wrap around to zero when it exceeds its maximum value, 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ns IPStats AddrStat counter2

| | |
|---|---|
| Access | Read only |
| Description | This is the number of times a packet caused a counter_2 action to be applied with reference to the enclosing *Statistics* group. This counter will wrap around to zero when it exceeds its maximum value, 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT Vr Ns IPXStatistics (IPXStats)

| | |
|---|---|
| Scope | Application |
| Description | *Vr/<string> NetSentry IPXStats*<br>This component holds all the statistics gathered for the IPX protocol. If *IPXStatistics* is provisioned, *NetSentry* statistics gathering actions will gather statistics for all IPX packets to which they apply. |
| Dyn. Subcomp. | "COMPONENT Vr Ns IPXStats AddressStatistic (AddrStat)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## VERB CLEAR Vr Ns IPXStats

| | |
|---|---|
| Impact | System_admin |
| Description | *CLEAR Vr/<string> Ns IPXStats*<br>This clears statistics gathered for IPX, deleting all the allocated resources, and discarding gathered data. |

## COMPONENT Vr Ns IPXStats AddressStatistic (AddrStat)

| | |
|---|---|
| Instance | sourceAddress (sa) [String (1..32, ASCII)]<br>destinationAddress (da) [String (1..32, ASCII)] |
| Groups | "GROUP Vr Ns IPXStats AddrStat Statistics (Stats)" |
| Scope | Application |
| Description | *Vr/<string> NetSentry IPStats AddrStat/128.12.3.7,-*<br>This component holds statistics for a source address, a destination address, or a source address/destination address pair. This component may reside in one of a variety of by-protocol tables, each with a double index for rows. One index is the source address, one is the destination address. One of the indices may be a “-”, which indicates that the other index is the relevent one. That is, a statistic referred to with source address “128.12.3.7” and destination address “-” is a statistic for packets originating from 128.12.3.7 alone. |
| Common Verbs | Help<br>List<br>Display |

## GROUP Vr Ns IPXStats AddrStat Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This is the basic statistic used throughout *NetSentry* by-protocol statistics gathering. It contains counters for total packets, total octets in packets, and two user counters, counter_1 and counter_2. |

## ATTRIBUTE Vr Ns IPXStats AddrStat packetCount

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This is the number of packets which caused the enclosing *Statistics* group to to be incremented. This counter will wrap around to zero when it exceeds its maximum value, 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ns IPXStats AddrStat byteCount

| | |
|---|---|
| Access | Read only |
| Description | This is the number of bytes in all the packets which caused the enclosing *Statistics* group to be incremented. This counter will wrap around to zero when it exceeds its maximum value, 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ns IPXStats AddrStat counter1

| | |
|---|---|
| Access | Read only |
| Description | This is the number of times a packet caused a counter_1 action to be applied with reference to the enclosing *Statistics* group. This counter will wrap around to zero when it exceeds its maximum value, 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ns IPXStats AddrStat counter2

| | |
|---|---|
| Access | Read only |
| Description | This is the number of times a packet caused a counter_2 action to be applied with reference to the enclosing *Statistics* group. This counter will wrap around to zero when it exceeds its maximum value, 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## COMPONENT Vr Ns AppletalkStatistics (ATStats)

| | |
|---|---|
| Scope | Application |
| Description | *Vr/<string> NetSentry ATStats*<br>This component holds all the statistics gathered for the AppleTalk protocol. If *AppleTalkStatistics* is provisioned, *NetSentry* statistics gathering actions will gather statistics for AppleTalk packets to which they apply. |
| Dyn. Subcomp. | "COMPONENT Vr Ns ATStats AddressStatistic (AddrStat)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## VERB CLEAR Vr Ns ATStats

| | |
|---|---|
| Impact | System_admin |
| Description | *CLEAR Vr/<string> Ns ATStats*<br>This clears statistics gathered for Appletalk, deleting all the allocated resources, and discarding gathered data. |

## COMPONENT Vr Ns ATStats AddressStatistic (AddrStat)

| | |
|---|---|
| Instance | sourceAddress (sa) [String (1..32, ASCII)]<br>destinationAddress (da) [String (1..32, ASCII)] |
| Groups | "GROUP Vr Ns ATStats AddrStat Statistics (Stats)" |
| Scope | Application |
| Description | *Vr/<string> NetSentry IPStats AddrStat/128.12.3.7,-*<br>This component holds statistics for a source address, a destination address, or a source address/destination address pair. This component may reside in one of a variety of by-protocol tables, each with a double index for rows. One index is the source address, one is the destination address. One of the indices may be a “-”, which indicates that the other index is the relevent one. That is, a statistic referred to with source address “128.12.3.7” |

and destination address "-" is a statistic for packets originating from 128.12.3.7 alone.

Common Verbs

Help
List
Display

## GROUP Vr Ns ATStats AddrStat Statistics (Stats)

Properties: Operational

Description: This is the basic statistic used throughout *NetSentry* by-protocol statistics gathering. It contains counters for total packets, total octets in packets, and two user counters, counter_1 and counter_2.

## ATTRIBUTE Vr Ns ATStats AddrStat packetCount

Access: Read only

Description: This is the number of packets which caused the enclosing *Statistics* group to to be incremented. This counter will wrap around to zero when it exceeds its maximum value, 4294967295.

Values: Decimal (0..4294967295)

Default: 0

## ATTRIBUTE Vr Ns ATStats AddrStat byteCount

Access: Read only

Description: This is the number of bytes in all the packets which caused the enclosing *Statistics* group to be incremented. This counter will wrap around to zero when it exceeds its maximum value, 4294967295.

Values: Decimal (0..4294967295)

Default: 0

## ATTRIBUTE Vr Ns ATStats AddrStat counter1

Access: Read only

| | |
|---|---|
| Description | This is the number of times a packet caused a counter_1 action to be applied with reference to the enclosing *Statistics* group. This counter will wrap around to zero when it exceeds its maximum value, 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ns ATStats AddrStat counter2

| | |
|---|---|
| Access | Read only |
| Description | This is the number of times a packet caused a counter_2 action to be applied with reference to the enclosing *Statistics* group. This counter will wrap around to zero when it exceeds its maximum value, 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT Vr Ns DECnetStatistics (DNStats)

| | |
|---|---|
| Scope | Application |
| Description | *Vr/<string> NetSentry DNStats*<br>This component holds all the statistics gathered for the DECnet protocol. If *DECnetStatistics* is provisioned, *NetSentry* statistics gathering actions will gather statistics for DECnet packets to which they apply. |
| Dyn. Subcomp. | "COMPONENT Vr Ns DNStats AddressStatistic (AddrStat)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### VERB CLEAR Vr Ns DNStats

| | |
|---|---|
| Impact | System_admin |
| Description | *CLEAR Vr/<string> Ns DNStats*<br>This clears statistics gathered for DECnet, deleting all the allocated resources, and discarding gathered data. |

### COMPONENT Vr Ns DNStats AddressStatistic (AddrStat)

| | |
|---|---|
| Instance | sourceAddress (sa) [String (1..32, ASCII)]<br>destinationAddress (da) [String (1..32, ASCII)] |
| Groups | "GROUP Vr Ns DNStats AddrStat Statistics (Stats)" |
| Scope | Application |
| Description | *Vr/<string> NetSentry IPStats AddrStat/128.12.3.7,-*<br>This component holds statistics for a source address, a destination address, or a source address/destination address pair. This component may reside in one of a variety of by-protocol tables, each with a double index for rows. One index is the source address, one is the destination address. One of the indices may be a “-”, which indicates that the other index is the relevent one. That is, a statistic referred to with source address “128.12.3.7” and destination address “-” is a statistic for packets originating from 128.12.3.7 alone. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Vr Ns DNStats AddrStat Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This is the basic statistic used throughout *NetSentry* by-protocol statistics gathering. It contains counters for total packets, total octets in packets, and two user counters, counter_1 and counter_2. |

### ATTRIBUTE Vr Ns DNStats AddrStat packetCount

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This is the number of packets which caused the enclosing *Statistics* group to to be incremented. This counter will wrap around to zero when it exceeds its maximum value, 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ns DNStats AddrStat byteCount

| | |
|---|---|
| Access | Read only |
| Description | This is the number of bytes in all the packets which caused the enclosing *Statistics* group to be incremented. This counter will wrap around to zero when it exceeds its maximum value, 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ns DNStats AddrStat counter1

| | |
|---|---|
| Access | Read only |
| Description | This is the number of times a packet caused a counter_1 action to be applied with reference to the enclosing *Statistics* group. This counter will wrap around to zero when it exceeds its maximum value, 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ns DNStats AddrStat counter2

| | |
|---|---|
| Access | Read only |
| Description | This is the number of times a packet caused a counter_2 action to be applied with reference to the enclosing *Statistics* group. This counter will wrap around to zero when it exceeds its maximum value, 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## COMPONENT Vr Ns BridgingStatistics (BrStats)

| | |
|---|---|
| Scope | Application |
| Description | *Vr/<string> NetSentry BrStats*<br>This component holds all the statistics gathered for Bridged packets. If *BridgingStatistics* is provisioned, *NetSentry* statistics gathering actions will gather statistics for Bridged packets to which they apply. |
| Dyn. Subcomp. | "COMPONENT Vr Ns BrStats AddressStatistic (AddrStat)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## VERB CLEAR Vr Ns BrStats

| | |
|---|---|
| Impact | System_admin |
| Description | *CLEAR Vr/<string> Ns BrStats*<br>This clears statistics gathered for Bridging, deleting all the allocated resources, and discarding gathered data. |

## COMPONENT Vr Ns BrStats AddressStatistic (AddrStat)

| | |
|---|---|
| Instance | sourceAddress (sa) [String (1..32, ASCII)]<br>destinationAddress (da) [String (1..32, ASCII)] |
| Groups | "GROUP Vr Ns BrStats AddrStat Statistics (Stats)" |
| Scope | Application |
| Description | *Vr/<string> NetSentry IPStats AddrStat/128.12.3.7,-*<br>This component holds statistics for a source address, a destination address, or a source address/destination address pair. This component may reside in one of a variety of by-protocol tables, each with a double index for rows. One index is the source address, one is the destination address. One of the indices may be a “-”, which indicates that the other index is the relevent one. That is, a statistic referred to with source address “128.12.3.7” |

and destination address “-” is a statistic for packets originating from 128.12.3.7 alone.

Common Verbs

Help
List
Display

## GROUP Vr Ns BrStats AddrStat Statistics (Stats)

Properties: Operational

Description: This is the basic statistic used throughout *NetSentry* by-protocol statistics gathering. It contains counters for total packets, total octets in packets, and two user counters, counter_1 and counter_2.

## ATTRIBUTE Vr Ns BrStats AddrStat packetCount

Access: Read only

Description: This is the number of packets which caused the enclosing *Statistics* group to to be incremented. This counter will wrap around to zero when it exceeds its maximum value, 4294967295.

Values: Decimal (0..4294967295)

Default: 0

## ATTRIBUTE Vr Ns BrStats AddrStat byteCount

Access: Read only

Description: This is the number of bytes in all the packets which caused the enclosing *Statistics* group to be incremented. This counter will wrap around to zero when it exceeds its maximum value, 4294967295.

Values: Decimal (0..4294967295)

Default: 0

## ATTRIBUTE Vr Ns BrStats AddrStat counter1

Access: Read only

| | |
|---|---|
| Description | This is the number of times a packet caused a counter_1 action to be applied with reference to the enclosing *Statistics* group. This counter will wrap around to zero when it exceeds its maximum value, 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ns BrStats AddrStat counter2

| | |
|---|---|
| Access | Read only |
| Description | This is the number of times a packet caused a counter_2 action to be applied with reference to the enclosing *Statistics* group. This counter will wrap around to zero when it exceeds its maximum value, 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT Vr Ns Filter

| | |
|---|---|
| Instance | name [String (1..32, ASCII)]<br>kind [filter<br>pafSet<br>compartment<br>aesoData<br>nleso<br>aeso<br>accreditTable<br>setData<br>metaFilter] |
| Groups | "GROUP Vr Ns Filter Statistics (Stats)" |
| Scope | Application |

| | |
|---|---|
| Description | *Vr/<string> NetSentry Filter/not_tcp,Filter*<br>Each instance of this component names a single *NetSentry* Filter or other *NetSentry* data object. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Vr Ns Filter Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the various counters associated with a particular filter definition. A packet being processed through a *NetSentry* filter will encounter zero or more dispositions according to which elements of the filter have patterns which match the packet. This group counts, for the enclosing *Filter*, how many packets encountered each sort of disposition while being processed through the filter. |

### ATTRIBUTE Vr Ns Filter packetsSucceeded

| | |
|---|---|
| Access | Read only |
| Description | This counter contains the number of packets which passed through *NetSentry*, which happen to have been matched against an element of the enclosing *Filter* component which had a succeed disposition. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ns Filter bytesSucceeded

| | |
|---|---|
| Access | Read only |
| Description | This counter counts the number of bytes in the packets counted in the *packetsSucceeded*. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ns Filter packetsFailed

| | |
|---|---|
| Access | Read only |
| Description | This counter contains the number of packets which passed through *NetSentry*, which happen to have been matched against an element of the enclosing *Filter* which had a fail disposition. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ns Filter bytesFailed

| | |
|---|---|
| Access | Read only |
| Description | This counter counts the number of bytes in the packets counted in the *packetsFailed* counter. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ns Filter packetsBreaked

| | |
|---|---|
| Access | Read only |
| Description | This counter contains the number of packets which passed through *NetSentry*, which happen to have been matched against an element of the enclosing *Filter* which had a break disposition. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ns Filter bytesBreaked

| | |
|---|---|
| Access | Read only |
| Description | This counter counts the number of bytes in the packets counted in the *packetsBreaked* counter. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ns Filter packetsContinued

| | |
|---|---|
| Access | Read only |
| Description | This counter contains the number of packets which passed through *NetSentry*, which happen to have been matched against at least one element of the enclosing *Filter* which had a continue disposition. Such a packet may also have been counted in one of the *packetsSucceeded packetsFailed* or *packetsBreaked* counters, since a continue disposition does not exit a *NetSentry* filter unless it is the disposition in the last element of the filter. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ns Filter bytesContinued

| | |
|---|---|
| Access | Read only |
| Description | This counter counts the number of bytes in the packets counted in the *packetsContinued* counter. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT Vr Bridge (Br)

| | |
|---|---|
| Groups | "GROUP Vr Br AdministrativeControl (AdminControl)"<br>"GROUP Vr Br OsiState (State)"<br>"GROUP Vr Br OperationalStatus (OperStatus)"<br>"GROUP Vr Br Operational (Oper)" |
| Scope | Application |
| Description | *Vr/<string> Bridge*<br>This component represents the bridge logic, and all the associated attribute groups. All the various functions provided by bridging are encompassed by this component. |

| | |
|---|---|
| Opt. Subcomp. | "COMPONENT Vr Br NetSentry (Ns)"<br>"COMPONENT Vr Br TransparentBridge (Tb)"<br>"COMPONENT Vr Br SourceRouteBridge (Srb)" |
| Dyn. Subcomp. | "COMPONENT Vr Br PortTableEntry (Pte)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP Vr Br AdministrativeControl (AdminControl)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group includes the Administrative Control attribute. This attribute defines the current administrative state of this component. |

## ATTRIBUTE Vr Br adminStatus (as)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the current administrative status for this component.<br>***enabled*** indicates that the component is available for operation.<br>***disabled*** indicates the component is unavailable for operation. The application preserves all previously received provisioning data, all writable operational data and all counters. Please note that all learnt data are lost. The bridge application is not available for operation while in this state. |
| Values | up<br>down |
| Default | up |

### GROUP Vr Br OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Vr Br adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Vr Br operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component. |

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Vr Br usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Vr Br OperationalStatus (OperStatus)

Properties
Operational

Description
This group includes the Operational Status attribute. This attribute defines the current operational state of this component.

### ATTRIBUTE Vr Br snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### GROUP Vr Br Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all the operational attributes applicable to bridging, those components that are global in nature and are not port specific. |

### ATTRIBUTE Vr Br bridgeAddress (ba)

| | |
|---|---|
| Access | Read only |
| Description | This attribute represents the Mac address for the bridge. This address is used when this bridge must be referred to in a unique manner. It is used to form the bridge identifier, used by the spanning tree protocol, by concatenating it with the attribute bridgePriority under the component *SpanningTreeProtocol*. |
| Values | String (6, Dashed Hex) |
| Default | No default |

### ATTRIBUTE Vr Br numPorts (np)

| | |
|---|---|
| Access | Read only |
| Description | This attribute represents the number of the ports this bridge controls. In other words, it is a count of the number of bridge ports provisioned. |

| | |
|---|---|
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE Vr Br type

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the capability of this bridge unit in terms of types of bridging it can handle. |
| Values | unknown<br>transparentOnly<br>sourceRouteOnly<br>srt |
| Default | No default |

### COMPONENT Vr Br PortTableEntry (Pte)

| | |
|---|---|
| Instance | domainNum [Decimal (1..4294967293)]<br>portName [String (0..29, ASCII)]<br>mode [tb<br>sr<br>srt] |
| Groups | "GROUP Vr Br Pte Operational (Oper)" |
| Scope | Application |
| Description | *Vr/<string> Bridge PortTableEntry/<Decimal>,<string>,mode*<br>This component is one of a group of similar components that forms a table. This table contains all the bridge ports provisioned and the corresponding domains they belong to. This table can be used as a central place to access all the information about bridge ports and the domains associated with these bridge ports. There can exist only sixteen domains when a spanning tree is desired specific to each domain. When there is only a single spanning tree spanning all the domains the maximum number of domains possible are 4294967293. |
| Common Verbs | Help<br>List<br>Display |

## GROUP Vr Br Pte Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all the operational attributes belonging to the *PortTableEntry* component. |

## ATTRIBUTE Vr Br Pte macType

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Mac type of the bridge port is associated with. |
| Values | ethernet<br>tokenRing<br>fddiBridgePort<br>tokenBus<br>lecEthernet<br>fddiEncapsulating<br>vns<br>frameRelay<br>ppp<br>smds<br>vcp<br>x25<br>atmMpe<br>srEncapSr<br>srEncapTb<br>sourceGateSr<br>sourceGateTb<br>srtb<br>tbsr<br>clusterSr<br>clusterTb<br>snaDlr<br>unknown |
| Default | No default |

## ATTRIBUTE Vr Br Pte stpState

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the stp state of the bridge port. |
| Values | disabled<br>blocking<br>listening<br>learning<br>forwarding<br>broken |
| Default | disabled |

### ATTRIBUTE Vr Br Pte stpType

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the type of the spanning tree protocol this bridge port is participating in. |
| Values | unknown<br>dec<br>ieee_8021 |
| Default | ieee_8021 |

### ATTRIBUTE Vr Br Pte portPointsTo

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the fact if this bridge port leads to the root bridge of the spanning tree topology or if it leads to the designated bridge of the lan segment the bridge port is attached to. |
| Values | none<br>rootBridge<br>designatedBridge |
| Default | none |

### COMPONENT Vr Br NetSentry (Ns)

| | |
|---|---|
| Groups | "GROUP Vr Br Ns Provisioned (Prov)" |
| Scope | Application |

| | |
|---|---|
| Description | *Vr/<string> Bridge NetSentry*<br>This component represents the net sentry facility as applicable to bridging. It serves to allow the user to provision filter names that are applicable at the first, the last filter, the localIn and the localOut points and also the filter apply table. |
| Opt. Subcomp. | "COMPONENT Vr Br Ns ApplyTableEntry (Ate)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Vr Br Ns Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group houses all the provisionable attributes applicable to the packet control facility. These attributes are global attributes and are not port specific. |

### ATTRIBUTE Vr Br Ns firstFilter (ff)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the name of the filter to be applied at the first filter point. |
| Values | String (0..32, ASCII) |
| Default | No default |

### ATTRIBUTE Vr Br Ns lastFilter (lf)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the name of the filter that is to be applied at the last filter point. |
| Values | String (0..32, ASCII) |
| Default | No default |

## COMPONENT Vr Br Ns ApplyTableEntry (Ate)

| | |
|---|---|
| Instance | Decimal (0..255) |
| Groups | "GROUP Vr Br Ns Ate Provisioned (Prov)" |
| Scope | Application |
| Description | *Vr/<string> Bridge NetSentry ApplyTableEntry/<Decimal>*<br>This component, represents an entry in the filter apply table. The filter apply table is used to specifically filter frames, based on a frame's origin, its destination, and the domain associated with the frame. A filter name is specified in the entry, which is applied to a frame if the match criteria is satisfied.<br>When the attribute *direction* has the value ***to***, a match in the filter table requires the *firstMACAddress* anded with the *firstMACAddressMask* to match the source MAC address in the frame, the *secondMACAddress* anded with the *secondMACAddressMask to* match the destination MAC address in the frame, and the *domainNum* to match the domain number associated with the frame.<br>When the *direction* has the value ***from***, a match in the filter table requires the *firstMACAddress* anded with the *firstMACAddressMask* to match the destination MAC address in the frame, the *secondMACAddress* anded with the *secondMACAddressMask to* match the source MAC address in the frame, and the *domainNum* to match the domain number associated with the frame.<br>When the *direction* has the value ***toFrom***, a match in the filter table requires the *firstMACAddress* anded with the *firstMACAddressMask* to match the source/destination MAC address in the frame, the *secondMACAddress* anded with the *secondMACAddressMask to* match the destination/source MAC address in the frame, and the *domainNum* to match the domain number associated with the frame. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Vr Br Ns Ate Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group houses all the attributes that together form an apply table entry. These fields of an apply table entry are used as match criteria, which when satisfied results in the application of the named filter to the frame. |

### ATTRIBUTE Vr Br Ns Ate domainNum (dn)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the domain number associated with a frame, that would qualify it partly, for a match in the apply table. The domain number provisioned will form a part of the match criteria only if it is not provisioned with a wild card value of ***0.*** If the wild card character is specified, any domain number will satisfy the match criteria, in effect loosing domain number as a qualifier in the match criteria. |
| Values | Decimal (0..4294967293) |
| Default | 0 |

### ATTRIBUTE Vr Br Ns Ate firstMacAddress (fma)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the MAC address to be anded with the *firstMACAddressMask*, and the result compared with-<br>a) The source MAC address in a frame when the attribute *direction* has a value of ***to***,<br>b) The destination MAC address in a frame when the attribute *direction* has a value of ***from***,<br>c) Source / Destination address in a frame when the attribute *direction* has a value of ***toFrom***, as a part of finding a match in the bridge filter apply table. |
| Values | String (6, Dashed Hex) |
| Default | 00-00-00-00-00-00 |

### ATTRIBUTE Vr Br Ns Ate firstMacAddressMask (fmam)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute specifies the mask which is anded with the attribute *firstMACAddress*. The result is then compared with-<br>a) The source MAC address in a frame when the attribute *direction* has a value of ***to***,<br>b) The destination MAC address in a frame when the attribute *direction* has a value of ***from***,<br>c) Source / Destination address in a frame when the attribute *direction* has a value of ***toFrom***, as a part of finding a match in the bridge filter apply table. |
| Values | String (6, Dashed Hex) |
| Default | ff-ff-ff-ff-ff-ff |

### ATTRIBUTE Vr Br Ns Ate secondMacAddress (sma)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the MAC address to be anded with the *secondMACAddressMask*, and the result compared with-<br>a) The destination MAC address in a frame when the attribute *direction* has a value of ***to***,<br>b) The source MAC address in a frame when the attribute *direction* has a value of ***from***,<br>c) Destination/Source address in a frame when the attribute *direction* has a value of ***toFrom***, as a part of finding a match in the bridge filter apply table. |
| Values | String (6, Dashed Hex) |
| Default | 00-00-00-00-00-00 |

### ATTRIBUTE Vr Br Ns Ate secondMacAddressMask (smam)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the mask which is anded with the attribute *secondMACAddress*. The result is then compared with-<br>a) The destination MAC address in a frame when the attribute *direction* has a value of ***to***,<br>b) The source MAC address in a frame when the attribute *direction* has a value of ***from***,<br>c) Destination/Source address in a frame when the attribute |

*direction* has a value of ***toFrom***, as a part of finding a match in the bridge filter apply table.

Values: String (6, Dashed Hex)

Default: ff-ff-ff-ff-ff-ff

### ATTRIBUTE Vr Br Ns Ate direction (dir)

Access: Read and write

Description: This attribute specifies the direction of frame flow. It is used to appropriately compare the result of logically anding MAC address, MACAddressMask pairs, with the source /destination MAC address fields in a frame, as a part of the match finding process.
When this attribute has value of ***to***, the *firstMACAddress* is logically anded with the *firstMACAddressMask* and the result compared with the source MAC address in a frame and the *secondMACAddress* logically anded with the *secondMACAddressMask* and compared with the destination MAC address.
When this attribute has a value of ***from***, the *firstMACAddress* is logically anded with the *firstMACAddressMask* and the result compared with the destinationMAC address in a frame and the *secondMACAddress* logically anded with the *secondMACAddressMask* and compared with the sourceMAC addressin the frame, as a part of finding a match in the bridge filter apply table entry.

Values:
to
from
toFrom

Default: toFrom

### ATTRIBUTE Vr Br Ns Ate filterName (fn)

Access: Read and write

Description: This attribute specifies the name of the filter to be applied to the frame, if it satisfies the match criteria mentioned in the bridge filter apply table entry.

Values: String (0..32, ASCII)

| | |
|---|---|
| Default | No default |

## COMPONENT Vr Br TransparentBridge (Tb)

| | |
|---|---|
| Groups | "GROUP Vr Br Tb Provisioned (Prov)"<br>"GROUP Vr Br Tb Statistics (Stats)" |
| Scope | Application |
| Description | *Vr/<string> Bridge TransparentBridge*<br>This component contains all the global bridge attribute groups necessary for the operation of a transparent bridge. |
| Opt. Subcomp. | "COMPONENT Vr Br Tb SpanningTreeProtocol (Stp)"<br>"COMPONENT Vr Br Tb StaticTableEntry (Ste)" |
| Dyn. Subcomp. | "COMPONENT Vr Br Tb ForwardTableEntry (Fte)"<br>"COMPONENT Vr Br Tb NcForwardTableEntry (NcFte)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Vr Br Tb Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all the provisionable attributes applicable to a transparent bridge, those attributes that are global and are not port specific. |

## ATTRIBUTE Vr Br Tb fwdTableNumEntries (ftNe)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the number of entries that can exist in the transparent bridge forwarding table. This attribute provides a way to control the resources allocated to forwarding table. This attribute will prove to be very useful while attempting to fine tune the resource allocated to suit the network configuration.<br>Please understand that this attribute *tbFwdTableNumEntries* is influenced by the memory management scheme provided by the |

| | |
|---|---|
| | *VirtualRouter* and is by no means independent of the same. It is important to understand the network configuration in terms of number and types of bridge ports provisioned before attempting to fine tune this attribute.The following attributes can be used as feedback to fine tune this attribute:<br>a) attribute *totalForwardingTableEntries* under the *TransparentBridge component,*<br>*b) attribute numFtEntriesFree under the TransparentBridge component,*<br>*c) attribute numFtEntriesDenied under the TransparentBridge component* |
| Values | Decimal (0..65535) |
| Default | 500 |

### ATTRIBUTE Vr Br Tb agingTime (at)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time period used in seconds, to age out dynamically learned entries in the forwarding table. The aging time can change, triggered by a spanning tree topology change. The operational value of the aging time is reflected in the attribute *agingTimeOper* under the *SpanningTreeProtocol* component. |
| Values | Decimal (10..1000000) |
| Units | seconds |
| Default | 300 |

### GROUP Vr Br Tb Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all the statistical attributes for a transparent bridge, those attributes that are global in nature and are not port specific. |

### ATTRIBUTE Vr Br Tb learnedEntryDiscards (led)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute represents the number of dynamic entries that might have been learned but have been discarded due to a static entry already installed by provisioning in the forwarding table. This counter wraps around its maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Br Tb totalForwardingTableEntries (tFtE)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of transparent bridge forwarding table entries. This includes static forwarding table entries and dynamic forwarding table entries.<br>This attribute is influenced by the attribute *tbFwdTableNumEntries*, which is a provisionable attribute.<br>If the value is consistently approaching the value of the attribute *tbFwdTableNumEntries*, it is advisable to increase the value provisioned for *tbFwdTableNumEntries*. It indicates a potential shortage of forwarding table entries in the future.<br>This attribute is inversely proportional in value to the attribute *numFtEntriesFree.*<br>This counter wraps around its maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Br Tb numFtEntriesFree (nFteF)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of free transparent bridge forwarding table entries. These entries could be used by static entries or by dynamic entries. This counter wraps around its maximum value of 4294967295.<br>A consistently high value for this attribute indicates that there is a resource surplus here, in terms of the memory requirements of the forwarding table. This surplus could be utilized elsewhere if need be. The value of this attributes directly influenced by the value of the attribute *tbFwdTableNumEntries.* |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Br Tb numFtEntriesDenied (nFteD)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of instances wherein transparent bridge table entry was unavailable. These entries could have been denied for static entries or for dynamic entries. This counter wraps around its maximum value of 4294967295. If this counter consistently shows a high value, it is indicative of a resource shortage in terms of memory required to support the increase in the number of forwarding table entries. To rectify this resource shortage, increase the number of forwarding table entries through the provisioned attribute *tbFwdTableEntries* under the *Bridge* component. This counter should ideally be as low as possible. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT Vr Br Tb SpanningTreeProtocol (Stp)

| | |
|---|---|
| Instance | Decimal (1..4294967293) |
| Groups | "GROUP Vr Br Tb Stp Provisioned (Prov)"<br>"GROUP Vr Br Tb Stp Operational (Oper)" |
| Scope | Application |
| Description | *Vr/<string> Br Tb Stp/<Decimal>*<br>This component represents the Spanning Tree Protocol for the bridge. Bridges use the Spanning Tree Protocol to provide a loop free, fault tolerant network topology.<br>Individual spanning tree instances are indexed using the domain number.<br>Only 16 instances of this component are allowed including the backbone spanning tree instance.<br>The instance identifier of the *SpanningTreeProtocol* component |

is significant as it indicates the domain that the spanning tree instance governs.

Common Verbs

Help
List
Display
Add
DELete

## GROUP Vr Br Tb Stp Provisioned (Prov)

Properties: Provisioned

Description: This group contains all the provisionable attributes that are applicable to the spanning tree protocol. These are global attributes and not port specific attributes. These attributes have a direct impact on the way this bridge participates in the stp.

## ATTRIBUTE Vr Br Tb Stp stpMode

Access: Read and write

Description: This attribute determines if this stp instance is to act as the stp instance for the backbone or an stp instance for a non-backbone media configuration. There can exist only one Backbone stp instance per virtual router. Please note that it is not permissible to assign the instance identifier of this stp instance as domain number of any access bridge port. In case of stp instances that are non-Backbone, the instance identifier is indicating the domain number the stp is operational in.

Values: access
backbone

Default: access

## ATTRIBUTE Vr Br Tb Stp protocolSpec (pS)

Access: Read and write

Description: This attribute specifies the type of the spanning tree protocols that are in operation in the bridge. This means that this bridge participates in the types of stp indicated by this attribute.

| | |
|---|---|
| Values | both<br>dec<br>ieee8021d |
| Default | ieee8021d |

### ATTRIBUTE Vr Br Tb Stp priority

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to construct the *bridgeId*. It forms the first two octets of the *bridgeId* and the remaining 6 octets are made up of the *bridgeMACAddress*. The *priority* also determines the root bridge of the spanning tree topology. Manipulating this attribute might lead to a change in the spanning tree topology. |
| Values | Decimal (0..65535) |
| Default | 32768 |

### ATTRIBUTE Vr Br Tb Stp bridgeMaxAge (bma)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum age of the stp information learned from the network on any bridge port before it is discarded. This value is used by this bridge and all the other bridges when this bridge is the root bridge of the spanning tree topology. The following relationships are enforced as required by the IEEE 802.1d standards document.<br>2 *(*bridgeForwardDelay* -1.0seconds) >= *bridgeMaxAge*,<br>*bridgeMaxAge* >= 2 * *bridgeHelloTime* + 1.0 seconds. |
| Values | Decimal (600..4000) |
| Units | centiseconds |
| Default | 2000 |

### ATTRIBUTE Vr Br Tb Stp bridgeHelloTime (bht)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time interval between the transmission of configuration BPDUs on any bridge port when this bridge becomes the root bridge. This attribute value is also used by all |

| | |
|---|---|
| | the other bridges in the Spanning Tree while this bridge is the root.<br>The following relationship is enforced as required by the IEEE 802.1d standards document.<br>*bridgeMaxAge* >= 2 * *bridgeHelloTime* + 1.0 seconds. |
| Values | Decimal (100..1000) |
| Units | centiseconds |
| Default | 200 |

### ATTRIBUTE Vr Br Tb Stp bridgeForwardDelay (bfd)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies how fast a bridge port changes its STP state while progressing towards the forwarding state. It is also used as *agingTime* to age dynamic entries in the forwarding table once a topology change is detected. This attribute is used by all the bridges participating in the stp when this bridge is the root bridge.<br>The following relationship is enforced as required by the IEEE 802.1d standards document.<br>2 *(*bridgeForwardDelay* -1.0sconds) >= *bridgeMaxAge*. |
| Values | Decimal (400..3000) |
| Units | centiseconds |
| Default | 1500 |

### GROUP Vr Br Tb Stp Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all the operational, stp attributes. These attributes are applicable in a global manner and are not specific to a bridge port. |

### ATTRIBUTE Vr Br Tb Stp bridgeId (bid)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the identifier value of this bridge, which serves to uniquely represent this bridge in the spanning tree |

topology. Thus, a *bridgeId* is unique only in the spanning tree instance the bridge is participating in. If multiple domain spanning trees exist then the same *bridgeId* can be re-used across these spanning tree instances.

Values: String (8, Dashed Hex)

Default: No default

### ATTRIBUTE Vr Br Tb Stp rootPortName (rpn)

Access: Read only

Description: This attribute indicates the name of the bridge port that offers the lowest cost route to the root bridge of the spanning tree topology.The attribute *rootPortName* is a string of the form ***"BridgePortName-i",*** where ***BridgePortName*** is the abbreviation of the corresponding bridge port and ***i*** is the instance identifier of the *ProtocolPort* the bridge port is provisioned under. For example a *TransparentBridgePort* provisioned under *ProtocolPort/MyPort* would have a name ***TBP-MyPort.***
If multiple instances of spanning tree are operational then there will exist a *rootPortName* value for each instance of the running stp and is applicable to that instance alone.

Values: String (4..29, ASCII)

Default: No default

### ATTRIBUTE Vr Br Tb Stp timeSinceTopologyChange (tstc)

Access: Read only

Description: This attribute indicates the time since a spanning tree topology change was detected by this bridge.

Values: Decimal (0..4294967295)

Units: centiseconds

Default: 0

### ATTRIBUTE Vr Br Tb Stp topologyChangeDetect (tcd)

Access: Read only

| | |
|---|---|
| Description | This attribute indicates whether or not a topology change was detected. This flag is set when a bpdu with the topology detect flag set is received from the root bridge. If this bridge is the root bridge this flag is set on receipt of a topology change notification bpdu. It is reset after a fixed length of time. |
| Values | false<br>true |
| Default | false |

### ATTRIBUTE Vr Br Tb Stp topologyChanges (tc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of the topology change events detected by this bridge since the last bridge reset. This counter wraps around its maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Br Tb Stp designatedRoot (dr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the identifier of the bridge that this bridge treats as the root of the spanning tree topology. The root of the spanning tree topology is chosen through exchange. |
| Values | String (8, Dashed Hex) |
| Default | No default |

### ATTRIBUTE Vr Br Tb Stp rootCost (rc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the cost of the path to the root as seen by this bridge. |
| Values | Decimal (1..65535) |
| Default | No default |

### ATTRIBUTE Vr Br Tb Stp maxAge (mAg)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the maximum age of the stp info learnt from a port before it is discarded. |
| Values | Decimal (600..4000) |
| Units | centiseconds |
| Default | 2000 |

### ATTRIBUTE Vr Br Tb Stp agingTimeOper (ato)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the time period in seconds used to age out dynamically learned entries in the forwarding table. The aging time is specific to a running stp instance. A value for the aging time of the current instance of the stp can be provisioned through the attribute *agingTime* under the *InwBrTb* component. The *agingTimeOper* attribute assumes the value of the *bridgeForwardDelay* while a topology change is in progress. This is done to facilitate a quick aging out of the learned entries that might have become obsolete due to a spanning tree topology change. |
| Values | Decimal (10..1000000) |
| Units | seconds |
| Default | 300 |

### ATTRIBUTE Vr Br Tb Stp helloTime (heT)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the time interval between the transmission of the configuration BPDUs. This value is obtained from the root bridge of the spanning tree topology through bridge protocol data units. This value should be the value assigned to the attribute *bridgeHelloTime* of the root bridge. |
| Values | Decimal (100..1000) |
| Units | centiseconds |

| | |
|---|---|
| Default | 200 |

### ATTRIBUTE Vr Br Tb Stp holdTime (hoT)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the minimum interval of time between the transmission of two BPDUs. |
| Values | Decimal (100) |
| Units | centiseconds |
| Default | 100 |

### ATTRIBUTE Vr Br Tb Stp fwdDelay (fd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates how much time a port spends in any state while progressing towards the ***forwarding*** state. It is also used to age out learned entries while a topology change is in progress.This value should be the value assigned to the attribute *bridgeFwdDelay* of the root bridge. |
| Values | Decimal (400..3000) |
| Units | centiseconds |
| Default | 1500 |

### COMPONENT Vr Br Tb StaticTableEntry (Ste)

| | |
|---|---|
| Instance | address [String (6, Dashed Hex)]<br>receivePort [String (1..29, ASCII)] |
| Groups | "GROUP Vr Br Tb Ste Provisioned (Prov)" |
| Scope | Application |
| Description | *Vr/<string> Br Tb StaticTableEntry/address, receivePort*<br>This component represents an entry in the transparent bridge forwarding table. A collection of such entries form the static forwarding table. Entries in the static table indicate the output ports a frame is allowed to go out of if it was received on *receivePort* and if its destination MAC address field matched *address.* |

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Vr Br Tb Ste Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all the fields of a static table entry. All these attributes can be provisioned by the user. Multiple such static table entries together form the static forwarding table. |

### ATTRIBUTE Vr Br Tb Ste status

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the longevity of an entry in the static table. Please note that currently only a value of ***permanent*** is supported. |
| Values | permanent |
| Default | permanent |

### ATTRIBUTE Vr Br Tb Ste allowedToGoTo (atgt)

| | |
|---|---|
| Access | Read and write |
| Description | This port map specifies the out bridge ports a MAC frame with *address* in its destination MAC address field, originating from *receivePort*, can go out of.<br>The *allowedToGoTo* attribute is a set of strings. Each string is of the form ***"BridgePortName-i",*** where ***BridgePortName*** is the abbreviation of the corresponding transparent bridge port and ***i*** is the instance identifier of the *ProtocolPort* the bridge port is provisioned under. Multiple strings can be specified on the same *set* command. Each string in the list is space separated. An ***"*"*** in place of the ***i*** indicates that regardless of the protocol port instance, all bridge ports with name ***BridgePortName*** should be included in the *allowedToGoTo*. |

| | |
|---|---|
| List of | String (4..29, ASCII) |
| List Size | 255 |
| Default | No default |

## COMPONENT Vr Br Tb ForwardTableEntry (Fte)

| | |
|---|---|
| Instance | address [String (6, Dashed Hex)]<br>domainNum [Decimal (1..4294967293)] |
| Groups | "GROUP Vr Br Tb Fte Operational (Oper)" |
| Scope | Application |
| Description | *Vr/<string> Br Tb FowardTableEntry/address, domainNum*<br>This component represents an entry in the transparent bridge forwarding table. Entries in this table serve to map a destination MAC address to a port in the bridge. Essentially, entries are learned and aged in this table. This means that entries that are not frequently used, are purged. The *agingTime* is a provisionable attribute under the *TransparentBridge* component. Other fields in this table are informative in nature. A collection of such entries constitutes a transparent bridge forwarding table. |
| Common Verbs | Help<br>List<br>Display |

## GROUP Vr Br Tb Fte Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all the attributes that form the fields of a forwarding table entry. These attributes reflect the state of the transparent bridge forwarding table. |

## ATTRIBUTE Vr Br Tb Fte port

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute is the port name through which the *address* was learned. This implies that the frames that are destined for a station whose MAC address is the same as the *address*, will be forwarded through the bridge port indicated by the attribute *port*. The attribute *port* is a string of the form ***"BridgePortName-i",*** where ***BridgePortName*** is the abbreviation of the corresponding bridge port and ***i*** is the instance identifier of the *ProtocolPort*, the bridge port is provisioned under. For example a *TransparentBridgePort* provisioned under *ProtocolPort/MyPort* would have a name ***TBP-MyPort.*** |
| Values | String (4..29, ASCII) |
| Default | No default |

### ATTRIBUTE Vr Br Tb Fte ageOfEntry (aoe)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the age of the forwarding table entry. This is used to purge entries that have not been used for a certain period of time. This feature is to ensure that only the recently used entries are kept in the forwarding table. The time period for aging entries can be provisioned through the attribute *agingTime* under the component *TransparentBridge*. |
| Values | Decimal (0..1000000) |
| Units | seconds |
| Default | No default |

### ATTRIBUTE Vr Br Tb Fte peerAddressInfo (pai)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the learned peer address information. This address is used to essentially tunnel frames to a peer bridge unit across a network or a backbone. The tunneled frame is then appropriately processed by the peer bridge unit. Encapsulated bridging using a backbone bridge port is an example where this attribute *peerAddressInfo* is used. |
| Values | String (8, Dashed Hex) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Vr Br Tb Fte status

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the status of the forwarding table entry. A value of ***learned*** indicates that the entry was learned and cached from the network. Please note that only a value of ***learned*** is currently supported. |
| Values | learned |
| Default | learned |

### COMPONENT Vr Br Tb NcForwardTableEntry (NcFte)

| | |
|---|---|
| Instance | address [String (6, Dashed Hex)]<br>domainNum [Decimal (1..4294967293)] |
| Groups | "GROUP Vr Br Tb NcFte Operational (Oper)" |
| Scope | Application |
| Description | *Vr/<string> Br Tb NcFowardTableEntry/address, domainNum*<br>This component represents an entry in the transparent bridge forwarding table. This component is identical to *ForwardTableEntry* except the MAC address portion of the index of this component is in non-canonical form. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Vr Br Tb NcFte Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all the attributes that form the fields of a forwarding table entry. These attributes reflect the state of the transparent bridge forwarding table. |

### ATTRIBUTE Vr Br Tb NcFte port

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute is the port name through which the *address* was learned. This implies that the frames that are destined for a station whose MAC address is the same as the *address*, will be forwarded through the bridge port indicated by the attribute *port*. The attribute *port* is a string of the form ***"BridgePortName-i",*** where ***BridgePortName*** is the abbreviation of the corresponding bridge port and ***i*** is the instance identifier of the *ProtocolPort*, the bridge port is provisioned under. For example a *TransparentBridgePort* provisioned under *ProtocolPort/MyPort* would have a name ***TBP-MyPort.*** |
| Values | String (4..29, ASCII) |
| Default | No default |

### ATTRIBUTE Vr Br Tb NcFte ageOfEntry (aoe)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the age of the forwarding table entry. This is used to purge entries that have not been used for a certain period of time. This feature is to ensure that only the recently used entries are kept in the forwarding table. The time period for aging entries can be provisioned through the attribute *agingTime* under the component *TransparentBridge*. |
| Values | Decimal (0..1000000) |
| Units | seconds |
| Default | No default |

### ATTRIBUTE Vr Br Tb NcFte peerAddressInfo (pai)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the learned peer address information. This address is used to essentially tunnel frames to a peer bridge unit across a network or a backbone. The tunneled frame is then appropriately processed by the peer bridge unit. Encapsulated bridging using a backbone bridge port is an example where this attribute *peerAddressInfo* is used. |
| Values | String (8, Dashed Hex) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Vr Br Tb NcFte status

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the status of the forwarding table entry. A value of ***learned*** indicates that the entry was learned and cached from the network. Please note that only a value of ***learned*** is currently supported. |
| Values | learned |
| Default | learned |

### COMPONENT Vr Br SourceRouteBridge (Srb)

| | |
|---|---|
| Groups | "GROUP Vr Br Srb Provisioned (Prov)"<br>"GROUP Vr Br Srb Statistics (Stats)" |
| Scope | Application |
| Description | *Vr/<string> Br SourceRouteBridge*<br>This component represents the source route bridging scheme described in various IEEE documents. Source routing is a scheme whereby most of the routing decisions are made by the originating host. The bridge merely forwards frames based upon the route descriptor fields found in the individual frames. Source route bridges also process explorer frames traversing the network. The spanning tree protocol is (optionally) used to prevent loops and the duplication of explorer frames. |
| Opt. Subcomp. | "COMPONENT Vr Br Srb SpanningTreeProtocol (Stp)" |
| Dyn. Subcomp. | "COMPONENT Vr Br Srb LanIdTableEntry (Lte)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Vr Br Srb Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |

| | |
|---|---|
| Description | This group contains all provisionable attributes associated with source route bridging. These attributes are global in nature as opposed to port specific. |

### ATTRIBUTE Vr Br Srb lanIdTableNumEntries (lanIdtNe)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum number of entries in the LAN ID table. This attribute provides a way to control the resources allocated to the LAN ID table. The *lanIdTableNumEntries* value depends upon the *VirtualRouter* attribute *bridgingMaxHeapSpace* and the number of source route bridge ports provisioned for this *SourceRouteBridge*.<br><br>Consider the following attributes of the *SourceRouteBridge* component when adjusting this number:<br>- *totalLanIdTableEntries*<br>- *numLanIdTEntriesFree*<br>- *numLanIdTEntriesDenied* |
| Values | Decimal (500..65535) |
| Default | 500 |

### ATTRIBUTE Vr Br Srb agingTime (at)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time period used in seconds, to age out dynamically learned entries in the forwarding table. The aging time can change, triggered by a spanning tree topology change. The operational value of the aging time is reflected in the attribute *agingTimeOper* under the *SpanningTreeProtocol* component. |
| Values | Decimal (10..1000000) |
| Units | seconds |
| Default | 300 |

### ATTRIBUTE Vr Br Srb bridgeLfMode (blfMode)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates whether the bridge operates using the older 3-bit length negotiation field or the newer 6-bit length field in the routing information field. Only the 3-bit field is supported at this time. |
| Values | mode3<br>mode6 |
| Default | mode3 |

### GROUP Vr Br Srb Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all statistical attributes associated with the *SourceRouteBridge*. These attributes are global in nature as opposed to port specific. |

### ATTRIBUTE Vr Br Srb totalLanIdTableEntries (tLIdTe)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the total number of LAN ID Table entries. The total includes both static and dynamic entries. The value is limited by the attribute *lanIdTableNumEntries*, a provisionable attribute. If the value is consistently approaching the value of *lanIdTableNumEntries* it is advisable to increase the value provisioned for *lanIdTableNumEntries*. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Br Srb numLanIdtEntriesFree (nLIdTeF)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the number of *LanIdTable* entries that are available for use. A consistently high value indicates a resource surplus in terms of memory requirements for the bridge. This surplus could be utilized elsewhere if need be. The value of this attribute is directly influenced by the value of the *lanIdTableNumEntries*. |
| Values | Decimal (0..4294967295) |

Default 0

### ATTRIBUTE Vr Br Srb numLanIdtEntriesDenied (nLIdTeD)

Access Read only

Description This attribute indicates the number of instances where an entry was not placed in the *LanIdTable* due to the lack of free entries. A rapid increase indicates a shortage of free entries. To reduce the shortage increase the provisioned *lanIdTableNumEntries* value.

Values Decimal (0..4294967295)

Default 0

### COMPONENT Vr Br Srb SpanningTreeProtocol (Stp)

Instance Decimal (1..4294967295)

Groups "GROUP Vr Br Srb Stp Provisioned (Prov)"
"GROUP Vr Br Srb Stp Operational (Oper)"

Scope Application

Description *Vr/<string> Br Tb Stp/<Decimal>*
This component represents the Spanning Tree Protocol for the bridge. Bridges use the Spanning Tree Protocol to provide a loop free, fault tolerant network topology.
Individual spanning tree instances are indexed using the domain number.
Only 16 instances of this component are allowed including the backbone spanning tree instance.
The instance identifier of the *SpanningTreeProtocol* component is significant as it indicates the domain that the spanning tree instance governs.

Common Verbs
Help
List
Display
Add
DELete

## GROUP Vr Br Srb Stp Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all the provisionable attributes that are applicable to the spanning tree protocol. These are global attributes and not port specific attributes. These attributes have a direct impact on the way this bridge participates in the stp. |

## ATTRIBUTE Vr Br Srb Stp stpMode

| | |
|---|---|
| Access | Read and write |
| Description | This attribute determines if this stp instance is to act as the stp instance for the backbone or an stp instance for a non-backbone media configuration. There can exist only one Backbone stp instance per virtual router. Please note that it is not permissible to assign the instance identifier of this stp instance as domain number of any access bridge port. In case of stp instances that are non-Backbone, the instance identifier is indicating the domain number the stp is operational in. |
| Values | access<br>backbone |
| Default | access |

## ATTRIBUTE Vr Br Srb Stp protocolSpec (pS)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the type of the spanning tree protocols that are in operation in the bridge. This means that this bridge participates in the types of stp indicated by this attribute. |
| Values | both<br>dec<br>ieee8021d |
| Default | ieee8021d |

## ATTRIBUTE Vr Br Srb Stp priority

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute is used to construct the *bridgeId*. It forms the first two octets of the *bridgeId* and the remaining 6 octets are made up of the *bridgeMACAddress*. The *priority* also determines the root bridge of the spanning tree topology. Manipulating this attribute might lead to a change in the spanning tree topology. |
| Values | Decimal (0..65535) |
| Default | 32768 |

### ATTRIBUTE Vr Br Srb Stp bridgeMaxAge (bma)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum age of the stp information learned from the network on any bridge port before it is discarded. This value is used by this bridge and all the other bridges when this bridge is the root bridge of the spanning tree topology. The following relationships are enforced as required by the IEEE 802.1d standards document.<br>2 *(*bridgeForwardDelay* -1.0seconds) >= *bridgeMaxAge*,<br>*bridgeMaxAge* >= 2 * *bridgeHelloTime* + 1.0 seconds. |
| Values | Decimal (600..4000) |
| Units | centiseconds |
| Default | 2000 |

### ATTRIBUTE Vr Br Srb Stp bridgeHelloTime (bht)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time interval between the transmission of configuration BPDUs on any bridge port when this bridge becomes the root bridge. This attribute value is also used by all the other bridges in the Spanning Tree while this bridge is the root.<br>The following relationship is enforced as required by the IEEE 802.1d standards document.<br>*bridgeMaxAge* >= 2 * *bridgeHelloTime* + 1.0 seconds. |
| Values | Decimal (100..1000) |
| Units | centiseconds |

| | |
|---|---|
| Default | 200 |

### ATTRIBUTE Vr Br Srb Stp bridgeForwardDelay (bfd)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies how fast a bridge port changes its STP state while progressing towards the forwarding state. It is also used as *agingTime* to age dynamic entries in the forwarding table once a topology change is detected. This attribute is used by all the bridges participating in the stp when this bridge is the root bridge.<br>The following relationship is enforced as required by the IEEE 802.1d standards document.<br>2 *(*bridgeForwardDelay* -1.0sconds) >= *bridgeMaxAge*. |
| Values | Decimal (400..3000) |
| Units | centiseconds |
| Default | 1500 |

### GROUP Vr Br Srb Stp Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all the operational, stp attributes. These attributes are applicable in a global manner and are not specific to a bridge port. |

### ATTRIBUTE Vr Br Srb Stp bridgeId (bid)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the identifier value of this bridge, which serves to uniquely represent this bridge in the spanning tree topology. Thus, a *bridgeId* is unique only in the spanning tree instance the bridge is participating in. If multiple domain spanning trees exist then the same *bridgeId* can be re-used across these spanning tree instances. |
| Values | String (8, Dashed Hex) |
| Default | No default |

### ATTRIBUTE Vr Br Srb Stp rootPortName (rpn)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the name of the bridge port that offers the lowest cost route to the root bridge of the spanning tree topology.The attribute *rootPortName* is a string of the form ***"BridgePortName-i",*** where ***BridgePortName*** is the abbreviation of the corresponding bridge port and ***i*** is the instance identifier of the *ProtocolPort* the bridge port is provisioned under. For example a *TransparentBridgePort* provisioned under *ProtocolPort/MyPort* would have a name ***TBP-MyPort.***<br>If multiple instances of spanning tree are operational then there will exist a *rootPortName* value for each instance of the running stp and is applicable to that instance alone. |
| Values | String (4..29, ASCII) |
| Default | No default |

### ATTRIBUTE Vr Br Srb Stp timeSinceTopologyChange (tstc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the time since a spanning tree topology change was detected by this bridge. |
| Values | Decimal (0..4294967295) |
| Units | centiseconds |
| Default | 0 |

### ATTRIBUTE Vr Br Srb Stp topologyChangeDetect (tcd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether or not a topology change was detected. This flag is set when a bpdu with the topology detect flag set is received from the root bridge. If this bridge is the root bridge this flag is set on receipt of a topology change notification bpdu. It is reset after a fixed length of time. |
| Values | false<br>true |

| | |
|---|---|
| Default | false |

### ATTRIBUTE Vr Br Srb Stp topologyChanges (tc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of the topology change events detected by this bridge since the last bridge reset. This counter wraps around its maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Br Srb Stp designatedRoot (dr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the identifier of the bridge that this bridge treats as the root of the spanning tree topology. The root of the spanning tree topology is chosen through exchange. |
| Values | String (8, Dashed Hex) |
| Default | No default |

### ATTRIBUTE Vr Br Srb Stp rootCost (rc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the cost of the path to the root as seen by this bridge. |
| Values | Decimal (1..65535) |
| Default | No default |

### ATTRIBUTE Vr Br Srb Stp maxAge (mAg)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the maximum age of the stp info learnt from a port before it is discarded. |
| Values | Decimal (600..4000) |
| Units | centiseconds |

| | |
|---|---|
| Default | 2000 |

### ATTRIBUTE Vr Br Srb Stp agingTimeOper (ato)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the time period in seconds used to age out dynamically learned entries in the forwarding table. The aging time is specific to a running stp instance. A value for the aging time of the current instance of the stp can be provisioned through the attribute *agingTime* under the *InwBrTb* component. The *agingTimeOper* attribute assumes the value of the *bridgeForwardDelay* while a topology change is in progress. This is done to facilitate a quick aging out of the learned entries that might have become obsolete due to a spanning tree topology change. |
| Values | Decimal (10..1000000) |
| Units | seconds |
| Default | 300 |

### ATTRIBUTE Vr Br Srb Stp helloTime (heT)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the time interval between the transmission of the configuration BPDUs. This value is obtained from the root bridge of the spanning tree topology through bridge protocol data units. This value should be the value assigned to the attribute *bridgeHelloTime* of the root bridge. |
| Values | Decimal (100..1000) |
| Units | centiseconds |
| Default | 200 |

### ATTRIBUTE Vr Br Srb Stp holdTime (hoT)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the minimum interval of time between the transmission of two BPDUs. |
| Values | Decimal (100) |

| | |
|---|---|
| Units | centiseconds |
| Default | 100 |

### ATTRIBUTE Vr Br Srb Stp fwdDelay (fd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates how much time a port spends in any state while progressing towards the ***forwarding*** state. It is also used to age out learned entries while a topology change is in progress.This value should be the value assigned to the attribute *bridgeFwdDelay* of the root bridge. |
| Values | Decimal (400..3000) |
| Units | centiseconds |
| Default | 1500 |

### COMPONENT Vr Br Srb LanIdTableEntry (Lte)

| | |
|---|---|
| Instance | lanId [Decimal (0..4095; 65535)]<br>domainNum (dn) [Decimal (1..4294967295)] |
| Groups | "GROUP Vr Br Srb Lte Operational (Oper)" |
| Scope | Application |
| Description | *Vr/<string> Br Srb LanIdTableEntry/lanId, domainNum*<br>This component represents an entry in the LAN ID Table. The LAN ID Table is used by the *SourceRouteBridge* logic to associate a particular bridge port with a LAN ID found in the route descriptor field of a source route frame. Static entries reference bridge ports local to the bridge. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Vr Br Srb Lte Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all the fields of a LAN ID Table entry. |

### ATTRIBUTE Vr Br Srb Lte portName (pn)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the name of the bridge port the frame should be forwarded through to reach the desired Lan. In the case where the desired Lan is across a TB/SRT cloud, this entry would have the name of the *SrSeBridgePort.*<br>The attribute *portName* is a string of the form ***"BridgePortName-i",*** where ***BridgePortName*** is the abbreviation of the corresponding bridge port and ***i*** is the instance identifier of the *ProtocolPort* the bridge port is provisioned under. For example a *SourceRouteBridgePort* provisioned under *ProtocolPort/MyPort* would have a name ***SrBP-MyPort.*** Please note that the attribute *portName* cannot have a value of ***TBP, FddiETb, Tbse, Tbcl, Tbsr, Srsg, Tbsg.*** |
| Values | String (4..29, ASCII) |
| Default | No default |

### ATTRIBUTE Vr Br Srb Lte ageOfEntry (aoe)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the age of this entry in seconds. |
| Values | Decimal (0..4294967295) |
| Units | seconds |
| Default | No default |

### ATTRIBUTE Vr Br Srb Lte peerMACAddress (pma)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the MAC address of a bridge unit found across an transparent bridge/source route transparent network whose LAN ID is referenced by the attribute *lanId.* The *peerMACAddress* for static entries will be all zeroes. |
| Values | String (6, Dashed Hex) |
| Default | No default |

## ATTRIBUTE Vr Br Srb Lte typeOfEntry (toe)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the type of the LAN ID table entry. LAN ID table entries may be either static or dynamic. Dynamic entries imply that to reach the desired LAN source route frames need to be tunneled through a TB/SRT network, to another bridge unit which is attached to the LAN. These entries have a *peerMACAddress* associated with them and may be removed through the aging mechanism of the LAN ID table. Static entries on the other hand contain information about LANs that may be reached directly through bridge ports attached to the bridge. They are not aged and do not have a *peerMACAddress* associated with them. |
| Values | static<br>dynamic |
| Default | No default |

## COMPONENT Vr Ip

| | |
|---|---|
| Groups | "GROUP Vr Ip Provisioned (Prov)"<br>"GROUP Vr Ip Statistics (Stats)"<br>"GROUP Vr Ip AdministrativeControl (AdminControl)"<br>"GROUP Vr Ip OsiState (State)"<br>"GROUP Vr Ip OperationalStatus (OperStatus)"<br>"GROUP Vr Ip AcctProvisioned (AcctProv)" |
| Scope | Application |
| Description | *Vr/<string> Ip*<br>This component represents the IP protocol running on this virtual router. |

| | |
|---|---|
| Subcomponents | "COMPONENT Vr Ip Arp"<br>"COMPONENT Vr Ip Icmp"<br>"COMPONENT Vr Ip RelayBC"<br>"COMPONENT Vr Ip Udp"<br>"COMPONENT Vr Ip Tcp" |
| Opt. Subcomp. | "COMPONENT Vr Ip Isis (Isis)"<br>"COMPONENT Vr Ip DifferentiatedServices (DiffServ)"<br>"COMPONENT Vr Ip ExteriorGatewayProtocol (Egp)"<br>"COMPONENT Vr Ip Ospf (Ospf)"<br>"COMPONENT Vr Ip RoutingInformationProtocol (Rip)"<br>"COMPONENT Vr Ip Static"<br>"COMPONENT Vr Ip NetSentry (Ns)"<br>"COMPONENT Vr Ip BootpRelayAgent (Bootp)"<br>"COMPONENT Vr Ip Tunnel"<br>"COMPONENT Vr Ip NextHopResolutionProtocol (Nhrp)"<br>"COMPONENT Vr Ip CosPolicyGroup (Pg)"<br>"COMPONENT Vr Ip BorderGatewayProtocol (Bgp)"<br>"COMPONENT Vr Ip SecurityPolicyDatabase (Spd)"<br>"COMPONENT Vr Ip Filter (Filt)"<br>"COMPONENT Vr Ip Multicast (Mcast)"<br>"COMPONENT Vr Ip MBgpRouteDistributionClient (MBgp)"<br>"COMPONENT Vr Ip Vrrp"<br>"COMPONENT Vr Ip Rtd" |
| Dyn. Subcomp. | "COMPONENT Vr Ip ForwardTable (Fwd)"<br>"COMPONENT Vr Ip RouteDataBaseEntry (Rdb)"<br>"COMPONENT Vr Ip IpInterfaceEntry (If)"<br>"COMPONENT Vr Ip Cache" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP Vr Ip Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains global attributes for IP. |

## ATTRIBUTE Vr Ip forwarding

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates whether this VR is acting as an IP gateway in respect to the forwarding of datagrams received by, but not addressed to, this VR. |
| Values | gateway |
| Default | gateway |

## ATTRIBUTE Vr Ip defaultTtl

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the default value inserted into the Time-To-Live field of the IP header of datagrams originated at this entity, whenever a Time-To-Live value is not supplied by the transport layer protocol.<br><br>The value of this attribute deviates from the MIB requirement that it will always have a value of 255. |
| Values | Decimal (255..255) |
| Default | 255 |

## ATTRIBUTE Vr Ip cosPolicyAssignment (cospolicy)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the *CosPolicyGroup* that each *IpPort* on the *VirtualRouter* uses if the *cosPolicyAssignment* attribute of the *IpPort* is not set.<br><br>The assigned *CosPolicyGroup* controls the forwarding behavior of IP packets recieved and transmitted at each *IpPort* that use it. See the description of *Vr Ip CosPolicyGroup* for more information. |

If the *VirtualRouter* has a *DifferentiatedServicesDomain* subcomponent, then this attribute cannot be set.

The assigned *CosPolicyGroup* must be a subcomponent of the same *Virtual Router.*

Values: Link (Service, linkToPolicyUsers)

Default: No default

### ATTRIBUTE Vr Ip sourceRoute

Access: Read and write

Description: This attribute indicates whether or not this VR allows processing of datagrams which have a source route IP option.

Values: enabled
disabled

Default: disabled

### ATTRIBUTE Vr Ip filterAssignment (filtAss)

Access: Read and write

Description: This attribute specifies the *Filter* that each *IpPort* on the *VirtualRouter* uses if the *filterAssignment* attribute of the *IpPort* is not set.

The filtering of IP packets is controlled by the *filterAssignment* attribute of the *Ip* and *IpPort*. If no *Filter* is used, then all packets are permitted.

If the *linkToMedia* attribute of the parent *ProtocolPort* of an *IpPort* is linked to *Vr Ip Tunnel Sep* or *Vr Ip Tunnel Msep*, then the *IpPort* operates as if no *Filter* is used. All packets are permitted.

The assigned *Filter* must be a subcomponent of the same *Virtual Router.*

Values: Link (Service, linkToFilterUsers)

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Vr Ip diffServAssignment (ds)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the *DifferentiatedServices* that each *IpPort* on the *VirtualRouter* uses if the *diffServAssignment* attribute of the *IpPort* is not set.<br><br>The assigned *DifferentiatedServices* interface configuration controls the forwarding behavior of IP packets recieved and transmitted at each *IpPort* that uses it. See the description of of *Vr Ip DifferentiatedServices* interface configuration for more information.<br><br>If the *VirtualRouter* does not have a *DifferentiatedServicesDomain* subcomponent, then this attribute cannot be set.<br><br>The assigned *DifferentiatedServices* must be a subcomponent of the same *Virtual Router.* |
| Values | Link (Service, linkToDiffServUsers) |
| Default | No default |

### ATTRIBUTE Vr Ip cacheTableSize (cts)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum number of entries that can exist in the IP local cache table on each LP. This attribute provides a way to control the resources allocated to the IP cache tables.<br>The default cache table size is *3000* for an FP and *100* for a CP, is used if this attribute is not specified explicitly. The attribute value must be multiple of 100. |
| Vector of | Decimal (100..8000) |
| Index | Decimal (0..15) |
| Default | ([1] 100, [15] 3000) |

## GROUP Vr Ip Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This is the GROUP holding the struct which contains statistical attributes for IP. |

## ATTRIBUTE Vr Ip inReceives

| | |
|---|---|
| Access | Read only |
| Description | This is the number of input datagrams received from the interfaces, including those received in error. *inReceives* wraps to zero if reaches its maximum defined value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## ATTRIBUTE Vr Ip inHdrErrors

| | |
|---|---|
| Access | Read only |
| Description | The number of input datagrams discarded due to errors in their IP headers, including bad checksums, version number mismatch, other format errors, time-to-live exceeded, errors discovered in processing their IP options, etc. *inHdrErrors* wraps to zero if reaches its maximum defined value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## ATTRIBUTE Vr Ip inAddrErrors

| | |
|---|---|
| Access | Read only |
| Description | The number of input datagrams discarded due to errors such as invalid address, unsupported address class. *inAddrErrors* wraps to zero if reaches its maximum defined value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ip forwDatagrams

| | |
|---|---|
| Access | Read only |
| Description | The number of input datagrams for which this router was not their final IP destination, as a result of which an attempt was made to find a route to forward them to that final destination. *forwDatagrams* wraps to zero if reaches it's maximum defined value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ip inUnknownProtos

| | |
|---|---|
| Access | Read only |
| Description | The number of locally-addressed datagrams received successfully but discarded because of an unknown or unsupported protocol *inUnknownProtos* wraps to zero if reaches its maximum defined value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ip inDiscards

| | |
|---|---|
| Access | Read only |
| Description | The number of input datagrams for which no problems were encountered to prevent their continued processing, but which were discarded due to the lack of buffers. This does not include any datagram discarded while awaiting for re-assembly. *inDiscards* wraps to zero if reaches its maximum defined value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ip inDelivers

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | The number of input datagrams successfully delivered to IP user-protocols (including ICMP). *inDelivers* wraps to zero if reaches its maximum defined value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ip outRequests

| | |
|---|---|
| Access | Read only |
| Description | The number of datagrams which local IP user-protocols (including ICMP) supplied to IP in requests for transmission. This sum does not include datagrams counted in *ForwDatagrams*. *outRequests* wraps to zero if reaches its maximum defined value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ip outDiscards

| | |
|---|---|
| Access | Read only |
| Description | The number of outbound datagrams that were discarded due to the lack of buffers. This sum also includes datagrams counted in *forwDatagrams* if any such packets met the discard criterion. *outDiscards* wraps to zero if reaches its maximum defined value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ip outNoRoutes

| | |
|---|---|
| Access | Read only |
| Description | The number of outbound datagrams discarded because no route could be found to transmit them to their destination. This counter includes any datagrams counted in *forwDatagrams*. *outNoRoutes* wraps to zero if reaches its maximum defined value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE Vr Ip reasmTimeOut

| | |
|---|---|
| Access | Read only |
| Description | The maximum number of seconds, which received fragments are held while they are awaiting reassembly at this gateway. |
| Values | Decimal (0..5) |
| Units | seconds |
| Default | 5 |

### ATTRIBUTE Vr Ip reasmReqds

| | |
|---|---|
| Access | Read only |
| Description | The number of the IP fragments received by this gateway which needed to be reassembled. *reasmReqds* wraps to zero if reaches its maximum defined value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ip reasmOks

| | |
|---|---|
| Access | Read only |
| Description | The number of IP fragments successfully reassembled by this gateway. *reasmOks* wraps to zero if reaches its maximum defined value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ip reasmFails

| | |
|---|---|
| Access | Read only |
| Description | The number of times this gateway is unabled to assemble IP-fragments for whatever reasons. *reasmFails* wraps to zero if reaches its maximum defined value. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ip fragOks

| | |
|---|---|
| Access | Read only |
| Description | The number of IP datagrams that have been successfully fragmented by this gateway. *fragOks* wraps to zero if reaches its maximum defined value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ip fragFails

| | |
|---|---|
| Access | Read only |
| Description | The number of IP-fragments that have been discarded because they needed to be fragmented but could not be. For example, their Don't Fragment flag was set. *fragFails* wraps to zero if reaches its maximum defined value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ip fragCreates

| | |
|---|---|
| Access | Read only |
| Description | This number of IP fragments that have been generated as a result of fragmentation by this gateway. *fragCreates* wraps to zero if reaches its maximum defined value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ip routingDiscards

| | |
|---|---|
| Access | Read only |
| Description | The number of routing entries which were chosen to be discarded even though they are valid. One possible reason for discarding |

| | |
|---|---|
| | such an entry could be to free -up buffer space for other routing entries. In this implementation, this number is always zero because IP never deletes a valid routing entry. |
| Values | Decimal (0..0) |
| Default | 0 |

### ATTRIBUTE Vr Ip inSrcRouteDiscards

| | |
|---|---|
| Access | Read only |
| Description | The number of input datagrams which had a source route IP option and were discarded because this functionality is not allowed for this Routing Component. *srcRouteDiscards* wraps to zero if reaches its maximum defined value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### GROUP Vr Ip AdministrativeControl (AdminControl)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group includes the Administrative Control attribute. This attribute defines the current administrative state of this component. |

### ATTRIBUTE Vr Ip snmpAdminStatus

| | |
|---|---|
| Access | Read and write |
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational and packet forwarding is allowed. The ***down*** state indicates the interface is not operational and packet forwarding is unavailable. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### GROUP Vr Ip OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Vr Ip adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Vr Ip operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component. |

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Vr Ip usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Vr Ip OperationalStatus (OperStatus)

Properties
Operational

Description
This group includes the Operational Status attribute. This attribute defines the current operational state of this component.

### ATTRIBUTE Vr Ip snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### GROUP Vr Ip AcctProvisioned (AcctProv)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for IP accounting. |

### ATTRIBUTE Vr Ip accountCollection (acl)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the reason(s) for which accounting data is collected: ***billing***, ***test***, ***study***, ***audit*** or ***force***.<br><br>If the set of reasons is not empty then accounting records will be generated by this interface in the following situations:<br>- on a TODA (time of day accounting) changeover, if TODA is enabled<br>- every 12 hours per *ProtocolPort* if TODA is disabled<br><br>If none of the above reasons are present IP accounting will be disabled on the VR. Accounting can be disabled on individual *ProtocolPort*s by disabling the attribute *accountingControl* in *Vr ProtocolPort*. |

The reason for collection is recorded in the accounting records, in the attribute *collectReason*.

Set of
bill
test
study
audit
force

Default
No default

## COMPONENT Vr Ip Isis (Isis)

Groups
"GROUP Vr Ip Isis Provisioned (Prov)"
"GROUP Vr Ip Isis OsiState (State)"
"GROUP Vr Ip Isis ErrorStatistics (Errors)"

Scope
Application

Description
*Router/<id> Isis*
This component is configured to control the Intermediate System to Intermediate System (ISIS) routing protocol.

This component requires at least one *Net* subcomponent and no more than 3 *Net* subcomponents to be provisioned.

This component requires at least one *Level* subcomponent to be provisioned.

For ISIS routes to be entered into the routing table, at least one active *IsisIf* component must be provisioned.

| | |
|---|---|
| Opt. Subcomp. | "COMPONENT Vr Ip Isis NetworkEntityTitle (Net)"<br>"COMPONENT Vr Ip Isis IsisLevel (Level)" |
| Dyn. Subcomp. | "COMPONENT Vr Ip Isis NeighborEntry (Nbr)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

### GROUP Vr Ip Isis Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group of attributes is used to configure the *Isis* component. |

### ATTRIBUTE Vr Ip Isis snmpAdminStatus (admin)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the administrative status of the *Isis* component in this *Router.* |
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE Vr Ip Isis intermediateSystemType (isType)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the ISIS level functionality of this *Router* as defined in ISO specification 10589. In this release only level1 ISIS support exists and therefore the value ***level1*** is the only |

value supported by this attribute.

| | |
|---|---|
| Values | level1 |
| Default | level1 |

### ATTRIBUTE Vr Ip Isis overloadBitControl

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies how the value of the overload bit in the *Router's* Link State PDU (LSP) should be derived.<br><br>A value of ***on*** specifies that the overload bit is forced on in the LSP.<br><br>A value of ***auto*** specifies that the overload bit value is fully controlled by system software. This means that system software, based on current operating conditions, may choose to set the overload bit as appropriate.<br><br>Any other value specifies, in seconds, the time period after a software restart that the overload bit will be forced on. |
| Values | Decimal (60..1800)<br>on<br>auto |
| Default | auto |

### ATTRIBUTE Vr Ip Isis ignoreLspErrors

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies how the system behaves on receipt of a corrupted Link State PDU (LSP).<br><br>If the attribute value is ***ignore***, the system will discard a corrupted LSP.<br><br>If the attribute value is ***purge***, the system will purge the LSP. |

| | |
|---|---|
| Values | purge<br>ignore |
| Default | purge |

### ATTRIBUTE Vr Ip Isis lspMaxLifetime

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the time, in seconds, that an LSP generated by this *Router* may exist before being considered to be stale and therefore should be purged by other nodes in the network.<br><br>A *Check Prov* error occurs if this attribute specifies a value less than or equeal to the value specified for the *lspRefreshInterval* attribute. A *Check Prov* warning is produced if the value of this attribute is not at least 300 seconds greater than the value of the *lspRefreshInterval* attribute. |
| Values | Decimal (350..65535) |
| Units | seconds |
| Default | 1200 |

### ATTRIBUTE Vr Ip Isis lspRefreshInterval

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the time, in seconds, between successive retransmissions of this *Router's* LSP.<br><br>A *Check Prov* error occurs if this attribute specifies a value greater than the value specified for the *lspMaxLifetime* attribute. A *Check Prov* warning is produced if the value of this attribute is not at least 300 seconds less than the value of the *lspMaxLifetime* attribute. |
| Values | Decimal (1..65535) |
| Units | seconds |

| | |
|---|---|
| Default | 900 |

### ATTRIBUTE Vr Ip Isis spfDelay

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies, in milliseconds, the delay between the detection of a network topology change and the execution of the ISIS Shortest Path First (SPF) route calculation algorithm. |
| Values | Decimal (1..10000) |
| Units | msec |
| Default | 2000 |

### GROUP Vr Ip Isis OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Vr Ip Isis adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down. |

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Vr Ip Isis operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Vr Ip Isis usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

| | |
|---|---|
| | The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Vr Ip Isis ErrorStatistics (Errors)

| | |
|---|---|
| Properties | Operational |
| Description | The attributes in this group are essentially statistics or counters. Each attribute counts each particular, abnormal event that has occurred since the *Isis* component was last enabled or unlocked. |

### ATTRIBUTE Vr Ip Isis rxCorruptedLsps

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of corrupted LSPs received on all ports for all levels since the last time the *Isis* component became enabled and/or was unlocked. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Isis lsdbOverloads

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of occurrences of link state database overloads for all ports for all levels since the last time the *Isis* component became enabled and/or was unlocked. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Isis attemptsToExceedMaxSeqNum

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of times that the maximum LSP sequence number has be reached for all ports for all levels since the last time the *Isis* component became enabled and/or was unlocked. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Isis seqNumSkips

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of times that LSPs have been received where sequence numbers are nonsequential with respect to the previously received LSP. This attribute counts this event for all ports for all levels since the last time the *Isis* component became enabled and/or was unlocked. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Isis ownLspPurges

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of times that this *Router* has purged its own LSP. This attribute counts this event for all ports for all levels since the last time the *Isis* component became enabled and/or was unlocked. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Isis idFieldLenMismatches

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of times that this *Router* has received PDUs with ID Field lengths that do not match those used by this *Router*. This attribute counts this event for all ports for all levels since the last time the *Isis* component became enabled and/or was unlocked. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Isis maxAreaAddrMismatches

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of times that this *Router* has received a PDU with the “maximum number of supported area addresses” field set to a value greater than the maximum number of area addresses supported by this *Router*. This attribute counts this event for all ports for all levels since the last time the *Isis* component became enabled and/or was unlocked. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT Vr Ip Isis NetworkEntityTitle (Net)

| | |
|---|---|
| Instance | String (1..46, ASCII) |
| Scope | Application |
| Description | *Rtr/id Isis NetworkEntityTitle/<net>*<br>This component represents the *Router’s* Network Entity Title (NET). A NET is an ISO address that uniquely identifies an ISIS router. The NET format is specified in ISO 8348.<br><br>The *Net* instance ID must be formatted as follows:<br><br>AA.aaaa.SSSS.SSSS.SSSS.NN where; |

"AA" represents the ISIS area number and is a two hex digit string.

"aaaa" represents the ISIS area number and is a string of 0 to 24 hex digits and there must be an even number of digits in this field.

"SSSS.SSSS.SSSS" represents this *Router's* ISIS system ID. The system ID is made up of 12 hex digits, grouped in 3 groups of 4 hex digits, separated by the "." character. Note that when more than one *Net* component is provisioned, all *Net* components must have the same system ID portion of the *Net* instance ID.

"NN" represents the NSEL portion of the *Net* instance ID. This must always be "00" (zero zero).

The sections of the *Net* instance ID are separated by the "." character.

Common Verbs

Help
List
Display
Add
DELete

## COMPONENT Vr Ip Isis IsisLevel (Level)

| | |
|---|---|
| Instance | Decimal (1..1) |
| Groups | "GROUP Vr Ip Isis Level Provisioned (Prov)" |
| Scope | Application |
| Description | *Rtr/<s> Isis IsisLevel/<1..2>*<br>The ISIS routing protocol supports a two-level routing hierarchy. This component represents those ISIS routing aspects that are specific to each level. In this release, only *Level/1* is supported. |

| | |
|---|---|
| Dyn. Subcomp. | "COMPONENT Vr Ip Isis Level LsDbEntry (Lsdb)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Vr Ip Isis Level Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group of attributes is used to configure each ISIS routing level. |

## ATTRIBUTE Vr Ip Isis Level preference

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | This attribute specifies the routing preference assigned to ISIS routes for this level. A lower value indicates a “more preferred” route. |
| Values | Decimal (1..255) |
| Default | 32 |

## COMPONENT Vr Ip Isis Level LsDbEntry (Lsdb)

| | |
|---|---|
| Instance | sysId [String (1..14, ASCII)]<br>psnid [Decimal (0..65536)]<br>fragid [Decimal (0..65535)] |
| Groups | "GROUP Vr Ip Isis Level Lsdb Operational" |
| Scope | Application |
| Description | Rtr/<id> Isis Level/n LsDbEntry/SysId,PSNId,FragId<br>This component describes an entry in the ISIS LSP Database. |

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display |

### GROUP Vr Ip Isis Level Lsdb Operational

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the set of operational attributes of the *LsDbEntry* component. |

### ATTRIBUTE Vr Ip Isis Level Lsdb seqNumber

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the sequence number of the LSP. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Isis Level Lsdb remainingLifetime

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates, in seconds, the remaining lifetime of the LSP. |
| Values | Decimal (0..65535) |
| Units | seconds |
| Default | No default |

### ATTRIBUTE Vr Ip Isis Level Lsdb attachment (att)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates whether the default attachment bit is set in this LSP. |

| | |
|---|---|
| Values | notAttached<br>attached |
| Default | No default |

### ATTRIBUTE Vr Ip Isis Level Lsdb partitionRepair

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates whether the partition repair bit is set in this LSP. |
| Values | off<br>on |
| Default | No default |

### ATTRIBUTE Vr Ip Isis Level Lsdb overloadBit

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates whether the overload bit is set in this LSP. |
| Values | off<br>on |
| Default | No default |

### ATTRIBUTE Vr Ip Isis Level Lsdb isType

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates which system type bits are set in this LSP. |
| Values | none<br>level1<br>level2<br>both |
| Default | No default |

### ATTRIBUTE Vr Ip Isis Level Lsdb lspBody

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute indicates the content of this LSP's body. |
| Values | String (1..1500, Hex) |
| Default | No default |

### COMPONENT Vr Ip Isis NeighborEntry (Nbr)

| | |
|---|---|
| Instance | sysId [String (1..14, ASCII)]<br>level [Decimal (1..2)] |
| Groups | "GROUP Vr Ip Isis Nbr Operational (Oper)" |
| Scope | Application |
| Description | *Rtr/<id> Isis Nbr/SysId,Level*<br>This component represents the list of ISIS adjacencies formed with the specified ISIS router at the specified level. |
| Dyn. Subcomp. | "COMPONENT Vr Ip Isis Nbr Adjacency (Adj)" |
| Common Verbs | Help<br>List<br>Display |

### GROUP Vr Ip Isis Nbr Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains only one operational attribute, which represents the number of adjacencies formed with the router identified by the instance ID of the parent *NeighborEntry* component. This instance ID specifies the System ID of the neighbor router. |

### ATTRIBUTE Vr Ip Isis Nbr adjacencies

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of adjacencies between this *Router* and the specified neighbor router at the specified ISIS level. The neighbor's system ID and the level at which the adjacency was formed is specified by the instance ID of the *NeighborEntry* component. |

| | |
|---|---|
| Values | Decimal (0..65535) |
| Default | No default |

### COMPONENT Vr Ip Isis Nbr Adjacency (Adj)

| | |
|---|---|
| Instance | Decimal (1..65535) |
| Groups | "GROUP Vr Ip Isis Nbr Adj Operational (Oper)" |
| Scope | Application |
| Description | *Rtr/<id> Isis Nbr/SysId,Level Adjacency/n*<br>This component represents the collection information available regarding an adjacency formed with another ISIS router. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Vr Ip Isis Nbr Adj Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains a set of attributes that indicate the characteristics of the adjacency. |

### ATTRIBUTE Vr Ip Isis Nbr Adj neighborLinkLayerAddress (nbrLLAddr)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the neighbor's link layer address for the link on which the adjacency was formed. In ISO ISIS terminology, this is referred to as the subnetwork point of attachment (SNPA). |
| Values | String (0..11, ASCII) |
| Default | No default |

### ATTRIBUTE Vr Ip Isis Nbr Adj interface

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute indicates the *Interface* component on which this adjacency was formed. The format will be:<br><br>*Rtr/<s> Interface/<IP Address>* |
| Values | The name of the component |
| Default | No default |

### ATTRIBUTE Vr Ip Isis Nbr Adj state

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the operating state of the *adjacency.* |
| Values | null<br>initializing<br>up<br>fail |
| Default | No default |

### ATTRIBUTE Vr Ip Isis Nbr Adj holdTime

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates, in seconds, the maximum time that may elapse without receiving a hello message before the adjacency is considered down. |
| Values | Decimal (1..600) |
| Units | seconds |
| Default | No default |

### ATTRIBUTE Vr Ip Isis Nbr Adj priority

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the DIS priority of the neighbor associated with this *adjacency.* |
| Values | Decimal (0..127) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Vr Ip Isis Nbr Adj protocols

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the list of protocols supported by the neighbor on this *adjacency.* |
| Values | none<br>osi_only<br>ip_only<br>osi_and_ip |
| Default | No default |

### ATTRIBUTE Vr Ip Isis Nbr Adj areaAddresses

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the list of area addresses used by the neighbor associated with this *adjacency.* |
| Values | String (0..85, ASCII) |
| Default | No default |

### ATTRIBUTE Vr Ip Isis Nbr Adj age

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the elapsed time, in seconds, since this *adjacency* was established. |
| Values | Decimal (0..4294967295) |
| Units | seconds |
| Default | No default |

### COMPONENT Vr Ip DifferentiatedServices (DiffServ)

| | |
|---|---|
| Instance | String (1..20, ASCII) |
| Groups | "GROUP Vr Ip DiffServ Provisioned (Prov)" |

| | |
|---|---|
| Scope | Application |
| Description | *Vr/<string> Ip DifferentiatedServices/<string>* |

This component and its subcomponents specify the Differentiated Services capabilities of an *IpPort*.

A *DifferentiatedServices* component is used by all *IpPort* subcomponents of a *VirtualRouter* by setting the *diffServAssignment* attribute of the *Ip* component. It is used by one or more *IpPort* components directly by setting the *diffServAssignment* attribute of the *IpPort*. The direct assignment to the *IpPort* completely overrides the assignment to the *Ip*.

Differentiated Services processing of IP packets is based on the value of the Differentiated Services Code Point (DSCP) field in each IP packet header.

At any time the total number of interface profiles (*CosPolicyGroup*, *DifferentiatedServices*, and *Filter* components) in the current view plus the total number of newly created interface profiles in the edit view must be less than the system limit, regardless how many interface profiles have been deleted in the edit view. Any interface profile created in the edit view that results in a total count greater than the system limit is identified as invalid and must be deleted; otherwise a *Check Prov* command will produce an error. If invalid interface profiles exist after a software migration prior to a *Check Prov* command, then those interface profiles are ignored and have no impact on IP forwarding. Any subsequent *Check Prov* command fails until the invalid interface profiles are deleted. It is recommended that all interface profile deletions be activated using the *Activate Prov* command before any new interface profiles are created.

There are seven logical stages for processing IP Differentiated Services on the *VirtualRouter* component. These seven stages are presented below, along with the behavior of locally generated packets, and the behavior of any *IpPort* component that does not use a *DifferentiatedServices* component.

1. INGRESS CLASSIFICATION AND MARKING

If the *baMode* attribute of the *IngressServices* subcomponent of the *DifferentiatedServices* used by the *IpPort* where the packet was received is set to ***preserve***, then the DSCP field of the packet header is not modified.

If the *baMode* attribute is set to ***translate***, then the DSCP field is marked according to the *BehaviorAggregate* subcomponents of the *IngressServices* component, if they exist and if there is a match; otherwise, the DSCP field is marked to 0. A match occurs if the DSCP of the packet is equal to one of the values specified by the *dscpToMatch* attribute on a *BehaviorAggregate* subcomponent. If a match occurs, then the DSCP of the packet is set equal to the value of the *dscpToMark* attribute of the *BehaviorAggregate* subcomponent where the match occurred.

If the *baMode* attribute is set to ***link***, then the DSCP field is marked according to the DSCP configured for the link where the packet arrived. For *AtmMpe*, the DSCP of a link is specified by the *ipDscp* attribute of the *AtmConnection* subcomponent. For *FrDte*, the DSCP of a link is specified by the *ipDscp* attribute of the *StaticDlci* or *DynamicDlciDef* subcomponent. For *IpDlciGroup*, the DSCP of a link is specified by the *ipDscp* attribute of the *FrConnection* subcomponent. For PPP and Ethernet, the DSCP of the link is specified by the *ipDscp* attribute of the *IpPort*.

2. DROP PRECEDENCE ASSIGNMENT

If the *dpMode* attribute of the *IngressServices* subcomponent of the *DifferentiatedServices* used by the *IpPort* where the packet was received is set to ***mapDscpToDp***, then the packet is assigned a drop precedence value (***low***, ***medium***, ***high***) according to the *Vr DifferentiatedServicesDomain PerHopBehavior* component whose instance value is equal to the DSCP of the packet header. If there is no *PerHopBehavior* component whose instance value is equal to the DSCP of the packet, then the drop precedence for DSCP 0 is used.

If the *dpMode* attribute is set to ***retainLinkDp***, then the drop precedence assigned to the packet is not modified. It remains at the value provided by the ingress link. If this attribute value is used, then the *IpPort* is not operating in a mode that is compliant with Differentiated Services standards.

A drop precedence is assigned to a packet to control its loss sensitivity relative to other packets when the packets are placed into the same queue, as explained in Step 7.

Generally, the ***low*** value indicates the packet is less likely to be discarded when the queue is congested. This traffic has a higher probability of being forwarded. The ***high*** value indicates the packet is more likely to be discarded when the queue is congested. This traffic has a lower probability of being forwarded. The actual loss sensitivity of packets depends on the discarding mechanism at the queue.

3. SCHEDULING CLASS ASSIGNMENT

The packet is assigned an logical scheduling class value for eight, four, three, and two queues in the range from ***0*** to ***7***, ***0*** to ***3***, ***0*** to ***2***, and ***0*** to ***1***, respectively. The scheduling class values are selected according to the *Vr DifferentiatedServicesDomain PerHopBehavior* component whose instance value is equal the DSCP of the packet header. If there is no *PerHopBehavior* component whose instance value is equal to the DSCP of the packet, then the scheduling classes for DSCP 0 are used.

Scheduling classes are assigned to a packet to control its scheduling behavior relative to other packets at the egress interface where the packets are transmitted, as explained in Step 7.

Generally, a numerically lower value indicates the packet is less likely to be delayed. This traffic is considered more urgent and less delay tolerant. A numerically higher value indicates the packet is more likely to be delayed. This traffic is considered less urgent and more delay tolerant. The actual scheduling behavior of packets depends on the scheduling mechanism and number of

queues at the egress interface.

4. CONNECTION CLASS ASSIGNMENT

The packet is assigned aconnection class value in the range from ***0*** to ***3*** according to the *Vr DifferentiatedServicesDomain PerHopBehavior* component whose instance value is equal the DSCP of the packet header. If there is no *PerHopBehavior* component whose instance value is equal to the DSCP of the packet, then the connection class for DSCP 0 is used.

A connection class is assigned to a packet to select one of up to four egress link layer connections for transmitting the packet as described in Step 6.

5. EGRESS CLASSIFICATION AND MARKING

If the *baMode* attribute of the *EgressServices* subcomponent of the *DifferentiatedServices* used by the *IpPort* where the packet is transmitted is set to ***preserve***, then the DSCP field in the packet header is not modified.

If the *baMode* attribute is set to ***translate***, then the DSCP field is marked according the *BehaviorAggregate* subcomponents of the *EgressServices* component, if they exist and there is a match; otherwise, the DSCP field is marked to 0. A match occurs if the DSCP of the packet is equal to one of the values specified by the *dscpToMatch* attribute of a *BehaviorAggregate* subcomponent. If a match occurs, then the DSCP of the packet is set equal to the value of the *dscpToMark* attribute of the *BehaviorAggregate* subcomponent where the match occurred.

The new value of the DSCP field does not influence the forwarding behavior of the packet as it continues to be processed by the *VirtualRouter*, but it may have significance at the next hop.

6. MULTI-LINK CONGESTION CONTROL

The connection class assigned to the packet is used to select one of up to four link layer connections at the *IpPort* where the packet is transmitted. Per-packet selection of egress connections is supported only if these conditions are all true:

i) the egress media is *FrDte*, *AtmMpe*, *IpDlciGroup* or *IpoDlci*, and
ii) more than one link layer connection is configured to the next hop IP router, and
iii) each connection is provisioned with a different connection class.

Normally the packet is transmitted on the connection whose connection class is equal to the connection class assigned to the packet. If that connection does not exist, then the connection having the next lower connection class is used. If that connection does not exist also, then the connection having the next higher connection class is used.

For *AtmMpe* the connection class is specified by the *ipCos* attribute of the *AtmConnection* subcomponent. For *FrDte* the connection class is specified by the *ipCoS* attribute of the *StaticDlci* and *DynamicDlciDef* subcomponents. For *IpDlciGroup* and *IpoDlci* the connection class is specified by the *ipCos* attribute of the *FrConnection* subcomponent.

If each link layer connection is configured to provide different policing and scheduling characteristics, then the forwarding behaviors of IP packets are differentiated as they transit through the link layer network. In general, the scheduling characteristics of the connections should be configured to be better for numerically greater conection class values. For example, if four *AtmConnection* components are associated with *AtmIf* components configured for ATM service classes ***UBR***, ***nrtVBR***, ***rtVBR***, and ***CBR***, then the *ipCos* attributes of the *AtmConnection* components should be either ***0***, ***1***, ***2*** and ***3***, respectively, or ***0***, ***1***, ***3*** and ***2*** respectively.

7. PER-LINK CONGESTION CONTROL

The drop precedence and scheduling classes assigned to the packet are used by the egress interface where the packet is transmitted, but only if the egress interface supports these parameters on a per-link basis.

Multiple drop precedences are supported on MS3-based FPs at Gigabit Ethernet interfaces. On PQC-based FPs they are supported at *AtmMpe*, *FrDte*, *IpDlciGroup*, *IpoDlci* , and Ethernet interfaces. On SBIC-based FPs they are supported at PPP interfaces and *FrDte* interfaces.

Eight queues per link are supported on MS3-based FPs at Gigabit Ethernet interfaces. Four queues per link are supported on PQC-based FPs at PPP interfaces, at *FrDte* interfaces provisioned with *DirectConnection*, and at *IpDlciGroup* and *IpoDlci* interfaces where FRF.12 is disabled on the DLCI.

## LOCALLY GENERATED PACKETS

Ingress classification and marking is not performed on packets generated locally at the *VirtualRouter*. For a locally generated packet used for network routing control, the DSCP field is initialized to the value of the *phbRoutingSource* (*phbR*) attribute of the *DifferentiatedServicesDomain* component. For any other locally generated packet, the DSCP field is initialized to the value of the *phbGeneralSource* (*phbG*) attribute of the *DifferentiatedServicesDomain* component.

For a locally generated ICMP echo request packet, the initial value of the DSCP field is overridden by the *-tos* or *-dscp* option of the *Ping* command. For a locally generated ICMP echo reply packet, the DSCP field is set to the value contained in the IP header of the received request packet.

Locally generated IP multicast and IP broadcast packets are not subject to Multi-Link Congestion Control as described above. Each of these packets is copied and transmitted individually on each of the available connections.

DEFAULT BEHAVIOR

If the *VirtualRouter* has a *DifferentiatedServicesDomain* subcomponent, then the IP Differentiated Services behavior of any *IpPort* that does not use a *DifferentiatedServices* component (by setting the *diffServAssignment* attribute of the *Ip* or *IpPort* as explained above) is identical to an *IpPort* that uses the *DifferentiatedServices* component described here: The *IngressServices* subcomponent has no subcomponents and the *baMode*, and *dpMode* attributes are set to ***preserve*** and ***mapDscpToDp***, respectively. The *EgressServices sub*component has no subcomponents and the *baMode* attribute is set to ***preserve***.

If the *VirtualRouter* does not have a *DifferentiatedServicesDomain* subcomponent, then the IP Differentiated Services behavior of the *IpPort* components are controlled by *Vr Ip CosPolicyGroup* components. See the description of the *CosPolicyGroup* component for more information.

Subcomponents

"COMPONENT Vr Ip DiffServ IngressServices (Is)"
"COMPONENT Vr Ip DiffServ EgressServices (Es)"

Common Verbs

Help
List
Display
Add
DELete

## GROUP Vr Ip DiffServ Provisioned (Prov)

Properties

Provisioned

Description

This group contains the provisioned attributes of the *DifferentiatedServices* component.

## ATTRIBUTE Vr Ip DiffServ linkToDiffServUsers (users)

Access

Read and write

| | |
|---|---|
| Description | This attribute specifies the components that are linked to the *DifferentiatedServices*. Only *Ip* and *IpPort* subcomponents of the same *VirtualRouter* can be linked.<br><br>A *DifferentiatedServices* component is used by all *IpPort* subcomponents of a *VirtualRouter* by setting the *diffServAssignment* attribute of the *Ip* component. It is used by one or more *IpPort* components directly by setting the *diffServAssignment* attribute of the *IpPort*. The direct assignment to the *IpPort* completely overrides the assignment to the *Ip*. |
| List of | Link (Service, diffServAssignment) |
| List Size | 256 |
| Default | No default |

## COMPONENT Vr Ip DiffServ IngressServices (Is)

| | |
|---|---|
| Groups | "GROUP Vr Ip DiffServ Is Provisioned (Prov)" |
| Scope | Application |
| Description | *Vr/<string> Ip DiffServ/<string> IngressServices*<br><br>This component and its subcomponents specify Differentiated Services applied to IP packets received at any *IpPort* that uses the *DifferentiatedServices* component.<br><br>See the description of the *DifferentiatedServices* component for more information. |
| Opt. Subcomp. | "COMPONENT Vr Ip DiffServ Is BehaviorAggregate (Ba)" |
| Common Verbs | Help<br>List<br>Display |

## GROUP Vr Ip DiffServ Is Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioned attributes of the *IngressServices* component. |

## ATTRIBUTE Vr Ip DiffServ Is behaviorAggregateMode (baMode)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the Behavior Aggregate (BA) classification and marking method applied to packets received at any *IpPort* that uses the *DifferentiatedServices* component.<br><br>If this attribute is set to ***preserve***, then the DSCP field of the packet header is not modified.<br><br>If this attribute is set to ***translate***, then the DSCP field is marked according to the *BehaviorAggregate* subcomponents of the *IngressServices* component, if they exist and if there is a match; otherwise, the DSCP field is marked to 0. A match occurs if the DSCP of the packet is equal to one of the values specified by the *dscpToMatch* attribute of a *BehaviorAggregate* subcomponent. If a match occurs, then the DSCP of the packet is set equal to the value of the *dscpToMark* attribute of the *BehaviorAggregate* subcomponent where the match occurred. A warning is issued if there are no *BehaviorAggregate* subcomponents.<br><br>If this attribute is set to ***link***, then the DSCP field is marked according to the DSCP configured for the link where the packet arrived.<br><br>After the classification and marking is applied as explained above, if the DSCP field does not match the instance value of a *PerHopBehavior* subcomponent under the *VirtualRouter DifferentiatedServicesDomain*, then the DSCP field is marked to 0.<br><br>See the description of the *DifferentiatedServices* component for more information. |
| Values | preserve<br>link<br>translate |
| Default | preserve |

## ATTRIBUTE Vr Ip DiffServ Is discardPriorityMode (dpMode)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the method used to assign a drop precedence to IP packets received at any *IpPort* that uses the parent *DifferentiatedServices* component.<br><br>If this attribute is set to ***mapDscpToDp***, then the packet is assigned the drop precedence of the *Vr DifferentiatedServicesDomain PerHopBehavior* component whose instance value is equal to the DSCP of the packet header.<br><br>If this attribute is set to ***retainLinkDp***, then the drop precedence value assigned to the packet is not modified. It remains at the value provided by the ingress link. If this attribute value is used, then the *IpPort* is not operating in a mode that is compliant with Differentiated Services standards.<br><br>See the description of the *DifferentiatedServices* component for more information. |
| Values | retainLinkDp<br>mapDscpToDp |
| Default | mapDscpToDp |

## COMPONENT Vr Ip DiffServ Is BehaviorAggregate (Ba)

| | |
|---|---|
| Instance | String (1..20, ASCII) |
| Groups | "GROUP Vr Ip DiffServ Is Ba Provisioned (Prov)" |
| Scope | Application |
| Description | *Vr/<string> Ip DiffServ/<string> Is BehaviorAggregate/ <string>*<br><br>This component specifies Behavior Aggregate (BA) criteria used to select IP packets received at any *IpPort* that uses the *DifferentiatedServices* component. The DSCP field of each selected packet is set to a specified value. |

Use of the attributes of this component is controlled by the *baMode* attribute on the *IngressServices* component.

Common Verbs

Help
List
Display
Add
DELete

## GROUP Vr Ip DiffServ Is Ba Provisioned (Prov)

Properties: Provisioned

Description: This group contains the provisioned attributes of the *IngressServices BehaviorAggregate* component.

## ATTRIBUTE Vr Ip DiffServ Is Ba dscpToMark (mark)

Access: Read and write

Description: This attribute specifies the DSCP marked into the packet header if the current value of DSCP field is included in the list specified by the *dscpToMatch* attribute.

The DSCP specified by this attribute must be equal to the DSCP specified by the instance value of a *PerHopBehavior* subcomponent under the *VirtualRouter DifferentiatedServicesDomain.*

No two *BehaviorAggregate* subcomponents under the same *IngressServices* component can have the same *dscpToMark* attribute value.

Values:
Decimal (0..63)
df
ef
af11
af12
af13
af21
af22
af23
af31

af32
af33
af41
af42
af43
cs0
cs1
cs2
cs3
cs4
cs5
cs6
cs7

Default df

## ATTRIBUTE Vr Ip DiffServ Is Ba dscpToMatch (match)

Access Read and write

Description This attribute specifies a list of DSCP values for selecting IP packets received at any *IpPort* that uses the *DifferentiatedServices*. The DSCP field of each selected packet is set to the value specified by the *dscpToMark* attribute. There must be at least one entry in this list.

No two *BehaviorAggregate* subcomponents under the same *IngressServices* component can have the same value contained in the list. In other words, the two *dscpToMatch* attributes must specify disjoint sets of DSCP values.

List of Decimal (0..63)

List Size 64

Default No default

## COMPONENT Vr Ip DiffServ EgressServices (Es)

Groups "GROUP Vr Ip DiffServ Es Provisioned (Prov)"

Scope Application

Description *Vr/<string> Ip DiffServ/<string> EgressServices*

This component and its subcomponents specify Differentiated Services applied to IP packets transmitted at any *IpPort* that uses the *DifferentiatedServices* component.

See the description of the *DifferentiatedServices* component for more information.

Opt. Subcomp. "COMPONENT Vr Ip DiffServ Es BehaviorAggregate (Ba)"

Common Verbs
Help
List
Display

## GROUP Vr Ip DiffServ Es Provisioned (Prov)

Properties Provisioned

Description This group contains the provisioned attributes of the *EgressServices* component.

## ATTRIBUTE Vr Ip DiffServ Es behaviorAggregateMode (baMode)

Access Read and write

Description This attribute specifies the Behavior Aggregate (BA) classification and marking method applied to packets transmitted from any *IpPort* that uses the *DifferentiatedServices* component.

If this attribute is set to ***preserve***, then the DSCP field in the IP packet header is not modified.

If this attribute is set to ***translate***, then the DSCP field is marked according the *BehaviorAggregate* subcomponents of the *EgressServices* component, if they exist and there is a match; otherwise, the DSCP field is marked to 0. A match occurs if the DSCP of the packet is equal to one of the values specified by the *dscpToMatch* attribute of a *BehaviorAggregate* subcomponent. If a match occurs, then the DSCP of the packet is set equal to the value of the *dscpToMark* attribute of the *BehaviorAggregate* subcomponent where the match occurred. A warning is issued if there are no *BehaviorAggregate* subcomponents.

The new value of the DSCP field does not influence the

forwarding behavior of the packet as it continues to be processed by the *VirtualRouter*, but it may have significance at the next hop.

See the description of the *DifferentiatedServices* component for more information.

Values
preserve
translate

Default
preserve

## COMPONENT Vr Ip DiffServ Es BehaviorAggregate (Ba)

Instance
String (0..20, ASCII)

Groups
"GROUP Vr Ip DiffServ Es Ba Provisioned (Prov)"

Scope
Application

Description
*Vr/<string> Ip DiffServ/<string> Es BehaviorAggregate/ <string>*

This component specifies Behavior Aggregate (BA) criteria used to select IP packets transmitted at any *IpPort* that uses the *DifferentiatedServices* component. The DSCP field of each selected packet is set to a specified value.

Use of the attributes of this component is controlled by the *baMode* attribute on the *EgressServices* component.

Common Verbs
Help
List
Display
Add
DELete

## GROUP Vr Ip DiffServ Es Ba Provisioned (Prov)

Properties
Provisioned

Description
This group contains the provisioned attributes of the *EgressServices BehaviorAggregate* component.

### ATTRIBUTE Vr Ip DiffServ Es Ba dscpToMark (mark)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the DSCP marked into the packet header if the current value of DSCP field is included in the list specified by the *dscpToMatch* attribute.<br><br>No two *BehaviorAggregate* subcomponents under the same *EgressServices* component can have the same *dscpToMark* attribute value. |
| Values | Decimal (0..63)<br>df<br>ef<br>af11<br>af12<br>af13<br>af21<br>af22<br>af23<br>af31<br>af32<br>af33<br>af41<br>af42<br>af43<br>cs0<br>cs1<br>cs2<br>cs3<br>cs4<br>cs5<br>cs6<br>cs7 |
| Default | df |

### ATTRIBUTE Vr Ip DiffServ Es Ba dscpToMatch (match)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies a list of DSCP values for selecting IP packets transmitted from any *IpPort* that uses the |

*DifferentiatedServices*. The DSCP field of each selected packet is set to the value specified by the *dscpToMark* attribute. There must be at least one entry in this list.

No two *BehaviorAggregate* subcomponents under the same *EgressServices* component can have the same value contained in the list. In other words, the two *dscpToMatch* attributes must specify disjoint sets of DSCP values.

| | |
|---|---|
| List of | Decimal (0..63) |
| List Size | 64 |
| Default | No default |

## COMPONENT Vr Ip ForwardTable (Fwd)

| | |
|---|---|
| Instance | destAddress (addr) [IP address]<br>destMask (mask) [IP address]<br>typeOfService (tos) [Decimal (0..31)]<br>gateway (gateway) [IP address] |
| Groups | "GROUP Vr Ip Fwd Operational (Oper)" |
| Scope | Application |
| Description | *Vr/<string> Ip ForwardTable/<Ip Address>,<Ip Address>,<Decimal>,<IP Address>*<br>*Rtr/<string> ForwardTable/<Ip Address>,<Ip Address>,<Decimal>,<IP Address*<br>*Rtr/<string> Vrf/<string> ForwardTable/<Ip Address>,<Ip Address>,<Decimal>,<IP Address*<br>This component contains the information to forward data.This table holds the best route information sent from Routing table. |
| Common Verbs | Help<br>List<br>Display |

## GROUP Vr Ip Fwd Operational (Oper)

| | |
|---|---|
| Properties | Operational |

| | |
|---|---|
| Description | Identifies a group of operational attributes associated with each entry in the Forward Table. |

### ATTRIBUTE Vr Ip Fwd ifIndex

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the SNMP index associated with the protocol port or interface represented by the attribute *protocolPortName* or *interfaceName*, which identifies the local interface through which the next hop of this route should be reached. |
| Values | Decimal (1..65535) |
| Default | No default |

### ATTRIBUTE Vr Ip Fwd type

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the type of route. Note that ***localInterface*** refers to a route for which the next hop is the final destination; ***remoteDestination*** refers to a route for which the next hop is not the final destination. |
| Values | notDefined<br>invalid<br>localInterface<br>remoteDestination |
| Default | No default |

### ATTRIBUTE Vr Ip Fwd protocol

| | |
|---|---|
| Access | Read only |
| Description | This Attribute identifies the routing mechanism by which this route was learned. |
| Values | other<br>local<br>netmgmt<br>icmp<br>egp |

| | |
|---|---|
| | ggp<br>hello<br>rip<br>isIs<br>esIs<br>ciscoIgrp<br>bbnSpfIgp<br>ospf<br>bgp<br>idpr<br>mpls<br>mbgp<br>bgpMplsInternal |
| Default | No default |

### ATTRIBUTE Vr Ip Fwd age

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the number of seconds since this route was last updated or otherwise determined to be correct. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Fwd protocolPortName (pPName)

| | |
|---|---|
| Access | Read only |
| Description | For a *Vr*, this attribute indicates the name of the protocol port by which the next hop of this route should be reached. |
| Values | The name of the component |
| Default | No default |

### ATTRIBUTE Vr Ip Fwd nextHopAs

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the Autonomous System number of the Next Hop. If unknown or not relevant to the protocol indicated by the attribute *protocol*, the value should be zero. |

| | |
|---|---|
| Values | Decimal (0..429467295) |
| Default | No default |

### ATTRIBUTE Vr Ip Fwd metric

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the primary routing metric for this route. The semantics of this metric are determined by the routing protocol specified by the value of the attribute *protocol*. If this metric is not used, its value should be set to -1. |
| Values | Signed (-1..65535) |
| Default | -1 |

### ATTRIBUTE Vr Ip Fwd interfaceName

| | |
|---|---|
| Access | Read only |
| Description | For a *Rtr* or *Rtr Vrf*, this attribute indicates the name of the interface by which the next hop of this route should be reached. |
| Values | The name of the component |
| Default | No default |

## COMPONENT Vr Ip RouteDataBaseEntry (Rdb)

| | |
|---|---|
| Instance | destAddress (addr) [IP address]<br>destMask (mask) [IP address]<br>protocol (proto) [bogus<br>local<br>remote<br>special<br>ospf<br>ospfExternal<br>ospfType3Discard<br>ospfType7Discard<br>rip<br>ripDiscard<br>egp<br>bgpExternal<br>bgpInternal<br>bgpAggrDiscard<br>redistrib<br>mpls<br>mbgp<br>bgpMplsInternal<br>isis]<br>gateway [IP address] |
| Groups | "GROUP Vr Ip Rdb Operational (Oper)" |
| Scope | Application |
| Description | *Vr/<string> Ip RouteDataBaseEntry/ <destAddress>,<destMask>,<protocol>*<br>*Rtr/<string> RouteDatabaseEntry/ <destAddress>,<destMask>,<protocol>*<br>*Rtr/<string> Vrf/<string> RouteDatabaseEntry/ <destAddress>,<destMask>,<protocol>*<br>This component is used to display the information in the Ip routing database. *destAddress* and *destMask* indicates the address and mask of the route in the RoutingDatabase. *protocol* indicates the protocol this entry is learned from. *gateway* indicates the |

nextHop address for remote routes. The value of *gateway* for the localInterface routes will be the same value as the *destAddress*.

Common Verbs

Help
List
Display

## GROUP Vr Ip Rdb Operational (Oper)

Properties: Operational

Description: Identifies a group of operational attributes associated with each entry in the routing database.

## ATTRIBUTE Vr Ip Rdb metric

Access: Read only

Description: This attribute specifies the primary routing metric for this route. The semantics of this metric are determined by the routing protocol specified by the value of the index to this entry *protocol*. If this metric is not used, its value should be set to -1.

Values: Signed (-1..65535)

Default: -1

## ATTRIBUTE Vr Ip Rdb preference (pref)

Access: Read only

Description: This attribute specifies the the preference value of this particular entry. The value of this attribute affects the way the routeEntries in this database are selected for installing it in the *ForwardTable*. The lower the preference value of this entry, the higher are the chances that this entry will be selected to install in the *ForwardTable*.

Values: Decimal (0..255)

Default: No default

## ATTRIBUTE Vr Ip Rdb age

Access: Read only

| | |
|---|---|
| Description | This attribute specifies the number of seconds since this route was last updated or otherwise determined to be correct. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT Vr Ip IpInterfaceEntry (If)

| | |
|---|---|
| Instance | IP address |
| Groups | "GROUP Vr Ip If Operational (Oper)" |
| Scope | Application |
| Description | *Vr/<string> Ip InterfaceEntry/<IpAddr>*<br><br>This component contains information about all the provisioned *logicalIf* entries under all *ipPort* components. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Vr Ip If Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | Identifies a group of operational attributes associated with each entry in the Ip interface table. |

### ATTRIBUTE Vr Ip If interfaceMask (mask)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the mask for this interface entry. |
| Values | IP address |
| Default | No default |

### ATTRIBUTE Vr Ip If status

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute specifies the status of the provisioned Ip logicalInterface entry. A value of ***disabled*** is used when the parent components *Vr*, *Ip* or *ipPort* is in a disabled state. A value of ***up*** is used when the interface is in an operational state. A state of ***down*** is used if the media associated with this interface is not ready or disabled. |
| Values | up<br>down<br>disabled |
| Default | No default |

### ATTRIBUTE Vr Ip If pPName

| | |
|---|---|
| Access | Read only |
| Description | Indicates the name of the protocol port this logicalIfEntry belongs to. |
| Values | String (1..23, ASCII) |
| Default | No default |

### ATTRIBUTE Vr Ip If mediaType (type)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the media type of interface. When the interface is down, a value of none indicates the media stays down from the beginning. When the interface is down, a value of some valid media type indicates the media is brought down after it was up. Otherwise, when the interface is up or disabled, this attribute should reflect the proper media type of the interface. |
| Values | none<br>tokenRing<br>ethernet<br>fddi<br>x25<br>frameRelay<br>ppp<br>bnx<br>clusterBridge |

virtualLink
vcpEther
vcpToken
smds
atmMpeVcEncap
atmMpeLlcEncap
lecEther
lecToken
tunnel
virtual
localMedia

Default: No default

### ATTRIBUTE Vr Ip If hardwareAddress

Access: Read only

Description: This attribute specifies the hardware address of the media in canonical form if applicable. The non-canonical version of this address is indicated in *ncHardwareAddress*.

Values: String (0..8, Dashed Hex)

Default: No default

### ATTRIBUTE Vr Ip If mtu

Access: Read only

Description: This attribute specifies the maximum transmission unit applicable for this *logicalInterface*. A value of ***0*** is used for the interfaces where all the necessary information is not available to compute the mtu applicable for this interface.

Values: Decimal (0..0; 80..18944)

Default: No default

### ATTRIBUTE Vr Ip If broadcastAddress

Access: Read only

Description: This attribute indicates the destination IP address to be used by any application which needs to broadcast on this interface. The

value is determined by the corresponding *LogicalIf* component's *broadcastAddress* attribute.

Values: IP address

Default: No default

### ATTRIBUTE Vr Ip If ncHardwareAddress

Access: Read only

Description: This attribute is the non-canonical version of *hardwareAddress*. This attribute is not displayed for interfaces on non-LAN media.

Values: String (0..8, Dashed Hex)

Default: No default

### COMPONENT Vr Ip ExteriorGatewayProtocol (Egp)

Groups:
"GROUP Vr Ip Egp Provisioned (Prov)"
"GROUP Vr Ip Egp Statistics (Stats)"
"GROUP Vr Ip Egp OsiState (State)"
"GROUP Vr Ip Egp AdministrativeControl (AdminControl)"
"GROUP Vr Ip Egp OperationalStatus (OperStatus)"

Scope: Application

Description: *Vr/<string> Ip Egp*
This is used to run the Exterior Gateway Protocol for IP.

Opt. Subcomp.:
"COMPONENT Vr Ip Egp NeighborEntry (Nbr)"
"COMPONENT Vr Ip Egp Import"
"COMPONENT Vr Ip Egp Export"

Common Verbs:
Help
List
Display
Add
DELete
LOCK
Unlock

### GROUP Vr Ip Egp Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the EGP component |

### ATTRIBUTE Vr Ip Egp asId (as)

| | |
|---|---|
| Access | Read and write |
| Description | The autonomous system identifier for this EGP entity. The value of this *asId* can not be equal to the value of *EgpNeighborEntry asId.* |
| Values | Decimal (1..65535) |
| Default | No default |

### ATTRIBUTE Vr Ip Egp defaultHelloInterval (hello)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to configure the default hello interval for each neighbor. This attribute's value is used by the application for each *EgpNeighbor* whose *helloInterval* has not been set. |
| Values | Decimal (30..900) |
| Units | seconds |
| Default | 30 |

### ATTRIBUTE Vr Ip Egp defaultPollInterval (poll)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to configure the default polling interval for the EGP Neighbor. This attribute's value is used by the application for each *EgpNeighbor* whose *pollInterval* has not been set. |
| Values | Decimal (120..3600) |
| Units | seconds |
| Default | 120 |

### ATTRIBUTE Vr Ip Egp maxNatNets (maxNets)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to configure the maximum number of external natural networks this virtual router will be advertising via EGP. |
| Values | Decimal (1..65535) |
| Default | 500 |

### ATTRIBUTE Vr Ip Egp maxBufferSize (maxBuf)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum buffer size (in 1024 byte memory blocks) to be used for an EGP update to be sent. |
| Values | Decimal (2..16) |
| Units | Kbyte |
| Default | 4 |

### GROUP Vr Ip Egp Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | These set of attributes identifies the statistics for the EGP component. |

### ATTRIBUTE Vr Ip Egp inMsgs

| | |
|---|---|
| Access | Read only |
| Description | Identifies the number of EGP messages received without error. This counter will wraparound once the value reaches the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Egp inErrorMsgs

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | Identifies the sum of EGP error messages from all the neighbors. This counter will wraparound once the value reaches the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Egp outErrorMsgs

| | |
|---|---|
| Access | Read only |
| Description | Indicates the sum of Egp error messages sent to all the neighbors. This counter will wraparound once the value reaches the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Egp inErrors

| | |
|---|---|
| Access | Read only |
| Description | Identifies the number of EGP messages that proved to be in error. This counter will wraparound once the value reaches the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Egp outMsgs

| | |
|---|---|
| Access | Read only |
| Description | The total number of locally generated EGP messages. This counter will wraparound once the value reaches the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Egp outErrors

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | The number of EGP messages that were locally generated but were not sent out due to resource limitations within an EGP entity.This counter will wraparound once the value reaches the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Vr Ip Egp OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Vr Ip Egp adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |

| | |
|---|---|
| Default | unlocked |

### ATTRIBUTE Vr Ip Egp operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Vr Ip Egp usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Vr Ip Egp AdministrativeControl (AdminControl)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group includes the Administrative Control attribute. This attribute defines the current administrative state of this component. |

### ATTRIBUTE Vr Ip Egp snmpAdminStatus

| | |
|---|---|
| Access | Read and write |
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational and packet forwarding is allowed. The ***down*** state indicates the interface is not operational and packet forwarding is unavailable. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### GROUP Vr Ip Egp OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

### ATTRIBUTE Vr Ip Egp snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

## COMPONENT Vr Ip Egp NeighborEntry (Nbr)

| | |
|---|---|
| Instance | IP address |
| Groups | "GROUP Vr Ip Egp Nbr Provisioned (Prov)"<br>"GROUP Vr Ip Egp Nbr Operational (Oper)" |
| Scope | Application |
| Description | *Vr/<string> Ip Egp NeighborEntry/<Ip Address>*<br>This component identifies the properties of each EGP neighbor. The index value of this entry should belong to one of the subnets provisioned as *logicalIfEntry* under one of the *IpPort*. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Vr Ip Egp Nbr Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group of attributes identify the provisionable attributes for this EGP neighbor. |

## ATTRIBUTE Vr Ip Egp Nbr asId (as)

| | |
|---|---|
| Access | Read and write |
| Description | The autonomous system identifier of this EGP peer.<br>The value of this neighbor's *asId* should not be equal to the *asId* value of *Egp* entity |
| Values | Decimal (1..65535) |
| Default | No default |

## ATTRIBUTE Vr Ip Egp Nbr mode

| | |
|---|---|
| Access | Read and write |
| Description | This attribute will indicate whether this neighbor is being configured as an active or passive neighbor. |

| | |
|---|---|
| Values | active<br>passive |
| Default | active |

### ATTRIBUTE Vr Ip Egp Nbr generateDefaultRoute (default)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute distinguishes whether or not the default route should be generated. This route is put in the EGP update along with the normal EGP update routes when updates are sent to this EGP neighbor |
| Values | yes<br>no |
| Default | no |

### ATTRIBUTE Vr Ip Egp Nbr defaultRouteMetric

| | |
|---|---|
| Access | Read and write |
| Description | This attribute identifies the Metric to be used for propagating the “Default Route”. The value of *defaultRouteMetric* is used only in the case where the value of the attribute *generateDefaultRoute* is set to ***yes***. |
| Values | Decimal (0..255) |
| Default | 128 |

### ATTRIBUTE Vr Ip Egp Nbr defaultMetric (metric)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute identifies the default metric value for routes that are exported to this *EgpNeighbor*. This value is used when exporting routes to this neighbor and no *Export* policy applies a different metric. |
| Values | Decimal (0..255) |
| Default | 128 |

### ATTRIBUTE Vr Ip Egp Nbr helloInterval (helloInt)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute identifies the interval in seconds, between EGP hello command retransmissions. This is the P1 timer in the RFC904. This value may change in operation due to negotiations. |
| Values | Decimal (30..120) |
| Units | seconds |
| Default | 30 |

### ATTRIBUTE Vr Ip Egp Nbr pollInterval (pollInt)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute identifies the interval in seconds, between EGP poll command retransmissions. This is the P2 timer in the RFC904. This value may change in operation due to negotiations. |
| Values | Decimal (120..480) |
| Units | seconds |
| Default | 120 |

### GROUP Vr Ip Egp Nbr Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group of attributes identifies the operational set of attributes for the *NeighborEntry* component. |

### ATTRIBUTE Vr Ip Egp Nbr state

| | |
|---|---|
| Access | Read only |
| Description | This attribute describes the state of the local system with respect to this entry's EGP Neighbor. |
| Values | idle<br>acquisition<br>down<br>up<br>cease |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Vr Ip Egp Nbr inMsgs

| | |
|---|---|
| Access | Read only |
| Description | The number of EGP messages received without error from the EGP peer. This counter will wraparound once the value reaches the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Egp Nbr inErrors

| | |
|---|---|
| Access | Read only |
| Description | The number of messages received from this EGP peer that proved to be in error. This counter will wraparound once the value reaches the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Egp Nbr outMsgs

| | |
|---|---|
| Access | Read only |
| Description | The number of locally generated EGP messages for this EGP peer. This counter will wraparound once the value reaches the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Egp Nbr outErrors

| | |
|---|---|
| Access | Read only |
| Description | The number of locally generated EGP messages not sent to this EGP peer due to resource limitations within an EGP entity.This counter will wraparound once the value reaches the maximum value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Vr Ip Egp Nbr inErrorMsgs

| | |
|---|---|
| Access | Read only |
| Description | The number of EGP-defined error messages received from this EGP peer.This counter will wraparound once the value reaches the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Egp Nbr outErrorMsgs

| | |
|---|---|
| Access | Read only |
| Description | The number of EGP-defined error messages sent to this EGP peer.This counter will wraparound once the value reaches the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Egp Nbr stateUps

| | |
|---|---|
| Access | Read only |
| Description | The number of EGP state transitions to the UP state with this EGP peer. This counter will wraparound once the value reaches the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Egp Nbr stateDowns

| | |
|---|---|
| Access | Read only |
| Description | The number of EGP state transitions from the UP state to any other state with this EGP peer. This counter will wraparound once the value reaches the maximum value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Vr Ip Egp Nbr eventTrigger

| | |
|---|---|
| Access | Read only |
| Description | This attribute is used to control the state of the Neighbor. It is not allowed to change.<br>This attribute from SNMP perspective deviates from MIB that it is made READONLY. |
| Values | start<br>stop |
| Default | start |

### COMPONENT Vr Ip Egp Import

| | |
|---|---|
| Instance | Decimal (0..65535) |
| Groups | "GROUP Vr Ip Egp Import Provisioned (Prov)" |
| Scope | Application |
| Description | *Vr/<string> Ip Egp Import/n*<br>This component controls the functionality of route leaking. In other words, this component will determine what routes are used by EGP. |
| Opt. Subcomp. | "COMPONENT Vr Ip Egp Import Network (Net)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Vr Ip Egp Import Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | These set of attributes describe the provisionable attributes for the import component. |

## ATTRIBUTE Vr Ip Egp Import usageFlag (usage)

| | |
|---|---|
| Access | Read and write |
| Description | This flag will determine whether or not EGP will use or ignore information in updates received. If the attribute *nbrAsId* is not specified or any of the *NetworkList* components are not added, then this attribute when set to ***ignore*** will ignore all incoming information. |
| Values | use<br>ignore |
| Default | use |

## ATTRIBUTE Vr Ip Egp Import importMetric (metric)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to set the metric value to be included in the routing table for any routes sent because this particular import instance was it's "best match" policy.<br>However this attribute is not a selection key. It should not ***use*** or ***ignore*** a particular metric value. If the value for this attribute is not specified, then the metric value received in an Egp update will be used.<br><br>Note:<br><br>When setting this value, caution should be taken to set the metric value in all relevant *Import* components to make sure that all matching policies for a given route have the same metric set. This will insure that there are no situations where a specific metric was desired, but doesn't get used in the update because the "best match" policy for that situation did not set the metric parameter.<br><br>If the attribute *usageFlag* for this import policy is set to ***ignore***, then the *importMetric* value will be ignored by the application. The *importMetric* value is not used to select which routes to use or ignore but is used to set the metric value for the routes being imported. A value of zero indicates that the metric received in the update will be used. |
| Values | Decimal (0..255) |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE Vr Ip Egp Import nbrAsId (nbrAs)

| | |
|---|---|
| Access | Read and write |
| Description | The autonomous system Id this import policy will apply to.<br>Note: The Valid value of an *asId* is from 1 to 65,535.<br>This attribute's value when set to 0 will be ignored. |
| Values | Decimal (0..65535) |
| Default | No default |

### COMPONENT Vr Ip Egp Import Network (Net)

| | |
|---|---|
| Instance | Decimal (0..65535) |
| Groups | "GROUP Vr Ip Egp Import Net Provisioned (Prov)" |
| Scope | Application |
| Description | *Vr/<string> Ip Egp Import/<Decimal> NetworkList/<Decimal>*<br>This is an optional subcomponent of Import and identifies a set of networks that this import policy will apply to. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Vr Ip Egp Import Net Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group identifies attributes for the NetworkList component for which the import policy will be applied to |

### ATTRIBUTE Vr Ip Egp Import Net ipAddress (addr)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute identifies the IP address that needs to be matched against in this network list for the Import policy to be applied to. |

| | |
|---|---|
| Values | IP address |
| Default | No default |

### COMPONENT Vr Ip Egp Export

| | |
|---|---|
| Instance | Decimal (0..65535) |
| Groups | "GROUP Vr Ip Egp Export Provisioned (Prov)" |
| Scope | Application |
| Description | *Vr/<string> Ip Egp Export/n*<br>Each instance of this component specifies an EGP export policy. An EGP export policy is used to decide if a route in the IP forwarding table should be blocked or advertised as EGP routes onto one or all attached EGP autonomous systems of the virtual router.<br>Passport IP EGP by default advertises all local routes to all attached EGP autonomous systems using the metric 128. |
| Opt. Subcomp. | "COMPONENT Vr Ip Egp Export Network (Net)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Vr Ip Egp Export Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all the provisioned attributes for the *Export* component. |

### ATTRIBUTE Vr Ip Egp Export advertiseStatus (advertise)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies if the routes that match this export policy are advertised (***send***) or not advertised (***block***). |
| Values | send<br>block |

Default send

### ATTRIBUTE Vr Ip Egp Export exportMetric (metric)

Access Read and write

Description This attribute specifies the metric to be used on the routes being exported as a result of matching this export policy.
If the attribute *advertiseStatus* is set to ***block***, then the value of *exportMetric* is ignored. The *exportMetric* value is not used to select which routes to block or send, but rather the metric value advertised for the routes.
A value of 0 indicates that the metric associated with the route in the forwarding table is used.

Values Decimal (0..255)

Default 0

### ATTRIBUTE Vr Ip Egp Export protocol

Access Read and write

Description This attribute specifies the routes to which this export policy applies based on the routing protocol of how the routes are learned. If it is set to ***all***, this export policy applies to all routes in the forwarding table.

Values all
egp
rip
ospfInternal
ospfExternal
staticLocal
staticRemote

Default all

### ATTRIBUTE Vr Ip Egp Export ripInterface (ripIf)

Access Read and write

Description This attribute specifies the RIP learned routes to which this export policy applies, based on the RIP interface from which the routes are learned.
This attribute can only be non zero when the *protocol* is set to

***rip***. The value of 0.0.0.0 implies any RIP interface on the same virtual router; otherwise the value of this attribute must match the interface address of a *LogicalIf* that has a *RipIf* on the same virtual router.

Values — IP address

Default — 0.0.0.0

### ATTRIBUTE Vr Ip Egp Export ripNeighbor (ripNbr)

Access — Read and write

Description — This attribute specifies the RIP learned routes to which this export policy applies, based on the RIP neighbor of which the routes are learned from.
This attribute can only be non zero when the *protocol* is set to ***rip***. The value of 0.0.0.0 implies any RIP neighbor.

Values — IP address

Default — 0.0.0.0

### ATTRIBUTE Vr Ip Egp Export inEgpAsId (inAs)

Access — Read and write

Description — This attribute specifies the EGP learned routes to which this export policy applies, based on the EGP autonomous system identifier of which the routes are learned from.
This attribute can only be non zero when *protocol* is set to ***egp***. The value of 0 implies any EGP autonomous system; otherwise the value of this attribute must match the *asId* of an EGP neighbor on the same virtual router.

Values — Decimal (0..65535)

Default — 0

### ATTRIBUTE Vr Ip Egp Export ospfTag (tag)

Access — Read and write

Description — This attribute specifies the OSPF learned external routes to which this export policy applies, based on the learned OSPF tag of the routes.

This attribute can only be set to a non default value when *protocol* is set to ***ospfExternal***. The value of 4294967295 implies any tag.

Values: Decimal (0..4294967295)

Default: 4294967295

## ATTRIBUTE Vr Ip Egp Export outAutonomousSystem (outAs)

Access: Read and write

Description: This attribute specifies the EGP autonomous system to which routes are exported to as a result of matching this export policy. If the attribute *advertiseStatus* is set to ***block***, then the value of *outAutonomousSystem* is ignored. The *outAutonomousSystem* value is not used to select which routes to block or send but where to export the routes.
A value of 0 indicates that the routes are exported to all EGP autonomous systems of which the virtual router is a neighbor. Otherwise, the value of this attribute must match the *asId* of an EGP neighbor on the same virtual router.

Values: Decimal (0..65535)

Default: 0

## COMPONENT Vr Ip Egp Export Network (Net)

Instance: Decimal (0..65535)

Groups: "GROUP Vr Ip Egp Export Net Provisioned (Prov)"

Scope: Application

Description: *Vr/<string> Ip Egp Export/<Decimal> NetworkList/<Decimal>*
This component identifies a set of attributes when matched determines the export policy applied.

Common Verbs:
- Help
- List
- Display
- Add
- DELete

## GROUP Vr Ip Egp Export Net Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group identifies the set of provisionable attributes for the *ExportNetworkList* component. |

## ATTRIBUTE Vr Ip Egp Export Net ipAddress (addr)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute identifies the 32 bit IP address to match against. |
| Values | IP address |
| Default | No default |

## COMPONENT Vr Ip Ospf (Ospf)

| | |
|---|---|
| Groups | "GROUP Vr Ip Ospf Provisioned (Prov)"<br>"GROUP Vr Ip Ospf Operational (Oper)"<br>"GROUP Vr Ip Ospf OsiState (State)"<br>"GROUP Vr Ip Ospf OperationalStatus (OperStatus)" |
| Scope | Application |
| Description | *Vr/<string> Ip Ospf*<br>*Rtr/<string> Ospf*<br>*Rtr/<string> Vrf/<string> Ospf*<br>This component is configured to control the Open Shortest Path First IP routing protocol. |

| | |
|---|---|
| Opt. Subcomp. | "COMPONENT Vr Ip Ospf AreaEntry (Area)"<br>"COMPONENT Vr Ip Ospf StubAreaEntry (Stub)"<br>"COMPONENT Vr Ip Ospf AreaAggregateEntry (Aggregate)"<br>"COMPONENT Vr Ip Ospf HostEntry (Host)"<br>"COMPONENT Vr Ip Ospf VirtIfEntry (VirtIf)"<br>"COMPONENT Vr Ip Ospf Export" |
| Dyn. Subcomp. | "COMPONENT Vr Ip Ospf VirtNbrEntry (VirtNbr)"<br>"COMPONENT Vr Ip Ospf NeighborEntry (Nbr)"<br>"COMPONENT Vr Ip Ospf LsdbEntry (Lsdb)"<br>"COMPONENT Vr Ip Ospf ExtLsdbEntry (ExtLsdb)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP Vr Ip Ospf Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group of attributes are used to configure the OSPF component. |

## ATTRIBUTE Vr Ip Ospf routerId (id)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is an Ip Address that uniquely identifies the router in the autonomous system. |
| Values | IP address |
| Default | No default |

## ATTRIBUTE Vr Ip Ospf snmpAdminStatus

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | The administrative status of the OSPF Component in this routing component (*Vr*, *Rtr* or *Vrf*). |
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE Vr Ip Ospf asBdrRtrStatus (asBr)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is a flag to note whether this router is an autonomous system border router. If this router is configured to export any routes learned from other than OSPF-internal protocol, this attribute should be configured as autonomous system border router. |
| Values | true<br>false |
| Default | false |

### ATTRIBUTE Vr Ip Ospf tosSupport

| | |
|---|---|
| Access | Read and write |
| Description | The router's support for type-of-service routing. Only one value will be allowed. This is a deviation from supporting the MIB. |
| Values | false |
| Default | false |

### ATTRIBUTE Vr Ip Ospf extLsdbLimit

| | |
|---|---|
| Access | Read and write |
| Description | The maximum number of external link-state entries that can be stored in the link-state database. If the value is -1, then there is no limit,<br>that is the maximum number of external OSPF routes that this autonomous system border router will originate.<br>It will begin to flush LSA(Link State Advertisement)s, if an ASBR might receive bursts of external routes (for example, a |

regional network), then the parameter should be configured to a reasonable level. If there are less than two thousand routes and large bursts are unlikely, then the default should be adequate. This parameter will not affect the number of external OSPF routes a router will store in it's database.

Values: Signed (-1..2147483647)

Default: -1

### ATTRIBUTE Vr Ip Ospf multicastForward

Access: Read and write

Description: A bit mask indicating the limits on Network Layer Multicast(class D) forwarding. It is represented as a sum of the following:
if intra-Area forwarding is permitted, 1; else 0
if inter-Area forwarding is permitted 2; else 0
if inter-AS forwarding is permitted, 4; else 0
Only the value of 0 is being supported and this is a MIB deviation.

Values: Decimal (0..0)

Default: 0

### ATTRIBUTE Vr Ip Ospf migrateRip

Access: Read and write

Description: This Attribute sets the preference level of OSPF-internal routes to be less preferred than RIP.
This Parameter should only be used when starting migration of network from RIP to OSPF. When ready to cutover to OSPF, set this attribute disabled and run under normal preferences. All OSPF routers in the Autonomous System should be running with *migraterip* ***enabled*** or with *migraterip* ***disabled*** to prevent routing loops. It is important that the changeover period from RIP to OSPF be performed quickly on all OSPF routers so that no routing loops are formed. These routing loops could be caused by conflicts in the internal RIP and OSPF databases.

| | |
|---|---|
| Values | enabled<br>disabled |
| Default | disabled |

### ATTRIBUTE Vr Ip Ospf generateDefaultRouteMetric (genDefaultMetric)

| | |
|---|---|
| Access | Read and write |
| Description | If this router is configured as an autonomous system border router, then this attribute causes the default route to be generated with a metric value equal to *generateDefaultRouteMetric* value. This route is put in the OSPF update along with the normal update routes when updates are sent to the neighbors. No default route will be generated if the value is 0. |
| Values | Signed (-1..65535) |
| Default | 0 |

### ATTRIBUTE Vr Ip Ospf redistributeIbgp (ribgp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether the export policies of this *Ospf* instance can match routes learned from internal BGP (IBGP) peers when their *protocol* attribute value is ***all***. If *redistributeIbgp* is ***true***, a *protocol* value of ***all*** allows routes learned from IBGP peers to be included in the matching routes. If *redistributeIbgp* is ***false***, routes learned from IBGP peers are excluded when the *protocol* value is ***all***. To cause IBGP routes to be considered in this case, the *protocol* value must be set to ***bgpInternal***. |
| Values | true<br>false |
| Default | false |

### ATTRIBUTE Vr Ip Ospf estimatedNumberOfInternalOSPFRoutes

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the average estimated number of routes in the autonomous system that this OSPF instance will have to keep track of. If this value is provisioned too low it will cause |

| | |
|---|---|
| | increased CPU utilization due to dynamic memory allocation. If this value is provisioned too high the result is wasted memory. |
| Values | Decimal (0..65535) |
| Default | 500 |

### ATTRIBUTE Vr Ip Ospf estimatedNumberOfExternalOSPFRoutes

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the average estimated number of routes external to the autonomous system that this OSPF instance will have to keep track of. If this value is provisioned too low it will cause increased CPU utilization due to dynamic memory allocation. If this value is provisioned too high the result is wasted memory. |
| Values | Decimal (0..65535) |
| Default | 500 |

### ATTRIBUTE Vr Ip Ospf estimatedNumberOfAreas

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the average estimated number of areas in the autonomous system that this OSPF instance will have to keep track of. |
| Values | Decimal (0..65535) |
| Default | 2 |

### ATTRIBUTE Vr Ip Ospf estimatedNumberOfInterfacesPerArea

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the average estimated number of interfaces in a given area that this OSPF instance will have to keep track of. |
| Values | Decimal (0..65535) |
| Default | 10 |

### ATTRIBUTE Vr Ip Ospf estimatedNumberOfNeighborsPerInterface

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the average estimated number of neighbors that a given interface will have on it in this OSPF interface. |
| Values | Decimal (0..65535) |
| Default | 3 |

### ATTRIBUTE Vr Ip Ospf defaultOspfIntRtePreference (ospfIntPref)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies this *OSPF* component instance's default routing preference assigned to the OSPF internal routes. A lower value indicates a more preferred route. |
| Values | Decimal (1..254) |
| Default | 30 |

### ATTRIBUTE Vr Ip Ospf defaultOspfExt1RtePreference (ospfExt1Pref)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies this *OSPF* component instance's default routing preference assigned to the OSPF external type 1 routes. A lower value indicates a more preferred route. |
| Values | Decimal (1..254) |
| Default | 80 |

### ATTRIBUTE Vr Ip Ospf defaultOspfExt2RtePreference (ospfExt2Pref)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies this *OSPF* component instance's default routing preference assigned to the OSPF external type 2 routes. A lower value indicates a more preferred route. |
| Values | Decimal (1..254) |
| Default | 120 |

## ATTRIBUTE Vr Ip Ospf opaqueCapability (opcap)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether the OSPF instance is allowed to participate in flooding Opaque LSAs. Such LSAs are also stored in the InwOspfLsdbEntry. Applications, such as MPLS Traffic Engineering, use this mechanism to flood their information throughout a network. Of the three Opaque LSA types (9,10,11), only type 10 LSAs (area scope) are supported.The OSPF instance remains fully inter-operable with non-opaque-capable neighbors. Opaque capability is not fully supported. When the ***mplsTeEmulation*** feature is provisioned, setting this attribute to ***true*** activates hooks to emulate TE capability by flooding hardcoded type 10 TE LSAs to opaque-capable neighbors. This emulated TE functionality is not standards compliant and is strictly provided for MPLS RSVP-TE interoperability with vendors that are dependent on MPLS TE to establish LSPs. |
| Values | true<br>false |
| Default | false |

## ATTRIBUTE Vr Ip Ospf spareInstance (spInst)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether to maintain a copy of the link state database on the standby card. When this attribute is set to ***disable***, OSPF does not maintain a copy of the link state database.<br><br>If the *virtualRouterProcessor* attribute of this *VirtualRouter* is set to ***Lp/0***, then the following conditions must both be true for a copy of the link-state database to be maintained on the standby CP:<br><br>- This attribute must be set to ***enable***, and<br><br>- The *Shelf cpEquipmentProtection* attribute must be set to ***hot***. |

| | |
|---|---|
| Values | enable<br>disable |
| Default | disable |

### ATTRIBUTE Vr Ip Ospf spfHoldTime (spfTime)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the minimum time interval between spf calculations. If a link state change in the autonomous system is detected, and the time since the last spf calculation is greater than *spfHoldTime*, then the spf calculation starts immediately. Otherwise, the spf calculation waits until a time of at least *spfHoldTime* has elapsed since the previous spf calculation.<br><br>Setting this attribute to a lower value decreases convergence time in the OSPF autonomous system, but uses more CPU resource more frequently. Setting this attribute to a higher value increases convergence time but provides for a more scalable node configuration, especially if there are many *Ospf* components configured on the node. |
| Values | Decimal (1..60) |
| Units | seconds |
| Default | 1 |

### ATTRIBUTE Vr Ip Ospf alarmGeneration (alarms)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the level of alarm generation for this *Ospf* instance.<br><br>A value of ***all*** specifies that all OSPF alarms are made visible.<br><br>A value of ***normal*** specifies that all existing OSPF alarms are made visible, except *Ospf NeighborEntry* state change alarms.<br><br>A value of ***none*** specifies that no OSPF alarms are made visible.<br><br>It is recommended that *VirtualRouter* components with the |

*vpnMode* attribute set to ***carrier*** should have the *alarmGeneration* attribute set to ***all***. *VirtualRouter* components with the *vpnMode* attribute set to ***customer*** should have the *alarmGeneration* attribute set to either ***normal*** or ***none***, for scalability reasons. Similarly, the *alarmGeneration* attribute should be set to ***all*** for *Router*. The *alarmGeneration* attribute should be set to either ***normal*** or ***none*** for *Vrf* for scalability reasons.

Values
none
normal
all

Default
all

### ATTRIBUTE Vr Ip Ospf ecmpStatus

Access
Read and write

Description
This attribute specifies whether the Equal Cost Multi-Path (ECMP) functionality is enabled or not in the network meaning that the number of next hops for one route learned through OSPF depend on the value of *ecmpStatus*. If *ecmpStatus* is ***enabled,*** a maximum of three next hops are kept for one route. If it is ***disabled***, one next hop is kept for that route.

Values
enabled
disabled

Default
enabled

### GROUP Vr Ip Ospf Operational (Oper)

Properties
Operational

Description
These group of attributes identifies the operational attributes for this OSPF Component.

### ATTRIBUTE Vr Ip Ospf versionNumber (ver)

Access
Read only

Description
The Current Version number of the OSPF Protocol. (2).

Values
Decimal (2..2)

| | |
|---|---|
| Default | 2 |

### ATTRIBUTE Vr Ip Ospf areaBdrRtrStatus

| | |
|---|---|
| Access | Read only |
| Description | This attribute is used to specify whether this router is configured as an area border router. |
| Values | true<br>false |
| Default | No default |

### ATTRIBUTE Vr Ip Ospf externLsaCount

| | |
|---|---|
| Access | Read only |
| Description | The number of external (LS type 5) link-state advertisements in the link-state database. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ip Ospf externLsaChecksumSum

| | |
|---|---|
| Access | Read only |
| Description | The 32-bit unsigned sum of the LS checksums of the external link-state database. This sum can be used to determine if there has been a change in a router's link state database, and to compare the link-state database of two routers. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Ospf originateNewLsas

| | |
|---|---|
| Access | Read only |
| Description | The number of new link-state advertisements that have been originated. This number is incremented each time the router originates a new LSA. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Vr Ip Ospf rxNewLsas

| | |
|---|---|
| Access | Read only |
| Description | The number of link-state advertisements received determined to be new instantiations. This number does not include newer instantiations of self-originated link-state advertisements. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP Vr Ip Ospf OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Vr Ip Ospf adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is |

administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Vr Ip Ospf operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Vr Ip Ospf usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

| | |
|---|---|
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Vr Ip Ospf OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

### ATTRIBUTE Vr Ip Ospf snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### COMPONENT Vr Ip Ospf AreaEntry (Area)

| | |
|---|---|
| Instance | IP address |
| Groups | "GROUP Vr Ip Ospf Area Provisioned (Prov)"<br>"GROUP Vr Ip Ospf Area Operational (Oper)" |
| Scope | Application |
| Description | *Vr/<string> Ip Ospf AreaEntry/<Ip Address>*<br>*Rtr/<string> Ospf AreaEntry/<Ip Address>*<br>*Rtr/<string> Vrf/<string> Ospf AreaEntry/<Ip Address>*<br>This component contains the information about various areas that the router is connected to. |

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Vr Ip Ospf Area Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group describes the set of provisionable attributes for the AreaEntry Component. |

### ATTRIBUTE Vr Ip Ospf Area authType

| | |
|---|---|
| Access | Read and write |
| Description | The authentication type specified for this area. |
| Values | none<br>simplePassword |
| Default | none |

### ATTRIBUTE Vr Ip Ospf Area importAsExtern

| | |
|---|---|
| Access | Read and write |
| Description | The area's support for importing AS external link-state advertisements. For backbone area (that is, areaId 0.0.0.0), this attribute must be set to ***importExternal***. |
| Values | importExternal (external)<br>importNoExternal (noExternal)<br>importNssa (nssa) |
| Default | importExternal |

### ATTRIBUTE Vr Ip Ospf Area areaSummary

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This variable controls the import of summary LSAs into stub areas. If it is ***noAreaSummary***, the router will neither originate nor propagate summary LSAs into the stub areas. It will rely entirely on its default route. If it is ***sendAreaSummary***, the router will both summarize and propagate summary LSAs. |
| Values | noAreaSummary<br>sendAreaSummary |
| Default | noAreaSummary |

### GROUP Vr Ip Ospf Area Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group of attributes describes the Operational set of attributes for the AreaEntry component. |

### ATTRIBUTE Vr Ip Ospf Area spfRuns

| | |
|---|---|
| Access | Read only |
| Description | The number of times that the intra-area route table has been calculated using this area's link-state database since the protocol became operational. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Ospf Area areaBdrRtrCount

| | |
|---|---|
| Access | Read only |
| Description | The total number of area border routers reachable within this area. This is initially zero, and is calculated in each Shortest Path First Pass. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Ospf Area asBdrRtrCount

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | The total number of Autonomous System border routers reachable within this area. This is initially zero, and is calculated in each Shortest Path First Pass. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Ospf Area lsaCount

| | |
|---|---|
| Access | Read only |
| Description | The total number of link-state advertisements in this area's link-state database, excluding AS External LSA's. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Ospf Area areaLsaCksumSum

| | |
|---|---|
| Access | Read only |
| Description | The 32-bit unsigned sum of the link-state advertisement's LS checksums contained in this area's link-state database. This sum excludes external (LS type 5) link-state advertisements. The sum can be used to determine if there has been a change in a router's link state database, and to compare the link-state database of two routers. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT Vr Ip Ospf StubAreaEntry (Stub)

| | |
|---|---|
| Instance | areaId [IP address]<br>tos [Decimal (0..0)] |
| Groups | "GROUP Vr Ip Ospf Stub Provisioned (Prov)" |
| Scope | Application |
| Description | *Vr/<string> Ip Ospf StubAreaEntry/<Ip Address>,<Decimal>*<br>*Rtr/<string> Ospf StubAreaEntry/<Ip Address>,<Decimal>*<br>*Rtr/<string> Vrf/<string> Ospf StubAreaEntry/<Ip Address>,<Decimal>* |

This component describes metrics that a default area border router will advertise into a stub area.

Common Verbs

Help
List
Display
Add
DELete

## GROUP Vr Ip Ospf Stub Provisioned (Prov)

Properties: Provisioned

Description: These set of attributes explain the provisionable group for the *StubAreaEntry.*

## ATTRIBUTE Vr Ip Ospf Stub metric (metric)

Access: Read and write

Description: The metric value applied at the indicated type of service.

Values: Decimal (1..4294967295)

Default: 1

## ATTRIBUTE Vr Ip Ospf Stub metricType

Access: Read and write

Description: This type of the metric advertised as a default route.

Values:
ospfMetric
comparableCost
nonComparable

Default: ospfMetric

## ATTRIBUTE Vr Ip Ospf Stub advertiseDefault

Access: Read and write

Description: This attribute determines whether or not the default routing information will be advertised, depending on other criterion. Setting this value to ***no*** can prevent advertising default routing information.

If the value of the attribute is set to ***yes***, then the value of the attribute *importAsExtern* for that particular *AreaEntry* should be set to ***importNssa***.

Values
yes
no

Default
yes

## COMPONENT Vr Ip Ospf AreaAggregateEntry (Aggregate)

Instance
areaId [IP address]
lsdbType [summaryLink
nssaExternalLink]
aggregateNet [IP address]
aggregateMask [IP address]

Groups
"GROUP Vr Ip Ospf Aggregate Provisioned (Prov)"

Scope
Application

Description
*Vr/<string> Ip Ospf AreaAggregateEntry/<Ip Address>,<enum>,*
*<Ip Address>,<Ip Address>*
*Rtr/<string> Ospf AreaAggregateEntry/<Ip Address>,<enum>,*
*<Ip Address>,<Ip Address>*
*Rtr/<string> Vrf/<string> Ospf AreaAggregateEntry/<Ip Address>,<enum>,<Ip Address>,<Ip Address>*
This table entry replaces the Area Summary table from RFC1253 and is used as an extension for CIDR support.

Common Verbs
Help
List
Display
Add
DELete

## GROUP Vr Ip Ospf Aggregate Provisioned (Prov)

Properties
Provisioned

Description
Identifies a group of provisionable attributes.

## ATTRIBUTE Vr Ip Ospf Aggregate effect

| | |
|---|---|
| Access | Read and write |
| Description | This attribute determines whether or not the routing information will be advertised, depending on other criterion. Setting this value to ***doNotAdvertiseMatching*** can prevent advertising routing information for the address and mask values specified as the indices for this entry. |
| Values | advertiseMatching<br>doNotAdvertiseMatching<br>invalid |
| Default | advertiseMatching |

## COMPONENT Vr Ip Ospf HostEntry (Host)

| | |
|---|---|
| Instance | address [IP address]<br>tos [Decimal (0..0)] |
| Groups | "GROUP Vr Ip Ospf Host Provisioned (Prov)" |
| Scope | Application |
| Description | *Vr/<string> Ip Ospf HostEntry/<Ip Address>,<Decimal>*<br>*Rtr/<string> Ospf HostEntry/<Ip Address>,<Decimal>*<br>*Rtr/<string> Vrf/<string> Ospf HostEntry/<Ip Address>,<Decimal>*<br>This component indicates what hosts are directly attached to the router, and what metrics and types of service should be advertised for them. This component is an optional subcomponent of Ospf. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Vr Ip Ospf Host Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | Provisionable set of attributes for the Host entry. |

### ATTRIBUTE Vr Ip Ospf Host areaId

| | |
|---|---|
| Access | Read and write |
| Description | This is an Ip address for the Host Entry that indicates the area it belongs to. |
| Values | IP address |
| Default | No default |

### ATTRIBUTE Vr Ip Ospf Host metric

| | |
|---|---|
| Access | Read and write |
| Description | The metric to be advertised. |
| Values | Decimal (1..65535) |
| Default | 1 |

### COMPONENT Vr Ip Ospf VirtIfEntry (VirtIf)

| | |
|---|---|
| Instance | areaId [IP address]<br>nbrRouterId [IP address] |
| Groups | "GROUP Vr Ip Ospf VirtIf Provisioned (Prov)"<br>"GROUP Vr Ip Ospf VirtIf Operational (Oper)" |
| Scope | Application |
| Description | *Vr/<string> Ip Ospf VirtIfEntry/<Ip Address>,<Ip Address>*<br>*Rtr/<string> Ospf VirtIfEntry/<Ip Address>,<Ip Address>*<br>*Rtr/<string> Vrf/<string> Ospf VirtIfEntry/<Ip Address>,<Ip Address>*<br>This component describes all the virtual links configured for this OSPF Router. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Vr Ip Ospf VirtIf Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group of attributes provide provisioning data for the *VirtIfEntry.* |

## ATTRIBUTE Vr Ip Ospf VirtIf transitDelay (transDelay)

| | |
|---|---|
| Access | Read and write |
| Description | The estimated number of seconds it takes to transmit a link-state update packet over this interface. |
| Values | Decimal (1..3600) |
| Units | seconds |
| Default | 1 |

## ATTRIBUTE Vr Ip Ospf VirtIf retransInterval (retransInt)

| | |
|---|---|
| Access | Read and write |
| Description | The number of seconds between link-state advertisement retransmissions, for adjacencies belonging to this interface. This value is also used when retransmitting database description and link-state request packets. This value would be well over the expected round-trip time. |
| Values | Decimal (1..3600) |
| Units | seconds |
| Default | 5 |

## ATTRIBUTE Vr Ip Ospf VirtIf helloInterval (helloInt)

| | |
|---|---|
| Access | Read and write |
| Description | The length of time, in seconds, between the Hello packets that the router sends on the interface. This value must be the same for the virtual neighbor. |
| Values | Decimal (1..3600) |
| Units | seconds |

| | |
|---|---|
| Default | 10 |

### ATTRIBUTE Vr Ip Ospf VirtIf rtrDeadInterval (rtrDeadInt)

| | |
|---|---|
| Access | Read and write |
| Description | The number of seconds that a router's Hello packets have not been seen before its neighbors declare the router down. This should be some multiple of the Hello interval. This value must be the same for the virtual neighbor. |
| Values | Decimal (1..3600) |
| Units | seconds |
| Default | 60 |

### ATTRIBUTE Vr Ip Ospf VirtIf authKey

| | |
|---|---|
| Access | Write only |
| Description | If authentication type is simple password, the password for this virtual circuit. If the value of the attribute is not set, then this attribute is ignored by the application.<br>If the value of this attribute is set, then the value of the attribute *authType* under this particular *Area* should be set to ***simplePassword***, otherwise the application will ignore this authentication key. |
| Values | String (1..8, Hex) |
| Default | 0000000000000000 |

### GROUP Vr Ip Ospf VirtIf Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | Represents a group of operational attributes for the *VirtIfEntry* component. |

### ATTRIBUTE Vr Ip Ospf VirtIf state (state)

| | |
|---|---|
| Access | Read only |
| Description | The state of the OSPF virtual interface. |

| | |
|---|---|
| Values | down<br>pointToPoint |
| Default | No default |

### ATTRIBUTE Vr Ip Ospf VirtIf events (events)

| | |
|---|---|
| Access | Read only |
| Description | The number of state changes or error events on the virtual link. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT Vr Ip Ospf Export

| | |
|---|---|
| Instance | Decimal (0..65535) |
| Groups | "GROUP Vr Ip Ospf Export Provisioned (Prov)" |
| Scope | Application |
| Description | *Vr/<string> Ip Ospf Export/n*<br>*Rtr/<string> Ospf Export/n*<br>*Rtr/<string> Vrf/<string> Ospf Export/n*<br>Each instance of this component specifies an OSPF export policy. An OSPF export policy is used to decide if a route in the IP forwarding table should be blocked or advertised as OSPF external routes onto attached OSPF areas of the routing component (*Vr*, *Rtr* or *Vrf*).<br>Passport IP OSPF by default advertises all OSPF external routes based on the metric and tag in the IP forwarding table. |
| Opt. Subcomp. | "COMPONENT Vr Ip Ospf Export NetworkList (NetList)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Vr Ip Ospf Export Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |

| | |
|---|---|
| Description | This Group contains all the Provisioned attributes for the Export Component. |

### ATTRIBUTE Vr Ip Ospf Export advertiseStatus (advertise)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies if the routes that match this export policy are advertised (***send***) or not advertised (***block***). |
| Values | send<br>block |
| Default | send |

### ATTRIBUTE Vr Ip Ospf Export metric (metric)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the metric to be used on the routes being exported as a result of matching this export policy.<br>If the attribute *advertiseStatus* is set to ***block***, then the value of *metric* is ignored. The *metric* value is not used to select which routes to block or send, but rather the metric value advertised for the routes.<br>A value of -1 indicates that the metric associated with the route in the forwarding table is used. |
| Values | Signed (-1..16777215) |
| Default | -1 |

### ATTRIBUTE Vr Ip Ospf Export protocol

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the routes to which this export policy applies based on the routing protocol of how the routes are learned. If the value is ***all***, the policy applies to all routes in the forwarding table, with the following exceptions: external BGP routes are always excluded and internal BGP routes are excluded if the parent *Ospf* component's *reDistributeIBGP* attribute has the value ***false***. |
| Values | all<br>egp |

rip
staticLocal
staticRemote
bgpInternal
bgpExternal
mbgp
bgpMplsInternal

Default: all

### ATTRIBUTE Vr Ip Ospf Export ripInterface (ripIf)

Access: Read and write

Description: This attribute specifies the RIP learned routes to which this export policy applies, based on the RIP interface from which the routes are learned.
This attribute can only be non zero when the *protocol* is set to ***rip***. The value of 0.0.0.0 implies any RIP interface on the same routing component (*Vr*, *Rtr* or *Vrf*); otherwise the value of this attribute must match the interface address of an *Interface* or a *LogicalIf* that has a *RipIf* on the same routing component.

Values: IP address

Default: 0.0.0.0

### ATTRIBUTE Vr Ip Ospf Export ripNeighbor (ripNbr)

Access: Read and write

Description: This attribute specifies the RIP learned routes to which this export policy applies, based on the RIP neighbor of which the routes are learned from.
This attribute can only be non zero when the *protocol* is set to ***rip***. The value of 0.0.0.0 implies any RIP neighbor.

Values: IP address

Default: 0.0.0.0

### ATTRIBUTE Vr Ip Ospf Export egpAsId (egpAs)

Access: Read and write

| | |
|---|---|
| Description | This attribute specifies the EGP learned routes to which this export policy applies, based on the EGP autonomous system identifier of which the routes are learned from.<br>This attribute can only be non zero when *protocol* is set to ***egp***.<br>The value of 0 implies any EGP autonomous system; otherwise the value of this attribute must match the *asId* of an EGP neighbor on the same virtual router. |
| Values | Decimal (0..65535) |
| Default | 0 |

### ATTRIBUTE Vr Ip Ospf Export tag

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the OSPF tag to be used on the routes being exported as a result of matching this export policy.<br>If the attribute *advertiseStatus* is set to ***block***, then the value of *tag* is ignored. The *tag* value is not used to select which routes to block or send, but rather the tag value advertised for the routes.<br>A value of 4294967295 indicates that the tag associated with the route in the forwarding table is used. |
| Values | Decimal (0..4294967295) |
| Default | 4294967295 |

### ATTRIBUTE Vr Ip Ospf Export extLsaMetricType

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the metric type in the OSPF external link state advertisement of the routes being exported as a result of matching this export policy.<br>If the attribute *advertiseStatus* is set to ***block***, then the value of *extLsaMetricType* is ignored. The *extLsaMetricType* value is not used to select which routes to block or send, but rather the metric value advertised for the routes.<br>The value ***useProtocolDefault*** indicates the metric type is automatically chosen based on the routing protocol which the route was learned from. |

| | |
|---|---|
| Values | useProtocolDefault<br>type1<br>type2 |
| Default | useProtocolDefault |

### ATTRIBUTE Vr Ip Ospf Export bgpAsId (bgpAs)

| | |
|---|---|
| Access | Read and write |
| Description | This key attribute specifies the bgp AS from which a bgp route is learned from. This key is used only if the *protocol* is ***bgpExternal***. *bgpAsId* of value ***0*** mathces all ASs. |
| Values | Decimal (0..65535) |
| Default | 0 |

### ATTRIBUTE Vr Ip Ospf Export bgpPeerIp (peerIp)

| | |
|---|---|
| Access | Read and write |
| Description | This key attribute specifies the bgp peer where the routes were learned from. *bgpPeerIp* of ***0*** matches all bgp peers. This attribute is used as a key when *protocol* is set to ***bgpInternal*** or ***bgpExternal***. |
| Values | IP address |
| Default | 0.0.0.0 |

### ATTRIBUTE Vr Ip Ospf Export description (desc)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute describes the policy. For example, ‘to export OSPF routes to MCI’. |
| Values | String (0..255, ASCII) |
| Default | No default |

### COMPONENT Vr Ip Ospf Export NetworkList (NetList)

| | |
|---|---|
| Instance | Decimal (0..65535) |
| Groups | "GROUP Vr Ip Ospf Export NetList Provisioned (Prov)" |

| | |
|---|---|
| Scope | Application |
| Description | This component identifies a set of attributes when matched determines the export policy applied. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Vr Ip Ospf Export NetList Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group identifies the set of provisionable attributes for the *ExportNetworkList* component. |

### ATTRIBUTE Vr Ip Ospf Export NetList ipAddress

| | |
|---|---|
| Access | Read and write |
| Description | This attribute identifies the 32 bit IP address to match against. |
| Values | IP address |
| Default | No default |

### ATTRIBUTE Vr Ip Ospf Export NetList ipMask (mask)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the IP Mask to be used with the IP Address to match against. |
| Values | IP address |
| Default | No default |

### COMPONENT Vr Ip Ospf VirtNbrEntry (VirtNbr)

| | |
|---|---|
| Instance | areaId [IP address]<br>nbrRouterId [IP address] |
| Groups | "GROUP Vr Ip Ospf VirtNbr Operational (Oper)" |
| Scope | Application |

| | |
|---|---|
| Description | *Vr/<string> Ip Ospf VirtNbrEntry/<Ip Address>,<Ip Address> Rtr/<string> Ospf VirtNbrEntry/<Ip Address>,<Ip Address> Rtr/<string> Vrf/<string> Ospf VirtNbrEntry/<Ip Address>,<Ip Address>*<br>This component describes all of OSPF's Virtual Neighbors. |
| Common Verbs | Help<br>List<br>Display |

## GROUP Vr Ip Ospf VirtNbr Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group identifies a set of operational attributes. |

## ATTRIBUTE Vr Ip Ospf VirtNbr nbrIpAddress (addr)

| | |
|---|---|
| Access | Read only |
| Description | Indicates the Ip address this interface this virtual neighbor is using. |
| Values | IP address |
| Default | No default |

## ATTRIBUTE Vr Ip Ospf VirtNbr options

| | |
|---|---|
| Access | Read only |
| Description | A bit mask corresponding to the neighbor's options field. Bit 1, if set indicates that the system will operate on Type of Service metrics other than TOS 0. If zero, the neighbor will ignore all metrics except the TOS 0 metric. Bit 2, if set, indicates that the system is Network Multicast capable; i.e., that it implements OSPF Multicast Routing. |
| Values | Decimal (0..7) |
| Default | No default |

## ATTRIBUTE Vr Ip Ospf VirtNbr state

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | The state of the virtual neighbor relationship. |
| Values | down<br>attempt<br>init<br>twoWay<br>exchange<br>exchangeStatrt<br>loading<br>full |
| Default | No default |

### ATTRIBUTE Vr Ip Ospf VirtNbr events

| | |
|---|---|
| Access | Read only |
| Description | The number of times this virtual link has changed its state, or an error has occurred. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Ospf VirtNbr lsRetransQlen

| | |
|---|---|
| Access | Read only |
| Description | The current length of the Retransmission queue. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Ospf VirtNbr exchangeStatus

| | |
|---|---|
| Access | Read only |
| Description | Indicates the exchange status of the entry in this table. |
| Values | master<br>slave |
| Default | No default |

## COMPONENT Vr Ip Ospf NeighborEntry (Nbr)

| | |
|---|---|
| Instance | address [IP address]<br>addressLessIndex [Decimal (0)] |
| Groups | "GROUP Vr Ip Ospf Nbr Operational (Oper)" |
| Scope | Application |
| Description | *Vr/<string> Ip Ospf NbrEntry/<Ip Address>,<Decimal>*<br>*Rtr/<string> Ospf NbrEntry/<Ip Address>,<Decimal>*<br>*Rtr/<string> Vrf/<string> Ospf NbrEntry/<Ip Address>,<Decimal>*<br>This component is a dynamic subcomponent of OSPF that describes all the OSPF Neighbors. |
| Common Verbs | Help<br>List<br>Display |

## GROUP Vr Ip Ospf Nbr Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group identifies the operational set of attributes for the *NeighborEntry.* |

## ATTRIBUTE Vr Ip Ospf Nbr rtrId

| | |
|---|---|
| Access | Read only |
| Description | An Ip Address that uniquely identifies the neighboring router in the autonomous system. |
| Values | IP address |
| Default | No default |

## ATTRIBUTE Vr Ip Ospf Nbr options

| | |
|---|---|
| Access | Read only |
| Description | A bit mask corresponding to the neighbor’s options field. Bit 0, if set, indicates that the area accepts and operates on external information, if zero, it is a stub area. Bit 1, if set, indicates that |

| | |
|---|---|
| | the system will operate on Type of Service metrics other than TOS 0. If zero, the neighbor will ignore all metrics except the TOS 0 metric. Bit 2, if set, indicates that the system is Network Multicast capable; i.e., that it implements OSPF Multicast Routing. |
| Values | Decimal (0..7) |
| Default | No default |

### ATTRIBUTE Vr Ip Ospf Nbr priority

| | |
|---|---|
| Access | Read only |
| Description | The priority of this neighbor in the designated router election algorithm. The value 0 signifies that the neighbor is not eligible to become the designated router on this particular network. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE Vr Ip Ospf Nbr state

| | |
|---|---|
| Access | Read only |
| Description | The state of the relationship with this neighbor. |
| Values | down<br>attempt<br>init<br>twoWay<br>exchangeStart<br>exchange<br>loading<br>full |
| Default | No default |

### ATTRIBUTE Vr Ip Ospf Nbr events

| | |
|---|---|
| Access | Read only |
| Description | The number of times this neighbor relationship has changed state, or an error has occurred. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Vr Ip Ospf Nbr lsRetransQlen

| | |
|---|---|
| Access | Read only |
| Description | The current length of the Retransmission queue. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Ospf Nbr nbmaNbrStatus

| | |
|---|---|
| Access | Read only |
| Description | This attribute describes the status of the entry. |
| Values | valid<br>invalid |
| Default | No default |

### ATTRIBUTE Vr Ip Ospf Nbr exchangeStatus

| | |
|---|---|
| Access | Read only |
| Description | Indicates the exchange status for a neighbor entry. |
| Values | master<br>slave |
| Default | No default |

### ATTRIBUTE Vr Ip Ospf Nbr permanence

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays how the neighbor became an entry. |
| Values | dynamic<br>permanent |
| Default | dynamic |

### ATTRIBUTE Vr Ip Ospf Nbr opaqueCapability (opcap)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute displays the Opaque capabilty of this neighbor. |
| Values | true<br>false |
| Default | No default |

## COMPONENT Vr Ip Ospf LsdbEntry (Lsdb)

| | |
|---|---|
| Instance | areaId [IP address]<br>lsdbType [Decimal (1..10)]<br>lsId [IP address]<br>routerId [IP address] |
| Groups | "GROUP Vr Ip Ospf Lsdb Operational (Oper)" |
| Scope | Application |
| Description | *Vr/<string> Ip Ospf LsdbEntry/<Ip Address>,<Decimal>, <Ip Address>, <Ip Address>*<br>*Rtr/<string> Ospf LsdbEntry/<Ip Address>,<Decimal>, <Ip Address>, <Ip Address>*<br>*Rtr/<string> Vrf/<string> Ospf LsdbEntry/<Ip Address>,<Decimal>, <Ip Address>, <Ip Address>*<br>This dynamic component contains the Link State Advertiements (LSA) from all areas the device is connected to. The supported types are: router-LSA (1), network-LSA (2), network-summary-LSA (3), ASBR-summary-LSA (4), AS-external-LSA (5) Group-membership-LSA (6) NSSA-LSA (7) and opaqueArea-LSA (10). |
| Common Verbs | Help<br>List<br>Display |

## GROUP Vr Ip Ospf Lsdb Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group describes the Operational set of attributes for the *LsdbEntry.* |

### ATTRIBUTE Vr Ip Ospf Lsdb sequence

| | |
|---|---|
| Access | Read only |
| Description | A signed 32-bit integer, used to detect old and duplicate LSAs. The space of sequence numbers is linearly ordered. The larger the sequence number, the more recent the advertisement. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Ospf Lsdb age

| | |
|---|---|
| Access | Read only |
| Description | The age of the Link State Advertisement in seconds. |
| Values | Decimal (0..3600) |
| Units | seconds |
| Default | No default |

### ATTRIBUTE Vr Ip Ospf Lsdb checksum

| | |
|---|---|
| Access | Read only |
| Description | The checksum of the complete contents of the advertisement, excepting the age field. The checksum used is the Fletcher checksum. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Ospf Lsdb advertisement

| | |
|---|---|
| Access | Read only |
| Description | The entire LSA including its header. |
| Values | String (1..65535, Hex) |
| Default | No default |

## COMPONENT Vr Ip Ospf ExtLsdbEntry (ExtLsdb)

| | |
|---|---|
| Instance | lsdbType [Decimal (1..7)]<br>lsId [IP address]<br>routerId [IP address] |
| Groups | "GROUP Vr Ip Ospf ExtLsdb Operational (Oper)" |
| Scope | Application |
| Description | *Vr/<string> Ip Ospf ExtLsdbEntry/<Decimal>, <Ip Address>, <Ip Address>*<br>*Rtr/<string> Ospf ExtLsdbEntry/<Decimal>, <Ip Address>, <Ip Address>*<br>*Rtr/<string> Vrf/<string> Ospf ExtLsdbEntry/<Decimal>, <Ip Address>, <Ip Address>*<br>This dynamic component contains the Link State Advertiements(LSA) from other Autonomous systems. It is identical in format to the *Lsdb*. The purpose is to allow all external LSAs to be displayed together rather than distributed over the different non-stub areas. These types are: AS-external-LSA (5) and NSSA-LSA (7). |
| Common Verbs | Help<br>List<br>Display |

## GROUP Vr Ip Ospf ExtLsdb Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group describes the operational set of attributes for the *ExtLsdbEntry.* |

## ATTRIBUTE Vr Ip Ospf ExtLsdb sequence

| | |
|---|---|
| Access | Read only |
| Description | A signed 32-bit integer, used to detect old and duplicate LSAs. The space of sequence numbers is linearly ordered. The larger the sequence number, the more recent the advertisement. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Vr Ip Ospf ExtLsdb age

| | |
|---|---|
| Access | Read only |
| Description | The age of the Link State Advertisement in seconds. |
| Values | Decimal (0..3600) |
| Units | seconds |
| Default | No default |

### ATTRIBUTE Vr Ip Ospf ExtLsdb checksum

| | |
|---|---|
| Access | Read only |
| Description | The checksum of the complete contents of the advertisement, excepting the age field. The checksum used is the Fletcher checksum. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Ospf ExtLsdb advertisement

| | |
|---|---|
| Access | Read only |
| Description | The entire LSA including its header. |
| Values | String (1..36, Hex) |
| Default | No default |

## COMPONENT Vr Ip RoutingInformationProtocol (Rip)

| | |
|---|---|
| Groups | "GROUP Vr Ip Rip Provisioned (Prov)"<br>"GROUP Vr Ip Rip OsiState (State)"<br>"GROUP Vr Ip Rip AdministrativeControl (AdminControl)"<br>"GROUP Vr Ip Rip OperationalStatus (OperStatus)"<br>"GROUP Vr Ip Rip Operational (Oper)" |
| Scope | Application |
| Description | *Vr/<string> Ip Rip*<br>*Rtr/<string> Rip* |

*Rtr/<string> Vrf/<string> Rip*
This component represents the Routing Information Protocol for the IP.
There should be at least one *RipInterface* provisioned below an *Interface* or below a *LogicalIf* under an *IpPort*.

Opt. Subcomp. "COMPONENT Vr Ip Rip Import (Import)"
"COMPONENT Vr Ip Rip Export"

Common Verbs
Help
List
Display
Add
DELete
LOCK
Unlock

## GROUP Vr Ip Rip Provisioned (Prov)

Properties Provisioned

Description This group contains the provisionable attributes for the RIP component

## ATTRIBUTE Vr Ip Rip migrateRip

Access Read and write

Description This attribute sets the preference level of OSPF-internal routes to be less preferred than RIP.
Note:
This parameter should only be used when starting migration of network from RIP to OSPF. When ready to cutover to OSPF, set this attribute value to ***disabled*** and run under normal preferences. All OSPF routers in the Autonomous System should be running with *migrateRip* ***enabled*** or with *migrateRip* ***disabled*** to prevent routing loops. It is important that the changeover period from RIP to OSPF be performed quickly on all OSPF routers so that no routing loops are formed. These routing loops could be caused by conflicts in the internal RIP and OSPF databases.

Values
enabled
disabled

Default disabled

### ATTRIBUTE Vr Ip Rip rfc1058MetricUsage (rfc1058)

Access Read and write

Description This attribute determines the metric usage for this RIP instance. This flag is used to determine the way metrics are incremented.
RFC1058 way :
Sending Update: This is to use the metric for the route from the routing table as the advertised metric to be sent for that route. Nothing is ever added to this value from the sending side. The only special case handling is that if the route being advertised is the network route of a directly connectednetwork, the metric in the routing table will be zero. Then the RipIf interface metric for the interface being advertised is used as the advertise metric. If the interface being advertised is not a Rip interface, then metric value of 1 is used.
Receiving Update: Add receiving interface's RIP metric to the metric for the route in the received advertisement and install the result in the receiver's routing table as the metric for that route.
Older way:
Sending Updates: Add the out going interfaces rip metric to the metric for a route in the routing table to form the metric to be advertised for that route.
Receiving Updates: The metric received in the advertisement for a route is put directly in the routing table as the metric for that route.

Note: It is recommended that, all the routers in this autonomous system should be following the rfc1058 metric system.
Setting this flag to ***disabled*** will have the effect of running the RIP with old metric incrementing system.

Values enabled
disabled

Default enabled

### ATTRIBUTE Vr Ip Rip generateDiscardRoute (discard)

Access Read and write

| | |
|---|---|
| Description | This attribute when set to ***yes*** will add network disacrd routes to the routing and forwarding table for the subnetted interfaces that are running RIP. |
| Values | yes<br>no |
| Default | yes |

### ATTRIBUTE Vr Ip Rip redistributeIbgp (ribgp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether the export policies of this *Rip* instance can match routes learned from internal BGP (IBGP) peers when their *protocol* attribute value is ***all.*** If *redistributeIbgp* is ***true***, a *protocol* value of ***all*** allows routes learned from IBGP peers to be included in the matching routes. If *redistributeIbgp* is ***false,*** routes learned from IBGP peers are excluded when the *protocol* value is ***all***. To cause IBGP routes to be considered in this case, the *protocol* value must be set to ***bgpInternal***. |
| Values | true<br>false |
| Default | false |

### ATTRIBUTE Vr Ip Rip defaultRipRtePreference (ripPref)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies this RIP component instance's default routing preference assigned to the RIP routes. A lower value indicates a more preferred route. |
| Values | Decimal (1..254) |
| Default | 82 |

### GROUP Vr Ip Rip OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state |

combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Vr Ip Rip adminState (osiAdmin)

Access: Read only

Description: This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values:
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default: unlocked

### ATTRIBUTE Vr Ip Rip operationalState (osiOper)

Access: Read only

Description: This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available

for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Vr Ip Rip usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Vr Ip Rip AdministrativeControl (AdminControl)

Properties
Provisioned

Description
This group includes the Administrative Control attribute. This attribute defines the current administrative state of this component.

### ATTRIBUTE Vr Ip Rip snmpAdminStatus

Access
Read and write

Description
The desired state of the interface. The ***up*** state indicates the interface is operational and packet forwarding is allowed. The ***down*** state indicates the interface is not operational and packet

forwarding is unavailable. The ***testing*** state indicates that no operational packets can be passed.

Values
up
down
testing

Default
up

### GROUP Vr Ip Rip OperationalStatus (OperStatus)

Properties
Operational

Description
This group includes the Operational Status attribute. This attribute defines the current operational state of this component.

### ATTRIBUTE Vr Ip Rip snmpOperStatus

Access
Read only

Description
The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed.

Values
up
down
testing

Default
up

### GROUP Vr Ip Rip Operational (Oper)

Properties
Operational

Description
This group defines a set of operational attributes belonging to the *RIP* component. It corresponds to the rip2Globals table in the RIP-2 standard MIB.

### ATTRIBUTE Vr Ip Rip routeChangesMade

Access
Read only

| | |
|---|---|
| Description | This attribute counts the route changes made to the IP Route Database by Rip. This does not include the refresh of the route's age. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ip Rip queryResponses

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the responses sent to RIP queries from other systems. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT Vr Ip Rip Import (Import)

| | |
|---|---|
| Instance | Decimal (0..65535) |
| Groups | "GROUP Vr Ip Rip Import Provisioned (Prov)" |
| Scope | Application |
| Description | *Vr/<string> Ip Rip Import/<Decimal>*<br>*Rtr/<string> Rip Import/<Decimal>*<br>*Rtr/<string> Vrf/<string> Rip Import/<Decimal>*<br>This component controls the functionality of Route Leaking. In other words, this component will determine what routes are used by RIP. |
| Opt. Subcomp. | "COMPONENT Vr Ip Rip Import Network (Net)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Vr Ip Rip Import Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |

| | |
|---|---|
| Description | This is the group of provisionable attributes for the *Import* Subcomponent. |

### ATTRIBUTE Vr Ip Rip Import usageFlag (usage)

| | |
|---|---|
| Access | Read and write |
| Description | This flag when set to ***ignore*** indicates the routes that are not used and if set to ***use***, indicates the routes which are used. |
| Values | use<br>ignore |
| Default | use |

### ATTRIBUTE Vr Ip Rip Import importMetric (metric)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to override the default import metric for the RIP protocol. This value is not used to select which routes to use or ignore, rather it is the metric to be used in the routing table for the routes imported for this import policy. A value of zero indicates that the metric received in the update will be used. |
| Values | Decimal (0..16) |
| Default | 0 |

### ATTRIBUTE Vr Ip Rip Import neighbor (nbr)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates the IP Address of the neighbor this policy will apply to. |
| Values | IP address |
| Default | 0.0.0.0 |

### ATTRIBUTE Vr Ip Rip Import interface (if)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the RIP interface to which this import policy applies.<br>The value of 0.0.0.0 implies any RIP interface on the routing |

component (*Vr*, *Rtr* or *Vrf*); otherwise the value of this attribute must match the interface address of a *LogicalIf* or *Interface* that has a *RipIf* on the same routing component.

| | |
|---|---|
| Values | IP address |
| Default | 0.0.0.0 |

### ATTRIBUTE Vr Ip Rip Import description (desc)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute describes the policy. For example, ‘to import RIP routes from MCI’. |
| Values | String (0..255, ASCII) |
| Default | No default |

### COMPONENT Vr Ip Rip Import Network (Net)

| | |
|---|---|
| Instance | Decimal (0..65535) |
| Groups | "GROUP Vr Ip Rip Import Net Provisioned (Prov)" |
| Scope | Application |
| Description | *Vr/<string> Ip Rip Import/<Decimal> NetworkList/<Decimal> Rtr/<string> Rip Import/<Decimal> NetworkList/<Decimal> Rtr/<string> Vrf/<string> Rip Import/<Decimal> NetworkList/ <Decimal>*<br>This component identifies a set of networks that this Import policy will apply to. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Vr Ip Rip Import Net Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |

| | |
|---|---|
| Description | This group contains attributes for the *Import NetworkList* component for the Import Policy to be applied to. |

### ATTRIBUTE Vr Ip Rip Import Net ipAddress (addr)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the IP address that needs to be matched against in this network list for the Import Policy to be applied to. |
| Values | IP address |
| Default | No default |

### ATTRIBUTE Vr Ip Rip Import Net ipMask (mask)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the IP mask for the attribute *ipAddress*. |
| Values | IP address |
| Default | No default |

### COMPONENT Vr Ip Rip Export

| | |
|---|---|
| Instance | Decimal (0..65535) |
| Groups | "GROUP Vr Ip Rip Export Provisioned (Prov)" |
| Scope | Application |
| Description | *Vr/<string> Ip Rip Export/<Decimal>*<br>*Rtr/<string> Rip Export/<Decimal>*<br>*Rtr/<string> Vrf/<string> Rip Export/<Decimal>*<br>Each instance of this component specifies a RIP export policy. A RIP export policy is used to decide if a route in the IP forwarding table should be blocked or advertised as a RIP route on one or all RIP interfaces of the routing component (*Vr*, *Rtr* or *Vrf*).<br>Passport IP RIP by default advertises all local routes and all RIP learned routes to all RIP interfaces based on the metric in the IP forwarding table. |

| | |
|---|---|
| Opt. Subcomp. | "COMPONENT Vr Ip Rip Export Network (Net)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Vr Ip Rip Export Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all the provisioned attributes for the *Export* component. |

### ATTRIBUTE Vr Ip Rip Export advertiseStatus (advertise)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies if the routes that match this export policy are advertised (***send***) or not advertised (***block***). |
| Values | send<br>block |
| Default | send |

### ATTRIBUTE Vr Ip Rip Export exportMetric (metric)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the metric to be used on the routes being exported as a result of matching this export policy.<br>If the attribute *advertiseStatus* is set to ***block***, then the value of *exportMetric* is ignored. The *exportMetric* value is not used to select which routes to block or send, but rather the metric value advertised for the routes.<br>A value of 0 indicates that the exported routes will be advertised with their original metric. When exporting routes from other protocols into RIP, an *exportMetric* value of 0 will distribute these routes with the metric of the original protocol. If the metric |

of the original protocol exceeds 15, the exported routes will be considered as unreachable by RIP. If an *exportMetric* value of 16 is specified, the exported routes will be advertised into RIP as unreachable.

Values: Decimal (0..16)

Default: 0

### ATTRIBUTE Vr Ip Rip Export protocol

Access: Read and write

Description: This attribute specifies the routes to which this export policy applies based on the routing protocol of how the routes are learned. If the value is ***all***, the policy applies to all routes in the forwarding table, with the following exceptions: external BGP routes are always excluded and internal BGP routes are excluded if the parent *Rip* component's *reDistributeIBGP* attribute has the value ***false***.

Values:
all
egp
rip
ospfInternal
ospfExternal
staticLocal
staticRemote
bgpInternal
bgpExternal
mbgp
bgpMplsInternal

Default: all

### ATTRIBUTE Vr Ip Rip Export ripInterface (ripIf)

Access: Read and write

Description: This attribute specifies the RIP learned routes to which this export policy applies, based on the RIP interface from which the routes are learned.
This attribute can only be non zero when the *protocol* is set to ***rip***. The value of 0.0.0.0 implies any RIP interface on the same

routing component (*Vr*, *Rtr* or *Vrf*); otherwise the value of this attribute must match the interface address of a *LogicalIf* or *Interface* that has a *RipIf* on the same routing component.

Values: IP address

Default: 0.0.0.0

### ATTRIBUTE Vr Ip Rip Export egpAsId (egpAs)

Access: Read and write

Description: Under the *Rtr* and *Rtr Vrf*, this attribute has no effect.

Under the *Vr*, this attribute specifies the EGP learned routes to which this export policy applies, based on the EGP autonomous system identifier of which the routes are learned from.
This attribute can only be non zero when *protocol* is set to ***egp***.
The value of 0 implies any EGP autonomous system; otherwise the value of this attribute must match the *asId* of an EGP neighbor on the same virtual router.

Values: Decimal (0..65536)

Default: 0

### ATTRIBUTE Vr Ip Rip Export ospfTag (tag)

Access: Read and write

Description: This attribute specifies the OSPF learned external routes to which this export policy applies, based on the learned OSPF tag of the routes.
This attribute can only be set to a non default value when *protocol* is set to ***ospfExternal***. The default value of 4294967295 implies any tag.

Values: Decimal (0..4294967295)

Default: 4294967295

### ATTRIBUTE Vr Ip Rip Export outInterface (outIf)

Access: Read and write

| | |
|---|---|
| Description | This attribute specifies the RIP interface on the virtual router which routes are exported onto as a result of matching this export policy.<br>If the attribute *advertiseStatus* is set to ***block***, then the value of *outInterface* is ignored. The *outInterface* value is not used to select which routes to block or send, but rather where to export the routes.<br>A value of 0.0.0.0 indicates that the routes are exported to all RIP interfaces on the routing component (*Vr*, *Rtr* or *Vrf*). Otherwise, the value of this attribute must match the interface address of a *LogicalIf* or *Interface* that has a *RipIf* on the same routing component. |
| Values | IP address |
| Default | 0.0.0.0 |

### ATTRIBUTE Vr Ip Rip Export bgpAsId (bgpAs)

| | |
|---|---|
| Access | Read and write |
| Description | This key attribute specifies the BGP AS from which the routes are learned. This key will be used only when the *protocol* is set to ***bgpExternal***. *bgpAsId* of ***0*** matches all BGP ASs. |
| Values | Decimal (0..65535) |
| Default | 0 |

### ATTRIBUTE Vr Ip Rip Export description (desc)

| | |
|---|---|
| Access | Read and write |
| Description | The attribute describes the policy. For example, ‘to export RIP routes to AS 1’. |
| Values | String (0..255, ASCII) |
| Default | No default |

### COMPONENT Vr Ip Rip Export Network (Net)

| | |
|---|---|
| Instance | Decimal (0..65535) |
| Groups | "GROUP Vr Ip Rip Export Net Provisioned (Prov)" |

| | |
|---|---|
| Scope | Application |
| Description | *Vr/<string> Ip Rip Export/<Decimal> NetworkList/<Decimal> Rtr/<string> Rip Export/<Decimal> NetworkList/<Decimal> Rtr/<string> Vrf/<string> Rip Export/<Decimal> NetworkList/ <Decimal>*<br>This component identifies a set of attributes when matched determines the export policy applied. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Vr Ip Rip Export Net Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group identifies the set of Provisionable attributes for the *ExportNetworkList* component. |

### ATTRIBUTE Vr Ip Rip Export Net ipAddress (addr)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute identifies the 32 bit IP address to match against. |
| Values | IP address |
| Default | No default |

### ATTRIBUTE Vr Ip Rip Export Net ipMask (mask)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the IP Mask to be used with the IP Address to match against. |
| Values | IP address |
| Default | No default |

## COMPONENT Vr Ip Static

| | |
|---|---|
| Groups | "GROUP Vr Ip Static OsiState (State)"<br>"GROUP Vr Ip Static Provisioned (Prov)" |
| Scope | Application |
| Description | *Vr/<string> Ip Static*<br>*Rtr/<string> Static*<br>*Rtr/<string> Vrf/<string> Static*<br>The *Static* component is used to configure addition, deletion and modification of static routing information. |
| Opt. Subcomp. | "COMPONENT Vr Ip Static RouteEntry (Route)"<br>"COMPONENT Vr Ip Static DiscardRouteEntry (Discard)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP Vr Ip Static OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

## ATTRIBUTE Vr Ip Static adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively |

prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values: locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default: unlocked

### ATTRIBUTE Vr Ip Static operationalState (osiOper)

Access: Read only

Description: This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values: enabled (ena)
disabled (dis)

Default: disabled

### ATTRIBUTE Vr Ip Static usageState (osiUsage)

Access: Read only

| | |
|---|---|
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Vr Ip Static Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group of attributes are used to configure the Static component. |

### ATTRIBUTE Vr Ip Static defaultStaticRemoteRtePreference (pref)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies this *Static* component instance's default routing preference assigned to the remote routes. A lower value indicates a more preferred route. Assigning a non-zero value to the staticRemoteRtePreference attribute in RouteEntry will overrides this default. |
| Values | Decimal (1..253) |
| Default | 72 |

### ATTRIBUTE Vr Ip Static defaultStaticDiscardRtePreference (discpref)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies this Static component instance's default routing preference assigned to the discard routes. A lower value indicates a more preferred route. Assigning a non-zero value to |

| | |
|---|---|
| | the staticDiscardRtePreference attribute in DiscardRouteEntry will overrides this default. |
| Values | Decimal (0..253) |
| Default | 0 |

## COMPONENT Vr Ip Static RouteEntry (Route)

| | |
|---|---|
| Instance | destAddress (addr) [IP address]<br>destMask (mask) [IP address]<br>typeOfService (tos) [Decimal (0..0)] |
| Groups | "GROUP Vr Ip Static Route Provisioned (Prov)" |
| Scope | Application |
| Description | *Vr/<string> Ip Static RouteEntry*/<Ip Address>, <Ip Address>, <Decimal><br>*Rtr/<string> Static RouteEntry*/<Ip Address>, <Ip Address>, <Decimal><br>*Rtr/<string> Vrf/<string> Static RouteEntry*/<Ip Address>, <Ip Address>, <Decimal><br>This component describes the IP static routes.<br><br>For a *RouteEntry* to be valid, there should be at least one *NextHop* provisioned. Up to three *NextHops* can be provisioned for each instance of a *RouteEntry.*<br><br>The value of index *destMask* should be contiguous.<br><br>Only the value zero is supported. Zero will be substituted for any value that is entered. |
| Opt. Subcomp. | "COMPONENT Vr Ip Static Route NextHop (Nh)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Vr Ip Static Route Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains a provisionable set of attributes for the static route entry component. |

## ATTRIBUTE Vr Ip Static Route staticRemoteRtePreference (pref)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the route preference of the static remote route. A lower preference value means the route is more preferred. If ***sameAsStatic*** is specified, the value of *defaultStaticRemoteRtePreference* in the *StaticProv* component is used. |
| Values | Decimal (1..253)<br>sameAsStatic |
| Default | sameAsStatic |

## COMPONENT Vr Ip Static Route NextHop (Nh)

| | |
|---|---|
| Instance | IP address |
| Groups | "GROUP Vr Ip Static Route Nh Provisioned (Prov)" |
| Scope | Application |
| Description | *Vr/<string> Ip Static Route/<Ip Address>,<Ip Address>,<Decimal> NextHop/<Ip Address>*<br>*Rtr/<string> Static Route/<Ip Address>,<Ip Address>,<Decimal> NextHop/<Ip Address>*<br>*Rtr/<string> Vrf/<string> Static Route/<Ip Address>,<Ip Address>,<Decimal> NextHop/<Ip Address>*<br>This component provides the destination Ip address of the *NextHop* (some times referred to as the Gateway).<br><br>For a *RouteEntry* to be valid, there should be at least one *NextHop* provisioned. Up to three *NextHops* can be provisioned for each instance of a *RouteEntry.* |

Each provisioned *NextHop* address should belong to a valid subnet.
A valid subnet for this IP entity can be provisioned as a *logicalIf* Entry under an *IpPort*.

Common Verbs

Help
List
Display
Add
DELete

## GROUP Vr Ip Static Route Nh Provisioned (Prov)

Properties: Provisioned

Description: This group contains a provisionable set of attributes for the *Static RouteEntry NextHop* component.

## ATTRIBUTE Vr Ip Static Route Nh metric (metric)

Access: Read and write

Description: This attribute specifies the primary routing metric for this *NextHop*.

Values: Signed (-1..65535)

Default: 1

## COMPONENT Vr Ip Static DiscardRouteEntry (Discard)

Instance: destAddress (addr) [IP address]
destMask [IP address]

Scope: Application

Description: *Vr/<string> Ip Static DiscardRouteEntry/<Ip Address>,<Ip Address>*
*Router/<string> Static DiscardRouteEntry/<Ip Address>,<Ip Address>*
*Router/<string> Vrf/<string> Static DiscardRouteEntry/<Ip Address>,<Ip Address>*
This table identifies invalid martian networks. Forwarding of

packets to the network address indicated by this entry will be discarded.

Common Verbs

Help
List
Display
Add
DELete

## COMPONENT Vr Ip NetSentry (Ns)

Groups "GROUP Vr Ip Ns Provisioned (Prov)"

Scope Application

Description *Vr/<string Ip NetSentry*
*NetSentry* defines a set of filters which are compiled by the *NetSentry* process to be applied to all IP packets. IP packets can be filtered based on IP address and netmask combinations.

Opt. Subcomp. "COMPONENT Vr Ip Ns ApplyEntry (Apply)"

Common Verbs

Help
List
Display
Add
DELete

## GROUP Vr Ip Ns Provisioned (Prov)

Properties Provisioned

Description This group contains provisionable attributes for the *NetSentry* component.

## ATTRIBUTE Vr Ip Ns firstFilter

Access Read and write

Description The *firstFilter* is the first filter point which affects all IP packets before they have been examined in any way for their origin and destination. The most common use of a *firstFilter* point is to

| | |
|---|---|
| | collect statistis for all packets arriving at the route on any interface, before any subsequent filter processing changes their direction or disposition. |
| Values | String (0..32, ASCII) |
| Default | No default |

### ATTRIBUTE Vr Ip Ns localInFilter

| | |
|---|---|
| Access | Read and write |
| Description | The *localInFilter* is the second filter point which uses by network administrator to perform a common action on all IP packets that physically arrive over a specific logical interface, regardless of the packet's stated source or destination. Typical uses for a *localInFilter* include verifying that known Ethernet media source addresses match known IP addresses, or confirming that the IP packet source addresses of received IP packet fall within a narrow range. |
| Values | String (0..32, ASCII) |
| Default | No default |

### ATTRIBUTE Vr Ip Ns localOutFilter

| | |
|---|---|
| Access | Read and write |
| Description | The *localOutFilter* is the third filter point which applies to any IP packet that will be transmitted from the router to the medium associated with the interface, regardless of its source, destination, or what type of decision was made to cause the datagram to be transmitted on this interface. *localOutFilter* generally used to ensure that certain paterns of traffic do not enter the network or reach a second IP router on that network. For example, *localOutFilter* can be used as the exclusion of all IP packets above a certain security classification, or collecting statistics on the amount of IP fragments performed on an outgoing interface. |
| Values | String (0..32, ASCII) |
| Default | No default |

## ATTRIBUTE Vr Ip Ns lastFilter

| | |
|---|---|
| Access | Read and write |
| Description | *lastFilter* is the fourth and last filter point to be excecuted after all other routing and filtering decisions have been made on the IP packet, and transmission of the information is imminent. *lastFilter* is generally used to collect statistics on traffic after all previous control and routing decisions have been made. |
| Values | String (0..32, ASCII) |
| Default | No default |

## COMPONENT Vr Ip Ns ApplyEntry (Apply)

| | |
|---|---|
| Instance | Decimal (1..65535) |
| Groups | "GROUP Vr Ip Ns Apply Provisioned (NetSentryEntry)" |
| Scope | Application |
| Description | *Vr/<string> Ip NetSentry ApplyEntry/<Decimal>*<br>This component contains a list of *NetSentry* filters that can be applied to IP packets and information pertaining to each application of such *NetSentry* filters. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Vr Ip Ns Apply Provisioned (NetSentryEntry)

| | |
|---|---|
| Properties | Provisioned |
| Description | The instance of provisioned information relating to a filter application to IP packet. |

## ATTRIBUTE Vr Ip Ns Apply filter

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | The name of the *filter* to be applied to packet matching the conditions in this entry. |
| Values | String (0..32, ASCII) |
| Default | No default |

### ATTRIBUTE Vr Ip Ns Apply ipAddress1

| | |
|---|---|
| Access | Read and write |
| Description | The first IP address used to compare. |
| Values | IP address |
| Default | No default |

### ATTRIBUTE Vr Ip Ns Apply ipMask1

| | |
|---|---|
| Access | Read and write |
| Description | The first netmask associated with *ipAddress1* used to compare. |
| Values | IP address |
| Default | No default |

### ATTRIBUTE Vr Ip Ns Apply ipAddress2

| | |
|---|---|
| Access | Read and write |
| Description | This second IP address used to compare. |
| Values | IP address |
| Default | No default |

### ATTRIBUTE Vr Ip Ns Apply ipMask2

| | |
|---|---|
| Access | Read and write |
| Description | This second netmask associated with *ipAddress2* used to compare. |
| Values | IP address |
| Default | No default |

## ATTRIBUTE Vr Ip Ns Apply direction

| | |
|---|---|
| Access | Read and write |
| Description | Indicates the direction a packet must be moving between the first and second apply list entries in order for the entries to match. First “to” second, first “from” second, or first “tofrom” second (either direction). |
| Values | to<br>from<br>tofrom |
| Default | tofrom |

## COMPONENT Vr Ip Arp

| | |
|---|---|
| Groups | "GROUP Vr Ip Arp Provisioned (Prov)" |
| Scope | Application |
| Description | *Vr/<string> Ip Arp*<br>*Rtr/<string> Arp*<br>*Rtr/<string> Vrf/<string> Arp*<br>The component specifies the Address Resolution Protocol. |
| Opt. Subcomp. | "COMPONENT Vr Ip Arp HostEntry (Host)" |
| Dyn. Subcomp. | "COMPONENT Vr Ip Arp DynHostEntry (DynHost)" |
| Common Verbs | Help<br>List<br>Display |

## VERB Clear Vr Ip Arp

| | |
|---|---|
| Impact | Passive |
| Description | *Clear [-logicalIf(Ip Address)] [-includeInverse] Vr/<string> Ip Arp*<br>*Clear [-logicalIf(Ip Address)] [-includeInverse] Rtr/<string> Arp*<br><br>The *Clear* verb is intended for manually flushing dynamically learned ARP entries. Without any options, *Clear* will flush all non-inverse dynamic ARP entries. The *Clear* verb does not affect static ARP host entries, that is, entries which correspond to *HostEntry* subcomponents of this component. These entries can be removed by deleting the corresponding provisioned *HostEntry* component.<br><br>The *-logicalIf* or *-interface* option is used to flush dynamic ARP entries which were learned on a particular *IpPort LogicalInterface* or *Interface*. The option must specify the IP address of an existing *IpPort LogicalInterface* (which may be under any *ProtocolPort) or Interface*.<br><br>The *-includeInverse* option is used to force the deletion of inverse ARP entries. Inverse ARP entries which are learned through inverse ARP (*FrDte*) and inverse ATM ARP (*AtmMpe*) are important and should not be cleared by the users accidentally. If the option is not present, inverse ARP entries are not cleared. |

## GROUP Vr Ip Arp Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | The ARP refresh feature allows the router to periodically verify ARP table entries. Whenever the router updates an ARP entry, or creates a new entry, a timeout value is assigned to the entry. When the timeout for an entry expires, the router will send a unicast ARP request to the currently-known physical address. If an ARP response comes back, the entry will be assigned a new timeout. If, however, the host has gone away or been assigned a new physical address, the host will not respond to the unicast ARP, and the entry will be removed from the ARP table. The new |

physical address will be discovered through the normal ARP mechanism when the next communication is attempted to the host.

### ATTRIBUTE Vr Ip Arp autoRefresh

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is used to enable or disable the ARP refresh feature. |
| Values | enabled<br>disabled |
| Default | disabled |

### ATTRIBUTE Vr Ip Arp autoRefreshTimeout

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the timeout value, in minutes, which is assigned to updated ARP entries, or newly created ARP entries. The range for the timeout is 1 minute to 1440 minutes (24 hours). |
| Values | Decimal (1..1440) |
| Units | minutes |
| Default | 5 |

### ATTRIBUTE Vr Ip Arp retryTimes

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the number of times that an ARP request will be sent to a remote host if there is no reply received. This value is assigned when ARP entries are updated or created. The range of the value can be from 0 to 127. |
| Values | Decimal (0..127) |
| Units | times |
| Default | 127 |

## COMPONENT Vr Ip Arp DynHostEntry (DynHost)

| | |
|---|---|
| Instance | hostAddress (addr) [IP address]<br>cos [0<br>1<br>2<br>3<br>notApplicable (na)] |
| Groups | "GROUP Vr Ip Arp DynHost Operational (Oper)" |
| Scope | Application |
| Description | *Vr/<string> Ip Arp DynHostEntry/<Ip Address>*<br>*Router/<string> Arp DynHostEntry/<Ip Address>*<br>*Router/<string> Vrf/<string> DynHostEntry/<Ip Address>*<br>This component is a table that contains all Arp host entries (both static and dynamic). Each IP ARP entry in the table is uniquely defined by its IP address and Class of Service (CoS) index.<br><br>When the associated media type is one where the CoS can be specified on a per virtual circuit basis (e.g. frameRelayDte or atmMpe) the CoS index of the arp entry may be *0*, *1*, *2*, or *3*; otherwise, the CoS index is *na* (not VC dependent).<br><br>An IP packet that has been assigned a particular CoS will be forwarded using the arp entry where the IP address matches the packet's destination IP address and where the CoS index matches the packet's CoS. When there are arp entries that match the packet's destination IP address, but not the packet's CoS, the packet will be forwarded using the arp entry that has the next lowest CoS index; failing this, the packet will be forwarded using the arp entry that has the next highest CoS index. |
| Common Verbs | Help<br>List<br>Display |

## VERB Clear Vr Ip Arp DynHost

| | |
|---|---|
| Impact | Passive |
| Description | *Clear [-inverse] Vr/<string> Ip Arp DynHostEntry/<Ip Address>*<br>*Clear [-inverse] Router/<string> Arp DynHostEntry/<Ip Address>*<br>*Clear [-inverse] Router/<string> Vrf/<string> Arp DynHostEntry/<Ip Address>*<br><br>The *Clear* verb is used to delete the single dynamically learned ARP entry that is represented by this component.<br><br>The *Clear* command does not affect static ARP host entries, that is, entries whose *type* attribute has the value ***static***. These entries can be removed by deleting the corresponding provisioned *HostEntry* component under *Arp*.<br><br>The *-inverse* option deletes the ARP entry even if it was an inverse ARP entry. Inverse ARP entries are learned through inverse ARP (*FrDte* or *IpoDlci*) and inverse ATM ARP (*AtmMpe*), and should not be removed by the users accidentally. If the option is not present, an inverse ARP entry is not cleared. |

## GROUP Vr Ip Arp DynHost Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes of the *DynHostEntry* component. |

## ATTRIBUTE Vr Ip Arp DynHost physAddress

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the physical address of the host in canonical form. |
| Values | String (0..8, Dashed Hex) |
| Default | No default |

### ATTRIBUTE Vr Ip Arp DynHost maxTxUnit (mtu)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the maximum MTU size that can be accepted by the host. |
| Values | Decimal (0..0; 80..18944) |
| Default | 0 |

### ATTRIBUTE Vr Ip Arp DynHost encapsulationType (encap)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the encapsulation type of the host. |
| Values | ieee8023<br>ethernet<br>notApplicable |
| Default | No default |

### ATTRIBUTE Vr Ip Arp DynHost permanentVirtualCircuitNumber (pvcNo)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the permanent virtual circuit number to the remote host. |
| Values | Decimal (0..4095) |
| Default | No default |

### ATTRIBUTE Vr Ip Arp DynHost ifIndex

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the *ifIndex* of the protocol port that is associated with this entry. |
| Values | Decimal (1..65535) |
| Default | 1 |

### ATTRIBUTE Vr Ip Arp DynHost type

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates how this entry was learned. |
| Values | pending<br>invalid<br>dynamic<br>static |
| Default | No default |

### ATTRIBUTE Vr Ip Arp DynHost ncPhysAddress

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the physical address of the host in non-canonical form. This attribute is not displayed for hosts on non-LAN media. |
| Values | String (0..8, Dashed Hex) |
| Default | No default |

### ATTRIBUTE Vr Ip Arp DynHost tunnelDestinationAddress (tda)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the IP address of a remote IP tunnel endpoint in the shared domain.<br><br>A value of 0.0.0.0 is used when the entry is not referring to an IP tunnel. |
| Values | IP address |
| Default | 0.0.0.0 |

### COMPONENT Vr Ip Arp HostEntry (Host)

| | |
|---|---|
| Instance | hostAddress (addr) [IP address]<br>cos [0<br>1<br>2<br>3<br>notApplicable (na)] |
| Groups | "GROUP Vr Ip Arp Host Provisioned (Prov)"<br>"GROUP Vr Ip Arp Host Operational (Oper)" |

| | |
|---|---|
| Scope | Application |
| Description | *Vr/<string> Ip Arp HostEntry/<Ip Address>,<Cos>*<br>*Rtr/<string> Arp HostEntry/<Ip Address>,<Cos>*<br>*Rtr/<string> Vrf/<string> Arp HostEntry/<Ip Address>,<Cos>*<br>This component defines a static host entry in the ARP table.<br><br>For *Vr*, a Class of Service (CoS) of ***0, 1, 2,*** or ***3*** should be used when the associated *mediaType* under *IpPort* is one where CoS can be specified on a per virtual circuit basis (for example: ***frameRelay***, ***atmMpeLlcEncap***, and ***atmMpeVcEncap***). For other media types, the CoS value ***notApplicable*** (not VC dependent) should be used.<br><br>For *Router* and *Vrf*, a Class of Service (CoS) of ***0, 1, 2,*** or ***3*** should be used when the associated media is one of *AtmMpe* or *IpoDlci*. For other media types, the CoS value ***notApplicable*** should be used. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Vr Ip Arp Host Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes of the *HostEntry* component. |

## ATTRIBUTE Vr Ip Arp Host physAddress

| | |
|---|---|
| Access | Read and write |
| Description | This attribute identifies the physical address of the host being defined.<br>The value for this attribute should only be specified for media types supporting physical addresses (e.g. ethernet, fddi, tokenRing etc.) |
| Values | String (0..8, Dashed Hex) |

| | |
|---|---|
| Default | 00-00-00-00-00-00 |

### ATTRIBUTE Vr Ip Arp Host maxTxUnit (mtu)

| | |
|---|---|
| Access | Read and write |
| Description | Specify the maximum transmit unit (MTU) size that can be accepted by the host. If this value is not specified, the value for the media interface is used. The specified MTU must be less than or equal to the interface's MTU size. |
| Values | Decimal (0..0; 80..18944) |
| Default | 0 |

### ATTRIBUTE Vr Ip Arp Host permanentVirtualCircuitNumber (pvcNo)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the number of the PVC for the static host entry. It is the instance number of the X.25 media, Frame Relay media, and of the *AtmConnection* component on the ATM MPE interface.. |
| Values | Decimal (0..4095) |
| Default | 0 |

### ATTRIBUTE Vr Ip Arp Host tunnelDestinationAddress (tda)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the IP address of a remote IP tunnel endpoint in the shared domain.<br><br>A value of 0.0.0.0 is used when the entry is not referring to an IP tunnel. |
| Values | IP address |
| Default | 0.0.0.0 |

### ATTRIBUTE Vr Ip Arp Host encap

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute specifies the encapsulation type for the host. The value for this attribute should only be specified for the hosts on the ethernet media. If a value of ***auto*** is specified, the application based on the media will determine the proper applicable encapsulation type. |
| Values | ieee8023<br>ethernet<br>auto |
| Default | auto |

### GROUP Vr Ip Arp Host Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes of the *HostEntry* component. |

### ATTRIBUTE Vr Ip Arp Host operMaxTxUnit (operMtu)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the operational value of the maximum transmission unit. |
| Values | Decimal (0..0; 80..18944) |
| Default | No default |

### ATTRIBUTE Vr Ip Arp Host operEncap

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the operational encapsulation type. if the value of the attribute *encap* is set to ***auto***, then the application will determine the encapsulation type based on the media being used and assigns the appropriate value. |
| Values | ieee8023<br>ethernet<br>notApplicable |
| Default | No default |

## COMPONENT Vr Ip Icmp

| | |
|---|---|
| Groups | "GROUP Vr Ip Icmp Statistics (Stats)" |
| Scope | Application |
| Description | Vr/<string> Ip Icmp<br>Rtr/<string> Icmp<br>Rtr/<string> Vrf/<string> Icmp<br>The Icmp component controls all ICMP related attributes available to this router. |
| Common Verbs | Help<br>List<br>Display |

## VERB Ping Vr Ip Icmp

| | |
|---|---|
| Impact | Passive |
| Description | *Ping -ipAddr(Ip Address) [-srcAddr(Ip Address)] [-netmask(Ip Address)] [-size(30..20000)] [-retry(0..9)] [-traceRoute] [-continuous] [-dontFragment] [-cos(0..3)][-tos(0..FF)][-stop] Vr/<string> Ip Icmp*<br><br>The *Ping* verb is intended for testing network connections at the IP level. The verb invokes ICMP to issue an echo request to the host specified by the *ipAddr* option and waits for its echo response.<br><br>If the *Ping* is successful, it outputs the following information:<br>- number of bytes received<br>- IP address of the responding host<br>- ICMP sequence number of the received packet<br>- elaspsed time from sending of the *Ping* to receiving of the response<br><br>The following options are supported:<br><br>-*srcAddr* is used to define the source IP address of the IP ICMP echo request packet. When not specified or specified as 0.0.0.0, the outgoing IP *Interface* or *LogicalIf* address is used as the |

source address.

-*netmask* when specified is used to define a range of IP host addresses to which echo requests are sent to (ping sweep). The netmask given must be contiguous. The -*retry* option is ignored if used together with this option. By default, the value is set to 255.255.255.255.

-*size* is used to define the size of the IP packet to be echoed including the IP and ICMP header. The default is 64 bytes. The maximum size is 4096.

-*retry* is used to define the number of times an echo request is resent if no echo reply is received. Default is 0.

-*traceRoute* is used to find the route the Passport would use to reach a particular destination IP address at the moment when the *Ping* command is executed with this option. The -*netmask*, -*size*, -*retry* and -*continuous* option are ignored if used together with this option. By default, the *traceRoute* option is not used.

-*continuous* causes ICMP to issue echo requests once per second to the host or hosts specified by the -*ipAddr* and the -*netmask* option. For every echo response ICMP receives, one line of output is printed. No output is produced if there is no response. The -*stop* option is used to stop ICMP from sending the echo requests. By default, the -*continuous* option is not used.

-*dontFragment* causes ICMP to set the Don’t Fragment flag of the IP packet that carries the echo request. This is useful in determining path MTU. By default, the *dontFragment* option is not used.

-*cos* causes the echo request packet to be forwarded with the given Class Of Service. Default is 0.

-*tos* causes the Type Of Service (TOS) byte of the echo request packet to be set to the given value. Default is 0.

-*stop* is used to stop ICMP from sending echo requests due to a previously issued *Ping* command with the -*continuous* and/or -*netmask* option. Under any other situation, the *Ping* command with the -*stop* option has no effect.

Note: Only one *Ping* command per *VirtualRouter* or *Router* or *Router Vrf* is allowed to be in progress at any one time. Any in progress *Ping* command must be stopped before a new *Ping* command can be issued.

## GROUP Vr Ip Icmp Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group holds statistics for ICMP. |

## ATTRIBUTE Vr Ip Icmp inMsgs

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of ICMP messages received by this gateway. This number includes *inErrors*. *inMsgs* wraps to zero if it reaches its maximum defined value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## ATTRIBUTE Vr Ip Icmp inErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of ICMP messages received by this gateway but determined as having ICMP specific errors such as bad ICMP checksums or bad length. *inErrors* wraps to zero if it reaches its maximum defined value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ip Icmp inDestUnreachs

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of ICMP destination unreachable messages received by this gateway. *inDestUnreachs* wraps to zero if it reaches its maximum defined value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ip Icmp inTimeExcds

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of ICMP time exceeded messages received by this gateway. *inTimeExcds* wraps to zero if it reaches its maximum defined value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ip Icmp inParmProbs

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of ICMP parameter problem messages received by this gateway. *inParmProbs* wraps to zero if it reaches its maximum defined value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ip Icmp inSrcQuenchs

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of ICMP source quench messages received by this gateway. *inSrcQuenchs* wraps to zero if it reaches its maximum defined value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Icmp inRedirects

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of ICMP redirect messages received by this gateway. *inRedirects* wraps to zero if it reaches its maximum defined value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ip Icmp inEchos

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of ICMP echo request messages received by this gateway. *inEchos* wraps to zero if it reaches its maximum defined value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ip Icmp inEchoReps

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of ICMP echo reply messages received by this gateway. *inEchoReps* wraps to zero if it reaches its maximum defined value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ip Icmp inTimestamps

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of ICMP timestamp request messages received by this gateway. *inTimeStamps* wraps to zero if it reaches its maximum defined value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ip Icmp inTimestampReps

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of ICMP timestamp reply messages received by this gateway. *inTimeStampReps* wraps to zero if it reaches its maximum defined value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ip Icmp inAddrMasks

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of ICMP address mask request messages received by this gateway. *inAddrMasks* wraps to zero if it reaches its maximum defined value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ip Icmp inAddrMaskReps

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of ICMP address mask reply messages received by this gateway. *inAddrMaskReps* wraps to zero if it reaches its maximum defined value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ip Icmp outMsgs

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of ICMP messages which this gateway attempted to send. This number includes *outErrors*. *outMsgs* wraps to zero if it reaches its maximum defined value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ip Icmp outErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of ICMP messages which this gateway did not send due to problems discovered within ICMP such as a lack of buffers. *outErrors* does not included errors discovered outside the ICMP layer such as the inability of IP to route the resultant datagram. *outErrors* wraps to zero if it reaches its maximum defined value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ip Icmp outDestUnreachs

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of ICMP destination unreachable messages sent by this gateway. *outDestUnreachs* wraps to zero if it reaches its maximum defined value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ip Icmp outTimeExcds

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of ICMP time exceeded messages sent by this gateway. *outTimeExcds* wraps to zero if it reaches its maximum defined value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ip Icmp outParmProbs

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of ICMP parameter problem messages sent by this gateway. *outParmProbs* wraps to zero if it reaches its maximum defined value. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ip Icmp outSrcQuenchs

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of ICMP source quench messages sent by this gateway. *ourSrcQuench* wraps to zero if it reaches its maximum defined value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ip Icmp outRedirects

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of ICMP redirect messages sent by this gateway. *outRedirects* wraps to zero if it reaches its maximum defined value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ip Icmp outEchos

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of ICMP echo request messages sent by this gateway. *outEchos* wraps to zero if it reaches its maximum defined value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ip Icmp outEchoReps

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of ICMP echo reply messages sent by this gateway. *outEchoReps* wraps to zero if it reaches its maximum defined value. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ip Icmp outTimestamps

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of ICMP timestamp request messages sent by this gateway. *outTimeStamps* wraps to zero if it reaches its maximum defined value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ip Icmp outTimestampReps

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of ICMP timestamp reply messages sent by this gateway. *outTimeStampReps* wraps to zero if it reaches its maximum defined value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ip Icmp outAddrMasks

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of ICMP address mask request messages sent by this gateway. *outAddrMasks* wraps to zero if it reaches its maximum defined value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ip Icmp outAddrMaskReps

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of ICMP address mask reply message sent by this gateway. *outAddrMaskReps* wraps to zero if it reaches its maximum defined value. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ip Icmp inRtrAdvs

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of ICMP router advertisement messages received by this gateway. *inRtrAdvs* wraps to zero if it reaches its maximum defined value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ip Icmp inRtrSolicits

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of ICMP router solicitation messages received by this gateway. *inRtrSolicits* wraps to zero if it reaches its maximum defined value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ip Icmp outRtrAdvs

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of ICMP router advertisement messages sent by this gateway. *outRtrAdvs* wraps to zero if it reaches its maximum defined value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ip Icmp outRtrSolicits

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of ICMP router solicitation messages sent by this gateway. *outRtrSolicits* wraps to zero if it reaches its maximum defined value. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT Vr Ip RelayBC

| | |
|---|---|
| Groups | "GROUP Vr Ip RelayBC Provisioned (Prov)"<br>"GROUP Vr Ip RelayBC Operational (Oper)" |
| Scope | Application |
| Description | *Vr/<string> Ip RelayBC*<br>*Rtr/<string> RelayBC*<br>*Rtr/<string> Vrf/<string> RelayBC*<br>The *InwRelayBroadcast* component controls the dissemination of IP broadcast packets received as Link-Layer broadcast. |
| Opt. Subcomp. | "COMPONENT Vr Ip RelayBC PortEntry (Port)" |
| Common Verbs | Help<br>List<br>Display |

### GROUP Vr Ip RelayBC Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains global configuration attributes for the Relay Broadcast component. |

### ATTRIBUTE Vr Ip RelayBC relayStatus

| | |
|---|---|
| Access | Read and write |
| Description | Specifies whether or not IP will forward IP broadcast packets that were received as Link-Layer broadcasts. |
| Values | enabled<br>disabled |
| Default | disabled |

### ATTRIBUTE Vr Ip RelayBC relayNdStatus

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | Specifies whether or not IP will forward broadcast packets whose protocol is Sun ND. |
| Values | enabled<br>disabled |
| Default | disabled |

### GROUP Vr Ip RelayBC Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains RelayBroadcast component statistics. |

### ATTRIBUTE Vr Ip RelayBC relayNdCount

| | |
|---|---|
| Access | Read only |
| Description | Indicates the number of Sun ND packets received by this router which were forwarded. *relayNdCount* wraps to zero if reached its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT Vr Ip RelayBC PortEntry (Port)

| | |
|---|---|
| Instance | Decimal (0..4294967295) |
| Groups | "GROUP Vr Ip RelayBC Port Operational (Oper)" |
| Scope | Application |
| Description | *Vr/<string> Ip RelayBC PortEntry/<Decimal>*<br>*Rtr/<string> RelayBC PortEntry/<Decimal>*<br>This component is a table of destination UDP port numbers. In order for a packet to be forwarded by Relay Broadcast, the packet's destination UDP port number must be listed in this table. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Vr Ip RelayBC Port Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistics related to *InwPortEntry*. |

## ATTRIBUTE Vr Ip RelayBC Port relayBcUdpCount

| | |
|---|---|
| Access | Read only |
| Description | Indicates the number of forwarded packets with this destination UDP port number. *relayBcUdpCount* wraps to zero if reached its maximum. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## COMPONENT Vr Ip Udp

| | |
|---|---|
| Groups | "GROUP Vr Ip Udp Statistics (Stats)" |
| Scope | Application |
| Description | *Vr/<string> Ip Udp*<br>*Rtr/<string> Udp*<br>*Rtr/<string> Vrf/<string> Udp*<br>*Udp* component controls all UDP related attributes supported by this router. |
| Dyn. Subcomp. | "COMPONENT Vr Ip Udp ListenEntry" |
| Common Verbs | Help<br>List<br>Display |

## GROUP Vr Ip Udp Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group holds statictics for UDP. |

## ATTRIBUTE Vr Ip Udp inDatagrams

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | The number of UDP datagrams delivered to UDP users. *inDatagrams* wraps to zero if reaches its maximum defined value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Udp noPorts

| | |
|---|---|
| Access | Read only |
| Description | The number of UDP datagrams received for which there was no application at the destination port. *noPorts* wraps to zero if reaches its maximum defined value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Udp inErrors

| | |
|---|---|
| Access | Read only |
| Description | The number of received UDP datagrams that could not be delivered for reasons other than the lack of an application at the destination port. *inErrors* wraps to zero if reaches its maximum defined value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Udp outDatagrams

| | |
|---|---|
| Access | Read only |
| Description | The number of UDP datagrams sent from this gateway. *outDatagrams* wraps to zero if reaches its maximum defined value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## COMPONENT Vr Ip Udp ListenEntry

| | |
|---|---|
| Instance | localAddress [IP address]<br>localPort [Decimal (0..65535)] |
| Scope | Application |
| Description | The table contains UDP listener information. |
| Common Verbs | Help<br>List<br>Display<br>LOCK<br>Unlock |

## COMPONENT Vr Ip Tcp

| | |
|---|---|
| Groups | "GROUP Vr Ip Tcp Statistics (Stats)" |
| Scope | Application |
| Description | The *Tcp* component contains all attributes related to TCP. |
| Dyn. Subcomp. | "COMPONENT Vr Ip Tcp TcpEntry (TcpEntry)" |
| Common Verbs | Help<br>List<br>Display |

## GROUP Vr Ip Tcp Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistics for TCP. |

## ATTRIBUTE Vr Ip Tcp rToAlgorithm

| | |
|---|---|
| Access | Read only |
| Description | Indicate which algorithm was used to calculate the timeout value used for retransmitting unackowledged octet. |
| Values | other<br>constant |

| | |
|---|---|
| | rsre<br>vanJacobson |
| Default | No default |

### ATTRIBUTE Vr Ip Tcp rToMin

| | |
|---|---|
| Access | Read only |
| Description | Indicate the minimum value, measured in milliseconds, allowed for retransmission timeout. |
| Values | Decimal (0..4294967295) |
| Units | msec |
| Default | 0 |

### ATTRIBUTE Vr Ip Tcp rToMax

| | |
|---|---|
| Access | Read only |
| Description | Indicates the maximun value, measured in milliseconds, allowed for retransmission timeout. |
| Values | Decimal (0..4294967295) |
| Units | msec |
| Default | No default |

### ATTRIBUTE Vr Ip Tcp maxConn

| | |
|---|---|
| Access | Read only |
| Description | Limit on number of connections the TCP can support. The value is always -1 which indicates that the number of connections supported is dynamic (limited by memory in the system). |
| Values | Signed (-1) |
| Default | -1 |

### ATTRIBUTE Vr Ip Tcp activeOpens

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | The number of times TCP connections have made a direct transition to the ***synSent*** state from the ***closed*** state. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Tcp passiveOpens

| | |
|---|---|
| Access | Read only |
| Description | The number of times TCP connections have made a direct transition to the ***synRcvd*** state from the ***listen*** state. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Tcp attemptFails

| | |
|---|---|
| Access | Read only |
| Description | The number of times TCP connections have made a direct transition to the ***closed*** state from either the ***synSent*** state or the ***synRcvd*** state, plus the number of times TCP connections have made a direct transition to the ***listen*** state from the ***synRcvd*** state. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Tcp estabResets

| | |
|---|---|
| Access | Read only |
| Description | The number of times TCP connections have made a direct transition to the ***closed*** state from either the ***established*** state or the ***closedWait*** state. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Tcp currEstab

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | The number of TCP connections for which the current state is either ***established*** or ***closedWait***. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Tcp inSegs

| | |
|---|---|
| Access | Read only |
| Description | The number of segments received, including those received in error. This count includes segments received on currently established connections. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Tcp outSegs

| | |
|---|---|
| Access | Read only |
| Description | The number of segments sent, including those on current connections but excluding those containing only retransmitted octets. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Tcp retransSegs

| | |
|---|---|
| Access | Read only |
| Description | The number of segments retransmitted that is, the number of TCP segments transmitted containing one or more previously transmitted octets. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Tcp inErrs

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | Total number of segments received in error, for example bad TCP checksum. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Tcp outRsts

| | |
|---|---|
| Access | Read only |
| Description | Number of TCP segments sent containing the RST flag. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT Vr Ip Tcp TcpEntry (TcpEntry)

| | |
|---|---|
| Instance | localAddress [IP address]<br>localPort [Decimal (0..65535)]<br>remoteAddress [IP address]<br>remotePort [Decimal (0..65535)] |
| Groups | "GROUP Vr Ip Tcp TcpEntry Operational (Oper)" |
| Scope | Application |
| Description | The component defines an entry in the TCP connection table. Each entry corresponds to TCP end-point identified by 4-tuples, *LocalAddress*, *LocalPort*, *RemoteAddress*, and *RemotePort*. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Vr Ip Tcp TcpEntry Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains columnar entries for each end-point on the TCP. |

### ATTRIBUTE Vr Ip Tcp TcpEntry state

| | |
|---|---|
| Access | Read and write |

Description This attribute reflects the current state of this Tcp connection.

Values
closed
listen
synSent
synReceived
established
closeWait
finWait1
closing
lastAck
finWait2
timeWait
delete

Default No default

## COMPONENT Vr Ip BootpRelayAgent (Bootp)

Groups
"GROUP Vr Ip Bootp AdministrativeControl (AdminControl)"
"GROUP Vr Ip Bootp Provisioned (Prov)"
"GROUP Vr Ip Bootp OsiState (State)"
"GROUP Vr Ip Bootp OperationalStatus (OperStatus)"

Scope Application

Description
*Vr/<string> Ip BootpRelayAgent*
*Rtr/<string> BootpRelayAgent*
*Rtr/<string> Vrf<string> BootpRelayAgent*
The *BootpRelayAgent* component contains all the necessary attributes and components to provision a BOOTP relay agent. The BOOTP relay agent functionality conforms to that described in RFCs 951 and 1542.

The purpose of the BOOTP relay agent is to forward BOOTP request packets from a client to a server, and also to deliver server BOOTP replies back to the client. When a BOOTP request is received on a port, the request will be sent to a provisioned list of

IP addresses for that port. In addition, the request will be broadcast out all other BOOTP ports which allow it.

Dyn. Subcomp. "COMPONENT Vr Ip Bootp BootpPortEntry (PpE)"

Common Verbs

Help
List
Display
Add
DELete
LOCK
Unlock

## GROUP Vr Ip Bootp AdministrativeControl (AdminControl)

Properties Provisioned

Description This group includes the Administrative Control attribute. This attribute defines the current administrative state of this component.

## ATTRIBUTE Vr Ip Bootp snmpAdminStatus

Access Read and write

Description The desired state of the interface. The ***up*** state indicates the interface is operational and packet forwarding is allowed. The ***down*** state indicates the interface is not operational and packet forwarding is unavailable. The ***testing*** state indicates that no operational packets can be passed.

Values
up
down
testing

Default up

## GROUP Vr Ip Bootp Provisioned (Prov)

Properties Provisioned

Description This group contains provisionable attributes for the *BootpRelayAgent* component.

### ATTRIBUTE Vr Ip Bootp hopDiscardThreshold (hops)

| | |
|---|---|
| Access | Read and write |
| Description | BOOTP packets contain a ‘hops’ field which is used to limit the number of relay agents that can process the packet (each relay agent increments the ‘hops’ field by one). This attribute is used by the relay agent to determine when to discard a BOOTP packet. If the ‘hops’ field exceeds the *hopDiscardThreshold* the BOOTP packet will be discarded. |
| Values | Decimal (2..16) |
| Default | 4 |

### GROUP Vr Ip Bootp OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Vr Ip Bootp adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is |

administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Vr Ip Bootp operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Vr Ip Bootp usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

| | |
|---|---|
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Vr Ip Bootp OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

### ATTRIBUTE Vr Ip Bootp snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### COMPONENT Vr Ip Bootp BootpPortEntry (PpE)

| | |
|---|---|
| Instance | String (1..20, ASCII) |
| Groups | "GROUP Vr Ip Bootp PpE Operational (Oper)"<br>"GROUP Vr Ip Bootp PpE Statistics (Stats)" |
| Scope | Application |
| Description | *Vr/<string> Ip BootpRelayAgent BootpPortEntry/<string> Rtr/<string> BootpRelayAgent BootpPortEntry/<string> Rtr/<string> Vrf/<string> BootpRelayAgent BootpPortEntry/ <string>*<br>The *BootpPortEntry* component contains information about the provisioned *BootpPort*. This component is indexed by a string |

which represents a *VirtualRouter ProtocolPort* or *Rtr Interface* or *Rtr Vrf Interface* component name.

Common Verbs

Help
List
Display

## GROUP Vr Ip Bootp PpE Operational (Oper)

Properties: Operational

Description: This group contains *BootpPortEntry* component operational data.

## ATTRIBUTE Vr Ip Bootp PpE status

Access: Read only

Description: This attribute indicates the status of the provisioned *BootpPortEntry* component. A value of ***disabled*** is used when the parent components is in a disabled state. A value of ***up*** is used when the *BootpPortEntry* is in an operational state. A state of ***down*** is used if the media associated with the *BootpPortEntry* is not ready or disabled.

Values:
up
down
disabled

Default: No default

## GROUP Vr Ip Bootp PpE Statistics (Stats)

Properties: Operational

Description: This group contains *BootpPortEntry* component statistics.

## ATTRIBUTE Vr Ip Bootp PpE inRequests

Access: Read only

| | |
|---|---|
| Description | This attribute counts the total number of BOOTP Request messages received on this port. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ip Bootp PpE inReplies

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of BOOTP Reply messages received on this port. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ip Bootp PpE outRequests

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts total the number of BOOTP Request messages broadcast out on this port. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ip Bootp PpE outReplies

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of BOOTP Reply messages sent out on this port. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ip Bootp PpE inRequestErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of BOOTP Request messages received on this port but not forwarded due to an error. An error occurs if the BOOTP hop limit has been exceeded. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ip Bootp PpE inReplyErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of BOOTP Reply messages received on this port but not forwarded due to an error. An error occurs if the giaddr field in the BOOTP reply does not match an IP address assigned to this *VirtualRouter* or *Rtr* or *Rtr Vrf*, or if the output *IpPort* or *Interface* for the BOOTP reply is not provisioned for BOOTP. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT Vr Ip Cache

| | |
|---|---|
| Instance | Decimal (0..15) |
| Groups | "GROUP Vr Ip Cache OsiState (State)"<br>"GROUP Vr Ip Cache Operational (Oper)" |
| Scope | Application |
| Description | *Vr/<string> Ip Cache/n*<br>*Rtr/<string> Cache/n*<br>*Rtr/<string> Vrf/<string> Cache/n*<br>This component represents the IP cache table on LP *n*. |
| Common Verbs | Help<br>List<br>Display |

### VERB Clear Vr Ip Cache

| | |
|---|---|
| Impact | Service |
| Description | *Clear Vr/<string> Ip Cache/n*<br>*Clear Router/<string> Cache/n*<br>*Clear Router/<string> Vrf/<string> Cache/n*<br>This verb clears all entries in the cache table on LP *n*. This command deletes all the *Entry* subcomponents of *Cache/n*. |

### GROUP Vr Ip Cache OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Vr Ip Cache adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |

| | |
|---|---|
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Vr Ip Cache operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Vr Ip Cache usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |

| | |
|---|---|
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Vr Ip Cache Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group houses all the operational attributes of an *Ip* cache table. |

### ATTRIBUTE Vr Ip Cache entriesFree (ef)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is indicative of the number of free *Ip* cache table entries.<br>A consistently high value for this attribute indicates that there is a resource surplus of the memory requirements for cache table. This surplus could be utilized elsewhere if needed by adjusting the appropriate *cacheTableMaxEntries* attribute. For *Vr*, *cacheTableMaxEntries* is under the *Ip* component; for *Rtr* and *Vrf*, it is under the respective components. |
| Values | Decimal (0..8000) |
| Default | No default |

### ATTRIBUTE Vr Ip Cache totalLookups (tl)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of local cache lookups. It wraps around to zero when it exceeds its maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Cache lookupMisses (lm)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the total number of local cache lookup misses. It wraps around to zero when it exceeds its maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Cache cacheTableMaxEntries (ctme)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current maximum number of entries that can exist in the IP local cache table on each LP. |
| Values | Decimal (0..8000) |
| Default | No default |

### COMPONENT Vr Ip Tunnel

| | |
|---|---|
| Groups | "GROUP Vr Ip Tunnel OsiState (State)"<br>"GROUP Vr Ip Tunnel Operational (Oper)"<br>"GROUP Vr Ip Tunnel Provisioned (Prov)" |
| Scope | Application |
| Description | *Vr/<string> Ip Tunnel*<br>The *Tunnel* component is used to add, delete and modify tunnel end points. |
| Opt. Subcomp. | "COMPONENT Vr Ip Tunnel StaticEndPoint (Sep)"<br>"COMPONENT Vr Ip Tunnel MultipointStaticEndPoint (Msep)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

### GROUP Vr Ip Tunnel OsiState (State)

| | |
|---|---|
| Properties | Operational |

Description

This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

## ATTRIBUTE Vr Ip Tunnel adminState (osiAdmin)

Access

Read only

Description

This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values

locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default

unlocked

## ATTRIBUTE Vr Ip Tunnel operationalState (osiOper)

Access

Read only

Description

This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be

providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Vr Ip Tunnel usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Vr Ip Tunnel Operational (Oper)

Properties
Operational

Description
This group contains the operational attributes for the *Tunnel* component.

### ATTRIBUTE Vr Ip Tunnel optimizationStatus (opts)

Access
Read only

| | |
|---|---|
| Description | This attribute indicates the tunnel optimization status of this *Tunnel* instance.<br><br>***optimized***: The IP tunnels represented by the *Msep* subcomponents of this *Tunnel* instance have been optimized.<br><br>***ineligible***: The conditions necessary for tunnel optimization are not met. None of the IP tunnels represented by the *Msep* subcomponents of this *Tunnel* instance have been optimized.<br><br>***eligible***: All of the conditions necessary for tunnel optimization are met, but the *optimization* attribute has been set to ***disabled***. None of the IP tunnels represented by the *Msep* subcomponents of this *Tunnel* instance have been optimized.<br><br>***optimizationOnHold***: All of the conditions necessary for tunnel optimization are met, but since the tunnel was in the ineligible state with the *optimization* attribute set to ***enabled***, it does not go into the ***optimized*** state. Instead, the tunnel goes into the ***optimizationOnHold*** state. To proceed with optimization, disable and reenable optimization. |
| Values | optimized<br>ineligible<br>eligible<br>optimizationOnHold |
| Default | No default |

### GROUP Vr Ip Tunnel Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the *Tunnel* component. |

### ATTRIBUTE Vr Ip Tunnel optimization (opt)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether tunnel optimization is enabled for the *Msep* subcomponents of this *Tunnel* instance. Tunnel optimization is not performed for any of the *Msep* |

subcomponents if either of the following is true:

- The *VirtualRouter* has *ProtocolPort* components that are linked to components representing physical media on more than one access card. This includes the case when one of the cards is a standby card, or when the physical media is linked to a SONET or SDH port which is protected by inter-card APS. This also includes if *AtmMultiprotocolEncapsulation SpvcTerminationPoint* is used and the *AtmConnection* components resides on more than one access card.

- The *VirtualMedia Interface* component corresponding to any of the *Msep* subcomponent of this *Tunnel* instance has its *mode* attribute set to a value other than ***alwaysUpSummaryInterface***.

This attribute must be set to ***disabled*** if the *VirtualRouter* has a *ProtocolPort* which is linked to an *AtmMpe* component whose *encapType* attribute is set to ***llcBridgeEncap***.

Values: disabled
enabled

Default: disabled

## COMPONENT Vr Ip Tunnel StaticEndPoint (Sep)

Instance: Decimal (0..63)

Groups: "GROUP Vr Ip Tunnel Sep IfEntryProv (IfEntry)"
"GROUP Vr Ip Tunnel Sep MediaProv (Mp)"
"GROUP Vr Ip Tunnel Sep Provisioned (Prov)"
"GROUP Vr Ip Tunnel Sep Operational (Oper)"

Scope: Application

Description: *Vr/<string> Ip Tunnel StaticEndPoint/n*
An IP tunnel allows two geographically separated networks to be connected over a shared IP network (for example the Internet), either because the networks at the end points are using private IP address or they are not running IP as the network protocol.

This component represents a static IP Tunnel End Point. It is static in the sense that both the tunnel source and destination IP

addresses are static configured. For proper operation of the tunnel, the exact source and destination IP addresses (in reverse order) must be used to provision the Tunnel End Point on the far end router.

Two types of IP tunnel encapsulation are supported: IP in IP as specified in RFC 2003 and Generic Routing Encapsulation as specified in RFC 1701. Note: IP in IP tunnel encapsulation is not compliant with RFC 2003 when using an ATM IP FP as a backbone FP.

Common Verbs

Help
List
Display
Add
DELete

## GROUP Vr Ip Tunnel Sep IfEntryProv (IfEntry)

Properties: Provisioned

Description: This group contains the provisionable attributes for the ifEntry.

## ATTRIBUTE Vr Ip Tunnel Sep ifAdminStatus (ifState)

Access: Read and write

Description: The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed.

Values:
up
down
testing

Default: up

### ATTRIBUTE Vr Ip Tunnel Sep ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP Vr Ip Tunnel Sep MediaProv (Mp)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the base provisioning data for the media base component. |

### ATTRIBUTE Vr Ip Tunnel Sep linkToProtocolPort (pp)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the *ProtocolPort* to which this interface is linked to. The protocol port is the logical interface to the network. The protocol port component describes the logical characteristics of this interface. |
| Values | Link (Service, linkToMedia) |
| Default | No default |

### GROUP Vr Ip Tunnel Sep Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the *StaticEndPoint* component. |

### ATTRIBUTE Vr Ip Tunnel Sep encapType

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |

| | |
|---|---|
| Description | There are two types of encapsulation techniques for IP tunnel, IP in IP (RFC 2003) and GRE over IP (RFC 1701). This attributes specifies the encapsulation type of the IP tunnel.<br><br>***ipInIp***: As defined in RFC 2003, it can be used to encapsulated IP and IP payload only. If IP is the only type of payload to be encapsulated by the tunnel, this type of encapsulation is recommended as it requires less processing and uses less bandwidth. Note: IP in IP tunnel encapsulation is not compliant with RFC 2003 when using an ATM IP FP as a backbone FP.<br><br>***greIp***: As defined in RFC 1701, it can be used to encapsulate IP or IPX payload. To encapsulate IPX payload, this encapsulation type must be used. |
| Values | ipInIp<br>greIp |
| Default | ipInIp |

## ATTRIBUTE Vr Ip Tunnel Sep sourceAddress (src)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the IP address of the local end of the tunnel. The source address must be an address in the shared domain, and it must equal to an interface address on its own Virtual Router (under *Vr/<string> Pp/<string> IpPort LogicalIf/ <IpAddress>*). However, it must not be the interface address of the linked protocol port's *IpPort* component.<br><br>The *sourceAddress* of *StaticEndPoint* or *MultipointStaticEndPoint* components within the same *sharedDomainVirtualRouter* must be unique. |
| Values | IP address |
| Default | 0.0.0.0 |

## ATTRIBUTE Vr Ip Tunnel Sep destinationAddress (dst)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the IP address of the far end of the tunnel. It must not match any of the IP interface addresses on this Virtual Router. |
| Values | IP address |
| Default | 0.0.0.0 |

## GROUP Vr Ip Tunnel Sep Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational status attributes of the *StaticEndPoint* component. |

## ATTRIBUTE Vr Ip Tunnel Sep discoveredPathMtu (dmtu)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the latest learned Path MTU of the tunnel.<br><br>An MTU is the maximum transmission unit of an arbitrary internet path. When a large amount of IP datagrams are to be transmitted, it is usually preferable that the datagrams be of the largest size that does not require fragmentation anywhere along the path from the source to the destination. This datagram size is referred to as the Path MTU (PMTU). It is equal to the minimum of the MTUs of each hop in the path. |
| Values | Decimal (0; 100..18944) |
| Default | 0 |

## COMPONENT Vr Ip Tunnel MultipointStaticEndPoint (Msep)

| | |
|---|---|
| Instance | Decimal (0..1) |
| Groups | "GROUP Vr Ip Tunnel Msep IfEntryProv (IfEntry)"<br>"GROUP Vr Ip Tunnel Msep MediaProv (Mp)"<br>"GROUP Vr Ip Tunnel Msep Provisioned (Prov)" |

"GROUP Vr Ip Tunnel Msep Operational (Oper)"
"GROUP Vr Ip Tunnel Msep DestinationDiscovery (DstDisovery)"

Scope: Application

Description: *Vr/<string> Ip Tunnel MultipointStaticEndPoint/n*
An IP tunnel allows more than one geographically separated networks to be connected over a shared IP network (for example the Internet) because the networks at the end points are using private IP address.

This component represents a static IP Tunnel End Point of a point-to-multipoint IP Tunneling configuration. It is static in the sense that both the tunnel source address and the list of destination IP addresses are statically configured.

Only one type of IP tunnel encapsulation is supported: IP in IP as specified in RFC 2003. Note: IP in IP tunnel encapsulation is not compliant with RFC 2003 when using an ATM IP FP as a backbone FP.

Common Verbs:
Help
List
Display
Add
DELete

## GROUP Vr Ip Tunnel Msep IfEntryProv (IfEntry)

Properties: Provisioned

Description: This group contains the provisionable attributes for the ifEntry.

## ATTRIBUTE Vr Ip Tunnel Msep ifAdminStatus (ifState)

Access: Read and write

Description: The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed.

| | |
|---|---|
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE Vr Ip Tunnel Msep ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP Vr Ip Tunnel Msep MediaProv (Mp)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the base provisioning data for the media base component. |

### ATTRIBUTE Vr Ip Tunnel Msep linkToProtocolPort (pp)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the *ProtocolPort* to which this interface is linked to. The protocol port is the logical interface to the network. The protocol port component describes the logical characteristics of this interface. |
| Values | Link (Service, linkToMedia) |
| Default | No default |

### GROUP Vr Ip Tunnel Msep Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |

| | |
|---|---|
| Description | This group contains the provisionable attributes for the *MultipointStaticEndPoint* component. |

### ATTRIBUTE Vr Ip Tunnel Msep pathMtu (mtu)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the Path Maximum Transmission Unit (PMTU) of the IP Tunnel. If this attribute is set to discovered, the lowest PMTU value for all tunnel endpoints will be discovered and used to forward IP datagrams. Otherwise, if this attribute is set to an actual value, the value must be less or equal to the PMTU of all tunnel endpoints. IP fragmentation will occur for IP datagrams larger than PMTU. |
| Values | Decimal (100..18944)<br>discovered |
| Default | 9180 |

### ATTRIBUTE Vr Ip Tunnel Msep encapType

| | |
|---|---|
| Access | Read and write |
| Description | This component only supports one type of encapsulation technique for IP tunnel: IP in IP (RFC 2003).<br><br>***ipInIp***: As defined in RFC 2003, it can be used to encapsulated IP and IP payload only. Note: IP in IP tunnel encapsulation is not compliant with RFC 2003 when using an ATM IP FP as a backbone FP. |
| Values | ipInIp |
| Default | ipInIp |

### ATTRIBUTE Vr Ip Tunnel Msep sharedDomainVirtualRouter (sdvr)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the virtual router at the source endpoint of the IP tunnel. The value must specify a *VirtualRouter* component whose *vpnMode* attribute is set to ***carrier***. |

| | |
|---|---|
| Values | The name of the component |
| Default | No default |

### ATTRIBUTE Vr Ip Tunnel Msep sourceAddress (src)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the IP address of the local end of the IP tunnel in the shared domain.<br>There must be a logical interface with this IP address under the virtual router instance specified in the *sharedDomainVirtualRouter* attribute.<br>This interface IP address cannot be an IP address defined under this IP tunnel protocol port.<br><br>The *sourceAddress* of *StaticEndPoint* or *MultipointStaticEndPoint* components within the same *sharedDomainVirtualRouter* must be unique. |
| Values | IP address |
| Default | 0.0.0.0 |

### ATTRIBUTE Vr Ip Tunnel Msep autoDiscovery (disc)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether the IP VPN auto discovery feature is enabled or disabled on this MSEP instance. If the value is ***enabled*** the MSEP instance exchanges the tunnel source and destination addresses with the BGP-4 instance configured on the same customer VR. |
| Values | disabled<br>enabled |
| Default | disabled |

### ATTRIBUTE Vr Ip Tunnel Msep destinationAddresses (dst)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the list of IP addresses mapping to each of the far end IP tunnel endpoints in the private domain. It must not match any of the IP interface addresses on the Virtual Router pointed to by the *sharedDomainVirtualRouter* attribute. |
| List of | IP address |
| Default | No default |

### GROUP Vr Ip Tunnel Msep Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational status attributes of the *StaticEndPoint* component. |

### ATTRIBUTE Vr Ip Tunnel Msep discoveredPathMtu (dmtu)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the latest learned Path MTU of the tunnel.<br><br>An MTU is the maximum transmission unit of an arbitrary internet path. When a large amount of IP datagrams are to be transmitted, it is usually preferable that the datagrams be of the largest size that does not require fragmentation anywhere along the path from the source to the destination. This datagram size is referred to as the Path MTU (PMTU). It is equal to the minimum of the MTUs of each hop in the path. |
| Values | Decimal (0; 100..18944) |
| Default | 0 |

### GROUP Vr Ip Tunnel Msep DestinationDiscovery (DstDisovery)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational status attributes of the *MultipointStaticEndPoint* component. |

## ATTRIBUTE Vr Ip Tunnel Msep discoveredDestinationAddresses (ddst)

| | |
|---|---|
| Access | Read only |
| Description | This attribute shows the list of IP addresses mapping to each of the remote IP tunnel endpoints in the private domain. The endpoints are learned by BGP-4 when this MSEP instance is configured to run auto discovery. |
| List of | IP address |
| Default | No default |

## COMPONENT Vr Ip NextHopResolutionProtocol (Nhrp)

| | |
|---|---|
| Groups | "GROUP Vr Ip Nhrp AdministrativeControl (AdminControl)"<br>"GROUP Vr Ip Nhrp Provisioned (Prov)"<br>"GROUP Vr Ip Nhrp OsiState (State)"<br>"GROUP Vr Ip Nhrp OperationalStatus (OperStatus)"<br>"GROUP Vr Ip Nhrp Operational (Oper)" |
| Scope | Application |
| Description | *Vr/<string> Ip NextHopResolutionProtocol*<br>This component represents a co-located NHRP Client and Server as specified in RFC2332. NHRP provides a method for a station connected to a Non-Broadcast Multiple Access (NBMA) subnetwork to determine the internetworking layer address and NBMA subnetwork address of the “next hop” towards a destination station. NHRP reduces or eliminates the extra hops required by the existing logically independent IP subnet (LIS) model. |

| | |
|---|---|
| Subcomponents | "COMPONENT Vr Ip Nhrp NextHopServer (Nhs)"<br>"COMPONENT Vr Ip Nhrp NextHopClient (Nhc)" |
| Dyn. Subcomp. | "COMPONENT Vr Ip Nhrp ResCacheEntry (Rce)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

### GROUP Vr Ip Nhrp AdministrativeControl (AdminControl)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group includes the Administrative Control attribute. This attribute defines the current administrative state of this component. |

### ATTRIBUTE Vr Ip Nhrp snmpAdminStatus

| | |
|---|---|
| Access | Read and write |
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational and packet forwarding is allowed. The ***down*** state indicates the interface is not operational and packet forwarding is unavailable. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### GROUP Vr Ip Nhrp Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |

| | |
|---|---|
| Description | This group contains the provisionable attributes of the *Nhrp* component. |

### ATTRIBUTE Vr Ip Nhrp maxResCacheEntries

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum number of *ResCacheEntry* components which may exist under the *Nhrp* component at any one time. Reducing the value of this attribute will not clear existing entries. |
| Values | Decimal (32..1024) |
| Default | 512 |

### ATTRIBUTE Vr Ip Nhrp fwdTransitRecord (ftr)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether to attach a forward transit record extension to NHRP packets (Resolution and Purge requests) that Passport originates. This extension along with NHRP debug tracing set to “verbose” can be used in tracing the path the NHRP packet takes from source to destination. |
| Values | enabled<br>disabled |
| Default | disabled |

### ATTRIBUTE Vr Ip Nhrp revTransitRecord (rtr)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether to attach a reverse transit record extension to Resolution Request packets that Passport originates. This extension along with NHRP debug tracing set to “verbose” can be used in tracing the path the NHRP packet takes from destination to source. |
| Values | enabled<br>disabled |
| Default | disabled |

## GROUP Vr Ip Nhrp OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

## ATTRIBUTE Vr Ip Nhrp adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

## ATTRIBUTE Vr Ip Nhrp operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component. |

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Vr Ip Nhrp usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Vr Ip Nhrp OperationalStatus (OperStatus)

Properties
Operational

Description
This group includes the Operational Status attribute. This attribute defines the current operational state of this component.

### ATTRIBUTE Vr Ip Nhrp snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### GROUP Vr Ip Nhrp Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes of the *Nhrp* component. |

### ATTRIBUTE Vr Ip Nhrp currResCacheEntries

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current number of entries in the NHRP resolution cache table. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Nhrp peakResCacheEntries

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the peak value of *currResCacheEntries* since the *Nhrp snmpOperStatus* attribute last became ***up***. |
| Values | Decimal (0..4292967295) |
| Default | No default |

## COMPONENT Vr Ip Nhrp NextHopServer (Nhs)

| | |
|---|---|
| Groups | "GROUP Vr Ip Nhrp Nhs Statistics (Stats)" |
| Scope | Application |
| Description | *Vr/<string> Ip Nhrp NextHopServer*<br>This component represents the NHRP server. The server performs the NHRP service within the NBMA cloud. |
| Opt. Subcomp. | "COMPONENT Vr Ip Nhrp Nhs EgressPolicy (Ep)" |
| Common Verbs | Help<br>List<br>Display |

## GROUP Vr Ip Nhrp Nhs Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the statistics attributes of the *Nhs* component. |

## ATTRIBUTE Vr Ip Nhrp Nhs rxResolveReq

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the NHRP Resolution Requests received by this server.<br>This counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4292967295) |
| Default | No default |

## ATTRIBUTE Vr Ip Nhrp Nhs txResolveReplyAck

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the positively acknowledged NHRP Resolution Replies transmitted by this server.<br>This counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Nhrp Nhs txResolveReplyNakProhibited

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the NAK NHRP Resolution Replies transmitted by this server with the code ‘Administratively Prohibited’.<br>This counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Nhrp Nhs txResolveReplyNakInsufResources

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the NAK NHRP Resolution Replies transmitted by this server with the code ‘Insufficient Resources’.<br>This counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Nhrp Nhs txResolveReplyNakNoBinding

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the NAK NHRP Resolution Replies transmitted by this server with the code ‘No Internetworking Layer Address to NBMA Address Binding Exists’.<br>This counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Nhrp Nhs txResolveReplyNakNotUnique

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the NAK NHRP Resolution Replies transmitted by this server with the code ‘Binding Exists But Is Not Unique’.<br>This counter wraps to zero when the maximum value is exceeded. |

| | |
|---|---|
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Nhrp Nhs rxRegisterReq

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the NHRP Registration Requests received by this server. Registration is not supported, therefore all NHRP Registration Requests are silently dropped.<br>This counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Nhrp Nhs rxPurgeReq

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the NHRP Purge Requests received by this server.<br>This counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Nhrp Nhs txPurgeReq

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the NHRP Purge Requests transmitted by this server.<br>This counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Nhrp Nhs rxPurgeReply

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the NHRP Purge Replies received by this server.<br>This counter wraps to zero when the maximum value is exceeded. |

| | |
|---|---|
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Nhrp Nhs txPurgeReply

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the NHRP Purge Replies transmitted by this server.<br>This counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Nhrp Nhs rxErrUnrecognizedExtension

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the NHRP Error Indication packets received by this server with the error code ‘Unrecognized Extension’.<br>This counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Nhrp Nhs rxErrLoopDetected

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the NHRP Error Indication packets received by this server with the error code ‘NHRP Loop Detected’.<br>This counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Nhrp Nhs rxErrProtoAddrUnreachable

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the NHRP Error Indication packets received by this server with the error code ‘Protocol Address Unreachable’.<br>This counter wraps to zero when the maximum value is exceeded. |

| | |
|---|---|
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Nhrp Nhs rxErrProtoError

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the NHRP Error Indication packets received by this server with the error code ‘Protocol Error’.<br>This counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Nhrp Nhs rxErrSduSizeExceeded

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the NHRP Error Indication packets received by this server with the error code ‘NHRP SDU Size Exceeded’.<br>This counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Nhrp Nhs rxErrInvalidExtension

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the NHRP Error Indication packets received by this server with the error code ‘Invalid Extension’.<br>This counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Nhrp Nhs rxErrInvalidResReplyReceived

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the NHRP Error Indication packets received by this server with the error code ‘Invalid Resolution Reply Received’.<br>This counter wraps to zero when the maximum value is exceeded. |

| | |
|---|---|
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Nhrp Nhs rxErrAuthenticationFailure

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the NHRP Error Indication packets received by this server with the error code ‘Authentication Failure’.<br>This counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Nhrp Nhs rxErrHopCountExceeded

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the NHRP Error Indication packets received by this server with the error code ‘Hop Count Exceeded’.<br>This counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Nhrp Nhs txErrUnrecognizedExtension

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the NHRP Error Indication packets transmitted by this server with the error code ‘Unrecognized Extension’.<br>This counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Nhrp Nhs txErrLoopDetected

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the NHRP Error Indication packets transmitted by this server with the error code ‘NHRP Loop |

Detected'.
This counter wraps to zero when the maximum value is exceeded.

Values Decimal (0..4292967295)

Default No default

### ATTRIBUTE Vr Ip Nhrp Nhs txErrProtoAddrUnreachable

Access Read only

Description This attribute counts the NHRP Error Indication packets transmitted by this server with the error code 'Protocol Address Unreachable'.
This counter wraps to zero when the maximum value is exceeded.

Values Decimal (0..4292967295)

Default No default

### ATTRIBUTE Vr Ip Nhrp Nhs txErrProtoError

Access Read only

Description This attribute counts the NHRP Error Indication packets transmitted by this server with the error code 'Protocol Error'.
This counter wraps to zero when the maximum value is exceeded.

Values Decimal (0..4292967295)

Default No default

### ATTRIBUTE Vr Ip Nhrp Nhs txErrSduSizeExceeded

Access Read only

Description This attribute counts the NHRP Error Indication packets transmitted by this server with the error code 'NHRP SDU Size Exceeded'.
This counter wraps to zero when the maximum value is exceeded.

Values Decimal (0..4292967295)

Default No default

### ATTRIBUTE Vr Ip Nhrp Nhs txErrInvalidExtension

Access Read only

| | |
|---|---|
| Description | This attribute counts the NHRP Error Indication packets transmitted by this server with the error code ‘Invalid Extension’. This counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Nhrp Nhs txErrAuthenticationFailure

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the NHRP Error Indication packets transmitted by this server with the error code ‘Authentication Failure’.<br>This counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Nhrp Nhs txErrHopCountExceeded

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the NHRP Error Indication packets transmitted by this server with the error code ‘Hop Count Exceeded’.<br>This counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Nhrp Nhs fwdResolveReq

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the NHRP Resolution Requests forwarded by this server acting as a transit NHS.<br>This counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Nhrp Nhs fwdResolveReply

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the NHRP Resolution Replies forwarded by this server acting as a transit NHS.<br>This counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Nhrp Nhs fwdRegisterReq

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the NHRP Registration Requests forwarded by this server acting as a transit NHS.<br>This counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Nhrp Nhs fwdRegisterReply

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the NHRP Registration Replies forwarded by this server acting as a transit NHS.<br>This counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Nhrp Nhs fwdPurgeReq

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the NHRP Purge Requests forwarded by this server acting as a transit NHS.<br>This counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Nhrp Nhs fwdPurgeReply

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the NHRP Purge Replies forwarded by this server acting as a transit NHS.<br>This counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Nhrp Nhs fwdErrorIndication

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the NHRP Error Indication packets forwarded by this server acting as a transit NHS.<br>This counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### COMPONENT Vr Ip Nhrp Nhs EgressPolicy (Ep)

| | |
|---|---|
| Instance | Decimal (0..65535) |
| Groups | "GROUP Vr Ip Nhrp Nhs Ep Provisioned (Prov)" |
| Scope | Application |
| Description | *Vr/<string> Ip Nhrp Nhs EgressPolicy/n*<br>This component represents an egress policy on this server.<br>The server has the following default egress policies which may be overridden by any provisioned egress policies: 1. NAK resolution request for any remotely attached destination regardless of source, 2. ACK resolution request for any locally attached destination regardless of source. |

| | |
|---|---|
| Subcomponents | "COMPONENT Vr Ip Nhrp Nhs Ep NetworkAddress (NetAddr)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Vr Ip Nhrp Nhs Ep Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes of the *EgressPolicy* component. |

### ATTRIBUTE Vr Ip Nhrp Nhs Ep action

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies how the server should handle the NHRP Resolution Request if it matches this policy. The possible actions are:<br>***ack*** - Send a positive acknowledgement (ACK Reply) for the request.<br>***nak*** - Send a negative acknowledgement (NAK Reply) for the request. |
| Values | ack<br>nak |
| Default | nak |

### ATTRIBUTE Vr Ip Nhrp Nhs Ep protocol

| | |
|---|---|
| Access | Read and write |
| Description | This attribute species the reachability type (that is, protocol) of the destination in the NHRP Resolution Request. The possible protocols:<br>***default*** - This value is a ‘wildcard’ and matches any protocol. A policy with a ‘wildcard’ protocol is less preferred than a policy |

with a protocol which matches exactly.
***staticLocal*** - The destination is on a locally attached network.

Values: default
staticLocal

Default: default

## COMPONENT Vr Ip Nhrp Nhs Ep NetworkAddress (NetAddr)

Instance: Decimal (0..65535)

Groups: "GROUP Vr Ip Nhrp Nhs Ep NetAddr Provisioned (Prov)"

Scope: Application

Description: *Vr/<string> Ip Nhrp Nhs Ep/n NetworkAddress/n*
This component represents the source and destination address pairs for an NHRP egress policy.

Common Verbs:
- Help
- List
- Display
- Add
- DELete

## GROUP Vr Ip Nhrp Nhs Ep NetAddr Provisioned (Prov)

Properties: Provisioned

Description: This group contains the provisionable attributes of the *NetworkAddress* component.

## ATTRIBUTE Vr Ip Nhrp Nhs Ep NetAddr sourceAddress (srcAddr)

Access: Read and write

Description: This attribute specifies the internetwork address of the source. This is used to match a source internetwork address in an NHRP Resolution Request.

Values: IP address

Default: 0.0.0.0

### ATTRIBUTE Vr Ip Nhrp Nhs Ep NetAddr sourceMask (srcMask)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the netmask for the source internetwork address. |
| Values | IP address |
| Default | 0.0.0.0 |

### ATTRIBUTE Vr Ip Nhrp Nhs Ep NetAddr destinationAddress (dstAddr)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the internetwork address of the destination. This is used to match a destination internetwork address in an NHRP Resolution Request. |
| Values | IP address |
| Default | 0.0.0.0 |

### ATTRIBUTE Vr Ip Nhrp Nhs Ep NetAddr destinationMask (dstMask)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the netmask for the destination internetwork address. |
| Values | IP address |
| Default | 0.0.0.0 |

### COMPONENT Vr Ip Nhrp NextHopClient (Nhc)

| | |
|---|---|
| Groups | "GROUP Vr Ip Nhrp Nhc Provisioned (Prov)"<br>"GROUP Vr Ip Nhrp Nhc Statistics (Stats)" |
| Scope | Application |
| Description | *Vr/<string> Ip Nhrp NextHopClient*<br>This component represents the NHRP client. The client initiates NHRP requests of various types in order to obtain access to the NHRP service. |

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display |

## GROUP Vr Ip Nhrp Nhc Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes of the *Nhc* component. |

## ATTRIBUTE Vr Ip Nhrp Nhc flowDetectPacketCount (fdpc)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute, along with *flowDetectTimePeriod*, specifies the IP traffic flow detection threshold; If the number of IP packets sent to a particular destination within the time interval specified by *flowDetectTimePeriod* exceeds the value specified by *flowDetectPacketCount*, then an NHRP Resolution Request will be triggerred. If successful, a shortcut will be set up. |
| Values | Decimal (1..4292967295) |
| Default | 600 |

## ATTRIBUTE Vr Ip Nhrp Nhc flowDetectTimePeriod (fdtp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute, along with *flowDetectPacketCount*, specifies the IP traffic flow detection threshold; If the number of IP packets sent to a particular destination within the time interval specified by *flowDetectTimePeriod* exceeds the value specified by *flowDetectPacketCount*, then an NHRP Resolution Request will be triggerred. If successful, a shortcut will be set up. |
| Values | Decimal (10; 20; 30; 40; 50; 60) |
| Units | seconds |
| Default | 60 |

### ATTRIBUTE Vr Ip Nhrp Nhc idleDetectPacketCount (idpc)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute, along with *idleDetectTimePeriod*, specifies the idle shortcut threshold; If the number of frames transmitted over an outgoing shortcut, or received over an incoming shortcut, within the time interval specified by *idleDetectTimePeriod* falls below the value specified by *idleDetectPacketCount*, then the shortcut connection will be released. |
| Values | Decimal (1..4292967295) |
| Default | 900 |

### ATTRIBUTE Vr Ip Nhrp Nhc idleDetectTimePeriod (idtp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute, along with *idleDetectPacketCount*, specifies the idle shortcut threshold; If the number of frames transmitted over an outgoing shortcut, or received over an incoming shortcut, within the time interval specified by *idleDetectTimePeriod* falls below the value specified by *idleDetectPacketCount*, then the shortcut connection will be released. |
| Values | Decimal (1..30) |
| Units | minutes |
| Default | 3 |

### ATTRIBUTE Vr Ip Nhrp Nhc atmFlowDetection (afd)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether flow detection should be performed for IP traffic received on ATM cards. This attribute does not apply to IP traffic received on LAN or non-ATM WAN cards. |
| Values | enabled<br>disabled |
| Default | disabled |

## GROUP Vr Ip Nhrp Nhc Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the statistics attributes of the *Nhc* component. |

## ATTRIBUTE Vr Ip Nhrp Nhc txResolveReq

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the NHRP Resolution Requests transmitted by this client.<br>This counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4292967295) |
| Default | No default |

## ATTRIBUTE Vr Ip Nhrp Nhc rxResolveReplyAck

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the positively acknowledged NHRP Resolution Replies received by this client.<br>This counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4292967295) |
| Default | No default |

## ATTRIBUTE Vr Ip Nhrp Nhc rxResolveReplyNakProhibited

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the NAK NHRP Resolution Replies received by this client that contained the code indicating ‘Administratively Prohibited’.<br>This counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4292967295) |
| Default | No default |

## ATTRIBUTE Vr Ip Nhrp Nhc rxResolveReplyNakInsufResources

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the NAK NHRP Resolution Replies received by this client that contained the code indicating 'Insufficient Resources'.<br>This counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Nhrp Nhc rxResolveReplyNakNoBinding

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the NAK NHRP Resolution Replies received by this client that contained the code indicating 'No Internetworking Layer Address to NBMA Address Binding Exists'.<br>This counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Nhrp Nhc rxResolveReplyNakNotUnique

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the NAK NHRP Resolution Replies received by this client that contained the code indicating 'Binding Exists But Is Not Unique'.<br>This counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Nhrp Nhc rxPurgeReq

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the NHRP Purge Requests received by this client.<br>This counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Nhrp Nhc txPurgeReq

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the NHRP Purge Requests transmitted by this client.<br>This counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Nhrp Nhc rxPurgeReply

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the NHRP Purge Replies received by this client.<br>This counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Nhrp Nhc txPurgeReply

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the NHRP Purge Replies transmitted by this client.<br>This counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Nhrp Nhc txErrIndication

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the NHRP Error Indication packets transmitted by this client.<br>This counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Nhrp Nhc rxErrUnrecognizedExtension

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the NHRP Error Indication packets received by this client with the error code ‘Unrecognized Extension’.<br>This counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Nhrp Nhc rxErrLoopDetected

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the NHRP Error Indication packets received by this client with the error code ‘NHRP Loop Detected’.<br>This counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Nhrp Nhc rxErrProtoAddrUnreachable

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the NHRP Error Indication packets received by this client with the error code ‘Protocol Address Unreachable’.<br>This counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Nhrp Nhc rxErrProtoError

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the NHRP Error Indication packets received by this client with the error code ‘Protocol Error’.<br>This counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Nhrp Nhc rxErrSduSizeExceeded

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the NHRP Error Indication packets received by this client with the error code ‘NHRP SDU Size Exceeded’. This counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Nhrp Nhc rxErrInvalidExtension

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the NHRP Error Indication packets received by this client with the error code ‘Invalid Extension’. This counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Nhrp Nhc rxErrAuthenticationFailure

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the NHRP Error Indication packets received by this client with the error code ‘Authentication Failure’. This counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Nhrp Nhc rxErrHopCountExceeded

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the NHRP Error Indication packets received by this client with the error code ‘Hop Count Exceeded’. This counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4292967295) |
| Default | No default |

## COMPONENT Vr Ip Nhrp ResCacheEntry (Rce)

| | |
|---|---|
| Instance | destAddr (addr) [IP address]<br>destMask (mask) [IP address] |
| Groups | "GROUP Vr Ip Nhrp Rce Operational (Oper)" |
| Scope | Application |
| Description | *Vr/<string> Ip Nhrp ResCacheEntry/<ipAddress>,<mask>*<br>This component represents an entry in the NHRP resolution cache table. |
| Common Verbs | Help<br>List<br>Display |

## VERB Clear Vr Ip Nhrp Rce

| | |
|---|---|
| Impact | Service |
| Description | *Clear Vr/x Ip Nhrp ResCacheEntry/<ipAddress>,<mask>*<br>This command clears the resolution cache entry specified by *ipAddress* and *mask*. |

## GROUP Vr Ip Nhrp Rce Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes of the *ResCacheEntry* component. |

## ATTRIBUTE Vr Ip Nhrp Rce nbmaAddress

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the NBMA subnetwork address of the next hop. |
| Values | String (0..20, Hex) |
| Default | No default |

## ATTRIBUTE Vr Ip Nhrp Rce entryState

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the state of this resolution cache entry. The possible states are:<br>***incomplete*** - The client sent the resolution request and is waiting for a reply.<br>***ackReply*** - The client sent the resolution request and received an ACK reply.<br>***nakReply*** - The client sent the resolution request and received a NAK reply. This entry remains in the cache for 20 minutes thereby preventing subsequent requests during that time period.<br>***noReply*** - The client sent the resolution request but did not receive a reply. This entry remains in the cache for 20 minutes thereby preventing subsequent requests during that time period.<br>***localReply*** - The client sent the resolution request and received an ACK reply from a locally-attached responder. This entry remains in the cache for 20 minutes thereby preventing subsequent requests during that time period. |
| Values | incomplete<br>ackReply<br>nakReply<br>noReply<br>localReply |
| Default | No default |

### ATTRIBUTE Vr Ip Nhrp Rce holdingTime

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of seconds that this entry will remain in the resolution cache table. If the entry has not been refreshed before this time it will be removed from the cache. |
| Values | Decimal (0..4294967295) |
| Units | seconds |
| Default | No default |

### ATTRIBUTE Vr Ip Nhrp Rce shortcut

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the component name of the shortcut connection associated with this resolution cache entry. If the component name is empty then no shortcut currently exists. |
| Values | The name of the component |
| Default | No default |

## COMPONENT Vr Ip CosPolicyGroup (Pg)

| | |
|---|---|
| Instance | String (1..20, ASCII) |
| Groups | "GROUP Vr Ip Pg Provisioned (Prov)" |
| Scope | Application |
| Description | *Vr/<string> Ip CosPolicyGroup/<string>*<br><br>This component and its subcomponents specify the IP Differentiated Services capabilities of an *IpPort*. Up to four different forwarding behaviors can be configured. For a greater range of forwarding behaviors, the *Vr Ip DifferentiatedServices* component should be used instead.<br><br>A *CosPolicyGroup* component is used by all *IpPort* subcomponents of a *VirtualRouter* by setting the *cosPolicyAssignment* attribute of the *Ip* component. It is used by one or more *IpPort* subcomponents directly by setting the *cosPolicyAssignment* attribute of the *IpPort*. The direct assignment to the *IpPort* completely overrides the assignment to the *Ip*.<br><br>Differentiated Services processing of IP packets with *CosPolicyGroup* components is based on a Class Of Service (CoS) value assigned to each IP packet as it processed by the *VirtualRouter*. CoS values vary over the range from 0 to 3 and have local significance only.<br><br>At any time the total number of interface profiles (*CosPolicyGroup*, *DifferentiatedServicesInterface*, and *Filter* components) in the current view plus the total number of newly created interface profiles in the edit view must be less than the system limit, regardless how many interface profiles have been |

deleted in the edit view. Any interface profile created in the edit view that results in a total count greater than the system limit is identified as invalid and must be deleted; otherwise a *Check Prov* command will produce an error. If invalid interface profiles exist after a software migration prior to a *Check Prov* command, then those interface profiles are ignored and have no impact on IP forwarding. However, a subsequent *Check Prov* command fails until the invalid interface profiles are deleted. It is recommended that all interface profile deletions be activated using the *Activate Prov* command before any new interface profiles are created.

There are seven logical stages in CoS processing on the *VirtualRouter.* These seven stages are presented below, along with the behavior of locally generated packets, and the behavior of any *IpPort* that does not use a *CosPolicyGroup*.

1. INGRESS CLASSIFICATION AND CoS ASSIGNMENT

The Class Of Service (CoS) value assigned to an IP packet is initialized to be equal to the IP CoS value associated with the ingress link layer connection where the packet was received.

For *AtmMpe*, the CoS of a connection is specified by the *ipCos* attribute of the *AtmConnection* subcomponent. For *FrDte*, the CoS of a connection is specified by the *ipCoS* attribute of the *StaticDlci* or *DynamicDlciDef* subcomponent. For *IpDlciGroup*, the CoS of a connection is specified by the *ipCos* attribute of the *FrConnection* subcomponent. For all other media, the CoS of a connection is specified by the *ipCoS* attribute of the *IpPort.*

After classification is performed as described above, if one or more *TosMap* components exist under a *Policy* subcomponent of the *CosPolicyGroup* used by the *IpPort* where the packet was received, then the Class Of Service (CoS) assigned to the packet is updated according to these components if there is a match. A match occurs if selected bits of the Differentiated Services (DS) field, also known at the Type of Service (ToS) field, are equal to the same selected bits of one of the values specified by the *tos* attribute of a *TosMap* subcomponent of the *CosPolicyGroup* used by the *IpPort* where the packet was received. If a match occurs,

then the CoS value assigned to the packet is set equal to the value of the *assignedCos* attribute of the parent *Policy* of the *TosMap* where the match occurred. This overrides any prior CoS assignment.

If one or more *IpAddrLayer4Flow* subcomponents exist under a *Policy* subcomponent of the *CosPolicyGroup* used by the *IpPort* where the packet was received, then the Class Of Service (CoS) assigned to the packet is updated according to these components if there is a match.

The Class Of Service (CoS) assigned to a packet received on a Gigabit Ethernet interface is always 0. Packets are not assigned a Class Of Service (CoS) when the *VirtualRouter* has a *DifferentiatedServicesDomain* subcomponent.

2. DROP PRECEDENCE ASSIGNMENT

The packet is assigned a logical drop precedence value according to the *IngressCosTreatment* subcomponents of the *CosPolicyGroup* used by the *IpPort* where the packet was received. The drop precedence is obtained from *discardPriority* attribute of the *IngressCosTreatment* component whose instance value matches the Class Of Service (CoS) value currently assigned to the packet. If the selected *IngressCosTreatment discardPriority* attribute specifies ***low***, ***medium***, or ***high***, then a drop precedence is assigned accordingly. If the selected *IngressCosTreatment* specifies ***unchanged***, then the drop precedence assigned to the packet is not modified. It remains at the value provided by the ingress link.

A drop precedence is assigned to a packet to control its loss sensitivity relative to other packets when the packets are placed into the same queue, as explained in Step 7.

Generally, the ***low*** value indicates the packet is less likely to be discarded when the queue is congested. This traffic has a higher probability of being forwarded. The high ***value*** indicates the packet is more likely to be discarded when the queue is congested. This traffic has a lower probability of being forwarded. The actual loss sensitivity of packets depends on the

dropping mechanism at the queue.

The drop precedence assigned to a packet received on a Gigabit Ethernet interface is always ***high*** when the *VirtualRouter* does not have a *DifferentiatedServicesDomain* subcomponent.

3. SCHEDULING CLASS ASSIGNMENT

The packet is assigned a scheduling class value for eight, four, three, and two queues in the range from 0 to 7, 0 to 3, 0 to 2, and 0 to 1, respectively. These values are derived from the *emissionPriority* attribute of the *EgressCosTreatment* subcomponents of the *CosPolicyGroup* used by the *IpPort* where the packet is transmitted. The *emissionPriority* attribute of the *EgressCosTreatment* subcomponent whose instance value matches the Class Of Service (CoS) value assigned to the packet is used.

The *emissionPriority* attribute of the *EgressCosTreatment* component is mapped to scheduling classes according to the following table:

| *Emission Priority* | Scheduling Class 8 Queues | 4Queues | 3Queues | 2 Queues |
|---|---|---|---|---|
| ***1*** | 5 | 3 | 2 | 1 |
| ***2*** | 4 | 2 | 1 | 0 |
| ***3*** | 2 | 1 | 0 | 0 |
| ***4*** | 0 | 0 | 0 | 0 |
| ***5*** | 0 | 0 | 0 | 0 |
| ***6*** | 0 | 0 | 0 | 0 |
| ***7*** | 0 | 0 | 0 | 0 |
| ***8*** | 0 | 0 | 0 | 0 |

Scheduling classes are assigned to a packet to control its scheduling behavior relative to other packets at the egress interface where the packets are transmitted, as explained in Step 7.

Generally, a numerically lower value indicates the packet is less

likely to be delayed. This traffic is considered more urgent and less delay tolerant. A numerically higher value indicates the packet is more likely to be delayed. This traffic is considered less urgent and more delay tolerant. The actual scheduling behavior of packets depends on the scheduling mechanism and number of queues at the egress interface.

The sheduling class for eight, four, three, and two queues assigned to a packet received on a Gigabit Ethernet interface is always 0 when the *VirtualRouter* does not have a *DifferentiatedServicesDomain* subcomponent.

4. CONNECTION CLASS ASSIGNMENT

The packet is assigned an connection class value in the range from ***0*** to ***3*** that is equal to the Class of Service (CoS) value assigned to the packet in Step 1.

A connection class value is assigned to a packet to select one of up to four egress link layer connections for transmitting the packet as described in Step 6.

5. EGRESS CLASSIFICATION AND MARKING

The DSCP field of the packet is marked according to the *EgressCosTreatment* subcomponents of the *CosPolicyGroup* used by the *IpPort* where the packet is transmitted. The DSCP value is obtained from *tos* attribute of the *EgressCosTreatment* component whose instance value matches the Class Of Service (CoS) value currently assigned to the packet. The new value of the DSCP field does not influence the forwarding behavior of the packet as it continues to be processed by the *VirtualRouter*, but it may have significance at the next hop.

Egress classification and marking does not occur if packets are packet received on a Gigabit Ethernet interface.

6. MULTI-LINK CONGESTION CONTROL

The connection class assigned to the packet is used to select one of up to four link layer connections at the *IpPort* where the packet is transmitted. Per-packet selection of egress connections is supported only if these conditions are all true:

i) the egress media is *FrDte*, *AtmMpe*, *IpDlciGroup* or *IpoDlci*, and
ii) more than one link layer connection is configured to the next hop IP router, and
iii) each connection is provisioned with a different connection class.

Normally the packet is transmitted on the connection whose connection class is equal to the connection class assigned to the packet. If that link does not exist, then the link having the next lower connection class is used. If that link does not exist also, then the link having the next higher connection class is used.

For *AtmMpe* the connection class is specified by the *ipCos* attribute of the *AtmConnection* subcomponent. For *FrDte* the connection class is specified by the *ipCoS* attribute of the *StaticDlci* and *DynamicDlciDef* subcomponents. For *IpDlciGroup* and *IpoDlci* the connection class is specified by the *ipCos* attribute of the *FrConnection* subcomponent.

If each link layer connection is configured to provide different policing and scheduling characteristics, then the forwarding behaviors of IP packets are differentiated as they transit through the link layer network. In general, the scheduling characteristics of the connections should be configured to be better for numerically greater conection class values. For example, if four *AtmConnection* components are associated with *AtmIf* components configured for ATM service classes ***UBR***, ***nrtVBR***, ***rtVBR***, and ***CBR***, then the *ipCos* attributes of the *AtmConnection* components should be either ***0***, ***1***, ***2*** and ***3***, respectively, or ***0***, ***1***, ***3*** and ***2*** respectively.

## 6. PER-LINK CONGESTION CONTROL

The drop precedence and scheduling classes assigned to the

packet are used by the egress interface where the packet is transmitted, but only if the egress interface supports these parameters on a per-link basis.

Multiple drop precedences are supported on MS3-based FPs at Gigabit Ethernet interfaces. On PQC-based FPs they are supported at *AtmMpe*, *FrDte*, *IpDlciGroup*, and Ethernet interfaces. On CQC-based FPs they are supported at *AtmMpe* interfaces. On SBIC-based FPs they are supported at PPP and *FrDte* interfaces.

Eight queues per link are supported on MS3-based FPs at Gigabit Ethernet interfaces. Four queues per link are supported on PQC-based FPs at PPP interfaces, at *FrDte* interfaces provisioned with *DirectConnection*, and at *IpDlciGroup* interfaces where FRF.12 is disabled on the DLCI. Two queues per link are supported on SBIC-based FPs at PPP and *FrDte* interfaces.

## LOCALLY GENERATED PACKETS

Ingress classification is not performed on packets generated locally at the *VirtualRouter*. For a locally generated packet that used for network control the assigned Class Of Service (CoS) value and the assigned drop precedence, is initialized to ***3*** and ***low*** respectively. For any other locally generated packet, these values are initialized to ***0*** and ***medium*** respectively.

For a locally generated ICMP echo request packet, the assigned CoS is overridden by the *-cos* option of the *Ping* command. For a locally generated ICMP echo reply packet, the assigned CoS is set equal to the assigned CoS of the received request packet.

The DSCP field of locally generated packets that used for network control is always initialized to 48. The DSCP field of other packets is always initialized to 0. For a locally generated ICMP echo request packet, the initial value of the DSCP field is overridden by the *-tos* or *-dscp* option of the *Ping* command. For a locally generated ICMP echo reply packet, the DSCP field is set to the value contained in the IP header of the received request packet.

Locally generated IP multicast and IP broadcast packets are not subject to Multi-Link Congestion Control as described above. Each of these packets is copied and transmitted individually on each of the available connections.

DEFAULT BEHAVIOR

If the *VirtualRouter* does not have a *DifferentiatedServicesDomain* subcomponent, then the Differentiated Services behavior of any *IpPort* that does not use a *CosPolicyGroup* (by setting the *cosPolicyAssignment* attribute of the *Ip* or *IpPort* as explained above) is identical to an *IpPort* that uses the *CosPolicyGroup* described here: There are no *Policy* subcomponents. There are four *IngressCosTreatment* subcomponents with instance values ***0***, ***1***, ***2***, ***3*** where the *discardPriority* attribute of each instance is set to ***unchanged***. There are four *EgressCosTreatment* subcomponents with instance values ***0***, ***1***, ***2***, ***3*** where the *emissionPriority*, *setTosByte*, *tos*, and *tosMask* attributes of each instance are set to ***4***, ***no***, ***0***, and hexadecimal ***FC***, respectively.

If the *VirtualRouter* has a *DifferentiatedServicesDomain* subcomponent, then the Differentiated Services behavior of the *IpPort* components are controlled by *Vr Ip DifferentiatedServices* components. See the description of the *DifferentiatedServices* component for more information.

Opt. Subcomp.

"COMPONENT Vr Ip Pg Policy"
"COMPONENT Vr Ip Pg IngressCosTreatment (Ict)"
"COMPONENT Vr Ip Pg EgressCosTreatment (Ect)"

Common Verbs

Help
List
Display
Add
DELete

### GROUP Vr Ip Pg Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioned attributes of the *CosPolicyGroup* component. |

### ATTRIBUTE Vr Ip Pg linkToPolicyUsers (users)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies components that are linked to *CosPolicyGroup*. Only *Ip* and *IpPort* subcomponents of the same *VirtualRouter* can be linked.<br><br>A *CosPolicyGroup* component is used by all *IpPort* subcomponents of a *VirtualRouter* by setting the *cosPolicyAssignment* attribute of the *Ip* component. It is used by one or more *IpPort* subcomponents directly by setting the *cosPolicyAssignment* attribute of the *IpPort*. The direct assignment to the *IpPort* completely overrides the assignment to the *Ip*. |
| List of | Link (Service, cosPolicyAssignment) |
| List Size | 256 |
| Default | No default |

### COMPONENT Vr Ip Pg Policy

| | |
|---|---|
| Instance | String (1..20, ASCII) |
| Groups | "GROUP Vr Ip Pg Policy Provisioned (Prov)" |
| Scope | Application |
| Description | *Vr/<string> Ip Pg/<string> Policy/<string>*<br><br>The *Policy* component defines IP packet classification rules that are applied when the *CosPolicyGroup* is used by an *IpPort*. The classification rules are defined by two sets of parameters:<br><br>1. The criteria to select IP packets. These criteria are defined by the *TosMap* and *IpAddrLayer4Flow* subcomponents. |

2. The IP Class of Service (CoS) assigned to a packet when the policy is applied. The CoS is specified by the *assignedCos* attribute.

The component instance is an arbitrary text string to allow the operator to assign a meaningful name for easy reference.

Opt. Subcomp. "COMPONENT Vr Ip Pg Policy TosMap"
"COMPONENT Vr Ip Pg Policy IpAddrLayer4Flow"

Common Verbs
Help
List
Display
Add
DELete

## GROUP Vr Ip Pg Policy Provisioned (Prov)

Properties Provisioned

Description This group contains the provisioned attributes of the *Policy* component.

## ATTRIBUTE Vr Ip Pg Policy assignedCos (cos)

Access Read and write

Description This attribute specifies the Class of Service (CoS) assigned to an IP packet if the *Policy* applies. The assigned CoS controls the forwarding behavior and egress DSCP marking of the packet. See the description of the *CosPolicyGroup* component for more information.

Values Decimal (0..3)

Default 0

## COMPONENT Vr Ip Pg Policy TosMap

Groups "GROUP Vr Ip Pg Policy TosMap Provisioned (Prov)"
"GROUP Vr Ip Pg Policy TosMap Operational (Oper)"

Scope Application

Description

*Vr/<string> Ip Pg/<string> Policy/<string> TosMap*

This component is used to specify Behavior Aggregate (BA) criteria for assigning Class of Service (CoS) values to IP packets.

An IP packet matches the criteria specified by this component if the Differentiated Services (DS) field in the packet header (also known as the ToS field) and any element in the list of values specified by the *tos* attribute of this component satisfies the following equation:

( DS field & *tosMask* ) = ( element & *tosMask* )

This formula states that the two values must be identical after each one is individually bit-wise ANDed with the value of *tosMask* attribute of the *EgressCosTreatment* component. In other words, the two values must be identical but only those bits that are set to 1 in the *tosMask* are inspected.

For example, to assign Class of Service (CoS) value 3 to IP packets that have the DSCP field marked for Expedited Forwarding (EF) when the *tosMask* is set to ***FC***, a *TosMap* subcomponent is added to the *Policy* component whose *assignedCos* attribute is set to ***3***, and the *tos* attribute of the *TosMap* is set to include hexadecimal value ***B8***.

See the description of the *CosPolicyGroup* component for more information.

Common Verbs

Help
List
Display
Add
DELete

## GROUP Vr Ip Pg Policy TosMap Provisioned (Prov)

Properties

Provisioned

Description

This group contains the provisioned attributes for the *TosMap* component.

### ATTRIBUTE Vr Ip Pg Policy TosMap tos

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the list of byte values to be compared against the Differentiated Services (DS) field in the packet header (also known as the ToS field) for selecting IP packets. See the description of the *TosMap* component for more information.<br><br>This attribute must contain at least one value. |
| List of | Hex (H.0..H.ff) |
| List Size | 256 |
| Default | No default |

### GROUP Vr Ip Pg Policy TosMap Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes of the *TosMap* and the *IpAddrLayer4Flow* components. |

### ATTRIBUTE Vr Ip Pg Policy TosMap cos

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Class of Service (CoS) assigned to a packet when the *Policy* applies. The value of this attribute is equal to the *assignedCos* attribute of the *Policy* component. |
| Values | Decimal (0..3) |
| Default | No default |

### COMPONENT Vr Ip Pg Policy IpAddrLayer4Flow

| | |
|---|---|
| Instance | Decimal (0..1023) |
| Groups | "GROUP Vr Ip Pg Policy IpAddrLayer4Flow Provisioned (Prov)"<br>"GROUP Vr Ip Pg Policy IpAddrLayer4Flow ProtoProvisioned"<br>"GROUP Vr Ip Pg Policy IpAddrLayer4Flow Operational (Oper)" |
| Scope | Application |
| Description | *Vr/<string> Ip Pg/<string> Policy/<string> IpAddrLayer4Flow/n* |

The *IpAddrLayer4Flow* component is used to specify Multifield (MF) criteria for assigning Class of Service (CoS) values to IP packets.

If one or more *IpAddrLayer4Flow* components exist under the *CosPolicyGroup* component, then the IP packet is checked to see if it matches the criteria specified by each *IpAddrLayer4Flow* component. The CoS assigned to the packet is the value of the *assignedCos* attribute on the parent *Policy* component of the *IpAddrLayer4Flow* whose criteria best match the packet.

For example, to assign Class of Service (CoS) value 1 to FTP packets destined to subnet 123.123.123.0, an *IpAddrLayer4Flow* subcomponent is added to the *Policy* component where the *assignedCos* attribute is set to ***1***. The *prefix, prefixLength, protocol*, and *portNumberRange* attributes of the *IpAddrLayer4Flow* component are set to ***123.123.123.0***, ***24***, ***tcp***, and ***20***, ***21***, respectively. This criteria also applies to each FTP packet that originates from subnet 123.123.123.0, but only if the source address and port number of the packet do not match any *IpAddrLayer4Flow* subcomponents of the *CosPolicyGroup*.

Multifield classification overrides Behavior Aggregate (BA) classification. This means that BA classification, which is controlled by *TosMap* components, is performed only if the packet does not match any *IpAddrLayer4Flow* component.

The packet matching algorithm for MF classification is explained in more detail as follows.

A match can be found only if the IP header protocol field is one of ICMP, TCP, or UDP. The *prefix, prefixLength*, and *portNumberRange* attributes are checked only if the protocol field in the header is TCP or UDP.

The destination IP address and destination port number information from the packet is first compared against the *prefix* attribute in conjunction with the *prefixLength* and *portNumberRange* attributes. If the *prefixLength* is ***0*** and the *prefix* is ***0.0.0.0***, then any value in the packet's IP destination

address fields is a match. If *portNumberRange* is ***0***, then any value in the packet's destination port number fields is a match.

If more than one *IpAddrLayer4Flow* component matches a packet (for instance one component specifies a range of IP addresses and a second specifies a single IP address in the range), then the component with the more precise match is used (the one which specifies the single address in this case). Precedence is always given to the IP address over the port number. For example, if one *IpAddrLayer4Flow* component specifies an range of IP addresses that includes the IP address from the packet and any port number, while a second *IpAddrLayer4Flow* component specifies an exact port number but a wider range of addresses, the first *IpAddrLayer4Flow* component is used.

If no match is found using the packet's destination IP address and destination port number information, then a second search is performed using the packet's source IP address and source port number information. This means that an *IpAddrLayer4Flow* component where the *protocol* is ***udp*** or ***tcp***, the *prefixLength* is ***0*** and the *portNumberRange* is ***0***, always matches some destination address and port number. This prevents the source address and port number check from being performed.

An ICMP packet matches any *IpAddrLayer4Flow* component whose *protocol* attribute is set to ***icmp***.

No attempt is made to match any packets where the options or fragment bits are set.

See the description of the *CosPolicyGroup* component for more information.

Common Verbs

Help
List
Display
Add
DELete

### GROUP Vr Ip Pg Policy IpAddrLayer4Flow Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the *prefix* and *prefixLength* provisioned attributes of the *IpAddrLayer4Flow* component. |

### ATTRIBUTE Vr Ip Pg Policy IpAddrLayer4Flow prefix

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the IP address prefix for selecting IP packets.<br><br>Matching an IP address to the prefix is done in conjunction with the *prefixLength* attribute. If the value is ***0.0.0.0***, then the *prefixLength* attribute must be ***0***.<br><br>See the description of the *IpAddrLayer4Flow* component for more information. |
| Values | IP address |
| Default | 0.0.0.0 |

### ATTRIBUTE Vr Ip Pg Policy IpAddrLayer4Flow prefixLength (len)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the number of most significant bits of an IP address to be matched with the *prefix* for selecting IP packets.<br><br>The *prefixLength* value ***0*** indicates any IP address.<br><br>See the description of the *IpAddrLayer4Flow* component for more information. |
| Values | Decimal (0..32) |
| Default | 0 |

### GROUP Vr Ip Pg Policy IpAddrLayer4Flow ProtoProvisioned

| | |
|---|---|
| Properties | Provisioned |

| | |
|---|---|
| Description | This group contains the *protocol* and *portNumberRange* provisioned attributes of the *IpAddrLayer4Flow* component. |

### ATTRIBUTE Vr Ip Pg Policy IpAddrLayer4Flow protocol (proto)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the layer 4 (transport) protocol for selecting IP packets.<br><br>If the value is ***icmp***, then the *prefixLength* attribute must be ***0***, and the *portNumberRange* attribute must not be set.<br><br>See the description of the *IpAddrLayer4Flow* component for more information. |
| Values | icmp<br>tcp<br>udp |
| Default | tcp |

### ATTRIBUTE Vr Ip Pg Policy IpAddrLayer4Flow portNumberRange

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the TCP or UDP port numbers for selecting IP packets.<br><br>A single value specifies a single port number. Two values specifies a range of port numbers. The order of the two values is irrelevant.<br><br>See the description of the *IpAddrLayer4Flow* component for more information. |
| List of | Decimal (0..65535) |
| List Size | 2 |
| Default | No default |

### GROUP Vr Ip Pg Policy IpAddrLayer4Flow Operational (Oper)

| | |
|---|---|
| Properties | Operational |

| | |
|---|---|
| Description | This group contains the operational attributes of the *TosMap* and the *IpAddrLayer4Flow* components. |

### ATTRIBUTE Vr Ip Pg Policy IpAddrLayer4Flow COS

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Class of Service (CoS) assigned to a packet when the *Policy* applies. The value of this attribute is equal to the *assignedCos* attribute of the *Policy* component. |
| Values | Decimal (0..3) |
| Default | No default |

### COMPONENT Vr Ip Pg IngressCosTreatment (Ict)

| | |
|---|---|
| Instance | Decimal (0..3) |
| Groups | "GROUP Vr Ip Pg Ict Provisioned (Prov)" |
| Scope | Application |
| Description | *Vr/<string> Ip Pg/<string> IngressCosTreatment/n*<br><br>A set of *IngressCosTreatment* components specifies a mapping between Class of Service (CoS) values and drop precedence values for controlling forwarding behaviors. This mapping is applied to packets received at any *IpPort* that uses the *CosPolicyGroup*. See the description of the *CosPolicyGroup* for more information.<br><br>Four instances of this component, with instance values *0*, *1*, *2*, and *3*, are created automatically when the *CosPolicyGroup* component is added. |
| Common Verbs | Help<br>List<br>Display<br>Add |

### GROUP Vr Ip Pg Ict Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |

Description — This group contains the provisioned attributes of the *IngressCosTreatment* component.

### ATTRIBUTE Vr Ip Pg Ict discardPriority (dp)

Access — Read and write

Description — This attribute specifies the drop precedence assigned to an IP packet when the Class of Service (CoS) assigned to the packet is equal to the instance value of the *IngressCosTreatment* component.

Attribute values ***low***, ***medium***, and ***high*** indicate the packet is assigned drop precedence accordingly. A value of ***unchanged*** indicates the drop precedence assigned to the packet is not modified. It remains at the value provided by the ingress link.

A drop precedence is assigned to a packet to control its loss sensitivity relative to other packets when the packets are placed into the same queue.

Generally, the ***low*** value indicates the packet is less likely to be discarded when the queue is congested. This traffic has a higher probability of being forwarded. The ***high*** value indicates the packet is more likely to be discarded when the queue is congested. This traffic has a lower probability of being forwarded. The actual loss sensitivity of packets depends on the dropping mechanism at the queue.

A warning is issued if the *discardPriority* attribute of one or more, but not all, of the *IngressCosTreatment* subcomponents the *CosPolicyGroup* is set to ***unchanged***.

Another warning is issued if the *discardPriority* attribute of two *IngressCosTreatment* subcomponents with the same instance value under any two *CosPolicyGroup* subcomponents of the *Vr Ip* are not equal. This applies only to those *IngressCosTreatment* subcomponents where the *discardPriority* attribute is not set to ***unchanged***. If this rule is violated, then the Class of Service (CoS) to drop precedence mapping will not be consistent at all *IpPorts* on the *Vr.*

See the description of the *CosPolicyGroup* for more information.

Values
unchanged
low
medium
high

Default
unchanged

## COMPONENT Vr Ip Pg EgressCosTreatment (Ect)

Instance
Decimal (0..3)

Groups
"GROUP Vr Ip Pg Ect Provisioned (Prov)"

Scope
Application

Description
*Vr/<string> Ip Pg/<string> EgressCosTreatment/n*

A set of *EgressCosTreatment* components specifies two mappings. One is a mapping between Class of Service (CoS) values and logical scheduling class values for controlling forwarding behaviors. The other is a mapping between Class of Service (CoS) values and Differentiated Services Code Point (DSCP) values for egress marking. These mappings are applied to packets transmitted at any *IpPort* that uses the parent *CosPolicyGroup*. See the description of the *CosPolicyGroup* for more information.

Four instances of this component, with instance values *0*, *1*, *2*, and *3*, are created automatically when the *CosPolicyGroup* component is added.

Common Verbs
Help
List
Display
Add

## GROUP Vr Ip Pg Ect Provisioned (Prov)

Properties
Provisioned

Description — This group contains the provisioned attributes of the *EgressCosTreatment* component.

### ATTRIBUTE Vr Ip Pg Ect setTosByte

Access — Read and write

Description — This attribute specifies whether the DSCP field of the packet should be marked at egress. If this attribute is set to ***yes*** and then the DSCP field is marked according to the values of the *tos* and *tosMask* attributes of the *EgressCosTreatment* component whose instance value is equal to the Class of Service (CoS) assigned to the packet.

All *EgressCosTreatment* subcomponents of the *CosPolicyGroup* should have this attribute set to the same value; otherwise, a warning is issued.

Values — no
yes

Default — no

### ATTRIBUTE Vr Ip Pg Ect tos

Access — Read and write

Description — This attribute specifies the value used to mark the DSCP field of an IP packet at egress. This marking occurs only if the Class of Service (CoS) assigned to the packet is equal to the instance value of the *EgressCosTreatment* component and the *setTosByte* attribute is set to ***yes***.

Selected bits of the Differentiated Services (DS) field in IP packet header (also known as the ToS field) are updated according to the values of the *tos* and *tosMask* attributes using the following formula:

New value = ( Original value & ~*tosMask* ) | ( *tos* & *tosMask* )

This formula states that the bits of the DS field which are modified are only those which are set to 1 in the *tosMask* attribute value. Of those bits, the bits that are set to 1 are only those which are set to 1 in the *tos* attribute value; the others being modified

are set to 0.

For example, to mark the DSCP field for Expedited Forwarding (EF):

original value: hex A0 ( binary 10100000 ) CS5
*tos* attribute: hex B8 ( binary 10111000 )
*tosMask* attribute: hex FC ( binary 11111100 )
new value: hex B8 ( binary 10111000 ) EF

Values: Hex (H.0..H.ff)

Default: H.0

### ATTRIBUTE Vr Ip Pg Ect tosMask

Access: Read and write

Description: This attribute specifies the bit mask used to mark the DSCP field of an IP packet. This marking occurs only if the Class of Service (CoS) assigned to the packet is equal to the instance value of the *EgressCosTreatment* component and the *setTosByte* attribute is set to ***yes***. This attribute also specifies which bits are examined when *TosMap* components are used for IP packet classification.

By default, this attribute is set to the value of hex ***FC*** to correspond to the six bits of the Differentiated Services Code Point (DSCP) field.

The *tosMask* attribute in all *EgressCosTreatment* components under the same *CosPolicyGroup* must be set to the same value.

A warning is issued if *tosMask* is set to any value other than ***0xFC.*** On PQC-based FPs, any other value is ignored; in other words, any setting is treated as ***0xFC*** to match the six bits of DSCP field in the IP header. On SBIC-based FP's, including the ILS forwarder, ToS field mapping and marking of IP packets will not exactly match the six bits of the DSCP field.

See the description of the *tos* attribute of the *EgressCosTreatment* component for more information.

Values: Hex (H.1..H.ff)

Default H.fc

### ATTRIBUTE Vr Ip Pg Ect emissionPriority (ep)

Access Read and write

Description This attribute specifies the logical scheduling classes to be assigned to an IP packet when the Class of Service (CoS) assigned to the packet is equal to the instance value of the *IngressCosTreatment* component.

The *emissionPriority* attribute is mapped to scheduling classes according to the following table:

| *Emission Priority* | Logical Scheduling Class 8 Queues | 4Queues 3 | 2 Queues |
|---|---|---|---|
| ***1*** | 5 | 3 | 1 |
| ***2*** | 4 | 2 | 0 |
| ***3*** | 2 | 1 | 0 |
| ***4*** | 0 | 0 | 0 |
| ***5*** | 0 | 0 | 0 |
| ***6*** | 0 | 0 | 0 |
| ***7*** | 0 | 0 | 0 |
| ***8*** | 0 | 0 | 0 |

Scheduling classes are assigned to a packet to control its scheduling behavior relative to other packets at the egress interface where the packets are transmitted.

Generally, a numerically lower value indicates the packet is less likely to be delayed. This traffic is considered more urgent and less delay tolerant. A numerically higher value indicates the packet is more likely to be delayed. This traffic is considered less urgent and more delay tolerant. The actual scheduling behavior of packets depends on the scheduling mechanism and number of queues at the egress interface.

A warning is issued if the *emissionPriority* attribute of two *EgressCosTreatment* subcomponents with the same instance value under any two *CosPolicyGroup* subcomponents of the *Vr*

*Ip* are not equal. If this rule is violated, then the Class of Service (CoS) to *emissionPriority* mapping will not be consistent at all *IpPorts* on the *Vr*.

See the description of the *CosPolicyGroup* for more information.

| | |
|---|---|
| Values | Decimal (1..8) |
| Default | No default |

## COMPONENT Vr Ip BorderGatewayProtocol (Bgp)

| | |
|---|---|
| Groups | "GROUP Vr Ip Bgp Provisioned (Prov)"<br>"GROUP Vr Ip Bgp Operational (Oper)"<br>"GROUP Vr Ip Bgp OsiState (State)"<br>"GROUP Vr Ip Bgp AdministrativeControl (AdminControl)"<br>"GROUP Vr Ip Bgp OperationalStatus (OperStatus)" |
| Scope | Application |
| Description | *Vr/<string> Ip BorderGatewayProtocol*<br>*Rtr/<string> BorderGatewayProtocol*<br>*Rtr/<string> Vrf/<string> BorderGatewayProtocol*<br>This component is used to run the Border Gateway Protocol for IP. |

| | |
|---|---|
| Opt. Subcomp. | "COMPONENT Vr Ip Bgp ImportPolicy (Import)"<br>"COMPONENT Vr Ip Bgp ExportPolicy (Export)"<br>"COMPONENT Vr Ip Bgp As"<br>"COMPONENT Vr Ip Bgp AggregatePolicy (Aggregate)" |
| Dyn. Subcomp. | "COMPONENT Vr Ip Bgp IndbEntry (Indb)"<br>"COMPONENT Vr Ip Bgp LocaldbEntry (Localdb)"<br>"COMPONENT Vr Ip Bgp OutdbEntry (Outdb)"<br>"COMPONENT Vr Ip Bgp LocalVpn"<br>"COMPONENT Vr Ip Bgp MBgpRibEntry (MBgpRib)"<br>"COMPONENT Vr Ip Bgp MplsVpnRibEntry (MvRib)" |
| Dyn. Subcomp. | "COMPONENT Vr Ip Bgp Peer" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP Vr Ip Bgp Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the *Bgp* component. |

## ATTRIBUTE Vr Ip Bgp bgpIdentifier

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the *Bgp* Identifier of this *Bgp* component instance. It is picked from the IP address space, and should follow the same rule as choosing an unique IP address for *IpPort* or *Interface*. |
| Values | IP address |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Vr Ip Bgp localAs

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the autonomous system identifier for this *Bgp* component instance. |
| Values | Decimal (0..65535) |
| Default | No default |

### ATTRIBUTE Vr Ip Bgp defaultLocalPreference (locPrf)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies this *Bgp* component instance's default degree of preference for routes. It can be overridden by the *localPreference* provisioned in *ImportPolicy.* A higher value indicates a more preferred route. |
| Values | Decimal (0..4294967295) |
| Default | 144 |

### ATTRIBUTE Vr Ip Bgp defaultMultiExitDisc (med)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies this *Bgp* component instance's default metric to discriminate between multiple exit points to the same adjacent autonomous system. It can be overridden by the s*endMultiExitDiscToEbgp* provisioned in *ExportPolicy.* A lower value indicates a more preferred route. |
| Values | Decimal (0..4294967295) |
| Default | 4294967294 |

### ATTRIBUTE Vr Ip Bgp routeThrottleLimit (rtl)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the maximum number of routes in the IP forwarding table this *Bgp* component instance will process at one time to decide if a route in the IP forwarding table should be exported to a peer. This limit is used for the throttling and is made configurable because the throttling requirements will be different under different network configurations. The default value is 250. |
| Values | Decimal (1..1000) |
| Default | 250 |

### ATTRIBUTE Vr Ip Bgp routeThrottleInter (rti)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the interval in seconds, between the processing of the routes in the IP forwarding table to decide if a route in the IP forwarding table should be exported to a peer. This interval is used for the throttling and is made configurable because the throttling requirements will be different under different network configurations. The default value is 5 seconds. |
| Values | Decimal (1..30) |
| Units | seconds |
| Default | 5 |

### ATTRIBUTE Vr Ip Bgp routeReflector (rr)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |

| | |
|---|---|
| Description | This attribute specifies whether this *Bgp* instance is a Route Reflector. If the value of this attribute is ***true***, *Bgp* redistributes routes it learns from an IBGP speaker to other IBGP speakers in the AS. The rule of redistribution depends on the peer type: 1) When a route is learned from a non-client peer, it is redistributed to all the client peers within the cluster. 2) When a route is learned from a client peer, it is redistributed to all the non-client peers and also to the client peers. If the value of this attribute is ***false***, *Bgp* does not redistribute routes it learns from one IBGP speaker to other IBGP speakers in the AS. |
| Values | true<br>false |
| Default | false |

### ATTRIBUTE Vr Ip Bgp routeReflectorCluster (rrCluster)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute identifies the cluster consisting of the Route Reflector and its peer clients. When *routeReflector* of *Bgp* is ***true***, value of 0.0.0.0 or 255.255.255.255 is invalid; the default value of this attribute is same as *bgpIdentifier*. For redundancy, a cluster may have more than one Route Reflector; in this case, the value of this attribute of all the Route Reflectors in the same cluster should be same. The value of this attribute is ignored when *routeReflector* of *Bgp* is ***false*** |
| Values | IP address |
| Default | No default |

### ATTRIBUTE Vr Ip Bgp redistributeIgpToIbgp (rigp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether this *Bgp* instance allows exporting of IGP routes to internal Bgp peers. IGP routes include the routes learned from OSPF, RIP, local routes and static routes. If the value of this attribute is ***true***, and if *ExportPolicy* is specified to distribute, then *Bgp* allows IGP route to be |

distributed to internal Bgp peers. If the value of this attribute is ***false***, *Bgp* does not allow IGP routes to be distributed to internal *Bgp* peer, even if *ExportPolicy* is specified to distribute. This attribute is set to true if and only this Bgp is part of the Carrier Manage Service, otherwise, a routing loop may result.

Values: true
false

Default: false

### ATTRIBUTE Vr Ip Bgp defaultIbgpRtePreference (ibgpPref)

Access: Read and write

Description: This attribute specifies this *Bgp* component instance's default routing preference for IBGP routes. It can be overridden by the *IbgpRtePreference* provisioned in *ImportPolicy.* A lower value indicates a more preferred route.

Values: Decimal (1..253)

Default: 122

### ATTRIBUTE Vr Ip Bgp defaultEbgpRtePreference (ebgpPrf)

Access: Read and write

Description: This attribute specifies this *Bgp* component instance's default routing preference for EBGP routes. It can be overridden by the *ebgpRtePreference* provisioned in *ImportPolicy.* A lower value indicates a more preferred route.

Values: Decimal (1..253)

Default: 70

### ATTRIBUTE Vr Ip Bgp vpnPeeringTopology (topology)

Access: Read and write

Description: Under the *Vr* component, this attribute specifies the peering mode that determines if a dynamic IBGP peer is to be instantiated between this *BGP* instance and a discovered IP Tunnel endpoint on the remote customer VR. This mode controls the distribution of IP routing information among VPN sites through dynamic

BGP sessions after auto-discovery has taken place.

A ***none*** value specifies that BGP never instantiate dynamic IBGP peers.
Dynamic IBGP peer is instantiated between two customer VR in the same VPN if and only if at least one end is configured with a ***hub*** value and the other is either configured with a ***hub*** or a ***spoke*** value.

In any case; static BGP peers may be configured and overwrite the dynamic ones after auto-discovery has taken place. If auto-discovery is enabled when static peers already present between VPN sites, no dynamic peers with the same provisioned peer instance will be instantiated regardless of the configured value of the attribute.

Under the *Rtr* or *Rtr Vrf* component, this attribute is not used.

Values
none
hub
spoke

Default
No default

### ATTRIBUTE Vr Ip Bgp alarmGeneration (alarms)

Access
Read and write

Description
This attribute specifies the level of alarm generation for this *Bgp* instance.

A value of ***all*** specifies that all BGP alarms are made visible.

A value of ***normal*** specifies that all BGP alarms are made visible, except for the following:
- *Bgp Peer* listening failure alarms,
- *Bgp Peer* connect failure alarms, and
- *Bgp* notification alarms.

Any listening failure or connect failure alarms which were previously set for a *Peer* component under this *Bgp* instance are cleared.

A value of ***none*** specifies that no BGP alarms are made visible. Any listening failure, connect failure, or “no auto discovery” alarms which were previously set for a *Peer* component under this *Bgp* instance are cleared.

Note that, because the listening failure, connect failure, and “no auto discovery” alarms are triggered by state changes in the *Peer* component, they are not automatically regenerated when previously disabled alarm generation is enabled. For example, consider the following:
- If the *Bgp alarmGeneration* attribute is set to ***all*** and a *Peer* enters a listening failure state, a listening failure alarm is set against that *Peer* subcomponent.
- If the *Bgp alarmGeneration* attribute is then set to ***normal*** or ***none***, the above listening failure alarm is cleared.
- If the *Bgp alarmGeneration* attribute is then set back to ***all***, no alarm is generated because the *Peer* subcomponent has not changed state.
- If the *Peer* then exits the listening failure state, a listening failure alarm clear is generated for the *Peer*, even though there is no alarm set for that component.

When the scope of alarm generation has been increased for a *Bgp* instance, previously existing alarms which had been suppressed can be regenerated by locking and unlocking the *Bgp Peer* subcomponents.

For a *VirtualRouter* with *vpnMode* attribute be set to ***carrier***, it is recommanded that the *alarmGeneration* attribute set to ***all***. For a *VirtualRouter* with the *vpnMode* attribute set to ***customer***, it is recommanded that the *alarmGeneration* attribute set to either ***normal*** or ***none***, for scalability reasons.

Similarly, for a *Router* component, it is recommanded that the *alarmGeneration* attribute set to ***all***. For a *Router Vrf* component, it is recommanded that the *alarmGeneration* attribute set to either ***normal*** or ***none***, for scalability reasons.

| | |
|---|---|
| Values | none<br>normal<br>all |
| Default | all |

### GROUP Vr Ip Bgp Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for the *Bgp* component. |

### ATTRIBUTE Vr Ip Bgp tableVersion

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the version of the BGP routing table. It is incremented every time the BGP routing table changes. This counter will wrap to zero once the value exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ip Bgp inMsgs

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of BGP messages received without error. This counter will wrap to zero once the value exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ip Bgp inErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of BGP messages received from all peers that proved to be in error. This counter will wrap to zero once the value exceeds the maximum value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE Vr Ip Bgp inErrorMsgs

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of BGP NOTIFICATION messages from all the peers. This counter will wrap to zero once the value exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ip Bgp outMsgs

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of BGP messages sent to peers. This counter will wrap to zero once the value exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ip Bgp outDiscards

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of BGP messages that were locally generated but were not sent out due to resource limitations within a *Bgp* instance. This counter will wrap to zero once the value exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ip Bgp outErrorMsgs

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the BGP NOTIFICATION messages sent to the peers. This counter will wrap to zero once the value exceeds the maximum value. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ip Bgp indbSize

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of *Bgp* indb entries under this *Bgp* component instance. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### GROUP Vr Ip Bgp OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Vr Ip Bgp adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is |

administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Vr Ip Bgp operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Vr Ip Bgp usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

| | |
|---|---|
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Vr Ip Bgp AdministrativeControl (AdminControl)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group includes the Administrative Control attribute. This attribute defines the current administrative state of this component. |

### ATTRIBUTE Vr Ip Bgp snmpAdminStatus

| | |
|---|---|
| Access | Read and write |
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational and packet forwarding is allowed. The ***down*** state indicates the interface is not operational and packet forwarding is unavailable. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### GROUP Vr Ip Bgp OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

### ATTRIBUTE Vr Ip Bgp snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |

| | |
|---|---|
| Values | up<br>down<br>testing |
| Default | up |

## COMPONENT Vr Ip Bgp Peer

| | |
|---|---|
| Instance | IP address |
| Groups | "GROUP Vr Ip Bgp Peer OsiState (State)"<br>"GROUP Vr Ip Bgp Peer Operational (Oper)" |
| Scope | Application |
| Description | *Vr/<string> Ip Bgp Peer/<Ip Address>*<br>*Rtr/<string> Bgp Peer/<Ip Address>*<br>*Rtr/<string> Vrf/<string> Bgp Peer/<Ip Address>*<br>This component identifies the properties of a BGP peer.<br>The index value of this entry identifies the IP address of that peer.<br><br>This component is required for BGP to set up a peer session with a remote peer. Peers with discovered IP address are dynamic peers, where the provisioned ones are static peers. |
| Opt. Subcomp. | "COMPONENT Vr Ip Bgp Peer Descriptor (Desc)" |
| Dyn. Subcomp. | "COMPONENT Vr Ip Bgp Peer Vpn" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP Vr Ip Bgp Peer OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state |

combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Vr Ip Bgp Peer adminState (osiAdmin)

Access: Read only

Description: This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values:
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default: unlocked

### ATTRIBUTE Vr Ip Bgp Peer operationalState (osiOper)

Access: Read only

Description: This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the

component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Vr Ip Bgp Peer usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Vr Ip Bgp Peer Operational (Oper)

Properties
Operational

Description
This group contains the operational attributes for the *Peer* component.

### ATTRIBUTE Vr Ip Bgp Peer connectionState

Access
Read only

Description
This attribute indicates the current state of this BGP peer connection. The meaning of each state is as follows:
***idle*** - it is the initial state of the BGP peer connection. Error events will also cause BGP peer connection to transit to the idle state.

***connect*** - BGP has initiated a TCP connection request to this peer, and waiting for reply from that peer.
***active*** - BGP is not initiating a TCP connection request to this peer, because TCP connection failed and is waiting for connection retry time-out.
***openSent*** - a TCP connection to this peer has been established, but the OPEN message has not been successfully exchanged.
***openConfirm*** - OPEN message has been successfully exchanged with this peer, but the first KEEPALIVE message has not been received from that peer.
***established*** - the first KEEPALIVE message has been received from this peer, which means this BGP peer connection has been established.
See RFC 1771 for a detailed description of BGP state transitions.

Values
idle
connect
active
openSent
openConfirm
established

Default
idle

## ATTRIBUTE Vr Ip Bgp Peer bgpIdentifier (bgpId)

Access
Read only

Description
This attribute indicates the BGP Identifier of this *Bgp Peer* component. It is learned from the peer through the OPEN message.

Values
IP address

Default
No default

## ATTRIBUTE Vr Ip Bgp Peer versionNegotiated (vn)

Access
Read only

Description
This attribute indicates the BGP version number negotiated with this peer through the OPEN message. Currently, only BGP version 4 is supported. BGP will reject the peer connection if our peer proposes a BGP version other than 4.

| | |
|---|---|
| Values | Decimal (0..4) |
| Default | No default |

### ATTRIBUTE Vr Ip Bgp Peer holdTimeNegotiated (htn)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the maximum time in seconds, that may elapse without receiving a KEEPALIVE or UPDATE message before the connection is considered down. This is the negotiated value with peer through the OPEN message. The hold time must be<br>either zero or at least three seconds. If the negotiated hold time is zero, then periodic KEEPALIVE messages are not expected from the peer. |
| Values | Decimal (0; 3..65535) |
| Units | seconds |
| Default | No default |

### ATTRIBUTE Vr Ip Bgp Peer keepAliveNegotiated (kan)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the interval in seconds, between BGP KEEPALIVE message retransmissions. This keepalive interval will have the same ratio to the hold time negotiated with the peer as that of the locally configured keepalive and hold time. This attribute will be zero if the *holdTimeNegotiated* attribute is zero, which means periodic KEEPALIVE messages will not be sent. |
| Values | Decimal (0..21845) |
| Units | seconds |
| Default | No default |

### ATTRIBUTE Vr Ip Bgp Peer localAddressUsed (lau)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the local IP address used for this BGP peer connection. If the *localAddressConfigured* attribute is non-zero, its value will be used. Otherwise, the local address will be |

| | |
|---|---|
| | assigned by TCP based on the remote IP address of this peer connection and the IP forwarding table. |
| Values | IP address |
| Default | No default |

### ATTRIBUTE Vr Ip Bgp Peer localPort

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the local TCP port for the connection between the BGP peers. |
| Values | Decimal (0..65535) |
| Default | No default |

### ATTRIBUTE Vr Ip Bgp Peer remotePort

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the remote TCP port for the connection between the BGP peers. |
| Values | Decimal (0..65535) |
| Default | No default |

### ATTRIBUTE Vr Ip Bgp Peer lastError

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the last error code and subcode seen by this *Bgp* component instance on this peer connection. The first byte of this two byte OCTET STRING contains the error code, and the second byte contains the subcode. A value of zero means that no error has occurred. Check RFC 1771 for mappings of error codes and error subcodes. |
| Values | String (2, Hex) |
| Default | No default |

### ATTRIBUTE Vr Ip Bgp Peer connectionEstablishedTime (ceTime)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates how long since this *Peer* component's last transition to or from the ***established*** state. It is set to zero when the *Peer* component is activated. |
| Values | Decimal (0..4294967295) |
| Units | seconds |
| Default | 0 |

### ATTRIBUTE Vr Ip Bgp Peer connectionEstablishedTransitions (ceTrans)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of times the BGP connection state transitioned into the ***established*** state. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ip Bgp Peer inUpdateElapsedTime (iuet)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the elapsed time in seconds since the last BGP UPDATE message was received from the peer. Each time *inUpdates* attribute is incremented, the value of this attribute is set to zero. |
| Values | Decimal (0..4294967295) |
| Units | seconds |
| Default | No default |

### ATTRIBUTE Vr Ip Bgp Peer inMsgs

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of BGP messages received without error from the BGP peer. This counter will wrap to zero once the value exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ip Bgp Peer inUpdates

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of BGP UPDATE messages received on this peer connection. This counter will wrap to zero once the value exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ip Bgp Peer inErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of messages received from this BGP peer that proved to be in error. This counter will wrap to zero once the value exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ip Bgp Peer inErrorMsgs

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of BGP NOTIFICATION messages received from this BGP peer. This counter will wrap to zero once the value exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ip Bgp Peer outMsgs

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of locally generated BGP messages sent to this BGP peer. It does not include discarded messages. This counter will wrap to zero once the value exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ip Bgp Peer outUpdates

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of BGP UPDATE messages sent to this peer. This counter will wrap to zero once the value exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ip Bgp Peer outDiscards

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of locally generated BGP messages not sent to this BGP peer due to resource limitations within a BGP entity. This counter will wrap to zero once the value exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ip Bgp Peer outErrorMsgs

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of BGP NOTIFICATION messages sent to this BGP peer. This counter will wrap to zero once the value exceeds the maximum value. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ip Bgp Peer inRoutes

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of routes received from this BGP peer. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## ATTRIBUTE Vr Ip Bgp Peer peerType

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the way this peer is created. Peer is **static,** if created through provisioning or **dynamic,** if created through IP VPN auto discovery.<br><br>For *Router* and *Vrf*, all peers are statically created. So, this value will always be ***static***. |
| Values | static<br>dynamic |
| Default | No default |

## ATTRIBUTE Vr Ip Bgp Peer addressFamilyNegotiated (afn)

| | |
|---|---|
| Access | Read only |
| Description | The attribute indicates the list of multiprotocol extensions negotiated on this peer session. It consists of both the Address Family Identifier (AFI) and the Subsequent Address Family Identifier (SAFI).<br><br>To perform IP VPN auto discovery in a VPN, the value of ***ipv4Vpn*** must be in the *addressFamilyNegotiated* list of all the VCGs' peer instances.<br><br>To perform IP VPN multi-protocol BGP route distribution in a VPN, the value of ***mbgpVpn*** and ***ipv4Vpn*** must be in the *addressFamilyNegotiated* list of all the VCGs' peer instances.<br><br>To perform RFC 2547 VPN route distribution in a VPN using multi-protocol BGP extensions, the value of ***ipv4MplsVpn*** must be in the *addressFamilyNegotiated* list of all the VCGs' peer instances.<br><br>***ipv4Unicast*** represents AFI = 1 and SAFI = 1<br>***ipv4Vpn*** represents AFI = 1 and SAFI = 140 (not for RFC 2547)<br>***mbgpVpn*** represents AFI = 1 and SAFI = 141 (not for RFC |

| | |
|---|---|
| | 2547)<br>***ipv4MplsVpn*** represents AFI = 1 and SAFI = 128 |
| List of | ipv4Unicast<br>ipv4Vpn<br>mbgpVpn<br>ipv4MplsVpn |
| Default | No default |

### ATTRIBUTE Vr Ip Bgp Peer capabilityNegotiated (cn)

| | |
|---|---|
| Access | Read only |
| Description | The attribute indicates the list of capabilities negotiated on this peer session. |
| List of | mpExtensions<br>routeRefresh |
| Default | No default |

### COMPONENT Vr Ip Bgp Peer Descriptor (Desc)

| | |
|---|---|
| Groups | "GROUP Vr Ip Bgp Peer Desc Provisioned (Prov)" |
| Scope | Network |
| Description | *Vr/<string> Ip Bgp Peer/<Ip Address> Desc*<br>*Rtr/<string> Bgp Peer/<Ip Address> Desc*<br>*Rtr/<string> Vrf/<string> Bgp Peer/<Ip Address> Desc*<br>This component contains provisioned attributes for BGP peers. Provisioned attributes are only used when the peer is a statically provisioned peer. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

### GROUP Vr Ip Bgp Peer Desc Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisional attributes for this BGP *Peer* component |

### ATTRIBUTE Vr Ip Bgp Peer Desc peerAs

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the autonomous system identifier of this BGP *Peer* component. It is used to verify the autonomous system identifier learned from the peer through the OPEN message. The peer connection is rejected and a NOTIFICATION message is sent to the peer if these two numbers don't match. |
| Values | Decimal (0..65535) |
| Default | 0 |

### ATTRIBUTE Vr Ip Bgp Peer Desc localAddressConfigured (lac)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the local IP address configured for this *Bgp Peer* connection. If this attribute is 0.0.0.0, TCP chooses a local IP interface based on the remote IP address of this peer connection and the IP forwarding table. The value chosen is stored in the *localAddressUsed* attribute under the same *Peer* component. |
| Values | IP address |
| Default | 0.0.0.0 |

### ATTRIBUTE Vr Ip Bgp Peer Desc keepAliveConfigured (kac)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the configured interval between BGP KEEPALIVE message retransmissions. It is used to establish the ratio between keepalive interval and hold time. If this attribute is zero, then the *holdTimeConfigured* attribute must be zero, which means that periodic KEEPALIVE messages will not be sent. |
| Values | Decimal (0..21845) |

| | |
|---|---|
| Units | seconds |
| Default | 30 |

### ATTRIBUTE Vr Ip Bgp Peer Desc holdTimeConfigured (htc)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum time that may elapse without receiving a KEEPALIVE or UPDATE message before the connection is considered down. The hold time must be either zero or at least three seconds. If this attribute is zero, then the *keepAliveConfigured* attribute should also be zero, which means that periodic KEEPALIVE messages will not be sent. |
| Values | Decimal (0; 3..65535) |
| Units | seconds |
| Default | 90 |

### ATTRIBUTE Vr Ip Bgp Peer Desc connectRetryTime (connectRetry)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time interval for the ConnectRetry timer. It is the minimum amount of time that must elapse between successive TCP connection retries for establishing BGP peer connection. |
| Values | Decimal (1..65535) |
| Units | seconds |
| Default | 120 |

### ATTRIBUTE Vr Ip Bgp Peer Desc minAsOrigTime (minAsOrig)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time interval for the MinAsOriginationInterval timer. It is the minimum amount of time that must elapse between updates that advertise a change to a route within the local autonomous system to neighboring autonomous systems. |
| Values | Decimal (1..65535) |

| | |
|---|---|
| Units | seconds |
| Default | 15 |

### ATTRIBUTE Vr Ip Bgp Peer Desc minRouteAdvTime (minRouteAdv)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time interval for the MinRouteAdvertisementInterval timer. Feasible routes received from peers in other autonomous systems may only be re-advertised to peers in other autonomous systems at a rate no greater than MinRouteAdvertisementInterval. |
| Values | Decimal (1..65535) |
| Units | seconds |
| Default | 30 |

### ATTRIBUTE Vr Ip Bgp Peer Desc defaultInAggMed (diaMed)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies this *Bgp Peer* component instance's metric for generating a dynamic default route whenever this external BGP peer got established. It is used to prioritize between the dynamic default routes generated by Passport Bgp speakers. If this attribute is not set, BGP does not generate a dynamic default route. When this attribute is set, BGP automatically generates a dynamic default route when the connection established. |
| Values | Decimal (0..4294967295) |
| Default | 4294967295 |

### ATTRIBUTE Vr Ip Bgp Peer Desc isRouteReflectorClient (isRrClient)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether the peer is a client peer or non-client peer of this *Bgp* instance. The attribute is ignored unless the value of the '*routeReflector*' attribute of the '*Bgp*' component is ***true.*** |

| | |
|---|---|
| Values | true<br>false |
| Default | false |

### ATTRIBUTE Vr Ip Bgp Peer Desc removePrivateAs (remPrivate)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the treatment of the AS_PATH path attribute in routes sent to the peer. If this attribute is enabled, then BGP will remove private AS numbers from the AS_PATH. This attribute is meaningful only for external peers. |
| Values | enabled<br>disabled |
| Default | disabled |

### ATTRIBUTE Vr Ip Bgp Peer Desc nextHopSelf (nhs)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute controls the setting of the NEXT_HOP path attribute in routes advertised to the peer. If this attribute is enabled, BGP will advertise itself as the NEXT_HOP. This is useful when routes are propagated from an EBGP peer to an IBGP peer: the IBGP peer does not need to have a route to the EBGP peer. |
| Values | enabled<br>disabled |
| Default | disabled |

### ATTRIBUTE Vr Ip Bgp Peer Desc addressFamily

| | |
|---|---|
| Access | Read and write |
| Description | The attribute specifies the supported network layer protocols being carried in any BGP-4 UPDATE messages over this Peer session. It consists of both the Address Family Identifier (AFI) and the Subsequent Address Family Identifier (SAFI).<br><br>To perform IP VPN auto discovery in a VPN, the value of ***ipv4Vpn*** must be added to this attribute on all VCGs' peer |

instances.

To perform IP VPN multi-protocol BGP route distribution in a VPN, the value of ***mbgpVpn*** and ***ipv4Vpn*** must be in the *addressFamily* list of all the VCGs' Peer instances.

To perform RFC 2547 VPN route distribution in a VPN using multi-protocol BGP extentions, the value of ***ipv4MplsVpn*** must be in the *addressFamily* list of all the VCGs' peer instances.

***ipv4Unicast*** represents AFI = 1 and SAFI = 1
***ipv4Vpn*** represents AFI = 1 and SAFI = 140 (not for RFC 2547)
***mbgpVpn*** represents AFI = 1 and SAFI = 141 (not for RFC 2547)
***ipv4MplsVpn*** represents AFI = 1 and SAFI = 128

List of: ipv4Unicast, ipv4Vpn, mbgpVpn, ipv4MplsVpn

Default: (ipv4Unicast)

## COMPONENT Vr Ip Bgp Peer Vpn

Instance: String (7, Dashed Hex)

Scope: Application

Description: *Vr*/<string> *Ip Bgp Peer*/<Ip Address> *Vpn*/<Vpn id>
This component contains all VPN information that is learned by this BGP peer instance.

Dyn. Subcomp.: "COMPONENT Vr Ip Bgp Peer Vpn Ipv4"

Common Verbs:
- Help
- List
- Display

## COMPONENT Vr Ip Bgp Peer Vpn Ipv4

Instance: IP address

Groups: "GROUP Vr Ip Bgp Peer Vpn Ipv4 Operational (Oper)"

| | |
|---|---|
| Scope | Application |
| Description | *Vr*/<string> *Ip Bgp Peer*/<Ip Address> *Vpn*/<Vpn id> *Ipv4*<br>This component contains all IPv4 tunnel based VPN information gathered by this BGP peer for the specified VPN. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Vr Ip Bgp Peer Vpn Ipv4 Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes of the *Ipv4* component. |

### ATTRIBUTE Vr Ip Bgp Peer Vpn Ipv4 publicIpAddress

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the public IP Address for the remote IP VPN tunnel endpoint. It is used to encapsulate IP packets from the local IP VPN site to the remote site. |
| Values | IP address |
| Default | No default |

### ATTRIBUTE Vr Ip Bgp Peer Vpn Ipv4 asPath

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the sequence of AS path segments through which the IP VPN information arrives. The AS Path lists the ASs in reverse traversal order from the point of origin.<br>This attribute is not applicable and is not displayed for locally learned IP VPN information. |
| Values | String (2..255, ASCII) |
| Default | No default |

### ATTRIBUTE Vr Ip Bgp Peer Vpn Ipv4 vpnPeeringTopology

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the peering mode of the remote customer BGP from which this VPN information is originated. This mode determines if a dynamic IBGP peer is instantiated between this *BGP* instance and the remote IP Tunnel endpoint on the remote customer VR.<br>A ***none*** value specifies that BGP never instantiate dynamic IBGP peers.<br>Dynamic IBGP peer is instantiated between two customer VR in the same VPN if and only if at least one end is configured with a ***hub*** value and the other is either configured with a ***hub*** or a ***spoke*** value.<br><br>In any case; static BGP peers may be configured and overwrite the dynamic ones after auto-discovery has taken place. If auto-discovery is enabled when static peers already present between VPN sites, no dynamic peers with the same provisioned peer instance will be instantiated regardless of the configured value of the attribute. |
| Values | none<br>hub<br>spoke |
| Default | No default |

### ATTRIBUTE Vr Ip Bgp Peer Vpn Ipv4 asOriginatorId

| | |
|---|---|
| Access | Read only |
| Description | This attribute is associated with the Route Reflector. It indicates the router-id of the originator of this IP VPN information in the local AS. When the Route Reflector in the backbone distributes a discovered VPN information to other IBGP speakers, the value of this attribute in the discovered VPN information is used if one is present; otherwise, the Route Reflector's router-id is used. A value of 0.0.0.0 indicates this *Bgp* instance is not a Route Reflector.<br>This attribute is not applicable and is not displayed for locally learned IP VPN information. |
| Values | IP address |
| Default | No default |

### ATTRIBUTE Vr Ip Bgp Peer Vpn Ipv4 redundant

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates that the IP VPN information entry learned from more than one BGP peers in the carrier backbone. This attribute is not applicable and is not displayed for locally learned IP VPN information. |
| Values | no<br>yes |
| Default | No default |

### ATTRIBUTE Vr Ip Bgp Peer Vpn Ipv4 rrClusterList

| | |
|---|---|
| Access | Read only |
| Description | This attribute is associated with the Route Reflector. It indicates the sequence of cluster-ids that this discovered IP VPN information has traversed. When the Route Reflector in the backbone reflects a discovered VPN information to other non-client IBGP peers, the cluster id of the Route Reflector is added to the cluster list of the received VPN information.<br>A blank list indicates this attribute is not present in the received VPN information or if this *Bgp* instance is not a Route Reflector. This attribute is not applicable and is not displayed for locally learned IP VPN information. |
| List of | IP address |
| List Size | 256 |
| Default | No default |

### COMPONENT Vr Ip Bgp ImportPolicy (Import)

| | |
|---|---|
| Instance | Decimal (0..65535) |
| Groups | "GROUP Vr Ip Bgp Import Provisioned (Prov)" |
| Scope | Application |
| Description | *Vr/<string> Ip Bgp Import/n*<br>*Rtr/<string> Bgp Import/n*<br>*Rtr/<string> Vrf/<string> Bgp Import/n* |

Each instance of this component describes a BGP import policy.
A BGP import policy is used to decide if certain routing information learned from its peer is to be ignored or used.
If no import policy is provisioned, BGP will accept all routes received from its IBGP peers, but will not use any routing information received from its EBGP peers.
If multiple import policies are provisioned, the one with the most specific match will apply.
The keys are matched in the following order from the least specified to the most specified:
*Network*,
*peerAs*,
*peerIpAddress*,
*originAs*,
*originProtocol*,
*matchAsPath*,
*matchCommunity*.

Example1:
There are 2 import policies defined:
vr/0 ip bgp import/1, originProtocol = ***any***, originAs = ***20***, usageFlag = ***use***
vr/0 ip bgp import/2, originProtocol = ***igp***, usageFlag = ***ignore***
If a BGP NLRI contains a route originally learned from an igp with origin AS 20, it will be used.
Example2:
There are 2 import policies defined:
vr/0 ip bgp import/1, originProtocol = ***any***, matchAsPath = ***"1 2 3"***, usageFlag = ***ignore***
vr/0 ip bgp import/2, originProtocol = ***any***, usageFlag = use
If a BGP NLRI contains a route originally learned from an igp with the AsPath "1 2 3 4", it will be ignored.

For Router and Vrf, the example is similar with 'Vr/0 Ip' replaced with 'Router/0' and 'Router/0 Vrf/1' respectively.

| | |
|---|---|
| Opt. Subcomp. | "COMPONENT Vr Ip Bgp Import Network (Net)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Vr Ip Bgp Import Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all the provisionable attributes for the *Import* component. |

### ATTRIBUTE Vr Ip Bgp Import peerAs

| | |
|---|---|
| Access | Read and write |
| Description | This key attribute specifies the autonomous system number of the peer from which the routes are learned. A value of 0 for this attribute means that peer AS number will match any AS number. |
| Values | Decimal (0..65535) |
| Default | 0 |

### ATTRIBUTE Vr Ip Bgp Import peerIpAddress

| | |
|---|---|
| Access | Read and write |
| Description | This key attribute specifies the IP address of the peer from which the routes are learned. A value of 0.0.0.0 for this attribute means that peer IP address will match any IP address. |
| Values | IP address |
| Default | 0.0.0.0 |

### ATTRIBUTE Vr Ip Bgp Import originAs

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This key attribute specifies the autonomous system number where the routes were originated. A value of 0 for this attribute means origin AS number will match any AS number. |
| Values | Decimal (0..65535) |
| Default | 0 |

### ATTRIBUTE Vr Ip Bgp Import originProtocol

| | |
|---|---|
| Access | Read and write |
| Description | This key attribute specifies the protocols that originated the routes. A value of ***incomplete*** for this attribute means this information is not available. |
| Values | any<br>igp<br>egp<br>incomplete |
| Default | any |

### ATTRIBUTE Vr Ip Bgp Import usageFlag (usage)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether BGP will use or ignore information in received update if it meets criteria specified by the key attributes of this component. |
| Values | use<br>ignore |
| Default | use |

### ATTRIBUTE Vr Ip Bgp Import localPreference (locPrf)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies this *Bgp* component instance's degree of preference for those routes that match the criteria of this import policy. A higher value indicates a more preferred route. A value of 0 for this attribute means that the default local preference value provisioned under the *Bgp* component should be used. |
| Values | Decimal (0..4294967295) |

Default 0

### ATTRIBUTE Vr Ip Bgp Import asPathExpression (asExpr)

Access Read and write

Description This key attribute allows the user to enter a regular expression to match the import AS Path Attribute of the received update message. Note: the AS Path Attribute lists the ASs in reverse traversal order. The syntax of the regular expression is a subset of the RFC 2280.
The basic syntax of a regular expression is a list of AS number separated by a space which making up a AS path.
The following characters has the special meaning:
'.' - Matches any AS number.
'^n' - Matches the first AS item (n) in the AS Path Attribute, or in order words, matches the last AS (n) traversed in the AS path.
'n$' - Matches the last AS item (n) in the AS Path Attribute, or in order words, matches the first AS (n) traversed in the AS path.
'[n1 ... n2]' - Matches any AS number that appeared in the set n1 ...
n2.
'n1 - n2' - Matches any AS number between the range of n1 and n2.
'()' - is supported to change the order of evaluation.
'n*' - Matches 0 or more occurrences of n, where n can be a set, range or AS number.
'n+' - Matches 1 or more occurrences of n, where n can be a set, range or AS number.
'n?' - Matches 0 or 1 occurrences of n, where n can be a AS set, range or number.
The following logical operators are evaluated in decending order:
'NOT' - Given a regular expression x, NOT x matches the AS number pattern that is not matched by x.
'AND'- Given two regular expressions x and y, x AND y matches the intersection of the AS path that are matched by x and those are matched by y.
'OR' - Given two regular expressions x and y, x OR y matches the union of the AS path that are matched by x and those are matched by y.

For example: The AS path “5 4 3 2 1”, where 1 is the origin AS, would be match by any one of the following regular expressions:
***1$,***
***^5,***
***4 3,***
***5 3 - 4*,***
***5 [4 3 2] not10 2 1,***
***not (6 7 8 9 10) and 5 4 .* 1***
Empty regular expression implies a match on all AS path.

Values: String (0..255, ASCII)

Default: No default

### ATTRIBUTE Vr Ip Bgp Import communityExpression (comExpr)

Access: Read and write

Description: This key attribute allows the user to enter a regular expression to match the import Community Attribute of the received update message. The syntax of the regular expression is a subset of the RFC 2280.
The basic syntax of a regular expression is a list of Community number seperated by a space which making up a Community attribute.
The following characters has the special meaning:
‘[n1 ... n2]’ - Matches any Community number that appeared in the
set n1 ...n2.
‘n1 - n2’ - Matches any Community number between the range of n1 and n2.
‘()’ - is supported to change the order of evaluation.
‘n*’ - Matches 0 or more occurrences of n, where n can be a set, range or Community number.
‘n+’ - Matches 1 or more occurrences of n, where n can be a set, range or Community number.
‘n?’ - Matches 0 or 1 occurrences of n, where n can be a set, range or number.
The following logical operators are evaluated in decending order:
‘NOT’ - Given a regular expression x, NOT x matches the Community attribute that is not matched by x.
‘AND’- Given two regular expressions x and y, x AND y matches the intersection of the Community attribute that

are matched by x and those are matched by y.
'OR' - Given two regular expressions x and y, x OR y matches the union of the Community attribute that are matched by x and those are matched by y.
For example: The Community path "1 2 3 4 5" would be match by any one of the following regular expression:
***1,***
***5,***
***4 3,***
***2 3 - 4*,***
***1 [3 4 2]+,***
***not (6 7 8 9 10) and 1 2***
Empty regular expression implies a match on all Community path.

Values: String (0..255, ASCII)

Default: No default

### ATTRIBUTE Vr Ip Bgp Import expressPreference (exprPref)

Access: Read and write

Description: This attribute specifies the relative preference of the policy which use the keys *expressAsPath* and *expressCommunity.* This attribute is ignored if attributes *expressAsPath* and *expressCommunity* are both empty. This attribute is used to break the tie when two import policies' expression attributes match a specific AS Path or Community. A higher value indicates a more preferred policy.

Values: Decimal (0..255)

Default: 128

### ATTRIBUTE Vr Ip Bgp Import appendCommunity (appCom)

Access: Read and write

Description: This attribute indicates which community number this import policy will send along with the Path Attribute. Refer to RFC 1997 for the detailed description of how this attribute may be used to pass additional information to BGP peers. If the value is set to 0, no community is appended to the Community attribute.

Values: Decimal (0..4294967295)

Default 0

### ATTRIBUTE Vr Ip Bgp Import ibgpRtePreference (ibgpPref)

Access Read and write

Description This attribute specifies the routing preference of IBGP routes matching this import policy. A lower value means the route is more preferred. If ***sameAsBgp*** is specified, the value of *defaultIbgpRtePref* set under the *Bgp* component is used. Otherwise the value of this attribute will be used as the routing preference**.** The default is to use sameAsBgp.

Values Decimal (1..253)
sameAsBgp

Default sameAsBgp

### ATTRIBUTE Vr Ip Bgp Import ebgpRtePreference (ebgpPref)

Access Read and write

Description This attribute specifies the routing preference of EBGP routes matching this import policy. A lower value specifies the route is more preferred. If ***sameAsBgp*** is specified, the value of *defaultEbgpRtePref* set under the *Bgp* component is used. Otherwise the value of this attribute will be used as the routing preference**.** The default is to use sameAsBgp.

Values Decimal (1..253)
sameAsBgp

Default sameAsBgp

### ATTRIBUTE Vr Ip Bgp Import addressFamily (af)

Access Read and write

Description This attribute specifies the Address Family of the routes this import policy should apply to. It consists of both the Address Family Identifier (AFI) and the Subsequent Address Family Identifier (SAFI).

It can contain one of the following :

***ipv4Unicast*** represents AFI = 1 and SAFI = 1

| | |
|---|---|
| | ***mbgpVpn*** represents AFI = 1 and SAFI = 141 (Not for RFC 2547)<br>***all*** |
| Values | all<br>ipv4Unicast<br>mbgpVpn |
| Default | all |

### ATTRIBUTE Vr Ip Bgp Import description (desc)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute decribes the policy. For example, ‘to import BGP routes from AS 1’. |
| Values | String (0..255, ASCII) |
| Default | No default |

### COMPONENT Vr Ip Bgp Import Network (Net)

| | |
|---|---|
| Instance | Decimal (0..65535) |
| Groups | "GROUP Vr Ip Bgp Import Net Provisioned (Prov)" |
| Scope | Application |
| Description | *Vr/<string> Ip Bgp Import/n Network/n*<br>*Rtr/<string> Bgp Import/n Network/n*<br>*Rtr/<string> Vrf/<string> Bgp Import/n Network/n*<br>This is an optional subcomponent of *Import* component and identifies destination networks that this BGP import policy applies to. This component is used as a key for the import policy. If no network list is provisioned, the import policy applies to all networks. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Vr Ip Bgp Import Net Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the set of provisionable attributes for the *Network* component. |

## ATTRIBUTE Vr Ip Bgp Import Net prefix

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the network prefix whose length is determined by the *length* attribute under the same *Network* component. |
| Values | IP address |
| Default | No default |

## ATTRIBUTE Vr Ip Bgp Import Net length

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the length of the network prefix. |
| Values | Decimal (1..32) |
| Units | bits |
| Default | No default |

## COMPONENT Vr Ip Bgp ExportPolicy (Export)

| | |
|---|---|
| Instance | Decimal (0..65535) |
| Groups | "GROUP Vr Ip Bgp Export Provisioned (Prov)" |
| Scope | Application |
| Description | *Vr/<string> Ip Bgp Export/n*<br>*Rtr/<string> Bgp Export/n*<br>*Rtr/<string> Vrf/<string> Bgp Export/n*<br>Each instance of this component describes a BGP export policy. A BGP export policy is used to decide if certain routing information should be blocked or advertised to its peers.<br>If no export policy is provisioned, BGP will advertise all external BGP learned routes to its internal peers, but not advertise any routing information to its external peers. |

If multiple export policies are provisioned, the one with the most specific match will apply.
The keys are matched in the following order from the least specified to the most specified:
*peerAs*,
*peerIpAddress*,
*protocol*,
*ripInterface* (if applicable),
*egpAs*, *bgpAs*, *ripNeighbour*, or *ospfTag* (whichever is applicable),
*Network*,
*matchAsPath*,
*matchCommunity*.

Example1: (for Router and Vrf, the examples are similar by replacing ‘vr/0 ip’ with ‘Router/a’ and ‘Router/a Vrf/b’ respectively)
There are 2 export policies defined:
vr/0 ip bgp export/1, protocol = ***all***, advertiseStatus = ***send***
vr/0 ip bgp export/2, protocol = ***rip***, advertiseStatus = ***block***
BGP will generate BGP updates for all routes except the routes learned from RIP.
Example2:
There are 2 export policies defined:
vr/0 ip bgp export/1, protocol = all, matchCommunity = ***303***, advertiseStatus = ***send***
vr/0 ip bgp export/2, protocol = ***all***, advertiseStatus = ***block***
BGP will generate BGP updates for all routes that belongs to Community 303.

Opt. Subcomp. "COMPONENT Vr Ip Bgp Export Network (Net)"

Common Verbs
Help
List
Display
Add
DELete

## GROUP Vr Ip Bgp Export Provisioned (Prov)

Properties Provisioned

| | |
|---|---|
| Description | This group contains all the provisioned attributes for the *Export* component. |

### ATTRIBUTE Vr Ip Bgp Export peerAs

| | |
|---|---|
| Access | Read and write |
| Description | This key attribute specifies the autonomous system number of the peer where the routes are advertised to. A value of 0 for this attribute means this export policy applies to all peer ASes. |
| Values | Decimal (0..65535) |
| Default | 0 |

### ATTRIBUTE Vr Ip Bgp Export peerIpAddress

| | |
|---|---|
| Access | Read and write |
| Description | This key attribute specifies the IP address of the peer where the routes are advertised to. A value of 0.0.0.0 for this attribute means this export policy applies to all peers. |
| Values | IP address |
| Default | 0.0.0.0 |

### ATTRIBUTE Vr Ip Bgp Export protocol

| | |
|---|---|
| Access | Read and write |
| Description | This key attribute specifies which protocol the export policy applies to. If it is set to ***all***, that means this export policy will apply all routes in the IP routing table.<br>Example:<br>vr/1 ip ospf export/1 with<br>advertise Status = block<br>protocol = bgpExternal<br>bgpAsId = 3<br>peerAs = 5<br>This policy specifies that all routes learned from EBGP Peers that are originated from AS 3 should not be advertised to AS 5. |
| Values | all<br>egp<br>rip |

| | |
|---|---|
| | ospfInternal<br>ospfExternal<br>staticLocal<br>staticRemote<br>bgpInternal<br>bgpExternal<br>bgpAggregate<br>mbgp<br>bgpMplsInternal |
| Default | all |

### ATTRIBUTE Vr Ip Bgp Export egpAsId (egpAs)

| | |
|---|---|
| Access | Read and write |
| Description | This key attribute specifies the EGP autonomous system number that this export policy will apply to.<br>When this value is non-zero, the *protocol* attribute must be set to ***egp***. |
| Values | Decimal (0..65535) |
| Default | 0 |

### ATTRIBUTE Vr Ip Bgp Export bgpAsId (bgpAs)

| | |
|---|---|
| Access | Read and write |
| Description | This key attribute specifies the BGP autonomous system number that this export policy will apply to.<br>When this value is non-zero, the *protocol* attribute must be set to either ***bgpInternal*** or ***bgpExternal***. |
| Values | Decimal (0..65535) |
| Default | 0 |

### ATTRIBUTE Vr Ip Bgp Export ospfTag

| | |
|---|---|
| Access | Read and write |
| Description | This key attribute specifies the OSPF tag when the *protocol* attribute is set to either ***ospfInternal*** or ***ospfExternal***. The default tag value 4294967295 (FFFFFFFF in hex) indicates that the tag not specified. |

| | |
|---|---|
| Values | Hex (H.0..H.ffffffff) |
| Default | H.ffffffff |

### ATTRIBUTE Vr Ip Bgp Export ripInterface (ripIf)

| | |
|---|---|
| Access | Read and write |
| Description | This key attribute specifies the local RIP interface where the routes are learned from.<br>The *ripInterface* attribute when non-zero should be equal to one of the IP addresses provisioned as a *logicalIf* component under *IpPort*, or the IP address of an *Interface* component. Otherwise, this policy will be ignored.<br>The value of the *protocol* attribute must be set to ***rip*** if a value for the *ripInterface* attribute is non-zero. |
| Values | IP address |
| Default | 0.0.0.0 |

### ATTRIBUTE Vr Ip Bgp Export ripNeighbor (ripNbr)

| | |
|---|---|
| Access | Read and write |
| Description | This key attribute specifies the RIP neighbor where the routes were learned from.<br>The value of the *protocol* attribute must be set to ***rip*** if a value for the *ripNeighbor* attribute is non-zero. |
| Values | IP address |
| Default | 0.0.0.0 |

### ATTRIBUTE Vr Ip Bgp Export advertiseStatus (advertise)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether data will be exported if it meets criteria specified by the other key attributes of this component. |
| Values | send<br>block |
| Default | send |

### ATTRIBUTE Vr Ip Bgp Export multiExitDisc (med)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies this *Bgp* component instance's metric to discriminate between multiple exit points to an adjacent autonomous system if the route meets the criteria specified by the key attributes of this component. A lower value indicates a more preferred route. A value of 0 for this attribute means the default MED value provisioned under the *Bgp* component should be used. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ip Bgp Export sendMultiExitDiscToEbgp (sendMed)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether the Multi Exit Discriminator(MED) attribute should be included in an update message sent to an EBGP peer. |
| Values | false<br>true |
| Default | false |

### ATTRIBUTE Vr Ip Bgp Export asPathExpression (asExpr)

| | |
|---|---|
| Access | Read and write |
| Description | This key attribute allows the user to enter a regular expression to match the import AS Path Attribute of the export update message. Note: the AS Path Attribute lists the ASs in reverse traversal order. The syntax of the regular expression is a subset of the RFC 2280.<br>The basic syntax of a regular expression is a list of AS number separated by a space which making up a AS path.<br>The following characters has the special meaning:<br>'.' - Matches any AS number.<br>'^n' - Matches the first AS item (n) in the AS Path Attribute, or in order words, matches the last AS (n) traversed in the AS path. |

‘n$’ - Matches the last AS item (n) in the AS Path Attribute, or in order words, matches the first AS (n) traversed in the AS path.
‘[n1 ... n2]’ - Matches any AS number that appeared in the set n1 ...
n2.
‘n1 - n2’ - Matches any AS number between the range of n1 and n2.
‘()’ - is supported to change the order of evaluation.
‘n*’ - Matches 0 or more occurrences of n, where n can be a set, range or AS number.
‘n+’ - Matches 1 or more occurrences of n, where n can be a set, range or AS number.
‘n?’ - Matches 0 or 1 occurrences of n, where n can be a set, range or number.
The following logical operators are evaluated in decending order:
‘NOT’ - Given a regular expression x, NOT x matches the AS number pattern that is not matched by x.
‘AND’- Given two regular expressions x and y, x AND y matches the intersection of the AS path that are matched by x and those are matched by y.
‘OR’ - Given two regular expressions x and y, x OR y matches the union of the AS path that are matched by x and those are matched by y.
For example: The AS path “5 4 3 2 1”, where 1 is the origin AS, would be match by any one of the following regular expressions:
***1$,***
^***5,***
***4 3,***
***5 3 - 4*,***
***5 [4 3 2] not10 2 1,***
***not (6 7 8 9 10) and 5 4 .* 1***
Empty regular expression implies a match on all AS path.

| | |
|---|---|
| Values | String (0..255, ASCII) |
| Default | No default |

### ATTRIBUTE Vr Ip Bgp Export communityExpression (comExpr)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This key attribute allows the user to enter a regular expression to match the import Community Attribute of the received update message. The syntax of the regular expression is a subset of the RFC 2280.<br>The basic syntax of a regular expression is a list of Community number separated by a space which making up a Community attribute.<br>The following characters has the special meaning:<br>‘[n1 ... n2]’ - Matches any Community number that appeared in the<br>set n1 ...n2.<br>‘n1 - n2’ - Matches any Community number between the range of n1 and n2.<br>‘()’ - is supported to change the order of evaluation.<br>‘n*’ - Matches 0 or more occurrences of n, where n can be a set, range or Community number.<br>‘n+’ - Matches 1 or more occurrences of n, where n can be a set, range or Community number.<br>‘n?’ - Matches 0 or 1 occurrences of n, where n can be a set, range or number.<br>The following logical operators are evaluated in decending order:<br>‘NOT’ - Given a regular expression x, NOT x matches the Community attribute that is not matched by x.<br>‘AND’- Given two regular expressions x and y, x AND y matches the intersection of the Community attribute that are matched by x and those are matched by y.<br>‘OR’ - Given two regular expressions x and y, x OR y matches the union of the Community attribute that are matched by x and those are matched by y.<br>For example: The Community path “1 2 3 4 5” would be match by any one of the following regular expression:<br>***1,***<br>***5,***<br>***4 3,***<br>***2 3 - 4*,***<br>***1 [3 4 2]+,***<br>***not (6 7 8 9 10) and 1 2***<br>Empty regular expression implies a match on all Community path. |
| Values | String (0..255, ASCII) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Vr Ip Bgp Export expressPreference (exprPref)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the relative preference of the policy which use the keys *expressAsPath* and *expressCommunity*. This attribute is ignored if attributes *expressAsPath* and *expressCommunity* are both empty. This attribute is used to break the tie when two export policies' expression attributes match a specific AS Path or Community. A higher value indicates a more preferred policy. |
| Values | Decimal (0..255) |
| Default | 128 |

### ATTRIBUTE Vr Ip Bgp Export sendCommunity (sendCom)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates which community number this export policy will send along with the Path Attribute. Refer to RFC 1997 for the detailed description of how this attribute may be used to pass additional information to BGP peers. If the value is set to 0, no community is added to the Community attribute. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ip Bgp Export localPreference (locPrf)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the value of the LOCAL_PREFERENCE path attribute in routes sent to internal peers. A value of 0 means that the value specified in the import policy (if any) or the default local preference value should be used. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ip Bgp Export virtualPrivateNetworkIdentifier (vpnId)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute specifies the Virtual Private Network (VPN) identifier of the routes this export policy should apply to. This attribute is only used if *addressFamily* has included ***mbgpVpn***. The value “00-00-00-00-00-00-00” identifies an unspecified vpnId, meaning the vpnId will not be used as a matching criteria in this export policy. |
| Values | String (7, Dashed Hex) |
| Default | 00-00-00-00-00-00-00 |

### ATTRIBUTE Vr Ip Bgp Export addressFamily (af)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the Address Family of the routes this export policy should apply to. It consists of both the Address Family Identifier (AFI) and the Subsequent Address Family Identifier (SAFI).<br><br>It can contain one of the following :<br><br>***ipv4Unicast*** represents AFI = 1 and SAFI = 1<br>***mbgpVpn*** represents AFI = 1 and SAFI = 141<br>***all*** |
| Values | all<br>ipv4Unicast<br>mbgpVpn |
| Default | all |

### ATTRIBUTE Vr Ip Bgp Export description (desc)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute decribes the policy. For example, ‘to export BGP routes to MCI’. |
| Values | String (0..255, ASCII) |
| Default | No default |

### ATTRIBUTE Vr Ip Bgp Export insertDummyAs (insertAs)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute specifies the AS number(s) to be inserted into the AS Path Attribute. The value is a sequence of AS number separated by period(.). For example, if the value is ***20.20.30***, the AS numbers 20, 20 and 30 would be inserted at the end of the AS Path Attribute just before the local AS number. |
| Values | Integer Sequence |
| Default | No default |

## COMPONENT Vr Ip Bgp Export Network (Net)

| | |
|---|---|
| Instance | Decimal (0..65535) |
| Groups | "GROUP Vr Ip Bgp Export Net Provisioned (Prov)" |
| Scope | Application |
| Description | *Vr/<string> Ip Bgp Export/n Network/n*<br>*Rtr/<string> Bgp Export/n Network/n*<br>*Rtr/<string> Vrf/<string> Export/n Network/n*<br>This is an optional subcomponent of the *Export* component and identifies a destination network that this BGP export policy will apply to. This component is used as a key for the export policy. If no network list is provisioned, the import policy applies to all networks. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Vr Ip Bgp Export Net Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the set of provisionable attributes for the *Network* component. |

## ATTRIBUTE Vr Ip Bgp Export Net prefix

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute specifies the network prefix whose length is determined by the *length* attribute under the same *Network* component. |
| Values | IP address |
| Default | No default |

### ATTRIBUTE Vr Ip Bgp Export Net length

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the length of the network prefix. |
| Values | Decimal (1..32) |
| Units | bits |
| Default | No default |

### COMPONENT Vr Ip Bgp As

| | |
|---|---|
| Instance | Decimal (0..65535) |
| Groups | "GROUP Vr Ip Bgp As Provisioned (Prov)" |
| Scope | Application |
| Description | *Vr/<string> Ip Bgp As/n*<br>*Rtr/<string> Bgp As/n*<br>*Rtr/<string> Vrf/<string> Bgp As/n*<br>This component associates attributes to an autonomous system. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Vr Ip Bgp As Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attributes associated to each autonomous system for this *Bgp* component instance. |

## ATTRIBUTE Vr Ip Bgp As weight

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the weight for an autonomous system. It allows users to prefer some ASes over others. It is used in route selection. Lowest weight is preferred. Setting the weight of an AS to 255 will make any route that traverses through that AS unpreferred. |
| Values | Decimal (0..255) |
| Default | 128 |

## COMPONENT Vr Ip Bgp AggregatePolicy (Aggregate)

| | |
|---|---|
| Instance | prefix [IP address]<br>length [Decimal (0..32)] |
| Scope | Application |
| Description | *Vr/<string> Ip Bgp AggregatePolicy/<Ip Address>,<Decimal>*<br>*Rtr/<string> Bgp AggregatePolicy/<Ip Address>,<Decimal>*<br>*Rtr/<string> Vrf/<string> Bgp AggregatePolicy/<Ip Address>,<Decimal>*<br>This component is used to perform aggregation of BGP routes for exporting. Aggregation is the process of combining the characteristics of several different routes in such a way that a single route can be advertised. Aggregation reduces the amount of information that a BGP speaker must store and exchange with other BGP speakers. Refer to RFC1771 for the set of rules regarding which routes can be aggregated.<br>A ***network*** subcomponent is automatically added with the same network range as the aggregation policy key and its action is set to ***aggregate***. So by default all subnets under the aggregation key range will be aggregated.<br>Examples (For *Router* and *Vrf*, the examples are similar by replacing ‘vr/0 ip’ with ‘Router/a’ and ‘Router/a Vrf/b’ respectively):<br>Example #1: aggregate all the networks covered by A.0.0.0/8<br>add vr/0 ip bgp aggregate/A.0.0.0,8<br>(Note: the following subcomponent vr/0 ip bgp aggregate/A.0.0.0,8 network/0 prefix A.0.0.0, length 8, action aggregate will be automatically added) |

Example #2: aggregate A.B.0.0/16 and A.C.0.0/16 as A.0.0.0/8 and advertise other networks
add vr/0 ip bgp aggregate/A.0.0.0,8
set vr/0 ip bgp aggregate/A.0.0.0,8 network/0 prefix A.B.0.0, length 16, action aggregate
(Note: this set command will overwrite the default network subcomponent
vr/0 ip bgp aggregate/A.0.0.0,8 network/0 prefix A.0.0.0, length 8, action aggregate)
add vr/0 ip bgp aggregate/A.0.0.0,8 network/1
set vr/0 ip bgp aggregate/A.0.0.0,8 network/1 prefix A.C.0.0, length 16, action aggregate

Example #3: aggregate A.B.0.0/16 and A.C.0.0/16 as A.0.0.0/8 and advertise other networks; also advertise A.B.C.0/24
add vr/0 ip bgp aggregate/A.0.0.0,8
set vr/0 ip bgp aggregate/A.0.0.0,8 networkl/0 prefix A.B.0.0, length 16, action aggregate
add vr/0 ip bgp aggregate/A.0.0.0,8 network/1
set vr/0 ip bgp aggregate/A.0.0.0,8 network/1 prefix A.C.0.0, length 16, action aggregate
add vr/0 ip bgp aggregate/A.0.0.0,8 network/2
set vr/0 ip bgp aggregate/A.0.0.0,8 network/2 prefix A.B.C.0, length 24, action advertise

Example #4: aggregate all networks under A.0.0.0/8, meanwhile advertise A.B.0.0/16
add vr/0 ip bgp aggregate/A.0.0.0,8
add vr/0 ip bgp aggregate/A.0.0.0,8 network/1
set vr/0 ip bgp aggregate/A.0.0.0,8 network/1 prefix A.B.0.0, length 16, action advertise

Opt. Subcomp. "COMPONENT Vr Ip Bgp Aggregate Network (Net)"

Common Verbs

Help
List
Display
Add
DELete

## COMPONENT Vr Ip Bgp Aggregate Network (Net)

| | |
|---|---|
| Instance | Decimal (0..65535) |
| Groups | "GROUP Vr Ip Bgp Aggregate Net Provisioned (Prov)" |
| Scope | Application |
| Description | *Vr/<string> Ip Bgp Aggregate/<IP address>,<n> Network/n*<br>*Rtr/<string> Bgp Aggregate/<IP address>,<n> Network/n*<br>*Rtr/<string> Vrf/<string> Bgp Aggregate/<IP address>,<n> Network/n*<br>This is an optional subcomponent of *Aggregate* component and identifies a set of more specific routes that this BGP will aggregate or advertise together with the aggregated route. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Vr Ip Bgp Aggregate Net Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the set of provisionable attributes for the *Network* component. |

## ATTRIBUTE Vr Ip Bgp Aggregate Net prefix

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the network prefix whose length is determined by the *length* attribute under the same *Network* component. |
| Values | IP address |
| Default | 0.0.0.0 |

## ATTRIBUTE Vr Ip Bgp Aggregate Net length

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the length of the network prefix. |

| | |
|---|---|
| Values | Decimal (0..32) |
| Units | bits |
| Default | 0 |

### ATTRIBUTE Vr Ip Bgp Aggregate Net protocol

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the IP protocols to which this route should belong. |
| Values | all<br>egp<br>rip<br>ospfInternal<br>ospfExternal<br>staticLocal<br>staticRemote<br>bgpInternal<br>bgpExternal |
| Default | all |

### ATTRIBUTE Vr Ip Bgp Aggregate Net egpAsId (egpAs)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies an EGP autonomous system number.<br><br>When this value is non-zero, the *protocol* attribute must be set to either ***egp*** or to ***all***. And this more specific route will be advertised together with the aggregated route only if it is learned through egp and this attribute matches the EGP autonomous system number where the network is learned from.<br>The default value 0 indicates that the EGP autonomous system number is not specified. |
| Values | Decimal (0..65535) |
| Default | 0 |

### ATTRIBUTE Vr Ip Bgp Aggregate Net bgpAsId (bgpAs)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute specifies the BGP autonomous system number.<br><br>When this value is non-zero, the *protocol* attribute must be set to either ***bgp*** or to ***all***. And this more specific route will be advertised together with the aggregated route only if it is learned through BGP and this attribute matches the BGP autonomous system number where the network is learned from.<br>The default value 0 indicates that the BGP autonomous system number is not specified. |
| Values | Decimal (0..65535) |
| Default | 0 |

### ATTRIBUTE Vr Ip Bgp Aggregate Net ospfTag

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the OSPF tag.<br><br>When this attribute is set to a value other than the default value FFFFFFFF in hex, the *protocol* attribute must be set to either ***ospf*** or to ***all***. And this more specific route will be advertised together with the aggregated route only if its OSPF tag matches this value.<br>The default tag value 4294967295 (FFFFFFFF in hex) indicates that the tag is not specified. |
| Values | Hex (H.0..H.ffffffff) |
| Default | H.ffffffff |

### ATTRIBUTE Vr Ip Bgp Aggregate Net ripInterface (ripIf)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies a local RIP interface which should be equal to one of the IP addresses provisioned as a *logicalIf* component under *IpPort*, or one of the IP addresses provisioned as an *Interface* component.<br><br>When this value is non-zero, the value of the *protocol* attribute must be either set to ***rip*** or to ***all.*** And this more specific route will be advertised together with the aggregated route only if it is learned through RIP and this RIP interface. |

The default value 0.0.0.0 indicates that the RIP interface is not specified.

Values: IP address

Default: 0.0.0.0

### ATTRIBUTE Vr Ip Bgp Aggregate Net action

Access: Read and write

Description: This attribute specifies whether this network should be aggregated or advertised out.

Values:
aggregate
advertise

Default: aggregate

### COMPONENT Vr Ip Bgp IndbEntry (Indb)

Instance:
prefix [IP address]
length [Decimal (0..32)]
peer [IP address]

Groups: "GROUP Vr Ip Bgp Indb Operational (Oper)"

Scope: Application

Description:
*Vr/<string> Ip Bgp IndbEntry/<Ip Address>,<Decimal>,<Ip Address>*
*Rtr/<string>Bgp IndbEntry/<Ip Address>,<Decimal>,<Ip Address>*
*Rtr/<string> Vrf/<string> Bgp IndbEntry/<Ip Address>,<Decimal>,<Ip Address>*
This component describes a BGP route received from one of its peers.

Common Verbs:
Help
List
Display

### GROUP Vr Ip Bgp Indb Operational (Oper)

Properties: Operational

| | |
|---|---|
| Description | This group contains all the operational attributes of the *IndbEntry* component. |

### ATTRIBUTE Vr Ip Bgp Indb origin

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the ultimate origin of the path information. A value of ***incomplete*** means this information is not available. |
| Values | igp<br>egp<br>incomplete |
| Default | No default |

### ATTRIBUTE Vr Ip Bgp Indb inLocaldb

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether or not this route was chosen as the best BGP4 route. |
| Values | false<br>true |
| Default | No default |

### ATTRIBUTE Vr Ip Bgp Indb nextHop

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the IP address of the border router that should be used as the next hop for the destination network. |
| Values | IP address |
| Default | No default |

### ATTRIBUTE Vr Ip Bgp Indb localPreference

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates our IBGP peer’s degree of preference for an advertised route. A higher value indicates a more preferred route. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Bgp Indb calcLocalPref

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates our degree of preference for this route. A higher value indicates a more preferred route. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Bgp Indb multiExitDiscriminator (med)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates a metric used to discriminate between multiple exit points to the same adjacent autonomous system. A lower value indicates a more preferred route. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Bgp Indb atomicAggregate

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether or not the local system has selected a less specific route without selecting a more specific route. |
| Values | lessSpecificRouteNotSelected<br>lessSpecificRouteSelected |
| Default | No default |

### ATTRIBUTE Vr Ip Bgp Indb aggregatorAs

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the AS number of the last BGP4 speaker that performed route aggregation. A value of zero (0) indicates the absence of this attribute. |

| | |
|---|---|
| Values | Decimal (0..65535) |
| Default | No default |

### ATTRIBUTE Vr Ip Bgp Indb aggregatorAddr

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the IP address of the last BGP4 speaker that performed route aggregation. A value of 0.0.0.0 indicates the absence of this attribute. |
| Values | IP address |
| Default | No default |

### ATTRIBUTE Vr Ip Bgp Indb asPath

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the sequence of AS path segments. The AS Path Attribute lists the ASs in reverse traversal order. |
| Values | String (2..255, ASCII) |
| Default | No default |

### ATTRIBUTE Vr Ip Bgp Indb unknownAttributes (unknown)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates all the path attributes not understood by this *Bgp* component instance. |
| Values | String (0..255, ASCII) |
| Default | No default |

### ATTRIBUTE Vr Ip Bgp Indb communityPath

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Community path attribute. |
| Values | String (0..255, ASCII) |
| Default | No default |

### ATTRIBUTE Vr Ip Bgp Indb asOriginatorId

| | |
|---|---|
| Access | Read only |
| Description | This attribute is associated with the Route Reflector. It indicates the router-id of the originator in the local AS. A value of 0.0.0.0 indicates this attribute is not present in the learned IBGP route or if this *Bgp* instance is not a Route Reflector. |
| Values | IP address |
| Default | No default |

### ATTRIBUTE Vr Ip Bgp Indb rrClusterList

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates a sequence of cluster-ids that the route has traversed. A blank list indicates this attribute is not present in the learned IBGP route or if this *Bgp* instance is not a Route Reflector. |
| List of | IP address |
| List Size | 256 |
| Default | No default |

### COMPONENT Vr Ip Bgp LocaldbEntry (Localdb)

| | |
|---|---|
| Instance | prefix [IP address]<br>length [Decimal (0..32)]<br>peer [IP address] |
| Groups | "GROUP Vr Ip Bgp Localdb Operational (Oper)" |
| Scope | Application |
| Description | *Vr/<string> Ip Bgp LocaldbEntry/<Ip Address>,<Decimal>,<Ip Address>*<br>*Rtr/<string> Bgp LocaldbEntry/<Ip Address>,<Decimal>,<Ip Address>*<br>*Rtr/<string> Vrf/<string> Bgp LocaldbEntry/<Ip Address>,<Decimal>,<Ip Address>*<br>This component describes an entry in the BGP local database. This database contains the routing information that the BGP |

speaker has selected by applying its local import policies and decision process to the routing information stored in *IndbEntry*.

Common Verbs

Help
List
Display

## GROUP Vr Ip Bgp Localdb Operational (Oper)

Properties: Operational

Description: This group contains all the operational attributes of the *LocaldbEntry* component.

## ATTRIBUTE Vr Ip Bgp Localdb origin

Access: Read only

Description: This attribute indicates the ultimate origin of the path information. A value of ***incomplete*** means this information is not available.

Values:
igp
egp
incomplete

Default: No default

## ATTRIBUTE Vr Ip Bgp Localdb nextHop

Access: Read only

Description: This attribute indicates the IP address of the border router that should be used as the next hop for the destination network.

Values: IP address

Default: No default

## ATTRIBUTE Vr Ip Bgp Localdb localPreference

Access: Read only

Description: This attribute indicates our IBGP peer's degree of preference for an advertised route. A higher value indicates a more preferred route.

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Bgp Localdb multiExitDiscriminator (med)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates a metric used to discriminate between multiple exit points to the same adjacent autonomous system. A lower value indicates a more preferred route. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Bgp Localdb atomicAggregate

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether or not the local system has selected a less specific route without selecting a more specific route. |
| Values | lessSpecificRouteNotSelected<br>lessSpecificRouteSelected |
| Default | No default |

### ATTRIBUTE Vr Ip Bgp Localdb aggregatorAs

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the AS number of the last BGP4 speaker that performed route aggregation. A value of zero (0) indicates the absence of this attribute. |
| Values | Decimal (0..65535) |
| Default | No default |

### ATTRIBUTE Vr Ip Bgp Localdb aggregatorAddr

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the IP address of the last BGP4 speaker that performed route aggregation. A value of 0.0.0.0 indicates the absence of this attribute. |

| | |
|---|---|
| Values | IP address |
| Default | No default |

### ATTRIBUTE Vr Ip Bgp Localdb asPath

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the sequence of AS path segments. The AS Path Attribute lists the ASs in reverse traversal order. |
| Values | String (2..255, ASCII) |
| Default | No default |

### ATTRIBUTE Vr Ip Bgp Localdb unknownAttributes (unknown)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates all the path attributes not understood by this *Bgp* component instance. |
| Values | String (0..255, ASCII) |
| Default | No default |

### ATTRIBUTE Vr Ip Bgp Localdb communityPath

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Community path attribute. |
| Values | String (0..255, ASCII) |
| Default | No default |

### ATTRIBUTE Vr Ip Bgp Localdb asOriginatorId

| | |
|---|---|
| Access | Read only |
| Description | This attribute is associated with the Route Reflector. It indicates the router-id of the originator in the local AS. A value of 0.0.0.0 indicates this attribute is not present in the learned IBGP route or if this *Bgp* instance is not a Route Reflector. |
| Values | IP address |
| Default | No default |

## ATTRIBUTE Vr Ip Bgp Localdb rrClusterList

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates a sequence of cluster-ids that the route has traversed. A blank list indicates this attribute is not present in the learned IBGP route or if this *Bgp* instance is not a Route Reflector. |
| List of | IP address |
| List Size | 256 |
| Default | No default |

## COMPONENT Vr Ip Bgp OutdbEntry (Outdb)

| | |
|---|---|
| Instance | prefix [IP address]<br>length [Decimal (0..32)]<br>peer [IP address] |
| Groups | "GROUP Vr Ip Bgp Outdb Operational (Oper)" |
| Scope | Application |
| Description | *Vr/<string> Ip Bgp OutdbEntry/<Ip Address>,<Decimal>,<Ip Address>*<br>*Rtr/<string> Bgp OutdbEntry/<Ip Address>,<Decimal>,<Ip Address>*<br>*Rtr/<string> Vrf/<string> Bgp OutdbEntry/<Ip Address>,<Decimal>,<Ip Address>*<br>This component describes an entry in the BGP output database that BGP advertises to its peers. The database contents are selected by<br>applying its local export policies to the routing information stored in the IP forwarding table. |
| Common Verbs | Help<br>List<br>Display |

## GROUP Vr Ip Bgp Outdb Operational (Oper)

| | |
|---|---|
| Properties | Operational |

| | |
|---|---|
| Description | This group contains all the operational attributes of the *OutdbEntry* component. |

### ATTRIBUTE Vr Ip Bgp Outdb origin

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the ultimate origin of the path information. A value of ***incomplete*** means this information is not available. |
| Values | igp<br>egp<br>incomplete |
| Default | No default |

### ATTRIBUTE Vr Ip Bgp Outdb nextHop

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the IP address of the border router that should be used as the next hop for the destination network. |
| Values | IP address |
| Default | No default |

### ATTRIBUTE Vr Ip Bgp Outdb localPreference

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates this *Bgp* instance's degree of preference for an advertised route. A higher value indicates a more preferred route. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Bgp Outdb multiExitDiscriminator (med)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates a metric used to discriminate between multiple exit points to the same adjacent autonomous system. A lower value indicates a more preferred route. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Bgp Outdb atomicAggregate

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether or not the local system has selected a less specific route without selecting a more specific route. |
| Values | lessSpecificRouteNotSelected<br>lessSpecificRouteSelected |
| Default | No default |

### ATTRIBUTE Vr Ip Bgp Outdb aggregatorAs

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the AS number of the last BGP4 speaker that performed route aggregation. A value of zero (0) indicates the absence of this attribute. |
| Values | Decimal (0..65535) |
| Default | No default |

### ATTRIBUTE Vr Ip Bgp Outdb aggregatorAddr

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the IP address of the last BGP4 speaker that performed route aggregation. A value of 0.0.0.0 indicates the absence of this attribute. |
| Values | IP address |
| Default | No default |

### ATTRIBUTE Vr Ip Bgp Outdb asPath

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the sequence of AS path segments. The AS Path Attribute lists the ASs in reverse traversal order. |

| | |
|---|---|
| Values | String (2..255, ASCII) |
| Default | No default |

### ATTRIBUTE Vr Ip Bgp Outdb unknownAttributes (unknown)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates all the path attributes not understood by this *Bgp* component instance. |
| Values | String (0..255, ASCII) |
| Default | No default |

### ATTRIBUTE Vr Ip Bgp Outdb communityPath

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Community path attribute. |
| Values | String (0..255, ASCII) |
| Default | No default |

### ATTRIBUTE Vr Ip Bgp Outdb asOriginatorId

| | |
|---|---|
| Access | Read only |
| Description | This attribute is associated with the Route Reflector. It indicates the router-id of the originator of a route in the local AS. When the Route Reflector distributes a learned IBGP route to other IBGP speakers, the value of this attribute in the learned route is used if one is present; otherwise, the Route Reflector's router-id is used. A value of 0.0.0.0 indicates this *Bgp* instance is not a Route Reflector. |
| Values | IP address |
| Default | No default |

### ATTRIBUTE Vr Ip Bgp Outdb rrClusterList

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates a sequence of cluster-ids that the route has traversed. When the Route Reflector redistributes a learned IBGP to other IBGP speakers, the cluster id of this Route Reflector is |

appended to the cluster list of the learned IBGP route. If this *Bgp* instance is not a Route Reflector, this attribute is blank.

| | |
|---|---|
| List of | IP address |
| List Size | 256 |
| Default | No default |

### COMPONENT Vr Ip Bgp LocalVpn

| | |
|---|---|
| Instance | String (7, Dashed Hex) |
| Scope | Application |
| Description | *Vr*/<string> *Ip Bgp LocalVpn*/<Vpn id><br>This component contains all VPN information from the specified VPN that is learned from customer VR on the local node. |
| Dyn. Subcomp. | "COMPONENT Vr Ip Bgp LocalVpn Ipv4" |
| Common Verbs | Help<br>List<br>Display |

### COMPONENT Vr Ip Bgp LocalVpn Ipv4

| | |
|---|---|
| Instance | IP address |
| Groups | "GROUP Vr Ip Bgp LocalVpn Ipv4 Operational (Oper)" |
| Scope | Application |
| Description | *Vr*/<string> *Ip Bgp LocalVpn*/<Vpn id> *Ipv4* This component contains all IPv4 tunnel based VPN information gathered by this BGP locally for the specified VPN. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Vr Ip Bgp LocalVpn Ipv4 Operational (Oper)

| | |
|---|---|
| Properties | Operational |

| | |
|---|---|
| Description | This group contains the operational attributes of the *Ipv4* component. |

### ATTRIBUTE Vr Ip Bgp LocalVpn Ipv4 publicIpAddress

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the public IP Address for the remote IP VPN tunnel endpoint. It is used to encapsulate IP packets from the local IP VPN site to the remote site. |
| Values | IP address |
| Default | No default |

### ATTRIBUTE Vr Ip Bgp LocalVpn Ipv4 vpnPeeringTopology

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the peering mode of the remote customer BGP from which this VPN information is originated. This mode determines if a dynamic IBGP peer is instantiated between this *BGP* instance and the remote IP Tunnel endpoint on the remote customer VR.<br>A ***none*** value specifies that BGP never instantiate dynamic IBGP peers.<br>Dynamic IBGP peer is instantiated between two customer VR in the same VPN if and only if at least one end is configured with a ***hub*** value and the other is either configured with a ***hub*** or a ***spoke*** value.<br><br>In any case; static BGP peers may be configured and overwrite the dynamic ones after auto-discovery has taken place. If auto-discovery is enabled when static peers already present between VPN sites, no dynamic peers with the same provisioned peer instance will be instantiated regardless of the configured value of the attribute. |
| Values | none<br>hub<br>spoke |
| Default | No default |

## COMPONENT Vr Ip Bgp MBgpRibEntry (MBgpRib)

| | |
|---|---|
| Instance | vpnId [String (7, Dashed Hex)]<br>prefix [IP address]<br>length [Decimal (0..32)]<br>peer [IP address] |
| Groups | "GROUP Vr Ip Bgp MBgpRib Operational (Oper)" |
| Scope | Application |
| Description | *Vr/<string> Ip Bgp MBgpRibEntry/ <vpnid>,<prefix>,<length>,<peer_ip_address>*<br>This component represents a single MBGP routing database entry received from one of the BGP peers of this virtual router.<br><br>The instance values of this component have the following meanings:<br>- *vpnId:* the virtual private network identifer associated with the MBGP route.<br>- *prefix*: the destination IP address prefix of the MBGP route.<br>- *length:* the length of the IP address prefix of the MBGP route.<br>- *peer_ip_address:* the IP address prefix of the BGP peer that the MBGP route has been learned from. A value of 0.0.0.0 indicates that the MBGP route is learned from a locally attaching customer VR.<br><br>This component only appears under a *VirtualRouter* component whose *vpnMode* attribute is set to ***carrier***. |
| Common Verbs | Help<br>List<br>Display |

## GROUP Vr Ip Bgp MBgpRib Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes of the *MBgpRibEntry* component. |

### ATTRIBUTE Vr Ip Bgp MBgpRib origin

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the ultimate origin of the path information. A value of ***incomplete*** means this information is not available. |
| Values | igp<br>egp<br>incomplete |
| Default | No default |

### ATTRIBUTE Vr Ip Bgp MBgpRib status

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether the MBGP route has been distributed into the routing table of the customer VR corresponding to the VPN identifier value. |
| Values | localVpnRoute<br>inCvrRdb<br>importBlocked<br>importLimitExceeded<br>unreachableNh |
| Default | No default |

### ATTRIBUTE Vr Ip Bgp MBgpRib nextHop

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the IP address of the router that should be used as the next hop to reach the destination address prefix given by the instance value of this component. |
| Values | IP address |
| Default | No default |

### ATTRIBUTE Vr Ip Bgp MBgpRib localPreference

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the local IBGP peer's degree of preference for an advertised route. A higher value indicates a more preferred route. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Bgp MBgpRib multiExitDiscriminator (med)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates a metric used to discriminate between multiple exit points to the same adjacent autonomous system. A lower value indicates a more preferred route. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Bgp MBgpRib atomicAggregate

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether or not the local system has selected a less specific route. |
| Values | lessSpecificRouteNotSelected<br>lessSpecificRouteSelected |
| Default | No default |

### ATTRIBUTE Vr Ip Bgp MBgpRib aggregatorAs

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the AS number of the last BGP4 speaker that performed route aggregation. A value of zero (0) indicates the absence of this path attribute. |
| Values | Decimal (0..65535) |
| Default | No default |

### ATTRIBUTE Vr Ip Bgp MBgpRib aggregatorAddr

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the IP address of the last BGP4 speaker that performed route aggregation. A value of 0.0.0.0 indicates the absence of this path attribute. |
| Values | IP address |
| Default | No default |

### ATTRIBUTE Vr Ip Bgp MBgpRib asPath

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the sequence of AS path segments. The AS Path Attribute lists the ASs in reverse traversal order. |
| Values | String (2..255, ASCII) |
| Default | No default |

### ATTRIBUTE Vr Ip Bgp MBgpRib communityPath

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Community path attribute. |
| Values | String (0..255, ASCII) |
| Default | No default |

### ATTRIBUTE Vr Ip Bgp MBgpRib unknownAttributes (unknown)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates all the path attributes not understood by this *Bgp* component instance. |
| Values | String (0..255, ASCII) |
| Default | No default |

### COMPONENT Vr Ip Bgp MplsVpnRibEntry (MvRib)

| | |
|---|---|
| Instance | routeDistinguisher [String (3..21, RFC2547RdRtSyntax)]<br>prefix [IP address]<br>length [Decimal (0..32)]<br>peer [IP address] |
| Groups | "GROUP Vr Ip Bgp MvRib Operational (Oper)" |

| | |
|---|---|
| Scope | Application |
| Description | *Vr/<string> Ip Bgp MplsVpnRibEntry/* <routeDistinguisher>,<prefix>,<length>,<peerIpAddr><br>*Rtr/<string> Ip Bgp MplsVpnRibEntry/* <routeDistinguisher>,<prefix>,<length>,<peerIpAddr><br>The *MplsVpnRibEntry* component represents a single entry in the MPLS VPN routing information database.This component is used to maintain the MPLS VPN routes learned both locally and from the BGP peers.<br><br>The instance values of this component have the following meaning:<br>- *routeDistinguisher:* a string associated with the MPLS VPN route.<br>The string is in the form of (1) AS:nn or (2) IPAddr:mm.<br>where<br>AS represents an autonomous system number,<br>nn represents an index value,<br>IPAddr represents an IP address,<br>mm represents an index value<br><br>- *prefix*: the destination IP address prefix of the MPLS VPN route. This is an IP address prefix as specified in the Network Layer Reachability Information field of the MP_REACH_NLRI path attribute.<br><br>- *length:* the length of the IP address prefix of the MPLS VPN route. This is the IP address prefix length as specified in the Network Layer Reachability Information field.<br><br>- peerIpAddr: the IP address prefix of the BGP peer that the MPLS VPN route has been learned from. |

This component is only applicable to the *Router* component or a virtual router whose *vpnMode* attribute is set to ***carrier***.

Common Verbs

Help
List
Display
LOCK
Unlock

## GROUP Vr Ip Bgp MvRib Operational (Oper)

Properties: Operational

Description: This group contains the operational attributes of the *BgpMplsRibEntry* component.

## ATTRIBUTE Vr Ip Bgp MvRib serviceLabel (sl)

Access: Read only

Description: This attribute indicates the service label (the inner label in a two-level MPLS label stack) allocated by the Provider Edge (PE) node and distributed together with the routing information toward the remote end PE. The service label is then used by the remote PE node to encapsulate traffic of the same VPN to the local PE node. When the local PE node processes a received packet which has the service label at the top of the stack, the PE pops the stack, and sends the packet to the Customer Edge (CE) node from which the route leads. (See also transportLabel attribute description.)

Values: Decimal (0..1048575)

Default: No default

## ATTRIBUTE Vr Ip Bgp MvRib transportLabel (tl)

Access: Read only

Description: This attribute indicates the transport label (the outer label in a two-level MPLS label stack) allocated by the Provider Edge (PE) node. The transport label identifies the MPLS tunnel (Labeled Switched Path) used to transport the service label encapsulated VPN traffic, between two PE nodes, through the backbone.

| | |
|---|---|
| | The transport label is applied on top of the service label at the source PE node, and used to direct the VPN traffic (travelling through the network core) to the destination PE. At the destination PE node the transport label is stripped, leaving the service label encapsulated packet to be processed and forwarded to a CE node based on the service label.<br>A value of ***awaitingLabel*** indicates the MPLS tunnel is currently not available and waiting to be established. A value of ***notApplicable*** indicates this is a local route and hence doesn't have a transport label. |
| Values | Decimal (0..1048575)<br>awaitingLabel<br>notApplicable |
| Default | No default |

### ATTRIBUTE Vr Ip Bgp MvRib reachable (reach)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether a route is currently reachable through an LSP tunnel. |
| Values | true<br>false |
| Default | No default |

### ATTRIBUTE Vr Ip Bgp MvRib bgpNextHop (bgpNh)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the bgp next hop IP address that should be used to reach the destination address prefix. |
| Values | IP address |
| Default | No default |

### ATTRIBUTE Vr Ip Bgp MvRib origin

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the value of the ORIGIN path attribute of the route. A value of ***incomplete*** means that this information is not available. |
| Values | igp<br>egp<br>incomplete |
| Default | No default |

### ATTRIBUTE Vr Ip Bgp MvRib localPreference (locPrf)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the LOCAL_PREFERENCE path attribute of the route. The LOCAL_PREFERENCE path attribute is used by a BGP speaker to inform other BGP speakers in its own autonomous system of the originating speaker's degree of preference for an advertised route. A higher value indicates a more preferred route. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Bgp MvRib asPath

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the AS_PATH path attribute of the route. The AS_PATH path attributes lists the sequence of AS path segments in reverse traversal order. |
| Values | String (0..255, ASCII) |
| Default | No default |

### ATTRIBUTE Vr Ip Bgp MvRib multiExitDiscriminator (med)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates a metric used to discriminate between multiple exit points to the same adjacent autonomous system. A lower value indicates a more preferred route. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Vr Ip Bgp MvRib atomicAggregate

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether or not the local system has selected a less specific route. |
| Values | lessSpecificRouteNotSelected<br>lessSpecificRouteSelected |
| Default | No default |

### ATTRIBUTE Vr Ip Bgp MvRib aggregatorAs

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the AS number of the last BGP4 speaker that performed route aggregation. A value of ***0*** indicates the absence of this path attribute. |
| Values | Decimal (0..65535) |
| Default | No default |

### ATTRIBUTE Vr Ip Bgp MvRib aggregatorAddr

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the IP address of the last BGP4 speaker that performed route aggregation. A value of ***0.0.0.0*** indicates the absence of this path attribute. |
| Values | IP address |
| Default | No default |

### ATTRIBUTE Vr Ip Bgp MvRib communityPath

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Community path attribute. |
| Values | String (0..255, ASCII) |
| Default | No default |

## COMPONENT Vr Ip SecurityPolicyDatabase (Spd)

| | |
|---|---|
| Instance | String (1..20, ASCII) |
| Groups | "GROUP Vr Ip Spd Provisioned (Prov)"<br>"GROUP Vr Ip Spd Statistics (Stats)" |
| Scope | Application |
| Description | *Vr/<string> Ip SecurityPolicyDatabase/<string>*<br><br>The *SecurityPolicyDatabase* component represents a set of policies collectively known as the security policy database (SPD), which is used for applying and bypassing IPSec services.<br><br>At most one *Spd* instance is allowed for a virtual router. Only the management virtual router can have a security policy database. |
| Opt. Subcomp. | "COMPONENT Vr Ip Spd Policy" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Vr Ip Spd Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the *SecurityPolicyDatabase* component. |

## ATTRIBUTE Vr Ip Spd alarmOnViolation

| | |
|---|---|
| Access | Read: All<br>Write: System_admin |
| Description | This attribute specifies whether an alarm is generated when a security violation is detected by this security policy database. Examples of security violations include policy mismatch and authentication failure. |

| | |
|---|---|
| Values | enabled<br>disabled |
| Default | enabled |

### GROUP Vr Ip Spd Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains statistics for the *SecurityPolicyDatabase* component. These counts cannot be associated with individual SAs, so they are aggregated under the *SecurityPolicyDatabase* component. Counts that can be associated with a particular SA are defined under the *Sa* component. |

### ATTRIBUTE Vr Ip Spd outDiscards

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the packets discarded by an outbound security policy. This count includes packets that are discarded because they have no matching security policy; the default security policy action is always discard.<br>The count wraps to zero when it reaches the value 2 to the power 64. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Vr Ip Spd inSaLookupFailures

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the inbound packets for which an SA could not be found.<br>The count wraps to zero when it reaches the value 2 to the power 64. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Vr Ip Spd inDiscards

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the packets discarded because the Security Parameter Index (SPI) in the packet is unknown, or no SA is found with matching selectors.<br>The count wraps to zero when it reaches the value 2 to the power 64. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Vr Ip Spd inMismatch

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the packets discarded due to a mismatch between the packet and what the security policy dictates. An example of a mismatch is when a packet is received on a security enabled management virtual router in the clear (no security services applied), but the security policy for that VR specifies that this packet should have an applied security service.<br>The count wraps to zero when it reaches the value 2 to the power 64. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Vr Ip Spd outBytes

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes processed, including discarded packets.<br>The count wraps to zero when it reaches the value 2 to the power 64. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Vr Ip Spd outPackets

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the packets processed, including discarded packets. |

| | |
|---|---|
| | The count wraps to zero when it reaches the value 2 to the power 64. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Vr Ip Spd inBytes

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes processed, including discarded packets.<br>The count wraps to zero when it reaches the value 2 to the power 64. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Vr Ip Spd inPackets

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the packets processed, including discarded packets.<br>The count wraps to zero when it reaches the value 2 to the power 64. |
| Values | Long Integer |
| Default | No default |

### COMPONENT Vr Ip Spd Policy

| | |
|---|---|
| Instance | Decimal (1..65535) |
| Groups | "GROUP Vr Ip Spd Policy Selectors"<br>"GROUP Vr Ip Spd Policy Provisioned (Prov)" |
| Scope | Application |
| Description | *Vr/<string> Ip Spd/<string> Policy/n*<br>The *Policy* component defines an IPSec policy to be applied for a virtual router. An IPSec policy is defined by the following parameters: |

1. The selector criteria specifying packets to which the security policy is to be applied.

2. The action taken when a packet matches the security policy selectors.

Up to 4096 policies are allowed for each instance of the *SecurityPolicyDatabase* component. The instance value of the *Policy* component specifies the policy's precedence. Policy lookup occurs in the order of increasing precedence value. If no match is found, the packet is discarded.

It is recommended that the instance values of consecutive *Policy* components be separated by more than 1 (say 10). This allows a new *Policy* component to be added whose precedence value is intermediate between two existing policies.

Each *Policy* component instance has an associated direction: inbound or outbound.
- An inbound *Policy* instance corresponds to an entry in the inbound security policy database (SPD), as referred to in RFC 2401. IPSec traffic received on the management virtual router, is matched against inbound policies.
- An outbound *Policy* instance corresponds to an entry in the outbound SPD, as referred to in RFC 2401. Locally generated traffic is matched against outbound policies.

The *Policy* component allows the operator to distinguish a flow based on:
1. destination IP address,
2. source IP address,
3. layer 4 (transport) protocol, and
4. for TCP and UDP, the source and destination port numbers.

| | |
|---|---|
| Description | "COMPONENT Vr Ip Spd Policy SecurityAssociation (Sa)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Vr Ip Spd Policy Selectors

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the selector attributes of the *Policy* component. These attributes specify the criteria that a packet must match for the policy to be applied. |

### ATTRIBUTE Vr Ip Spd Policy protocol (proto)

| | |
|---|---|
| Access | Read: All<br>Write: System_admin |
| Description | This attribute specifies the layer 4 (transport) protocol to which the policy applies. |
| Values | Decimal (2..3; 5; 7; 9..16; 18..49; 51..88; 90..255)<br>any<br>icmp<br>ip<br>tcp<br>egp<br>udp<br>esp<br>ospf |
| Default | any |

### ATTRIBUTE Vr Ip Spd Policy srcPort (sPort)

| | |
|---|---|
| Access | Read: All<br>Write: System_admin |
| Description | This attribute specifies the source TCP or UDP port number for traffic flows to which the policy applies. |

A value of ***any*** specifies that any port number matches the policy.

If the *protocol* attribute value is not ***tcp***, ***udp*** or ***any***, then this attribute must be set to ***any***.

Values

Decimal (1..19; 22; 24..122; 124..160; 162..519; 521..1811; 1813..5927; 5929..65535)
any
ftpdata
ftp
telnet
ntp
snmp
rip
radius
fmip

Default

any

## ATTRIBUTE Vr Ip Spd Policy dstPort (dPort)

Access

Read: All
Write: System_admin

Description

This attribute specifies the destination TCP or UDP port number for traffic flows to which the policy applies.

***any*** specifies that any port number matches the policy.

If the *protocol* attribute value is not ***tcp***, ***udp*** or ***any***, then this attribute must be set to ***any***.

Values

Decimal (1..19; 22; 24..122; 124..160; 162..519; 521..1811; 1813..5927; 5929..65535)
any
ftpdata
ftp
telnet
ntp
snmp
rip

| | |
|---|---|
| | radius<br>fmip |
| Default | any |

### ATTRIBUTE Vr Ip Spd Policy srcIpAddress (sAddr)

| | |
|---|---|
| Access | Read: All<br>Write: System_admin |
| Description | This attribute specifies the source IP address for traffic flows to which the policy applies.<br><br>The address can be a host address, a range or a wildcard:<br>- To specify a host address, specify one value, which is the host address.<br>- To specify a range of IP addresses, specify two values, which are the lower and upper bounds of the range. The order does not matter.<br>- To specify a wildcard, leave the list empty. |
| List of | IP address |
| List Size | 2 |
| Default | No default |

### ATTRIBUTE Vr Ip Spd Policy dstIpAddress (dAddr)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the destination IP address for traffic flows to which the policy applies.<br><br>The address can be a host address, a range or a wildcard:<br>- To specify a host address, specify one value, which is the host address.<br>- To specify a range of IP addresses, specify two values, which are the lower and upper bounds of the range. The order does not matter.<br>- To specify a wildcard, leave the list empty. |
| List of | IP address |
| List Size | 2 |

Default No default

## GROUP Vr Ip Spd Policy Provisioned (Prov)

Properties Provisioned

Description This group contains the provisionable attributes of the *Policy* component related to its treatment.

## ATTRIBUTE Vr Ip Spd Policy direction

Access Read: All
Write: System_admin

Description This attribute specifies the direction of the policy:
- ***inbound***: this policy is to be matched against locally destined traffic received on the management virtual router.
- ***outbound***: this policy is to be matched against traffic that is generated by the management virtual router.

Values inbound (in)
outbound (out)

Default No default

## ATTRIBUTE Vr Ip Spd Policy action

Access Read: All
Write: System_admin

Description This attribute specifies the action to be taken when a packet is received that matches the selectors for this policy. The value can be one of the following:

- ***discard***: the packet is to be discarded.
- ***bypass***: no security is to be applied to the packet. Instead the packet is forwarded as usual.
- ***apply***: the security service specified by the *Sa* subcomponent is applied to the packet. *Check Prov* will fail if the *action* is ***apply*** and there is no *Sa* subcomponent.

Values discard
bypass
apply

| | |
|---|---|
| Default | apply |

### ATTRIBUTE Vr Ip Spd Policy description

| | |
|---|---|
| Access | Read: All<br>Write: System_admin |
| Description | This attribute specifies a meaningful name or description for the *Policy* instance. |
| Values | String (0..20, ASCII) |
| Default | "" |

### COMPONENT Vr Ip Spd Policy SecurityAssociation (Sa)

| | |
|---|---|
| Instance | secDestination [IP address]<br>secProtocol [esp]<br>spi [Decimal (256..4095)] |
| Groups | "GROUP Vr Ip Spd Policy Sa Operational (Oper)"<br>"GROUP Vr Ip Spd Policy Sa Statistics (Stats)"<br>"GROUP Vr Ip Spd Policy Sa Selectors" |
| Scope | Application |
| Description | *Vr/<string> Ip Spd/<string> Policy/<string> SecurityAssociation/<secDestination, secProtocol, spi>* |
| Subcomponents | "COMPONENT Vr Ip Spd Policy Sa ManualEspSa (ManEspSa)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Vr Ip Spd Policy Sa Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for this *Sa* component. |

### ATTRIBUTE Vr Ip Spd Policy Sa direction

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the traffic direction for which this *Sa* component is used. |
| Values | inbound<br>outbound |
| Default | No default |

### ATTRIBUTE Vr Ip Spd Policy Sa upTime

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the time elapsed since this *Sa* component was created. |
| Values | Decimal (0..4294967295) |
| Units | seconds |
| Default | No default |

### GROUP Vr Ip Spd Policy Sa Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the statistics attributes of this *Sa*. |

### ATTRIBUTE Vr Ip Spd Policy Sa decryptErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the packets for which decryption errors were encountered for this *Sa* component.<br>The count wraps to zero when it reaches the value 2 to the power 64. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Vr Ip Spd Policy Sa authErrors

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the authentication errors encountered for this *Sa* component.<br>The count wraps to zero when it reaches the value 2 to the power 64. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Vr Ip Spd Policy Sa byteCount

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the bytes processed for this *Sa* component.<br>The count wraps to zero when it reaches the value 2 to the power 64. |
| Values | Long Integer |
| Units | bytes |
| Default | No default |

### ATTRIBUTE Vr Ip Spd Policy Sa policyErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the security packets received on this *Sa* component which do not match the defined Security Policy selectors.<br>The count wraps to zero when it reaches the value 2 to the power 64. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Vr Ip Spd Policy Sa otherErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the security packets received on this *Sa* component for which an error is encountered other than those described previously.<br>The count wraps to zero when it reaches the value 2 to the power 64. |

| | |
|---|---|
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Vr Ip Spd Policy Sa packetCount

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the packets processed for this *Sa* component.<br>The count wraps to zero when it reaches the value 2 to the power 64. |
| Values | Long Integer |
| Default | No default |

### GROUP Vr Ip Spd Policy Sa Selectors

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the selectors used for the *SecurityAssociation* component. |

### ATTRIBUTE Vr Ip Spd Policy Sa protocol (proto)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the layer 4 (transport) protocol to which the policy applies. |
| Values | Decimal (2..3; 5; 7; 9..16; 18..49; 51..88; 90..255)<br>any<br>icmp<br>ip<br>tcp<br>egp<br>udp<br>esp<br>ospf |
| Default | No default |

### ATTRIBUTE Vr Ip Spd Policy Sa srcPort (sPort)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the source TCP or UDP port number selector for the security association. |
| Values | Decimal (1..19; 22; 24..122; 124..160; 162..519; 521..1811; 1813..5927; 5929..65535)<br>any<br>ftpdata<br>ftp<br>telnet<br>ntp<br>snmp<br>rip<br>radius<br>fmip |
| Default | No default |

### ATTRIBUTE Vr Ip Spd Policy Sa dstPort (dPort)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the destination TCP or UDP port number selector for the security association. |
| Values | Decimal (1..19; 22; 24..122; 124..160; 162..519; 521..1811; 1813..5927; 5929..65535)<br>any<br>ftpdata<br>ftp<br>telnet<br>ntp<br>snmp<br>rip<br>radius<br>fmip |
| Default | No default |

### ATTRIBUTE Vr Ip Spd Policy Sa srcIpAddress (sAddr)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the source IP address selector for the security association. |
| List of | IP address |
| List Size | 2 |
| Default | No default |

### ATTRIBUTE Vr Ip Spd Policy Sa dstIpAddress (dAddr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the destination IP address selector for the security association. |
| List of | IP address |
| List Size | 2 |
| Default | No default |

### COMPONENT Vr Ip Spd Policy Sa ManualEspSa (ManEspSa)

| | |
|---|---|
| Groups | "GROUP Vr Ip Spd Policy Sa ManEspSa Provisioned (Prov)" |
| Scope | Application |
| Description | *Vr/<string> Ip Spd/<string> Policy/<string> Sa/ <secDestination, secProtocol, spi> ManualEspSa*<br><br>The *ManualEspSa* component specifies the security parameters for the ESP protocol, including keys, to use between two peers. No negotiation is performed between the peers.<br><br>When using manual keying, both ends of the IPsec session must be configured to match each other. The SPI value on one end must be the same as the SPI value on the other end. The *key* attributes on both ends must also be the same. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Vr Ip Spd Policy Sa ManEspSa Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the *ManualEspSa* component. |

### ATTRIBUTE Vr Ip Spd Policy Sa ManEspSa encAlgorithm (encAlg)

| | |
|---|---|
| Access | Read: All<br>Write: System_admin |
| Description | This attribute specifies the encryption algorithm to be used for this Encryption Security Protocol (ESP) security association (SA).<br><br>The following encryption algorithms are supported:<br>- ***des***: data encryption standard (DES), which is the most widely used algorithm<br>- ***3des***: encryption using DES three times.<br><br>3DES is a stronger encryption algorithm than DES.<br><br>If no ESP encryption is desired, set this attribute to ***none***.<br><br>At least one of *encAlg* and *authAlg* attribute must be specified; they cannot both be set to ***none***. |
| Values | none<br>des<br>3des |
| Default | 3des |

### ATTRIBUTE Vr Ip Spd Policy Sa ManEspSa authAlgorithm (authAlg)

| | |
|---|---|
| Access | Read: All<br>Write: System_admin |
| Description | This attribute specifies the authentication algorithm to be used for this ESP security association (SA).<br><br>The following authentication algorithms are supported:<br>- ***md5***: message digest<br>- ***sha1***: secure hash algorithm |

SHA-1 is considered stronger than MD5.

If no ESP authentication is desired, set this attribute to ***none***.

At least one of *encAlg* and *authAlg* attribute must be specified; they cannot both be set to ***none***.

Values
none
sha1
md5

Default
none

### ATTRIBUTE Vr Ip Spd Policy Sa ManEspSa encKey

Access
Read: Illegal
Write: System_admin

Description
This attribute specifies the symmetric encryption key to be used in the ESP protocol.

When the *encAlgorithm* attribute is set to ***des***, the length of the key must be 16 hex digits. When the *encAlgorithm* attribute is set to ***3des***, the length of the key must be 48 hex digits.

The key itself is stored in an encrypted form.

A warning is issued if the key is weak according to RFC 2409 Appendix A.

Values
String (0..24, Hex)

Default
No default

### ATTRIBUTE Vr Ip Spd Policy Sa ManEspSa authKey

Access
Read: Illegal
Write: System_admin

Description
This attribute specifies the symmetric key to use for the keyed-hash function of the ESP protocol.

When the *authAlgorithm* attribute is set to ***md5***, the length of the key must be 32 hex digits. When *authAlgorithm* attribute is set to ***sha1***, the length of the key must be 40 hex digits.

The key itself is stored in an encrypted form.

| | |
|---|---|
| Values | String (0..24, Hex) |
| Default | No default |

## COMPONENT Vr Ip Filter (Filt)

| | |
|---|---|
| Instance | String (1..20, ASCII) |
| Groups | "GROUP Vr Ip Filt Provisioned (Prov)" |
| Scope | Application |
| Description | *Vr/<string> Ip* Filter/<string><br>The Filter component specifies which set of IP packet flows are admitted at a protocol port.<br><br>A Filter component can be assigned to the Ip component and any number of the Pp IpPort components under the same Vr component. A Filter assigned to a Vr Ip component is associated by default with all of the protocol ports on the virtual router. A Filter assigned to a Vr Pp IpPort component is associated with the protocol port only. A Filter assigned at the port overrides a Filter assigned at the virtual router.<br><br>A Filter associated with a protocol port is applied to all ingress IP traffic at that port; it is not applied to egress traffic at that port. Filtering is performed prior to making the forwarding decision that determines the egress port where the packet will be transmitted.<br>If no Filter component is associated with a port (because there is neither an assignment to the Vr Ip component, nor an assignment to the Vr Pp IpPort component) all IP packet flows are admitted at that port.<br><br>A Filter defined under one Vr cannot be assigned to components under another Vr. |

A Filter component must have at least one *FilterFlow* subcomponent where the value of the *action* attribute is ***permit***.

At any time the total number of interface profiles (*CosPolicyGroup*, *DifferentiatedServicesInterface*, and *Filter* components) in the current view plus the total number of newly created interface profiles in the edit view must be less than the system limit, regardless how many interface profiles have been deleted in the edit view. Any interface profile created in the edit view that results in a total count greater than the system limit is identified as invalid and must be deleted; otherwise a *Check Prov* command will produce an error. If invalid interface profiles exist after a software migration prior to a *Check Prov* command, then those interface profiles are ignored and have no impact on IP forwarding. However, a subsequent *Check Prov* command fails until the invalid interface profiles are deleted. It is recommended that all interface profile deletions be activated using the *Activate Prov* command before any new interface profiles are created.

Opt. Subcomp. "COMPONENT Vr Ip Filt FilterFlow (Flow)"

Common Verbs
Help
List
Display
Add
DELete

## GROUP Vr Ip Filt Provisioned (Prov)

Properties Provisioned

Description This group contains the provisionable attributes for the *IpFilter* component.

## ATTRIBUTE Vr Ip Filt linkToFilterUsers (users)

Access Read and write

Description This attributes specifies the *Ip* (per Virtual Router) and *IpPort* (per protocol port) components that this filter is assigned to.

| | |
|---|---|
| List of | Link (Service, filterAssignment) |
| List Size | 256 |
| Default | No default |

## COMPONENT Vr Ip Filt FilterFlow (Flow)

| | |
|---|---|
| Instance | Decimal (0..1023) |
| Groups | "GROUP Vr Ip Filt Flow Provisioned (Prov)" |
| Scope | Application |
| Description | *Vr/<string> Ip Filter/<string> FilterFlow/n*<br>This component specifies an IP packet flow and the filter action for that flow within an IP filter.<br><br>A filter is defined by specifying one or more packet flows and the filter action for each flow. Each packet flow is defined in terms of source IP address and destination IP address. The filter action can be either ***permit*** or ***deny***. The filter action for any individual packet is determined by the flow which has the most specific match to the packet's header information. Any packet with header information that does not match any flow in the filter is dropped. If the filter action is ***permit*** the packet is processed and forwarded in the normal manner. If the filter action is ***deny*** the packet is dropped.<br><br>When the source or destination address of an IP packet matches more than one of the specified flows under a filter, the following precedence rule is applied to determine which filter action to apply:<br><br>Given a set of flows with overlapping source addresses, the match made with the most precise source address specification (that is the one with the greatest prefix length) is always given the highest precedence over all the others; once the source address specification is selected in this manner, if there exists several overlapping destination addresses, the match made with the most |

precise destination address specification (that is the one with the greatest prefix length) is used.

Common Verbs

Help
List
Display
Add
DELete

## GROUP Vr Ip Filt Flow Provisioned (Prov)

Properties: Provisioned

Description: This group contains the provisionable attributes for the *FilterFlow* component.

## ATTRIBUTE Vr Ip Filt Flow saPrefix

Access: Read and write

Description: This attribute specifies the IP source address prefix for this flow. Matching an actual source address to the prefix is done in conjunction with the *saPrefixLength* attribute.

A source address prefix of 0.0.0.0 means any source IP address is a match regardless of the prefix length.

When the source or destination address of an IP packet matches more than one of the specified flows under a filter, the following precedence rule is applied to determine which filter action to apply:

Given a set of flows with overlapping source addresses, the match made with the most precise source address specification (that is the one with the greatest prefix length) is always given the highest precedence over all the others; once the source address specification is selected in this manner, if there exists several overlapping destination addresses, the match made with the most precise destination address specification (that is the one with the greatest prefix length) is used.

Values: IP address

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Vr Ip Filt Flow saPrefixLength (salen)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the number of most significant bits of the IP source address that are to be matched with the *saPrefix* attribute. A source prefix length of 0 means any IP source address is a match regardless of the prefix. |
| Values | Decimal (0..32) |
| Default | No default |

### ATTRIBUTE Vr Ip Filt Flow action

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies one of the following two filter actions to be taken for an IP packet that matches this flow:<br>***permit*** : the packet is processed normally<br>***deny*** : the packet is dropped.<br><br>A *Filter* component must have at least one *FilterFlow* subcomponent where the filter action is ***permit***. |
| Values | deny<br>permit |
| Default | permit |

### ATTRIBUTE Vr Ip Filt Flow daPrefix

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the IP destination address prefix for this flow. Matching an actual destination address to the prefix is done in conjunction with the daPrefixLength attribute.<br><br>A destination address prefix of 0.0.0.0 means any destination IP address is a match regardless of the prefix length.<br><br>When the source or destination address of an IP packet matches more than one of the specified flows under a filter, the following precedence rule is applied to determine which filter action to |

apply:

Given a set of flows with overlapping source addresses, the match made with the most precise source address specification (that is the one with the greatest prefix length) is always given the highest precedence over all the others; once the source address specification is selected in this manner, if there exists several overlapping destination addresses, the match made with the most precise destination address specification (that is the one with the greatest prefix length) is used.

Values: IP address

Default: No default

### ATTRIBUTE Vr Ip Filt Flow daPrefixLength (dalen)

Access: Read and write

Description: This attribute specifies the number of most significant bits of the IP destination address that are to be matched with the *daPrefix* attribute. A destination prefix length of 0 means any IP destination address is a match regardless of the prefix.

Values: Decimal (0..32)

Default: No default

### COMPONENT Vr Ip Multicast (Mcast)

Groups:
"GROUP Vr Ip Mcast AdministrativeControl (AdminControl)"
"GROUP Vr Ip Mcast Provisioned (Prov)"
"GROUP Vr Ip Mcast OsiState (State)"
"GROUP Vr Ip Mcast OperationalStatus (OperStatus)"

Scope: Application

Description: *Vr/<string> Ip Multicast*
This component provides support for IP Multicast. It does the inter semantic check for whether all cards are properly provisioned first.

| | |
|---|---|
| Subcomponents | "COMPONENT Vr Ip Mcast Domain" |
| Opt. Subcomp. | "COMPONENT Vr Ip Mcast Igmp"<br>"COMPONENT Vr Ip Mcast Static"<br>"COMPONENT Vr Ip Mcast PolicyGroup (Pg)"<br>"COMPONENT Vr Ip Mcast PimSparseMode (PimSm)" |
| Dyn. Subcomp. | "COMPONENT Vr Ip Mcast ForwardTable (Fwd)"<br>"COMPONENT Vr Ip Mcast Cache"<br>"COMPONENT Vr Ip Mcast NeighborEntry (Nbr)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP Vr Ip Mcast AdministrativeControl (AdminControl)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group includes the Administrative Control attribute. This attribute defines the current administrative state of this component. |

## ATTRIBUTE Vr Ip Mcast snmpAdminStatus

| | |
|---|---|
| Access | Read and write |
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational and packet forwarding is allowed. The ***down*** state indicates the interface is not operational and packet forwarding is unavailable. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |

| | |
|---|---|
| Default | up |

### GROUP Vr Ip Mcast Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes of the *Mcast* component. |

### ATTRIBUTE Vr Ip Mcast borderRouterCapability (brc)

| | |
|---|---|
| Access | Read and write |
| Description | This attributes specifies if this virtual router supports multicast border router functionality. |
| Values | enabled<br>disabled |
| Default | disabled |

### ATTRIBUTE Vr Ip Mcast cacheTableSize (cacheSize)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum number of entries supported in the IP multicast cache table on each *Lp*. The default is 100 for a CP and 200 for an FP. The value must be multiple of 100 and not more than 500 for FPs and not more than 200 for the CPs. |
| Vector of | Decimal (100..500) |
| Index | Decimal (0..15) |
| Default | ([1] 100, [15] 200) |

### GROUP Vr Ip Mcast OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

## ATTRIBUTE Vr Ip Mcast adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

## ATTRIBUTE Vr Ip Mcast operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |

| | |
|---|---|
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Vr Ip Mcast usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Vr Ip Mcast OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

### ATTRIBUTE Vr Ip Mcast snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |

| | |
|---|---|
| Values | up<br>down<br>testing |
| Default | up |

## COMPONENT Vr Ip Mcast Igmp

| | |
|---|---|
| Groups | "GROUP Vr Ip Mcast Igmp AdministrativeControl (AdminControl)"<br>"GROUP Vr Ip Mcast Igmp OsiState (State)"<br>"GROUP Vr Ip Mcast Igmp OperationalStatus (OperStatus)" |
| Scope | Application |
| Description | *Vr/<string> Ip Multicast Igmp*<br>This component provides support for the IGMP protocol. The IGMP protocol is used between routers and locally attached hosts to communicate multicast group memebership information. A host sends a membership report in order to join a multicast group. A router periodically sends membership queries on a network to confirm the continued presence of interested hosts. |
| Dyn. Subcomp. | "COMPONENT Vr Ip Mcast Igmp Cache" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP Vr Ip Mcast Igmp AdministrativeControl (AdminControl)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group includes the Administrative Control attribute. This attribute defines the current administrative state of this component. |

## ATTRIBUTE Vr Ip Mcast Igmp snmpAdminStatus

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational and packet forwarding is allowed. The ***down*** state indicates the interface is not operational and packet forwarding is unavailable. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### GROUP Vr Ip Mcast Igmp OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Vr Ip Mcast Igmp adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |

| | |
|---|---|
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Vr Ip Mcast Igmp operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Vr Ip Mcast Igmp usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |

| | |
|---|---|
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Vr Ip Mcast Igmp OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

### ATTRIBUTE Vr Ip Mcast Igmp snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### COMPONENT Vr Ip Mcast Igmp Cache

| | |
|---|---|
| Instance | groupAddr (gAddr) [IP address]<br>domain (dom) [Decimal (0..3)]<br>protocolPortName (ppName) [String (1..20, ASCII)] |
| Groups | "GROUP Vr Ip Mcast Igmp Cache Operational (Oper)" |
| Scope | Application |
| Description | *Vr/<string> Ip Multicast Igmp Cache <Group IP Address>, <Domain>, <ProtocolPort name>*<br>This component represents an entry in the IGMP cache table. It is dynamically learned via IGMP.<br>The keys to make an instance of this component are:<br>gAddr : the IP address of the group |

domain: multicast domain
ppName: protocol port name

Common Verbs

Help
List
Display

## GROUP Vr Ip Mcast Igmp Cache Operational (Oper)

Properties: Operational

Description: This group contains the operational attributes of the *Cache* component.

## ATTRIBUTE Vr Ip Mcast Igmp Cache upTime

Access: Read only

Description: This attribute indicates the time elapsed since this entry was created.

Values: Time (DHMS)

Default: No default

## ATTRIBUTE Vr Ip Mcast Igmp Cache expiryTime

Access: Read only

Description: This attribute indicates the minimum amount of time remaining before this entry will be aged out.

Values: Time (HMS)

Default: No default

## ATTRIBUTE Vr Ip Mcast Igmp Cache lastReporter

Access: Read only

Description: This attribute indicates the IP address of the source of the last membership report received for this IP multicast group address on this *ProtocolPort*. If no membership report has been received, this attribute has the value 0.0.0.0.

Values: IP address

| | |
|---|---|
| Default | 0.0.0.0 |

### ATTRIBUTE Vr Ip Mcast Igmp Cache version1HostTimer

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the time remaining until the local router will assume that there are no longer any IGMPv1 members on the IP subnet attached to this *ProtocolPort*. Upon hearing any IGMPv1 Membership Report, this value is reset to the group membership timer. |
| Values | Decimal (0..4294967295) |
| Units | seconds |
| Default | 0 |

### COMPONENT Vr Ip Mcast Static

| | |
|---|---|
| Groups | "GROUP Vr Ip Mcast Static OsiState (State)" |
| Scope | Application |
| Description | *Vr/<string> Ip Mcast Static*<br>This component provides support for multicast static routes. |
| Opt. Subcomp. | "COMPONENT Vr Ip Mcast Static RouteEntry (Route)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

### GROUP Vr Ip Mcast Static OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component |

which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Vr Ip Mcast Static adminState (osiAdmin)

Access: Read only

Description: This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values: locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default: unlocked

### ATTRIBUTE Vr Ip Mcast Static operationalState (osiOper)

Access: Read only

Description: This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the

component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Vr Ip Mcast Static usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### COMPONENT Vr Ip Mcast Static RouteEntry (Route)

Instance
gAddr (addr) [IP address]
domain (dom) [Decimal (0..3)]

Groups
"GROUP Vr Ip Mcast Static Route Provisioned (Prov)"

Scope
Application

Description
*Vr/<string> Ip Mcast Static RouteEntry*/<IP Address>,<Domain>
This component represents a multicast static route entry. For a *RouteEntry* to be valid, there should be at least one *outInterface* provisioned.

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Vr Ip Mcast Static Route Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for component *RouteEntry.* |

### ATTRIBUTE Vr Ip Mcast Static Route outInterfaces (oifs)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies a list of links to *LogicalInterfaces* representing the outgoing interfaces for this multicast static route entry. Each *RouteEntry* must be provisioned with at least one outgoing interface, and each *RouteEntry* can be provisioned with up to 256 outgoing interfaces. |
| List of | Link (Service, linkToMulticastStaticGroup) |
| List Size | 256 |
| Default | No default |

### COMPONENT Vr Ip Mcast PolicyGroup (Pg)

| | |
|---|---|
| Instance | String (1..20, ASCII) |
| Groups | "GROUP Vr Ip Mcast Pg Provisioned (Prov)" |
| Scope | Application |
| Description | *Vr/<string> Ip Mcast PolicyGroup/<string>*<br>This component represents a multicast group join policy, which may be applied to one or more IpPorts. |

| | |
|---|---|
| Opt. Subcomp. | "COMPONENT Vr Ip Mcast Pg Group (Grp)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Vr Ip Mcast Pg Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the *PolicyGroup* component. |

### ATTRIBUTE Vr Ip Mcast Pg action

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the action to be taken if a join request is received for any of the multicast group addresses configured as part of this policy. The default action is to deny the join request. |
| Values | deny<br>allow |
| Default | deny |

### ATTRIBUTE Vr Ip Mcast Pg linkToPolicyUser

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies a list of IpPorts on which this policy group is applied and all the IpPorts must belong to the same virtual router. |
| List of | Link (Service, mcastPolicyAssignment) |
| List Size | 256 |
| Default | No default |

## COMPONENT Vr Ip Mcast Pg Group (Grp)

| | |
|---|---|
| Instance | gAddr (addr) [IP address]<br>gMask (mask) [IP address] |
| Scope | Application |
| Description | Vr/*<string> Ip Mcast Pg/<string> Group/<IpAddress>, <IpAddress>*<br>This component specifies a range of multicast addresses for which the policy group applies. The range is specified as an IP address and mask combination. There is a limit of 100 *Group* components under the same *PolicyGroup.* |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## COMPONENT Vr Ip Mcast Domain

| | |
|---|---|
| Instance | Decimal (0..3) |
| Groups | "GROUP Vr Ip Mcast Domain Operational (Oper)" |
| Scope | Application |
| Description | *Vr/<string> Ip Multicast Domain*<br>This component represents a multicast domain. All routers participating in the domain use the same multicast protocol for all the intefaces in the domain. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Vr Ip Mcast Domain Operational (Oper)

| | |
|---|---|
| Properties | Operational |

| | |
|---|---|
| Description | This group contains the operational attributes for the *Domain* component. |

### ATTRIBUTE Vr Ip Mcast Domain protocolActive

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the multicast protocol active in this domain. |
| Values | none<br>pimSparseMode<br>local |
| Default | none |

### COMPONENT Vr Ip Mcast ForwardTable (Fwd)

| | |
|---|---|
| Instance | gAddr (grp) [IP address]<br>domain (dom) [Decimal (0..3)]<br>srcAddr (src) [IP address]<br>srcMask (mask) [IP address] |
| Groups | "GROUP Vr Ip Mcast Fwd Operational (Oper)" |
| Scope | Application |
| Description | *Vr/<string> Ip Mcast ForwardTable/<IP Address>,<Connection Index>*<br>This component represents an IP multicast forwarding entry. |
| Dyn. Subcomp. | "COMPONENT Vr Ip Mcast Fwd OutInterface (Oif)" |
| Common Verbs | Help<br>List<br>Display |

### GROUP Vr Ip Mcast Fwd Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes associated with a multicast forwarding entry. |

### ATTRIBUTE Vr Ip Mcast Fwd age

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of seconds since this route was last updated. |
| Values | Decimal (0..4294967295) |
| Units | seconds |
| Default | No default |

### ATTRIBUTE Vr Ip Mcast Fwd inProtocolPortName (inPpName)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the name of the (incoming) protocol port from which the route was learned. |
| Values | The name of the component |
| Default | No default |

### ATTRIBUTE Vr Ip Mcast Fwd reversePathForwardingNeighbor (rpfNbr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the address of the upstream neighbor (RPF neighbor) from which IP datagrams from these sources to this multicast address are received. |
| Values | IP address |
| Default | No default |

### ATTRIBUTE Vr Ip Mcast Fwd flags

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates state concerning the forwarding entry. In particular, the flag state indicates wildcard, SPT, RPT, and Reg entries. |
| Values | String (3..20, ASCII) |
| Default | No default |

## ATTRIBUTE Vr Ip Mcast Fwd protocol

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the multicast routing protocol via which this multicast forwarding entry was learned. |
| List of | none<br>other<br>local<br>pimSparse<br>pimDense<br>dvmrp<br>igmp<br>igmpOnly |
| Default | No default |

## COMPONENT Vr Ip Mcast Fwd OutInterface (Oif)

| | |
|---|---|
| Instance | outIfAddress (addr) [IP address]<br>connectionIndex (index) [Decimal (0..65535)] |
| Groups | "GROUP Vr Ip Mcast Fwd Oif Operational (Oper)" |
| Scope | Application |
| Description | Vr/<string> Ip Mcast Fwd/<br>*<IpAddress>,<Decimal>,<IpAddress><IpAddress>*<br>OutInterface/*<IpAddress>,<Decimal>*<br>This component represents an outgoing interface for a multicast forwarding entry. |
| Common Verbs | Help<br>List<br>Display |

## GROUP Vr Ip Mcast Fwd Oif Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for the *OutInterface* component. |

### ATTRIBUTE Vr Ip Mcast Fwd Oif ifIndex

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the *ifIndex* value of this outgoing interface entry. |
| Values | Decimal (1..65535) |
| Default | No default |

### ATTRIBUTE Vr Ip Mcast Fwd Oif age

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of seconds since this route was last updated |
| Values | Decimal (0..4294967295) |
| Units | seconds |
| Default | No default |

### ATTRIBUTE Vr Ip Mcast Fwd Oif outProtocolPort (outPp)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the name of the protocol port by which the next hop of this route should be reached. |
| Values | The name of the component |
| Default | No default |

### ATTRIBUTE Vr Ip Mcast Fwd Oif protocol

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the multicast routing protocol from which this outinterface entry was learned. |

| | |
|---|---|
| List of | none<br>other<br>local<br>pimSparse<br>pimDense<br>dvmrp<br>igmp<br>igmpOnly |
| Default | No default |

## COMPONENT Vr Ip Mcast Cache

| | |
|---|---|
| Instance | Decimal (0..15) |
| Groups | "GROUP Vr Ip Mcast Cache OsiState (State)"<br>"GROUP Vr Ip Mcast Cache Operational (Oper)" |
| Scope | Application |
| Description | *Vr/<string> Ip Mcast CacheStats/n*<br>This component represents the IP MCAST cache table on an LP. This component is dynamically created. One per LP so there are 16 of them. |
| Common Verbs | Help<br>List<br>Display |

## GROUP Vr Ip Mcast Cache OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

## ATTRIBUTE Vr Ip Mcast Cache adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

## ATTRIBUTE Vr Ip Mcast Cache operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |

| | |
|---|---|
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Vr Ip Mcast Cache usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Vr Ip Mcast Cache Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group houses all the operational attributes of an *Ip* cache table. |

### ATTRIBUTE Vr Ip Mcast Cache entriesFree (ef)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is indicative of the number of free *Ip* cache table entries.<br>A consistently high value for this attribute indicates that there is a resource surplus of the memory requirements for cache table. This surplus could be utilized elsewhere if needed by adjusting the appropriate *cacheTableMaxEntries* attribute. For *Vr*, *cacheTableMaxEntries* is under the *Ip* component; for *Rtr* and *Vrf*, it is under the respective components. |

| | |
|---|---|
| Values | Decimal (0..8000) |
| Default | No default |

### ATTRIBUTE Vr Ip Mcast Cache totalLookups (tl)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of local cache lookups. It wraps around to zero when it exceeds its maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Mcast Cache lookupMisses (lm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of local cache lookup misses. It wraps around to zero when it exceeds its maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Mcast Cache cacheTableMaxEntries (ctme)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current maximum number of entries that can exist in the IP local cache table on each LP. |
| Values | Decimal (0..8000) |
| Default | No default |

### COMPONENT Vr Ip Mcast PimSparseMode (PimSm)

| | |
|---|---|
| Groups | "GROUP Vr Ip Mcast PimSm AdministrativeControl (AdminControl)"<br>"GROUP Vr Ip Mcast PimSm OsiState (State)"<br>"GROUP Vr Ip Mcast PimSm OperationalStatus (OperStatus)" |
| Scope | Application |

| | |
|---|---|
| Description | *Vr/<string> Ip Mcast PimSm*<br>The Protocol Independent Multicast Sparse Mode (PIM-SM) component represents a multicast protocol which can be used to efficiently route multicast traffic to multicast groups that may span wide-area internets. The PIM-SM is referred as protocol independent multicast because it is not dependent on any particular unicast routing protocol and it is designed to support groups which are sparsely located. |
| Opt. Subcomp. | "COMPONENT Vr Ip Mcast PimSm Domain" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP Vr Ip Mcast PimSm AdministrativeControl (AdminControl)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group includes the Administrative Control attribute. This attribute defines the current administrative state of this component. |

## ATTRIBUTE Vr Ip Mcast PimSm snmpAdminStatus

| | |
|---|---|
| Access | Read and write |
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational and packet forwarding is allowed. The ***down*** state indicates the interface is not operational and packet forwarding is unavailable. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

## GROUP Vr Ip Mcast PimSm OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

## ATTRIBUTE Vr Ip Mcast PimSm adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

## ATTRIBUTE Vr Ip Mcast PimSm operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component. |

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Vr Ip Mcast PimSm usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Vr Ip Mcast PimSm OperationalStatus (OperStatus)

Properties
Operational

Description
This group includes the Operational Status attribute. This attribute defines the current operational state of this component.

## ATTRIBUTE Vr Ip Mcast PimSm snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

## COMPONENT Vr Ip Mcast PimSm Domain

| | |
|---|---|
| Instance | Decimal (0..3) |
| Groups | "GROUP Vr Ip Mcast PimSm Domain Provisioned (Prov)"<br>"GROUP Vr Ip Mcast PimSm Domain Operational (Oper)"<br>"GROUP Vr Ip Mcast PimSm Domain Statistics (Stats)" |
| Scope | Application |
| Description | Vr/<string> Ip Mcast PimSm domain/n<br>The Domain component represents a logical link to the Domain component under Mcast component. A PIM domain is a set of contiguous routers which implement the PIM protocol configured to operate within a common boundary. Information relevant to a domain are included under the PimSm Domain component. The domain number is checked to ensure it exists under Mcast Domain component. |

| | |
|---|---|
| Opt. Subcomp. | "COMPONENT Vr Ip Mcast PimSm Domain CandidateRendezvousPoint (CRP)"<br>"COMPONENT Vr Ip Mcast PimSm Domain CandidateBootstrapRouter (CBsr)" |
| Dyn. Subcomp. | "COMPONENT Vr Ip Mcast PimSm Domain RendezvousPoint (RpSet)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### VERB RpHash Vr Ip Mcast PimSm Domain

| | |
|---|---|
| Impact | Passive |
| Description | *RpHash -gAddr(Ip Address) Vr/<string> Ip Mcast PimSm Domain/n*<br>The *RpHash* verb is intended for trouble-shooting RP address at the PIM protocol domain level. The verb takes a multicast group (IP) address as an argument and finds the corresponding RP for that group address.<br>If the *RpHash* is successful, it outputs the IP Address of the RP. |

### GROUP Vr Ip Mcast PimSm Domain Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes of the *Domain* component under the *PimSm* component. |

### ATTRIBUTE Vr Ip Mcast PimSm Domain joinPruneInterval (jp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the frequency at which PIM Join/Prune messages are transmitted on this PIM domain. |
| Values | Decimal (5..4292967295) |

| | |
|---|---|
| Units | seconds |
| Default | 60 |

### ATTRIBUTE Vr Ip Mcast PimSm Domain sptJoinThreshold (spt)

| | |
|---|---|
| Access | Read and write |
| Description | The attribute specifies the threshold at which the last-hop router joins the shortest-path tree. If immediate is selected then the router immediately joins the shortest path tree upon receipt of the first data packet. If never is selected then the router never joins the shortest path tree. |
| Values | immediate<br>never |
| Default | never |

### GROUP Vr Ip Mcast PimSm Domain Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes of the *Domain* component under the *PimSm* component. |

### ATTRIBUTE Vr Ip Mcast PimSm Domain bsrAddress (bsr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the IP address of the bootstrap router (BSR) for this PIM domain. |
| Values | IP address |
| Default | No default |

### ATTRIBUTE Vr Ip Mcast PimSm Domain bsrExpiryTimer (bsrExpiry)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the minimum time remaining before the bootstrap router in this domain will be declared down. |
| Values | Decimal (0..4294967295) |
| Units | seconds |
| Default | No default |

## GROUP Vr Ip Mcast PimSm Domain Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the statistics attributes of the *Domain* component under the *PimSm* component. |

## ATTRIBUTE Vr Ip Mcast PimSm Domain txBsrMsgs

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the Bootstrap Message transmitted by the BootStrap Router (BSR) for this PIM domain.<br>This counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4292967295) |
| Default | No default |

## ATTRIBUTE Vr Ip Mcast PimSm Domain rxBsrMsgs

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the Bootstrap Message received by this PIM domain.<br>This counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4292967295) |
| Default | No default |

## ATTRIBUTE Vr Ip Mcast PimSm Domain txCRpAdvMsgs

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the Candidate-RP Advertisement Message transmitted by the configured C-RP for this PIM domain.<br>This counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4292967295) |
| Default | No default |

## ATTRIBUTE Vr Ip Mcast PimSm Domain rxCRpAdvMsgs

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the Candidate-RP Advertisement Message received by the BootStrap Router (BSR) for this PIM domain.<br>This counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Mcast PimSm Domain txHelloMsgs

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the Hello Message transmitted from PimIf belonging to this PIM domain.<br>This counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Mcast PimSm Domain rxHelloMsgs

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the Hello Message received from PimIf belonging to this PIM domain.<br>This counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Mcast PimSm Domain txRegisterMsgs

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the Register Message transmitted by the Designated Router (DR) for this PIM domain.<br>This counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Mcast PimSm Domain rxRegisterMsgs

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the Register Message received by the RP for this PIM domain.<br>This counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Mcast PimSm Domain txRegisterStopMsgs

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the Register-Stop Message transmitted by the RP for this PIM domain.<br>This counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Mcast PimSm Domain rxRegisterStopMsgs

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the Register-Stop Message received by the Designated Router (DR) for this PIM domain.<br>This counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Mcast PimSm Domain txAssertMsgs

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the Assert Message transmitted from this PIM domain.<br>This counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Mcast PimSm Domain rxAssertMsgs

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the Assert Message received by this PIM domain.<br>This counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Mcast PimSm Domain txJPMsgs

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the JP Message transmitted for this PIM domain.<br>This counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Mcast PimSm Domain rxJPMsgs

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the JP Message received by this PIM domain.<br>This counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Mcast PimSm Domain discardBsrMsgs

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the Bootstrap Message discarded by this PIM domain.<br>This counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Mcast PimSm Domain discardCRpAdvMsgs

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the Candidate-RP Advertisement Message discarded by the BootStrap Router (BSR) for this PIM domain.<br>This counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Mcast PimSm Domain discardHelloMsgs

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the Hello Message discarded if it is not destined for this virtual router.<br>This counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Mcast PimSm Domain discardRegisterMsgs

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the Register Message discarded if this virtual router is not the RP for this PIM domain.<br>This counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Mcast PimSm Domain discardRegisterStopMsgs

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the Register-Stop Message discarded.<br>This counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Mcast PimSm Domain discardAssertMsgs

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the unexpected Assert Message discarded.<br>This counter wraps to zero when the maximum value is exceeded. |

| | |
|---|---|
| Values | Decimal (0..4292967295) |
| Default | No default |

### ATTRIBUTE Vr Ip Mcast PimSm Domain discardJPMsgs

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the JP Message discarded by this PIM domain if it is not destined for this virtual router.<br>This counter wraps to zero when the maximum value is exceeded. |
| Values | Decimal (0..4292967295) |
| Default | No default |

### COMPONENT Vr Ip Mcast PimSm Domain CandidateRendezvousPoint (CRP)

| | |
|---|---|
| Groups | "GROUP Vr Ip Mcast PimSm Domain CRP Provisioned (Prov)" |
| Scope | Application |
| Description | *Vr/<string> Ip Mcast PimSm Domain/n CRP*<br>This component specifies that this router should advertise itself as a Candidiate RP (C-RP). |
| Opt. Subcomp. | "COMPONENT Vr Ip Mcast PimSm Domain CRP Group (Grp)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Vr Ip Mcast PimSm Domain CRP Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group specifies all the attributes for component *CandidateRendezvousPoint*. |

### ATTRIBUTE Vr Ip Mcast PimSm Domain CRP address (addr)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute specifies a link to a logical interface component which specifies an IP address to be used as the local identifier in C-RP advertisement messages. |
| Values | Link (Service, linkToPimSmCandidateRp) |
| Default | No default |

### ATTRIBUTE Vr Ip Mcast PimSm Domain CRP preference (pref)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the preference value to be used in C-RP advertisement messages. Lower values indicate higher preference. |
| Values | Signed (0..255) |
| Default | 0 |

### COMPONENT Vr Ip Mcast PimSm Domain CRP Group (Grp)

| | |
|---|---|
| Instance | grpAddress (gAddr) [IP address]<br>grpMask (gMask) [IP address] |
| Scope | Application |
| Description | *Vr/<string> Ip Mcast PimSm Domain/n CRP Group/ <gAddr>,<gMask>*<br>This component specifies an IP multicast group address and mask which when combined identifies a group prefix for which the local router will advertise itself as a Candidate RP. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### COMPONENT Vr Ip Mcast PimSm Domain RendezvousPoint (RpSet)

| | |
|---|---|
| Instance | grpAddress (gAddr) [IP address]<br>grpMask (gMask) [IP address]<br>rpAddress (addr) [IP address] |

| | |
|---|---|
| Groups | "GROUP Vr Ip Mcast PimSm Domain RpSet Operational (Oper)" |
| Scope | Application |
| Description | Vr/<string> Ip Mcast PimSm Domain/n RpSet/ <gAddr>,<gMask>,<addr>. This component indicates the IP address of a router which advertises itself as a Candidate RP. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Vr Ip Mcast PimSm Domain RpSet Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for a Candidate RP. |

### ATTRIBUTE Vr Ip Mcast PimSm Domain RpSet rpSetHoldTime (holdTime)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the holdtime of a Candidate RP. If the local router is not the BSR, this value is 0. |
| Values | Decimal (0..255) |
| Units | seconds |
| Default | No default |

### ATTRIBUTE Vr Ip Mcast PimSm Domain RpSet rpSetExpiryTime (expiry)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the minimum time remaining before the Candidate RP will be declared down. If the local router is not the BSR, this value is 0. |
| Values | Decimal (0..4294967295) |
| Units | seconds |
| Default | No default |

### ATTRIBUTE Vr Ip Mcast PimSm Domain RpSet rpSetPriority (prio)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the priority advertised by BSR for this C-RP. If the local router is the BSR, this value specifies the priority advertised by C-RP. |
| Values | Signed (0..255) |
| Default | No default |

### COMPONENT Vr Ip Mcast PimSm Domain CandidateBootstrapRouter (CBsr)

| | |
|---|---|
| Groups | "GROUP Vr Ip Mcast PimSm Domain CBsr Provisioned (Prov)" |
| Scope | Application |
| Description | *Vr/<string> Ip Mcast PimSm Domain/n CBsr*<br>This component specifies that this router should advertise iteself as a Candidate BootStrap Router (C-BSR). |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Vr Ip Mcast PimSm Domain CBsr Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all the provisionable attributes for component *CandidateBootstrapRouter.* |

### ATTRIBUTE Vr Ip Mcast PimSm Domain CBsr address (addr)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies a link to a logical interface component which specifies an IP address to use as the local system identifier in bootstrap messages. |
| Values | Link (Service, linkToPimSmCandidateBsr) |
| Default | No default |

### ATTRIBUTE Vr Ip Mcast PimSm Domain CBsr preference (pref)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the preference value used in bootstrap messages. Higher values indicate higher priority. |
| Values | Signed (0..255) |
| Default | 0 |

### COMPONENT Vr Ip Mcast NeighborEntry (Nbr)

| | |
|---|---|
| Instance | nbrAddress (addr) [IP address]<br>domainIndex (domain) [Decimal (0..3)] |
| Groups | "GROUP Vr Ip Mcast Nbr Operational (Oper)" |
| Scope | Application |
| Description | Vr/<string> Ip Mcast NeighborEntry/<Ip Address>, <Decimal><br>This component identifies a neighbouring PIM-enabled router by its address and the PIM domain it belongs to. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Vr Ip Mcast Nbr Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes of the *PimNeighborEntry* componnent. |

### ATTRIBUTE Vr Ip Mcast Nbr ifIndex

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the value of ifIndex for the interface used to reach this PIM neighbor. |
| Values | Decimal (1..65535) |
| Default | No default |

### ATTRIBUTE Vr Ip Mcast Nbr upTime

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the time since this PIM neighbor became a neighbor of this local router. |
| Values | Decimal (0..4294967295) |
| Units | seconds |
| Default | No default |

### ATTRIBUTE Vr Ip Mcast Nbr expiryTimer

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the minimum time remaining before this PIM neighbor will be aged out. |
| Values | Decimal (0..4294967295) |
| Units | seconds |
| Default | No default |

### COMPONENT Vr Ip MBgpRouteDistributionClient (MBgp)

| | |
|---|---|
| Groups | "GROUP Vr Ip MBgp Provisioned (Prov)"<br>"GROUP Vr Ip MBgp Operational (Oper)"<br>"GROUP Vr Ip MBgp OsiState (State)" |
| Scope | Application |
| Description | *Vr/<string> Ip MBgpRouteDistributionClient*<br>The *MBgpRouteDistributionClient* component is used to configure multi-protocol BGP route distribution for this virtual router. This component can be added only if the *vpnMode* attribute of this *VirtualRouter* is set to ***customer***. |

| | |
|---|---|
| Opt. Subcomp. | "COMPONENT Vr Ip MBgp ImportPolicy (Import)"<br>"COMPONENT Vr Ip MBgp ExportPolicy (Export)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

### GROUP Vr Ip MBgp Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes of the *MBgp* component. |

### ATTRIBUTE Vr Ip MBgp defaultMBgpRtePreference (pref)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the default routing preference assigned to MBGP routes for this virtual router. A lower value indicates a more preferred route. |
| Values | Decimal (1..253) |
| Default | 123 |

### ATTRIBUTE Vr Ip MBgp importRoutesLimit (importl)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum number of MBGP routes to be imported to this virtual router's routing table from the associated VCG virtual router. |
| Values | Decimal (1..65535) |
| Default | 300 |

### ATTRIBUTE Vr Ip MBgp exportRoutesLimit (exportl)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum number of routes to be exported from this virtual router's routing table to the MBGP routing database of the associated VCG virtual router. |
| Values | Decimal (1..65535) |
| Default | 50 |

### GROUP Vr Ip MBgp Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational attributes for the *MBgp* component. |

### ATTRIBUTE Vr Ip MBgp importRoutes

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of MBGP routes that have been imported to this virtual router's routing table from the associated VCG virtual router. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ip MBgp exportRoutes

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of MBGP routes that have been exported from this virtual router's routing table to the MBGP routing database of the associated VCG virtual router. Only routes that are allowed to be exported by the export policies are included in this number. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## GROUP Vr Ip MBgp OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

## ATTRIBUTE Vr Ip MBgp adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

## ATTRIBUTE Vr Ip MBgp operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component. |

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Vr Ip MBgp usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### COMPONENT Vr Ip MBgp ImportPolicy (Import)

Instance
Decimal (0..65535)

Groups
"GROUP Vr Ip MBgp Import Provisioned (Prov)"

Scope
Application

Description

*Vr/<string> Ip MBgp ImportPolicy/n*
Each instance of this component defines a MBGP import policy. A MBGP import policy is used to decide whether certain routing information learned from the associated VCG BGP instance is to be used or ignored.

If no import policy is provisioned, MBGP accepts all routes received from the associated VCG BGP. If multiple import policies are provisioned, the policy with the most specific match to the received route is applied.

Example 1:
Two import policies are defined:
*vr/0 ip mbgp import/1*, *peer* = ***0.0.0.0***, *usageFlag* = ***use***
*vr/0 ip mbgp import/2*, *peer* = ***47.138.190.1***, *usageFlag* = ***ignore***
This example specifies that MBGP should import all routes from the MBGP routing database of the associated VCG virtual router, except routes learned from the VCG peer 47.138.190.1.

Example 2:
Two import policies are defined:
*vr/0 ip mbgp import/1*, *peer* = ***0.0.0.0***, *usageFlag* = ***use***
*vr/0 ip mbgp import/2*, *peer* = ***47.138.190.1***, *usageFlag* = ***ignore***
*vr/0 ip mbgp import/2 network/1*, *prefix* = ***50.0.0.0***, *length* = ***8***
This example specifies that MBGP should import all routes from the MBGP routing database of the associated VCG virtual router, except routes learned from the VCG peer 47.138.190.1 which match the network prefix address 50.0.0.0/8.

Opt. Subcomp.

"COMPONENT Vr Ip MBgp Import Network (Net)"

Common Verbs

Help
List
Display
Add
DELete

## GROUP Vr Ip MBgp Import Provisioned (Prov)

Properties

Provisioned

| | |
|---|---|
| Description | This group contains the provisionable attributes for the *ImportPolicy* component. |

### ATTRIBUTE Vr Ip MBgp Import vcgPeerIpAddress (vcgPeer)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the IP address of the peer from which MBGP routes are learned. A value of ***0.0.0.0*** matches any peer IP address. |
| Values | IP address |
| Default | 0.0.0.0 |

### ATTRIBUTE Vr Ip MBgp Import usageFlag (usage)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether this virtual router uses or ignores MBGP routing entries which match the criteria for this import policy. |
| Values | use<br>ignore |
| Default | use |

### ATTRIBUTE Vr Ip MBgp Import originAs

| | |
|---|---|
| Access | Read and write |
| Description | This key attribute specifies the autonomous system number where the routes were originated. A value of 0 for this attribute means origin AS number will match any AS number. |
| Values | Decimal (0..65535) |
| Default | 0 |

### ATTRIBUTE Vr Ip MBgp Import originProtocol

| | |
|---|---|
| Access | Read and write |
| Description | This key attribute specifies the protocols that originated the routes. A value of ***incomplete*** for this attribute means this |

information is not available. A value of ***any*** for this attribute means that any originating protocol will match this import policy.

Values
any
igp
egp
incomplete

Default
any

### ATTRIBUTE Vr Ip MBgp Import asPathExpression (asExpr)

Access
Read and write

Description
This key attribute allows the user to enter a regular expression to match the import AS Path Attribute of the received update message. Note: the AS Path Attribute lists the ASs in reverse traversal order. The syntax of the regular expression is a subset of the RFC 2280.
The basic syntax of a regular expression is a list of AS number separated by a space which make up a AS path.
The following characters has the special meaning:
‘.’ - Matches any AS number.
‘^n’ - Matches the first AS item (n) in the AS Path Attribute, or in order words, matches the last AS (n) traversed in the AS path.
‘n$’ - Matches the last AS item (n) in the AS Path Attribute, or in order words, matches the first AS (n) traversed in the AS path.
‘[n1 ... n2]’ - Matches any AS number that appeared in the set n1 ...
n2.
‘n1 - n2’ - Matches any AS number between the range of n1 and n2.
‘()’ - is supported to change the order of evaluation.
‘n*’ - Matches 0 or more occurrences of n, where n can be a set, range or AS number.
‘n+’ - Matches 1 or more occurrences of n, where n can be a set, range or AS number.
‘n?’ - Matches 0 or 1 occurrences of n, where n can be a AS set, range or number.
The following logical operators are evaluated in decending order:
‘NOT’ - Given a regular expression x, NOT x matches the AS

number pattern that is not matched by x.
‘AND’- Given two regular expressions x and y, x AND y matches the intersection of the AS path that are matched by x and those are matched by y.
‘OR’ - Given two regular expressions x and y, x OR y matches the union of the AS path that are matched by x and those are matched by y.
For example: The AS path “5 4 3 2 1”, where 1 is the origin AS, would be match by any one of the following regular expressions:
***1$,***
***^5,***
***4 3,***
***5 3 - 4*,***
***5 [4 3 2] not10 2 1,***
***not (6 7 8 9 10) and 5 4 .* 1***
Empty regular expression implies a match on all AS path.

Values: String (0..255, ASCII)

Default: No default

### ATTRIBUTE Vr Ip MBgp Import communityExpression (comExpr)

Access: Read and write

Description: This key attribute allows the user to enter a regular expression to match the import Community Attribute of the received update message. The syntax of the regular expression is a subset of the RFC 2280.
The basic syntax of a regular expression is a list of Community number seperated by a space which make up a Community attribute.
The following characters has the special meaning:
‘[n1 ... n2]’ - Matches any Community number that appeared in the
set n1 ...n2.
‘n1 - n2’ - Matches any Community number between the range of n1 and n2.
‘()’ - is supported to change the order of evaluation.
‘n*’ - Matches 0 or more occurrences of n, where n can be a set, range or Community number.
‘n+’ - Matches 1 or more occurrences of n, where n can be a set, range or Community number.

‘n?’ - Matches 0 or 1 occurrences of n, where n can be a set, range or number.
The following logical operators are evaluated in decending order:
‘NOT’ - Given a regular expression x, NOT x matches the Community attribute that is not matched by x.
‘AND’- Given two regular expressions x and y, x AND y matches the intersection of the Community attribute that are matched by x and those are matched by y.
‘OR’ - Given two regular expressions x and y, x OR y matches the union of the Community attribute that are matched by x and those are matched by y.
For example: The Community path “1 2 3 4 5” would be match by any one of the following regular expression:
***1,***
***5,***
***4 3,***
***2 3 - 4*,***
***1 [3 4 2]+,***
***not (6 7 8 9 10) and 1 2***
Empty regular expression implies a match on all Community path.

Values: String (0..255, ASCII)

Default: No default

## ATTRIBUTE Vr Ip MBgp Import matchPreference (matchPref)

Access: Read and write

Description: This attribute specifies the relative preference of the policy which use the keys *asPathExpression* and *communityExpression*. This attribute is ignored if attributes *asPathExpression* and *communityExpression* are both empty. This attribute is used to break the tie when two import policies’ expression attributes match a specific AS Path or Community. A higher value indicates a more preferred policy. Two import policies having the same *matchPreference* are considered duplicate policies if the *asPathExpression* attribute and the *communityExpression* attribute are not both empty.

Values: Decimal (0..255)

| | |
|---|---|
| Default | 128 |

### ATTRIBUTE Vr Ip MBgp Import localPreference (locPrf)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the degree of preference for those routes that match the criteria of this import policy. A higher value indicates a more preferred route. A value of 0 for this attribute means that the local preference value remains unchanged. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ip MBgp Import mbgpRtePreference (mbgpPref)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the routing preference of MBGP routes matching this import policy. A lower value means the route is more preferred. If ***sameAsMBgp*** is specified, the value of *defaultMbgpRtePref* set under the *MBgp* component is used. Otherwise the value of this attribute will be used as the routing preference. |
| Values | Decimal (1..253)<br>sameAsMBgp |
| Default | sameAsMBgp |

### COMPONENT Vr Ip MBgp Import Network (Net)

| | |
|---|---|
| Instance | Decimal (0..65535) |
| Groups | "GROUP Vr Ip MBgp Import Net Provisioned (Prov)" |
| Scope | Application |
| Description | *Vr/<string> Ip MBgp Import/n Network/n*<br>*Vr/<string> Ip MBgp Export/n Network/n*<br>Each *Network* component instance specifies a destination network address prefix that this MBGP import or export policy applies to.<br><br>If no *Network* component is provisioned under the *Policy* |

component, the policy applies to all destination network address prefixes.

Common Verbs

Help
List
Display
Add
DELete

## GROUP Vr Ip MBgp Import Net Provisioned (Prov)

Properties: Provisioned

Description: This group contains the provisionable attributes for the *Network* component.

## ATTRIBUTE Vr Ip MBgp Import Net prefix

Access: Read and write

Description: This attribute specifies the network address prefix. The prefix length is specified by the *length* attribute.

Values: IP address

Default: No default

## ATTRIBUTE Vr Ip MBgp Import Net length

Access: Read and write

Description: This attribute specifies the length of the network address prefix. The prefix is specified by the *prefix* attribute.

Values: Decimal (1..32)

Units: bits

Default: No default

## COMPONENT Vr Ip MBgp ExportPolicy (Export)

Instance: Decimal (0..65535)

Groups: "GROUP Vr Ip MBgp Export Provisioned (Prov)"

Scope: Application

Description

*Vr/<string> Ip MBgp ExportPolicy/n*
Each instance of this component defines a MBGP export policy. A MBGP export policy is used to decide whether locally learned routing information is to be sent or blocked.

If no export policy is provisioned, MBGP exports all routes into the MBGP routing database of the associated VCG virtual router, except those learned from IBGP and MBGP. If multiple export policies are provisioned, the policy with the most specific match to the route is applied.

Example 1:
Two export policies are defined:
*vr/0 ip mbgp export/1, protocol =* ***all,*** *advertiseStatus =* ***send***
*vr/0 ip mbgp export/2, protocol =* ***rip****, advertiseStatus =* ***block***
This example specifies that MBGP should export all routes in this virtual router's routing table, except routes learned from RIP.

Example 2:
Two export policies are defined:
*vr/0 ip mbgp export/2, protocol =* ***all****, advertiseStatus =* ***send***
*vr/0 ip mbgp export/3, protocol =* ***rip****, advertiseStatus =* ***block***
*vr/0 ip mbgp export/3 network/1, prefix =* ***47.0.0.0****, length =* ***8***
This example specifies that MBGP exports all routes in this virtual router's routing table except routes learned from RIP which match the network address prefix 47.0.0.0/8.

Opt. Subcomp.

"COMPONENT Vr Ip MBgp Export Network (Net)"

Common Verbs

Help
List
Display
Add
DELete

## GROUP Vr Ip MBgp Export Provisioned (Prov)

Properties

Provisioned

Description

This group contains the provisionable attributes for the *Export* component.

### ATTRIBUTE Vr Ip MBgp Export protocol

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies which protocol the export policy applies to. If the value is ***all***, the export policy is applied to routes from all protocols in the IP routing table. |
| Values | all<br>rip<br>ospfInternal<br>ospfExternal<br>staticLocal<br>staticRemote<br>bgpInternal<br>bgpExternal<br>bgpAggregate |
| Default | all |

### ATTRIBUTE Vr Ip MBgp Export advertiseStatus (advertise)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether routing data which match the criteria for this policy are exported. |
| Values | send<br>block |
| Default | send |

### ATTRIBUTE Vr Ip MBgp Export bgpAsId (bgpAs)

| | |
|---|---|
| Access | Read and write |
| Description | This key attribute specifies the adjacent autonomous system (AS) number of the routes as a matching criteria. This corresponds to the first AS number in the AS Path.<br><br>When this value is non-zero, the *protocol* attribute must be set to either ***bgpInternal*** or ***bgpExternal***. |
| Values | Decimal (0..65535) |
| Default | 0 |

### ATTRIBUTE Vr Ip MBgp Export ospfTag

| | |
|---|---|
| Access | Read and write |
| Description | This key attribute specifies the OSPF tag when the *protocol* attribute is set to either ***ospfInternal*** or ***ospfExternal***. The default tag value 4294967295 (FFFFFFFF in hex) indicates that the tag is not specified. |
| Values | Hex (H.0..H.ffffffff) |
| Default | H.ffffffff |

### ATTRIBUTE Vr Ip MBgp Export ripInterface (ripIf)

| | |
|---|---|
| Access | Read and write |
| Description | This key attribute specifies the local RIP interface where the routes are learned from.<br><br>The *ripInterface* attribute when non-zero should be equal to one of the IP addresses provisioned as a *LogicalIf* component under *IpPort*. Otherwise, this attribute will be ignored.<br><br>The value of the *protocol* attribute must be set to ***rip*** if the value for the *ripInterface* attribute is non-zero. |
| Values | IP address |
| Default | 0.0.0.0 |

### ATTRIBUTE Vr Ip MBgp Export ripNeighbor (ripNbr)

| | |
|---|---|
| Access | Read and write |
| Description | This key attribute specifies the RIP neighbor where the routes were learned from.<br><br>The value of the *protocol* attribute must be set to ***rip*** if the value for the *ripNeighbor* attribute is non-zero. |
| Values | IP address |
| Default | 0.0.0.0 |

## ATTRIBUTE Vr Ip MBgp Export asPathExpression (asExpr)

| | |
|---|---|
| Access | Read and write |
| Description | This key attribute allows the user to enter a regular expression to match the import AS Path Attribute of the export update message. Note: the AS Path Attribute lists the ASs in reverse traversal order. The syntax of the regular expression is a subset of the RFC 2280.<br>The basic syntax of a regular expression is a list of AS number separated by a space which make up a AS path.<br>The following characters has the special meaning:<br>‘.’ - Matches any AS number.<br>‘^n’ - Matches the first AS item (n) in the AS Path Attribute, or in order words, matches the last AS (n) traversed in the AS path.<br>‘n$’ - Matches the last AS item (n) in the AS Path Attribute, or in order words, matches the first AS (n) traversed in the AS path.<br>‘[n1 ... n2]’ - Matches any AS number that appeared in the set n1 ...<br>n2.<br>‘n1 - n2’ - Matches any AS number between the range of n1 and n2.<br>‘()’ - is supported to change the order of evaluation.<br>‘n*’ - Matches 0 or more occurrences of n, where n can be a set, range or AS number.<br>‘n+’ - Matches 1 or more occurrences of n, where n can be a set, range or AS number.<br>‘n?’ - Matches 0 or 1 occurrences of n, where n can be a set, range or number.<br>The following logical operators are evaluated in decending order:<br>‘NOT’ - Given a regular expression x, NOT x matches the AS number pattern that is not matched by x.<br>‘AND’- Given two regular expressions x and y, x AND y matches the intersection of the AS path that are matched by x and those are matched by y.<br>‘OR’ - Given two regular expressions x and y, x OR y matches the union of the AS path that are matched by x and those are matched by y.<br>For example: The AS path “5 4 3 2 1”, where 1 is the origin AS, would be match by any one of the following regular expressions: |

***1$,***
***^5,***
***4 3,***
***5 3 - 4*,***
***5 [4 3 2] not10 2 1,***
***not (6 7 8 9 10) and 5 4 .* 1***
Empty regular expression implies a match on all AS path.

Values: String (0..255, ASCII)

Default: No default

### ATTRIBUTE Vr Ip MBgp Export communityExpression (comExpr)

Access: Read and write

Description: This key attribute allows the user to enter a regular expression to match the import Community Attribute of the received update message. The syntax of the regular expression is a subset of the RFC 2280.
The basic syntax of a regular expression is a list of Community number separated by a space which make up a Community attribute.
The following characters has the special meaning:
‘[n1 ... n2]’ - Matches any Community number that appeared in the
set n1 ...n2.
‘n1 - n2’ - Matches any Community number between the range of n1 and n2.
‘()’ - is supported to change the order of evaluation.
‘n*’ - Matches 0 or more occurrences of n, where n can be a set, range or Community number.
‘n+’ - Matches 1 or more occurrences of n, where n can be a set, range or Community number.
‘n?’ - Matches 0 or 1 occurrences of n, where n can be a set, range or number.
The following logical operators are evaluated in decending order:
‘NOT’ - Given a regular expression x, NOT x matches the Community attribute that is not matched by x.
‘AND’- Given two regular expressions x and y, x AND y matches the intersection of the Community attribute that are matched by x and those are matched by y.
‘OR’ - Given two regular expressions x and y, x OR y

matches the union of the Community attribute that are matched by x and those are matched by y.
For example: The Community path “1 2 3 4 5” would be match by any one of the following regular expression:
***1,***
***5,***
***4 3,***
***2 3 - 4*,***
***1 [3 4 2]+,***
***not (6 7 8 9 10) and 1 2***
Empty regular expression implies a match on all Community path.

Values: String (0..255, ASCII)

Default: No default

### ATTRIBUTE Vr Ip MBgp Export matchPreference (matchPref)

Access: Read and write

Description: This attribute specifies the relative preference of the policy which use the keys *asPathExpression* and *communityExpression*. This attribute is ignored if attributes *asPathExpression* and *communityExpression* are both empty. This attribute is used to break the tie when two export policies’ expression attributes match a specific AS Path or Community. A higher value indicates a more preferred policy. Two export policies having the same *matchPreference* are considered duplicate policies if the *asPathExpression* attribute and the *communityExpression* attribute are not both empty.

Values: Decimal (0..255)

Default: 128

### ATTRIBUTE Vr Ip MBgp Export localPreference (locPrf)

Access: Read and write

Description: This attribute specifies the value of the LOCAL_PREFERENCE path attribute in routes exported to the VCG. A value of 0 means that the local preference value remains unchanged.

Values: Decimal (0..4294967295)

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE Vr Ip MBgp Export insertDummyAs (insertAs)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the AS number(s) to be inserted into the AS Path Attribute. The value is a sequence of AS number separated by period(.). For example, if the value is ***20.20.30***, the AS numbers 20, 20 and 30 would be inserted at the end of the AS Path Attribute just before the local AS number. The number of AS(s) specified by the attribute can not exceed 25. And the value of each AS number must be within the range of 1 to 65535. |
| Values | Integer Sequence |
| Default | No default |

### ATTRIBUTE Vr Ip MBgp Export sendCommunity (sendCom)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates which community number this export policy will pass to the VCG. If the value is set to 0, the Community value remains unchanged. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT Vr Ip MBgp Export Network (Net)

| | |
|---|---|
| Instance | Decimal (0..65535) |
| Groups | "GROUP Vr Ip MBgp Export Net Provisioned (Prov)" |
| Scope | Application |
| Description | *Vr/<string> Ip MBgp Import/n Network/n*<br>*Vr/<string> Ip MBgp Export/n Network/n*<br>Each *Network* component instance specifies a destination network address prefix that this MBGP import or export policy applies to.<br><br>If no *Network* component is provisioned under the *Policy* |

component, the policy applies to all destination network address prefixes.

Common Verbs

Help
List
Display
Add
DELete

## GROUP Vr Ip MBgp Export Net Provisioned (Prov)

Properties: Provisioned

Description: This group contains the provisionable attributes for the *Network* component.

## ATTRIBUTE Vr Ip MBgp Export Net prefix

Access: Read and write

Description: This attribute specifies the network address prefix. The prefix length is specified by the *length* attribute.

Values: IP address

Default: No default

## ATTRIBUTE Vr Ip MBgp Export Net length

Access: Read and write

Description: This attribute specifies the length of the network address prefix. The prefix is specified by the *prefix* attribute.

Values: Decimal (1..32)

Units: bits

Default: No default

## COMPONENT Vr Ip Vrrp

Groups: "GROUP Vr Ip Vrrp AdministrativeControl (AdminControl)"
"GROUP Vr Ip Vrrp OperationalStatus (OperStatus)"
"GROUP Vr Ip Vrrp OsiState (State)"

Scope: Application

Description

*Vr/<string> Ip Vrrp*
The Virtual Router Redundancy Protocol (VRRP) component enables the control protocol of VRRP, which provides the dynamic election of a master VRRP virtual router among multiple VRRP virtual routers on an Ethernet LAN. Locking this component will disable all *VrrpPort* components.

Common Verbs

Help
List
Display
Add
DELete
LOCK
Unlock

## GROUP Vr Ip Vrrp AdministrativeControl (AdminControl)

Properties

Provisioned

Description

This group includes the Administrative Control attribute. This attribute defines the current administrative state of this component.

## ATTRIBUTE Vr Ip Vrrp snmpAdminStatus

Access

Read and write

Description

The desired state of the interface. The ***up*** state indicates the interface is operational and packet forwarding is allowed. The ***down*** state indicates the interface is not operational and packet forwarding is unavailable. The ***testing*** state indicates that no operational packets can be passed.

Values

up
down
testing

Default

up

## GROUP Vr Ip Vrrp OperationalStatus (OperStatus)

Properties

Operational

Description — This group includes the Operational Status attribute. This attribute defines the current operational state of this component.

### ATTRIBUTE Vr Ip Vrrp snmpOperStatus

Access — Read only

Description — The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed.

Values — up
down
testing

Default — up

### GROUP Vr Ip Vrrp OsiState (State)

Properties — Operational

Description — This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Vr Ip Vrrp adminState (osiAdmin)

Access — Read only

Description — This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users

only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Vr Ip Vrrp operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Vr Ip Vrrp usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has

spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

## COMPONENT Vr Ip Rtd

Groups
"GROUP Vr Ip Rtd Provisioned (Prov)"
"GROUP Vr Ip Rtd OsiState (State)"

"COLLECTED STATS VirtualRouter Ip Rtd"

Scope
Application

Description
*Vr/<string> Ip Rtd*
The *Rtd* component is used to add, delete and modify Round Trip Delay measurement cycles.

Dyn. Subcomp.
"COMPONENT Vr Ip Rtd VcgDestAddr"

Common Verbs
Help
List
Display
Add
DELete
LOCK
Unlock

## GROUP Vr Ip Rtd Provisioned (Prov)

Properties
Provisioned

Description
This group contains the provisionable attributes for the *Rtd* component.

## ATTRIBUTE Vr Ip Rtd rtdSize (size)

Access
Read and write

| | |
|---|---|
| Description | This attribute specifies the size of the ICMP IP packets used to calculate the round trip delay measurements. |
| Values | Decimal (30..4096) |
| Default | 64 |

### ATTRIBUTE Vr Ip Rtd rtdSamples (samples)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the number of the ICMP packets which will be generated in one RTD session for each remote node in the backbone per Different Class of Service. |
| Values | Decimal (1..5) |
| Default | 3 |

### ATTRIBUTE Vr Ip Rtd rtdTimeInterval (time)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time interval between the end of one round trip delay measurement session and the beginning of the next round trip delay measurement session |
| Values | Decimal (1..300) |
| Units | minutes |
| Default | 5 |

### ATTRIBUTE Vr Ip Rtd rtdCosList (cos)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the list of class of service values used to send the ICMP packets for all the VCG nodes in the current RTD session. |
| List of | Decimal (0..3) |
| Default | No default |

### ATTRIBUTE Vr Ip Rtd rtdDstAddrList (dst)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the list of the IP destination addresses for which the round trip delays will be calculated in the current round trip delay measurement session. |
| List of | IP address |
| Default | No default |

### GROUP Vr Ip Rtd OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Vr Ip Rtd adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |

| | |
|---|---|
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Vr Ip Rtd operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Vr Ip Rtd usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |

Values idle
active (activ)
busy

Default idle

## COLLECTED STATS VirtualRouter Ip Rtd

Description The statistics record generated by the VirtualRouter Ip Rtd component.

### ATTRIBUTE Vr Ip Rtd localNodeIdentifier

Description This attribute identifies the node by a unique number assigned to each node. This value is provisioned in the attribute *namsId* of the component *ModuleData*.

Values Decimal (256..49151)

### ATTRIBUTE Vr Ip Rtd ipVcgInstance

Description This attribute indicates which VCG VR generated the statistics record

Values String (1..16, ASCII)

### ATTRIBUTE Vr Ip Rtd localVcgIpAddress

Description This attribute indicates the VCG loopback IP address of the VCG VR that generated the statistics record.

Values IP address

### ATTRIBUTE Vr Ip Rtd remoteVcgIpAddress

Description This attribute indicates the remote VCG destination address that will have the delays measured.

Values IP address

### ATTRIBUTE Vr Ip Rtd framesSent

Description This attribute contains the number of frames transmitted by the *Virtual Carrier Gateway* during the latest interval.

| | |
|---|---|
| Vector of | Decimal (1..5) |
| Index | Decimal (0..3) |

### ATTRIBUTE Vr Ip Rtd framesReceived

| | |
|---|---|
| Description | This attribute contains the number of frames received by the *Virtual Carrier Gateway during* the collection interval. |
| Vector of | Decimal (1..5) |
| Index | Decimal (0..3) |

### ATTRIBUTE Vr Ip Rtd sample1StartTime

| | |
|---|---|
| Description | This attribute represents the timestamp when the first sample was sent to this remote *Virtual Carrier Gateway.* |
| Values | Time (DHMS) |

### ATTRIBUTE Vr Ip Rtd RoundTripDelays1

| | |
|---|---|
| Description | This attribute indicates an array of round trip delays for the first sample of packets received by the *Virtual Carrier Gateway* during the last monitoring session, for each class of service (0 to 3). |
| Vector of | Decimal (0..65535) |
| Index | Decimal (0..3) |

### ATTRIBUTE Vr Ip Rtd sample2StartTime

| | |
|---|---|
| Description | This attribute represents the timestamp when the second sample of packets was sent to this remote *Virtual Carrier Gateway.* |
| Values | Time (DHMS) |

### ATTRIBUTE Vr Ip Rtd RoundTripDelay2

| | |
|---|---|
| Description | This attribute indicates an array of round trip delays for the second sample of packets received by the *Virtual Carrier* |

| | |
|---|---|
| | *Gateway* during the last monitoring session, for each class of service (0 to 3) |
| Vector of | Decimal (0..65535) |
| Index | Decimal (0..3) |

### ATTRIBUTE Vr Ip Rtd sample3StartTime

| | |
|---|---|
| Description | This attribute represents the timestamp when the third sample of packets was sent to this remote *Virtual Carrier Gateway*. |
| Values | Time (DHMS) |

### ATTRIBUTE Vr Ip Rtd RoundTripDelay3

| | |
|---|---|
| Description | This attribute indicates an array of round trip delays for the third sample of packets received by the *Virtual Carrier Gateway* during the last monitoring session, for each class of service (0 to 3) |
| Vector of | Decimal (0..65535) |
| Index | Decimal (0..3) |

### ATTRIBUTE Vr Ip Rtd sample4StartTime

| | |
|---|---|
| Description | This attribute represents the timestamp when the fourth sample of packets was sent to this remote *Virtual Carrier Gateway*. |
| Values | Time (DHMS) |

### ATTRIBUTE Vr Ip Rtd RoundTripDelay4

| | |
|---|---|
| Description | This attribute indicates an array of round trip delays for the fourth sample of packets received by the *Virtual Carrier Gateway* during the last monitoring session, for each class of service (0 to 3). |
| Vector of | Decimal (0..65535) |
| Index | Decimal (0..3) |

### ATTRIBUTE Vr Ip Rtd sample5StartTime

| | |
|---|---|
| Description | This attribute represents the timestamp when the fifth sample of packets was sent to this remote *Virtual Carrier Gateway*. |

| | |
|---|---|
| Values | Time (DHMS) |

### ATTRIBUTE Vr Ip Rtd RoundTripDelay5

| | |
|---|---|
| Description | This attribute indicates an array of round trip delays for the fifth sample of packets received by the *Virtual Carrier Gateway* during the last monitoring session, for each class of service (0 to 3). |
| Vector of | Decimal (0..65535) |
| Index | Decimal (0..3) |

### COMPONENT Vr Ip Rtd VcgDestAddr

| | |
|---|---|
| Instance | addr [IP address]<br>cos [0<br>1<br>2<br>3] |
| Groups | "GROUP Vr Ip Rtd VcgDestAddr Operational (Oper)"<br>"GROUP Vr Ip Rtd VcgDestAddr Statistics (Stats)" |
| Scope | Application |
| Description | *Vr/<string> Ip Rtd VcgDestAddr/IP, COS*<br>This component is indexed by the IP address of the peer for which the round trip delay is measured. Each IP entry in the table is uniquely defined by its IP address and Class of Service (CoS) index |
| Common Verbs | Help<br>List<br>Display |

### GROUP Vr Ip Rtd VcgDestAddr Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational status attributes of the *VcgDestAddr* component. This component is a table that contains all destination addresses (both static and dynamic). Each IP entry |

in the table is uniquely defined by its IP address and Class of Service (CoS) index.

### ATTRIBUTE Vr Ip Rtd VcgDestAddr time

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the start time of the latest RTD session for this remote VCG. |
| Values | Time (DHMS) |
| Default | No default |

### ATTRIBUTE Vr Ip Rtd VcgDestAddr size

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the size of the ICMP IP packets used to calculate the round trip delay measurement in the latest session. |
| Values | Decimal (30..4096) |
| Default | No default |

### GROUP Vr Ip Rtd VcgDestAddr Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the statistics attributes of the *DstAddr* component. This component is a table that contains all destination addresses, both static and dynamic. Each IP entry in the table is uniquely defined by its IP address and Class of Service index. |

### ATTRIBUTE Vr Ip Rtd VcgDestAddr minRoundTripDelay (minRtd)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the minimum of the round trip delays measured in the last monitoring session. |
| Values | Decimal (0..4294967295) |
| Units | msec |
| Default | No default |

### ATTRIBUTE Vr Ip Rtd VcgDestAddr maxRoundTripDelay (maxRtd)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum of the round trip delays measured in the last monitoring session. |
| Values | Decimal (0..4294967295) |
| Units | msec |
| Default | No default |

### ATTRIBUTE Vr Ip Rtd VcgDestAddr avgRoundTripDelay (avgRtd)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the average of the round trip delay measurements in the last monitoring session. |
| Values | Decimal (0..4294967295) |
| Units | msec |
| Default | No default |

### ATTRIBUTE Vr Ip Rtd VcgDestAddr framesTransmitted (frmTx)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of RTD frames transmitted to this remote destination address. When this count reaches maximum, it wraps to zero. |
| Values | Decimal (1..5) |
| Default | No default |

### ATTRIBUTE Vr Ip Rtd VcgDestAddr framesReceived (frmRx)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of frames that have been received and have the delays calculated in the last measurement session. When this count reaches maximum, it wraps to zero. |
| Values | Decimal (1..5) |

| | |
|---|---|
| Default | No default |

## COMPONENT Vr Ipx

| | |
|---|---|
| Groups | "GROUP Vr Ipx AdministrativeControl (AdminControl)"<br>"GROUP Vr Ipx Provisioned (Prov)"<br>"GROUP Vr Ipx OsiState (State)"<br>"GROUP Vr Ipx OperationalStatus (OperStatus)"<br>"GROUP Vr Ipx Operational (Oper)"<br>"GROUP Vr Ipx Statistics (Stats)" |
| Scope | Application |
| Description | *Vr/<string> Ipx*<br>This component provides for routing of Novell IPX packets in Novell's NetWare environment. |
| Subcomponents | "COMPONENT Vr Ipx Rip"<br>"COMPONENT Vr Ipx Sap" |
| Opt. Subcomp. | "COMPONENT Vr Ipx NetSentry (Ns)" |
| Dyn. Subcomp. | "COMPONENT Vr Ipx Forwarding (Fwd)"<br>"COMPONENT Vr Ipx Services (Srvc)"<br>"COMPONENT Vr Ipx Adjacencies (Adj)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

### VERB Ping Vr Ipx

| | |
|---|---|
| Impact | Passive |
| Description | *Ping -network (<network number>) [-node (<node number>)]*<br><br>The ping verb allows the user to test the ability of an interface to contact other nodes.<br><br>The *-network* option is used to receive responses from all nodes on that network.<br>The *-node* option is used to or specify a particular node to ping.<br><br>The nodes are given two seconds to respond. All responses received within the two second wait period will be displayed to the user. Pinging a remote wan link or network will produce unexpected results. Pinging a local wan link or network is invalid. |

### GROUP Vr Ipx AdministrativeControl (AdminControl)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group includes the Administrative Control attribute. This attribute defines the current administrative state of this component. |

### ATTRIBUTE Vr Ipx snmpAdminStatus

| | |
|---|---|
| Access | Read and write |
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational and packet forwarding is allowed. The ***down*** state indicates the interface is not operational and packet forwarding is unavailable. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### GROUP Vr Ipx Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |

| | |
|---|---|
| Description | IPX system provisionable attributes. |

### ATTRIBUTE Vr Ipx networkNumber

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates the internal network number portion of the IPX address. This network number must be unique within the internetwork and is necessary to determine master/slave relationships during IPXWAN negotiations. |
| Values | String (1..4, Dashed Hex) |
| Default | No default |

### ATTRIBUTE Vr Ipx maxPathSplits (maxPaths)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates the maximum number of paths with equal routing metric value which this instance of IPX may split between when forwarding packets. |
| Values | Decimal (1..4) |
| Default | 1 |

### ATTRIBUTE Vr Ipx maxHops (hops)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates the maximum number of hops a packet may take. |
| Values | Decimal (1..64) |
| Default | 16 |

### ATTRIBUTE Vr Ipx ripUpdateInterval (rUpd)

| | |
|---|---|
| Access | Read and write |
| Description | The RIP periodic update interval, in seconds. |
| Values | Decimal (1..255) |
| Units | seconds |

| | |
|---|---|
| Default | 60 |

### ATTRIBUTE Vr Ipx sapUpdateInterval (sUpd)

| | |
|---|---|
| Access | Read and write |
| Description | The SAP periodic update interval, in seconds. |
| Values | Decimal (1..255) |
| Units | seconds |
| Default | 60 |

### ATTRIBUTE Vr Ipx controlDelay (ctrlDelay)

| | |
|---|---|
| Access | Read and write |
| Description | The delay, in microsecs, between receiving a request from a client and sending a response. This router is significantly faster than some Ipx clients. If a problem is being experienced between a router and an Ipx client, it might be resolved by changing the *controlDelay.* |
| Values | Decimal (1..30) |
| Units | microsec |
| Default | 1 |

### ATTRIBUTE Vr Ipx updateDelay (updDelay)

| | |
|---|---|
| Access | Read and write |
| Description | The delay, in milliseconds, between sending consecutive (RIP and/or SAP) packets. 55 milliseconds is the minimum specified in the Ipx Router Specification. |
| Values | Decimal (55..500) |
| Units | msec |
| Default | 55 |

### ATTRIBUTE Vr Ipx ripAgeMultiplier (rAge)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | After this many Rip Update intervals unrefreshed Rip information is considered expired. |
| Values | Decimal (1..10) |
| Default | 3 |

### ATTRIBUTE Vr Ipx sapAgeMultiplier (sAge)

| | |
|---|---|
| Access | Read and write |
| Description | After this many SAP Update intervals unrefreshed SAP information is considered expired. |
| Values | Decimal (1..10) |
| Default | 3 |

### ATTRIBUTE Vr Ipx damping (damp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether damping is applied. Damping refers to the damping of incoming RIP and SAP requests. It handles cases where a rogue client or server is making an extraodinary number of requests. With *damping* set to ***disabled***, the switch will reply to all requests with no check for rogue nodes.With *damping* set to ***enabled***, the switch will not reply to a request if the same node made more than the allowable number of requests within 10 seconds. The maximum number of requests to damp at is specified by the following provisionable attributes: *ripMaxDampedGeneralRequest*, *ripMaxDampedSpecificRequests*, *sapMaxDampedGeneralRequests*, *sapMaxDampedSpecificRequests*. |
| Values | enabled<br>disabled |
| Default | enabled |

### ATTRIBUTE Vr Ipx ripMaxDampedGeneralRequests (rDampGenReqs)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute is only used when the attribute *damping* is ***enabled***. It is used to limit the average rate at which the switch responds to general RIP requests. If more than this number are received within a ten second interval, the first *ripMaxDampedGeneralRequests* are responded to and the remainder are ignored. |
| Values | Decimal (1..100) |
| Default | 1 |

### ATTRIBUTE Vr Ipx ripMaxDampedSpecificRequests (rDampSpecReqs)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is only used when the attribute *damping* is ***enabled***. It is used to limit the average rate at which the switch responds to specific RIP requests. If more than this number are received within a ten second interval, the first *ripMaxDampedSpecificRequests* are responded to and the remainder are ignored. |
| Values | Decimal (1..100) |
| Default | 4 |

### ATTRIBUTE Vr Ipx sapMaxDampedGeneralRequests (sDampGenReqs)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is only used when the attribute *damping* is ***enabled***. It is used to limit the average rate at which the switch responds to general SAP requests. If more than this number are received within a ten second interval, the first *sapMaxDampedGeneralRequests* are responded to and the remainder are ignored. |
| Values | Decimal (1..100) |
| Default | 1 |

### ATTRIBUTE Vr Ipx sapMaxDampedSpecificRequests (sDampSpecReqs)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute is only used when the attribute *damping* is ***enabled***. It is used to limit the average rate at which the switch responds to specific SAP requests. If more than this number are received within a ten second interval, the first *sapMaxDampedSpecificRequests* are responded to and the remainder are ignored. |
| Values | Decimal (1..100) |
| Default | 4 |

### ATTRIBUTE Vr Ipx initialGeneralRequests (genReqs)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether the RIP and SAP general requests are sent out a port when the port first comes up. If this attribute is ***enabled*** the initial requests will be made; whereas if the attribute is ***disabled*** the initial requests will not be made. This attribute may be disabled in order to avoid the traffic resulting within the network from these initial requests and the ensuing responses. With the initial request ***disabled***, the switch will learn about other network segments off of the IPX ports via the periodic broadcasts which are received on those port. |
| Values | enabled<br>disabled |
| Default | enabled |

### ATTRIBUTE Vr Ipx holdDownInterval (hold)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies an interval, after a network is removed from the route table, during which other incoming route updates for the same network will be ignored. The use of this interval prevents the slow convergence which results when switches that receive late network down broadcasts advertise false routes. |
| Values | Decimal (0..255) |
| Units | seconds |
| Default | 10 |

### GROUP Vr Ipx OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Vr Ipx adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Vr Ipx operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component. |

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Vr Ipx usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Vr Ipx OperationalStatus (OperStatus)

Properties
Operational

Description
This group includes the Operational Status attribute. This attribute defines the current operational state of this component.

### ATTRIBUTE Vr Ipx snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### GROUP Vr Ipx Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains IPX related operational attributes. |

### ATTRIBUTE Vr Ipx protocolPortCount (ppCnt)

| | |
|---|---|
| Access | Read only |
| Description | The number of portsknown to this instance of Ipx. |
| Values | Decimal (0..255) |
| Default | 0 |

### ATTRIBUTE Vr Ipx destinationCount (destCnt)

| | |
|---|---|
| Access | Read only |
| Description | The number of currently reachable destinations known to Ipx. |
| Values | Decimal (0..65535) |
| Default | 65535 |

### ATTRIBUTE Vr Ipx servicesCount (srvCnt)

| | |
|---|---|
| Access | Read only |
| Description | The number of Services known to Ipx. |

| | |
|---|---|
| Values | Decimal (0..65535) |
| Default | 65535 |

### GROUP Vr Ipx Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains IPX related statistics on the CP. |

### ATTRIBUTE Vr Ipx inReceives

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of IPX packets received, including those received in error. This counter wraps around to zero after reaching the maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ipx inHeaderErrors

| | |
|---|---|
| Access | Read only |
| Description | The number of IPX packets discarded due to errors in their headers, including any IPX packet with a size less than the minimum of 30 bytes. This counter wraps around to zero after reaching the maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ipx inUnknownSocket

| | |
|---|---|
| Access | Read only |
| Description | The number of IPX packets discarded because the destination socket was not open. This counter wraps around to zero after reaching the maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ipx inDiscards

| | |
|---|---|
| Access | Read only |
| Description | Number of packets received but discarded due to reasons other than those accounted for by *inHeaderErrors* and *inUnknownSocket*. This counter wraps around to zero after reaching the maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ipx inBadChecksums

| | |
|---|---|
| Access | Read only |
| Description | Number of packets received with incorrect checksums. This counter wraps around to zero after reaching the maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ipx inDelivers

| | |
|---|---|
| Access | Read only |
| Description | Number of IPX packets delivered locally, including packets from local applications. This counter wraps around to zero after reaching the maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ipx noRoutes

| | |
|---|---|
| Access | Read only |
| Description | Number of times no route to a destination was found. This counter wraps around to zero after reaching the maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE Vr Ipx outRequests

| | |
|---|---|
| Access | Read only |
| Description | The number of IPX packets supplied locally for transmission, not including any packets counted in the *forwarded* attribute. This counter wraps around to zero after reaching the maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ipx outMalformedRequests

| | |
|---|---|
| Access | Read only |
| Description | Number of outgoing packets supplied locally that contained errors in their structure. This counter wraps around to zero after reaching the maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ipx outDiscards

| | |
|---|---|
| Access | Read only |
| Description | The number of outgoing IPX packets discarded due to reasons other than those accounted for in *outMalformedRequests* or *outFiltered*. This counter wraps around to zero after reaching the maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ipx outPackets

| | |
|---|---|
| Access | Read only |
| Description | The total number of IPX packets transmitted. This counter wraps around to zero after reaching the maximum value of 4294967295. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ipx inTooManyHops

| | |
|---|---|
| Access | Read only |
| Description | Number of packets discarded due to exceeding the *maxHops* value. This counter wraps around to zero after reaching the maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ipx inFiltered

| | |
|---|---|
| Access | Read only |
| Description | The number of incoming IPX packets discarded due to filtering. This counter wraps around to zero after reaching the maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ipx inNetBIOS

| | |
|---|---|
| Access | Read only |
| Description | The number of NetBIOS packets received. This counter wraps around to zero after reaching the maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ipx forwarded

| | |
|---|---|
| Access | Read only |
| Description | The number of IPX packets forwarded. This counter wraps around to zero after reaching the maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE Vr Ipx outFiltered

| | |
|---|---|
| Access | Read only |
| Description | The number of outgoing packets discarded due to filtering. This also includes the number of forwarded packets filtered. This counter wraps around to zero after reaching the maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT Vr Ipx Rip

| | |
|---|---|
| Groups | "GROUP Vr Ipx Rip Statistics (Stats)" |
| Scope | Application |
| Description | *Vr/<string> Ipx Rip*<br>The Routing Information Protocol (RIP) exchanges IPX route information that is used to maintain the routing table. Routing information is added to the route table for all known networks whose hops count is equal to or less than the value provisioned for *maxHops*, and is propagated for networks less than *maxHops* away. |
| Opt. Subcomp. | "COMPONENT Vr Ipx Rip RipFilter (RFltr)"<br>"COMPONENT Vr Ipx Rip RipApplyEntry (RipApp)" |
| Common Verbs | Help<br>List<br>Display |

### GROUP Vr Ipx Rip Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | IPX statistics related to the RIP protocol. |

### ATTRIBUTE Vr Ipx Rip ripIn

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the total number of IPX RIP packets received. This counter wraps around to zero after reaching the maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ipx Rip ripOut

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of RIP packets locally generated and sent out. This counter wraps around to zero after reaching the maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Ipx Rip ripIncorrectPackets

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times an incorrectly formatted RIP packet was received. This counter wraps around to zero after reaching the maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT Vr Ipx Rip RipFilter (RFltr)

| | |
|---|---|
| Instance | Decimal (1..4294967295) |
| Groups | "GROUP Vr Ipx Rip RFltr Provisioned (Prov)"<br>"GROUP Vr Ipx Rip RFltr Operational (Oper)" |
| Scope | Application |
| Description | *Vr/<string> Ipx Rip RipFilter*<br>RIP filters remove the specified service advertisements from RIP packets passing through this IPX router instance thereby filtering knowledge of those network routes. This is done by telling the router to ignore certain advertised networks present in incoming |

RIP packet tuples and/or omit certain networks from outgoing RIP packet advertisements. The networks are indicated by the attributes *hops*, *ticks*, *networkNumber*, *node* and *port*. For a given filter, networks matching all the attributes of that filter are filtered or passed depending on the *disposition* of the filter. RIP filters are applied as input or output filters via the *RipApplyEntry* component.

Common Verbs

Help
List
Display
Add
DELete

## GROUP Vr Ipx Rip RFltr Provisioned (Prov)

Properties: Provisioned

Description: This is the provisionable attribute group for *RipFilter*.

## ATTRIBUTE Vr Ipx Rip RFltr hops

Access: Read and write

Description: This attribute specifies the distance in terms of number of hops. Networks in RIP packets which are the specified distance away from the switch are filtered or passed depending on the *disposition* of the filter. A hops value preceded by an equality operator(=), less than operator(<) or greater than operator(>) should be interpreted as matching all RIP packet tuples which are an equal, smaller or greater distance, respectively, away from the switch than the hops value specified. For a given filter, only networks matching all the specified attributes of that filter are filtered or passed depending on the *disposition* of the filter. The number of hops is specified as a decimal number between 0 and 999.

Values: String (0..4, ASCII)

Default: No default

## ATTRIBUTE Vr Ipx Rip RFltr ticks

Access: Read and write

| | |
|---|---|
| Description | This attribute specifies the distance in terms of delay in ticks. A tick is 1/18 of a second. Networks in RIP packets which are the specified distance away from the switch are filtered or passed depending on the *disposition* of the filter. A ticks value preceded by a equality operator(=), less than operator(<) or greater than operator(>) should be interpreted as matching all RIP packet tuples which are an equal, greater or lower delay, respectively, away from the switch than the ticks value specified. For a given filter, only networks matching all the specified attributes of that filter are filtered or passed depending on the *disposition* of the filter. The ticks value is specified as a decimal number between 0 and 999. |
| Values | String (0..4, ASCII) |
| Default | No default |

### ATTRIBUTE Vr Ipx Rip RFltr networkNumber (net)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the network number of matching networks in RIP packets to be filtered or passed depending on the *disposition* of the filter. The network number can be entered either as a dashed hex string or a string of hex digits entered in pairs of hex digits up to a maximum length of 8 digits; in addition to hex digits, use of the character '?' to indicate wildcarding is allowed. (For example a valid network number would be ff-ff-ff-?? or ffffff??). Wildcard characters may be used only in pairs to replace a pair of hex digits. Filters with a network number preceded by a caret (^) should be interpreted as matching all RIP packet tuples except for the tuples with this network number. For a given filter, only networks matching all the specified attributes of that filter are filtered or passed depending on the *disposition* of the filter. |
| Values | String (0..12, ASCII) |
| Default | No default |

### ATTRIBUTE Vr Ipx Rip RFltr node

| | |
|---|---|
| Access | Read and write |

Description

This attribute specifies the node portion in the source IPX address (that is, the MAC address or circuit ID) of received RIP packets for which the contained network tuples should be filtered or passed depending on the *disposition* of the filter. This attribute is only valid for filters applied to a port in the ***input*** *direction* and will be ignored if the filter is applied in the ***output*** *direction*.The node number can be entered either as a dashed hex string or a string of hex digits entered in pairs of hex digits up to a maximum length of 12 digits; in addition to hex digits, use of the character '?' to indicate wildcarding is allowed. (For example a valid node number would be 00-20-??-??-??-?? or 0020???????? ). Wildcard characters may be used only in pairs to replace a pair of hex digits. A node number preceded by a caret (^) should be interpreted as matching all RIP packets' network tuples except for the RIP packets with this source node address. For a given filter, only networks matching all the specified attributes of that filter are filtered or passed depending on the *disposition* of the filter.

Values

String (0..18, ASCII)

Default

No default

### ATTRIBUTE Vr Ipx Rip RFltr port

Access

Read and write

Description

This attribute specifies the name of a *protocol port* whereby networks learned over this port are to be filtered or passed depending on the *disposition* of the filter. This attribute is only valid for filters applied to a port in the ***output*** *direction* and will be ignored if the filter is applied in the ***input*** *direction*. This attribute is entered as an ascii string and must correspond to a name of a provisioned *protocol port*. A port name preceded by a caret (^) should be interpreted as matching all RIP packet tuples except for those learned on this port. For a given filter, only networks matching all the specified attributes of that filter are filtered or passed depending on the *disposition* of the filter.

Values

String (0..18, ASCII)

Default

No default

### ATTRIBUTE Vr Ipx Rip RFltr disposition (disp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates a reversal of the filter pattern match. If the value is pass, then matching filters will cause the RIP packet tuple to be passed. If the value is filter, then matching filters will cause the RIP packet tuple to be filtered. |
| Values | pass<br>filter |
| Default | filter |

### GROUP Vr Ipx Rip RFltr Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This is the operational attribute group for *IpxRipFilter*. |

### ATTRIBUTE Vr Ipx Rip RFltr numberOfApplyEntries (applied)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of times this filter is referenced by a *RipApplyEntry*. If zero, this filter is not applied on any ports. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT Vr Ipx Rip RipApplyEntry (RipApp)

| | |
|---|---|
| Instance | protocolPortName (ppName) [String (1..20, ASCII)]<br>filterIdentifier (fltrId) [Decimal (1..4294967295)] |
| Groups | "GROUP Vr Ipx Rip RipApp Provisioned (Prov)" |
| Scope | Application |
| Description | *Vr/<string> Ipx Rip RipFilter RipApplyEntry/<protocol port name, filter ID>*<br>This component contains a list of RIP filters that have been applied to each IPX port and information pertaining to each application of such RIP filters. Filters should be applied to ports such that the most specific filter has the lowest identifier while the |

least specific filter has the highest identifier. It should be kept in mind that the filter with the lowest filter identifier that matches will decide based on its *disposition* whether the network tuple is passed or filtered.

Common Verbs

Help
List
Display
Add
DELete

## GROUP Vr Ipx Rip RipApp Provisioned (Prov)

Properties: Provisioned

Description: This is the *RipApplyEntry* provisionable group of attributes.

## ATTRIBUTE Vr Ipx Rip RipApp direction (dir)

Access: Read and write

Description: This attribute specifies whether this RIP filter is applied as an ***input*** filter or an ***output*** filter. If set to ***none***, this indicates that the filter, though applied to the port, is not currently active in either direction.

Values:
none
output
input

Default: none

## COMPONENT Vr Ipx Sap

Groups: "GROUP Vr Ipx Sap Statistics (Stats)"

Scope: Application

Description: *Vr/<string> Ipx Sap*
The Service Advertising Protocol (SAP) exchanges information on the network about available network services (for example file services or print services). Service information is kept for services residing on networks which are known to the router via the routing table (RIP protocol). That is, services will be added to

| | |
|---|---|
| | the services table only if a route to them has been previously discovered via RIP and entered in the route table. |
| Opt. Subcomp. | "COMPONENT Vr Ipx Sap SapFilter (SFltr)"<br>"COMPONENT Vr Ipx Sap SapApplyEntry (SapApp)" |
| Common Verbs | Help<br>List<br>Display |

## GROUP Vr Ipx Sap Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | IPX statistics specific to the SAP protocol. |

## ATTRIBUTE Vr Ipx Sap sapIn

| | |
|---|---|
| Access | Read only |
| Description | The total number of SAP packets received. This counter wraps around to zero after reaching the maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## ATTRIBUTE Vr Ipx Sap sapOut

| | |
|---|---|
| Access | Read only |
| Description | The total number of SAP packets locally generated and sent out. This counter wraps around to zero after reaching the maximum value of 4294967295. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## ATTRIBUTE Vr Ipx Sap sapIncorrectPackets

| | |
|---|---|
| Access | Read only |
| Description | The number of times an incorrectly formatted SAP packet was received. This counter wraps around to zero after reaching the maximum value of 4294967295. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

## COMPONENT Vr Ipx Sap SapFilter (SFltr)

| | |
|---|---|
| Instance | Decimal (1..4294967295) |
| Groups | "GROUP Vr Ipx Sap SFltr Provisioned (Prov)"<br>"GROUP Vr Ipx Sap SFltr Operational (Oper)" |
| Scope | Application |
| Description | *Vr/<string> Ipx Sap Sfltr*<br>SAP filters remove the specified service advertisements from SAP packets passing through this IPX router instance thereby filtering knowledge of those services. This is done by telling the router to ignore certain advertised services present in incoming SAP packet tuples and/or omit certain services from outgoing SAP packet advertisements. The services are indicated by the attributes *type*, *name*, *networkNumber*, and *node*. For a given filter, services matching all the attributes of that filter are filtered. SAP filters are applied as input or output filters via the *IpxSapApplyEntry* component. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP Vr Ipx Sap SFltr Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | The provisionable attribute group for *SapFilter*. |

## ATTRIBUTE Vr Ipx Sap SFltr type

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the Novell Service type of the services to be filtered from the SAP packets. The type can be entered either as a dashed hex string or a string of hex digits entered in pairs of |

hex digits up to a maximum length of 4 digits. (For example a valid type would be ff-ff or ffff). A type preceded by a caret(^) should be interpreted as filtering all SAP packets except for those with this type.

Values: String (0..6, ASCII)

Default: No default

### ATTRIBUTE Vr Ipx Sap SFltr name

Access: Read and write

Description: This attribute specifies the readable name of the service to be filtered from SAP packets. The name can be 47 characters or less. This does not include the caret (^) character which precedes the name. A name preceded by a caret (^) should be interpreted as filtering all SAP packets except for the ones with this name.

Values: String (0..48, ASCII)

Default: No default

### ATTRIBUTE Vr Ipx Sap SFltr networkNumber (net)

Access: Read and write

Description: This attribute specifies the network number of the service to be filtered from SAP packets. The network number can be entered either as a dashed hex string or a string of hex digits entered in pairs of hex digits up to a maximum length of 8 digits. (For example a valid network number would be ff-ff-ff-ff or ffffffff). A network number preceded by a caret (^) should be interpreted as filtering all SAP packets except for the ones with this network number.

Values: String (0..12, ASCII)

Default: No default

### ATTRIBUTE Vr Ipx Sap SFltr node

Access: Read and write

Description: This attribute specifies the node portion of the IPX address of the service to be filtered from SAP packets. The node number can be

| | |
|---|---|
| | entered either as a dashed hex string or a string of hex digits entered in pairs of hex digits up to a maximum length of 12 digits.. (For example a valid node number would be ff-ff-ff-ff-ff-ff or ffffffffffff). A node number preceded by a caret (^) should be interpreted as filtering all SAP packets except for the ones with this node number. |
| Values | String (0..18, ASCII) |
| Default | No default |

### ATTRIBUTE Vr Ipx Sap SFltr disposition (disp)

| | |
|---|---|
| Access | Read and write |
| Description | Indicates a reversal of the filter pattern match. |
| Values | pass<br>filter |
| Default | filter |

### GROUP Vr Ipx Sap SFltr Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | The operational attribute group for *IpxSapFilter*. |

### ATTRIBUTE Vr Ipx Sap SFltr numberOfApplyEntries (applied)

| | |
|---|---|
| Access | Read only |
| Description | The number of times this filter appears in *IpxSapApplyEntry*. If zero, this filter is not applied on any ports. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT Vr Ipx Sap SapApplyEntry (SapApp)

| | |
|---|---|
| Instance | protocolPortName (ppName) [String (1..20, ASCII)]<br>filterIdentifier (fltrId) [Decimal (1..4294967295)] |
| Groups | "GROUP Vr Ipx Sap SapApp Provisioned (Prov)" |
| Scope | Application |

| | |
|---|---|
| Description | *Vr/<string> Ipx Sap SapApp*<br>This component contains a list of SAP filters that have been applied to each IPX port and information pertaining to each application of such SAP filters. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### GROUP Vr Ipx Sap SapApp Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | The *IpxSapApplyEntry* provisionable group of attributes. |

### ATTRIBUTE Vr Ipx Sap SapApp direction (dir)

| | |
|---|---|
| Access | Read and write |
| Description | Indicates whether this SAP filter is applied as an input filter or an output filter. |
| Values | none<br>output<br>input |
| Default | none |

### COMPONENT Vr Ipx Forwarding (Fwd)

| | |
|---|---|
| Instance | String (1..4, Dashed Hex) |
| Groups | "GROUP Vr Ipx Fwd Operational (Oper)" |
| Scope | Application |
| Description | *Vr/<string> Ipx Fwd*<br>The forwarding component represents an entry of the forwarding table. It contains forwarding information about all known destinations with each entry in the forwarding table being information pertaining to a unique IPX destination network number. |

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display |

## GROUP Vr Ipx Fwd Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | *IpxForwarding* operational attributes. |

## ATTRIBUTE Vr Ipx Fwd protocol

| | |
|---|---|
| Access | Read only |
| Description | The routing protocol from which knowledge of this destination was obtained. |
| Values | other<br>local<br>rip<br>nlsp<br>static |
| Default | No default |

## ATTRIBUTE Vr Ipx Fwd ticks

| | |
|---|---|
| Access | Read only |
| Description | The delay, in ticks, to reach this destination. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## ATTRIBUTE Vr Ipx Fwd hopCount (hops)

| | |
|---|---|
| Access | Read only |
| Description | The number of hops required to reach this destination. |
| Values | Decimal (1..64) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Vr Ipx Fwd protocolPortId (portId)

| | |
|---|---|
| Access | Read only |
| Description | The unique identifier of the *ProtocolPort* used to reach the next hop. |
| Values | String (1..20, ASCII) |
| Default | No default |

### ATTRIBUTE Vr Ipx Fwd nextHopPhysAddress (nextPhys)

| | |
|---|---|
| Access | Read only |
| Description | The physical address of the next hop |
| Values | String (1..6, Dashed Hex) |
| Default | No default |

### ATTRIBUTE Vr Ipx Fwd nextHopNetworkNumber (nextNet)

| | |
|---|---|
| Access | Read only |
| Description | The IPX network number of the next hop. |
| Values | String (1..4, Dashed Hex) |
| Default | No default |

### COMPONENT Vr Ipx Services (Srvc)

| | |
|---|---|
| Instance | networkNumber (net) [String (1..4, Dashed Hex)]<br>node [String (1..6, Dashed Hex)]<br>type [Hex (H.0..H.ffff)]<br>name [String (1..48, ASCII)] |
| Groups | "GROUP Vr Ipx Srvc Operational (Oper)" |
| Scope | Application |
| Description | *Vr/<string> Ipx Srvc*<br>This is the top level component of the IPX services table, which is a list of the Novell services known to this IPX router instance. |

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display |

## GROUP Vr Ipx Srvc Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | The Ipx Services Operational group. |

## ATTRIBUTE Vr Ipx Srvc socket

| | |
|---|---|
| Access | Read only |
| Description | Socket at which the service is available |
| Values | Hex (H.0..H.ffff) |
| Default | No default |

## ATTRIBUTE Vr Ipx Srvc protocol (proto)

| | |
|---|---|
| Access | Read only |
| Description | The protocol from which knowledge of this service was obtained. |
| Values | other<br>local<br>nlsp<br>static<br>sap |
| Default | No default |

## ATTRIBUTE Vr Ipx Srvc hopCount (hops)

| | |
|---|---|
| Access | Read only |
| Description | Number of hops to the service. |
| Values | Decimal (0..64) |
| Default | No default |

## COMPONENT Vr Ipx Adjacencies (Adj)

| | |
|---|---|
| Instance | protocolPortIdentifier (ppId) [String (1..20, ASCII)]<br>networkNumber (net) [String (1..4, Dashed Hex)] |
| Groups | "GROUP Vr Ipx Adj Operational (Oper)" |
| Scope | Application |
| Description | *Vr/<string> Ipx Adj*<br>This component provides adjacent node information available on a per *ProtocolPort* basis. This information is retrieved from, but formatted and displayed differently than, the information in the route table. It is useful for network configuration debugging. |
| Common Verbs | Help<br>List<br>Display |

## GROUP Vr Ipx Adj Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | The *Adjacencies* operational group. |

## ATTRIBUTE Vr Ipx Adj physAddress (phyAddress)

| | |
|---|---|
| Access | Read only |
| Description | The physical address of the adjacent router. |
| Values | String (1..6, Dashed Hex) |
| Default | No default |

## ATTRIBUTE Vr Ipx Adj adjacencyState (adjState)

| | |
|---|---|
| Access | Read only |
| Description | The state of the connection to the adjacent router. |
| Values | initializing<br>up |

| | |
|---|---|
| | failed<br>down |
| Default | No default |

## COMPONENT Vr Ipx NetSentry (Ns)

| | |
|---|---|
| Groups | "GROUP Vr Ipx Ns Provisioned (Prov)" |
| Scope | Application |
| Description | *Vr/<string> Ipx NetSentry*<br>NetSentry filters, defined in and compiled by NetSentry can be applied to IPX packets. IPX packets can be filtered on source and destination network and node combinations. |
| Opt. Subcomp. | "COMPONENT Vr Ipx Ns NetSentryApplyList (NetSentryApp)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP Vr Ipx Ns Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | The provisionable attribute group for the *IpxNetSentry* component. |

## ATTRIBUTE Vr Ipx Ns firstFilter

| | |
|---|---|
| Access | Read and write |
| Description | First NetSentry filter for Ipx. If specified this filter is applied before any other NetSentry filters applicable to the packet. |
| Values | String (0..32, ASCII) |
| Default | No default |

### ATTRIBUTE Vr Ipx Ns lastFilter

| | |
|---|---|
| Access | Read and write |
| Description | Last filter for Ipx. If specified this filter is applied after all other NetSentry filters applicable to the packet. |
| Values | String (0..32, ASCII) |
| Default | No default |

### ATTRIBUTE Vr Ipx Ns localInFilter

| | |
|---|---|
| Access | Read and write |
| Description | The filter name of the NetSentry filter to be applied at the Local In filter point. |
| Values | String (0..32, ASCII) |
| Default | No default |

### ATTRIBUTE Vr Ipx Ns localOutFilter

| | |
|---|---|
| Access | Read and write |
| Description | The filter name of the NetSentry filter to be applied at the Local Out filter point. |
| Values | String (0..32, ASCII) |
| Default | No default |

### COMPONENT Vr Ipx Ns NetSentryApplyList (NetSentryApp)

| | |
|---|---|
| Instance | Decimal (1..4294967295) |
| Groups | "GROUP Vr Ipx Ns NetSentryApp Provisioned (Prov)" |
| Scope | Application |
| Description | *Vr/<string> Ipx NetSentry NetSentryApplyList*<br>This component contains a list of NetSentry filters that have been applied to IPX packets and information pertaining to each application of such NetSentry filters. |

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

### GROUP Vr Ipx Ns NetSentryApp Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | The Provisionable group for the *IpxNetSentryApplyList*. |

### ATTRIBUTE Vr Ipx Ns NetSentryApp filter

| | |
|---|---|
| Access | Read and write |
| Description | The name of the filter to be applied to packets matching the conditions in this entry of the *IpxNetSentryApplyList*. |
| Values | String (0..32, ASCII) |
| Default | No default |

### ATTRIBUTE Vr Ipx Ns NetSentryApp networkNumber1 (net1)

| | |
|---|---|
| Access | Read and write |
| Description | The first IPX network Number used to compare. This network number can be entered either as a dashed hex string or a string of hex digits. (For example a valid network number would be ff-ff-ff-ff or ffffffff). In addition a value of * will be accepted as a wildcard for all networks. |
| Values | String (1..11, ASCII) |
| Default | No default |

### ATTRIBUTE Vr Ipx Ns NetSentryApp node1

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute is the first IPX node address used to compare. This node number can be entered either as a dashed hex string or a string of hex digits. (For example a valid node number would be ff-ff-ff-ff-ff-ff or ffffffffffff). In addition a value of * will be accepted as a wildcard for all nodes. |
| Values | String (1..17, ASCII) |
| Default | No default |

### ATTRIBUTE Vr Ipx Ns NetSentryApp direction (dir)

| | |
|---|---|
| Access | Read and write |
| Description | Indicates the direction a packet must be moving between the first and second apply list entries in order for the entries to match. First “to” second, first “from” second, or first “tofrom” second (either direction). |
| Values | to<br>from<br>tofrom |
| Default | No default |

### ATTRIBUTE Vr Ipx Ns NetSentryApp networkNumber2 (net2)

| | |
|---|---|
| Access | Read and write |
| Description | The second IPX network Number used to compare. This network number can be entered either as a dashed hex string or a string of hex digits. (For example a valid network number would be ff-ff-ff-ff or ffffffff). In addition a value of * will be accepted as a wildcard for all networks. |
| Values | String (1..11, ASCII) |
| Default | No default |

### ATTRIBUTE Vr Ipx Ns NetSentryApp node2

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is the second IPX node address used to compared. This node can be entered either as a dashed hex string or a string of hex digits. (For example a valid network number would be ff- |

| | |
|---|---|
| | ff-ff-ff-ff-ff or ffffffffffff). In addition a value of * will be accepted as a wildcard for all nodes. |
| Values | String (1..17, ASCII) |
| Default | No default |

## COMPONENT Vr Snmp

| | |
|---|---|
| Groups | "GROUP Vr Snmp Provisioned (Prov)"<br>"GROUP Vr Snmp OsiState (State)"<br>"GROUP Vr Snmp Statistics (Stats)" |
| Scope | Device |
| Description | *Vr/<string> Snmp*<br>This component contains all provisionable and operational data relating to the SNMP Management of a Virtual Router.<br><br>SNMP management defined for the Virtual Router having managementAccess, has access to shelf-wide enterprise MIBs and standard MIBs applicable to the Virtual Router.<br><br>SNMP management defined for all other Virtual Routers have access only to standard MIBs applicable to the particular Virtual Router. |
| Subcomponents | "COMPONENT Vr Snmp System (Sys)" |
| Opt. Subcomp. | "COMPONENT Vr Snmp Community (Com)"<br>"COMPONENT Vr Snmp View" |
| Dyn. Subcomp. | "COMPONENT Vr Snmp MibIIStats" |
| Common Verbs | Help<br>List<br>Display<br>Add : System_admin<br>DELete : System_admin<br>LOCK<br>Unlock |

## GROUP Vr Snmp Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisionable attributes defining the SNMP management entity's capabilities, particularly in regards to standard SNMPv1 and SNMPv2 traps. |

## ATTRIBUTE Vr Snmp enableAuthenTraps (authen)

| | |
|---|---|
| Access | Read: System_admin<br>Write: System_admin |
| Description | This attribute controls whether the *Snmp* component generates authentication failure traps. The attribute is derived from RFC 1907. |
| Values | enabled<br>disabled |
| Default | enabled |

## ATTRIBUTE Vr Snmp alarmsAsTraps

| | |
|---|---|
| Access | Read: System_admin<br>Write: System_admin |
| Description | This attribute specifies whether the *Snmp* component sends alarms to SNMPv1, SNMPv2, and SNMPv3 managers. If ***enabled***, alarms are sent as SNMPv1 Traps to managers with SNMPv1 Trap privilege allowed, as SNMPv2 Traps to managers with SNMPv2 Trap privilege allowed and as notifications to SNMPv3 managers based on the provisioning of the *V3* sub-components *NotificationCapability* and *Manager.* |
| Values | enabled<br>disabled |
| Default | disabled |

## ATTRIBUTE Vr Snmp ipStack

| | |
|---|---|
| Access | Read: System_admin<br>Write: System_admin |

Description

This attribute controls which IP stack the *Snmp* component will use to send and receive SNMP traffic.

If the value of this attribute is ***vrIp*** then SNMP Udp traffic is sent and received using *Ip* as provisioned under the *VirtualRouter*. This requires provisioning of the ***ip*** feature.

If the value of this attribute is ***ipiFrIpiVc*** then SNMP Udp traffic is sent and received using *IpiFr* (Ip over Frame Relay) or *IpiVc* (Ip over Vc), whichever is provisioned. This requires provisioning of one of the ***ipiVc*** or ***ipiFr*** features.

Values

vrIp
ipiFrIpiVc

Default

vrIp

### ATTRIBUTE Vr Snmp cidInEntTraps

Access

Read: System_admin
Write: System_admin

Description

This attribute controls whether the Customer Identifier (CID) is included in the SNMP Enterprise Traps. If ***enabled***, the CID is included in the SNMP Enterprise traps.

Values

enabled
disabled

Default

disabled

### ATTRIBUTE Vr Snmp supportedVersions

Access

Read: System_admin
Write: System_admin

Description

This attribute specifies which SNMP message versions are accepted and sent by the SNMP agent. Messages with unsupported version are dropped and the corresponding statistics are incremented.

Set of

snmpV1 (v1)
snmpV2c (v2c)

Default No default

### GROUP Vr Snmp OsiState (State)

Properties Operational

Description This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Vr Snmp adminState (osiAdmin)

Access Read only

Description This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default unlocked

## ATTRIBUTE Vr Snmp operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

## ATTRIBUTE Vr Snmp usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |

| | |
|---|---|
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### ATTRIBUTE Vr Snmp availabilityStatus (osiAvail)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.<br><br>The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.<br><br>The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.<br><br>The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.<br><br>The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***. |

The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***.

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

### ATTRIBUTE Vr Snmp proceduralStatus (osiProc)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the

user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.

The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

### ATTRIBUTE Vr Snmp controlStatus (osiCntrl)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

Set of

subjectToTest (subTst)
partOfServicesLocked (partLk)
reservedForTest (rsrvd)
suspended (suspnd)

Default

No default

### ATTRIBUTE Vr Snmp alarmStatus (osiAlarm)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions

described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE Vr Snmp standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and

thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values
hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

Default
notSet

### ATTRIBUTE Vr Snmp unknownStatus (osiUnknw)

Access
Read only

Description
This attribute indicates the OSI Unknown status of the component.

The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.

The value ***true*** indicates that the actual state of the component is not known for sure.

Values
false
true

Default
false

### GROUP Vr Snmp Statistics (Stats)

Properties
Operational

| | |
|---|---|
| Description | This attribute group contains miscellaneous SNMP management entity operational attributes which includes statistics for processing traps as well as attributes to assist with identifying authentication failures generated by SNMPv1 managers. |

### ATTRIBUTE Vr Snmp trapsProcessed (trapsPr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of Standard and Enterprise notifications (traps) processed by the SNMP Agent. This total includes the number discarded by the *Snmp* component when it is ***locked*** or ***disabled***.<br><br>This attribute wraps to zero when its maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Snmp trapsDiscarded (trapsDisc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of notifications (traps) discarded since the processor last restarted. They are discarded when the *Snmp* component is ***locked*** or ***disabled***.<br><br>This attribute wraps to zero when its maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Snmp lastAuthFailure

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the value of *sysUpTime* at the time of the last authentication failure. |
| Values | Decimal (0..4294967295) |
| Units | centiseconds |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE Vr Snmp mgrOfLastAuthFailure

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the IP address of the manager station that caused the last authentication failure. |
| Values | IP address |
| Default | 0.0.0.0 |

### COMPONENT Vr Snmp System (Sys)

| | |
|---|---|
| Groups | "GROUP Vr Snmp Sys Provisioned (Prov)"<br>"GROUP Vr Snmp Sys Operational (Op)" |
| Scope | Device |
| Description | *Vr/<string> Snmp System*<br>This component represents the SNMP System Group. The component attributes are derived from RFC 1907. |
| Dyn. Subcomp. | "COMPONENT Vr Snmp Sys ObjectResource (Or)" |
| Common Verbs | Help<br>List<br>Display |

### GROUP Vr Snmp Sys Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | The group contains provisionable attributes relating to the SNMP System Group. The attributes are derived from RFC 1907. |

### ATTRIBUTE Vr Snmp Sys contact (con)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute identifies the contact person for this managed node, together with information on how to contact this person. |
| Values | String (0..255, ASCII) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Vr Snmp Sys name

| | |
|---|---|
| Access | Read and write |
| Description | This attribute identifies the administratively assigned name for this managed node. By convention, it is the node's fully qualified domain name. |
| Values | String (0..255, ASCII) |
| Default | No default |

### ATTRIBUTE Vr Snmp Sys location (loc)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute identifies the physical location of this node. For example, 'telephone closet, third floor'. |
| Values | String (0..255, ASCII) |
| Default | No default |

### GROUP Vr Snmp Sys Operational (Op)

| | |
|---|---|
| Properties | Operational |
| Description | The group contains operational attributes relating to the SNMP System Group. The attributes are derived from RFC 1907. |

### ATTRIBUTE Vr Snmp Sys description (desc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute presents a textual description of the entity. This value should include the full name and version identification of the system's hardware type, software operating-system, and networking software. |
| Values | String (0..255, ASCII) |
| Default | No default |

### ATTRIBUTE Vr Snmp Sys objectId (oid)

| | |
|---|---|
| Access | Read only |
| Description | This attribute identifies the vendor's authoritative identification of the network management subsystem contained in the entity. This value is allocated within the Structure of Management Information (SMI) enterprises subtree (1.3.6.1.4.1) and provides an easy and unambiguous means for determining 'what kind of box' is being managed. |
| Values | Integer Sequence |
| Default | No default |

### ATTRIBUTE Vr Snmp Sys upTime

| | |
|---|---|
| Access | Read only |
| Description | This attribute represents the time (in hundredths of a second) since the network management portion of the system was last re-initialized. |
| Values | Decimal (0..4294967295) |
| Units | centiseconds |
| Default | No default |

### ATTRIBUTE Vr Snmp Sys services (serv)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the set of services that this entity primarily offers.<br><br>The value is a sum. This sum initially takes the value zero, then, for each layer, L, in the range 1 through 7, that this node performs transactions for, 2 raised to (L-1) is added to the sum. For example, a node which performs primarily routing functions would have a value of 4 (2^(3-1)). In contrast, a node which is a host offering application services would have a value of 72 ((2^4-1) + 2^(7-1)). Note that in the context of the Internet suite of protocols, values should be calculated accordingly:<br>layer 1 - physical (for example, repeaters) |

| | |
|---|---|
| | layer 2 - datalink/subnetwork (for example, bridges)<br>layer 3 - internet (for example, IP gateways)<br>layer 4 - end-to-end (for example, IP hosts)<br>layer 7 - applications (for example, mail relays)<br>For systems including OSI protocols, layers 5 and 6 may also be counted. |
| Values | Decimal (0..127) |
| Default | 6 |

### ATTRIBUTE Vr Snmp Sys sysORLastChange

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the value of *sysUpTime* at the time of the most recent change to any *ObjectResource* component. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT Vr Snmp Sys ObjectResource (Or)

| | |
|---|---|
| Instance | Decimal (1..1024) |
| Groups | "GROUP Vr Snmp Sys Or Or" |
| Scope | Device |
| Description | *Vr/<string> Snmp System ObjectResource/n*<br>This component represents an entry in the SNMPv2 Object Resources Table (RFC 1907). It lists the MIBs currently supported by the SNMP management entity. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Vr Snmp Sys Or Or

| | |
|---|---|
| Properties | Operational |

| | |
|---|---|
| Description | The attributes of this group describe a MIB currently supported by the SNMP agent. This group of attributes is derived from RFC 1907. |

### ATTRIBUTE Vr Snmp Sys Or id

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the authoritative identification of a dynamically-configurable management entity object resource. This is a MIB Object Identifier. |
| Values | Integer Sequence |
| Default | No default |

### ATTRIBUTE Vr Snmp Sys Or description (desc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the textual description of a dynamically-configurable management entity object resource. This is an ASCII description of a supported MIB. |
| Values | String (0..255, ASCII) |
| Default | No default |

### ATTRIBUTE Vr Snmp Sys Or upTime

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the value of *sysUpTime* of the *Snmp System* component at the time this *ObjectResource* component was instantiated. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### COMPONENT Vr Snmp Community (Com)

| | |
|---|---|
| Instance | Decimal (1..1024) |
| Groups | "GROUP Vr Snmp Com Provisioned (Prov)" |
| Scope | Device |

Description

*Vr/<string> Snmp Community/<decimal>*
This component represents an SNMPv1 or SNMPv2c community. A community represents a pairing of an SNMP Agent with an arbitrary set of application entities.

The combination of *communityString* and *tDomain* attributes must be unique across all *Community* components.

Opt. Subcomp.

"COMPONENT Vr Snmp Com Manager (Man)"

Common Verbs

Help
List
Display
Add : System_admin
DELete : System_admin

## GROUP Vr Snmp Com Provisioned (Prov)

Properties

Provisioned

Description

This group contains provisionable attributes relating to SNMPv1 or SNMPv2c communities.

The *Check Prov* command verifies that *viewIndex* corresponds to the first index of one of the *View* components.

## ATTRIBUTE Vr Snmp Com communityString (string)

Access

Read: System_admin
Write: System_admin

Description

This attribute is the SNMPv1 or SNMPv2c community name. The value of this attribute is used to authenticate SNMP messages received from SNMPv1 or SNMPv2c management entities, and is placed in SNMP messages sent out by the SNMPv1 or SNMPv2c network management entity. The string “public” is commonly used.

When an SNMPv1 or SNMPv2c message is received, the community name in the message is checked to ensure that it matches a *communityString*. If there are no *Manager* subcomponents for that *Community* then the level of access is

determined by the *accessMode* attribute. If there are *Manager* subcomponents for the *Community* then the originating transport address in the message must match the *transportAddress* of one of the *Manager* subcomponents, and the level of access of the sending entity is determined by the *privileges* attribute for that *Manager.*
The combination of *communityString* and *tDomain* attributes must be unique across all *Community* components.

Values: String (1..255, ASCII)

Default: public

### ATTRIBUTE Vr Snmp Com accessMode (acMode)

Access: Read: System_admin
Write: System_admin

Description: Once the sending SNMP entity is authenticated as a member of a community, the community access mode determines what level of access it has for each object in its view.

Values: readOnly
readWrite

Default: readOnly

### ATTRIBUTE Vr Snmp Com tDomain (tDom)

Access: Read: System_admin
Write: System_admin

Description: This attribute indicates the kind of transport service by which the community receives and sends network management traffic.
The combination of *communityString* and *tDomain* attributes must be unique across all *Communities.*

Values: snmpUdpDomain

Default: snmpUdpDomain

### ATTRIBUTE Vr Snmp Com viewIndex (vIndex)

Access: Read: System_admin
Write: System_admin

| | |
|---|---|
| Description | This attribute specifies the *View* component for this community. This index must correspond to the first index of one of the *View* components. |
| Values | String (1..32, ASCII) |
| Default | No default |

## COMPONENT Vr Snmp Com Manager (Man)

| | |
|---|---|
| Instance | Decimal (0..100) |
| Groups | "GROUP Vr Snmp Com Man Provisioned (Prov)" |
| Scope | Device |
| Description | *Vr/<string> Snmp Community/<decimal> Manager/<decimal>* This component defines the access privileges for an SNMPv1 or SNMPv2c Manager within the Community. If a *Community* has no *Manager* components, SNMPv1 or SNMPv2 messages are accepted from all source addresses using the proper *communityString*, and no Traps are sent out using the *communityString*. If at least one *Manager* component exists for a *Community* then SNMPv1 or SNMPv2 messages containing that *Community string* are only accepted if they originate from a transport address which matches the *transportAddress* of one of the *Manager* components.<br><br>The value of *transportAddress* must be unique for all *Manager* components under the same *Community.* |
| Common Verbs | Help<br>List<br>Display<br>Add : System_admin<br>DELete : System_admin |

## GROUP Vr Snmp Com Man Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | The group contains provisionable attributes relating to an SNMPv1 or SNMPv2c Community Manager. |

The *Check Prov* command verifies that the value of the *privileges* attribute is correctly set:

**-** Setting ***v1trap*** bit and setting ***v2trap*** bit are not allowed simultaneously.

**-** Setting ***set*** bit is allowed if the *Community accessMode* is ***readWrite***.

**-** Setting ***get*** bit is only allowed if the *Community accessMode* is ***readOnly*** or ***readWrite***.

## ATTRIBUTE Vr Snmp Com Man transportAddress (tAddress)

| | |
|---|---|
| Access | Read: System_admin<br>Write: System_admin |
| Description | This attribute is the transport service address of the SNMPv1 or SNMPv2c Manager, formatted according to the value of *Community tDomain*.<br>The only currently supported format is that of a UDP Transport Address. It must be of the form “IpAddress-UDP Port”, where UDP Port = 162. For example, 23.45.67.89-162 is a suitable UDP Transport Address.<br><br>The value of *transportAddress* must be unique for all *Manager* components under the same *Community.* |
| Values | String (1..100, ASCII) |
| Default | No default |

## ATTRIBUTE Vr Snmp Com Man privileges (priv)

| | |
|---|---|
| Access | Read: System_admin<br>Write: System_admin |
| Description | This attribute identifies the access privileges which govern what management operations the SNMPv1/SNMPv2c Manager may perform.<br><br>***set*** and ***get*** operations are allowed if the *Community accessMode* |

is ***readWrite***.

***get*** operations are only allowed if the *Community accessMode* is ***readOnly*** or ***readWrite***.

The ***v1trap*** bit and ***v2trap*** bit can not be set at same time.

Set of
sets
gets
v1trap
v2trap

Default (gets)

## COMPONENT Vr Snmp MibIIStats

Groups "GROUP Vr Snmp MibIIStats Statistics (Stats)"

Scope Device

Description *Vr/<string> Snmp MibIIStats*
This component contains statistics based upon the MIB II Snmp group (RFC 1213).

Common Verbs
Help
List
Display

## GROUP Vr Snmp MibIIStats Statistics (Stats)

Properties Operational

Description This attribute group contains the collection of statistics as defined by MIB II providing basic instrumentation of a SNMP Agent. The group is derived from RFC 1213. Statistics which are only relevant for SNMP managers do not appear.

## ATTRIBUTE Vr Snmp MibIIStats inPackets

Access Read only

Description This attribute indicates the total number of SNMP messages received by the SNMP management entity.

| | |
|---|---|
| | This attribute wraps to zero when its maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Snmp MibIIStats inBadCommunityNames

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of SNMPv1 or SNMPv2c messages received by the SNMP management entity which had an unknown SNMPv1 or SNMPv2c Community string.<br><br>This attribute wraps to zero when its maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Snmp MibIIStats inBadCommunityUses

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of SNMPv1 or SNMPv2c messages received by the SNMP management entity which attempted to perform an operation not allowed for the indicated SNMPv1 or SNMPv2c Community.<br><br>This attribute wraps to zero when its maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Snmp MibIIStats inAsnParseErrs

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of SNMP messages received by the SNMP management entity which were improperly BER encoded or had an invalid ASN.1 syntax. |

| | |
|---|---|
| | This attribute wraps to zero when its maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Snmp MibIIStats outPackets

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of SNMP messages transmitted by the SNMP management entity.<br><br>This attribute wraps to zero when its maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Snmp MibIIStats inBadVersions

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of SNMP messages received by the SNMP management entity with an invalid SNMP version number.<br><br>This attribute wraps to zero when its maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Snmp MibIIStats inTotalReqVars

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of MIB objects successfully retrieved by SNMP Get and Get-Next requests.<br><br>This attribute wraps to zero when its maximum value is |

exceeded.

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Snmp MibIIStats inTotalSetVars

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of MIB objects successfully set by SNMP Set requests.<br><br>This attribute wraps to zero when its maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Snmp MibIIStats inGetRequests

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of SNMP Get requests accepted and processed by the SNMP management entity.<br><br>This attribute wraps to zero when its maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Snmp MibIIStats inGetNexts

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of SNMP Get-Next requests accepted and processed by the SNMP management entity.<br><br>This attribute wraps to zero when its maximum value is |

exceeded.

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Snmp MibIIStats inSetRequests

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of SNMP Set requests accepted and processed by the SNMP management entity.<br><br>This attribute wraps to zero when its maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Snmp MibIIStats outTooBigs

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of SNMP responses generated by the SNMP management entity with an error-status field of tooBig.<br><br>This attribute wraps to zero when its maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE Vr Snmp MibIIStats outNoSuchNames

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of SNMP responses generated by the SNMP management entity with an error status field of noSuchName. |

This attribute wraps to zero when its maximum value is exceeded.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE Vr Snmp MibIIStats outBadValues

Access: Read only

Description: This attribute indicates the number of SNMP responses generated by the SNMP management entity with an error status field of badValue.

This attribute wraps to zero when its maximum value is exceeded.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE Vr Snmp MibIIStats outGenErrs

Access: Read only

Description: This attribute indicates the number of SNMP responses generated by the SNMP management entity with an error-status field of genErr.

This attribute wraps to zero when its maximum value is exceeded.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE Vr Snmp MibIIStats outGetResponses

Access: Read only

Description: This attribute indicates the number of SNMP Get responses generated by the SNMP management entity.

This attribute wraps to zero when its maximum value is exceeded.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE Vr Snmp MibIIStats outTraps

Access: Read only

Description: This attribute indicates the number of SNMP Traps generated by the SNMP management entity.

This attribute wraps to zero when its maximum value is exceeded.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE Vr Snmp MibIIStats silentDrops

Access: Read only

Description: This attribute indicates the total number of GetRequests, GetNextRequests, GetBulkRequests, SetRequests, and InformRequests delivered to the SNMP entity which were silently dropped because the size of a reply containing an alternate Response-PDU with an empty variable-bindings field was greater than either a local constraint or the maximum message size associated with the originator of the request.

This attribute wraps to zero when its maximum value is exceeded.

Values: Decimal (0..4294967295)

Default: 0

## ATTRIBUTE Vr Snmp MibIIStats proxyDrops

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the total number of GetRequests, GetNextRequests, GetBulkRequests, SetRequests, and InformRequests delivered to the SNMP entity which were silently dropped because the transmission of the (possibly translated) message to a proxy target failed in a manner (other than a time-out) such that no Response-PDU could be returned.<br><br>This attribute wraps to zero when its maximum value is exceeded. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## COMPONENT Vr Snmp View

| | |
|---|---|
| Instance | name [String (1..32, ASCII)]<br>subtree [Integer Sequence] |
| Groups | "GROUP Vr Snmp View Provisioned (Prov)" |
| Scope | Device |
| Description | *Vr/<string> Snmp View/<string, Int_Sequence>*<br>This component represents an entry in the SNMP View Table of RFC 2575.<br><br>The indices of the *View* component are:<br><br>- *name* index that is used to identify a family (or a set) of *View* components<br><br>- *subTree* index that identifies a MIB subTree to be included or excluded in this view<br><br>The component attributes are derived from RFC 2575. |

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display<br>Add : System_admin<br>DELete : System_admin |

## GROUP Vr Snmp View Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains provisionable attributes relating to SNMP View Table subTrees. The attributes are derived from RFC 2575. |

## ATTRIBUTE Vr Snmp View mask

| | |
|---|---|
| Access | Read: System_admin<br>Write: System_admin |
| Description | This attribute in combination with the *subTree* replication value specifies a family of view subtrees.<br><br>Each bit of this bit mask corresponds to a sub-identifier of *subTree*. The most significant bit of the n-th octet of this octet string value (extended if necessary, see below) corresponds to the (8*n- 7)-th sub-identifier, and the least significant bit of the n-th octet of this octet string corresponds to the (8*n)-th sub-identifier, where n is in the range 1 through 16.<br><br>Each bit of this bit mask specifies whether or not the corresponding sub-identifiers must match when determining if an OBJECT IDENTIFIER is in this family of view subtrees; a ‘1’ indicates that an exact match must occur; a ‘0’ indicates ‘wild card’, meaning that any sub-identifier value matches.<br><br>Thus, the OBJECT IDENTIFIER X of an object instance is contained in a family of view subtrees if the following criteria are met:<br><br>For each sub-identifier of the value of *View subTree*, either the n- |

th bit of *mask* is 0, or the n-th sub-identifier of X is equal to the n-th sub-identifier of the value of *subTree.*

If the value of this bit mask is M bits long and there are more than M sub-identifiers in the *subTree* value, then the bit mask is extended with 1's to be the required length.

Note that when the value of this object is the zero-length string, this extension rule results in a mask of all 1's being used (no wild card) and the family of *subTrees* is the one uniquely identified by the *subTree* value.

Values: String (0..16, Hex)

Default: ""

### ATTRIBUTE Vr Snmp View type

Access: Read: System_admin
Write: System_admin

Description: This attribute specifies whether the particular family of view subtrees is included or excluded in the SNMPv3 context's or SNMPv1 or SNMPv2c community's MIB view.

The value ***includedSubtree*** indicates that the corresponding instances of *subTree* and *mask* define a family of view subtrees included in the MIB view.

The value ***excludedSubtree*** indicates that the corresponding instances of *subTree* and *mask* define a family of view subtrees excluded in the MIB view.

Values: includedSubtree
excludedSubtree

Default: includedSubtree

### COMPONENT Vr IfTableEntry

Instance: Decimal (1..65535)

Groups: "GROUP Vr IfTableEntry IfTable (Ift)"
"GROUP Vr IfTableEntry AdditionalInfo"

| | |
|---|---|
| Scope | Application |
| Description | *Vr/<string> IfTableEntry/n*<br>Each instance of this component represents one row in the IfTable as defined in rfc1213. One entry will exist for each *ProtocolPort* |
| Common Verbs | Help<br>List<br>Display |

### GROUP Vr IfTableEntry IfTable (Ift)

| | |
|---|---|
| Properties | Operational |
| Description | This group represents the SNMP interface table entry. |

### ATTRIBUTE Vr IfTableEntry ifAdminStatus (admStatus)

| | |
|---|---|
| Access | Read only |
| Description | This attribute provides the current administration status of the interface. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE Vr IfTableEntry ifOperStatus (opStatus)

| | |
|---|---|
| Access | Read only |
| Description | This attribute provides the current operational status of the interface. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | down |

### ATTRIBUTE Vr IfTableEntry ifLastChange (lastChange)

| | |
|---|---|
| Access | Read only |
| Description | This attribute provides the value of sysUpTime at the time the interface entered its current operational state. If the current state was entered prior to the last re- initialization of the local network management subsystem, then this object contains a zero value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr IfTableEntry ifInOctets (inOctets)

| | |
|---|---|
| Access | Read only |
| Description | This attribute reports the total number of octets received on the interface, including framing characters. The 64-bit version may be available in the *ifHCInOctets* attribute. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr IfTableEntry ifOutOctets (outOctets)

| | |
|---|---|
| Access | Read only |
| Description | This attribute reports the total number of octets transmitted out of the interface, including framing characters. The 64-bit version may be available in the *ifHCOutOctets* attribute. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr IfTableEntry ifInDiscards (inDiscard)

| | |
|---|---|
| Access | Read only |
| Description | This attribute reports the number of inbound packets which were chosen to be discarded even though no errors had been detected to prevent their being deliverable to a higher layer protocol. One possible reason for discarding such a packet could be to free up buffer space. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr IfTableEntry ifOutDiscards (outDiscard)

| | |
|---|---|
| Access | Read only |
| Description | This attribute reports the number of outbound packets which were chosen to be discarded even though no errors had been detected to prevent their being transmitted. One possible reason for discarding such a packet could be to free up buffer space. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr IfTableEntry ifInErrors (inErr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute reports the number of inbound packets that contained errors preventing them from being deliverable to a higher layer protocol. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr IfTableEntry ifOutErrors (outErr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute reports the number of outbound packets that could not be transmitted because of errors. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr IfTableEntry ifInUcastPkts (inUcast)

| | |
|---|---|
| Access | Read only |
| Description | This attribute reports the number of packets, delivered by this sub-layer to a higher (sub-) layer, which were not addressed to a |

| | |
|---|---|
| | multicast or broadcast address at this sub-layer. The 64-bit version may be available in the *ifHCInUcastPkts* attribute. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr IfTableEntry ifOutUcastPkts (outUcast)

| | |
|---|---|
| Access | Read only |
| Description | This attribute reports the total number of packets that higher level protocols requested be transmitted, and which were not addressed to a multicast or broadcast address at this sub-layer, including those that were discarded or not sent. The 64-bit version may be available in the *ifHCOutUcastPkts* attribute. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr IfTableEntry ifInNuCastPkts (inNucast)

| | |
|---|---|
| Access | Read only |
| Description | This attribute reports the number of non-unicast (i.e., subnetwork- broadcast or subnetwork-multicast) packets delivered to a higher-layer protocol. The corresponding 64-bit versions may be available in the *ifInMulticastPkts* attribute and the *ifInBroadcastPkts* attribute. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr IfTableEntry ifOutNuCastPkts (outNuCast)

| | |
|---|---|
| Access | Read only |
| Description | This attribute reports the total number of packets that higher level protocols request be transmitted to a non-unicast address, including those that were discarded or not sent. The corresponding 64-bit versions may be available in the *ifOutMulticastPkts* and *ifOutBroadcastPkts* attributes. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Vr IfTableEntry ifInUnknownProtos (inUknownProt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute reports the number of packets received via the interface which were discarded because of an unknown or unsupported protocol. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr IfTableEntry ifOutQlength (outQlen)

| | |
|---|---|
| Access | Read only |
| Description | This attribute represents the length of the output packet queue (in packets). |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr IfTableEntry ifDescription (desc)

| | |
|---|---|
| Access | Read only |
| Description | This attribute provides a textual string containing information about the interface. This string includes the name of the manufacturer, the product name and the version of the hardware interface. |
| Values | String (0..255, ASCII) |
| Default | No default |

### ATTRIBUTE Vr IfTableEntry ifType (type)

| | |
|---|---|
| Access | Read only |
| Description | This attribute describes the type of interface, distinguished according to the physical/link protocol(s) immediately below the network layer in the protocol stack |

| | |
|---|---|
| Values | other<br>ddnX25<br>rfc877x25<br>ethernetCsmacd<br>ethernet8023<br>tokenBus8024<br>tokenring8025<br>man802<br>starLan<br>hyperChannel<br>fddi<br>lapb<br>sdlc<br>ds1<br>e1<br>basicIsdn<br>primaryIsdn<br>propPointToPointSerial<br>ppp<br>bnx<br>ds3<br>smds<br>frameRelay<br>sonetSdh<br>frameRelayService<br>v35<br>hssi<br>sonetPath<br>aflane8023<br>aflane8025<br>v11<br>channel<br>atmMpeVcEncap<br>atmMpeLlcEncap<br>ilsForwarder<br>ipTunnel<br>virtualMedia<br>localMedia |
| Default | No default |

### ATTRIBUTE Vr IfTableEntry ifMtu (mtu)

| | |
|---|---|
| Access | Read only |
| Description | This attribute represents the size of the largest datagram which can be sent/received on the interface, specified in octets. For interfaces that are used for transmitting network datagrams, this is the size of the largest network datagram that can be sent on the interface. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr IfTableEntry ifSpeed (speed)

| | |
|---|---|
| Access | Read only |
| Description | This attribute provides an estimate of the interface's current bandwidth in bits per second. For interfaces which do not vary in bandwidth or for those where no accurate estimation can be made, this object should contain the nominal bandwidth. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vr IfTableEntry ifPhysicalAddress (phys)

| | |
|---|---|
| Access | Read only |
| Description | This attribute represents the interface's address at the protocol layer immediately `below' the network layer in the protocol stack. For interfaces which do not have such an address (e.g., a serial line), this object should be an octet string of zero length. |
| Values | String (0..17, ASCII) |
| Default | No default |

### ATTRIBUTE Vr IfTableEntry ifSpecific (spec)

| | |
|---|---|
| Access | Read only |
| Description | This attribute provides a reference to MIB definitions specific to the particular media being used to realize the interface. For |

example, if the interface is realized by an ethernet, then the value of this object refers to a document defining objects specific to ethernet. If this information is not present, its value should be set to the OBJECT IDENTIFIER 0.0, which is a syntactically valid object identifier, and any conformant implementation of ASN.1 and BER must be able to generate and recognize this value.

Values: Integer Sequence

Default: No default

### GROUP Vr IfTableEntry AdditionalInfo

Properties: Operational

Description: This group contains additional information associated with this ifEntry, including SNMP ifXTable entry information.

### ATTRIBUTE Vr IfTableEntry componentName (compName)

Access: Read only

Description: This attribute provides a component name associated with this ifEntry. This component is the source of the data stored in this entry. More data may be determined about this entry by looking at the component associated with this component name.

Values: The name of the component

Default: No default

### ATTRIBUTE Vr IfTableEntry ifHCInOctets (inHCOctets)

Access: Read only

Description: This attribute reports the total number of octets received on the interface, including framing characters. This High Capacity counter is a 64-bit version of the *ifInOctets* attribute.

Values: Long Integer

Default: No default

### ATTRIBUTE Vr IfTableEntry ifHCInUcastPkts (inHCUcast)

Access: Read only

| | |
|---|---|
| Description | This attribute reports the number of packets, delivered by this sub-layer to a higher (sub-) layer, which were not addressed to a multicast or broadcast address at this sub-layer. This High Capacity counter is a 64-bit version of the *ifInUcastPkts* attribute. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Vr IfTableEntry ifHCOutOctets (outHCOctets)

| | |
|---|---|
| Access | Read only |
| Description | This attribute reports the total number of octets transmitted out of the interface, including framing characters. This High Capacity counter is a 64-bit version of the *ifOutOctets* attribute. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Vr IfTableEntry ifHCOutUcastPkts (outHCUcast)

| | |
|---|---|
| Access | Read only |
| Description | This attibutes reports the total number of packets that higher-level protocols requested be transmitted, and which were not addressed to a multicast or broadcast address at this sub-layer, including those that were discarded or not sent. This High Capacity counter is a 64-bit version of the *ifOutUcastPkts* attribute. |
| Values | Long Integer |
| Default | No default |

### COMPONENT Vr SourceRouteEndStation (Sres)

| | |
|---|---|
| Groups | "GROUP Vr Sres AdministrativeControl (AdminControl)"<br>"GROUP Vr Sres Provisioned (Prov)"<br>"GROUP Vr Sres OperationalStatus (OperStatus)"<br>"GROUP Vr Sres OsiState (State)"<br>"GROUP Vr Sres Operational (Oper)" |
| Scope | Application |

| | |
|---|---|
| Description | *Vr/<string> SourceRouteEndStation*<br>This component defines source routing for source routing end stations. |
| Dyn. Subcomp. | "COMPONENT Vr Sres RouteEntry (Re)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

### VERB Clear Vr Sres

| | |
|---|---|
| Impact | Service |
| Description | *Clear Vr/<string> Sres*<br>This clears all entries in the *RouteEntry* table. This will in effect delete all *RouteEntry* subcomponents of *Sres*. Routes will then be relearned and the *RouteEntry* subcomponents will be recreated. |

### GROUP Vr Sres AdministrativeControl (AdminControl)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group includes the Administrative Control attribute. This attribute defines the current administrative state of this component. |

### ATTRIBUTE Vr Sres snmpAdminStatus

| | |
|---|---|
| Access | Read only |
| Description | This attribute is used to set the desired state of the interface. The ***up*** state indicates the interface is operational and packet forwarding is allowed. The ***down*** state indicates the interface is not operational and packet forwarding is unavailable. The ***testing*** state indicates that no operational packets can be passed. Changing this attribute from its default value of ***up*** is not allowed at this time. |
| Values | up<br>down<br>testing |

| | |
|---|---|
| Default | up |

### GROUP Vr Sres Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisioned attributes for the *SourceRouteEndStation* component. |

### ATTRIBUTE Vr Sres routeTableNumEntries (rtNe)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute identifies the maximum number of entries in the *SourceRouteEndStation* routing table. Before you change it, check the network configuration to see how many protocol ports, such as *IpPort* or *IpxPort*, under *Vr Pp* have *endStationSupport* set to ***enable***. The value of *routeTableNumEntries* also depends on the *VirtualRouter* attribute *sresMaxHeapSpace*.<br><br>Consider the following attributes of the *SourceRouteEndStation* component when adjusting this number:<br>- *rtEntriesUsed*<br>- *rtEntriesFree*<br>- *rtEntriesDenied* |
| Values | Decimal (0..65535) |
| Default | 5000 |

### ATTRIBUTE Vr Sres agingTime (at)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time period used in seconds, to age out learned entries in the routing table. |
| Values | Decimal (200..1000000) |
| Units | seconds |
| Default | 900 |

### ATTRIBUTE Vr Sres routeDescriptorLength (rdLength)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the maximum number of route descriptors supported by this implementation. The maximum number of hops will be one less because one route descriptor is always required for the destination. This attribute affects the amount of memory used by the route entry table. The larger this attribute is, the more memory the route entry table will use. |
| Values | Decimal (8..14) |
| Default | 14 |

### GROUP Vr Sres OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

### ATTRIBUTE Vr Sres snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### GROUP Vr Sres OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component |

which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Vr Sres adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Vr Sres operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the |

component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Vr Sres usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Vr Sres Operational (Oper)

Properties
Operational

Description
This group contains the operational attributes for the *SourceRouteEndStation* component.

### ATTRIBUTE Vr Sres rtEntriesUsed (rteU)

Access
Read only

Description
This attribute specifies the total number of *SourceRouteEndStation* routing table entries. The value is limited by the attribute *routeTableNumEntries*, which is a provisionable attribute. If the value is consistently approaching the value of *routeTableNumEntries*, it is advisable to increase the value

provisioned for *routeTableNumEntries*. It indicates a potential shortage of routing table entries in the future.

Values: Decimal (0..65535)

Default: 0

### ATTRIBUTE Vr Sres rtEntriesFree (rteF)

Access: Read only

Description: This attribute is indicative of the number of *Sres* routing table entries free. A consistently high value for this attribute indicates that there is a resource surplus here, in terms of the memory requirements of the routing table. This surplus could be utilized elsewhere if need be. The value of this attribute is directly influenced by the value of the attribute *routeTableNumEntries.*

Values: Decimal (0..65535)

Default: 0

### ATTRIBUTE Vr Sres rtEntriesDenied (rteD)

Access: Read only

Description: This attribute counts the number of times a *SourceRouteEndStation* routing table entry was unavailable. Each count indicates an instance of a new route which could not be learned because of a lack of routing table entries. A rapid increase indicates a shortage of routing table entries. To rectify this, increase the number of routing table entries through the provisioned attribute *routeTableNumEntries* under the *SourceRouteEndStation* component. This counter wraps around its maximum value of 4294967295.

Values: Decimal (0..4294967295)

Default: 0

### COMPONENT Vr Sres RouteEntry (Re)

Instance: destMacAddress (dma) [String (6, Dashed Hex)]
protocolPortName (port) [String (1..20, ASCII)]

| | |
|---|---|
| Groups | "GROUP Vr Sres Re Operational (Oper)" |
| Scope | Application |
| Description | *Vr/<string> Sres RouteEntry/xx-xx-xx-xx-xx-xx,<string>*<br>This component is used to contain the data associated with a source routing destination address. Each entry represents one row in the Route Table. The table is indexed by the route destination MAC address in canonical format and *ProtocolPort* name. |
| Common Verbs | Help<br>List<br>Display |

### VERB Clear Vr Sres Re

| | |
|---|---|
| Impact | Service |
| Description | *Clear Vr/<string> Sres RouteEntry/xx-xx-xx-xx-xx-xx,<string>*<br>This clears this entry in the *RouteEntry* table. This will in effect delete this *RouteEntry* subcomponent of *Sres*. The route may then be relearned and the *RouteEntry* subcomponent will be recreated. |

### GROUP Vr Sres Re Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains information relating to a source routing destination address. |

### ATTRIBUTE Vr Sres Re routeControl (rc)

| | |
|---|---|
| Access | Read only |
| Description | This is the value of the routing control field for this route. |
| Values | String (2, Hex) |
| Default | No default |

### ATTRIBUTE Vr Sres Re rifLength

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute is used to display the length of the routing information field in the routing control field. |
| Values | Decimal (2..30) |
| Default | No default |

### ATTRIBUTE Vr Sres Re rdDirection

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the direction to use routing descriptors (RDs). If set to ***leftToRight*** the routing descriptors, displayed in *routeDescr*, will be interpreted from left to right. If set to ***rightToLeft*** they will be interpreted from right to left. If *rifLength* is zero, this attribute will be set to ***noRif*** to indicate that there are no routing descriptors to be read. |
| Values | leftToRight<br>rightToLeft<br>noRif |
| Default | No default |

### ATTRIBUTE Vr Sres Re routeDescr (rd)

| | |
|---|---|
| Access | Read only |
| Description | This is the embedded sequence of bridge and ring IDs for this route. For destinations on the local ring, the value of this attribute is the zero-length string. Refer to *rdDirection* for the direction in which to read the route descriptors. The format of the hexadecimal data displayed is as follows:<br><br>12 bit Ring Number - 4 bit Bridge Number...<br>XXX-X XXX-X XXX-X... |
| Values | String (0..90, ASCII) |
| Default | No default |

### COMPONENT Vr CustomizationSpecification (CustSpec)

| | |
|---|---|
| Groups | "GROUP Vr CustSpec Provisioned (Prov)" |
| Scope | Application |

Description *Vr/n CustomizationSpecification*

This component represents the type of customized behavior which will be provided by the parent *VirtualRouter* component when this component is present.

This component can only be provisioned when the ***ip*** feature is added to at least one of the following card types:

***Vsp2***
***2pGeMmSrVsp3***
***2pOC3ChSmIrVsp3***

Common Verbs

Help
List
Display
Add
DELete

## GROUP Vr CustSpec Provisioned (Prov)

Properties Provisioned

Description This group contains provisioning data for the *CustSpec* component.

## ATTRIBUTE Vr CustSpec customizationType (custType)

Access Read and write

Description This attribute specifies the type of customized behavior which will be provided by the parent *VirtualRouter* component. The following customizations are supported:

***pvg*** - It supports *IfTable* stats for the port linked to *VirtualMedia* and CG for *VirtualMedia* for a generic Packet Voice Gateway.

***cdma*** - It is customized for CDMA wireless application over a Packet Voice Gateway.

| | |
|---|---|
| Values | pvg<br>cdma |
| Default | pvg |

Passport 7400, 15000, 20000

# Component Vr

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component Vsr

241-5701-060

Passport 7400, 15000, 20000

# Component Vsr

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT VoiceSubroute (Vsr)

| | |
|---|---|
| Instance | Decimal (1..1534) |
| Groups | "GROUP Vsr CustomerIdentifierData (CidData)"<br>"GROUP Vsr IfEntryProv (IfEntry)"<br>"GROUP Vsr Provisioned (Prov)"<br>"GROUP Vsr OsiState (State)"<br>"GROUP Vsr OperationalStatus (OperStatus)"<br>"GROUP Vsr Statistics (Stats)"<br>"GROUP Vsr Operational (Oper)" |

"COLLECTED STATS VoiceSubroute"

| | |
|---|---|
| Scope | Application |
| Description | *VoiceSubroute/n*<br>A *VoiceSubroute* component defines the characteristics of the connection to a Private Branch Exchange (PBX). A *VoiceSubroute* is a collection of 64 kbit/s channels on the same physical DS1 or E1 interface. Typically there is one *VoiceSubroute* per physical link. |
| Opt. Subcomp. | "COMPONENT Vsr SwitchedVoiceService (Svs)" |
| Dyn. Subcomp. | "COMPONENT Vsr DebugStatus (Debug)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

### GROUP Vsr CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

### ATTRIBUTE Vsr customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.<br><br>Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.<br><br>An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to "basic CIDs" in DPN) may be assigned to specific customers. |
| Values | Decimal (0; 1..8191) |
| Default | 0 |

### GROUP Vsr IfEntryProv (IfEntry)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the ifEntry. |

### ATTRIBUTE Vsr ifAdminStatus (ifState)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE Vsr ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP Vsr Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group represents the provisionable attributes of a *VoiceSubroute*. |

### ATTRIBUTE Vsr commentText

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | Use of this attribute is at the discretion of the system administrator. Typically, it specifies the name of the customer that is using this *VoiceSubroute*. Typical use of this attribute is to store customer name. |
| Values | String (0..40, ASCII) |
| Default | No default |

### ATTRIBUTE Vsr voiceRoute (vRoute)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the *VoiceRoute* component that this *VoiceSubroute* belongs to. |
| Values | Link (Service, subroutes) |
| Default | No default |

### ATTRIBUTE Vsr signallingChannel (sigChan)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Criticality | Process |
| Description | This attribute specifies the signalling channel to be used by the *VoiceSubroute*. |
| Values | Link (Service, subroutes) |
| Default | No default |

### GROUP Vsr OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Vsr adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component. |

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Vsr operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Vsr usageState (osiUsage)

Access
Read only

| | |
|---|---|
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP Vsr OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

### ATTRIBUTE Vsr snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### GROUP Vsr Statistics (Stats)

| | |
|---|---|
| Properties | Operational |

| | |
|---|---|
| Description | This group provides the operational statistics for the *VoiceSubroute* component. |

### ATTRIBUTE Vsr totalCallsFromIf

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the total number of calls that have been received by this *VoiceSubroute* from the PBX.<br>The value wraps to zero when it reaches its maximum. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vsr totalFailedCallsFromIf

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts indicates the total number of calls that have been received by this *VoiceSubroute* from the PBX which failed to be successfully routed through the subnet for various reasons.<br>The value wraps to zero when it reaches its maximum. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vsr invalidNumberingPlanCalls

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the calls from the interface for which the type of number and the numbering plan identification was not associated to an access code. The numbering plan types *noAccessCode*, *accessCode1* and *accessCode2* are provisioned in the *VoiceRoute*. Refer to NTP-241-7001-xxx for more information.<br>The value wraps to zero when it reaches its maximum. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vsr addressResolutionFailedCalls

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the calls from the interface which had dialled numbers that had no entry in the *VoiceNetworkingCallServer* data base.<br>The value wraps to zero when it reaches its maximum. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vsr addressIncompleteCalls

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the calls from the interface which had dialled numbers with insufficient digits to resolve to a unique entry in the *VoiceNetworkingCallServer* data base.<br>The value wraps to zero when it reaches its maximum. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vsr pathAttributesNotMetCalls

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the calls from the interface for which a path to the end point could not be established based on the attributes specified in the *VoiceProfile*.<br>The value wraps to zero when it reaches its maximum. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vsr pathSetupTimeOutCalls

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute counts the calls from the interface for which a path to the end point could not be established due to a subnet path setup time-out.<br>The value wraps to zero when it reaches its maximum. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vsr callsRejectedLocally

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the calls from the interface which were rejected by the originating end because it was:<br>1) a data call on a voice only *VoiceRoute*, or<br>2) a voice call on a data only *VoiceRoute*, or<br>3) a data call to an end-point whose *VoiceProfile* prevents data calls from being made.<br>The value wraps to zero when it reaches its maximum. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vsr callsRejectedByFarEnd

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the calls from the interface which were rejected by the far-end. This rejection could be due to:<br>1) no free channels at the end-point, or<br>2) a voice call going to a data only *VoiceRoute*, or<br>3) a data call going to a voice only *VoiceRoute*, or<br>4) a signalling protocol incompatibility between end-points.<br>The value wraps to zero when it reaches its maximum. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## GROUP Vsr Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group provides the operational attributes for the *VoiceSubroute* component. |

## ATTRIBUTE Vsr activeChannels

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the total number of B-channels that currently have active calls. |
| Values | Decimal (0..30) |
| Default | No default |

## ATTRIBUTE Vsr peakActiveChannels

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the peak number of B-channels that were active. |
| Values | Decimal (0..30) |
| Default | No default |

## ATTRIBUTE Vsr activeVoiceChannels

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of B-channels that are currently carrying voice. |
| Values | Decimal (0..30) |
| Default | No default |

## ATTRIBUTE Vsr activeModemChannels

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute indicates the number of B-channels that are currently active, where a 2100Hz tone was detected. |
| Values | Decimal (0..30) |
| Default | No default |

### ATTRIBUTE Vsr activeDataChannels

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of B-channels that are currently active carrying data. |
| Values | Decimal (0..30) |
| Default | No default |

### ATTRIBUTE Vsr peakActiveVoiceChannels

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the peak number of B-channels that were active carrying voice traffic. |
| Values | Decimal (0..30) |
| Default | No default |

### ATTRIBUTE Vsr peakActiveModemChannels

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the peak number of active B-channels that a 2100Hz tone was detected during the previous polling period. |
| Values | Decimal (0..30) |
| Default | No default |

### ATTRIBUTE Vsr peakActiveDataChannels

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute indicates the maximum number of B-channels that were active carrying data during the previous polling period. |
| Values | Decimal (0..30) |
| Default | No default |

### ATTRIBUTE Vsr activeFaxRelayChannels

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of B-channels that are currently performing fax relay. |
| Values | Decimal (0..30) |
| Default | No default |

### ATTRIBUTE Vsr activeTptChannels

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the number of B-channels that are currently performing tandem pass through. |
| Values | Decimal (0..32) |
| Default | No default |

### ATTRIBUTE Vsr peakActiveFaxRelayChannels

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the peak number of B-channels that performed fax relay during the previous polling period. |
| Values | Decimal (0..30) |
| Default | No default |

### ATTRIBUTE Vsr peakActiveTptChannels

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |

| | |
|---|---|
| Description | This attribute indicates the peak number of B-channels that performed tandem pass through during the previous polling period. |
| Values | Decimal (0..30) |
| Default | No default |

# COLLECTED STATS VoiceSubroute

| | |
|---|---|
| Description | The statistics record generated by the VoiceSubroute component. |

### ATTRIBUTE Vsr totalCallsFromIf

| | |
|---|---|
| Description | This spooled statistic counts the number of calls that have been received by this *VoiceSubroute* from the PBX in the last statistics collection interval. |
| Values | Decimal (0..65535) |

### ATTRIBUTE Vsr totalFailedCallsFromIf

| | |
|---|---|
| Description | This spooled statistic counts the number of calls that have been received by this *VoiceSubroute* from the PBX which failed to be successfully routed through the subnet in the last statistics collection interval. |
| Values | Decimal (0..65535) |

### ATTRIBUTE Vsr invalidNumberingPlanCalls

| | |
|---|---|
| Description | This spooled statistic counts the calls from the interface for which the type of number and the numbering plan identification was not associated with a diallingPlan in the last statistics collection interval. The numbering plan types *diallingPlan0, diallingPlan1, diallingPlan2* are provisioned in the *VoiceRoute*. Refer to *NTP-241-7001-410* for more information. |
| Values | Decimal (0..65535) |

### ATTRIBUTE Vsr addressResolutionFailedCalls

| | |
|---|---|
| Description | This spooled statistic counts the calls from the interface which had dialled numbers that had no entry in the |

*VoiceNetworkingCallServer* data base in the last statistics collection interval.

Values Decimal (0..65535)

### ATTRIBUTE Vsr addressIncompleteCalls

Description This spooled statistic counts the calls from the interface which had dialled numbers with insufficient digits to resolve to a unique entry in the *VoiceNetworkingCallServer* data base in the last statistics collection interval.

Values Decimal (0..65535)

### ATTRIBUTE Vsr pathAttributesNotMetCalls

Description This spooled statistic counts the calls from the interface for which a path to the end point could not be established based on the attribute specified in the *VoiceProfile* in the last statistics collection interval.

Values Decimal (0..65535)

### ATTRIBUTE Vsr pathSetupTimeOutCalls

Description This spooled statistic counts the calls from the interface for which a path to the end point could not be established due to a subnet path setup time-out in the last statistics collection interval.

Values Decimal (0..65535)

### ATTRIBUTE Vsr callsRejectedLocally

Description This spooled statistic counts the calls from the interface which were rejected by the originating end in the last statistics collection interval because it was:
1) a data call on a voice only *VoiceRoute*, or
2) a voice call on a data only *VoiceRoute*, or
3) a data call to an end-point whose *VoiceProfile* prevents data calls from being made.

Values Decimal (0..65535)

### ATTRIBUTE Vsr callsRejectedByFarEnd

| | |
|---|---|
| Description | This spooled statistic counts the calls from the interface which were rejected by the far-end in the last statistics collection interval.This rejection could be due to:<br>1) no free channels at the end-point, or<br>2) a voice call going to a data only *VoiceRoute*, or<br>3) a data call going to a voice only *VoiceRoute*, or<br>4) a signalling protocol incompatibility between end-points. |
| Values | Decimal (0..65535) |

### ATTRIBUTE Vsr peakActiveChannels

| | |
|---|---|
| Description | This spooled statistic counts the peak number of B-channels that were active in the last statistics collection interval. |
| Values | Decimal (0..30) |

### ATTRIBUTE Vsr peakActiveVoiceChannels

| | |
|---|---|
| Description | This spooled statistic counts the peak number of B-channels that were active carrying voice in the last statistics collection interval. |
| Values | Decimal (0..30) |

### ATTRIBUTE Vsr peakActiveModemChannels

| | |
|---|---|
| Description | This spooled statistic counts the peak number of active B-channels that a 2100Hz tone was detected in the last statistics collection interval. |
| Values | Decimal (0..30) |

### ATTRIBUTE Vsr peakActiveDataChannels

| | |
|---|---|
| Description | This spooled statistic counts the maximum number of B-channels that were active carrying data in the last statistics collection interval. |
| Values | Decimal (0..30) |

### ATTRIBUTE Vsr peakActiveFaxRelayChannels

| | |
|---|---|
| Description | This spooled statistic counts the maximum number of B-channels that were active carrying fax relay calls in the last statistics collection interval. |
| Values | Decimal (0..30) |

### ATTRIBUTE Vsr totalCalls

| | |
|---|---|
| Description | This spooled statistic counts the call attempts processed on this channel (in both directions) in the last statistics collection interval. This counter includes the number of unsuccessful as well as successful call attempts. |
| Vector of | Decimal (0..65535) |
| Index | Decimal (1..32) |

### ATTRIBUTE Vsr totalCallSeconds

| | |
|---|---|
| Description | This spooled statistic counts the number of seconds that each channel is handling a call in the last statistics collection interval. This is regardless of whether the call is successful or not. In other words, this is the amount of time that the channel is not in the idle state. |
| Vector of | Decimal (0..65535) |
| Units | seconds |
| Index | Decimal (1..32) |

### ATTRIBUTE Vsr voiceRouteInstance

| | |
|---|---|
| Description | This spooled statistic is the value of the *VoiceRoute* linked to this *VoiceSubRoute*. |
| Values | Decimal (1..16) |

### COMPONENT Vsr SwitchedVoiceService (Svs)

| | |
|---|---|
| Instance | Decimal (1..32) |
| Groups | "GROUP Vsr Svs IfEntryProv (IfEntry)"<br>"GROUP Vsr Svs Operational (Oper)" |

| | |
|---|---|
| | "GROUP Vsr Svs Statistics (Stats)"<br>"GROUP Vsr Svs OsiState (State)"<br>"GROUP Vsr Svs OperationalStatus (OperStatus)" |
| Scope | Application |
| Description | *Vsr/n SwitchedVoiceService/n*<br>The *SwitchedVoiceService* component defines the operational characteristics of the connection to a Private Branch Exchange (PBX). One instance of this component must be required for each channel (that is, timeslot) which is part of the *VoiceSubroute*. |
| Subcomponents | "COMPONENT Vsr Svs Framer (Framer)" |
| Dyn. Subcomp. | "COMPONENT Vsr Svs LogicalConnection (LCo)"<br>"COMPONENT Vsr Svs VnetSvsDebug (Debug)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

### GROUP Vsr Svs IfEntryProv (IfEntry)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the ifEntry. |

### ATTRIBUTE Vsr Svs ifAdminStatus (ifState)

| | |
|---|---|
| Access | Read and write |
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |

| | |
|---|---|
| Default | up |

### ATTRIBUTE Vsr Svs ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP Vsr Svs Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group provides the operational attributes for the *SwitchedVoiceService* component. |

### ATTRIBUTE Vsr Svs status

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the current state of the channel.<br>***idle*** means that there is no call currently active on this channel.<br>***seized*** means that the channel is currently setting up a call, but a connect message has not been received.<br>***answered*** means that a connect message has been received.<br>***clearing*** means that the call is being taken down.<br>***lockout*** means that due to glare or channel rejection, the channel is available for ingress calls only. That is, either the PBX and the Passport tried to seize the channel for a call at the same time (glare), or the PBX rejected the Passport seizure.<br>***idleMaintenance*** means that due to explicit channel maintenance messages, the channel is not available for egress calls. This can only happen when the protocol control places the channel into a maintenance state, and only happens if the Passport receives a message causing the channel state change such as the SERVICE maintenance message. |

| | |
|---|---|
| Values | idle<br>seized<br>answered<br>clearing<br>lockout<br>idleMaintenance (maint) |
| Default | No default |

### ATTRIBUTE Vsr Svs profileNumber (pn)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the *VoiceProfile* number that is being used for this call. If no call is active, then it displays the value of the last profile used. |
| Values | Decimal (0..128) |
| Default | 0 |

### ATTRIBUTE Vsr Svs callType (ct)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the type of call that this channel is currently carrying. If no call is active, then it displays the value for the last call. |
| Values | voice<br>data<br>modem |
| Default | No default |

### ATTRIBUTE Vsr Svs calledNumber (cldn)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the dialled number that is active on this channel. If no call is active, then it displays the dialled number from the last call. |

| | |
|---|---|
| Values | BCD (1..32) |
| Default | No default |

### ATTRIBUTE Vsr Svs callingNumber (clgdn)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the originator's number for the currently active call. If no call is active, then it displays the originator's number from the last call. |
| Values | BCD (1..16) |
| Default | No default |

### ATTRIBUTE Vsr Svs clearCauseCode (ccc)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the clear cause code of the call. This code is always the Q.931 code, regardless of the access protocol. |
| Values | Hex (H.0..H.7f) |
| Default | No default |

### GROUP Vsr Svs Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group provides the operational attributes for the *SwitchedVoiceService* component. |

### ATTRIBUTE Vsr Svs totalCalls (tc)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute counts the call attempts processed on this channel (in both directions). This counter includes the number of unsuccessful as well as successful call attempts.<br>The value wraps when it reaches its maximum. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | 0 |

### ATTRIBUTE Vsr Svs totalCallSeconds (tcs)

| | |
|---|---|
| Access | Read: All<br>Write: Illegal |
| Description | This attribute indicates the total number of seconds that this channel is handling a call. This is regardless of whether the call is successful or not. In other words, this is the amount of time that the channel is not in the idle state.<br>The value wraps when it reaches its maximum. |
| Values | Decimal (0..4294967295) |
| Units | seconds |
| Default | 0 |

### GROUP Vsr Svs OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Vsr Svs adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it |

is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE Vsr Svs operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE Vsr Svs usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP Vsr Svs OperationalStatus (OperStatus)

Properties
Operational

Description
This group includes the Operational Status attribute. This attribute defines the current operational state of this component.

### ATTRIBUTE Vsr Svs snmpOperStatus

Access
Read only

Description
The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed.

Values
up
down
testing

Default
up

### COMPONENT Vsr Svs Framer (Framer)

Groups
"GROUP Vsr Svs Framer Provisioned (Prov)"
"GROUP Vsr Svs Framer OsiState (State)"
"GROUP Vsr Svs Framer Statistics (Stats)"
"GROUP Vsr Svs Framer Operational (Oper)"
"GROUP Vsr Svs Framer Negotiation (Neg)"

Scope
Device

Description
*Vsr/n Svs/n Framer*
The *Framer* component controls link layer framing for

application components sending and receiving data on a link interface. It is also through *Framer*, that an application component is associated with a specific hardware link interface.
The *Framer* component provides provisionable attributes related to datapath aspects of the hardware interface rather than interface specific attributes (such as modem leads and clocking) which are associated with specific hardware components (such as *E1* or *DS1*).
The *Framer* component also provides a provisionable attribute which binds the application component to a specific hardware component.
The *Framer* component contains operational attributes for link interface datapath statistics (such as frame counts).

Dyn. Subcomp. "COMPONENT Vsr Svs Framer VfpDebug"
"COMPONENT Vsr Svs Framer MvpDebug"
"COMPONENT Vsr Svs Framer PcmCapture (PcmCapture)"

Common Verbs
Help
List
Display

## GROUP Vsr Svs Framer Provisioned (Prov)

Properties Provisioned

Description

This group contains the base provisioning data for the *Framer* component. Application or hardware interface specific provisioning data is contained in other provisionable *Framer* groups.

## ATTRIBUTE Vsr Svs Framer interfaceName

Access Read and write

Criticality Process

Description

This attribute contains a hardware component name.

The attribute associates the application with a specific link. This

| | |
|---|---|
| | defines the module processor on which *Framer*'s parent component (as well as *Framer* itself) will run. |
| Values | Link (Hardware, applicationFramerName) |
| Default | No default |

### GROUP Vsr Svs Framer OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE Vsr Svs Framer adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE Vsr Svs Framer operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Vsr Svs Framer usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

## GROUP Vsr Svs Framer Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational statistics data for a Framer component. |

## ATTRIBUTE Vsr Svs Framer totalCells

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of cells received from the interface.<br>Each cell contains 44 bytes of data from the DS0 channel. Since a DS0 provides data at 64 kbit/s, each cell contains 5.5 ms of audio data.<br>This data flow is measured before compression is performed on the channel.<br>This counter wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## ATTRIBUTE Vsr Svs Framer audioCells

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of cells containing audio data received from the interface while the channel was seized. A CCS channel is always considered to be seized. Audio data includes cells containing voice as well modem audio, but not silence.<br>A cell contains 44 bytes of data from the DS0 channel(5.5 ms). This flow is measured before compression is performed on the channel.<br>This counter wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

## ATTRIBUTE Vsr Svs Framer silenceCells

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the total number of cells containing silence data received from the interface which was not forwarded into the network, thus saving bandwidth. A channel may go into silence due to the operation of the silence suppression feature or for CAS channels when the ABCD signalling bits go idle.<br>A cell contains 44 bytes of data from the DS0 channel(5.5 ms).<br>This flow is measured before compression is performed on the channel.<br>This counter wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vsr Svs Framer lrcErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames received from the network with LRC errors. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vsr Svs Framer frmLostInNetwork

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames which the service knows it did not receive from the network although they were sent in to the network from the far end. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vsr Svs Framer frmUnderRuns

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times that a frame was needed but was not available because it had been delayed too long in the network.<br>This error may occur repeatedly if the interface clocks at the two access points to the network are operating at different rates. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vsr Svs Framer frmDumped

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames which have been dumped because the output queue grew too large. This can occur if the clock rate on the incoming interface is faster than the clock rate on the outgoing interface and there are no silence periods to absorb the difference, or when a compression rate change occurs. This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vsr Svs Framer faxRelayCells

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of fax relay cells sent to the network.<br><br>This counter wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vsr Svs Framer modemFaxCells

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the total number of cells containing modem data received from the interface while the channel was seized. A CCS channel is always considered to be seized. Cells are considered to be modem data if a constant energy level above -25 dBmO is detected for more than 900 ms. An energy level below -36 dBmO for more than 650 ms is required to detect that the modem is no longer present.<br>A cell contains 44 bytes of data from the DS0 channel (5.5 ms). This flow is measured before compression is performed on the |

channel.
This counter wraps to zero after reaching its maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Vsr Svs Framer faxIdleCells

Access: Read only

Description: This attribute counts the total number of cells containing silent fax data received from the interface which were not forwarded into the network, thus saving bandwidth. A channel may go into silence due to the silence Suppression feature or for CAS channels when the ABCD signalling bits go idle.

A cell contains 44 bytes of data from the DS0 channel (5.5 ms). This flow is measured before compression is performed on the channel.

This counter wraps to zero after reaching its maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Vsr Svs Framer frmToNetwork

Access: Read only

Description: This attribute counts the number of frames sent to the network at each encoding rate. Fax relay cells are not included.

Vector of: Decimal (0..4294967295)

Index:
64 kbit/s
32 kbit/s
24 kbit/s
16 kbit/s
8 kbit/s

Default: No default

### ATTRIBUTE Vsr Svs Framer frmFromNetwork

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames received from the network at each encoding rate. |
| Vector of | Decimal (0..4294967295) |
| Index | 64 kbit/s<br>32 kbit/s<br>24 kbit/s<br>16 kbit/s<br>8 kbit/s |
| Default | No default |

### GROUP Vsr Svs Framer Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for a *Svs Framer.* |

### ATTRIBUTE Vsr Svs Framer currentEncoding

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the encoding currently being performed on this channel. ***g711*** indicates that pulse code modulation (PCM) defined by ITU-T G.711 is being performed. ***g726*** indicates that adaptive differential pulse code modulation (ADPCM) defined by ITU-T G.726 is being performed. ***g728*** indicates that the Low Delay Coded Excited Linear Predictive Coder (LD-CELP) algorithm defined by ITU-T G.728 is being performed. ***g729*** indicates that the Conjunctive Structure Algebraic Code Excited Linear Predictive Coder (CS-ACELP) algorithm defined by ITU-T G.729 is being performed. ***v27*** indicates that the algorithm defined by ITU-T V.27 is being performed. ***v29*** indicates that the algorithm defined by ITU-T V.29 is being performed. |
| Values | none<br>g729<br>g728<br>g723 |

| | |
|---|---|
| | g726<br>g711<br>v22<br>v22bis<br>faxRelay<br>v27<br>v29<br>v17 |
| Default | No default |

### ATTRIBUTE Vsr Svs Framer currentRate

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current encoding rate for frames being sent to the network. |
| Values | 0<br>0.3<br>1.2<br>2.4<br>4.8<br>5.3<br>6.3<br>7.2<br>8.0<br>9.6<br>12.0<br>14.4<br>16.0<br>24.0<br>32.0<br>64.0 |
| Units | kbit/s |
| Default | No default |

### ATTRIBUTE Vsr Svs Framer tptStatus

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the current status of the tandem pass through algorithm. If *tptStatus* is ***operating,*** the tandem pass through algorithm is cutting through a voice switch. If *tptStatus* is ***monitoring***, *negotiatedTandemPassThrough* is ***enabled***, but the tandem pass through algorithm is not cutting through a voice switch. If *tptStatus* is ***disabled***, *negotiatedTandemPassThrough* is ***disabled***. |
| Values | operating<br>monitoring<br>disabled |
| Default | No default |

### GROUP Vsr Svs Framer Negotiation (Neg)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the attributes indicating the results of voice networking end to end negotiation. |

### ATTRIBUTE Vsr Svs Framer negotiatedSilenceSuppression (nSilenceSuppression)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates the result of negotiating silence suppression with the remote end across the subnet. The parameter used for negotiating with the remote end is provisioned in *Vncs Vp silenceSuppression*.<br><br>If *negotiatedSilenceSuppression* is ***off***, silence suppression is never performed.<br>If *negotiatedSilenceSuppression* is ***on***, silence suppression is always performed.<br>If *negotiatedSilenceSuppression* is ***congested***, silence suppression is performed only when the network is congested.<br>If *negotiatedSilenceSuppression* is ***slow***, silence suppression begins after 10 to 20 seconds without any speech or audio being detected.<br>If *negotiatedSilenceSuppression* is ***slowAndCongested***, both the ***slow*** and ***congested*** options are applied. |
| Values | off<br>on |

congested
slow
slowAndCongested

Default: No default

### ATTRIBUTE Vsr Svs Framer negotiatedFisG711G726 (nFisG711G726)

Access: Read and write

Description: This attribute indicates the result of negotiating G.711/G.726 fax idle suppression with the remote end across the subnet. The parameter used for negotiating with the remote end is provisioned in *Vncs Vp faxIdleSuppressionG711G726*.

Values:
off
on

Default: No default

### ATTRIBUTE Vsr Svs Framer negotiatedDtmfRegeneration (nDtmfRegeneration)

Access: Read and write

Description: This attribute indicates the result of negotiating DTMF regeneration with the remote end across the subnet. The parameter used for negotiating with the remote end is provisioned in *Vncs Vp dtmfRegeneration*.

If *negotiatedDtmfRegeneration* is ***on***, DTMF tones received from the link are first converted to digits before being sent to the subnet. When a digit is received from the subnet, its respective DTMF tone is generated before being sent to the link.

If *negotiatedDtmfRegeneration* is ***off***, DTMF tones are transported transparently.

Values:
off
on

Default: No default

### ATTRIBUTE Vsr Svs Framer negotiatedV17AsG711G726 (nV17AsG711G726)

Access: Read only

| | |
|---|---|
| Description | This attribute indicates how this *SwitchedVoiceService* negotiates with V.17 fax machines, as determined by negotiation with the remote end across the subnet. The parameter used for negotiating with the remote end is provisioned in *Vncs Vp v17EncodedAsG711G726*.<br><br>If *negotiatedV17AsG711G726* is ***no,*** V.17 fax machines are instructed to use V.29, and V.29 fax traffic sent by fax machines is demodulated and encoded using fax relay.<br><br>If *negotiatedV17AsG711G726* is ***yes***, V.17 fax machines are permitted to use V.17 and V.17 fax traffic sent by fax machines is encoded using G.711 or G.726, at the rates given in *negotiatedRates*. |
| Values | yes<br>no |
| Default | No default |

### ATTRIBUTE Vsr Svs Framer negotiatedTandemPassThrough (nTpt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the result of negotiating tandem pass through with the remote end across the subnet. The parameter used for negotiating with the remote end is provisioned in *Vncs Vp tandemPassThrough*. |
| Values | enabled<br>disabled |
| Default | No default |

### ATTRIBUTE Vsr Svs Framer negotiatedEncoding (nEncoding)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates the results of negotiating audio call encodings for ***voice***, ***modemFax*** and ***fax*** traffic with the remote end across the subnet. The parameters used for negotiating with the remote end are provisioned in *Vncs Vp voiceEncodingChoice* and *Vncs Vp modemFaxEncodingChoice*. |

***voice*** traffic is all traffic from the start of a call or speech until a 2100 Hz tone or call release. ***modemFax*** traffic is all traffic after a 2100 Hz tone but before a fax preamble, speech or call release. ***fax*** traffic is all traffic after a fax preamble but before speech or call release.

***g711*** indicates that pulse code modulation (PCM) defined by ITU-T G.711 is the negotiated encoding.
***g726*** indicates that Adaptive Differential Pulse Code Modulation (ADPCM) defined by ITU-T G.726 is the negotiated encoding.
***g711G726*** indicates that pulse code modulation (PCM) defined by ITU-T G.711 and Adaptive Differential Pulse Code Modulation (ADPCM) defined by ITU-T G.726 are both negotiated encodings. If *negotiatedEncoding* is ***g711G726***, the actual encoding performed can be either G.711 or G.726, depending on network congestion.
***g728*** indicates that Low Delay Coded Excited Linear Predictive Coder (CS-ACELP) defined by ITU-T G.728 is the negotiated encoding.
***g729*** indicates that Conjunctive Structure Algebraic Code Excited Linear Predictive Coder (CS-ACELP) defined by ITU-T G.729 is the negotiated encoding.
***v29V27Relay*** indicates that fax relay using ITU-T V.29 or ITU-T V.27 is the negotiated encoding.
***v17V29V27Relay*** indicates that fax relay using ITU-T V.17, ITU-T V.29, or ITU-T V.27 is the negotiated encoding.

If all negotiated encodings are ***none***, the negotiation of audio call encodings is not complete.

| | |
|---|---|
| Vector of | g711<br>g726<br>g711G726<br>g728<br>g729<br>v29V27Relay<br>v17V29V27Relay<br>none |
| Index | voice<br>modemFax<br>fax |
| Default | No default |

### ATTRIBUTE Vsr Svs Framer negotiatedRates (nRates)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute indicates the results of negotiating minimum and maximum rates for ***voice***, ***modemFax*** and ***fax*** traffic with the remote end across the subnet. The parameters used for negotiating with the remote end are provisioned in *Vncs Vp voiceRates* and *Vncs Vp modemFaxRates*. |
| Array of | 8.0<br>16.0<br>24.0<br>32.0<br>64.0<br>0.0<br>0.3<br>1.2<br>2.4<br>4.8<br>7.2<br>9.6<br>12.0<br>14.4 |

| | | |
|---|---|---|
| Units | kbit/s | |
| Row | traffic<br>modemFax<br>fax] | [voice |
| Column | rate<br>max] | [min |
| Default | No default | |

## COMPONENT Vsr Svs Framer VfpDebug

| | |
|---|---|
| Scope | Application |
| Description | *Vsr/m Svs/n Framer VfpDebug*<br>This component contains debugging attributes for a voice service running on a ***DS1V***, ***E1V***, ***1pDS1V***, ***1pE1V*** or ***J2MV*** functional processor. |
| Common Verbs | Help<br>List<br>Display |

## COMPONENT Vsr Svs Framer MvpDebug

| | |
|---|---|
| Scope | Application |
| Description | *Vsr/m Svs/n Framer MvpDebug*<br>This component contains debugging attributes on a voice service's framer running on a ***1pE1Mvp***, ***1pDS1Mvp*** or ***1pTTC2mMvp*** functional processor. |
| Common Verbs | Help<br>List<br>Display |

## COMPONENT Vsr Svs Framer PcmCapture (PcmCapture)

| | |
|---|---|
| Scope | Application |
| Description | *Vsr/n Svs/m Framer PcmCapture*<br>This component contains attributes for PCM data capture. |

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display |

## COMPONENT Vsr Svs LogicalConnection (LCo)

| | |
|---|---|
| Groups | "GROUP Vsr Svs LCo PathData"<br>"GROUP Vsr Svs LCo Statisitics (Stats)" |
| Scope | Application |
| Description | ...*Lc*<br>This component contains all of the operation attributes for a Path Oriented Logical Connection. |
| Common Verbs | Help<br>List<br>Display |

### VERB RERoute Vsr Svs LCo

| | |
|---|---|
| Impact | Service |
| Description | RERoute ..Lc<br>This command is used to request a *LogicalConnection (LCo)* to attempt a reroute. A new path will be established if it is better than the current path. The current path will not be interrupted if the *RERoute* command is not completely successful. The connection must not be attempting rerouting at present. This command is only valid on components with the *PLC remoteName* specified.<br>This command is intended to be used on the calling end of a connection. For a single region call, it may be used on the called end of a connection if all the *PLC* parameters match. Note that the calling end or the called end of a connection means the *end* attribute of an *LCo* is equal to the value of ***calling*** or ***called*** respectively.<br><br>When used on an *LCo* with *pathType* attribute set to ***manual*** or ***forced,*** this command can be used to re-setup the path.<br><br>If this command is attempted on a connection that is not up but its *state* attribute is equal to ***pathDownRetrying,*** an immediate route request is sent. |

### GROUP Vsr Svs LCo PathData

| | |
|---|---|
| Properties | Operational |
| Description | This group contains all operational attributes for the path oriented LCo. |

### ATTRIBUTE Vsr Svs LCo state

| | |
|---|---|
| Access | Read only |
| Description | This attribute reflects the current state of the connection. The ***pathDown*** state indicates a connection that has no remote end provisioned or the application has not yet signaled for a path. The ***selectingRoute*** state occurs when a request has been sent to route selector and it has not yet responded. The ***connectingState*** occurs while a path is being established. The ***pathUp*** state is the normal |

operational state of a path. The ***pathDownRetrying*** state indicates a path that attempted route selection but received no route and is now waiting to retry route selection again.

Values
pathDown
selectingRoute
connecting
pathUp
pathDownRetrying

Default
No default

### ATTRIBUTE Vsr Svs LCo overrideRemoteName (orn)

Access
Read: All
Write: All

Description
If set ***and*** the current PLC remoteName is blank this remoteName will override the blank PLC remoteName. Usually you would set this attribute and then lock/unlock the service component which will result in this new overrideRemoteName being used as if it had been provisioned into the PLC remoteName. The advantage of this attribute is that the connection's remoteName can be changed immediately without having to "activate prov" but the disadvantage is that the overrideRemoteName is not permanent and if the card or switch is reset the override will be lost.

Values
String (0..40, ASCII)

Default
""

### ATTRIBUTE Vsr Svs LCo end

Access
Read only

Description
This attribute identifies whether this is the calling or called end of the path.

Values
calling
called

Default
No default

### ATTRIBUTE Vsr Svs LCo costMetric (cost)

| | |
|---|---|
| Access | Read only |
| Description | This attribute gives the route's total cost metric. It is calculated as the sum of the cost metric of all trunks in the path at the time the connection was established. The cost metric of a trunk is defined by the *trunkCost* attribute of the Trunk component. The *costMetric* for an LCo that is originated and terminated on the same module is 0. |
| Values | Decimal (0..65535) |
| Default | No default |

### ATTRIBUTE Vsr Svs LCo delayMetric (delay)

| | |
|---|---|
| Access | Read only |
| Description | This attribute gives the total delay of the route as the one way delay for a 512 byte packet. It is calculated as the sum of the delays of all trunks in the path stored in topology at the time the connection was established. The delay for an LCo that is originated and terminated on the same module is 0. |
| Values | Decimal (0..100000) |
| Units | msec |
| Default | No default |

### ATTRIBUTE Vsr Svs LCo roundTripDelay (rtd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the time taken for a packet (cell) of 44 bytes to be transmitted inband to the remote *LCo* and return to this LCo. The value reported is rounded to the nearest millisecond.<br>For Unack PORS trunks and AAL5 MUX PORS trunks, the test packet is sent inband and receives the same treatment as regular data packets, giving a round trip delay which corresponds to regular data traffic.<br>For SPO MUX PORS trunks and MAP PORS trunks, the test packet is sent along the parent trunk's VCC, giving a round trip |

| | |
|---|---|
| | delay which corresponds to the parent trunk's round trip delay. The round trip delay does not directly reflect the round trip delay of data packets travelling on the non-parent VCC.<br>When the *LCo* is originated and terminated on the same module, a value of 1 millisecond is reported. The value of 1 millisecond is the minimum reported time even though the delay may be less than 1 millisecond. |
| Values | Decimal (0..200000) |
| Units | msec |
| Default | No default |

### ATTRIBUTE Vsr Svs LCo setupPriority (spri)

| | |
|---|---|
| Access | Read only |
| Description | This attribute gives the priority at which the current path is established. Zero is the highest priority and four is the lowest. The *holdingPriority*, a complementary attribute of this component, indicates the priority a path maintains once it is established. |
| Values | Decimal (0..4) |
| Default | No default |

### ATTRIBUTE Vsr Svs LCo holdingPriority (hpri)

| | |
|---|---|
| Access | Read only |
| Description | This attribute gives the priority at which a path holds its current path once the path is established. Zero is the highest priority and four is the lowest. The *setupPriority*, a complementary attribute, indicates the priority of a path at establishment time. |
| Values | Decimal (0..4) |
| Default | No default |

### ATTRIBUTE Vsr Svs LCo requiredTxBandwidth (tbw)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute gives the actual bandwidth (in bits per second) reserved by this path on each of the trunks of its route. This attribute represents the bandwidth for traffic outgoing to the remote end point. The originating end of the connection determines this value. |
| Values | Decimal (0..4294967295) |
| Units | bit/s |
| Default | No default |

### ATTRIBUTE Vsr Svs LCo requiredRxBandwidth (rbw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute gives the actual bandwidth (in bits per second) reserved by this path on each of trunks of its route. This attribute represents the bandwidth for traffic incoming from the remote end point. The originating end of the connection determines this value |
| Values | Decimal (0..4294967295) |
| Units | bit/s |
| Default | No default |

### ATTRIBUTE Vsr Svs LCo requiredTrafficType (rttyp)

| | |
|---|---|
| Access | Read only |
| Description | This operational attribute indicates the type of traffic transmitted over the path. There are eight possible traffic types, and the path can transmit only one of them. The originating end of the connection determines the type. These are arbitrary designations for traffic type. The ***voice***, ***data*** and ***video*** traffic types are defined, and five other arbitrary traffic types can be defined by the network administration. This attribute is used in the route selection process to restrict the route to trunks that support this traffic type. The *supportedTrafficType* trunk attribute lists all the types of traffic allowed on the trunk. For example, if *requiredTrafficType* is specified as ***trafficType1*** then only trunks that include ***trafficType1*** in *supportedTrafficType***,** will be candidates for this connection. |

| | |
|---|---|
| Values | voice<br>data<br>video<br>trafficType1 (tt1)<br>trafficType2 (tt2)<br>trafficType3 (tt3)<br>trafficType4 (tt4)<br>trafficType5 (tt5) |
| Default | No default |

### ATTRIBUTE Vsr Svs LCo permittedTrunkTypes (pttyp)

| | |
|---|---|
| Access | Read only |
| Description | This operational attribute lists up to eight types of trunk that can be used on the route. The originating end of the connection determines the types. The ***terrestrial*** and ***satellite*** trunk types have been defined, leaving six remaining arbitrary types that can be defined by the network administration. The trunk's type is indicated in the *trunkType* attribute of the Trunk component. When selecting a route, PORS only chooses trunks whose *trunkType* are in the *permittedTrunkTypes* for the path. |
| Set of | terrestrial<br>satellite<br>trunkType1 (tt1)<br>trunkType2 (tt2)<br>trunkType3 (tt3)<br>trunkType4 (tt4)<br>trunkType5 (tt5)<br>trunkType6 (tt6) |
| Default | No default |

### ATTRIBUTE Vsr Svs LCo requiredSecurity (rsec)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the required minimum level of security of the trunks on the route. Zero represents the most secure and seven represents the least secure. The trunk's security is indicated by the *trunkSecurity* attribute of the Trunk component, and has values identical in range and meaning to the *requiredSecurity* |

attribute. PORS ensures that any route selected does not contain a trunk whose *trunkSecurity* attribute is numerically greater than the *requiredSecurity.*

Values — Decimal (0..7)

Default — No default

### ATTRIBUTE Vsr Svs LCo requiredCustomerParameter (rcparm)

Access — Read only

Description — This attribute indicates the allowed customer defined parameter of the trunks on the route.The originating end of the connection determines the customer defined parameter. Its value, a number from zero to seven, is chosen by a network administration to have a meaning specific to their network, thus allowing them to customize the use of their trunks. A complementary trunk attribute, *customerParameter*, also has a value from zero to seven. The route selection process does not consider trunks whose *customerParameter* is greater than the *requiredCustomerParameter* of the path.

Values — Decimal (0..7)

Default — No default

### ATTRIBUTE Vsr Svs LCo emissionPriority (epri)

Access — Read only

Description — This attribute indicates the urgency with which packets on the path are emitted by the trunks on the route. The originating end of the connection selects the *emissionPriority. EmissionPriority* of zero indicates the highest emission priority, while two indicates the lowest emission priority. Packets with a higher *emissionPriority* (or numerically less) are serviced and sent out before the packets of lower *emissionPriority* (or numerically higher).

Values — Decimal (0..2)

Default — No default

### ATTRIBUTE Vsr Svs LCo discardPriority (dpri)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the importance of the packets on the path. The originating end of the connection sets *discardPriority.* One is used for paths carrying the most important traffic, and three is used for paths carrying the least important traffic. Packets with lower *discardPriority*(numerically) are discarded after packets with a higher *discardPriority*(numerically). |
| Values | Decimal (1..3) |
| Default | No default |

### ATTRIBUTE Vsr Svs LCo pathType (pType)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether the path for this PLC was determined automatically or by static provisioning. ***Normal*** *pathTypes* are selected automatically by Route Selector.The other *pathTypes* are both manual *pathTypes* where the operator must specify, through provisioning, a static route termed the *manualPath*. A manual *pathType* connection is nearly identical to a normal path type connection with the exception that the route is pre-provisioned. For a manual *pathType*, bandwidth reservations are respected along the path exactly as in a normal path. The last type, the ***forced*** *pathType*, is also a manual path but regardless of the bandwidth available the route is granted provided the trunks are operational and there are sufficient Logical Channels (LChs).<br><br>The ***forced*** *pathType* could result in over committing the reserved bandwidth allowed on a trunk. A better way to achieve the effects of a ***forced*** *pathType* is to use a ***manual*** *pathType* with *setupPriority* = ***0*** and *holdingPriority* = ***0***. In this manner the path will reserve correct bandwidth and it will bump other paths if required while not being bumped itself. |
| Values | normal<br>manual<br>forced |
| Default | No default |

### ATTRIBUTE Vsr Svs LCo retryCount (rcount)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the count of the number of times the path chosen during route selection could not be instantiated. This count should be three or below if the network is performing adequately. A high value indicates that the route selection is often performed using an out-of-date view of available network bandwidth and/or topology.<br>This attribute will only increase at the calling end of an un-segmented connection. The attribute should be ignored for segmented connections.This attribute is reset each time a path reconnects and stops counting when it reaches its maximum value. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE Vsr Svs LCo pathFailureCount (pfcount)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the count of the number of times the path has successfully connected. It is set to zero the first time the path is up. If a path fails anytime after connecting this count will be incremented when the path is up again. Failed route requests do not count in this statistic. See *retryCount* above. This attribute stops counting at its maximum value. |
| Values | Decimal (0..65535) |
| Default | No default |

### ATTRIBUTE Vsr Svs LCo reasonForNoRoute (rnr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the route selection's *reasonForNoRoute* and provides a brief reason for which a route was not selected. The reasons are essentially self-explanatory. Perhaps two reasons for no route require some explanation. The reason ***unknownRemoteNodeName*** is issued when the remote node name is not in the topological database. The reason |

***plcAttributesNotMet*** is issued when there is no network connectivity at a level specified by the PLC attributes. This reason is also issued when there is no physical connectivity between two end nodes.

Values

none
destinationNameTooLong
destinationNotSpecified
unknownDestinationName
incorrectDestination
incorrectDestinationEndPoint
unknownSource
unknownDestination
sameNode
routeCostTooMuch
routesDelayTooLong
attributesNotMet
anError
attributeProfileProblem
manualPathIndexProblem

Default

none

## ATTRIBUTE Vsr Svs LCo lastTearDownReason

Access

Read only

Description

This attribute reflects the last tear down reason for a connection (LCo). In many cases this displays the reason for a momentary service interruption. This attribute applies to the last path failure only. If a path is no longer up, this may give an indication to the reason that the path has failed. In many cases an alarm will also be generated with more specific information. The following is a brief description of the reasons:
***none*** - This path has no information for the teardown this is typical of a path provisioned with no *remoteName* that has not been up.
***normalShutDown*** - This path has gone down due to normal call termination.
***insufficientTxLcOrBandwidth*** - At present there is either no available bandwidth or logical channel numbers available on one or more of the trunks for this path in the transmit direction.

***insufficientRxLcOrBandwidth*** - At present there is either no available bandwidth or logical channel numbers available on one or more of the trunks for this path in the receive direction.
***trunkFailure***- A trunk on the path has failed or has gone down due to a provisioning change of a critical attribute.
***trunkCardFailure***- A trunk FP card has failed along the path.
***accessCardFailure***- The FP on which the peer access service was running has failed.
***operatorForced***- The path has terminated due to the operator locking a trunk along the path.
***lostLcnClash***- The path has terminated because the PA's at both ends of an intermediate trunk have allocated the same LC to different calls. When this happens both calls must go down and then try to come up again a fraction of a second later (effectively ensuring that they will now be assigned different LC's). It is normal to get the odd clash especially when the PA's usedLC is approaching the PA's maxLC.
***networkCongestion*** - The path has failed due to control information being lost and not recoverable.
***trunkNotFound*** - Occurs on a ***manual*** path usually. Check for trunks not up or names provisioned incorrectly.
***farEndNotFound*** - The far end is not provisioned or is not up. Check remote Name.
***wrongModuleReached*** - This may occur on a ***manual*** path. Check provisioning for correct trunk and service names. For a ***normal*** path, the network Topology may be changing check *remoteName*.
***farEndBusy*** - The far end has been reached but it is busy. Check *remoteName* and remote end provisioning.
***callLoopedBack*** - This LCo is provisioned to call itself. Re-provision since this is invalid.
***unknownReason*** - The failure was not resolved.
***farEndNotReady*** - The remote end was reached but the connection was refused due to the remote end not being enabled.
***remoteNameMismatch*** - The remote end has alarmed and rejected this setup due to remoteName provisioning.
***serviceTypeMismatch*** - The remote Service Type does not match this service type. Check provisioning.
***reconnectFromFarEnd*** - The remote end re-established this connection. Check the remote end *lastTearDownReason* to determine the real reason.

***bumped*** - Another call bumped this path from a trunk to get bandwidth (or an LC) which it required to come up. This other path had a higher *setupPriority* than this path's *holdingPriority* hence it was allowed to steal the bandwidth (or LC) from this path.
***optimized*** - This call has been rerouted due to the optimization feature. The call is still active this just indicates why the path changed.
***trunkOrFarEndDidNotSupportMode*** - This call was unable to complete because a mode required by the service was not supported by one of the trunks the route went through or by the far end service it connected to. Currently the only mode that this applies to is the map/mux mode on TRUNK PA ATM component. Map mode was required by the application (CES/FrAtm etc.) but was not available on the TRUNK PA ATM component through which the call was routed or the far end CES/FrAtm component did not specify the same mode.

Values

none
normalShutDown
insufficientTxLcOrBandwidth
insufficientRxLcOrBandwidth
trunkFailure
trunkCardFailure
operatorForced
lostLcnClash
networkCongestion
trunkNotFound
farEndNotFound
wrongModuleReached
farEndBusy
callLoopedBack
unknownReason
farEndNotReady
remoteNameMismatch
serviceTypeMismatch
reconnectFromFarEnd
bumped
accessCardFailure
optimized

| | |
|---|---|
| | overrideRemoteName<br>trunkOrFarEndDidNotSupportMode |
| Default | none |

### ATTRIBUTE Vsr Svs LCo pathFailureAction

| | |
|---|---|
| Access | Read only |
| Description | This attribute displays whether the application is set to tolerate momentary interruption of a path while a new path is selected. If ***disconnectConnection*** is displayed, the application is informed as soon as possible about a failure by disconnection. If the attribute displays ***reRoutePath***, the path may attempt an immediate reroute, provided the failure is a recoverable failure. If rerouting fails the application is informed of the failure.<br>With this option set to ***reRoutePath*** the LCo may wait up to 30 seconds before informing the service of complete disconnection in order to allow both ends to attempt to reconnect. Note that if PLC components are different at both ends only the calling end is allowed to reconnect.<br><br>All *pathTypes* respect this attribute. Also on a *manualPath* with both ends provisioned with independent paths (at least with respect to the failure) this option will have the desired effect that the path is rerouted without complete disconnection at both ends |
| Values | reRoutePath<br>disconnectConnection |
| Default | No default |

### ATTRIBUTE Vsr Svs LCo bumpPreference (bpref)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies when bumping will occur during route selection process. Bumping may occur when necessary or always. It will be necessary for a connection to bump if there is not enough resources for the connection to be established and these resources are occupied by a connection whose *setupPriority* is lower (numerically higher) than the connection's *setupPriority*. A connection may also always bump in order to obtain the best route. |

| | |
|---|---|
| Values | bumpWhenNecessary<br>bumpToObtainBestRoute |
| Default | No default |

### ATTRIBUTE Vsr Svs LCo optimization (opt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is used to specify whether this connection should attempt to optimize its path when requested by the routing PORS component. Every path is as optimal as it can be when it is established, but as network traffic patterns and configurations change this path may no longer be as optimal as it could be. The PORS connection manager on a module requests circuits to optimize at the optimization interval. |
| Values | disabled<br>enabled |
| Default | No default |

### ATTRIBUTE Vsr Svs LCo pathUpDateTime

| | |
|---|---|
| Access | Read: Service<br>Write: Illegal |
| Description | This is the time stamp when the current path was established or reestablished. |
| Values | Time (DHMS) |
| Default | No default |

### ATTRIBUTE Vsr Svs LCo path

| | |
|---|---|
| Access | Read only |
| Description | This attribute contains the trunk component names over which the path has been instantiated and the remote end point name terminating the path. |
| List of | String (0..40, ASCII) |
| List Size | 21 |

| | |
|---|---|
| Default | No default |

### GROUP Vsr Svs LCo Statisitics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational statistics attributes for the path oriented LCo. |

### ATTRIBUTE Vsr Svs LCo pktsToNetwork

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of packets transmitted to the network over this Logical Connection. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Vsr Svs LCo bytesToNetwork

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of bytes sent to the network over this Logical Connection. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Vsr Svs LCo pktsFromNetwork

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of packets received from the remote LCo via the network. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Vsr Svs LCo bytesFromNetwork

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of bytes received from the remote LCo via the network. |

| | |
|---|---|
| Values | Long Integer |
| Default | No default |

### COMPONENT Vsr Svs VnetSvsDebug (Debug)

| | |
|---|---|
| Scope | Application |
| Description | *Vsr/n Svs/n Debug*<br>The *Debug* component defines the debug operational characteristics of the *svs* component. |
| Common Verbs | Help<br>List<br>Display |

### COMPONENT Vsr DebugStatus (Debug)

| | |
|---|---|
| Scope | Application |
| Description | *Vsr/n Debug*<br>The *Debug* component defines the debug operational characteristics of the VoiceSubroute component. There are three main areas of interest, the VoiceSubroute itself, the call state machines (CSM), and the call channel manager (CCM).<br>These debug groups can be reached by typing:<br>d Vsr/n debug<br>d Vsr/n debug sr<br>d Vsr/n debug csm<br>d Vsr/n debug ccm |
| Common Verbs | Help<br>List<br>Display |

Passport 7400, 15000, 20000

# Component Vsr

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component Vs

241-5701-060

Passport 7400, 15000, 20000

# Component Vs

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT VoiceService (Vs)

| | |
|---|---|
| Instance | Decimal (1..65535) |
| Groups | "GROUP Vs CustomerIdentifierData (CidData)"<br>"GROUP Vs IfEntryProv (IfEntry)"<br>"GROUP Vs OperationalStatus (OperStatus)"<br>"GROUP Vs OsiState (State)"<br>"GROUP Vs Operational" |
| Scope | Application |
| Description | *VoiceService/n*<br>The *VoiceService* (*Vs*) component specifies the characteristics of an instance of the voice service offered by Magellan Passport. One instance of this component is required for each channel offering voice traffic. The instance number is arbitrary. |
| Subcomponents | "COMPONENT Vs Framer (Framer)"<br>"COMPONENT Vs PermanentLogicalConnection (Plc)" |
| Dyn. Subcomp. | "COMPONENT Vs LogicalConnection (LCo)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP Vs CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |

| | |
|---|---|
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

### ATTRIBUTE Vs customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.<br><br>Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those components which have a matching CID.<br><br>An operator CID of 0 is used to identify the Network Manager (referred to as "NetMan" in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to "basic CIDs" in DPN) may be assigned to specific customers. |
| Values | Decimal (0; 1..8191) |
| Default | 0 |

### GROUP Vs IfEntryProv (IfEntry)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the ifEntry. |

### ATTRIBUTE Vs ifAdminStatus (ifState)

| | |
|---|---|
| Access | Read and write |
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed. |

| | |
|---|---|
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE Vs ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP Vs OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

### ATTRIBUTE Vs snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### GROUP Vs OsiState (State)

| | |
|---|---|
| Properties | Operational |

Description

This group contains the three OSI State attributes and the six OSI Status attributes. The descriptions generically indicate what each attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Vs adminState (osiAdmin)

Access

Read only

Description

This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component.

Values

locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default

unlocked

### ATTRIBUTE Vs operationalState (osiOper)

Access

Read only

| | |
|---|---|
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE Vs usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.<br><br>The OSI Status attributes, if supported by the component, may provide more details, qualifying the state of the component. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

## ATTRIBUTE Vs availabilityStatus (osiAvail)

| | |
|---|---|
| Access | Read only |
| Description | If supported by the component, this attribute indicates the OSI Availability status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.<br><br>When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.<br><br>The value ***inTest*** indicates that the resource is undergoing a test procedure. If *adminState* is ***locked*** or ***shuttingDown***, the normal users are precluded from using the resource and *controlStatus* is ***reservedForTest***. Tests that do not exclude additional users can be present in any operational or administrative state but the ***reservedForTest*** condition should not be present.<br><br>The value ***failed*** indicates that the component has an internal fault that prevents it from operating. The *operationalState* is ***disabled***.<br><br>The value ***dependency*** indicates that the component cannot operate because some other resource on which it depends is unavailable. The *operationalState* is ***disabled***.<br><br>The value ***powerOff*** indicates the resource requires power to be applied and it is not powered on. The *operationalState* is ***disabled***.<br><br>The value ***offLine*** indicates the resource requires a routine operation (either manual, automatic, or both) to be performed to place it on-line and make it available for use. The *operationalState* is ***disabled***.<br><br>The value ***offDuty*** indicates the resource is inactive in accordance with a predetermined time schedule. In the absence of other disabling conditions, the *operationalState* is ***enabled*** or ***disabled***. |

The value ***degraded*** indicates the service provided by the component is degraded in some way, such as in speed or operating capacity. Usually, the resource remains available for service. The *operationalState* is almost always ***enabled***. There is one exception where an *operationalState* of ***disabled*** is used in conjunction with ***degraded*** for a component which represents a rolled up view of a set of other components.

The value ***notInstalled*** indicates the resource is not present. The *operationalState* is ***disabled***.

The value ***logFull*** is not used.

The value ***migrating*** indicates that a software migration activation is in progress, making the component unavailable for other activities until the migration is complete.

Set of

inTest
failed
dependency (depend)
powerOff (pwrOff)
offLine
offDuty
degraded (degrad)
notInstalled (notIn)
logFull
migrating

Default

No default

### ATTRIBUTE Vs proceduralStatus (osiProc)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Procedural status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***initializationRequired*** indicates (for a resource which doesn't initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* is ***disabled***.

The value ***notInitialized*** indicates (for a resource which does initialize autonomously) that initialization is required before it can perform its normal functions, and this procedure has not been initiated. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***initializing*** indicates that initialization has been initiated but is not yet complete. The *operationalState* may be ***enabled*** or ***disabled***.

The value ***reporting*** indicates the resource has completed some processing operation and is notifying the results. The *operationalState* is ***enabled***.

The value ***terminating*** indicates the component is in a termination phase. If the resource doesn't reinitialize autonomously, *operationalState* is ***disabled***; otherwise it is ***enabled*** or ***disabled***.

Set of

initializationRequired (initRq)
notInitialized (notInit)
initializing (init)
reporting (report)
terminating (term)

Default

No default

### ATTRIBUTE Vs controlStatus (osiCntrl)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Control status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the

attribute is not supported or that none of the status conditions described below is present.

The value ***subjectToTest*** indicates the resource is available but tests may be conducted simultaneously at unpredictable times, which may cause it to exhibit unusual characteristics.

The value ***partOfServicesLocked*** indicates that part of the service is restricted from users of a resource. The *adminState* is ***unlocked***.

The value ***reservedForTest*** indicates that the component is administratively unavailable because it is undergoing a test procedure. The *adminState* is ***locked***.

The value ***suspended*** indicates that the service has been administratively suspended.

Set of

subjectToTest (subTst)
partOfServicesLocked (partLk)
reservedForTest (rsrvd)
suspended (suspnd)

Default

No default

### ATTRIBUTE Vs alarmStatus (osiAlarm)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Alarm status of the component. Note that, even though it is defined as a multi-valued set, at most one value is shown to the user.

When no values are in the set, this indicates that either the attribute is not supported or that none of the status conditions described below is present.

The value ***underRepair*** indicates the component is currently being repaired. The *operationalState* is ***enabled*** or ***disabled***.

The value ***critical*** indicates one or more critical alarms are

outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***major*** indicates one or more major alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***minor*** indicates one or more minor alarms are outstanding against the component. Other, less severe, alarms may also be outstanding. The *operationalState* is ***enabled*** or ***disabled***.

The value ***alarmOutstanding*** generically indicates that an alarm of some severity is outstanding against the component.

Set of

underRepair (repair)
critical (crit)
major
minor
alarmOutstanding (outst)

Default

No default

### ATTRIBUTE Vs standbyStatus (osiStby)

Access

Read only

Description

If supported by the component, this attribute indicates the OSI Standby status of the component.

The value ***notSet*** indicates that either the attribute is not supported or that none of the status conditions described below is present. Note that this is a non-standard value, used because the original specification indicated this attribute was set-valued and thus, did not provide a value to indicate that none of the other three are applicable.

The value ***hotStandby*** indicates that the resource is not providing service but will be immediately able to take over the role of the resource to be backed up, without initialization activity, and

containing the same information as the resource to be backed up.

The value ***coldStandby*** indicates the resource is a backup for another resource but will not be immediately able to take over the role of the backed up resource and will require some initialization activity.

The value ***providingService*** indicates that this component, as a backup resource, is currently backing up another resource.

Values
hotStandby (hot)
coldStandby (cold)
providingService (serv)
notSet (nSet)

Default
notSet

### ATTRIBUTE Vs unknownStatus (osiUnknw)

Access
Read only

Description
This attribute indicates the OSI Unknown status of the component.

The value ***false*** indicates that all of the other OSI State and Status attribute values can be considered accurate.

The value ***true*** indicates that the actual state of the component is not known for sure.

Values
false
true

Default
false

### GROUP Vs Operational

Properties
Operational

Description
This group contains operational attributes related to a *Vs*.

### ATTRIBUTE Vs serviceFailureReason

Access
Read: Passive
Write: Illegal

Description

This attribute indicates the result of end to end negotiation with the remote end across the subnet.

If *serviceFailureReason* is ***undetermined***, this *Vs* has not performed end to end negotiation with the remote end, and may or may not be up. *serviceFailureReason* is ***undetermined*** if this *Vs* just became enabled, if there is not enough available bandwidth to perform negotiation or if the remote end cannot perform negotiation with this *Vs*.
If *serviceFailureReason* is ***none***, end to end negotiation passed.
If *serviceFailureReason* is ***mismatchedService***, end to end negotiation failed because the remote end service is not a *Vs*.
If *serviceFailureReason* is ***mismatchedVoiceEncoding***, end to end negotiation failed because the local *Vs Framer voiceEncoding* does not match the remote *Vs Framer voiceEncoding*.
If *serviceFailureReason* is ***mismatchedVoiceRates***, end to end negotiation failed because the local provisioned ingress voice rates are not compatible with the remote end's egress capabilities or the remote provisioned ingress voice rates are not compatible with the local egress capabilities.
If *serviceFailureReason* is ***mismatchedModemFaxEncoding***, end to end negotiation failed because the local *Vs Framer modemFaxEncoding* does not match the remote *Vs Framer modemFaxEncoding*.
If *serviceFailureReason* is ***mismatchedModemFaxRates***, end to end negotiation failed because the local provisioned ingress modem and fax rates are not compatible with the remote end's egress capabilities or the remote provisioned ingress modem and fax rates are not compatible with the local egress capabilities.
If *serviceFailureReason* is ***mismatchedCasSignalling***, end to end negotiation failed because the local *Vs Framer casSignalling* does not match the remote *Vs Framer casSignalling*.
If *serviceFailureReason* is ***mismatchedSignalBits***, end to end negotiation failed because the local *Vs Framer signalBits* does not match the remote *Vs Framer signalBits*.
*serviceFailureReason* is ***mismatchedSignalBits*** only if the local *Vs Framer casSignalling* is ***transparent***.
If *serviceFailureReason* is ***compDecodeFailed***, end to end

negotiation failed because the information received from the remote end was not recognized as valid data.

Set of

none
undetermined
logicalConnection
mismatchedService
mismatchedVoiceEncoding
mismatchedVoiceRates
mismatchedModemFaxEncoding
mismatchedModemFaxRates
mismatchedCasSignalling
mismatchedSignalBits
mismatchedSilenceSuppression
mismatchedFaxIdleSuppression
compDecodeFailed

Default

No default

## COMPONENT Vs Framer (Framer)

Groups

"GROUP Vs Framer Provisioned (Prov)"
"GROUP Vs Framer CoderOptions (Coder)"
"GROUP Vs Framer SignalOptions (Signal)"
"GROUP Vs Framer OsiState (State)"
"GROUP Vs Framer Statistics (Stats)"
"GROUP Vs Framer Negotiation (Neg)"
"GROUP Vs Framer Operational (Oper)"

"COLLECTED STATS VoiceService Framer"

Scope

Application

Description

*Vs/n Framer*
The *Framer* component provides provisionable attributes related to datapath aspects of the hardware interface rather than interface specific attributes (such as modem leads and clocking) which are associated with specific hardware components (such as *Lp E1/n* or *Lp DS1/n*).
The *Framer* component also provides a provisionable attribute which binds the application component to a specific hardware component.
The *Framer* component contains operational attributes for

| | |
|---|---|
| | statistics and the results of end to end negotiation with the remote end across the subnet. |
| Dyn. Subcomp. | "COMPONENT Vs Framer VfpDebug"<br>"COMPONENT Vs Framer MvpDebug"<br>"COMPONENT Vs Framer PcmCapture (PcmCapture)" |
| Common Verbs | Help<br>List<br>Display |

### GROUP Vs Framer Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the base provisioning data for the *Framer* component. Application or hardware interface specific provisioning data is contained in other provisionable *Framer* groups. |

### ATTRIBUTE Vs Framer interfaceName

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute contains a hardware component name.<br><br>The attribute associates the application with a specific link. This defines the module processor on which *Framer*'s parent component (as well as *Framer* itself) will run. |
| Values | Link (Hardware, applicationFramerName) |
| Default | No default |

### GROUP Vs Framer CoderOptions (Coder)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains attributes which specify how audio data on a channel is encoded and decoded. |

### ATTRIBUTE Vs Framer maxVoiceG711G726Rate (maxVoiceBitRate)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the maximum desired ingress bit rate used during voice traffic when *voiceEncoding* is ***g711G726***.<br><br>The negotiated maximum ingress ***voice*** rate is available in *negotiatedIgRates.*<br><br>*maxVoiceG711G726Rate* can be set to ***16*** only if this *Voice Service* is running on a ***DS1V***, ***E1V***, ***1pDS1V***, ***1pE1V*** or ***J2MV*** card. |
| Values | 64<br>32<br>24<br>16 |
| Units | kbit/s |
| Default | 64 |

### ATTRIBUTE Vs Framer minVoiceG711G726Rate (minVoiceBitRate)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the minimum desired ingress bit rate used during voice traffic when *voiceEncoding* is ***g711G726***.<br><br>The negotiated minimum ingress ***voice*** rate is available in *negotiatedIgRates.*<br><br>*minVoiceG711G726Rate* defaults to ***24*** if the ***voiceCompressor*** or ***vtds*** feature is present. Otherwise, *minVoiceG711G726Rate* defaults to ***64***. |
| Values | 64<br>32 |

| | |
|---|---|
| | 24<br>16 |
| Units | kbit/s |
| Default | No default |

### ATTRIBUTE Vs Framer maxModemFaxG711G726Rate (maxModemBitRate)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the maximum desired ingress rate used during modemFax and/or fax traffic.<br><br>Voice traffic is all traffic from the start of a call or speech until a 2100 Hz tone or call release. ModemFax traffic is all traffic after a 2100 Hz tone but before a fax preamble, speech or call release. Fax traffic is all traffic after a fax preamble but before speech or call release.<br><br>If *modemFaxEncoding* is ***g711G726***, *maxModemFaxG711G726Rate* specifies the maximum rate used during modemFax traffic and fax traffic.<br>If *modemFaxEncoding* is ***faxRelayG711G726***, *maxModemFaxG711G726Rate* specifies the maximum rate used during modemFax traffic only.<br>If *modemFaxEncoding* is ***faxRelayOnly*** or ***useVoiceEncoding***, *maxModemFaxG711G726Rate* is ignored.<br><br>The negotiated maximum ingress ***modemFax*** and ***fax*** rates are available in *negotiatedIgRates.*<br><br>*maxModemFaxG711G726Rate* can be set to ***16*** or ***24*** only if this voice service is running on a ***DS1V***, ***E1V***, ***1pDS1V***, ***1pE1V*** or ***J2MV*** card. |
| Values | 64<br>32<br>24<br>16 |

| | |
|---|---|
| Units | kbit/s |
| Default | 64 |

### ATTRIBUTE Vs Framer minModemFaxG711G726Rate (minModemBitRate)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the minimum desired ingress rate used during modemFax and/or fax traffic.<br><br>Voice traffic is all traffic from the start of a call or speech until a 2100 Hz tone or call release. ModemFax traffic is all traffic after a 2100 Hz tone but before a fax preamble, speech or call release. Fax traffic is all traffic after a fax preamble but before speech or call release.<br><br>If *modemFaxEncoding* is ***g711G726***, *minModemFaxG711G726Rate* specifies the minimum desired rate used during modemFax traffic and fax traffic.<br>If *modemFaxEncoding* is ***faxRelayG711G726***, *minModemFaxG711G726Rate* specifies the minimum desired rate used during modemFax traffic only.<br>If *modemFaxEncoding* is ***faxRelayOnly*** or ***useVoiceEncoding***, *minModemFaxG711G726Rate* is ignored.<br><br>The negotiated minimum ingress ***modemFax*** and ***fax*** rates are available in *negotiatedIgRates.*<br><br>*minModemFaxG711G726Rate* defaults to ***32*** if the ***voiceCompressor*** or ***vtds*** feature is present. Otherwise, *minModemFaxG711G726Rate* defaults to ***64***. |
| Values | 64<br>32<br>24<br>16 |
| Units | kbit/s |
| Default | No default |

## ATTRIBUTE Vs Framer silenceSuppression

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies when ingress silence suppression is desired during voice traffic.<br><br>If *silenceSuppression* is ***off***, silence suppression is never desired.<br>If *silenceSuppression* is ***on***, silence suppression is always desired.<br>If *silenceSuppression* is ***congested***, silence suppression is desired only when the network is congested.<br>If *silenceSuppression* is ***slow***, silence suppression is desired only after 20 seconds without audio.<br>If *silenceSuppression* is ***slowAndCongested***, both the ***slow*** and ***congested*** options are desired.<br>If *silenceSuppression* is ***casIdleCod***e, the silence suppression is only desired when the *idleCode* is active for 20 to 40 seconds.<br>*casSignalling* must be set to ***interpret*** if *silenceSuppression* is set to ***casIdleCode***. *silenceSuppression* can be set to ***casIdleCode*** only if this *VoiceService* is running on a ***DS1V, E1V, 1pDS1V, 1pE1V*** or ***J2MV*** card.<br><br>The negotiated ingress silence suppression is available in *negotiatedIgSilenceSuppression.*<br><br>If the ***silenceSuppressor*** or ***vtds*** feature is present, *silenceSuppression* defaults to ***on***. Otherwise, *silenceSuppression* defaults to ***off***. |
| Values | off<br>on<br>congested<br>slow<br>slowAndCongested<br>casIdleCode |
| Default | No default |

## ATTRIBUTE Vs Framer echoCancellation

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies whether echo cancellation is performed on this *VoiceService*. If *echoCancellation* is ***on***, the internal echo canceler is enabled and echo cancellation is performed. If *echoCancellation* is ***off***, the internal echo canceler is placed in transparent bypass mode and echo cancellation is never performed. If the ***echoCancellor*** or ***vtds*** feature is present, *echoCancellation* defaults to ***on***. Otherwise *echoCancellation* defaults to ***off***. |
| Values | off<br>on |
| Default | No default |

## ATTRIBUTE Vs Framer aLawConversion

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies whether mu-law to A-law PCM conversion is performed. *aLawConversion* only needs to be set to ***on*** when this voice service is running on a ***DS1V*** or ***1pDS1V*** FP and the *VoiceService* at the remote end of the connection is running on an ***E1V*** or ***1pE1V*** FP using a software release prior to 5.0. If the remote end software release is 5.0 or later, end to end negotiation determines the compander law to use at each end of the connection. In this case, the value of *aLawConversion* is ignored. |
| Values | off<br>on |
| Default | off |

## ATTRIBUTE Vs Framer voiceEncoding

| | |
|---|---|
| Access | Read: Passive<br>Write: Service |
| Criticality | Process |
| Description | This attribute specifies how ingress voice traffic is encoded.<br><br>If *voiceEncoding* is ***g711G726***, ingress voice traffic is encoded using either pulse code modulation (PCM) defined by ITU-T G.711 or adaptive differential pulse code modulation (ADPCM) defined by ITU-T G.726. The actual encoding and rates performed depends on congestion in the network and the minimum and maximum negotiated ingress ***voice*** rates in *negotiatedIgRates*.<br><br>If *voiceEncoding* is ***g728at16***, ingress voice traffic is encoded using the Low Delay Coded Excited Linear Predictive Coder (LD-CELP) algorithm defined by ITU-T G.728. If *voiceEncoding* is ***g728at16***, the bit rate of all voice traffic is fixed at 16 kbit/s. *minVoiceG711G726Rate* and *maxVoiceG711G726Rate* do not apply if *voiceEncoding* is ***g728at16***.<br><br>If *voiceEncoding* is ***g729at8***, ingress voice traffic is encoded using the Conjugated Structure Algebraic Code Excited Linear Predictive Coder (CS-ACELP) algorithm defined by ITU-T G.729. If *voiceEncoding* is ***g729at8***, the bit rate of all voice traffic is fixed at 8 kbit/s. *minVoiceG711G726Rate* and *maxVoiceG711G726Rate* do not apply if *voiceEncoding* is ***g729at8***.<br><br>The current ingress encoding and encoding rate are available in *currentEncoding* and *currentRate*.<br><br>*voiceEncoding* cannot be set to ***g728at16*** or ***g729at8*** if this *VoiceService* is running on a ***DS1V***, ***E1V***, ***1pDS1V***, ***1pE1V*** or ***J2MV*** card. Also, *voiceEncoding* can only be set to ***g728at16*** or ***g729at8*** if the corresponding feature exists in the *featureList* of the *Sw Lpt*.<br><br>The negotiated ingress ***voice*** encoding is available in |

*negotiatedIgEncoding.*

*voiceEncoding* must have the same value at both ends of a *VoiceService*. If *voiceEncoding* does not have the same value at both ends of a *VoiceService*, the *VoiceService* will be out of service. In this case, *serviceFailureReason* is ***mismatchedVoiceEncoding***.

Values
g711G726
g728at16
g729at8

Default
g711G726

### ATTRIBUTE Vs Framer modemFaxEncoding (faxEncoding)

Access
Read: Passive
Write: Service

Criticality
Process

Description
This attribute specifies how ingress modemFax and fax traffic are encoded.

Voice traffic is all traffic from the start of a call or speech until a 2100 Hz tone or call release. ModemFax traffic is all traffic after a 2100 Hz tone but before a fax preamble, speech or call release. Fax traffic is all traffic after a fax preamble but before speech or call release.

If *modemFaxEncoding* is ***useVoiceEncoding***, all ingress traffic is treated like voice traffic and encoded according to *voiceEncoding*. If *voiceEncoding* is ***g728at16*** or ***g729at8***, modem and fax calls are not supported.

If *modemFaxEncoding* is ***g711G726***, ingress modemFax traffic and fax traffic are both encoded using pulse code modulation (PCM) defined by ITU-T G.711 or adaptive differential pulse code modulation (ADPCM) defined by ITU-T G.726. The actual encoding and rates performed depends on congestion in the network and the minimum and maximum ingress ***modemFax*** rates in *negotiatedIgRates*.

If *modemFaxEncoding* is ***faxRelayG711G726***, ingress modemFax traffic is encoding using G.711 or G.726, exactly as it is if *modemFaxEncoding* is ***g711G726***. Until a fax preamble is detected, the rate may fluctuate between the minimum and maximum ***modemFax*** rates in *negotiatedIgRates* due to network congestion, exactly as it does if *modemFaxEncoding* is ***g711G726***. If a fax preamble is detected, all subsequent traffic during a call is demodulated and sent through the network as cells at the base rate of the sending machine. Supported demodulation methods are V.29 (up to 9.6 kbit/s) and V.27 (up to 4.8 kbit/s). The modulation and demodulation of fax traffic is called “fax relay”.

If *modemFaxEncoding* is ***faxRelayOnly***, “fax relay” is entered immediately upon 2100 Hz tone detection and modemFax traffic is treated like fax traffic. If *modemFaxEncoding* is ***faxRelayOnly***, modem calls are not supported.

The negotiated ingress ***modemFax*** and ***fax*** encodings are available in *negotiatedIgEncoding*.

*modemFaxEncoding* cannot be set to ***faxRelayG711G726*** or ***faxRelayOnly*** if this voice service is running on a ***DS1V***, ***E1V***, ***1pDS1V***, ***1pE1V*** or ***J2MV*** card. The ***faxRelay*** feature is required to set *modemFaxEncoding* to ***faxRelayG711G726*** or ***faxRelayOnly***.

*modemFaxEncoding* must have the same value at both ends of a *VoiceService*. If *modemFaxEncoding* does not have the same value at both ends of a *VoiceService*, the *VoiceService* will be out of service. In this case, *serviceFailureReason* is ***mismatchedModemFaxEncoding***.

Values

g711G726
faxRelayOnly
faxRelayG711G726
useVoiceEncoding

Default

g711G726

### ATTRIBUTE Vs Framer tandemPassThrough (tpt)

| | |
|---|---|
| Access | Read: Passive<br>Write: Service |
| Criticality | Process |
| Description | This attribute specifies whether tandem pass through is desired. If *tandemPassThrough* is ***enabled***, tandem pass through is used if possible. If *tandemPassThrough* is ***disabled***, tandem pass through is not used under any circumstances.<br><br>The negotiated tandem pass through is available in *negotiatedTandemPassThrough.*<br><br>The actual state of tandem pass through is available in *tptStatus*.<br><br>*tandemPassThrough* can be set to ***enabled*** only if the *tandemPassThrough* feature exists in the *featureList* of the *Sw Lpt*. |
| Values | enabled<br>disabled |
| Default | disabled |

### ATTRIBUTE Vs Framer insertedOutputDelay

| | |
|---|---|
| Access | Read: Passive<br>Write: Service |
| Criticality | Process |
| Description | This attribute specifies the amount of added output delay used to compensate for cross network delay variations. It applies to voice, modem and fax traffic. It is required to add output delay so that the statistical variation in the transit time of cells crossing the network does not cause gaps in speech. Backbone networks where high priority traffic consumes a high percentage of trunk bandwidth will require a higher *insertedOutputDelay* to compensate for the greater cell delay variation (CDV).<br><br>*insertedOutputDelay* must be ***default*** if this voice service is running on a ***DS1V***, ***E1V***, ***1pDS1V***, ***1pE1V*** or ***J2MV*** card. On all |

other cards, *insertedOutputDelay* can be set to any value. On these cards, ***default*** is equivalent to ***22***.

Values
default
5
15
22
30
35
40
45
50
75
100
125
150

Units
msec

Default
default

### ATTRIBUTE Vs Framer faxIdleSuppressionG711G726

Access
Read: Passive
Write: Service

Criticality
Process

Description
This attribute specifies whether ingress fax idle suppression is desired during G.711 and G.726 fax traffic. It applies only if *modemFaxEncoding* is ***g711G726*** or ***faxRelayG711G726.***

The negotiated ingress G.711/G.726 fax idle suppression is available in *negotiatedIgFisG711G726.*

If the ***silenceSuppressor*** or ***vtds*** feature is present, *faxIdleSuppressionG711G726* defaults to ***on***. Otherwise, *faxIdleSuppressionG711G726* defaults to ***off***.

Values
off
on

Default
No default

## ATTRIBUTE Vs Framer endOfCallPattern

| | |
|---|---|
| Access | Read: Passive<br>Write: Service |
| Criticality | Process |
| Description | This attribute specifies the pattern that indicates the end of CCS and CAS calls. The pattern is specified as a hexadecimal byte. If this pattern is detected for one second, the echo canceler is reset and prepares itself to start a new call. If 1000 consecutive samples consisting of the pattern defined by the *endOfCallPattern* attribute are detected, during a modem or fax call, this *VoiceService* assumes the call is over and switches to the encoding specified in *voiceEncoding*. When there is no call, this pattern replaces the PCM data that would normally be sent to the link.<br><br>*endOfCallPattern* is not used if this *VoiceService* is running on a ***DS1V***, ***E1V***, ***1pDS1V***, ***1pE1V*** and ***J2MV*** card.<br><br>To determine the correct setting of *endOfCallPattern*, view the operational attribute *recentIngressLineSamples* while no calls are up.<br><br>If *endOfCallPattern* is ***standard***, the actual pattern used depends on the card this voice service is running on. If this voice service is running on a ***1pDs1Mvp***, ***1pDS1Mvpe***, ***1pTTC2mMvp*** or ***1pTTC2mMvpe*** card, the actual pattern used is ***7f***. If this voice service is running on a ***1pE1Mvp*** or ***1pE1Mvpe*** card, the actual pattern used is ***54***.<br><br>The default value for *endOfCallPattern* is ***standard***. |
| Values | standard<br>01<br>02<br>03<br>04<br>05<br>06<br>07 |

08
09
0a
0b
0c
0d
0e
0f
10
11
12
13
14
15
16
17
18
19
1a
1b
1c
1d
1e
1f
20
21
22
23
24
25
26
27
28
29
2a
2b
2c
2d
2e
2f
30

31
32
33
34
35
36
37
38
39
3a
3b
3c
3d
3e
3f
40
41
42
43
44
45
46
47
48
49
4a
4b
4c
4d
4e
4f
50
51
52
53
54
55
56
57
58
59

5a
5b
5c
5d
5e
5f
60
61
62
63
64
65
66
67
68
69
6a
6b
6c
6d
6e
6f
70
71
72
73
74
75
76
77
78
79
7a
7b
7c
7d
7e
7f
80
81
82

83
84
85
86
87
88
89
8a
8b
8c
8d
8e
8f
90
91
92
93
94
95
96
97
98
99
9a
9b
9c
9d
9e
9f
a0
a1
a2
a3
a4
a5
a6
a7
a8
a9
aa
ab

ac
ad
ae
af
b0
b1
b2
b3
b4
b5
b6
b7
b8
b9
ba
bb
bc
bd
be
bf
c0
c1
c2
c3
c4
c5
c6
c7
c8
c9
ca
cb
cc
cd
ce
cf
d0
d1
d2
d3
d4

d5
d6
d7
d8
d9
da
db
dc
dd
de
df
e0
e1
e2
e3
e4
e5
e6
e7
e8
e9
ea
eb
ec
ed
ee
ef
f0
f1
f2
f3
f4
f5
f6
f7
f8
f9
fa
fb
fc
fd

| | |
|---|---|
| | fe<br>ff |
| Default | standard |

### ATTRIBUTE Vs Framer ingressAudioGain

| | |
|---|---|
| Access | Read: Passive<br>Write: Service |
| Criticality | Process |
| Description | This attribute specifies the gain in dB that is applied to data coming from outside the network before it is transferred across the network. It applies to voice, modem and fax traffic. For example, ingress gain is applied to audio data coming from a PBX. If *ingressAudioGain* is negative, a loss is applied.<br><br>If this voice service is running on a ***DS1V***, ***E1V***, ***1pDS1V***, ***1pE1V*** or ***J2MV*** card, *ingressAudioGain* must be set to ***0***. If this voice service is running on any other *cardtype*, *ingressAudioGain* can be set to any integral value from ***-12*** to ***+12***.<br><br>*ingressAudioGain* and *egressAudioGain* are used in loss planning, which is the configuration of the devices in the network to ensure that the signal level from any point in the network to any other point is correct. |
| Values | Signed (-12..12) |
| Units | dB |
| Default | 0 |

### ATTRIBUTE Vs Framer egressAudioGain

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the gain in dB that is applied to data before it leaves the network. It applies to voice, modem and fax traffic. For example, egress gain is applied to audio data going to a PBX. If *egressAudioGain* is negative, a loss is applied. |

If this voice service is running on a ***DS1V***, ***E1V***, ***1pDS1V***, ***1pE1V*** or ***J2MV*** card, *egressAudioGain* can be set to ***-6***, ***-4***, ***-2***, ***0***, ***2***, ***4*** or ***6***. If this voice service is running on any other *cardType*, *egressAudioGain* can be set to any integral value from ***-12*** to ***+12***.

*ingressAudioGain* and *egressAudioGain* are used in loss planning, which is the configuration of the devices in the network to ensure that the signal level from any point in the network to any other point is correct.

| | |
|---|---|
| Values | -12<br>-11<br>-10<br>-9<br>-8<br>-7<br>-6<br>-5<br>-4<br>-3<br>-2<br>-1<br>0<br>1<br>2<br>3<br>4<br>5<br>6<br>7<br>8<br>9<br>10<br>11<br>12 |
| Units | dB |
| Default | 0 |

## ATTRIBUTE Vs Framer comfortNoiseCap

| | |
|---|---|
| Access | Read: Passive<br>Write: Service |
| Criticality | Process |
| Description | This attribute specifies the maximum level at which comfort noise is generated. The comfort noise is limited by *comfortNoiseCap* before *egressAudioGain* is applied. The default value of ***-40*** dBm0 equates to the maximum level of comfort noise available and effectively disables the *comfortNoiseCap*. |
| Values | Signed (-78; -65; -60; -54; -52; -50; -48; -46; -44; -42; -40) |
| Units | dBm0 |
| Default | -40 |

## ATTRIBUTE Vs Framer echoTailDelay

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the maximum echo canceler tail delay coverage. It should be selected higher than the summation of the round trip delay of echo and hybrid response time. A ***32*** msec setting is good for a radius of 2700 km, assuming that the signal is going through 4 exchanges and the hybrid response time is 6 msec. A ***64*** msec setting offers even greater coverage (more distance or more switches), with comparable convergence time. The recommended setting is ***64*** msec. This attribute is not used if this VoiceService is running on a ***DS1V***, ***E1V***, ***1pDS1V***, ***1pE1V***, ***J2MV***, ***1pE1Mvp***, ***1pDS1Mvp,*** or ***1pTTC2mMvp*** cards. |
| Values | Decimal (32; 64) |
| Units | msec |
| Default | 64 |

### ATTRIBUTE Vs Framer echoReturnLoss

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the echo return loss parameter of the echo canceler. If the line quality is poor, in terms of echo, selecting a higher value may allow the echo canceler to perform better. A side effect is that the voice level is attenuated by the same amount, which may not always be acceptable. This attribute is not used if this *VoiceService* is running on a ***DS1V***, ***E1V***, ***1pDS1V***, ***1pE1V***, ***J2MV***, ***1pE1Mvp***, ***1pDS1Mvp***, or ***1pTTC2mMvp*** card. |
| Values | Decimal (0; 3; 6) |
| Units | dB |
| Default | 6 |

### ATTRIBUTE Vs Framer dtmfRegeneration (detGen)

| | |
|---|---|
| Access | Read: Passive<br>Write: Service |
| Criticality | Process |
| Description | This attribute specifies the DTMF regeneration parameter used during negotiation with the remote end across the subnet.<br><br>If *dtmfRegeneration* is ***on***, it is desired that DTMF tones received from the link are first converted to digits before being sent to the subnet. When a digit is received from the subnet, its respective DTMF tone is desired to be generated before being sent to the link.<br><br>If *dtmfRegeneration* is ***off***, DTMF tones are transported transparently.<br><br>DTMF regeneration is not supported on ***1pDS1V***, ***1pE1V***, and ***J2MV*** cards. *dtmfRegeneration* must be ***off*** if this *VoiceService* is running on one of these cards. |

The negotiated DTMF regeneration is available in *negotiatedDtmfRegeneration*.

Values
off
on

Default
off

### ATTRIBUTE Vs Framer speechHangoverTime

Access
Read: Passive
Write: Service

Criticality
Process

Description
This attribute specifies the time after the end of speech before silence suppression starts. It applies only to voice traffic. It is not used unless *negotiatedIgSilenceSuppression* is ***on***, ***congested*** *or* ***slowAndCongested***.
Higher values of *speechHangoverTime* reduce undesirable clipping but increase bandwidth usage.
*speechHangoverTime* is not used if this *VoiceService* is running on a ***DS1V***, ***E1V***, ***1pDS1V***, ***1pE1V*** or ***J2MV*** card.

Values
Signed (10..500)

Units
msec

Default
150

### ATTRIBUTE Vs Framer faxHangoverTimeG711G726

Access
Read: Passive
Write: Service

Criticality
Process

Description
This attribute specifies the time after the end of fax traffic before ingress G.711/G.726 fax idle suppression starts. It applies only if *modemFaxEncoding* is ***g711G726*** or ***faxRelayG711G726*** and *negotiatedIgFisG711G726* is ***on***.

*faxHangoverTimeG711G726* is not used if this *VoiceService* is running on a ***DS1V***, ***E1V***, ***1pDS1V***, ***1pE1V*** and ***J2MV*** card.

| | |
|---|---|
| Values | Signed (300..20000) |
| Units | msec |
| Default | 1000 |

### ATTRIBUTE Vs Framer modemFaxSpeechDiscrim (fsd)

| | |
|---|---|
| Access | Read: Passive<br>Write: Service |
| Criticality | Process |
| Description | This attribute specifies whether this *VoiceService* differentiates modemFax traffic and speech. If *modemFaxSpeechDiscrim* is ***on*** and a false 2100 Hz tone is detected, this *VoiceService* reverts to speech mode when speech is detected.<br><br>*modemFaxSpeechDiscrim* is not used if this *VoiceService* is running on a ***DS1V***, ***E1V***, ***1pDS1V***, ***1pE1V*** and ***J2MV*** card. |
| Values | on<br>off |
| Default | on |

### ATTRIBUTE Vs Framer v17EncodedAsG711G726

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the desired negotiation between this *VoiceService* and V.17 fax machines when *modemFaxEncoding* is ***faxRelayG711G726***. This attribute is not used unless *modemFaxEncoding* is ***faxRelayG711G726***.<br><br>The actual negotiation between this *VoiceService* and V.17 fax machines is available in *negotiatedV17AsG711G726*.<br><br>If *v17EncodedAsG711G726* is ***no,*** it is desired that V.17 fax machines be instructed to use V.29 so that V.29 fax traffic sent by fax machines can be demodulated and encoded using fax relay.<br><br>If *v17EncodedAsG711G726* is ***yes***, it is desired that V.17 fax |

machines be permitted to use V.17 so that V.17 fax traffic sent by fax machines can be encoded using G.711 or G.726. The actual encoding performed depends on network congestion and the negotiated ingress ***modemFax*** rates, available in *negotiatedIgRates*.

Values
no
yes

Default
no

### ATTRIBUTE Vs Framer ecanBypassMode

Access
Read and write

Criticality
Process

Description
This attribute specifies when version 2 internal echo cancelers are placed in bypass mode on this *VoiceService*. This attribute only applies if *echoCancellation* is ***on***. If *ecanBypassMode* is ***g165***, the internal echo canceler is placed in bypass mode as per ITU-T G.165. If *ecanBypassMode* is ***g164***, the internal echo canceler is placed in bypass mode as per ITU-T G.164. If *ecanBypassMode* is ***never***, the internal echo canceler is never placed in bypass mode. This mode should only be used for debugging.

This attribute does not apply to ***1pE1V***, ***1pDS1V***, ***J2MV***, ***1pE1Mvp***, ***1pDS1Mvp***, or ***1pTTC2mMvp*** cards.

Values
g164
g165
never

Default
g165

### ATTRIBUTE Vs Framer maxFaxRelayRate

Access
Read: Passive
Write: Service

Criticality
Process

Description
This attribute specifies the maximum desired fax relay rate. This attribute only applies if *modemFaxEncoding* is ***faxRelayOnly*** or ***faxRelayG711G726***. The maximum fax relay rate is negotiated

| | |
|---|---|
| | and depends on the setting of *maxFaxRelayRate* and the fax relay capabilities on the origination side and destination side. If the negotiated ***fax*** encoding in *negotiatedIgEncoding* is ***relay***, the negotiated maximum fax relay rate is available in the ***fax*** row of *negotiatedIgRates*. |
| Values | Decimal (2.4; 4.8; 7.2; 9.6; 12.0; 14.4) |
| Units | kbit/s |
| Default | 14.4 |

### GROUP Vs Framer SignalOptions (Signal)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains attributes which define the means for transporting channel associated signaling through the network. |

### ATTRIBUTE Vs Framer transmitBusyYellow

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | When this attribute is set to ***yes*** and the DS1 or E1 line is set to Channel Associated Signaling (CAS) mode, a “busy-out” signaling condition is transmitted onto the voice timeslot associated with this Framer when its path across the network is down. The busy-out code transmitted is given by the *seizeCode* attribute. If *transmitBusyYellow* is set to ***yes*** on a CAS-based interface, *seizeCode* must be set. When *transmitBusyYellow* is set to ***yes*** and the DS1 or E1 line is set to Common Channel Signaling (CCS) mode, a yellow alarm condition is transmitted onto the DS1/E1 line when the path across the network associated with this Framer is down. Note that in CCS mode, a yellow alarm condition is transmitted when the path is down for **any** of the Framers with this attribute set to ***yes***. |
| Values | no<br>yes |
| Default | no |

### ATTRIBUTE Vs Framer invertBits

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies whether the ABCD bits are inverted before being output onto the link. |
| Values | no<br>yes |
| Default | no |

### ATTRIBUTE Vs Framer signalBits

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute identifies the combination of ABCD bits used for channel associated signaling.<br><br>If *casSignalling* is ***transparent***, *signalBits* must have the same value at both ends of a *Vs*. If *casSignalling* is ***transparent*** and *signalBits* does not have the same value at both ends of a *Vs*, the *Vs* will be out of service. In this case, *Vs serviceFailureReason* is ***mismatchedSignalBits***. |
| Values | A<br>AB<br>ABCD |
| Default | A |

### ATTRIBUTE Vs Framer transmitCasYellow

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | When the associated DS1 or E1 line is operating in CCS mode, this attribute is not applicable, and must be set to ***no***.<br><br>Normally, all the *VoiceService Framer*s associated with the same DS1 or E1 line should have the same value for this attribute. |

When the value is ***yes*** on all *VoiceService Framer*s, a yellow alarm will be asserted on the port whenever loss of subnet connectivity occurs for all these *VoiceService*s. This will prevent the external equipment from using this port for call attempts.

If this attribute is set to ***no*** for all *VoiceService Framer*s associated with a DS1 or E1 line, a yellow alarm will never be asserted on the line for subnet connectivity reasons, agreeing with DS1/E1 port standards.

If some *VoiceService Framer*s associated with the same DS1 or E1 line have this value set to ***yes***, and some ***no***, a yellow alarm will be asserted on the line only if there are subnet connectivity problems for all the *VoiceService Framer*s with the attribute *transmitCasYellow* set to ***yes***. The *VoiceService Framer*s with this attribute set to ***no*** will have no effect on whether a yellow alarm should be asserted on the line.

Values
no
yes

Default
no

## ATTRIBUTE Vs Framer casSignalling

Access
Read and write

Criticality
Process

Description
This attribute specifies how channel associated signaling information is transported through the network.
***none*** specifies that channel associated signaling information is not transported through the network.
***transparent*** specifies signaling information is transported transparently through the network. ***transparent*** can be used when both sides are using equivalent signaling tables.
***interpret*** specifies signaling information is interpreted for idle and seize codes. ***interpret*** can be used when both sides are not using equivalent signaling tables but only require two unique codes (seize and idle) for signaling.
Using a value of ***interpret*** requires correct *idleCode* and *seizeCode* attributes. ***interpret*** mode must be used if *silenceSuppression* is set to ***casIdleCode***.

| | |
|---|---|
| Values | none<br>transparent<br>interpret |
| Default | none |

### ATTRIBUTE Vs Framer idleCode

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the ABCD idle line signaling code. This attribute must be set correctly when *casSignalling* is ***interpret***. |
| Vector of | Decimal (0..1) |
| Index | A<br>B<br>C<br>D |
| Default | (0, 0, 0, 0) |

### ATTRIBUTE Vs Framer seizeCode

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the ABCD seized line signaling code. This attribute must be set correctly when *casSignalling* is ***interpret***. |
| Vector of | Decimal (0..1) |
| Index | A<br>B<br>C<br>D |
| Default | (1, 1, 1, 1) |

### GROUP Vs Framer OsiState (State)

| | |
|---|---|
| Properties | Operational |

Description

This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

### ATTRIBUTE Vs Framer adminState (osiAdmin)

Access

Read only

Description

This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values

locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default

unlocked

### ATTRIBUTE Vs Framer operationalState (osiOper)

Access

Read only

Description

This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be

providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values: enabled (ena)
disabled (dis)

Default: disabled

### ATTRIBUTE Vs Framer usageState (osiUsage)

Access: Read only

Description: This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values: idle
active (activ)
busy

Default: idle

### GROUP Vs Framer Statistics (Stats)

Properties: Operational

Description: This group contains the operational statistics data for a Framer component.

### ATTRIBUTE Vs Framer totalCells

Access: Read only

| | |
|---|---|
| Description | This attribute counts total cells received from the interface.<br>Each cell contains 44 bytes of data from the DS0 channel. Since a DS0 provides data at 64 kbit/s, each cell contains 5.5 ms of audio data.<br>This data flow is measured before compression is performed on the channel.<br>This counter wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vs Framer audioCells

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts total cells containing audio data received from the interface. Audio data includes cells containing voice as well as modem audio but not silence.<br>A cell contains 44 bytes of data from the DS0 channel(5.5 ms).<br>This flow is measured before compression is performed on the channel.<br>This counter wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vs Framer silenceCells

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts total cells containing silence (speech or modem/fax) data received from the interface which was not forwarded into the network, thus saving bandwidth. A channel may go into silence due to the operation of the silence suppression feature (refer to the *silenceSuppression* attribute) or for CAS channels when the ABCD signaling bits go idle.<br>A cell contains 44 bytes of data from the DS0 channel(5.5 ms).<br>This flow is measured before compression is performed on the channel.<br>This counter wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Vs Framer lrcErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames with LRC errors that are received from the network. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vs Framer frmLostInNetwork

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames which the service knows it did not receive from the network although they were sent in to the network from the remote end. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vs Framer frmUnderRuns

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times that a frame was needed but was not available because it had been delayed too long in the network.<br>This error may occur repeatedly if the interface clocks at the two access points to the network are operating at different rates. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vs Framer frmDumped

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of frames which have been dumped because the output queue grew too large. This can occur if the clock rate on the incoming interface is faster than the clock rate on the outgoing interface and there are no silence periods to |

| | |
|---|---|
| | absorb the difference or when a compression rate change occurs. This count wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vs Framer faxRelayCells

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts total fax relay cells sent to the network. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vs Framer modemFaxCells

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts total cells containing modem or fax data received from the interface.<br><br>A cell contains 44 bytes of data from the DS0 channel (5.5 ms). This flow is measured before compression is performed on the channel.<br><br>This counter wraps to zero after reaching its maximum value. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### ATTRIBUTE Vs Framer faxIdleCells

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts total cells containing silent modem or fax data received from the interface which was not forwarded into the network, thus saving bandwidth. A channel may go into silence due to the silence Suppression feature (refer to the *silenceSuppression* attribute) or for CAS channels when the ABCD signaling bits go idle.<br>A cell contains 44 bytes of data from the DS0 channel (5.5 ms). This flow is measured before compression is performed on the |

channel.
This counter wraps to zero after reaching its maximum value.

Values: Decimal (0..4294967295)

Default: No default

### ATTRIBUTE Vs Framer frmToNetwork

Access: Read only

Description: This attribute counts the number of frames sent to the network at each encoding rate. Fax relay cells are not included.

Vector of: Decimal (0..4294967295)

Index:
64 kbit/s
32 kbit/s
24 kbit/s
16 kbit/s
8 kbit/s

Default: No default

### GROUP Vs Framer Negotiation (Neg)

Properties: Operational

Description: This group contains attributes indicating the results of end to end negotiation.

### ATTRIBUTE Vs Framer negotiatedIgSilenceSuppression (nSilenceSuppression)

Access: Read only

Description: This attribute indicates the result of negotiating ingress silence suppression with the remote end across the subnet. The parameter used for negotiating with the remote end is provisioned in *silenceSuppression*.

*negotiatedIgSilenceSuppression* can be different on either side of a *VoiceService*.

If *negotiatedIgSilenceSuppression* is ***off***, ingress silence suppression is never performed.

If *negotiatedIgSilenceSuppression* is ***on***, ingress silence suppression is always performed.
If *negotiatedIgSilenceSuppression* is ***congested***, ingress silence suppression is performed only when the network is congested.
If *negotiatedIgSilenceSuppression* is ***slow***, ingress silence suppression begins after 20 seconds without any speech or audio being detected.
If *negotiatedIgSilenceSuppression* is ***slowAndCongested***, both the ***slow*** and ***congested*** options are applied.
If *negotiatedIgSilenceSuppression* is ***casIdleCode***, ingress silence suppression is only performed when the *idleCode* is active for 20 to 40 seconds. Both *transportSignalling* and *interpretSignalling* must be set to ***yes*** if *silenceSuppression* is set to ***casIdleCode***.

Values
off
on
congested
slow
slowAndCongested
casIdleCode

Default
No default

### ATTRIBUTE Vs Framer negotiatedIgFisG711G726 (nFisG711G726)

Access
Read only

Description
This attribute indicates the result of negotiating ingress G.711/G.726 fax idle suppression with the remote end across the subnet. The parameter used for negotiating with the remote end is provisioned in *faxIdleSuppressionG711G726*.

The value of *negotiatedIgFisG711G726* can be different on either side of the connection.

Values
off
on

Default
No default

### ATTRIBUTE Vs Framer negotiatedDtmfRegeneration (nDtmfRegeneration)

Access
Read only

Description

This attribute indicates the result of negotiating DTMF regeneration with the remote end across the subnet. The parameter used for negotiating with the remote end is provisioned in *dtmfRegeneration.*

If *negotiatedDtmfRegeneration* is ***on***, DTMF tones received from the link are first converted to digits before being sent to the subnet. When a digit is received from the subnet, its respective DTMF tone is generated before being sent to the link.

If *negotiatedDtmfRegeneration* is ***off***, DTMF tones are transported transparently.

Values

off
on

Default

No default

## ATTRIBUTE Vs Framer negotiatedV17AsG711G726 (nV17AsG711G726)

Access

Read only

Description

This attribute indicates how this *VoiceService* negotiates with V.17 fax machines, as determined by negotiation with the remote end across the subnet. The parameter used for negotiating with the remote end is provisioned in *v17EncodedAsG711G726*. This attribute is irrelevant unless *modemFaxEncoding* is ***faxRelayG711G726***.

If *negotiatedV17AsG711G726* is ***no,*** V.17 fax machines are instructed to use V.29, and V.29 fax traffic sent by fax machines is demodulated and encoded using fax relay.

If *negotiatedV17AsG711G726* is ***yes***, V.17 fax machines are permitted to use V.17 and V.17 fax traffic sent by fax machines is encoded using G.711 or G.726, at the rates given in *negotiatedIgRates*.

Values

yes
no

Default

No default

### ATTRIBUTE Vs Framer negotiatedTandemPassThrough (nTpt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the result of negotiating tandem pass through with the remote end across the subnet. The parameter used for negotiating with the remote end is provisioned in *tandemPassThrough*. |
| Values | enabled<br>disabled |
| Default | No default |

### ATTRIBUTE Vs Framer negotiatedIgEncoding (nEncoding)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the results of negotiating ingress audio call encodings for ***voice***, ***modemFax*** and ***fax*** traffic with the remote end across the subnet. The parameters used for negotiating with the remote end are provisioned in *voiceEncoding* and *modemFaxEncoding*.<br><br>***voice*** traffic is all traffic from the start of a call or speech until a 2100 Hz tone or call release. ***modemFax*** traffic is all traffic after a 2100 Hz tone but before a fax preamble, speech or call release. ***fax*** traffic is all traffic after a fax preamble but before speech or call release.<br><br>***g711*** indicates that pulse code modulation (PCM) defined by ITU-T G.711 is the negotiated encoding.<br>***g726*** indicates that Adaptive Differential Pulse Code Modulation (ADPCM) defined by ITU-T G.726 is the negotiated encoding.<br>***g711G726*** indicates that pulse code modulation (PCM) defined by ITU-T G.711 and Adaptive Differential Pulse Code Modulation (ADPCM) defined by ITU-T G.726 are both negotiated encodings. If *negotiatedIgEncoding* is ***g711G726***, the actual encoding performed can be either G.711 or G.726, depending on network congestion.<br>***g728*** indicates that Low Delay Coded Excited Linear Predictive Coder (CS-ACELP) defined by ITU-T G.728 is the negotiated encoding. |

***g729*** indicates that Conjunctive Structure Algebraic Code Excited Linear Predictive Coder (CS-ACELP) defined by ITU-T G.729 is the negotiated encoding.
***v29V27Relay*** indicates that fax relay is performed using ITU-T V.29 or ITU-T V.27.
***v17V29V27Relay*** indicates that fax relay using ITU-T V.17, ITU-T V.29, or ITU-T V.27 is the negotiated encoding.

If all negotiated encodings are ***none***, the negotiation of audio call encodings is not complete.

Vector of

g711
g726
g711G726
g728
g729
v29V27Relay
v17V29V27Relay
none

Index

voice
modemFax
fax

Default

No default

### ATTRIBUTE Vs Framer negotiatedIgRates (nRates)

Access

Read only

Description

This attribute indicates the results of negotiating ingress minimum and maximum rates for ***voice***, ***modemFax*** and ***fax*** traffic with the remote end across the subnet. The parameters used for negotiating with the remote end are provisioned in *maxVoiceG711G726Rate*, *minVoiceG711G726Rate*, *maxModemFaxG711G726Rate* and *minModemFaxG711G726Rate*.

*negotiatedIgRates* can be different on either side of a *VoiceService*.

| | | |
|---|---|---|
| Array of | 8.0<br>16.0<br>24.0<br>32.0<br>64.0<br>0.0<br>0.3<br>1.2<br>2.4<br>4.8<br>7.2<br>9.6<br>12.0<br>14.4 | |
| Units | kbit/s | |
| Row | traffic<br>modemFax<br>fax] | [voice |
| Column | rate<br>max] | [min |
| Default | No default | |

### GROUP Vs Framer Operational (Oper)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational data for a *Vs Framer.* |

### ATTRIBUTE Vs Framer currentEncoding

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the encoding currently being performed. ***g711*** indicates that pulse code modulation (PCM) defined by ITU-T G.711 is being performed. ***g726*** indicates that adaptive differential pulse code modulation (ADPCM) defined by ITU-T G.726 is being performed. ***g728*** indicates that the Low Delay |

Coded Excited Linear Predictive Coder (LD-CELP) algorithm defined by ITU-T G.728 is being performed. ***g729*** indicates that the Conjunctive Structure Algebraic Code Excited Linear Predictive Coder (CS-ACELP) algorithm defined by ITU-T G.729 is being performed. ***v27*** indicates that the algorithm defined by ITU-T V.27 is being performed. ***v29*** indicates that the algorithm defined by ITU-T V.29 is being performed.

Values

none
g729
g728
g723
g726
g711
v22
v22bis
faxRelay
v27
v29
v17

Default

No default

## ATTRIBUTE Vs Framer currentRate

Access

Read only

Description

This attribute indicates the current encoding rate for frames being sent to the network.

Values

0
0.3
1.2
2.4
4.8
5.3
6.3
7.2
8.0
9.6
12.0
14.4
16.0

| | |
|---|---|
| | 24.0<br>32.0<br>64.0 |
| Units | kbit/s |
| Default | No default |

### ATTRIBUTE Vs Framer tptStatus

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current status of the tandem pass through algorithm. If *tptStatus* is ***operating,*** the tandem pass through algorithm is cutting through a voice switch. If *tptStatus* is ***monitoring***, *negotiatedTandemPassThrough* is ***enabled***, but the tandem pass through algorithm is not cutting through a voice switch. If *tptStatus* is ***disabled***, *negotiatedTandemPassThrough* is ***disabled***. |
| Values | operating<br>monitoring<br>disabled |
| Default | No default |

### ATTRIBUTE Vs Framer recentIngressLineSamples

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates two recent ingress line samples, represented as four hex digits. The first two hex digits give one sample. The last two hex digits give the other sample. If no call is up on this voice service's channel, each sample indicates the idle pattern sent by the adjoining PBX. Therefore, the two samples should be the same if no call is up on this voice service's channel. These samples should also be consistent each time *recentIngressLineSamples* is displayed, as long as no call is up on this voice service's channel. It indicates a fault on the PBX if the samples are not consistent when no call is up on this voice service's channel.<br><br>If no call is up on this *VoiceService*'s channel and the two samples are the same, each sample gives the correct setting of the |

provisionable attribute *endOfCallPattern*. Note that *endOfCallPattern* is not used if this *VoiceService* is running on a ***DS1V***, ***E1V***, ***1pDS1V***, ***1pE1V*** and ***J2MV*** card. On these cards, *recentIngressLineSamples* is always ***0000***.

Values: String (2, Hex)

Default: No default

## COLLECTED STATS VoiceService Framer

Description: The statistics record generated by the VoiceService Framer component.

### ATTRIBUTE Vs Framer rxBytes

Description: This attribute provides the number of bytes received on the link by the Framer in the last collection interval.

Values: Long Integer

### ATTRIBUTE Vs Framer rxFrames

Description: This attribute provides the number of frames received on the link interface by the Framer in the last collection interval.

Values: Long Integer

### ATTRIBUTE Vs Framer txBytes

Description: This attribute provides the number of bytes transmitted to the link by the Framer in the last collection interval. This value could be zero if the application sends the frames directly to the link.

Values: Long Integer

### ATTRIBUTE Vs Framer txFrames

Description: This attribute provides the number of frames transmitted to the link interface by the Framer in the last collection interval. This value could be zero if the application sends the frames directly to the link.

Values: Long Integer

### ATTRIBUTE Vs Framer rxTotalLinkUtil

| | |
|---|---|
| Description | This attribute provides the average total link utilization computed based on the total number of bytes received on the link in the last collection interval. |
| Values | Decimal (0..100) |

### COMPONENT Vs Framer VfpDebug

| | |
|---|---|
| Scope | Application |
| Description | *Vs/n Framer VfpDebug*<br>This component contains debugging attributes for a voice service running on a ***DS1V***, ***E1V***, ***1pDS1V***, ***1pE1V*** or ***J2MV*** functional processor. |
| Common Verbs | Help<br>List<br>Display |

### COMPONENT Vs Framer MvpDebug

| | |
|---|---|
| Scope | Application |
| Description | *Vs/n Framer MvpDebug*<br>This component contains debugging attributes on a voice service's framer running on a ***1pE1Mvp***, ***1pDS1Mvp***, ***1pTTC2mMvp, 1pE1Mvpe***, ***1pDS1Mvpe*** or ***1pTTC2mMvpe*** functional processor. |
| Common Verbs | Help<br>List<br>Display |

### COMPONENT Vs Framer PcmCapture (PcmCapture)

| | |
|---|---|
| Scope | Application |

| | |
|---|---|
| Description | *Vs/n Framer PcmCapture*<br>This component contains attributes for PCM data capture. |
| Common Verbs | Help<br>List<br>Display |

### COMPONENT Vs PermanentLogicalConnection (Plc)

| | |
|---|---|
| Groups | "GROUP Vs Plc Provisioning (Prov)" |
| Scope | Application |
| Description | *Vs/n PLC*<br>This is the description of the PLC Component for the voice service. |
| Common Verbs | Help<br>List<br>Display |

### GROUP Vs Plc Provisioning (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains all provisionable attributes for a permanent logical connection. Note that all of the attributes are valid and provisionable on both ends of a connection. However with the exception of *remoteName*, all operational attributes are derived from the originating end provisioning, which may be either end unless *remoteName* is not provisioned on one end. |

### ATTRIBUTE Vs Plc remoteName (rName)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute is the *PLC*'s remote end point's address in the format of a Passport component name. The syntax of a component is:<br>"em/node type/instance". For an alternative representation of end point's addresses, see *addressToCall* and l*ocalAddress PLC* |

attributes. When using Passport component name representation, end points are identified using a node name and a service name. As an example, the end point component for a third voice service on node MoonBase is: "*EM/MoonBase VS/3*". If the *remoteName* is provisioned, it must match the name of the remote end or the connection will not be established even if the remote end is provisioned correctly. If no *remoteName* is provisioned, then this *LC* will accept connections from any other remote *LC* and it will not originate calls. Connections establish faster and are unique if both ends are provisioned with *remoteName*.
*RemoteName* should be used when the remote end of the connection resides within the same topology region. If it resides in a different topology region, then *addressToCall* and *localAddress PLC* attributes should be used. When both *remoteName* and *addressToCall* are provisioned, *addressToCall* takes precedence. That is, connection will be established to the service specified by *addressToCall*.
These strings are case insensitive, but the complete component name must be input.

| | |
|---|---|
| Values | String (0..40, ASCII) |
| Default | "" |

### ATTRIBUTE Vs Plc setupPriority (spri)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute gives the priority at which a path is established. Zero is the highest priority and four is the lowest. When PORS establishes a path through the network, it uses the *setupPriority* attribute to determine its potential for bumping established paths to acquire their bandwidth. The *holdingPriority*, a complementary attribute of this attribute, indicates the priority a path maintains once it is established. A new path can bump an existing path if the new path's *setupPriority* is higher (numerically less) than the existing path's *holdingPriority.* |
| Values | Decimal (0..4) |
| Default | 2 |

### ATTRIBUTE Vs Plc holdingPriority (hpri)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute gives the priority that a path holds once it is established. Zero is the highest priority and four is the lowest. A path's *holdingPriority* determines its likelihood of being bumped by a new path to acquire its bandwidth. The *setupPriority*, a complementary attribute, indicates the priority of a path at establishment time. A new path can bump an existing path if the new path's *setupPriority* is higher (numerically less) than the existing path's *holdingPriority.* |
| Values | Decimal (0..4) |
| Default | 2 |

### ATTRIBUTE Vs Plc requiredTxBandwidth (tbw)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute gives the bandwidth (in bits per second) reserved by a path on each of the trunks of its route.This attribute represents the bandwidth for traffic outgoing to the remote end point. This value should be chosen to achieve the amount of statistical bandwidth sharing that is desired by the network administration. This reservation is not enforced and is used to determine how many paths can be supported on a trunk. Both ends should be provisioned with the correct values allowing for the fact that transmit at this end represents receive at the remote end. Note that when the values do not correspond, the originating end of the connection determines the value. |
| Values | Decimal (0..2048000) |
| Units | bit/s |
| Default | 32000 |

### ATTRIBUTE Vs Plc requiredRxBandwidth (rbw)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute gives the bandwidth (in bits per second) reserved by a path on each of trunks of its route. This attribute represents the bandwidth for traffic incoming from the remote end point. This value should be chosen to achieve the amount of statistical bandwidth sharing that is desired by the network administration. This reservation is not enforced and is used to determine how many paths can be supported on a trunk. Both ends should be provisioned with the correct values allowing for the fact that transmit at this end represents receive at the remote end. Note that when the values do not correspond, the originating end of the connection determines the value. |
| Values | Decimal (0..2048000) |
| Units | bit/s |
| Default | 32000 |

### ATTRIBUTE Vs Plc requiredTrafficType (rttyp)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute indicates the type of traffic transmitted over the path. There are eight possible traffic types, and the path can transmit only one of them. The originating end of the connection determines the type. These are arbitrary designations for traffic type. The ***voice***, ***data*** and ***video*** traffic types are defined, and five other arbitrary traffic types can be defined by the network administration. This attribute is used in the route selection process to restrict the route to trunks that support this traffic type. The *supportedTrafficType* trunk attribute lists all the types of traffic allowed on the trunk. For example, if *requiredTrafficType* is specified as ***trafficType1,*** then only trunks that include ***trafficType1*** in *supportedTrafficType* will be candidates for this connection. |

| | |
|---|---|
| Values | voice<br>data<br>video<br>trafficType1 (tt1)<br>trafficType2 (tt2)<br>trafficType3 (tt3)<br>trafficType4 (tt4)<br>trafficType5 (tt5) |
| Default | voice |

### ATTRIBUTE Vs Plc permittedTrunkTypes (pttyp)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute lists up to eight(8) types of trunk that can be used on the route. The ***terrestrial*** and ***satellite*** trunk types have been defined, leaving six(6) remaining arbitrary types that can be defined by the network administration. The trunk's type is indicated in the *trunkType* attribute of the Trunk component. When selecting a route, PORS only chooses trunks whose *trunkType* are in the *permittedTrunkTypes* for the path. |
| Set of | terrestrial<br>satellite<br>trunkType1 (tt1)<br>trunkType2 (tt2)<br>trunkType3 (tt3)<br>trunkType4 (tt4)<br>trunkType5 (tt5)<br>trunkType6 (tt6) |
| Default | (terrestrial, satellite, trunkType1, trunkType2, trunkType3) |

### ATTRIBUTE Vs Plc requiredSecurity (rsec)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute indicates the type of traffic transmitted over the path. There are eight possible traffic types, and the path can |

| | |
|---|---|
| | transmit only one of them. The originating end of the connection determines the type. These are arbitrary designations for traffic type. The ***voice***, ***data*** and ***video*** traffic types are defined, and five other arbitrary traffic types can be defined by the network administration. This attribute is used in the route selection process to restrict the route to trunks that support this traffic type. The *supportedTrafficType* trunk attribute lists all the types of traffic allowed on the trunk. For example, if *requiredTrafficType* is specified as ***trafficType1,*** then only trunks that include ***trafficType1*** in *supportedTrafficType* will be candidates for this connection. |
| Values | Decimal (0..7) |
| Default | 4 |

### ATTRIBUTE Vs PIc requiredCustomerParm (rcparm)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute indicates the allowed customer defined parameter of the trunks on the route. Its value, a number from zero to seven, is chosen by network administration to have a meaning specific to their network, thus allowing them to customize the use of their trunks. A complementary trunk attribute, *customerParameter*, also has a value from zero to seven. The route selection process does not consider trunks whose *customerParameter* is greater than the *requiredCustomerParameter* of the path. |
| Values | Decimal (0..7) |
| Default | 4 |

### ATTRIBUTE Vs PIc pathAttributeToMinimize (pamin)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute indicates whether a route is selected on the basis of minimizing the cost or the delay. Each trunk has a cost and a delay metric associated with it. The cost of a selected route is the sum of the trunk cost metrics for all trunks included in the route. |

The delay of a selected route is the sum of the trunk delay metric for all trunks included in the route.

Values
cost
delay

Default
cost

### ATTRIBUTE Vs Plc maximumAcceptableCost (maxCost)

Access
Read and write

Criticality
Process

Description
This attribute indicates an upper bound on the cost metric of a route, which is the sum of the cost metrics of all trunks on the route. The cost metric is the *trunkCost* attribute of the Trunk component. If for any trunk the *trunkCost* is larger than the *maximumAcceptableCost*, then that trunk is not considered during the route selection. While a shortest route is being selected, the route cost is being compared with the *maximumAcceptableCost* attribute, and this is done for any minimization criterion. No route is selected if the cost metric of the shortest route is larger than the *maximumAcceptableCost*.

Values
Decimal (0..65535)

Default
1280

### ATTRIBUTE Vs Plc maximumAcceptableDelay (maxDelay)

Access
Read and write

Criticality
Process

Description
This attribute indicates an upper bound on the delay of a route, which is the sum of the delay of all trunks on the route. It should be provisioned with a reasonable maximum acceptable delay for the end to end one way delay of a 512-byte packet. Remember, that the trunk during its staging measures a *measuredRoundTripDelay*. This delay is divided by two and truncated to an integer number of milliseconds to provide a one way delay which is used to populate the delay in this trunk object in the topological database. The value includes emission, propagation, and queuing delays. A 512-byte packet is used to

| | |
|---|---|
| | perform the measurement.<br>If for any trunk the half of the trunk's *measuredRoundTripDelay* is larger than the *maximumAcceptableDelay*, then that trunk is not considered during the route selection.<br>While a shortest route is being selected, the route delay is being compared with the *maximumAcceptableDelay* attribute, and this is done for any minimization criterion. No route is selected if the delay metric of the shortest route is larger than the *maximumAcceptableDelay.* |
| Values | Decimal (0..100000) |
| Units | msec |
| Default | 100000 |

### ATTRIBUTE Vs Plc emissionPriority (epri)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute indicates the urgency with which packets on the path are emitted by the trunks on the route. *EmissionPriority* of Zero(0) indicates the highest emission priority, while two (2) indicates the lowest emission priority. Packets with a higher *emissionPriority* (or numerically less) are serviced and sent out before the packets of lower *emissionPriority* (or numerically higher). |
| Values | Decimal (0..2) |
| Default | 0 |

### ATTRIBUTE Vs Plc discardPriority (dpri)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute indicates the importance of the packets on the path. One is used for paths carrying the most important traffic, and three is used for paths carrying the least important traffic. Packets with lower *discardPriority*(numerically) are discarded after packets with a higher *discardPriority*(numerically). |

| | |
|---|---|
| Values | Decimal (1..3) |
| Default | 1 |

### ATTRIBUTE Vs Plc pathType (pType)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies if the path for this PLC is determined automatically or by static provisioning. The default (***normal***) is to automatically choose a route with Route Selection. ***Normal*** *pathTypes* require less provisioning and can dynamically handle path failures. The other *pathTypes* are both manual *pathTypes* where the operator must specify, through provisioning, a static route termed the *manualPath*. A manual *pathType* connection is nearly identical to a normal path type connection with the exception that the route is pre-provisioned. For a manual *pathType*, bandwidth reservations are respected along the path exactly as in a normal path. The last type, the ***forced*** *pathType*, is also a manual path but regardless of the bandwidth available the route is granted provided the trunks are operational and there are sufficient Logical Channels (LChs).<br>The ***forced*** *pathType* could result in over committing the reserved bandwidth allowed on a trunk. A better way to achieve the effects of a ***forced*** *pathType* is to use a ***manual*** *pathType* with *setupPriority* = ***0*** and *holdingPriority* = ***0***. In this manner the path will reserve correct bandwidth and it will bump other paths if required while not being bumped itself. |
| Values | normal<br>manual<br>forced |
| Default | normal |

### ATTRIBUTE Vs Plc pathFailureAction (pfa)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |

| | |
|---|---|
| Description | This attribute is used to specify whether the application can tolerate momentary interruption of a path while a new path is selected. If ***disconnectConnection*** is chosen, the application is informed as soon as possible about a failure by disconnection. If the attribute is set to ***reRoutePath***, the path may attempt an immediate reroute, provided the failure is a recoverable failure. If rerouting fails the application is informed of the failure.<br>With this option set to ***reRoutePath*** the LCo may wait up to 30 seconds before informing the service of complete disconnection in order to allow both ends to attempt to reconnect. Note that if PLC components are different at both ends only the calling end is allowed to reconnect.<br>All *pathTypes* respect this attribute. Also on a *manualPath* with both ends provisioned with independent paths (at least with respect to the failure) this option will have the desired effect that the path is rerouted without complete disconnection at both ends. |
| Values | reRoutePath<br>disconnectConnection |
| Default | reRoutePath |

### ATTRIBUTE Vs Plc bumpPreference (bpref)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute controls when bumping occurs in the route selection process. A connection with higher (numerically less) *setupPriority* may bump a connection with lower (numerically higher) *holdingPriority* in order to acquire its bandwidth and be established. By default, bumping occurs only when it is necessary. That is, a connection will bump another connection only if there is no other way for the connection to be established. A connection may be set to always bump in order to find the best route it may have. |
| Values | bumpWhenNecessary<br>bumpToObtainBestRoute |
| Default | bumpWhenNecessary |

### ATTRIBUTE Vs Plc optimization (opt)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute is used to specify whether this connection should attempt to optimize its path when requested by the routing PORS component. Every path is as optimal as it can be when it is established, but as network traffic patterns and configurations change this path may no longer be as optimal as it could be. The PORS connection manager on a module requests circuits to optimize at the optimization interval. |
| Values | disabled<br>enabled |
| Default | enabled |

### ATTRIBUTE Vs Plc addressToCall (addrToCall)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute is the *PLC*'s remote end point's address in the format of a NSAP address. As such it must consist of a string of hex digits although not all 40 digits must be specified. For an alternative representation of end point's addresses, see *remoteName* attribute. If the *addressToCall* is provisioned, it must match *localAddress* provisioned on the remote end or the connection will not be established. Connections establish faster and are unique if both ends are provisioned with *addressToCall*. *AddressToCall* must be used when the remote end of the connection resides in different topology region. If it resides in the same topology region, then *remoteName* may be used. When both *remoteName* and *addressToCall* are provisioned, *addressToCall* takes precedence. That is, connection will be established to the service specified by *addressToCall*. |
| Values | String (0..40, ASCII) |
| Default | "" |

### ATTRIBUTE Vs Plc localAddress (localAddr)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute is the *PLC*'s end point address in the format of an NSAP address. As such it must consist of a string of hex digits although not all 40 digits must be specified. *LocalAddress* must share a prefix with MOD nodePrefix or one of MOD alternatePorsPrefixes for this node, otherwise PORS will not be able to route calls to this service. *LocalAddress* is used in conjunction with *addressToCall*. That is, the end responsible for originating calls must have *addressToCall* provisioned, while the end responsible for terminating calls must have *localAddress* provisioned. In such a case, *addressToCall* on the originating end must match exactly the *localAddress* of the terminating end. Note that both ends may be originating and terminating at the same time. That is, both ends may have *addressToCall* and *localAddress* provisioned as long as *addressToCall* and *localAddress* on different ends are identical. |
| Values | String (0..40, ASCII) |
| Default | "" |

### ATTRIBUTE Vs Plc maximumAcceptableGatewayCost (maxGateCost)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute indicates an upper bound on the gateway cost metric of a route, which is the sum of the gateway cost metrics of all gateway links on the route. It has the same semantics as the *maximumAcceptableCost* except that gateway cost metrics are used instead of trunk cost metrics. Gateway cost metrics are provisioned under *Trunk Address* component of a gateway link specifying a gateway costs of reaching an address through the link. |
| Values | Decimal (0..65535) |
| Default | 2048 |

## ATTRIBUTE Vs Plc manualPath (mpath)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute is optional and specifies the sequence of trunks to be used as the route for the path, thus bypassing PORS' automatic route selection. If the path fails the validation, no other path can be selected[1]. This attribute should only be used in special cases since the route selection algorithm is able to find and maintain the best routes. A related path attribute, the *pathType*, determines if this route will be used as a manual or forced path type.<br>As an example, the trunk component name for the third trunk on node MoonBase is "*EM/MoonBase Trk/3*". Note that only the first end of the trunk that the packet would encounter is provisioned. These strings are case insensitive but the complete component name must be input.<br><br>Note 1: the trunk designation must be a 3-letter form, e.g., 'trk'.<br>Note 2: only the outbound trunks component names are used to provision the ***manualPath***.<br><br>Note 3: It is recommended to have two independent routes specified for a manual path by specifying a different ***manualPath*** (non-symmetric) for each end. In this case, there is no way to select which route will be used (first up wins) but if one path is torn down due to a failure then the other ***manualPath*** may be used to reroute the path. |
| Vector of | String (0..40, ASCII) |
| Index | Decimal (0..9) |
| Default | ([10] "") |

## COMPONENT Vs LogicalConnection (LCo)

| | |
|---|---|
| Groups | "GROUP Vs LCo PathData"<br>"GROUP Vs LCo Statisitics (Stats)" |
| Scope | Application |

Description ...*Lc*
This component contains all of the operation attributes for a Path Oriented Logical Connection.

Common Verbs
Help
List
Display

## VERB RERoute Vs LCo

Impact Service

Description RERoute ..Lc
This command is used to request a *LogicalConnection (LCo)* to attempt a reroute. A new path will be established if it is better than the current path. The current path will not be interrupted if the *RERoute* command is not completely successful. The connection must not be attempting rerouting at present. This command is only valid on components with the *PLC remoteName* specified.
This command is intended to be used on the calling end of a connection. For a single region call, it may be used on the called end of a connection if all the *PLC* parameters match. Note that the calling end or the called end of a connection means the *end* attribute of an *LCo* is equal to the value of ***calling*** or ***called*** respectively.

When used on an *LCo* with *pathType* attribute set to ***manual*** or ***forced,*** this command can be used to re-setup the path.

If this command is attempted on a connection that is not up but its *state* attribute is equal to ***pathDownRetrying,*** an immediate route request is sent.

## GROUP Vs LCo PathData

Properties Operational

Description This group contains all operational attributes for the path oriented LCo.

### ATTRIBUTE Vs LCo state

| | |
|---|---|
| Access | Read only |
| Description | This attribute reflects the current state of the connection. The ***pathDown*** state indicates a connection that has no remote end provisioned or the application has not yet signaled for a path. The ***selectingRoute*** state occurs when a request has been sent to route selector and it has not yet responded. The ***connectingState*** occurs while a path is being established. The ***pathUp*** state is the normal operational state of a path. The ***pathDownRetrying*** state indicates a path that attempted route selection but received no route and is now waiting to retry route selection again. |
| Values | pathDown<br>selectingRoute<br>connecting<br>pathUp<br>pathDownRetrying |
| Default | No default |

### ATTRIBUTE Vs LCo overrideRemoteName (orn)

| | |
|---|---|
| Access | Read: All<br>Write: All |
| Description | If set ***and*** the current PLC remoteName is blank this remoteName will override the blank PLC remoteName. Usually you would set this attribute and then lock/unlock the service component which will result in this new overrideRemoteName being used as if it had been provisioned into the PLC remoteName. The advantage of this attribute is that the connection's remoteName can be changed immediately without having to "activate prov" but the disadvantage is that the overrideRemoteName is not permanent and if the card or switch is reset the override will be lost. |
| Values | String (0..40, ASCII) |
| Default | "" |

### ATTRIBUTE Vs LCo end

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute identifies whether this is the calling or called end of the path. |
| Values | calling<br>called |
| Default | No default |

### ATTRIBUTE Vs LCo costMetric (cost)

| | |
|---|---|
| Access | Read only |
| Description | This attribute gives the route's total cost metric. It is calculated as the sum of the cost metric of all trunks in the path at the time the connection was established. The cost metric of a trunk is defined by the *trunkCost* attribute of the Trunk component. The *costMetric* for an LCo that is originated and terminated on the same module is 0. |
| Values | Decimal (0..65535) |
| Default | No default |

### ATTRIBUTE Vs LCo delayMetric (delay)

| | |
|---|---|
| Access | Read only |
| Description | This attribute gives the total delay of the route as the one way delay for a 512 byte packet. It is calculated as the sum of the delays of all trunks in the path stored in topology at the time the connection was established. The delay for an LCo that is originated and terminated on the same module is 0. |
| Values | Decimal (0..100000) |
| Units | msec |
| Default | No default |

### ATTRIBUTE Vs LCo roundTripDelay (rtd)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the time taken for a packet (cell) of 44 bytes to be transmitted inband to the remote *LCo* and return to this LCo. The value reported is rounded to the nearest |

| | |
|---|---|
| | millisecond.<br>For Unack PORS trunks and AAL5 MUX PORS trunks, the test packet is sent inband and receives the same treatment as regular data packets, giving a round trip delay which corresponds to regular data traffic.<br>For SPO MUX PORS trunks and MAP PORS trunks, the test packet is sent along the parent trunk's VCC, giving a round trip delay which corresponds to the parent trunk's round trip delay. The round trip delay does not directly reflect the round trip delay of data packets travelling on the non-parent VCC.<br>When the *LCo* is originated and terminated on the same module, a value of 1 millisecond is reported. The value of 1 millisecond is the minimum reported time even though the delay may be less than 1 millisecond. |
| Values | Decimal (0..200000) |
| Units | msec |
| Default | No default |

### ATTRIBUTE Vs LCo setupPriority (spri)

| | |
|---|---|
| Access | Read only |
| Description | This attribute gives the priority at which the current path is established. Zero is the highest priority and four is the lowest. The *holdingPriority*, a complementary attribute of this component, indicates the priority a path maintains once it is established. |
| Values | Decimal (0..4) |
| Default | No default |

### ATTRIBUTE Vs LCo holdingPriority (hpri)

| | |
|---|---|
| Access | Read only |
| Description | This attribute gives the priority at which a path holds its current path once the path is established. Zero is the highest priority and four is the lowest. The *setupPriority*, a complementary attribute, indicates the priority of a path at establishment time. |
| Values | Decimal (0..4) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Vs LCo requiredTxBandwidth (tbw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute gives the actual bandwidth (in bits per second) reserved by this path on each of the trunks of its route. This attribute represents the bandwidth for traffic outgoing to the remote end point. The originating end of the connection determines this value. |
| Values | Decimal (0..4294967295) |
| Units | bit/s |
| Default | No default |

### ATTRIBUTE Vs LCo requiredRxBandwidth (rbw)

| | |
|---|---|
| Access | Read only |
| Description | This attribute gives the actual bandwidth (in bits per second) reserved by this path on each of trunks of its route. This attribute represents the bandwidth for traffic incoming from the remote end point. The originating end of the connection determines this value |
| Values | Decimal (0..4294967295) |
| Units | bit/s |
| Default | No default |

### ATTRIBUTE Vs LCo requiredTrafficType (rttyp)

| | |
|---|---|
| Access | Read only |
| Description | This operational attribute indicates the type of traffic transmitted over the path. There are eight possible traffic types, and the path can transmit only one of them. The originating end of the connection determines the type. These are arbitrary designations for traffic type. The ***voice***, ***data*** and ***video*** traffic types are defined, and five other arbitrary traffic types can be defined by the network administration. This attribute is used in the route selection process to restrict the route to trunks that support this |

traffic type. The *supportedTrafficType* trunk attribute lists all the types of traffic allowed on the trunk. For example, if *requiredTrafficType* is specified as ***trafficType1*** then only trunks that include ***trafficType1*** in *supportedTrafficType***,** will be candidates for this connection.

Values
voice
data
video
trafficType1 (tt1)
trafficType2 (tt2)
trafficType3 (tt3)
trafficType4 (tt4)
trafficType5 (tt5)

Default
No default

### ATTRIBUTE Vs LCo permittedTrunkTypes (pttyp)

Access
Read only

Description
This operational attribute lists up to eight types of trunk that can be used on the route. The originating end of the connection determines the types. The ***terrestrial*** and ***satellite*** trunk types have been defined, leaving six remaining arbitrary types that can be defined by the network administration. The trunk's type is indicated in the *trunkType* attribute of the Trunk component. When selecting a route, PORS only chooses trunks whose *trunkType* are in the *permittedTrunkTypes* for the path.

Set of
terrestrial
satellite
trunkType1 (tt1)
trunkType2 (tt2)
trunkType3 (tt3)
trunkType4 (tt4)
trunkType5 (tt5)
trunkType6 (tt6)

Default
No default

### ATTRIBUTE Vs LCo requiredSecurity (rsec)

Access
Read only

| | |
|---|---|
| Description | This attribute indicates the required minimum level of security of the trunks on the route. Zero represents the most secure and seven represents the least secure. The trunk's security is indicated by the *trunkSecurity* attribute of the Trunk component, and has values identical in range and meaning to the *requiredSecurity* attribute. PORS ensures that any route selected does not contain a trunk whose *trunkSecurity* attribute is numerically greater than the *requiredSecurity.* |
| Values | Decimal (0..7) |
| Default | No default |

### ATTRIBUTE Vs LCo requiredCustomerParameter (rcparm)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the allowed customer defined parameter of the trunks on the route.The originating end of the connection determines the customer defined parameter. Its value, a number from zero to seven, is chosen by a network administration to have a meaning specific to their network, thus allowing them to customize the use of their trunks. A complementary trunk attribute, *customerParameter*, also has a value from zero to seven. The route selection process does not consider trunks whose *customerParameter* is greater than the *requiredCustomerParameter* of the path. |
| Values | Decimal (0..7) |
| Default | No default |

### ATTRIBUTE Vs LCo emissionPriority (epri)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the urgency with which packets on the path are emitted by the trunks on the route. The originating end of the connection selects the *emissionPriority. EmissionPriority* of zero indicates the highest emission priority, while two indicates the lowest emission priority. Packets with a higher *emissionPriority* (or numerically less) are serviced and sent out before the packets of lower *emissionPriority* (or numerically higher). |

| | |
|---|---|
| Values | Decimal (0..2) |
| Default | No default |

### ATTRIBUTE Vs LCo discardPriority (dpri)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the importance of the packets on the path. The originating end of the connection sets *discardPriority.* One is used for paths carrying the most important traffic, and three is used for paths carrying the least important traffic. Packets with lower *discardPriority*(numerically) are discarded after packets with a higher *discardPriority*(numerically). |
| Values | Decimal (1..3) |
| Default | No default |

### ATTRIBUTE Vs LCo pathType (pType)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether the path for this PLC was determined automatically or by static provisioning. ***Normal*** *pathTypes* are selected automatically by Route Selector.The other *pathTypes* are both manual *pathTypes* where the operator must specify, through provisioning, a static route termed the *manualPath*. A manual *pathType* connection is nearly identical to a normal path type connection with the exception that the route is pre-provisioned. For a manual *pathType*, bandwidth reservations are respected along the path exactly as in a normal path. The last type, the ***forced*** *pathType*, is also a manual path but regardless of the bandwidth available the route is granted provided the trunks are operational and there are sufficient Logical Channels (LChs).<br><br>The ***forced*** *pathType* could result in over committing the reserved bandwidth allowed on a trunk. A better way to achieve the effects of a ***forced*** *pathType* is to use a ***manual*** *pathType* with *setupPriority* = ***0*** and *holdingPriority* = ***0***. In this manner the path will reserve correct bandwidth and it will bump other paths if required while not being bumped itself. |

| | |
|---|---|
| Values | normal<br>manual<br>forced |
| Default | No default |

### ATTRIBUTE Vs LCo retryCount (rcount)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the count of the number of times the path chosen during route selection could not be instantiated. This count should be three or below if the network is performing adequately. A high value indicates that the route selection is often performed using an out-of-date view of available network bandwidth and/or topology.<br>This attribute will only increase at the calling end of an un-segmented connection. The attribute should be ignored for segmented connections.This attribute is reset each time a path reconnects and stops counting when it reaches its maximum value. |
| Values | Decimal (0..255) |
| Default | No default |

### ATTRIBUTE Vs LCo pathFailureCount (pfcount)

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the count of the number of times the path has successfully connected. It is set to zero the first time the path is up. If a path fails anytime after connecting this count will be incremented when the path is up again. Failed route requests do not count in this statistic. See *retryCount* above. This attribute stops counting at its maximum value. |
| Values | Decimal (0..65535) |
| Default | No default |

### ATTRIBUTE Vs LCo reasonForNoRoute (rnr)

| | |
|---|---|
| Access | Read only |

Description

This attribute is the route selection's *reasonForNoRoute* and provides a brief reason for which a route was not selected. The reasons are essentially self-explanatory. Perhaps two reasons for no route require some explanation. The reason ***unknownRemoteNodeName*** is issued when the remote node name is not in the topological database. The reason ***plcAttributesNotMet*** is issued when there is no network connectivity at a level specified by the PLC attributes. This reason is also issued when there is no physical connectivity between two end nodes.

Values

none
destinationNameTooLong
destinationNotSpecified
unknownDestinationName
incorrectDestination
incorrectDestinationEndPoint
unknownSource
unknownDestination
sameNode
routeCostTooMuch
routesDelayTooLong
attributesNotMet
anError
attributeProfileProblem
manualPathIndexProblem

Default

none

### ATTRIBUTE Vs LCo lastTearDownReason

Access

Read only

Description

This attribute reflects the last tear down reason for a connection (LCo). In many cases this displays the reason for a momentary service interruption. This attribute applies to the last path failure only. If a path is no longer up, this may give an indication to the reason that the path has failed. In many cases an alarm will also be generated with more specific information. The following is a brief description of the reasons:
***none*** - This path has no information for the teardown this is typical of a path provisioned with no *remoteName* that has not

been up.
***normalShutDown*** - This path has gone down due to normal call termination.
***insufficientTxLcOrBandwidth*** - At present there is either no available bandwidth or logical channel numbers available on one or more of the trunks for this path in the transmit direction.
***insufficientRxLcOrBandwidth*** - At present there is either no available bandwidth or logical channel numbers available on one or more of the trunks for this path in the receive direction.
***trunkFailure***- A trunk on the path has failed or has gone down due to a provisioning change of a critical attribute.
***trunkCardFailure***- A trunk FP card has failed along the path.
***accessCardFailure***- The FP on which the peer access service was running has failed.
***operatorForced***- The path has terminated due to the operator locking a trunk along the path.
***lostLcnClash***- The path has terminated because the PA's at both ends of an intermediate trunk have allocated the same LC to different calls. When this happens both calls must go down and then try to come up again a fraction of a second later (effectively ensuring that they will now be assigned different LC's). It is normal to get the odd clash especially when the PA's usedLC is approaching the PA's maxLC.
***networkCongestion*** - The path has failed due to control information being lost and not recoverable.
***trunkNotFound*** - Occurs on a ***manual*** path usually. Check for trunks not up or names provisioned incorrectly.
***farEndNotFound*** - The far end is not provisioned or is not up. Check remote Name.
***wrongModuleReached*** - This may occur on a ***manual*** path. Check provisioning for correct trunk and service names. For a ***normal*** path, the network Topology may be changing check *remoteName*.
***farEndBusy*** - The far end has been reached but it is busy. Check *remoteName* and remote end provisioning.
***callLoopedBack*** - This LCo is provisioned to call itself. Re-provision since this is invalid.
***unknownReason*** - The failure was not resolved.
***farEndNotReady*** - The remote end was reached but the connection was refused due to the remote end not being enabled.
***remoteNameMismatch*** - The remote end has alarmed and

rejected this setup due to remoteName provisioning.
***serviceTypeMismatch*** - The remote Service Type does not match this service type. Check provisioning.
***reconnectFromFarEnd*** - The remote end re-established this connection. Check the remote end *lastTearDownReason* to determine the real reason.
***bumped*** - Another call bumped this path from a trunk to get bandwidth (or an LC) which it required to come up. This other path had a higher *setupPriority* than this path's *holdingPriority* hence it was allowed to steal the bandwidth (or LC) from this path.
***optimized*** - This call has been rerouted due to the optimization feature. The call is still active this just indicates why the path changed.
***trunkOrFarEndDidNotSupportMode*** - This call was unable to complete because a mode required by the service was not supported by one of the trunks the route went through or by the far end service it connected to. Currently the only mode that this applies to is the map/mux mode on TRUNK PA ATM component. Map mode was required by the application (CES/FrAtm etc.) but was not available on the TRUNK PA ATM component through which the call was routed or the far end CES/FrAtm component did not specify the same mode.

Values

none
normalShutDown
insufficientTxLcOrBandwidth
insufficientRxLcOrBandwidth
trunkFailure
trunkCardFailure
operatorForced
lostLcnClash
networkCongestion
trunkNotFound
farEndNotFound
wrongModuleReached
farEndBusy
callLoopedBack
unknownReason
farEndNotReady

remoteNameMismatch
serviceTypeMismatch
reconnectFromFarEnd
bumped
accessCardFailure
optimized
overrideRemoteName
trunkOrFarEndDidNotSupportMode

Default none

### ATTRIBUTE Vs LCo pathFailureAction

Access Read only

Description This attribute displays whether the application is set to tolerate momentary interruption of a path while a new path is selected. If ***disconnectConnection*** is displayed, the application is informed as soon as possible about a failure by disconnection. If the attribute displays ***reRoutePath***, the path may attempt an immediate reroute, provided the failure is a recoverable failure. If rerouting fails the application is informed of the failure.
With this option set to ***reRoutePath*** the LCo may wait up to 30 seconds before informing the service of complete disconnection in order to allow both ends to attempt to reconnect. Note that if PLC components are different at both ends only the calling end is allowed to reconnect.

All *pathTypes* respect this attribute. Also on a *manualPath* with both ends provisioned with independent paths (at least with respect to the failure) this option will have the desired effect that the path is rerouted without complete disconnection at both ends

Values reRoutePath
disconnectConnection

Default No default

### ATTRIBUTE Vs LCo bumpPreference (bpref)

Access Read only

Description This attribute specifies when bumping will occur during route selection process. Bumping may occur when necessary or always.

It will be necessary for a connection to bump if there is not enough resources for the connection to be established and these resources are occupied by a connection whose *setupPriority* is lower (numerically higher) than the connection's *setupPriority*. A connection may also always bump in order to obtain the best route.

Values: bumpWhenNecessary
bumpToObtainBestRoute

Default: No default

### ATTRIBUTE Vs LCo optimization (opt)

Access: Read only

Description: This attribute is used to specify whether this connection should attempt to optimize its path when requested by the routing PORS component. Every path is as optimal as it can be when it is established, but as network traffic patterns and configurations change this path may no longer be as optimal as it could be. The PORS connection manager on a module requests circuits to optimize at the optimization interval.

Values: disabled
enabled

Default: No default

### ATTRIBUTE Vs LCo pathUpDateTime

Access: Read: Service
Write: Illegal

Description: This is the time stamp when the current path was established or reestablished.

Values: Time (DHMS)

Default: No default

### ATTRIBUTE Vs LCo path

Access: Read only

| | |
|---|---|
| Description | This attribute contains the trunk component names over which the path has been instantiated and the remote end point name terminating the path. |
| List of | String (0..40, ASCII) |
| List Size | 21 |
| Default | No default |

### GROUP Vs LCo Statisitics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational statistics attributes for the path oriented LCo. |

### ATTRIBUTE Vs LCo pktsToNetwork

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of packets transmitted to the network over this Logical Connection. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Vs LCo bytesToNetwork

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of bytes sent to the network over this Logical Connection. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE Vs LCo pktsFromNetwork

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of packets received from the remote LCo via the network. |
| Values | Long Integer |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE Vs LCo bytesFromNetwork

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of bytes received from the remote LCo via the network. |
| Values | Long Integer |
| Default | No default |

Passport 7400, 15000, 20000

# Component Vs

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada

NORTEL NETWORKS

Passport 7400, 15000, 20000

# Component X25Dte

241-5701-060

Passport 7400, 15000, 20000

# Component X25Dte

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003

Copyright © 2003 Nortel Networks.
All Rights Reserved.

Printed in Canada

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN, and PASSPORT are trademarks of Nortel Networks.

# COMPONENT X25Dte

| | |
|---|---|
| Instance | Decimal (1..65535) |
| Groups | "GROUP X25Dte CustomerIdentifierData (CidData)"<br>"GROUP X25Dte Interface (If)"<br>"GROUP X25Dte LcnConfig (LcnC)"<br>"GROUP X25Dte DefaultCallParam (Dcp)"<br>"GROUP X25Dte IfEntryProv (IfEntry)"<br>"GROUP X25Dte OsiState (State)"<br>"GROUP X25Dte OperationalStatus (OperStatus)"<br>"GROUP X25Dte Operational (Op)"<br>"GROUP X25Dte Statistics (Stats)" |
| Scope | Application |
| Description | *X25Dte/n*<br>The *X25Dte* component defines the general parameters for implementing the X.25 DTE interface. |

| | |
|---|---|
| Subcomponents | "COMPONENT X25Dte Lapb"<br>"COMPONENT X25Dte PacketLayerEntity (Ple)"<br>"COMPONENT X25Dte RemoteGroup (Rg)" |
| Opt. Subcomp. | "COMPONENT X25Dte Peer"<br>"COMPONENT X25Dte PermLcn (PLcn)" |
| Dyn. Subcomp. | "COMPONENT X25Dte Lcn (Lcn)" |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

### GROUP X25Dte CustomerIdentifierData (CidData)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the attribute for a component's Customer Identifier (CID). Refer to the attribute description for a detailed explanation of CIDs. |

### ATTRIBUTE X25Dte customerIdentifier (cid)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute holds the Customer Identifier (CID).<br><br>Every component has a CID. If a component has a *cid* attribute, the component's CID is the provisioned value of that attribute; otherwise the component inherits the CID of its parent. The top-level component has a CID of 0.<br><br>Every operator session also has a CID, which is the CID provisioned for the operator's user ID. An operator will see only the stream data for components having a matching CID. Also, the operator will be allowed to issue commands for only those |

components which have a matching CID.

An operator CID of 0 is used to identify the Network Manager (referred to as “NetMan” in DPN). This CID matches the CID of any component. Values 1 to 8191 inclusive (equivalent to “basic CIDs” in DPN) may be assigned to specific customers.

Values: Decimal (0; 1..8191)

Default: 0

### GROUP X25Dte Interface (If)

Properties: Provisioned

Description: This group provides the administrative set of parameters for the X.25 interface.

### ATTRIBUTE X25Dte interfaceMode (ifM)

Access: Read only

Description: This attribute specifies the packet mode in which the X.25 interface operates. When this attribute is set to ***dte***, interface on the other side of the physical link must be configured as a ***dce***.

Values: dte
dce

Default: dte

### ATTRIBUTE X25Dte maxActiveChannels (maxAc)

Access: Read and write

Criticality: Process

Description: This attribute specifies the maximum number of channels that can be active on this interface including the Permanent Lcns and the Switched Lcns. In total *maxActiveChannel* will determine the maximum number of *Lcn* components which may exist at a given time. This should be set to a value greater or equal to the *numberOfPLcn* provisioned.

Values: Decimal (0..4095)

| | |
|---|---|
| Default | 10 |

### ATTRIBUTE X25Dte numberOfPLcn (numOPLcn)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the number of Permanent Logical Channels that are supported on this X.25 interface (that is, the number of *PermLcn* components that may be provisioned at this interface). The *PermLcn* components use channel numbers starting from 1 and up to *lowestILChannelNumber*.<br>A value of ***0*** for this attribute indicates that no Permanent Logical channels are supported on this X.25 interface. |
| Values | Decimal (0..4095) |
| Default | 0 |

### ATTRIBUTE X25Dte packetSequencing (pS)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the sequence numbering of packets for the X.25 interface. The value of this attribute must be the same as the packet sequencing configured at the X.25 interface on the other side of the physical link. |
| Values | modulo8<br>modulo128 |
| Default | modulo8 |

### ATTRIBUTE X25Dte t20RestartTimer (t20)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute provides the period in milliseconds within which a restart request packet should be confirmed. |
| Values | Decimal (1000..65536000) |
| Units | msec |

| | |
|---|---|
| Default | 60000 |

### ATTRIBUTE X25Dte t21CallTimer (t21)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute provides the period in milliseconds within which a call request packet should be confirmed. |
| Values | Decimal (1000..65536000) |
| Units | msec |
| Default | 180000 |

### ATTRIBUTE X25Dte t22ResetTimer (t22)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute provides the period in milliseconds within which a reset request packet should be confirmed. |
| Values | Decimal (1000..65536000) |
| Units | msec |
| Default | 60000 |

### ATTRIBUTE X25Dte t23ClearTimer (t23)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute provides the period in milliseconds within which a clear request packet should be confirmed. |
| Values | Decimal (1000..65536000) |
| Units | msec |
| Default | 60000 |

### GROUP X25Dte LcnConfig (LcnC)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the Logical Channel configuration of the X.25 Interface. The logical channel range table is ordered as follows: |

Permanent Logical Channels(PLC),
One-way Incoming Channels (IC),
Two-way Channels(TC) and
One-way Outgoing Channels (OC),

in a consecutive manner.

### ATTRIBUTE X25Dte lowestILChannelNumber (lILcn)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the lowest Lcn number of the One-way Incoming Channel range for this X.25 interface. The value for this attribute must be greater than the *numberOfPLcn* attribute. |
| Values | Decimal (0..4095) |
| Default | 0 |

### ATTRIBUTE X25Dte highestILChannelNumber (hILcn)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the highest Lcn number of the One-way Incoming Channel range for this X.25 interface. A value of ***0*** indicates that there are no channels in this range. |
| Values | Decimal (0..4095) |
| Default | 0 |

### ATTRIBUTE X25Dte lowestTLChannelNumber (lTLcn)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the lowest Lcn number of the Two-way Channel range for this X.25 interface. The value for this attribute must be greater than the *highestILChannelNumber* attribute. |

| | |
|---|---|
| Values | Decimal (0..4095) |
| Default | 1 |

### ATTRIBUTE X25Dte highestTLChannelNumber (hTLcn)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the highest Lcn number of the Two-way Channel range for this X.25 interface. A value of ***0*** indicates that there are no channels in this range. |
| Values | Decimal (0..4095) |
| Default | 20 |

### ATTRIBUTE X25Dte lowestOLChannelNumber (lOLcn)

| | |
|---|---|
| Access | Read and write |
| Criticality | ProcessThis attribute specifies the lowest Lcn number of the One-way Outgoing Channel range for this X.25 interface. The value for this attribute must be greater than the *highestTLChannelNumber* attribute. |
| Values | Decimal (0..4095) |
| Default | 0 |

### ATTRIBUTE X25Dte highestOLChannelNumber (hOLcn)

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute specifies the highest Lcn number of the One-way Outgoing Channel range for this X.25 interface. A value of ***0*** indicates that there are no channels in this range. |
| Values | Decimal (0..4095) |
| Default | 0 |

## GROUP X25Dte DefaultCallParam (Dcp)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes giving the default call parameters used by all the logical channels during call setup. It is possible that different default call parameters will be used for a particular call, based on the *Peer* component for the given call. The actual call parameters operational for a given call are found in the *Lcn* component. |

## ATTRIBUTE X25Dte inPacketSize (iPktSz)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum receive packet size in octets for the X.25 interface. |
| Values | Decimal (16; 32; 64; 128; 256; 512; 1024; 2048; 4096) |
| Default | 128 |

## ATTRIBUTE X25Dte outPacketSize (oPktSz)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum transmit packet size in octets for the X.25 interface. |
| Values | Decimal (16; 32; 64; 128; 256; 512; 1024; 2048; 4096) |
| Default | 128 |

## ATTRIBUTE X25Dte inWindowSize (iWdwSz)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum receive window size for the X.25 interface. A window size greater than ***7*** is only valid when the *packetSequencing* attribute is set to ***modulo128***. |
| Values | Decimal (1..127) |
| Default | 2 |

### ATTRIBUTE X25Dte outWindowSize (oWdwSz)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum transmit window size for the X.25 interface. A window size greater than ***7*** is only valid when the *packetSequencing* is set to ***modulo128***. |
| Values | Decimal (1..127) |
| Default | 2 |

### ATTRIBUTE X25Dte acceptReverseCharging (aRC)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether local end will accept or refuse charges for a call. A value of ***neverAccept*** is only used at the X.25 interface level and indicates that this interface will never accept reverse charging (that is no *Peer* component can override this parameter, allowing reverse charged calls to be accepted). |
| Values | accept<br>refuse<br>neverAccept |
| Default | refuse |

### ATTRIBUTE X25Dte proposeReverseCharging (pRC)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether ***local***/***reverse*** charging is signalled in the call request packet. |
| Values | reverse<br>local |
| Default | local |

### ATTRIBUTE X25Dte outThroughputClassSize (oTpCSz)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute specifies the value of the transmit throughput class to be negotiated. A value of ***notSpecified*** means the facility is not signalled. |
| Values | 75<br>150<br>300<br>600<br>1200<br>2400<br>4800<br>9600<br>19200<br>48000<br>64000<br>notSpecified |
| Default | notSpecified |

### ATTRIBUTE X25Dte inThroughputClassSize (iTpCSz)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the value of the receive throughput class to be negotiated. A value of ***notSpecified*** means the facility is not signalled. |
| Values | 75<br>150<br>300<br>600<br>1200<br>2400<br>4800<br>9600<br>19200<br>48000<br>64000<br>notSpecified |
| Default | notSpecified |

### ATTRIBUTE X25Dte cugIndex (cI)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the index of the Closed User Group facility to signal. The index consists of two or four octets each representing a digit in the range of 0 to 9. A value of null (empty string) at the X.25 interface means no CUG facility is signalled. If a *cugIndex* is provisioned to be signalled, the *cugoaIndex* attribute must be null. |
| Values | String (0..4, ASCII) |
| Default | "" |

### ATTRIBUTE X25Dte cugoaIndex (coaI)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the index of the Close User Group with Outgoing Access facility to signal. The index consists of two or four octets each representing a digit in the range of 0 to 9. A value of null (empty string) at the X.25 interface means no CUGOA facility is signalled. If a *cugoaIndex* is provisioned to be signalled, the *cugIndex* attribute must be null. |
| Values | String (0..4, ASCII) |
| Default | "" |

### ATTRIBUTE X25Dte chargingInformation (cInfo)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether the charging information facility is to be signalled in a call request packet. A value of ***notSpecified*** means the facility is not signalled. A value of ***notRequested*** means the facility is signalled but charging information is not requested (that is, the charging info field of the facility is set Off). A value of ***requested*** means the facility is signalled to explicitly request charging information. |
| Values | notSpecified<br>notRequested<br>requested |

| | |
|---|---|
| Default | notSpecified |

### ATTRIBUTE X25Dte rpoa (rp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the value of the RPOA facility to signal in a call request packet. The value of null (empty string) at the X.25 interface means no RPOA facility is signalled. |
| Values | String (0..108, ASCII) |
| Default | "" |

### ATTRIBUTE X25Dte trnstDlySlctnAInd (tdsai)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the value of the Transit Delay Selection and Indication facility to signal in a call request packet. A value of ***65536*** at the X.25 interface level means no TDSAI facility is signalled. |
| Values | Decimal (0..65536) |
| Default | 65536 |

### ATTRIBUTE X25Dte callingNetworkFax (clgNFax)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the Calling Network facilities to be signalled in a call request packet. A value of null (empty string) at the X.25 interface means no facilities are signalled. |
| Values | String (0..108, Hex) |
| Default | "" |

### ATTRIBUTE X25Dte calledNetworkFax (cldNFax)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the called network facilities to be signalled in a call request packet. A value of null (empty string) at the X.25 interface means no facilities are signalled. |

| | |
|---|---|
| Values | String (0..108, Hex) |
| Default | "" |

### ATTRIBUTE X25Dte callUserData (cud)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the user data to be signalled in the call request packet. A value of null (empty string) means no user data is signalled. |
| Values | String (0..128, Hex) |
| Default | "" |

### GROUP X25Dte IfEntryProv (IfEntry)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the ifEntry. |

### ATTRIBUTE X25Dte ifAdminStatus (ifState)

| | |
|---|---|
| Access | Read and write |
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE X25Dte ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |

| | |
|---|---|
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP X25Dte OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE X25Dte adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

## ATTRIBUTE X25Dte operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

## ATTRIBUTE X25Dte usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP X25Dte OperationalStatus (OperStatus)

| | |
|---|---|
| Properties | Operational |
| Description | This group includes the Operational Status attribute. This attribute defines the current operational state of this component. |

### ATTRIBUTE X25Dte snmpOperStatus

| | |
|---|---|
| Access | Read only |
| Description | The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### GROUP X25Dte Operational (Op)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational status of the X.25 interface. |

### ATTRIBUTE X25Dte interfaceState (intfState)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the state of the interface. The ***notReady*** state, is the initial state of the service, when it is being initialized. The ***localRestarting*** state is entered when a Restart packet is sent to the link and the interface is waiting for a response. The ***remoteRestarting*** state is entered when a Restart packet is received from the link, and is being processed. In ***ready*** state, the service is operational and ready to provide service. |
| Values | notReady<br>localRestarting |

| | |
|---|---|
| | remoteRestarting<br>ready |
| Default | No default |

### GROUP X25Dte Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This component contains the statistics for the X.25 interface. |

### ATTRIBUTE X25Dte inCalls (iC)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of call packets received from link. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE X25Dte inCallRefusals (iCR)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of calls received from the link which have been cleared. This includes calls cleared by the X.25 interface and calls cleared by the higher level. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE X25Dte inPrvdrInitiatedClrs (iPIC)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of clear packets received from the link with a cause code other than DTE initiated. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE X25Dte inRmtInitiatedRsts (iRIRsts)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the number of reset packets received from the link with the cause code DTE initiated. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE X25Dte inPrvdrInitiatedRsts (iPIRsts)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of reset packets received from the link with the cause code other than DTE initiated. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE X25Dte inRestarts (iRstrts)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of restart packets received from the link while the service is in ready state. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE X25Dte inDataPackets (iDPkts)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of data packets received from link. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE X25Dte inPktsAcusdOfPrtclErr (iPktsPErr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of clear, reset, restart and diagnostic packets received from link containing a procedure error cause code. |

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE X25Dte inInterruptPackets (iIntPkts)

| | |
|---|---|
| Access | Read only |
| Description | This attributes counts the number of interrupt packets received from link. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE X25Dte outCallAttempts (oCAtt)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of call packets sent from this interface. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE X25Dte outCallFailures (oCFlrs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of call attempts from this interface that failed. This includes calls that were cleared because of restrictive fast select. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE X25Dte outInterruptPackets (oIntPkts)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of interrupt packets sent to the link. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE X25Dte outDataPackets (oDPkts)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of data packets sent to the link. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE X25Dte outActiveChannels (oActCh)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of One-way Outgoing Channels that are currently in use. This counter includes the call requests that have not been accepted. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE X25Dte inActiveChannels (iActCh)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates number of One-way Incoming Channels that are currently active. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE X25Dte twowayActiveChannels (tWActCh)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of Two-way Channels that are in use. This includes call requests sent but not yet accepted. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE X25Dte t20RestartTimeouts (t20Tmo)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the number of times the T20 restart timer has expired. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE X25Dte t21CallTimeouts (t21Tmo)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times the T21 call timer has expired. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE X25Dte t22ResetTimeouts (t22Tmo)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times the T22 reset timer has expired. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE X25Dte t23ClearTimeouts (t23Tmo)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times the T23 clear timer has expired. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### COMPONENT X25Dte Peer

| | |
|---|---|
| Instance | Decimal (1..4095) |
| Groups | "GROUP X25Dte Peer Interface (If)"<br>"GROUP X25Dte Peer Encapsulation (Enc)" |

"GROUP X25Dte Peer CallParameter (Cp)"
"GROUP X25Dte Peer Operational (Op)"

Scope: Application

Description: *X25Dte/n Peer/n*

This optional component defines the parameters to be used in setting up a switched circuit call to a particular remote destination. Multiple instances of this component can co-exist under the same *X25Dte* component.
An instance of this component is needed for each remote host with which the X.25 Dte is to communicate (that is, each peer to which it may establish calls or from which it is to accept calls).

Common Verbs:
Help
List
Display
Add
DELete

## GROUP X25Dte Peer Interface (If)

Properties: Provisioned

Description: This group provides the administrative set of parameters for the *Peer* interface.

## ATTRIBUTE X25Dte Peer encAddressType (eAddrT)

Access: Read and write

Criticality: Component

Description: This attribute specifies the encapsulation type for the address of the remote host with which this *Peer* component allows communication.

Values: ip

Default: ip

### ATTRIBUTE X25Dte Peer encAddress (eAddr)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the encapsulation address of the remote host with which this *Peer* component allows communication. This address must correspond with the encapsulation address type. Thus in the case of IP, it will contain a IP address. |
| Values | String (0..128, ASCII) |
| Default | No default |

### ATTRIBUTE X25Dte Peer x25Address (x25Addr)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the X.25 address that identifies the remote host with which this *Peer* component allows communication. The remote X.25 interface could be subdivided through the use of *RemoteGroup* components; in which case this *x25Address* is the X.25 address of the destination's *RemoteGroup* (not to be confused with the *RemoteGroup* indicated by the *linkToRemoteGroup* attribute of THIS *Peer* component). |
| Values | BCD (1..15) |
| Default | No default |

### ATTRIBUTE X25Dte Peer linkToRemoteGroup (lTRg)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This is a link to a *RemoteGroup* component. The *RemoteGroup* components logically divide up the X.25 Interface such that a number of Protocol Ports (and consequently a number of Virtual Routers) may share the same X.25 Interface into a Wide Area Network. In particular, the remote host identified by this *Peer* component is designated as belonging to the *RemoteGroup* linked by this attribute. The set of all *Peer* components and *PermLcn* |

components which link to a given *RemoteGroup* determine the subset of remote hosts which are accessible to a particular Protocol Port (and ultimately a Virtual Router).

Values: Link (Service, linkToPeer)

Default: No default

### GROUP X25Dte Peer Encapsulation (Enc)

Properties: Provisioned

Description: This group contains the protocol encapsulation types supported for communicating over an lcn to the remote host identified by this *Peer* component. An lcn may be established to the remote host for each of the supported protocol encapsulation types. For each lcn an *Lcn* dynamic component is created under the *X25Dte*.

### ATTRIBUTE X25Dte Peer protocolEncType (pEnc)

Access: Read and write

Description: Each instance of this replicated attribute describes an encapsulation method permitted for encapsulating the protocol data units (PDUs) of an upper layer protocol when communicating with the remote host identified by this *Peer* component. The index of a given replicated instance of this attribute represents the relative priority of the encapsulation method specified by the given attribute instance. An attribute with index “1” has the highest priority, so the encapsulation method described by it will be the first one attempted when signaling a call to the link. If the *protocolEncType* is set to ***IP*** to encapsulate IP traffic according to RFC1356, the *callUserData* for this *Peer* component and the *X25Dte* component must both be null, so that ***H.CC*** will be signaled as the call user data of the call request. This indicates that the protocol encapsulation type of IP is to be used for the channel.
A call received from the link will be accepted as long as the encapsulation method indicated in the call user data of the incoming call packet is included in one of these replicated attributes. (This presupposes that the incoming call has been directed to the *RemoteGroup* to which this *Peer* is linked through the *linkToRemoteGroup* attribute.)

| | |
|---|---|
| Values | ip |
| Replication | Decimal (1..1) |
| Default | No default |

### GROUP X25Dte Peer CallParameter (Cp)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the call parameters used to establish a call to/ from the remote host identified by this *Peer* component |

### ATTRIBUTE X25Dte Peer inPacketSize (iPktSz)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the default maximum receive packet size in octets. A setting of ***0*** indicates the *inPacketSize* setting for the X.25 interface (in *X25Dte* component) is used during call setup to the remote host identified by this *Peer* component. |
| Values | Decimal (0; 16; 32; 64; 128; 256; 512; 1024; 2048; 4096) |
| Default | 128 |

### ATTRIBUTE X25Dte Peer outPacketSize (oPktSz)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the default maximum transmit packet size in octets. A setting of ***0*** indicates the *outPacketSize* setting for the X.25 interface (in the *X25Dte* component) is used during call setup to the remote host identified by this *Peer* component. |
| Values | Decimal (0; 16; 32; 64; 128; 256; 512; 1024; 2048; 4096) |
| Default | 128 |

### ATTRIBUTE X25Dte Peer inWindowSize (iWdwSz)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the default receive window size. A window size of ***0*** indicates the *inWindowSize* setting for the X.25 interface (in the *X25Dte* component) is used during call setup to the remote host identified by this *Peer* component. A window |

size greater than ***7*** is only valid when the *packetSequencing* attribute of the *X25Dte* component is set to ***modulo128***.

Values: Decimal (0..127)

Default: 2

### ATTRIBUTE X25Dte Peer outWindowSize (oWdwSz)

Access: Read and write

Description: This attribute specifies the default transmit window size. A window size of 0 indicates the *outWindowSize* setting for the X.25 interface is used during call setup to the *Peer* identified by this component. A window size greater than ***7*** is only valid when the *packetSequencing* attribute of the *X25Dte* component is set to ***modulo128***.

Values: Decimal (0..127)

Default: 2

### ATTRIBUTE X25Dte Peer acceptReverseCharging (aRC)

Access: Read and write

Description: This attribute specifies whether the local end will ***accept*** or ***refuse*** charges for a call from the remote host identified by this *Peer* component. A value of ***default*** indicates the use of the *acceptReverseCharging* value from the *X25Dte* component. If the value at the *X25Dte* level is ***neverAccept***, a value of ***accept*** in this *Peer* component will be ignored because no reverse charge calls are to be accepted by this X.25 Dte.

Values:
default
accept
refuse

Default: refuse

### ATTRIBUTE X25Dte Peer proposeReverseCharging (pRC)

Access: Read and write

Description: This attribute specifies whether local/reverse charging is signaled in a call request packet. A value of ***default*** indicates the use of

the value from the *proposeReverseCharging* attribute of the *X25Dte* component.

Values
default
reverse
local

Default
local

### ATTRIBUTE X25Dte Peer outThroughputClassSize (oTpCSz)

Access
Read and write

Description
This attribute specifies the value of the transmit throughput class to be negotiated. A value of ***default*** indicates the use of the value from the *outThroughputClassSize* attribute of the *X25Dte* component. A value of ***notSpecified*** means the facility is not signaled.

Values
75
150
300
600
1200
2400
4800
9600
19200
48000
64000
notSpecified
default

Default
notSpecified

### ATTRIBUTE X25Dte Peer inThroughputClassSize (iTpCSz)

Access
Read and write

Description
This attribute specifies the value of the receive throughput class to be negotiated. A value of ***default*** indicates the use of the value from the *inThroughputClassSize* attribute of the *X25Dte* component. A value of ***notSpecified*** means the facility is not signaled.

| | |
|---|---|
| Values | 75<br>150<br>300<br>600<br>1200<br>2400<br>4800<br>9600<br>19200<br>48000<br>64000<br>notSpecified<br>default |
| Default | notSpecified |

### ATTRIBUTE X25Dte Peer cugIndex (cI)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the index of the Closed User Group facility to signal. A value of "***DEF***" indicates the use of the value from the *cugIndex* attribute of the *X25Dte* component. A value of null (empty string) indicates no CUG facility is to be signaled. If a *cugIndex* is provisioned to be signaled, the *cugoaIndex* attribute must be null. |
| Values | String (0..4, ASCII) |
| Default | "" |

### ATTRIBUTE X25Dte Peer cugoaIndex (coaI)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the index of the Closed User Group with Outgoing Access facility to signal. A value of "***DEF***" indicates the use of the value from the *cugoaIndex* attribute of the *X25Dte* component. A value of null (empty string) indicates no CUGOA facility is to be signaled. If a *cugoaIndex* is provisioned to be signaled, the *cugIndex* attribute must be null. |
| Values | String (0..4, ASCII) |

| | |
|---|---|
| Default | "" |

### ATTRIBUTE X25Dte Peer networkUserIdentifier (nui)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the Network User Identifier facility to signal. A value of null (empty string) indicates no NUI facility is to be signaled. |
| Values | String (0..108, Hex) |
| Default | "" |

### ATTRIBUTE X25Dte Peer chargingInformation (cInfo)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies whether the charging information facility is signaled in the call request packet. A value of ***default*** indicates the use of the value from the *chargingInformation* attribute of the *X25Dte* component. A value of ***notSpecified*** means the facility is not signaled. A value of ***notRequested*** means the facility is signaled but charging information is not requested (that is, the charging info field of the facility is set Off). A value of ***requested*** means the facility is signaled to explicitly request charging information. |
| Values | default<br>notSpecified<br>notRequested<br>requested |
| Default | notSpecified |

### ATTRIBUTE X25Dte Peer rpoa (rp)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the RPOA facility to signal in a call request packet. A value of "***DEF***" indicates the use of the value from the *rpoa* attribute of the *X25Dte* component. A value of null (empty string) indicates no RPOA facility is to be signaled. |
| Values | String (0..108, ASCII) |

| | |
|---|---|
| Default | "" |

### ATTRIBUTE X25Dte Peer trnstDlySlctnAInd (tdsai)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the value of the Transit Delay Selection and Indication facility to signal in a call request packet. A value of ***65536*** indicates no facility is signaled. A value of 65537 indicates the use of the value from the *trnstDlySlctnAInd* attribute of the *X25Dte* component. |
| Values | Decimal (0..65537) |
| Default | 65536 |

### ATTRIBUTE X25Dte Peer callingNetworkFax (clgNFax)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the Calling Network facilities to signal in a call request packet. The facilities are encoded here exactly as they are encoded in the call packet. These facilities do not include the marker facility code. A value of null (empty string) indicates the *callingNetworkFax* from the *X25Dte* are to be signaled. If that value is also null, no Calling Network Facilities are signaled. |
| Values | String (0..108, Hex) |
| Default | "" |

### ATTRIBUTE X25Dte Peer calledNetworkFax (cldNFax)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the Called Network facilities to signal in a call request packet. The facilities are encoded here exactly as they are encoded in the call packet. These facilities do not include the marker facility code. A value of null (empty string) indicates the *calledNetworkFax* from the *X25Dte* are to be signaled. If that value is also null, no Called Network Facilities are signaled. |
| Values | String (0..108, Hex) |
| Default | "" |

### ATTRIBUTE X25Dte Peer callUserData (cud)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the user data to signal in a call request packet. A value of null (empty string) indicates that the *callUserData* from the *X25Dte* is to be signaled. If *callUserData* of the *X25Dte* component is also null and *protocolEncType* of this *Peer* has the value ***IP***, H.CC will be signaled as the call user data of a call request packet. Thus for IP encapsulation according to RFC1356, both the *callUserData* from the *Peer* and *X25Dte* components must be null and the *protocolEncType* set to ***IP***. |
| Values | String (0..128, Hex) |
| Default | "" |

### GROUP X25Dte Peer Operational (Op)

| | |
|---|---|
| Properties | Operational |
| Description | This group provides the operational parameters for the *Peer* interface. |

### ATTRIBUTE X25Dte Peer lcnList (lcn)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the local logical channel numbers (*Lcn*) in use for the X.25 calls to the remote host identified by this *Peer* component. |
| List of | Decimal (1..4095) |
| List Size | 4095 |
| Default | No default |

### COMPONENT X25Dte PermLcn (PLcn)

| | |
|---|---|
| Instance | Decimal (1..4095) |
| Groups | "GROUP X25Dte PLcn Provisioned (Prov)" |
| Scope | Application |

| | |
|---|---|
| Description | *X25Dte/n PermLcn/n*<br><br>This component defines the parameters required for the Permanent logical channels of an X.25 interface. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete |

## GROUP X25Dte PLcn Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable parameters for the permanent logical channels (PLcns) on the X.25 interface (corresponding to Permanent Virtual Circuits (PVCs) provisioned on the Wide Area Network). |

## ATTRIBUTE X25Dte PLcn encAddressType (eAddrT)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the encapsulation type for the address of the remote host with which this *Peer* component allows communication. |
| Values | none<br>ip |
| Default | ip |

## ATTRIBUTE X25Dte PLcn encAddress (eAddr)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the encapsulation address of the remote host with which this *PermLcn* component defines a connection |
| Values | String (0..128, ASCII) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE X25Dte PLcn protocolEncType (pEnc)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the encapsulation method to use when exchanging protocol data units (PDUs) over this channel. ***IP*** and ***Null*** *protocolEncTypes* are as defined in RFC1356. ***NscNull*** is an encapsulation method for carrying IP datagrams which requires removing 3 padding octets of zeroes and the protocol identifier H.CC from the front of each data packet received from the link in order to obtain the PDU. PDUs sent to the link are propounded by a the protocol identifier H.CC. ***NscNull*** should only be set when the remote host is following this same encapsulation method. |
| Values | ip<br>null<br>nscNull |
| Default | ip |

### ATTRIBUTE X25Dte PLcn linkToRemoteGroup (lTRg)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the link to the *RemoteGroup*, indicating the *RemoteGroup* component with which this *PermLcn* component is associated. The *RemoteGroup* components logically divide up the X.25 Interface such that a number of Protocol Ports (and consequently a number of Virtual Routers) may share the same X.25 Interface into a Wide Area Network. In particular, the remote host identified by this *PermLcn* component is designated as belonging to the *RemoteGroup* linked by this attribute. The set of all *PermLcn* and *Peer* components which link to a given *RemoteGroup* determine the subset of remote hosts which are accessible to a particular Protocol Port (and ultimately a Virtual Router). |

| | |
|---|---|
| Values | Link (Service, linkToPermLcn) |
| Default | No default |

### ATTRIBUTE X25Dte PLcn inPacketSize (iPktSz)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the maximum receive packet size in octets. |
| Values | Decimal (16; 32; 64; 128; 256; 512; 1024; 2048; 4096) |
| Default | 128 |

### ATTRIBUTE X25Dte PLcn outPacketSize (oPktSz)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the maximum transmit packet size in octets. |
| Values | Decimal (16; 32; 64; 128; 256; 512; 1024; 2048; 4096) |
| Default | 128 |

### ATTRIBUTE X25Dte PLcn inWindowSize (iWdwSz)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the maximum receive window size. A *inWindowSize* greater than ***7*** is only valid when the *packetSequencing* attribute of the *X25Dte* component is set to ***modulo128***. |
| Values | Decimal (1..127) |
| Default | 2 |

## ATTRIBUTE X25Dte PLcn outWindowSize (oWdwSz)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute specifies the maximum transmit window size. A *outWindowSize* greater than ***7*** is only valid when the *packetSequencing* attribute of the *X25Dte* component is set to ***modulo128***. |
| Values | Decimal (1..127) |
| Default | 2 |

## COMPONENT X25Dte Lcn (Lcn)

| | |
|---|---|
| Instance | Decimal (1..4095) |
| Groups | "GROUP X25Dte Lcn OsiState (State)"<br>"GROUP X25Dte Lcn CallParameter (Cp)"<br>"GROUP X25Dte Lcn LcnStatus"<br>"GROUP X25Dte Lcn Statistics (Stats)" |
| Scope | Application |
| Description | *X25Dte/x Lcn/x*<br><br>This component contains information about a specific logical channel of an X.25 interface. |
| Common Verbs | Help<br>List<br>Display |

## VERB CLEAR X25Dte Lcn

| | |
|---|---|
| Impact | Service |
| Description | *CLEAR X25Dte/n Lcn/n*<br>This verb will cause the specified logical channel to close by signaling a clear packet to the link. It only affects SVCs. |

## VERB RESET X25Dte Lcn

| | |
|---|---|
| Impact | Service |
| Description | *RESET X25Dte/n Lcn/n*<br>This verb will cause the specified logical channel to reset, by sending a reset packet to the link. A reset will cause the data path to be flushed, so data packets in transition will be lost. |

## GROUP X25Dte Lcn OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

## ATTRIBUTE X25Dte Lcn adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |

| | |
|---|---|
| Default | unlocked |

### ATTRIBUTE X25Dte Lcn operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE X25Dte Lcn usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP X25Dte Lcn CallParameter (Cp)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the call parameters that are in use for this logical channel. For a PVC only the packet size and the window size attributes are meaningful. |

### ATTRIBUTE X25Dte Lcn inPacketSize (iPktSz)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the maximum receive packet size in octets. |
| Values | Decimal (16; 32; 64; 128; 256; 512; 1024; 2048; 4096) |
| Default | No default |

### ATTRIBUTE X25Dte Lcn outPacketSize (oPktSz)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the maximum transmit packet size in octets. |
| Values | Decimal (16; 32; 64; 128; 256; 512; 1024; 2048; 4096) |
| Default | No default |

### ATTRIBUTE X25Dte Lcn inWindowSize (iWdwSz)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the receive window size. |
| Values | Decimal (1..127) |
| Default | No default |

### ATTRIBUTE X25Dte Lcn outWindowSize (oWdwSz)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the transmit window size. |
| Values | Decimal (1..127) |

| | |
|---|---|
| Default | No default |

### ATTRIBUTE X25Dte Lcn proposeReverseCharging (pRC)

| | |
|---|---|
| Access | Read only |
| Description | Specifies whether local/reverse charging was negotiated for this logical channel. To determine which end of the channel is paying for the call, this attribute must be examined in combination with the *callDirection* attribute. For example, if this attribute is set to ***reverse*** and the *callDirection* attribute indicates ***incoming***, it means the incoming call signaled reverse charging, so the local end of the channel is being charged. On the other, if the value of this attribute is ***reverse*** and the *callDirection* is ***outgoing***, it means that the call request sent to the link signaled reverse charging; so the remote end is charged. Similarly, a value of ***local*** must also be interpreted in combination with the *callDirection* to determine which end is being charged. If the value of the *callDirection* attribute is ***plcn***, the *proposeReverseCharging* attribute is meaningless. |
| Values | reverse<br>local |
| Default | local |

### ATTRIBUTE X25Dte Lcn fastSelect (fSel)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether the fast select was used in establishing this logical channel. |
| Values | unrestricted<br>restricted<br>no |
| Default | no |

### ATTRIBUTE X25Dte Lcn outThroughputClassSize (oTpCSz)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the transmit throughput class. |

| | |
|---|---|
| Values | 75<br>150<br>300<br>600<br>1200<br>2400<br>4800<br>9600<br>19200<br>48000<br>64000<br>notSpecified |
| Default | notSpecified |

### ATTRIBUTE X25Dte Lcn inThroughputClassSize (iTpCSz)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the receive throughput class. |
| Values | 75<br>150<br>300<br>600<br>1200<br>2400<br>4800<br>9600<br>19200<br>48000<br>64000<br>notSpecified |
| Default | notSpecified |

### ATTRIBUTE X25Dte Lcn cugIndex (cI)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the index of the Closed User Group facility used in establishing this logical channel. |
| Values | String (0..4, ASCII) |

| | |
|---|---|
| Default | "" |

### ATTRIBUTE X25Dte Lcn cugoaIndex (coa)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the index of the Closed User Group with Outgoing Access facility used in establishing this logical channel. |
| Values | String (0..4, ASCII) |
| Default | "" |

### ATTRIBUTE X25Dte Lcn networkUserIdentifier (nui)

| | |
|---|---|
| Access | Read only |
| Description | Specifies the Network User Identifier used for this logical channel. |
| Values | String (0..108, Hex) |
| Default | "" |

### ATTRIBUTE X25Dte Lcn chargingInformation (cInfo)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates whether or not the charging information facility was used in establishing this logical channel. A value of ***notSpecified*** means the facility was not signaled. A value of ***notRequested*** means the facility was signaled but charging information was not requested (that is, the charging info field of the facility was set Off). A value of ***requested*** means the facility was signaled to explicitly request charging information. |
| Values | notSpecified<br>notRequested<br>requested |
| Default | notSpecified |

### ATTRIBUTE X25Dte Lcn rpoa (rp)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the RPOA facility which was signaled in establishing this logical channel. |
| Values | String (0..108, ASCII) |
| Default | "" |

### ATTRIBUTE X25Dte Lcn trnstDlySlctnAInd (tdsai)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Transit Delay Selection and Indication value used for this logical channel. A value of ***65536*** means no facility was signaled. |
| Values | Decimal (0..65536) |
| Default | 65536 |

### ATTRIBUTE X25Dte Lcn callingNetworkFax (clgNFax)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the Calling Network facilities which were signaled in the call packet. A value of null (empty string) means no calling network facilities were signaled. |
| Values | String (0..108, Hex) |
| Default | "" |

### ATTRIBUTE X25Dte Lcn calledNetworkFax (cldNFax)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the called network facilities which were signaled in the call packet. A value of null (empty string) means no called network facilities were signaled. |
| Values | String (0..108, Hex) |
| Default | "" |

### ATTRIBUTE X25Dte Lcn callUserData (cud)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute indicates the user data which was signaled in the call packet. A value of null (empty string) means no user data was signaled. |
| Values | String (0..128, Hex) |
| Default | "" |

### GROUP X25Dte Lcn LcnStatus

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the status for an X.25 Logical Channel. |

### ATTRIBUTE X25Dte Lcn status

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the current state of the logical channel. |
| Values | closed<br>calling<br>dataTransfer<br>clearing<br>resetting |
| Default | No default |

### ATTRIBUTE X25Dte Lcn callDirection (cDir)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the direction of the call that caused the establishment of this channel. |
| Values | incoming<br>outgoing<br>permanentLcn |
| Default | No default |

### ATTRIBUTE X25Dte Lcn calledAddress (cldAddr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the called X.25 address to which the call is established. |

| | |
|---|---|
| Values | BCD (0..15) |
| Default | No default |

### ATTRIBUTE X25Dte Lcn callingAddress (clgAddr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the calling X.25 address from which the call originated |
| Values | BCD (0..15) |
| Default | No default |

### ATTRIBUTE X25Dte Lcn originalCalledAddress (oCldAddr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the X.25 address of the originally called DTE to which the call was attempted. This could be different from the value of the *calledAddress* attribute in the case where the original call was redirected. |
| Values | BCD (0..15) |
| Default | No default |

### GROUP X25Dte Lcn Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the operational statistics for an X.25 Logical Channel. |

### ATTRIBUTE X25Dte Lcn inUknownProtocols (iUP)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number packets received from link which were discarded because of an unknown or unsupported protocols. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE X25Dte Lcn inDataOctets (iDOct)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of octets of user data received from the link. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE X25Dte Lcn inDataPackets (iDPkts)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of data packets received from the link. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE X25Dte Lcn inRmtInitiatedRsts (iRIRsts)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of reset packets, with a cause code of “DTE initiated”, which were received from the link |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE X25Dte Lcn inPrvdrInitiatedRsts (iPIRsts)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of reset packets, with a cause code other than “DTE initiated”, which were received from the link. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE X25Dte Lcn inInterruptPackets (iIntPkts)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the number of interrupt packets received from the link. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE X25Dte Lcn outDataOctets (oDOct)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of octets of user data sent to the link. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE X25Dte Lcn outDataPackets (oDPkts)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of data packets sent to link. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE X25Dte Lcn outInterruptPackets (oIntPkts)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of interrupt packets sent to link. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE X25Dte Lcn t22ResetTimeouts (t22Tmo)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times the t22 reset timer has expired. |
| Values | Decimal (0..4294967295) |

| | |
|---|---|
| Default | 0 |

## COMPONENT X25Dte Lapb

| | |
|---|---|
| Groups | "GROUP X25Dte Lapb ControlParam (Cp)"<br>"GROUP X25Dte Lapb OsiState (State)"<br>"GROUP X25Dte Lapb Status"<br>"GROUP X25Dte Lapb Statistics (Stats)" |
| Scope | Application |
| Description | This component defines the LAPB protocol and its related service options. |
| Subcomponents | "COMPONENT X25Dte Lapb Framer" |
| Common Verbs | Help<br>List<br>Display |

## GROUP X25Dte Lapb ControlParam (Cp)

| | |
|---|---|
| Properties | Provisioned |
| Description | X25Dte/n Lapb<br>This group contains the set of configuration parameters for the LAPB interface. |

## ATTRIBUTE X25Dte Lapb stationType (type)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the DCE or the DTE role of operation for the LAPB interface. Changing this attribute will cause the lapb link to Reset. |
| Values | dte<br>dce |
| Default | dte |

## ATTRIBUTE X25Dte Lapb frameSequencing (fs)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | This attribute specifies the modulo of the frame sequence numbering of the LAPB interface. Changing this attribute will cause the lapb link to Reset. |
| Values | modulo8<br>modulo128 |
| Default | modulo8 |

### ATTRIBUTE X25Dte Lapb n1FrameSize (n1)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum frame size in bits that can be transmitted or received. This value must be greater than or equal to the maximum packet size across the interface(in bits)+ max level 3 header size(in bits)+ max level 2 header size(in bits)+ crc in bits.<br><br>(max Pkt size + ----------> 4096*8<br>max level 3 header size + ---> 4*8<br>level 2 header size + --------> 5*8<br>crc ----------> 2*8) |
| Values | Decimal (40..32856) |
| Units | bits |
| Default | 32856 |

### ATTRIBUTE X25Dte Lapb kWindowSize (k)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the window size. This is the maximum number of unacknowledged sequenced frames that may be outstanding from or to this interface at any one time. A window size of greater than 7 is only valid when the sequence numbering of frames is modulo 128. |
| Values | Decimal (1..127) |
| Default | 7 |

### ATTRIBUTE X25Dte Lapb n2TransmitLimit (n2)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum number of times a frame can be transmitted before appropriate recovery action is taken. |
| Values | Decimal (1..20) |
| Default | 10 |

### ATTRIBUTE X25Dte Lapb t1AckTimer (t1)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the period in milliseconds within which an acknowledgment of a sent frame must be received. The value set for t1 ack timer must be less than the value set for the t4 idle probe timer. |
| Values | Decimal (1000..10000) |
| Units | msec |
| Default | 3000 |

### ATTRIBUTE X25Dte Lapb t2AckDelayTimer (t2)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the maximum period in milliseconds permissible to wait before sending an acknowledgment for a received in sequenced I-frame. A value of 0 means there will be no delay in acknowledgment. |
| Values | Decimal (0..10000) |
| Units | msec |
| Default | 0 |

### ATTRIBUTE X25Dte Lapb t4IdleProbeTimer (t4)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the time period in milliseconds the link will be permitted to remain idle (that is, no frames are exchanged |

| | |
|---|---|
| | on the data link). Upon expiry of this timer, LAPB will poll its peer for status. The value set for t4 idle probe timer must be greater than the value set for the t1 ack timer. |
| Values | Decimal (1000..65535000) |
| Units | msec |
| Default | 60000 |

### ATTRIBUTE X25Dte Lapb actionInitiate (ai)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the action to be taken by the LAPB interface to initiate link setup. |
| Values | sendSABM<br>sendDM<br>none |
| Default | sendSABM |

### ATTRIBUTE X25Dte Lapb actionRecvDM (ardm)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the action to be taken by the LAPB interface when it receives a DM response. |
| Values | sendSABM |
| Default | sendSABM |

### ATTRIBUTE X25Dte Lapb txQDegradeThreshold (txdt)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the threshold of the number of higher layer packets queued, beyond which LAPB should initiate a service degrade alarm. A value of 65536 means no threshold. |
| Values | Decimal (1..65536) |
| Default | 65536 |

### ATTRIBUTE X25Dte Lapb txQResetThreshold (txrt)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the threshold of the number of higher layer packets queued, beyond which LAPB should initiate an overload alarm and reset the link. A value of 65536 means no threshold. |
| Values | Decimal (1..65536) |
| Default | 65536 |

### GROUP X25Dte Lapb OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE X25Dte Lapb adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.<br><br>The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.<br><br>The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component. |

| | |
|---|---|
| Values | locked (lck)<br>unlocked (unlck)<br>shuttingDown (shut) |
| Default | unlocked |

### ATTRIBUTE X25Dte Lapb operationalState (osiOper)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Operational State of the component.<br><br>The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.<br><br>The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***. |
| Values | enabled (ena)<br>disabled (dis) |
| Default | disabled |

### ATTRIBUTE X25Dte Lapb usageState (osiUsage)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Usage State of the component.<br><br>The value ***idle*** indicates that the component is not currently in use.<br><br>The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.<br><br>The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time. |

| | |
|---|---|
| Values | idle<br>active (activ)<br>busy |
| Default | idle |

### GROUP X25Dte Lapb Status

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the status for the LAPB interface. |

### ATTRIBUTE X25Dte Lapb currentState (cs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the current state of the LAPB interface. |
| Values | disconnected<br>linkSetup<br>frameReject<br>disconnectRequest<br>informationTransfer<br>waitingAck |
| Default | No default |

### ATTRIBUTE X25Dte Lapb lastStateChangeReason (lscr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the reason for the most recent state change. |
| Values | notStarted<br>abmEntered<br>abmeEntered<br>abmReset<br>abmeReset<br>dmReceived<br>dmSent<br>discReceived<br>discSent<br>frmrReceived<br>frmrSent |

| | |
|---|---|
| | n2TimeOut<br>other |
| Default | No default |

### ATTRIBUTE X25Dte Lapb frmrTransmit (frmrtx)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the Information field of the FRMR most recently sent. |
| Values | String (0..7, Hex) |
| Default | "" |

### ATTRIBUTE X25Dte Lapb frmrReceive (frmrrx)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the Information field of the FRMR most recently received. |
| Values | String (0..7, Hex) |
| Default | "" |

### ATTRIBUTE X25Dte Lapb currentQueueSize (cqs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute specifies the number of packets on the lapb transmit queue. |
| Values | Decimal (0..4294967295) |
| Default | No default |

### GROUP X25Dte Lapb Statistics (Stats)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the statistics for the LAPB interface. |

### ATTRIBUTE X25Dte Lapb stateChanges (sc)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the number of times LAPB state has changed. Refer to the attribute “linkState” for the set of possible states. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE X25Dte Lapb remoteBusy (rb)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of times transmission of an I-frame was un-successful due to a perceived remote busy condition (window closed or remote busy). |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE X25Dte Lapb transmitRejectFrames (txrejs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of REJ frames sent by the interface. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE X25Dte Lapb receiveRejectFrames (rxrejs)

| | |
|---|---|
| Access | Read only |
| Description | This attribute counts the number of REJ frames received by the interface. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE X25Dte Lapb t1AckTimeout (t1Tmo)

| | |
|---|---|
| Access | Read only |

| | |
|---|---|
| Description | This attribute counts the number of times the T1 timer has expired. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

## COMPONENT X25Dte Lapb Framer

| | |
|---|---|
| Groups | "GROUP X25Dte Lapb Framer Provisioned (Prov)"<br>"GROUP X25Dte Lapb Framer LinkOptions (Link)"<br>"GROUP X25Dte Lapb Framer OsiState (State)"<br>"GROUP X25Dte Lapb Framer Statistics (Stats)"<br>"GROUP X25Dte Lapb Framer LinkUtilization (Util)" |

"COLLECTED STATS X25Dte Lapb Framer"

| | |
|---|---|
| Scope | Application |
| Description | *X25Dte/n Lapb Framer*<br><br>The *Framer* component controls link layer framing for application components sending and receiving data on a link interface. It is also through *Framer*, that an application component is associated with a specific hardware link interface.<br><br>The *Framer* component provides provisionable attributes related to datapath aspects of the hardware interface (such as crc and frame length) rather than interface specific attributes (such as modem leads and clocking) which are associated with specific hardware components (such as *V35/n* or *DS1/n*). The *Framer* component also provides a provisionable attribute which binds the application component to a specific hardware component.<br><br>The *Framer* component contains operational attributes for link interface datapath statistics (such as frame counts and aborts). |
| Common Verbs | Help<br>List<br>Display |

### GROUP X25Dte Lapb Framer Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the base provisioning data for the *Framer* component. Application or hardware interface specific provisioning data is contained in other provisionable *Framer* groups. |

### ATTRIBUTE X25Dte Lapb Framer interfaceName

| | |
|---|---|
| Access | Read and write |
| Criticality | Process |
| Description | This attribute contains a hardware component name.<br><br>The attribute associates the application with a specific link. This defines the module processor on which *Framer*'s parent component (as well as *Framer* itself) will run. |
| Values | Link (Hardware, applicationFramerName) |
| Default | No default |

### GROUP X25Dte Lapb Framer LinkOptions (Link)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains attributes defining the framing of data on the link interface. |

### ATTRIBUTE X25Dte Lapb Framer flagsBetweenFrames

| | |
|---|---|
| Access | Read and write |
| Description | This attribute defines the number of flags that are inserted between frames sent to the link interface. |
| Values | Decimal (1..16) |
| Default | 1 |

### GROUP X25Dte Lapb Framer OsiState (State)

| | |
|---|---|
| Properties | Operational |

Description

This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP.

## ATTRIBUTE X25Dte Lapb Framer adminState (osiAdmin)

Access

Read only

Description

This attribute indicates the OSI Administrative State of the component.

The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values

locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default

unlocked

## ATTRIBUTE X25Dte Lapb Framer operationalState (osiOper)

Access

Read only

Description

This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be

providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values: enabled (ena)
disabled (dis)

Default: disabled

### ATTRIBUTE X25Dte Lapb Framer usageState (osiUsage)

Access: Read only

Description: This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values: idle
active (activ)
busy

Default: idle

### GROUP X25Dte Lapb Framer Statistics (Stats)

Properties: Operational

Description: This group contains the operational statistics data for a Framer component.

### ATTRIBUTE X25Dte Lapb Framer aborts

Access: Read only

Description: This attribute is the total number of aborts received.

| | |
|---|---|
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE X25Dte Lapb Framer crcErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of frames with CRC errors, occurring in the receive direction from the link. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE X25Dte Lapb Framer lrcErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of frames with LRC errors, occurring in the Tx link prior to transmission onto the link. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE X25Dte Lapb Framer nonOctetErrors

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of frames that were non octet aligned. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE X25Dte Lapb Framer overruns

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of frames received from the link for which overruns occurred. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE X25Dte Lapb Framer underruns

| | |
|---|---|
| Access | Read only |
| Description | This attribute is the total number of frames transmitted to the link for which underruns occurred. |
| Values | Decimal (0..4294967295) |
| Default | 0 |

### ATTRIBUTE X25Dte Lapb Framer frmToIf

| | |
|---|---|
| Access | Read only |
| Description | The number of frames transmitted to the link interface by Framer.<br><br>Note: This does not include the number of frames transmitted directly to the hardware queue, thus bypassing the Framer component. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE X25Dte Lapb Framer frmFromIf

| | |
|---|---|
| Access | Read only |
| Description | The number of frames received from the link interface by Framer. |
| Values | Long Integer |
| Default | No default |

### ATTRIBUTE X25Dte Lapb Framer octetFromIf

| | |
|---|---|
| Access | Read only |
| Description | The number of bytes received from the link interface by Framer. |
| Values | Long Integer |
| Default | No default |

### GROUP X25Dte Lapb Framer LinkUtilization (Util)

| | |
|---|---|
| Properties | Operational |

Description This group contains the link utilization operational data for a Framer component.

### ATTRIBUTE X25Dte Lapb Framer normPrioLinkUtilToIf

Access Read only

Description This attribute is the utilization of the normal and high priority data traffic (interruptible traffic) sent to the link as a percentage of the available bandwidth on the link. Note that this includes traffic with Transfer Priorities of 0, 6 and 9 and/or Emission Priority of 2 and 3. The utilization is the average for the last minute.

Values Decimal (0..100)

Units %

Default 0

### ATTRIBUTE X25Dte Lapb Framer normPrioLinkUtilFromIf

Access Read only

Description This attribute is the utilization of the normal and high priority data traffic (interruptible traffic) received from the link as a percentage of the available bandwidth on the link. Note that this includes traffic with Transfer Priorities of 0, 6 and 9 and/or Emission Priority of 2 and 3. The utilization is the average for the last minute.

Values Decimal (0..100)

Units %

Default 0

## COLLECTED STATS X25Dte Lapb Framer

Description The statistics record generated by the X25Dte Lapb Framer component.

### ATTRIBUTE X25Dte Lapb Framer rxBytes

Description This attribute provides the number of bytes received on the link by the Framer in the last collection interval.

Values Long Integer

### ATTRIBUTE X25Dte Lapb Framer rxFrames

Description This attribute provides the number of frames received on the link interface by the Framer in the last collection interval.

Values Long Integer

### ATTRIBUTE X25Dte Lapb Framer txBytes

Description This attribute provides the number of bytes transmitted to the link by the Framer in the last collection interval. This value could be zero if the application sends the frames directly to the link.

Values Long Integer

### ATTRIBUTE X25Dte Lapb Framer txFrames

Description This attribute provides the number of frames transmitted to the link interface by the Framer in the last collection interval. This value could be zero if the application sends the frames directly to the link.

Values Long Integer

### ATTRIBUTE X25Dte Lapb Framer rxTotalLinkUtil

Description This attribute provides the average total link utilization computed based on the total number of bytes received on the link in the last collection interval.

Values Decimal (0..100)

## COMPONENT X25Dte PacketLayerEntity (Ple)

Groups "GROUP X25Dte Ple Provisioned (Prov)"
"GROUP X25Dte Ple Operational (Op)"

Scope Application

Description *X25Dte/n PacketLayerEntity*

This component provides information that applies to multiprotocol interconnect over an X.25 service.

| | |
|---|---|
| Common Verbs | Help<br>List<br>Display |

### GROUP X25Dte Ple Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes relevant to an interface used to carry Multiprotocol Interconnect traffic over X.25. |

### ATTRIBUTE X25Dte Ple inactivityTimer (iTmr)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the period in milliseconds this interface will keep an idle connection open before closing it. |
| Values | Decimal (0..65536000) |
| Default | 180000 |

### GROUP X25Dte Ple Operational (Op)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the Operational attributes relevant to an interface used to carry Multiprotocol Interconnect traffic over X.25. |

### ATTRIBUTE X25Dte Ple encAddrToX25LkupFlrs (enAddrTX25Flr)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the number of times a translation attempt from an Encapsulation address to an X.25 address failed to find a corresponding X.25 address. Such a failure could occur when a Protocol Port, linked to a *RemoteGroup* via the *linkToProtocolPort* attribute of the *RemoteGroup*, requests through the software that a X.25 call be established to a particular Encapsulation address. If the *RemoteGroup* does not have a *Peer* |

component linked in its *linkToPeer* attribute list, with the *encAddress* attribute equal to the Encapsulation address specified, this counter will be incremented, because the corresponding *Peer* component needed to establish an X.25 connection was not found.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE X25Dte Ple lastFailedEncAddr (lFEnaddr)

Access: Read only

Description: This attribute indicates the last Encapsulation address for which no corresponding X.25 address was found and thus caused *encAddressToX25LkupFlrs* to be incremented.

Values: String (2..128, Hex)

Default: No default

### ATTRIBUTE X25Dte Ple x25AddrToEncLkupFlrs (x25AddrTEnFlr)

Access: Read only

Description: This attribute indicates the number of times a translation attempt from an X.25 address to an Encapsulation address failed to find a corresponding Encapsulation address. Such a failure could occur when a incoming call received from the link by the X.25 DTE is directed to a specific *RemoteGroup* because the called address matches the *localAddress* attribute of the *RemoteGroup* component. If the *RemoteGroup* component does not have a *Peer* component linked in its *linkToPeer* attribute list, with the *x25Address* attribute equal to the calling address from the incoming call packet, there is no appropriate *Peer* component, so the call is cleared and this counter is incremented.

Values: Decimal (0..4294967295)

Default: 0

### ATTRIBUTE X25Dte Ple lastFailedX25Addr (lFX25Addr)

Access: Read only

| | |
|---|---|
| Description | This field specifies the last X.25 address that caused *x25AddressToEncLkupFlrs* to be incremented. |
| Values | BCD (0..15) |
| Default | No default |

## COMPONENT X25Dte RemoteGroup (Rg)

| | |
|---|---|
| Instance | Decimal (1..1023) |
| Groups | "GROUP X25Dte Rg IfEntryProv (IfEntry)"<br>"GROUP X25Dte Rg Provisioned (Prov)"<br>"GROUP X25Dte Rg OsiState (State)"<br>"GROUP X25Dte Rg OperationalStatus (OperStatus)"<br>"GROUP X25Dte Rg Operational (Op)" |
| Scope | Application |
| Description | *X25Dte/n RemoteGroup/n*<br><br>At least one *RemoteGroup* is required for each *X25Dte* component. The *RemoteGroup* allows the X.25 DTE interface to be shared amongst a number of Protocol Ports. This allows separate Virtual Routers to share the same physical X.25 connection into a Wide Area Network. |
| Common Verbs | Help<br>List<br>Display<br>Add<br>DELete<br>LOCK<br>Unlock |

## GROUP X25Dte Rg IfEntryProv (IfEntry)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes for the ifEntry. |

## ATTRIBUTE X25Dte Rg ifAdminStatus (ifState)

| | |
|---|---|
| Access | Read and write |

| | |
|---|---|
| Description | The desired state of the interface. The ***up*** state indicates the interface is operational. The ***down*** state indicates the interface is not operational. The ***testing*** state indicates that no operational packets can be passed. |
| Values | up<br>down<br>testing |
| Default | up |

### ATTRIBUTE X25Dte Rg ifIndex (ifI)

| | |
|---|---|
| Access | Read: Passive<br>Write: Debug |
| Criticality | Component |
| Description | This is the index for the IfEntry. Its value is automatically initialized during the provisioning process. |
| Values | Decimal (1..65535) |
| Default | No default |

### GROUP X25Dte Rg Provisioned (Prov)

| | |
|---|---|
| Properties | Provisioned |
| Description | This group contains the provisionable attributes of the *RemoteGroup* component. |

### ATTRIBUTE X25Dte Rg linkToProtocolPort

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute contains a protocol port component name. The attribute associates the application with a protocol port. |
| Values | Link (Service, linkToMedia) |
| Default | No default |

### ATTRIBUTE X25Dte Rg localAddress (lAddr)

| | |
|---|---|
| Access | Read and write |
| Criticality | Component |
| Description | This attribute contains the unique X.25 address which identifies this *RemoteGroup*. It should correspond to the called address in X.25 incoming call packets which are to be directed to this *RemoteGroup*. This allows calls received from the link to be directed to the appropriate *RemoteGroup* based on the called address in the X.25 call packet. The *RemoteGroup* components allow the X.25 interface to be shared amongst a number of Protocol Ports (and ultimately Virtual Routers) because each *RemoteGroup* is coupled with a specific *ProtocolPort* through its *linkToProtocolPort* attribute. |
| Values | BCD (1..15) |
| Default | No default |

### ATTRIBUTE X25Dte Rg mtuSize (mtuSz)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute specifies the Maximum Transmit Unit (MTU); that is, the size of the largest datagram (in octets) which can be sent/ received on the interface. |
| Values | Decimal (576..9188) |
| Units | octets |
| Default | 1600 |

### ATTRIBUTE X25Dte Rg linkToPermLcn (lTPlcn)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute is a list of links to *PermLcn* components. The set of all *Peer* and *PermLcn* components which link to a given *RemoteGroup* determine the subset of remote hosts which are accessible to a particular Protocol Port (and ultimately a Virtual Router). |

| | |
|---|---|
| List of | Link (Service, linkToRemoteGroup) |
| List Size | 4095 |
| Default | No default |

### ATTRIBUTE X25Dte Rg linkToPeer (ltPeer)

| | |
|---|---|
| Access | Read and write |
| Description | This attribute gives a list of links to *Peer* components. The set of all *Peer* and *PermLcn* components which link to a given *RemoteGroup* determine the subset of remote hosts which are accessible to a particular Protocol Port (and ultimately a Virtual Router). |
| List of | Link (Service, linkToRemoteGroup) |
| List Size | 4095 |
| Default | No default |

### GROUP X25Dte Rg OsiState (State)

| | |
|---|---|
| Properties | Operational |
| Description | This group contains the three OSI State attributes. The descriptions generically indicate what each state attribute implies about the component. Note that not all the values and state combinations described here are supported by every component which reuses this group. For component-specific information and the valid state combinations, refer to the appropriate NTP. |

### ATTRIBUTE X25Dte Rg adminState (osiAdmin)

| | |
|---|---|
| Access | Read only |
| Description | This attribute indicates the OSI Administrative State of the component.<br><br>The value ***locked*** indicates that the component is administratively prohibited from providing services for its users. A *Lock -force* or *Lock* command has been previously issued for this component. |

When the value is ***locked***, the value of *usageState* must be ***idle***.

The value ***shuttingDown*** indicates that the component is administratively permitted to provide service to its existing users only. A *Lock* command was issued against the component and it is in the process of shutting down.

The value ***unlocked*** indicates that the component is administratively permitted to provide services for its users. To enter this state, issue an *Unlock* command to this component.

Values
locked (lck)
unlocked (unlck)
shuttingDown (shut)

Default
unlocked

### ATTRIBUTE X25Dte Rg operationalState (osiOper)

Access
Read only

Description
This attribute indicates the OSI Operational State of the component.

The value ***enabled*** indicates that the component is available for operation. Note that if *adminState* is ***locked***, it would still not be providing service.

The value ***disabled*** indicates that the component is not available for operation. For example, something is wrong with the component itself, or with another component on which this one depends. If the value is ***disabled***, the *usageState* must be ***idle***.

Values
enabled (ena)
disabled (dis)

Default
disabled

### ATTRIBUTE X25Dte Rg usageState (osiUsage)

Access
Read only

Description
This attribute indicates the OSI Usage State of the component.

The value ***idle*** indicates that the component is not currently in use.

The value ***active*** indicates that the component is in use and has spare capacity to provide for additional users.

The value ***busy*** indicates that the component is in use and has no spare operating capacity for additional users at this time.

Values
idle
active (activ)
busy

Default
idle

### GROUP X25Dte Rg OperationalStatus (OperStatus)

Properties
Operational

Description
This group includes the Operational Status attribute. This attribute defines the current operational state of this component.

### ATTRIBUTE X25Dte Rg snmpOperStatus

Access
Read only

Description
The current state of the interface. The ***up*** state indicates the interface is operational and capable of forwarding packets. The ***down*** state indicates the interface is not operational, thus unable to forward packets. ***testing*** state indicates that no operational packets can be passed.

Values
up
down
testing

Default
up

### GROUP X25Dte Rg Operational (Op)

Properties
Operational

Description
This group gives the operational attributes of the *RemoteGroup* component.

## ATTRIBUTE X25Dte Rg lcnList (lcn)

| | |
|---|---|
| Access | Read only |
| Description | This attribute lists the *Lcn* components for the *X25Dte*, which belong to this *RemoteGroup*. There is an *Lcn* component listed here for every lcn connection belonging to this *RemoteGroup*. The lcns were established using either a *Peer* component linked to this *RemoteGroup* (in response to a switched call) or using a *PermLcn* component linked to this *RemoteGroup* (a permanent connection). |
| List of | Decimal (1..4095) |
| List Size | 4095 |
| Default | No default |

Passport 7400, 15000, 20000

# Component X25Dte

Release 5.2

Copyright © 2003 Nortel Networks.
All Rights Reserved.

NORTEL, NORTEL NETWORKS, the globemark design, the NORTEL NETWORKS corporate logo, DPN and PASSPORT are trademarks of Nortel Networks.

Publication: 241-5701-060
Document status: Standard
Document version: 5.2S1
Document date: November 2003
Printed in Canada